

Springer Proceedings in Business and Economics

Anastasios Karasavvoglou
Srećko Goić
Persefoni Polychronidou
Pavlos Delias *Editors*

Economy, Finance and Business in Southeastern and Central Europe

Proceedings of the 8th International
Conference on the Economies of the
Balkan and Eastern European Countries
in the Changing World (EBEEC) in Split,
Croatia, 2016

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Springer Proceedings in Business and Economics

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ISSN 2198-7246 ISSN 2198-7254 (electronic)
Springer Proceedings in Business and Economics
ISBN 978-3-319-70376-3 ISBN 978-3-319-70377-0 (eBook)
<https://doi.org/10.1007/978-3-319-70377-0>

Library of Congress Control Number: 2018937388

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Printed on acid-free paper

This Springer imprint is published by the registered company Springer International Publishing AG part of Springer Nature.

The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

This volume includes papers presented at the 8th international conference “The Economies of the Balkan and Eastern European Countries in the Changing World”—EBEEC 2016. It was organized jointly by the Technological Educational Institute (TEI) of Eastern Macedonia and Thrace, Department of Accounting and Finance (Greece) and the University of Split, Faculty of Economics (Croatia), and took place in Split, Croatia, on May 6–8, 2016. The conference’s general aim to present scientific papers and researches of theoretical and empirical character about the economies and business in this region brought together more than 200 papers prepared by more than 300 authors from 32 countries from the region and all over the world.

The proceedings of the conference are of great interest since the papers are the scientific results of researches regarding current issues in international economies, European integration, economic growth, economic crises, macroeconomics, finance, banking, stock market, accounting, education, tourism, labour market, energy, innovation, management and marketing in the wider area of Eastern Europe.

Our aim is to highlight that there are new and genuine knowledge and ideas of scientists in economics and in several specific fields like business, finance, European economies, macroeconomics, tourism, labour market, management and marketing. The region of Balkan and Eastern Europe is, after all, a region that has played an important role in European and world history and has affected processes and changes in the economies of all European countries.

Kavala, Greece
Split, Croatia
Serres, Greece
Kavala, Greece

Anastasios Karasavvoglou
Srećko Goić
Persefoni Polychronidou
Pavlos Delias

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The End of Euro



Miroslav Prokopijević

I think within the next 10 to 15 years the eurozone will split apart.

Milton Friedman, according to: London, S. 2003.
Milton Friedman. Lunch with the FT, Financial Times, June 06.

Abstract Euro was introduced to extend and strengthen the euro-integrations, but it might in turn blow them up. There is neither an econometric model nor conclusive inference to prove that euro and eurozone, as we know them, will disappear. Nevertheless, construction problems, misfortunate political decisions in monetary matters, breach of fundamental rules of the game, and their poor enforcement had created and strengthened incentives working against the survival of the zone. In order to survive, the eurozone needs to address three problems. First, who is going to pay debts of troubled countries? Second, how to keep fiscal discipline in the eurozone in order to avert another debt crisis? Third, how to regain competitiveness, not only in the troubled eurozone countries but in the whole EU? For now, the eurozone has partial answers to the first two questions, but it is short of a comprehensive and viable solution. A demise of euro and eurozone seems to be a setback to nanny state and a step toward getting rid of it in Europe.

Keywords Euro • Eurozone • Debt crisis • Mismanagement • Social welfare state

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1 Problems Rooted in History

The euro was launched in 1999 in order to extend and strengthen the European integrations. It is said that one market needs one currency. That, naturally, does not hold, since common market may function better with different currencies, allowing mutual exchange rate adjustments, than with only one that excludes such an option. The truth is that the introduction of the euro ended currency fluctuations for currencies in the basket, fostered trade inside the zone, and reduced transaction costs. But it also brought some new problems. One currency is not a good solution for different economies because they move with the different dynamics and need different monetary policies. Countries entering the eurozone have lost the main instrument of adjustment, currency depreciation/appreciation. Monetary unstable country members have obtained additional security, and they have started to borrow under artificially favorable conditions, which has caused problems with excessive spending, while risks were shifted to the eurozone as a whole. Despite apparent problems with the single currency, the euro was considered as a vehicle of the European integrations. Nobody politically influential among European political nomenclature dared to confront the introduction of the euro and the creation of the eurozone.

To have qualified for the eurozone, countries needed to satisfy five conditions, and these were related to the inflation rate, budgetary balance, public debt, currency fluctuations, and long-term interest rates. The criteria were formulated in a way that would allow both monetary stable and inflationary currencies to pass the test. Although only three countries (Finland, France, and Luxembourg) satisfied all five conditions during the 2 years of qualifications in 1997 and 1998, 11¹ out of 15 European Union (EU) countries became members of the zone in 1999. Greece “qualified”² in 2001, while Sweden, the UK, and Denmark opted out. The euro came in circulation in 2002, and some of the EU newcomers have since become new eurozone members—Slovenia in 2007, Cyprus and Malta in 2008, Slovakia in 2009, Estonia in 2011, Latvia in 2014, and Lithuania in 2015. At the beginning of 2016, the zone encompassed 19 out of 28 EU member states.

The euro is the largest monetary experiment in history. It never happened before that 11 countries with 330 million inhabitants covering more than half of Europe abolished their national currencies and accepted a single newly created unit. Experiments need to pass the test of time. Hopes of the euro among European politicians were bright and high, while the voters in the member countries were divided, some even opposed. For example, 70% Germans preferred *Deutschemerk* to euro at the time of its introduction.³

¹Austria, Belgium, France, Finland, Germany, the Netherlands, Ireland, Italy, Luxembourg, Portugal, and Spain.

²The EU inspection found out in 2005 that Greek governments have cheated about the figures related to their budgetary balance 1998–2004.

³With the introduction of euro, 68% of Germans were “unhappy” and 3% “very unhappy.” Cf. Eurobarometer (2002, p. 74).

Leading monetary economists of the time were split over euro's chances. Robert Mundell strongly supported the monetary integration despite the fact that it did not represent "an optimal currency area," as he has depicted it. It was expected that labor immobility on the EU market may cause some socioeconomic strains in the zone. Never minded, he wrote: "The more countries join the bloc the greater will be the chance of success. Failure to go forward would be an awesome disappointment to those who see European Monetary Unification as the best catalyst for a stable economic and political order on the continent."⁴ Milton Friedman led the euro-skeptics that prevailed among famous monetary economists (like Allan H. Meltzer or Martin Feldstein 1997) of that time. He repeatedly said that one currency for quite different economies is a bad solution, that it prevents necessary trade adjustments, that a monetary union requires its fiscal equivalent, and that the first large crisis will be a real test for the new currency.⁵ European economists by and large supported the birth of the new currency, except the Germans, who were deeply divided.⁶

From the very beginning, the euro was more of a political than economic project, and this may be supported with several facts. Only three countries passed the required criteria, while 11 were allowed to join the currency union. Belgium and Italy ran public debts around 120% of their respective GDPs, exceeding double the allowed limit of 60%, and the European Monetary Institution, a predecessor of the European Central Bank (ECB), recommended that they needed to stay out. However, the European Council, a body consisting of heads of states or governments of the EU member states, overturned that recommendation by saying that it would undermine the euro and the integrations if the founders of the EC would be excluded from the eurozone. Nearly all countries have used "creative accounting" to reduce their deficit and debt in order to fit the membership criteria. It was a political decision to tolerate this practice. The optimism of European politicians in the mid-1990s concerning a great future for the euro indicates the fact that sanctions were not initially established for violation of the eurozone's five criteria. Only later

⁴Mundell (1997, p. 17).

⁵Antonio Martino (2008) has collected a number of Friedman's elaborations on the euro.

⁶The majority of German economists, including some famous names like Hans Werner Sinn, were in favor of the euro at the time of its inception. However, a group of 155 German influential economists wrote a petition against the introduction of a common currency, and later on brought the German government before the German Constitutional Court in Karlsruhe, but have lost the case. German economists pointed out in the petition that the euro came prematurely and that a single currency requires a larger liberalization in the labor market (to offset inflexible exchange rates) and structural reforms to enhance competitiveness and add: "In spite of an unusually low level of interest rates, hence reduced costs of debt service, and in spite of numerous examples of creative accounting, the core countries have not succeeded in reducing deficits markedly and sustainably below the 3% reference value. Moreover, the average debt ratio of the member states has not come down since 1991 but has risen by 15 percentage points. As a result, it now exceeds the 60% reference value of the Maastricht Treaty by a large margin. This is contrary to the spirit of the treaty." (Norman and Münchau 1998). At the site: <http://www.international.se/9802brdpr.htm> (accessed January 5, 2012).

on and under German pressure was the *Growth and Stability Pact* enacted in 1997, which sanctioned the violation of the budgetary limit of 3% of GDP, but the violation of the four other criteria was free of fines. Even the fine for the violation of the budgetary rule was rather symbolic—a maximum of 0.5% of the country's GDP. Does it make sense to punish a country with the amount of up to 0.5% of its GDP, if its deficit is 9% instead of allowed up to 3%? A weak punishment policy was also a matter of a political decision. There were 32 cases of budgetary rule violation in the eurozone from 1999 to 2008, and no single government was punished for that. In 2005, the countries exceeding the deficit limit got additional time to settle the matters, with deadlines extended up to 2013, again a political decision damaging euro. That there is something deeply wrong with the eurozone rules and their enforcement, one may conclude from the fact that Germany, a clear example of the fiscal discipline during the *Deutschemark* era, appears as a violator of the budgetary rule in all 4 years from 2002 to 2005. These developments mark some cornerstones of internal euro drama in a decade from 1999 to 2009. They were also visible from the outside, although they did not provoke larger upheavals inside the eurozone, and because of that, they have passed unnoticed by many economists, thus staying out of mainstream media. It is a surprise, in the light of eurozone management, that larger troubles had not appeared before.

2 The Beginning of Visible Problems

After 10 years of its relatively quiet existence, at least so for a foreign observer, the euro and eurozone experienced the first larger troubles at the end of 2009. Financial crisis that arrived to Europe from the USA in August 2008 hit banking and real sectors in the European Union and undermined public finances of its member states. Public finances were squeezed between lower revenues caused by the crisis and higher expenditures for state aid to economy (merely banks) and social aid to citizens affected by the crisis. Budgetary debts in the EU countries rose to record levels in 2009, exceeding single-digit numbers in some cases, and public debt reached record levels in a number of the zone's countries.

The very first country strained by these developments was Greece: high yields cut off the country from financial markets, and the politicians from the EU along with eurozone member countries started to think how to help Greece. However, the test of time proved that Greece is not the only problem in the eurozone. The two vital financial indicators, yields on debt service and insurance for deposits in commercial banks, also rose sharply for some other eurozone countries such as Portugal, Ireland, Italy, and Spain. Press promptly launched the acronym PIIGS to designate the eurozone troubled countries. Contrary to Greece, troubles in Ireland and Spain originated in the private sector. Heavy investments in real estate and construction have created the bubble. Financial crisis strongly reduced demand for

new apartments, real estate prices collapsed, and credits became nonperforming, which created holes in the Irish and Spanish banks. The main problem in Italy and Portugal is a combination of stagnant economies (with 15 years average growth rate below 0.4%) and higher public indebtedness. Portugal's public debt moved up 80% when Portuguese yields reached 7% and forced government to ask for financial assistance.

The eurozone political leaders did everything to put the topic off the table. They first rejected to recognize that there are problems. Afterward, they blamed financial markets for countries' debt problems and denied that they do have deeper cause by pointing out that they are temporary and that they are merely liquidity problems. Consequently, they intended to cure troubles with liquidity injections. They initially rejected an IMF involvement into aid arrangements for troubled countries with the justification that this would erode the reputation of the eurozone and EU, since this institution has to deal with troubled third-world countries. European authorities have failed to recognize that decades of bad economic policies have brought the seed of the "third world" back to Europe.

The eurozone leaders were not only ignorant about the cause; they also misperceived the size of the problem. In March 2010, they approved an 110 billion euros aid package to Greece and later on the aid packages to Ireland, Portugal, Spain, and Cyprus. In July 2011, the eurozone leaders recognized that Greece needs more aid and have approved another aid package of up to 130 billion euros to be followed by a third one of 86 billion euros in July 2015. The aid was granted to troubled countries in exchange for austerity measures⁷ and—it turned out—rather cosmetic reforms. European authorities have fought the debt crisis in a remarkable way. French and German leaders usually convened the deal letting other eurozone members to follow their agreements. This does not strengthen the rule of law and democracy and it undermines mutual trust.

With the flow of time, the eurozone and the EU policy makers realized that public finance problems are neither temporary nor small. In a response, the EU established the European Financial Stabilization Mechanism (EFSM) with 60 billion euros; the eurozone created the European Financial Stability Facility (EFSF) with 440 billion euros lending capacity and the European Stability Mechanism (ESM) that has replaced the EFSM and EFSF in July 2012. After some hesitation, the IMF was called in to assist in supplying funds for troubled economies of up to 250 billion euros. All in all, that was some 750 billion euros on paper, but less in the reality.

⁷There were also proposals for unconditioned assistance—either by the ECB “purchasing as much public debt as necessary” or by debt issuance on behalf of the EU countries (Uxo et al. 2011, p. 589). —but it is difficult to see the rationale of such ideas. Purring good money behind bad money never worked, and it will not work now.

3 “We Violated All the Rules. . .”

One of the problems with European assistance to troubled countries was that it needed parliamentary approvals in member states, meaning aid could not be speedily delivered. Financial markets do not wish to please bureaucrats by waiting on the lengthy parliamentary and legal procedures. In order to respond to swift changes on the debt market, the European politicians introduced the European Central Bank (ECB) into the battle for eurozone and euro in different ways: some of the measures were against prevailing EU rules, while nearly all of them were controversial. ECB, an institution that should exclusively have a monetary responsibility, was dragged into the fiscal sphere. Among the measures employed by the ECB were low interest rates, liquidity supplies, bond purchases, and “quantitative easing.”

First, in 2010, the ECB has reduced interest rates to or close to zero,⁸ following similar moves by the FED and nearly all other relevant central banks in the world. This move is both legal and legitimate, but it is costly and destructive for (1) savings, (2) investment, and (3) state spending.

1. Zero referent interest rates imply low deposit interest rates and this primarily undermines banking savings, but secondarily it hits adversely savings in all forms. It leads over time to a huge waste of individual and firms' funds. For example, a person saving for pension that gets 1% instead of 5% interest has to accept a 32% cut in their pension after 10 years and 54% cut after 20 years. This cripples even higher pensions turning pensioners into beggars. Lower savings means less capacity for credit activity, and this in turn implies lower economic activity.
2. Current low or even negative interest rates provide cheap credits, and with them many businesses seem to be profitable although they would not be with a higher, say normal, interest rates and more expensive credits. Many businesses that look profitable now will collapse with the raise of interest rates. In result, there will be a wave of bankruptcies when the ECB one day normalizes interest rates, which again will lead to a waste of resources and to a sharp rise of unemployment rates and a declining economy.
3. Low interest rates pour money into public spending worsening deficit and debt, thus sending the wrong signal that there is a financial solution for larger state spending without reform. It enlarges the heap of debts and relieves countries of necessity for structural reform to enhance competitiveness.

Second, the ECB was encouraged by the European executives to buy bonds of the troubled eurozone countries, and this way state debt papers passed from private to public hands. Nobody asked voters are they in favor of such a policy. The Outright Monetary Transactions (OMT) program is designed for unlimited purchases of government bonds issued by vulnerable countries. This is against the original ECB Statute, according to which the ECB is allowed to buy liquid bonds

⁸Deposit facility was even negative (−0.30%).

only. Greek, Portuguese, and similar bonds hardly may be considered other than junk, and the ECB has accumulated more than 200 billion euros of such “papers” at the end of 2011.⁹ If not redeemed by the countries in question, these bonds need to be paid back by the eurozone members, according to the participation in the ECB reserves.

Third, the ECB provided excessive liquidity to weakened and shattered European banks. It is one thing when it does this in a routine way with smaller amounts for daily operations, which is perfectly legal, and it is quite another thing when it supplies commercial banks with huge amounts in a country from which deposits and money systematically flee for years toward safer destinations.¹⁰ Such an assistance is illegal. The EU treaties prohibit¹¹ financial assistance to member countries, with a temporary exception for major natural disasters. Systemic or long-lasting help to countries for fiscal or other mismanagement is excluded.

Fourth, the ECB launched the first “quantitative easing” (QE) of over 1000 billion euros at the end of 2011 and at the beginning of 2012. The second QE was launched in March 2015 and extended to 2016: it consisted of buying state debt papers for 60 billion euros¹² per month, with the expected total of 1600 billion euros. By December 2015, the stimulus had reached 680 billion euros.¹³ Even this huge infusion of liquidity had not brought the EU economies out of their nirvana.

All in all, the measures of the ECB were intended to prevent market forces from punishing bad state and private managers for mismanagement of their respective finances. Some of these measures were illegal from EU legislation’s point of view. Some were legal, but very costly and harmful, as it is shown above. Christine Lagarde, the French minister of finance at that time, confessed “dirty works” frankly and directly: “We violated all the rules because we wanted to close ranks and really rescue the eurozone.”¹⁴ Such practices are usual in a banana republic, but they are a tragedy for a club of countries that is considered decent. Measures that are mentioned above may help reach some temporary policy objectives, but that has nothing to do with the rule of law and the usual monetary policy. They do great damage to the EU’s long-run reputation. Despite this fact, the public hasn’t seen that any relevant European politician either disagrees or regrets for illegal moves and other consequences of measures undertaken.

The main effect of the ECB and its interventions was that the debt crisis has been stopped for some time. It was not cured, because the main problems—overspending

⁹The rule is watered down in the meantime to allow purchase of bonds with credit rating from AAA to B– (B minus). Greek bonds are lower ranked from B–, so that the ECB continues to violate the rule.

¹⁰The emergency liquidity assistance (ELA) for Greek central bank and commercial banks lasted for years and crossed 90 billion euros in 2015.

¹¹Maastricht Treaty, Art. 104. The Treaty on the Functioning of the European Union, Art. 125.

¹²It was increased to 80 billion in March 2016.

¹³Fairless (2016).

¹⁴According to Carney and Jolis (2010).

and lack of competitiveness of some European economies—had not been taken seriously. An acute crisis is transformed into a chronic one. Time that is bought to fix the problem is wasted. The crisis is postponed instead of being resolved, and then sooner or later, it will be back for resolution.

4 Common Denominator

Euro acted as an internal price control allowing internal interest rates to fall in countries where previous expectations of inflation kept those rates high (Greece, Ireland, Portugal, Spain, etc.). Countries that had previously manipulated¹⁵ their currencies, in order to reduce gap in capital accounts, could not do the same with euro, while the need for some such remedy was urgent more than ever. Financial markets perceived all eurozone government bond risks as similar to one another, and spread among bonds was very small. That had lowered interest rates, and the Southern countries of the EU were plunged by capital inflows as never before. Faced with much lower interest rates, governments of the eurozone countries increased their borrowing to finance growing budget deficits that came with larger social programs and more extensive regulation. Capital inflows have inflated economies and have created some bubbles. One of the most destructive consequences of inflation was the rise of labor costs. As I have shown elsewhere, labor costs rose in 1997–2008 in Germany by 23.7pp, while they jumped in Greece by 77.2pp, Portugal by 40.0pp, and Spain by 54.7pp.¹⁶ What troubled countries required in such a situation was exactly the opposite—disinflation and lower labor costs. Of course, higher labor costs worsened already bad competitiveness, current account deficits soared, and countries desperately borrowed in order to offset them. The game had developed for a while until financial markets started to doubt certain countries' abilities to repay debts.

The culture of dependency from state flourished and it fed the ideal of “capitalism with human face.” Politicians used surpluses to please the interest groups and “buy” votes, instead of cutting on taxes and state expenditures. Private sector also enjoyed lower interest rates, which led in some countries to high investment rates and inflation, i.e., bubbles in areas like real estate, construction, labor, some services, and stock exchange. Financial markets did not immediately raise interest rates for countries with rapidly increasing debt to GDP ratios despite the increased risk associated with this pattern of fiscal performance. Credit rating agencies were even slower and less useful in assessing and signaling fiscal risk in such countries. They were capturing fat fees from clients (countries) rather than closely following market developments and providing reliable credit ratings.

¹⁵Cf. Di Nino et al. (2011).

¹⁶Prokopijević (2010, p. 380).

Table 1 Current account balance, annual data in % of GDP

Country	2008	2009	2010	2011	2012	2013	2014	2015F
Belgium	-1.0	-1.1	1.8	-1.1	-0.1	-0.2	-0.2	1.8
Germany	5.6	5.7	5.6	6.1	6.8	6.4	7.1	8.7
Estonia	-8.7	2.5	1.8	1.4	-2.5	-0.1	1.1	1.6
Ireland	-5.8	-4.2	-0.8	-1.2	-1.6	3.2	3.7	5.9
Greece	-15.1	-12.4	-11.4	-10.0	-3.8	-2.0	-2.1	-1.0
Spain	-9.3	-4.3	-3.9	-3.2	-0.2	1.5	1.0	1.4
France	-1.0	-0.8	-0.8	-1.0	-1.2	-0.8	-0.9	-1.3
Italy	-2.9	-1.1	-3.5	-3.1	-0.4	0.9	1.9	2.2
Cyprus	-15.7	-7.8	-10.2	-4.0	-5.6	-4.4	-4.5	-3.5
Latvia	-12.3	8.1	2.3	-2.8	-3.2	-2.3	-1.9	-1.8
Lithuania	-13.3	2.1	-0.3	-3.9	-1.2	1.5	3.6	-0.8
Luxembourg	7.7	7.4	6.8	6.2	6.0	5.8	5.4	4.3
Malta	-1.1	-6.6	-4.7	-2.4	1.3	3.7	3.0	2.0
Netherlands	4.1	5.8	7.4	9.1	10.9	11.1	10.7	10.5
Austria	4.5	2.6	2.9	1.6	1.5	2.0	2.0	2.6
Portugal	-12.1	-10.4	-10.1	-6.0	-2.0	1.4	0.6	0.5
Slovenia	-5.3	-0.6	-0.1	0.2	2.6	5.6	7.0	7.0
Slovakia	-6.5	-3.5	-4.7	-5.0	0.9	2.0	0.1	0.0
Finland	2.2	1.9	1.2	-1.8	-1.9	-1.7	-0.9	-1.1

Source: Eurostat. Current account 2008–2014; EC 2015, forecast http://ec.europa.eu/economy_finance/publications/eeip/pdf/ip011_en.pdf (accessed November 26, 2015)

Rather than lower credit rating, the crisis had stopped the inflow of capital¹⁷ into troubled countries through private channels, i.e., via banks. Capital inflow was vital for these countries in order to cover deficits on their current accounts and public finances. And they all run significant deficits that have deteriorated after the introduction of euro, reflecting declining competitiveness. From two problems—current account and public debt—it turned out that current account is smaller.

Current account of many eurozone countries started to deteriorate after 2007, and it emerged a worry how to finance it.¹⁸ Current account deficit was very high in 2008–2011 in Greece, Spain, Italy, Cyprus, Malta, Portugal, and Slovakia—merely in troubled countries (Table 1). Difficulties to obtain capital via borrowing and austerity measures along several recent years have first reduced deficits in these countries and in 2013–2014 have transferred them into current account surpluses in Ireland, Spain, Italy, Malta, Portugal, and Slovenia. Deficits existed in Greece and Cyprus but were much lower than before. Contrary to what H. W. Sinn stated, current account is not a problem for now, although it was some years before.

A more difficult question is how to finance public debt on its own. Figures suggest that in recent years, budgetary balance has improved, while public debt has worsened (Table 2).

¹⁷It is sometimes called “sudden stop”; see Baldwin and Giavazzi (2015, p. 24).

¹⁸See Sinn (2014, p. 6).

Table 2 Budgetary balance and public debt in the eurozone

	Deficit/surplus										Debt				
	2011	2012	2013	2014	2015F	2011	2012	2013	2014	2015F	2011	2012	2013	2014	2015F
Belgium	-4.1	-4.1	-2.9	-3.1	-2.7	102.2	104.1	105.1	106.7	106.7	102.2	104.1	105.1	106.7	106.7
Germany	-1.0	-0.1	-0.1	+0.3	+0.9	78.4	79.7	77.4	74.9	71.4	78.4	79.7	77.4	74.9	71.4
Estonia	+1.2	-0.3	-0.1	+0.7	+0.2	5.9	9.5	9.9	10.4	10.0	5.9	9.5	9.9	10.4	10.0
Ireland	-12.5	-8.0	-5.7	-3.9	-2.2	109.3	120.2	120.0	107.5	99.8	109.3	120.2	120.0	107.5	99.8
Greece	-10.2	-8.8	-12.4	-3.6	-4.6	172.0	159.4	177.0	178.6	194.8	172.0	159.4	177.0	178.6	194.8
Spain	-9.5	-10.4	-6.9	-5.9	-4.7	69.5	85.4	93.7	99.3	100.8	69.5	85.4	93.7	99.3	100.8
France	-5.1	-4.8	-4.1	-3.9	-3.8	85.2	89.6	92.3	95.6	96.5	85.2	89.6	92.3	95.6	96.5
Italy	-3.5	-3.0	-2.9	-3.0	-2.6	116.4	123.2	128.8	132.3	133.0	116.4	123.2	128.8	132.3	133.0
Cyprus	-5.7	-5.8	-4.9	-8.9	-0.7	65.8	79.3	102.5	108.2	106.7	65.8	79.3	102.5	108.2	106.7
Latvia	-3.4	-0.8	-0.9	-1.5	-1.5	42.8	41.4	39.1	40.6	38.3	42.8	41.4	39.1	40.6	38.3
Lithuania	-8.9	-3.1	-2.6	-0.7	-1.1	37.2	39.8	38.8	40.7	42.9	37.2	39.8	38.8	40.7	42.9
Luxembourg	+0.5	+0.2	+0.7	+1.4	0.0	19.2	22.1	23.4	23.0	22.3	19.2	22.1	23.4	23.0	22.3
Malta	-2.6	-3.6	-2.6	-2.1	-1.7	69.8	67.6	69.6	68.3	65.9	69.8	67.6	69.6	68.3	65.9
Holland	-4.3	-3.9	-2.4	-2.4	-2.1	61.7	66.4	67.9	68.2	68.6	61.7	66.4	67.9	68.2	68.6
Austria	-2.6	-2.2	-1.3	-2.7	-1.9	82.2	81.6	80.8	84.2	86.6	82.2	81.6	80.8	84.2	86.6
Portugal	-7.4	-5.7	-4.8	-7.2	-3.0	111.4	126.2	129.0	130.0	128.2	111.4	126.2	129.0	130.0	128.2
Slovenia	-6.6	-4.1	-15.0	-5.0	-2.9	46.4	53.7	70.8	80.8	84.2	46.4	53.7	70.8	80.8	84.2
Slovakia	-4.1	-4.2	-2.6	-2.8	-2.7	40.5	40.1	41.0	41.6	52.7	40.5	40.1	41.0	41.6	52.7
Finland	-1.0	-2.1	-2.5	-3.3	-3.2	48.5	52.9	55.6	59.3	62.5	48.5	52.9	55.6	59.3	62.5
<i>Eurozone</i>	-4.2	-3.7	-3.0	-2.6	-2.0	86.0	89.4	91.1	92.1	92.2	86.0	89.4	91.1	92.1	92.2
<i>EU27/28</i>	-4.5	-4.3	-3.3	-3.0	-2.5	81.0	83.8	85.5	86.8	87.8	81.0	83.8	85.5	86.8	87.8

Source: Eurostat. General government balance and public debt. EC (2015) forecast. http://ec.europa.eu/economy_finance/publications/eeip/pdf/ip01_en.pdf (accessed November 26, 2015)

Budgetary balance in the eurozone countries apparently improved: in 2011, five countries only were below 3% limit (Germany, Estonia, Luxembourg, Malta, and Austria) and in 2015 15 of them. In 2015, it was expected that four countries (Greece, Spain, France, and Finland) exceed the limit, with the deficit of the eurozone as a whole sliding from -4.2% in 2011 down to -2.0% in 2015. Public debt was in a worse state, where the five tiny countries (Estonia, Latvia, Lithuania, Luxembourg, and Slovakia) were obeying the 60% limit, and other 14 members were violating the rule. The number of countries with the debt exceeding 100% of GDP has doubled in 2015 compared to 2009. It went up from three to six (Spain, Cyprus, and Portugal joined Belgium, Greece, and Italy). Especially worrying was the fast rise of deficit in 2011–2015 in Spain (from 69.5–100.8%), Cyprus (65.8–106.7%), Greece (172.0–194.8%), Portugal (111.4–128.2%), and Slovenia (46.4–84.2%), and moderately fast rise in France (85.2–96.5%) and Italy (116.4–133.0%).

Ireland is the only vulnerable country that managed to reduce its huge public debt, and it started decreasing from 2013 on. Among other eurozone countries exceeding the 60% limit, deficit has been falling in three of them—Germany, Cyprus, and Malta. The four largest eurozone countries (Germany, France, Italy, and Spain) are in breach of 60% rule. Because larger countries do have much more influence on what happens in the zone, the fact that smaller countries obey the rule plays no role, since their impact on eurozone's general fiscal condition is negligent.

It is important to notice that these results in public finances have been achieved with the help of the ECB. Low interest rates and stimuli have increased the capital on market, and a significant chunk of it ended in state bonds. Debt service became dramatically cheaper. For example, German 10-year bonds in recent months (2016) promise yields in the range 0.2–0.8%, while they were 3.2–5.5% in the period 2000–2009. Spanish and Italian 10-year debt papers yield 1.4–2.0% now, while yields moved similar to the German before 2009. The era of cheap money cannot last forever, and when the FED, ECB, and other larger central banks start to raise interest rates and to withdraw liquidity brought by stimuli, debt service will be more costly, with rates returning toward levels prior to 2009. This will increase pressure on public finances, not only of vulnerable countries but also of some others that were not counted in troubled before. The risk of default will overshadow several eurozone countries.

The main function of the ECB measures and the EU funds was to supply troubled countries with liquidity and so to replace private borrowing that had stalled after the outbreak of debt crisis in 2009. Missing private capital inflows were replaced in the meantime with public inflows via the ECB and ESM transfers. Capital again flows in the opposite direction of that needed. In usual cases (gold standard, currency board, dollarization), there are no flows of public funds offsetting for decreasing private inflows. Instead, these arrangements dispose over some automatic mechanism that provides adjustment by changing the amount of money, interest rate, credit supply, and the level of salaries. These changes are induced by changing level of inflows, and after adjustment takes part, private inflows resume according to new realities.

The eurozone—and this is its crucial construction failure—does not possess such a mechanism, the adjustment never happens, countries miss private inflows, and for that they are dependent on public transfers. Instead of market mechanisms, flows are directed from political institutions and nonmarket funds (European Commission, ECB, IMF, ESM). It created exactly the situation that is intended to be avoided—of countries dependent on permanent assistance, i.e., of countries living at the expense of others. The only way to avoid this self-defeating outcome would be a deep structural reform in troubled countries—inside or outside of the eurozone. However, reforms are off the agenda because they are politically costly, inspire social turbulence, and work to dissolve the prevailing model of “capitalism with human face.”

The crisis management of the eurozone was bad. Instead of cutting costs as much as possible, allowing countries to default, to step out of the zone, to reintroduce their national currencies, and to devalue 30–70% and conduct necessary reforms, the EU and eurozone—frightened by mass contagion and systemic risk—started the operation that is very costly and that does not produce healthy condition. Costs of treatment are huge both directly (funds from EU, IMF and eurozone, operations of the ECB) and indirectly (worldwide loss in savings, miss-investment in businesses that would be not profitable with normal monetary policy, prolonged crisis, and lost decade(s)). When the crisis one day returns, its resolution costs are going to be much higher than a cut at the beginning of crisis in 2009. By providing assistance, the eurozone bought time, but it was wasted rather than used for necessary reforms. When bad developments erupt, European politicians start buzzing about reforms, but after the crisis abates, the reform talks evaporate. In a word, in order to buy time, crisis management accumulated huge costs, which was wasted, and the crisis is still around. European politicians never gained control of the situation, despite unconstrained action (breach of the rules) and frequent meetings.

5 Likelihood of a Solution

If the eurozone is to survive, it needs answers to at least three questions. First, who is going to cover debts of troubled countries? Second, how, in a credible way, to prevent the outbreak of another similar debt crisis, i.e., how to keep the fiscal and monetary discipline in the eurozone? Third, and the most important, how to regain competitiveness in the troubled countries and enhance it in the rest of the EU? Adequate answers to all three questions represent an appropriate response to the eurozone debt crisis. Failure to deliver and implement answers to any of three questions implies that the crisis will remain open and that, sooner or later, it is going, first, to undermine and thereafter destroy both the eurozone and the EU. Europe’s political class hitherto offered two partial answers for the first two questions (financial assistance and fiscal pact), while the third one remained unanswered.

(1) *Debts* Response to the first question was the financial assistance to troubled countries (Greece, Cyprus, Ireland, Portugal, Spain) in exchange for austerity measures. Assistance included different fund sources (EFSM, EFSF, ESM, IMF), purchases of bonds by the ECB, low interest rates, support for banks, cash supplies from the ECB to commercial banks in vulnerable countries, and the long-term refinancing operation (LTRO). The result of all these interventions was that troubled countries were kept afloat, but for some of them without being able¹⁹ to appear on its own on the financial markets, and without settling their problems for longer if not indefinitely (with the exception of Ireland).

Current European funds are considered insufficient for helping economies of larger size. If the assistance to Greece, Cyprus, Ireland, and Portugal—countries representing 8% of the EU economy—approached 500 billion euros, an assistance to larger countries like Italy and Spain, representing more than 20% of EU economy, would require much more. The EU and eurozone can probably increase protective funds up to 1000 billion euros, but they can hardly get up to 1500 billion euros, what is considered necessary if Italy and Spain together ask for assistance in addition to some out of the four countries already under the program. With the number of countries in need rising, the number of countries able to provide aid will be declining, and their burden will become heavier.²⁰

Saviors have used the instruments mentioned above. However, optimists may hope for instruments that have not been used yet, like higher inflation, emission of the common European bonds, formation of fiscal union, and direct transfers under eventual fiscal union. Even if used, the question is whether these measures may be effective.

For example, inflation enjoys low acceptance rate in Germany and some other eurozone countries. It distracts economic activity and undermines growth. More important for debt service, inflation reduces the debt burden, but it also reduces income, so that the GDP/debt ratio remains the same before and after the inflation tide. For that inflation seems to be a part of the problem rather than a part of the solution.

Eurobonds would heavily burden more fiscally sound nations, while they would not change bad habits of fiscally weak countries. That would preserve the status quo, enlarge the heap of debts, and make the whole eurozone similar to weak countries.

Fiscal transfers between member countries, be it ad hoc and partial or complete (e.g., under a fiscal union), are even more disputable, especially in the light of fact

¹⁹For example, Greece and Cyprus. Some other troubled countries (Italy, Portugal, Spain, etc.) borrowed in 2014 and 2015 on financial markets with yields below 2% for 10-year bonds. These very favorable borrowing conditions are possible due to a low interest rate policy by ECB and its other measures. Financial market analysts believe that without these measures, yields for these countries would cross 7% that is considered unsustainable for longer time in the case of stagnant or slow-growing economies.

²⁰There is already parliamentary political resistance in several countries providing assistance, like Germany, Austria, Finland, Slovakia, Netherlands, and Luxembourg.

that national²¹ transfers that enjoy some advantages over international ones, and have failed. The USA is a fiscal (political) union, but this does not prevent city, municipal, and state bankruptcies. Local and federal government units, without bail-out clause, are forced to return to financial market. This presupposes a reform. Proposal of fiscal union in the eurozone is intended to introduce interstate transfers rather than to foster reform and a return to financial market. More fiscal unity is neither good nor feasible—political readiness for that is missing.

Different populations tend to develop different economic and fiscal habits, as the Austro-Hungary, Czechoslovakia, Yugoslavia, and other multinational countries have demonstrated. These countries failed to develop common fiscal standards for longer, and their fiscal “systems” became a source of disputes as soon as they were established. Fate of these countries advises both against common fiscal policy for the eurozone and EU and large transfers.

In a summary, even if employed, the abovementioned measures can prolong the fight for euro for a few years or so, but at the end the common currency is going to fall into demise.

The question of debt is surrounded by uncertainties. Eurozone’s debt pile is growing, and it is not known whether this trend could be stopped and then reversed. Are troubled countries able to return to financial markets after the assistance expires, and FED and ECB increase interest rates, which would make debt service more costly? If German bonds return to their previous usual level of 3–5%, bonds of vulnerable countries will require higher yields for at least 2–3pp, and their debt service will not be sustainable in the light of their stagnant economies. If so, a prolonged assistance will be needed. However, the question is whether there would be those ready to provide it. In 2015, Germany’s exposure through different assistance programs exceeded 406 billion euros, an amount larger than country’s federal budget.²² With fiscally sound countries reluctant to further call for assistance, the default of vulnerable countries and the eurozone contagion will be more probable.

²¹Germany has sent more than 1800 billion euros to its provinces in the East in the period of 1990–2010. Transfers have raised salaries in the East above productivity level, which had killed investments and competitiveness and has led to an economic failure of the German East. These transfers were managed by the German administration, which is for sure superior in its performance to the international administration in Brussels. Transfers moved from Germans to Germans, thus cutting off disputes about their desirability; fiscal transfers in the EU would move from one nation to another, feeding disputes among different governments and national elites about reasonability of the operation, and disputes of this type were a seed of dissolution for many multinational countries and units. Fiscal transfers to the East after reunification of Germany was a second failed German attempt to bridge the fiscal and development gap via transfers. The first one is related to the *Finanzausgleichsgesetz* in the 1960s.

²²The exposure of some other countries on May 8, 2015, was France, 409 billion euros; the Netherlands, 117 billion euros; Austria, 57 billion euros; and Finland, 37 billion euros. Total commitment is 20–40% higher than exposure, depending on country in question. Cf. CesIFO (2015).

(2) *Fiscal Discipline* When the debt crisis broke out, the European politicians were obsessed with looking for a solution related to the question (1). This is understandable, because if there is not at least a temporary fix for question (1), there is no point in attempting to address the two other questions.

Relating to the second question, creditors demanded that troubled countries cut spending and deficits and implemented austerity measures. However, cuts are not enough to provide a workable fiscal discipline. Financial assistance helps troubled countries to service their usual obligations and buys them time for additional measures. The time bought needs to be used properly, but deeper reform has not arrived yet in any member country. As soon as assistance mitigates suffering in vulnerable countries and averts “systemic risk” for the eurozone, the pressure from the eurozone decreases, and the readiness for reform in troubled country disappears. Austerity²³ is broadly perceived as a remedy, but it alone does not suffice: it shifts an economy to decline; expected increases in state revenues never happen; quite on the contrary, lower economic activity further reduces public revenues; and the country starts sinking deeper into debt rather than escaping out of it. That is a development to be seen from Portugal and Spain via Italy to Greece and Cyprus. Governments getting aid try to avoid painful cuts, and if they pass some reform legislation, it is rather symbolic. Even if they succeed in keeping fiscal discipline in 1 year, they may easily slip again into heavy breaks in another one. In order to provide financial discipline, some systemic and workable mechanism and its enforcement procedure are needed.

There have been several proposals on how to keep financial discipline floated in Brussels and national capitals with one of them officially accepted in 2011 and named the “fiscal pact.” According to its terms, structural deficit²⁴ of up to 0.5% of GDP is allowed.²⁵ Structural deficit makes the limit of 3% deficit efficient, because it prevents that a country runs 3% deficit over a whole business cycle. Automatic consequences for countries violating that rule (i.e., 3% deficit) are envisaged unless qualified majority (73% of votes in the Council plus 2/3 of countries) is opposed. The ceiling should be built in into the national legislation, preferably of constitutional nature. National draft budgetary plans are to be sent to the European Commission (at the same time as to national parliaments) and independent fiscal councils monitoring implementation of the rule. In the case of a violation, there are infringement proceedings through the Court of Justice of the European Union.

²³ Among proponents of austerity is Phelps (2012).

²⁴ The structural deficit is the deficit that remains across the business cycle. It emerges when a government is spending more than a long-term average of tax revenue can bring in. Structural deficit is total government deficit minus cyclical deficit. Cyclical deficit is output gap times elasticity of fiscal balance. Again, output gap is equal to potential (full employment) output of economy minus actual output of economy. Output gap is expressed in % terms difference. Finally, elasticity of fiscal balance captures percentage change in government expenditure net of government revenue per 1% change in output gap.

²⁵ The following conditions are cited according to EC (2011) at the site: http://ec.europa.eu/europe2020/priorities/economic-governance/graph/index_en.html (accessed February 15, 2012).

Countries violating the budgetary rule need to pay 0.2% of GDP at the opening of excessive deficit procedure, fixed fine of 0.2% in the case of non-compliance with recommendation to correct, and variable fine 0.2% plus 1/10 of the distance between the actual balance and the required one. Public debt needs to be below 60% of GDP or sufficiently diminishing toward 60% of GDP (=reduction of the distance to 60% by 1/20 on average over 3 years). Member states in excess of these limits are to be given strict deadlines to get into the line. Elements of the “fiscal pact” are to be incorporated into EU treaties and national legislations in 5 years. This may turn out to be too late to cure ailing eurozone public finances, but there are several other questions overshadowing recent EU legislative proposals and solutions.

Do existing rules suffice to keep the fiscal discipline? They suffice, but their enforcement is too weak to avert potential offenders. Fines are low, the Commission has to bring offenders to the Court, efficient enforcement instruments are missing, correction time is generous, and sanctions could be abolished through the political process, as it happened before in cases of violation of agricultural quotas or misuse of development funds. All this will encourage offenders rather than constrain them. The rule of 0.5% structural deficit may be built in national legislations, but its enforcement is another issue. Even the Greek officials have rejected vehemently any foreign control over Greek public finances. The eurozone has had 3/60% rules, but they were heavily violated recently, and no state was fined. In order to be deteriorating enough, the financial fine needs to be both automatic and much higher, and the sanctions need to include the suspension of transfers from Brussels’ funds and suspension of countries’ voting rights in the EU bodies. However, such rules would be difficult to legislate, because too many countries would perceive themselves in the role of the legislation’ victim. If a proper penalty policy cannot be established, that is a signal that nobody is counting on it. If there is no fine, anything goes. If anything goes, the end of the game is not far away.

It is hard to believe that eurozone countries will respect deficit rules, when during the last 40 years, some of them never got rid of deficit, as Table 3 shows. Even fiscally responsible countries, like Austria and Germany, have spent 82 versus 78% of their time in deficit. The last time countries like Austria, Greece, and France got surpluses was in the 1970s—more than four decades ago. If deficit culture is so deeply rooted in the eurozone countries, it is unreasonable to expect that this is going to change overnight, because there are legislated limits of 3.0 versus 0.5% (for structural deficit).

It is also hard to believe that the existing rules²⁶—say 3/60%—are going to be enforced now, i.e., during the economic downturn, if their enforcement failed in the

²⁶Before the rule of “structural deficit” was introduced, there was no guarantee that preserving fiscal discipline is possible, even when obeying the rules 3/60%. If a country keeps deficit slightly below 3%, over two dozen years, it will accumulate a debt of over 60%, even if it was debt-free before. For this, the debt limit of 60% makes no sense, neither theoretically nor in practice. The rule of “structural deficit” limits deficit over business cycle to 0.5% of GDP per year and makes fast accumulation of debt impossible.

Table 3 Percent years of deficit over 1962–2011

Country	Percent	Last surplus
Austria	82	1974
Belgium	96	2006
Germany	78	2008
France	90	1974
Spain	78	2007
Greece	80	1972
Ireland	80	2007
Italy	100	–
Portugal	100	–

Source: Wyplosz Charles (2012, p. 2)

period of economic prosperity, from 1999 to 2008. Enforcement in bad economic times is possible, but unlikely to happen.

In order to adopt a new reliable regulation, it needs to be approved by 28 EU members. This is unlikely to happen, because many initiatives for changes in the treaty regulation failed in the previous years. These regulations were related to more innocent-looking questions than the deficit and debt rules. Even if a miracle happens and the rule is agreed on and written in the EU Treaty and national constitutions, there is a problem of enforcement. Brussels can send neither financial police nor troops to a country whose government violates the budgetary rule. With all that being said, it is difficult to imagine the fiscal discipline lasting for a long time in the eurozone is going to be kept in the future.

(3) *Competitiveness* While dealing with the European debt crisis, the question of competitiveness was nearly neglected. Both Brussels bureaucrats and national leaders of member countries pay only a lip service to reforms and competitiveness.²⁷ In order to enhance competitiveness in countries that have lost it, profound changes in several fields are needed. One is related to structural reforms, like removing rigidities on labor market, enhancing competition, opening the market,²⁸ and generally reducing the red tape. Another is a decomposition of social welfare state and generally a reduction of state costs. Such reforms face vigorous and lasting resistance from interest groups, as one can see from Greece, Spain, Portugal, Italy, etc. Even modest attempts to relax rigidities of the labor market and to cut privileges failed due to fierce resistance of interest groups in question. It seems that measures promoting competitiveness are easier to conduct after countries'

²⁷Some official proposals on how to regain it fall short or miss the point, because they assume as given what needs to be achieved: "The restoration of confidence in the future of eurozone will lead to economic growth and jobs." Herman Van Rompuy, President of the European Council, according to Ben Rooney. 2012. "Europe strengthen fiscal ties," March 2. http://money.cnn.com/2012/03/02/markets/european_union_fiscal_pact/index.htm (Accessed on March 4, 2012).

²⁸According to the rules, common market is open and free, but reality is different. Countries prevent access to foreign competitors in several sectors, like energy, banking, insurance, transportation, public procurement, and services.

default than in a situation that is relatively normal—when a country enjoys a generous foreign assistance. Default would increase pressure for reform, undermine resistance, and create different solutions²⁹ and incentives compared to those under foreign assistance. In the latter case, the feeling that painful changes are not necessary emerges, and, if enacted at all, they will enjoy a lukewarm support and will be watered down over time.

How likely is it that European politicians will find a workable solution to all three questions in the appropriate time? Such an outcome is theoretically possible, but not likely to happen. Debt service costs will soar following the normalization of interest rates. Fiscal discipline was never enforced in the eurozone, and the likelihood of profound improvement in this field is low. A huge majority of eurozone economies will continue to suffer from low competitiveness until something changes in social network and interest groups lose the ground, opening a way for a deeper reform. Their transition does not need to be stressful like the one in the Eastern Europe, but “soft socialism” needs to be left behind as an expensive luxury.

Before transition from “soft socialism” to market democracy under the rule of law begins, one will see more efforts that were already seen, such as assistance. It fuels disputes. Divisions among countries are visible, disputes about responsibility manifest more, and proposals for solutions diverge. In critical moments disputes resemble³⁰ to those preceding the dissolution of Yugoslavia. It starts with a dispute over responsibility for economic downturn and ways of overcoming the economic decline, followed by arguments over debt service, resulting in political divergence and ending in dissolution. The EU is in the phase of debates on cures for economic decline and assigning responsibility. Some confrontations in the EU, for example, on German-Greek axis, are not less passionate and colorful than Serbo-Croatian disputes during the late 1980s, i.e., a few years before dissolution of Yugoslavia.

In any case and whatever scenario (Greek default, Germany fed up from assistance, stalemate in Brussels), the eurozone and the euro-integration, as we know them now, will not be around in not so distant future.³¹ Even if eurozone manages to survive around Germany, with countries like Austria, Belgium, the Netherlands, and Luxembourg in, it may last for additional several years or so rather than for a longer period of time. The euro of shorter eurozone is expected to appreciate strongly, reducing exports. As such it would not be in the interest of all these countries. More importantly, different economic dynamics and different habits in public finances, in conjunction with nonexistent single fiscal authority,

²⁹For example, a larger reduction of salaries is easier to achieve via depreciation of national currency than via nominal (and real) cut of them expressed in euro, because the later move will face bitter, lasting, and non-abating opposition. A larger cut of salaries, say 30–40%, is practically impossible until the country is a member of the eurozone.

³⁰Economist from Slovenia Jože Mencinger was first to draw an analogy between EU and Yugoslavia in his newspaper articles and interviews for the regional press.

³¹There are already popular guides on exit option, cf. Bootle (2012).

will take these economies onto separate paths and first force some country members and not long after nearly all of them to get out of the common arrangement. One monetary standard for different economies is a rigid solution, and countries tend to get out of it. Two recent evidences support this statement. Gold standard from Bretton Woods lasted less than three decades, while the exchange rate mechanism—a precedent of the euro from early 1990s—lasted less than 4 years.

More than 20 years ago, the world had seen the end of the Soviet communism, that is called also “hard socialism,” and now the demise of the European soft socialism is to be seen. European nations will go through a painful transition period, partly similar to the one that had been seen in Eastern Europe after the collapse of communism. This change should dismantle the welfare state and strengthen the rule of law and market forces. The situation in the eurozone resembles to what happened under socialism, when losses from wasteful management were covered by borrowing from abroad, until foreign creditors lost faith in repayment, thereafter by the work of mint. Janos Kornai (1980) has argued that communism has failed in economic sense because the budgetary “hard constraint” was missing. Without a constraint there was nothing to stop permanent slide in ever-growing debts and socialization of economic irrationality materialized in ever-growing losses. The case of “soft socialism” is similar to the one seen before, because a “hard constraint” was missing too, allowing excessive spending that fed growing debts.

It is not per chance that the debt crisis and economic crisis emerged in the EU. The story of Anglo-American capitalism that is too cruel and Europe inventing its own model of “capitalism with a human face” has been around for decades. Pro-market economists have coined the term “soft socialism” for such an order.³² Europeans introduced huge redistribution mechanisms and extended the welfare state to “humanize” the order, but as a consequence of that, the economy suffered from overregulation, high taxes, and expensive products. With massive and different government interventions, protecting indebted governments, firms, and banks that are “too big to fail,” the state inhibited market forces. This indicates why anti-market moves and strategies dominate in defending the eurozone. And this explains why the interventionist social welfare state, after the collapse of communism, became the main form of the anti-market order. As in the case of communism, this fight is lost,³³ and one may wonder for how long it will last, how much it will cost, and what additional troubles³⁴ it will leave behind.

³²Pejovich (2009, pp. 33–34).

³³Mises stated in the early 1930s that communism is sentenced to death, but it lasted for six decades more to see its historic end (Cf. Mises 1922).

³⁴Cf. Mundel (2000).

References

- Baldwin, R., & Giavazzi, F. (Eds.). (2015). *The eurozone crisis. A consensus view of the causes and a few possible solutions*. London, UK: CEPR.
- Bootle, R. (2012). *Leaving the euro: A practical guide*. Capital Economics LTD: London, UK.
- Carney, B., & Jolis, A. (2010, December 17). Toward a United States of Europe. *The Wall Street Journal*. Accessed December 21, 2010, from <http://online.wsj.com/article/SB10001424052748704034804576025681087342502.html>
- Cesifo. (2015). Eurozone countries' exposure, May 8. Accessed February 12, 2016, from <https://www.cesifo-group.de/ifoHome/policy/Haftungspegel/Eurozone-countries-exposure.html#losses>
- Di Nino, V., Eichengreen, B., & Sbrazia, M. (2011). *Real exchange rates, trade, and growth: Italy 1861–2011*. Roma: Banco d' Italia.
- Eurobarometer. (2002). L'euro, un an après. Flash EB 139. Accessed June 12, 2012, from http://ec.europa.eu/public_opinion/flash/fl139_fr.pdf
- European Commission. (2011). Commitments agreed at the European Council on 9/12/2011. Accessed February 15, 2012, from http://ec.europa.eu/europe2020/priorities/economic-governance/graph/index_en.html
- Eurostat. (2015). Newsrelease. Euroindicators. October 21, no. 186/2015. Accessed January 10, 2016, from <http://ec.europa.eu/eurostat/documents/2995521/7036737/2-21102015-AP-EN.pdf/22806a48-3bb0-4eb0-b641-d420af17be5b>
- Fairless, T. (2016, February 2). Don't assume ECB stimulus is a done deal, says Yves Mersch. *The Wall Street Journal*. Accessed February 3, 2016, from <http://www.wsj.com/articles/dont-assume-ecb-will-beef-up-stimulus-in-march-says-yves-mersch-1454434943>
- Feldstein, M. (1997, November–December). EMU and international conflict. *Foreign Affairs*. Accessed May 3, 2012, from <https://www.foreignaffairs.com/articles/europe/1997-11-01/emu-and-international-conflict>
- Kornai, J. (1980). 'Hard' and 'soft' budget constraint. *Acta oeconomica*, 25(3–4), 231–246.
- London, S. (2003, June 6). Lunch with FT: Milton Friedman. *Financial Times*. Accessed June 15, 2013, from http://search.ft.com/search/article.html?id=030606003906&query=Milton+Friedman+vsc_appId=totalSearch&state=Form
- Martino, A. (2008). Milton Friedman and the euro. *Cato Journal*, 28(2), 263–273.
- Mises, L. (1922). *Die Gemeinwirtschaft. Untersuchungen über den Sozialismus*. Jena: Gustav Fischer (Reprint 1986).
- Mundel, R. (2000). A reconsideration of the Twentieth century. *The American Economic Review*, 90(3), 327–340.
- Mundell, R. (1997). Updating the agenda for monetary reform. Speech at the conference on optimum currency areas, Tel-Aviv, December 5. Manuscript.
- Norman, P., & Münchau, W. (1998, February 9). Postponement: German economics professors call for delay of EMU. *Financial Times*. Accessed January 5, 2012, from <http://www.international.se/9802brdpr.htm>
- Pejovich, S. (2009). From social democracy to liberal socialism: A property rights analysis of the transition in Europe. *New Perspectives on Political Economy*, 5(1), 33–63.
- Phelps, E. (2012, July 19). Germany is right to ask for austerity. *Financial Times*. Accessed July 21, 2012, from <http://www.ft.com/intl/cms/s/0/21d62aa8-d18f-11e1-bb82-00144feabdc0.html#axzz42gb6m6GU>
- Prokopijević, M. (2010). Euro crisis. *Panoeconomicus*, 57(3), 537–549.
- Sinn, H. W. (2014). *The Euro trap*. Oxford, UK: Oxford University Press.
- Uxo, J., Jesus, P., & Eladio, F. (2011). Current account imbalances in the monetary union and the great recession: Causes and policies. *Panoeconomicus*, 58(Special issue), 571–592.
- Wyplosz, C. (2012). *Fiscal rules: Theoretical issues and historical experiences* (NBER Working Paper 17884) (pp. 1–28). Accessed March 15, 2012, from <http://www.nber.org/papers/17884.pdf>

The Effects of Alternative Currencies to National Economies: The European Experience



Spyros Roukanas and Pantelis Sklias

Abstract The international economic crisis has affected European countries in many ways. Certain countries like Spain and Ireland are facing negative effects to their national economies because of their banking systems and real estate bubbles. On the other hand, Greece, Italy and Portugal are facing the consequences of fiscal imbalances and high debt. Greece in the recent past has confronted the possibility of an exit from the eurozone (Grexit). Under these circumstances the European economies are looking for policies in order to overcome the negative effects of prolonged recession or stagnation to their national economies. The aim of this article is to study the development of alternative currencies for the European Union in two phases. Initially, we study the development of alternative currencies after the adoption of the euro as the official currency of the eurozone and the replacement of national currencies in 2002. The second phase is the manifestation of the world economic crisis, 2007 until 2016. The study of alternative currencies will reveal whether they constitute an alternative option in order to strengthen national economies in the context of the euro area.

Keywords Alternative currencies • Eurozone • Economy

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1 Introduction

The ongoing world economic crisis had led to slow economic growth and stagnation for certain developed and developing economies. The European Union is also facing the implications of the international economic crisis, which include high rates of unemployment and restriction of liquidity in the real economy. In order to overcome the lack of liquidity, local communities are developing complementary currencies for the accomplishment of sustainable development (Seyfang and Longhurst 2013). Local exchange trading systems (LETS) were developed in the 1980s (Blanc 2011). More specifically:

The most well-known example is the local exchange trading scheme (LETS), pioneered on Vancouver Island, Canada, 1983, by community activist Michael Linton, as an 'emergency money' during recession (Seyfang and Longhurst 2013, p. 69).

Today, LETS are a part of complementary currencies and at the same time provide the starting point for the development of this alternative way of transactions. Civil society has played the key role in the development of LETS. Technology has also played a key role in the development of LETS (Boonstra et al. 2013). The aim of this article is to study the development of alternative currencies in the European Union in two phases. Initially, we study the development of alternative currencies after the adoption of the euro as the official currency of the eurozone and the replacement of national currencies in 2002. The second phase is the manifestation of the world economic crisis, 2007 until 2016. The study of alternative currencies will reveal if they constitute an alternative option in order to strengthen national economies in the context of the euro area. We are going to explore to what extent alternative currencies strengthen the local economy and are an efficient way to restrict unemployment.

2 Complementary Currency Systems

The evolution of technology and the manifestation of the world economic crisis have created new prospects for complementary currency systems (CCS). Money is the catalyst of the world economy at periods of economic growth. But after an economic crisis, each national economy has to confront a lack of liquidity, and the monetary policy at certain times seems unable to create economic growth. Complementary currency systems try to overcome the restrictions of monetary policy and offer a sufficient income for consumers (Boonstra et al. 2013). Complementary currency systems can create a demand for goods and services and boost economic growth. The augmentation of this transaction system is related to the participants in the CCS and their motivations, as we can see in Table 1.

Table 1 highlights that the participants in CCS have different motivations which are mainly divided into economic and social motivations. For example, participants in the IT group such as programmers, hackers and digital specialists want to serve their community by offering independence from the official monetary system. On the other

Table 1 Participants in CCS and motivations

Participants	Motivations
Grassroots initiatives	People are motivated by their dissatisfaction with the capitalist system and the power of financial institutions and want to make room for a societal change
Commercial firms	Some participate in the commercial barter industry. Entrepreneurs in this group establish complementary currencies as a business instrument to increase profits (especially in the United States)
Non-profit sector	The motivation of the actors in this group is more idealistic than it is commercial
IT	Members of this group are often driven by a technical or ideological fascination. Bitcoin is the most famous example

Source: Boonstra et al. (2013, p. 6)

Table 2 Schematic overview of complementary currency systems and results

Money design	Economy	Social	Comments
Regional currencies	No additional medium of exchange	Work well in contributing to forming an identity	Disconnecting from legal tender will increase economic impact
Barter networks	An extra medium of exchange for businesses	Function like business clubs	Strengthen small- and medium-sized companies when focusing on daily spending
LETS	Has no impact on economic domain	Only impact for very small group	Economic impact is larger when focusing on firms instead of individuals
Time bank	Supply of services is limited, velocity speed can be low	Strengthening social capital	Focus is on community-building instead of currency design
P2P	New way of creating money	Possible to make anonymous transactions	Change the role of central authorities in money creation
Mobile money	Increases amount of money in formal economy	More people have access to banking services	Mainly popular in developing countries
Virtual money	Can keep money inside a certain system or region	–	Offers a perspective for conditioning of money flows; could help fight poverty

Source: Boonstra et al. (2013, p. 26)

hand, commercial firms, especially in the United States, clearly have economic motivations and are profit-oriented. Moreover, the development of these currencies has made it difficult to categorise them into different schemes. In Table 2, we can see the main types of complementary currency systems and their characteristics.

Regional currencies have an aim to boost the local economy of a certain region. Regional currency works as a multiplier for demand and in Europe has positive

results in Germany and the United Kingdom. In the next section of our analysis, we are going to focus on the Chiemgauer in Germany and on the Bristol Pound in the United Kingdom. Moreover, barter networks offer the opportunity for products with a high profit margin such as services to overcome the negative effects of economic recession. LETS, on the other hand, are another way to overcome the restrictions of official banknotes. The experience has shown that spending is harder than earning credits for LETS. We can see also other CCS such as time bank, which has a social aim to strengthen community-building. Technology also offers new prospects for the expansion of complementary currency systems through mobile phones, peer-to-peer money systems or the internet.

Figure 1 demonstrates the implications of the local currency for consumers, retailers and local suppliers. It is obvious that local currency offers liquidity to local suppliers and operates as multiplier for local economy.

An analysis of complementary currency systems highlights that the development of alternative currencies has different motivations and different impacts on local or national economies. In the next section, we are going to discuss the CCS in the European Union as a result of the world economic crisis, with a special focus on regional currencies.

3 Complementary Currency Systems and the European Union

Regional currencies have developed in recent years in the European Union. According to Table 3, local currencies were developed for the first time in Germany in 2003 and are estimated to be around 30. On the other hand, the development of local currencies in the United Kingdom started in 2007, and the number of regional currencies is much smaller, around five. The common principle for both countries' local currencies is that they have high reliability. This critical element strengthens our research in order to understand the causes of this expansion and high reliability in recent years.

Local currencies are also a form of CCS in order to boost the local economy. According to Christian Thiel, the German Regiogeld is an attempt to replace euro as a medium of exchange in certain places in Germany (Thiel 2011). More specifically:

Regiogeld (the German short form for regional money) is a special form of a community currency. It can be defined as a private monetary system with a regional validity and a non-profit-agenda which is accepted by multiple participants. It usually occurs as voucher and is provided with a demurrage (negative interest). This constant loss in value (5–12% per year) is either realized via certain tokens which have to be purchased and glued on the vouchers every 3 months or via the chargeable replacement of the vouchers every (3 up to 12) months. (Thiel 2011, p. 17)

The most developed regional currency in Germany is the Chiemgauer, which was introduced in 2003 in Prien am Chiemsee, Bavaria (Warner 2014). The currency was developed by Christina Gelleri and six students (Community

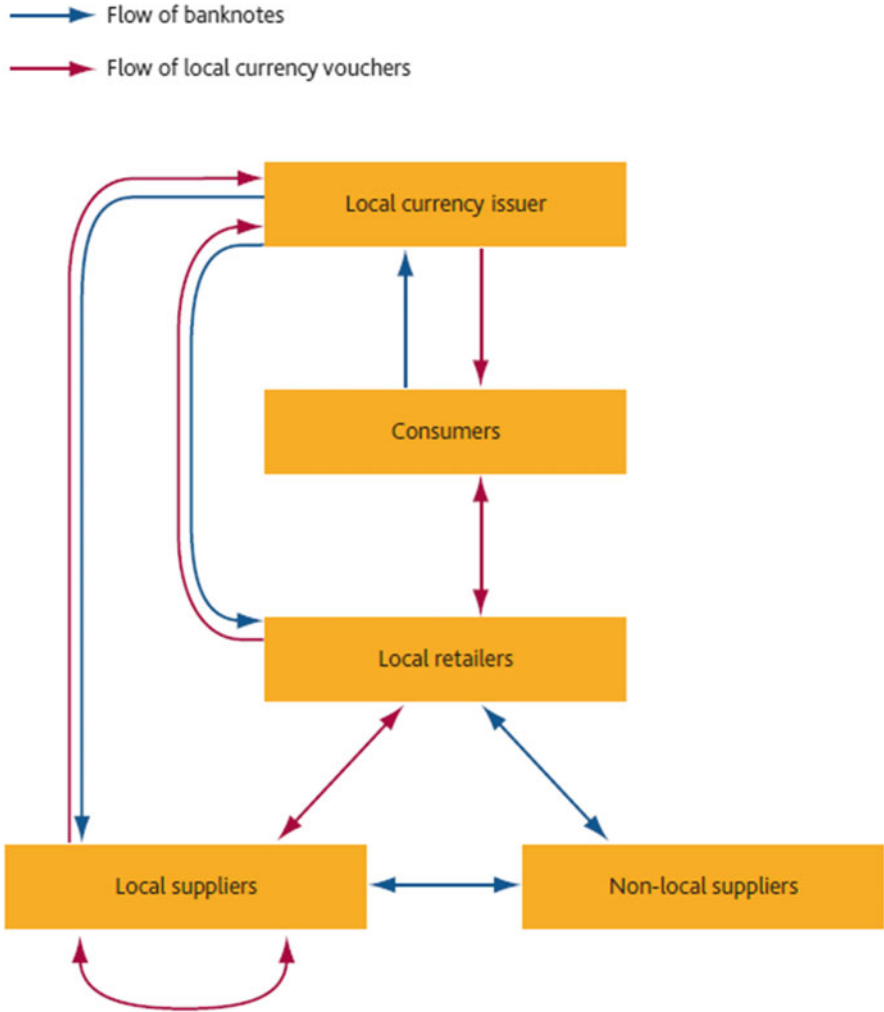


Fig. 1 Illustrative example of local currency circulation. Source: Naqvi and Southgate (2013, p. 6)

Currency Knowledge Gateway 2016). The main characteristics of Chiemgauer are the following:

The value of one Chiemgauer is one Euro. Other nominations are 2, 5, 10, 20 and 50 Euro. The Chiemgauer note has 14 security features like ultra-violet colours, imprinting of the logo, watermark, copy-proof colours, individual serial number. Chiemgauer notes are ageing. The demurrage-fee (=negative interest rate) is 2% per quarter or 8% per year. This is not a 'must' for regional currencies but the Chiemgauer community has decided to establish a money that never slows down in circulation. The advantage is that everybody keeps money going. (Gelleri 2009, p. 69)

Table 3 Local currencies in the European Union

Country	Currency name	Type	No.	Status	Reliability	Development
Germany	Regiogeld	Local currency	30	Plateau in number of systems	High	First one in 2003, followed by rapid growth; currently consolidating
The United Kingdom	Transition currencies	Local currency	5	Growth in number of systems	High	Instigated 2007; initial growth; then plateauing for learning, with current expansion and experimentation

Source: Seyfang and Longhurst (2013, p. 70)

The idea behind the Chiemgauer is the theory of Silvio Gesell about money declining in value over time. Professor Jonathan Warner explains Silvio Gesell's theory as follows:

To correct what he saw as an inequality between sellers of goods and holders of money: sellers can sometimes be forced into selling their goods cheaply, as the quality deteriorated (think fresh produce left at the end of the day in a market); whereas holders of money face no such imperative. Therefore, he argued, money should decline in value over time, by means of a tax or price (demurrage) paid for holding on to the money. Logistically, the easiest way to do this was to require that the value of the note be maintained by affixing a special stamp on the back. (Warner 2014, p. 495)

The Chiemgauer is a local currency with high reliability. It is characteristic that in 2003, the first year of circulation, the total members of the currency were 235 and in 2014 were 3889 (Gelleri 2015). The augmentation of usage for the Chiemgauer is highly related with its velocity in relation to the euro, as we can see in Fig. 2.

From Table 4, we can see the success of the local currency, as it has increased the number of private consumers, producers and associations and communities from 2003 to 2014. According to the latest available data in 2014, the total number of users is 3889. Furthermore, we observe the increase of local currency in circulation in euros from 10,000 in 2003 to 694,511 in 2014. Total revenue in euros increased from 75,873 at 2003 to 7,426,269 € in 2014. The above statistics show the high importance of the Chiemgauer for the local economy and local companies. On the other hand, Deutsche Bundesbank criticises the role of local currencies in the German economy. Firstly, Deutsche Bundesbank mentions the miracle at the town of Wörgl in Tyrol, Austria, in 1932. Mayor Michael Unterguggenberger introduced a money experiment in order to overcome the implications of recession for the local economy during this period. The common key point of new money in Austria during this period with the Chiemgauer today is the decline of its value over time. The loss of purchasing power overtime augmented consumption rather than savings. The results were positive as unemployment fell, tax revenues were augmented and the rhythm of economic growth was increased. The experiment with the title 'Miracle of Wörgl' stopped in September 1933 as the Austrian Central Bank was losing its own

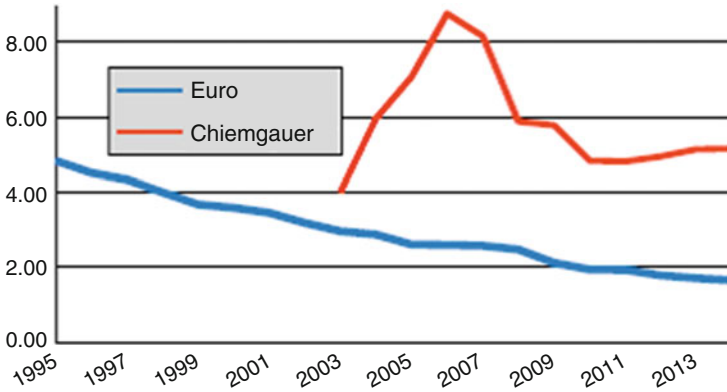


Fig. 2 Velocity of Chiemgauer in relation to the euro. Source: Gelleri (2015, p. 1)

monopoly in issuing bank notes (Deutsche Bundesbank 2013). According to Deutsche Bundesbank, local currencies have three main negative consequences:

1. The inbuilt erosion of the value of the money because the Chiemgauer, for example, loses around 8% of its value over a year
2. Limited number of traders who accept the currency
3. Loss of efficient division of labour because day-to-day goods and services are supplied not by the provider best placed to produce them but by one’s neighbours (Deutsche Bundesbank 2013)

Moreover, we will analyse the role of local currencies in the United Kingdom and their implications to the local and national economy. The most developed currency in the United Kingdom is the Bristol Pound, established on 19 September 2012. The Bristol Pound is the local currency of Bristol and has the following features:

1. The United Kingdom’s first city-wide local currency
2. The first to have electronic accounts managed by a regulated financial institution
3. The first that can be used to pay some local taxes
4. £B1 equal in value to £1 sterling
5. Paper Bristol Pounds
6. Bristol Pound account with any mobile phone by using simple TXT2PAY SMS payment system or over the internet (Bristol Pound 2016a)

The circulation of the Bristol Pound is strongly related to Bristol Credit Union. This organisation has the following jurisdictions:

1. Hold and manage all Bristol Pound member accounts
2. Hold sterling deposits and manage the process of exchange between Bristol Pounds and sterling
3. Help ensure that disadvantaged people have access to this new financial service and a stake in its development (Bristol Pound 2016b)

Table 4 Statistical data related to the Chiemgauer

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of private consumers	130	380	700	1097	1337	1713	1899	2230	2470	2573	2769	3036
Number of producers	100	250	380	540	631	607	587	602	593	633	627	593
Number of associations and communities	5	15	50	98	158	179	200	217	233	248	253	260
Total number of users	235	645	1130	1735	2126	2499	2686	3049	3296	3454	3649	3889
Chiemgauer purchase (in euros)	68,286	198,991	349,917	560,283	875,737	1,073,642	1,304,994	1,501,145	1,737,584	1,879,372	2,095,626	2,159,927
Chiemgauer reconversion (in euros)	58,286	175,662	333,138	491,541	766,430	977,566	1,239,260	1,333,067	1,734,213	1,778,481	2,174,909	1,985,931
Local currency in circulation (in euros)	10,000	33,329	50,108	118,850	165,648	261,724	327,458	495,536	498,906	599,797	520,514	694,511
Of this: electronic circulation (in euros)	–	–	–	17,141	62,536	114,131	188,305	308,389	322,168	406,442	360,227	540,000
Total revenue (in euros)	75,873	306,140	699,834	1,273,370	2,304,571	2,982,339	3,974,927	4,993,500	5,585,021	6,137,000	6,826,105	7,426,269
Total cost of producers (in euros)	3030	16,150	24,056	38,071	58,368	88,031	107,336	127,254	133,830	148,688	151,959	164,887
Total cost of producers as a percentage of revenue (%)	3.99	5.28	3.44	2.99	2.53	2.95	2.70	2.55	2.40	2.42	2.23	2.22

Source: Toth (2001, p. 74) and Gelleri (2015, p. 1)

In 2013, the Bank of England focused on the role of local currencies in regard to the monetary stability objective. According to the Bank of England, local currencies are similar to vouchers, but some look like banknotes. Table 5 summarises the current situation of instrument issuers in the United Kingdom.

From Table 5, we understand that is vital for the role of a currency to have the legal tender status. The Bank of England explains that only banknotes issued by the Bank of England have legal tender status. The definition of legal tender has as follows:

The term 'legal tender' simply means that if a debtor pays in legal tender the exact amount they owe under the terms of a contract, and the contract does not specify another means of payment, the debtor has a good defence in law if he or she is subsequently sued for non-payment of the debt. In ordinary day-to-day transactions, the term 'legal tender' has very little practical application, as whether or not an instrument (be it a banknote or local currency voucher) is used as a means of payment is subject only to the mutual agreement of the parties to the transaction. (Naqvi and Southgate 2013, p. 5)

Table 5 Summary of the status of Bank of England notes, Scottish and Northern Ireland notes and UK local currencies

Instrument issuer	Bank of England banknotes	S&NI banknotes	Local currencies
Legal status	Legal banknotes—authorised by Bank Charter Act 1844	Legal banknotes—authorised by Banking Act 2009	Similar legal status to vouchers or electronic balances
Legal tender status	Legal tender in England and Wales	Not legal tender	Not legal tender
Value in circulation	£54.2 billion	£6 billion	Less than £500,000
Population of area	Whole of the United Kingdom (63.7 million)	Scotland (5.3 million) and Northern Ireland (1.8 million)	A local area or high street; the largest scheme currently targets population area of one million
Risks to holders of the instrument	Instrument is a claim on the central bank; hence, no exposure to market or credit risk	Banking Act 2009 introduced the ring-fencing of banking assets and guaranteed central bank settlement at all times; hence, level of credit protection comparable to Bank of England note users	No mandated credit protection for paper-voucher users. While existing schemes have generally issued vouchers that are backed one-for-one with sterling, the funds are not legally ring-fenced
Anti-counterfeiting measures	Use of robust security features and a programme of education on how to correctly identify genuine banknotes	Security features (the strength of which is selected by the issuer) and education are often used	Security features (the strength of which is selected by the issuer) and education are often used

Source: Naqvi and Southgate (2013, p. 9)

Table 6 Scale of some UK local currency schemes

Paper instrument	Value in circulation	Population of area
BoE notes	£54.2 billion	63.7 million
S&NI notes	£6 billion	7.1 million
<i>Bristol Pound</i>	£250,000	1 million
Brixton Pound	£100,000	300,000
Lewes Pound	£20,000	17,000
Totnes Pound	£8000	15,000
Stroud Pound	£7000	13,000

Source: Naqvi and Southgate (2013, p. 6)

On the other hand, the legal status of a voucher differs from a banknote:

...vouchers represent a pre-payment for goods or services from a specified supplier (or group of suppliers) and do not legally entitle the holder with the right to redeem the voucher. While the legal status of local currency vouchers is similar to traditional single-retailer vouchers and multi-retailer vouchers, such as book or theatre tokens, local currency vouchers offer a different user proposition. They may be used to purchase any good or service from participating retailers within a particular area, and can be recirculated by the retailer to purchase supplies (or given out as change items). While local currencies may have more functions than a traditional retail voucher, they do not have the full functionality of a banknote. (Naqvi and Southgate 2013, pp. 5–6)

The expansion of local currencies (less than £500,000) is limited in comparison with Bank of England banknotes (£54.2 billion) and Scottish and Northern Ireland banknotes (£6 billion). Moreover, local currencies concern a population area of 1 million in relation to 63.7 million for the entire United Kingdom. From Table 6, it is crystal clear that the Bristol Pound is the most developed local currency of the four, with a value in circulation of around 250,000 according to the Bank of England (Bristol Pound 2016c).

Table 7 presents the employment rates for the United Kingdom and the Core Cities from September 2011 to September 2015. According to the latest available data, Bristol has the highest employment rate among the UK Core Cities and above UK average. Bristol has also augmented the employment rate by 3.3%. At the same time, the claimant¹ rate in January 2016 was 1.7%, which means below of the UK average of 1.9%. The claimant rate of Bristol is the lowest among the Core Cities.

Moreover, Bristol seems to have a positive path for business activity and new business start-ups. Table 8 shows that in 2015, in Bristol there were 20,615 active businesses with a real growth from 2010 to 2015 of 14.5%. This rate is the third highest after Manchester and Leeds of any large urban area outside London. Furthermore, Bristol has the highest business density (68.5%) of the British Core Cities and 4237 new business start-ups, which is the highest annual total from 2008. It seems that a strong correlation exists among the circulation of the Bristol Pound and the development of the local economy (Bristol City Council 2015).

¹On Nomis 'Claimant Count': now the number of people claiming a Jobseeker's Allowance (JSA) plus those who claim Universal Credit who are out of work.

Table 7 Employment rates for the United Kingdom and the Core Cities, September 2015

Area	Employment rate		Difference
	September 2011	September 2015	September 2011–September 2015
<i>Bristol</i>	72.6	75.9	3.3
Birmingham	57.3	62.6	5.3
Cardiff	66.3	68.2	1.9
Glasgow	62.3	66.7	4.4
Leeds	68.5	74.3	5.8
Liverpool	58.9	59.4	0.5
Manchester	58.3	61.0	2.7
Newcastle	61.2	65.2	4.0
Nottingham	56.9	63.5	6.6
Sheffield	65.8	71.0	5.2
The United Kingdom	69.8	73.2	3.4

Source: Bristol Economic Briefing (2016, p. 2)

Table 8 Business activity and new business start-ups

Area	Number of business units			Real growth 2010–2015	Density per 1000 WAP reported 2015
	2010	2015			
		Reported	Corrected		
<i>Bristol</i>	17,350	20,615	19,871	14.5	68.5
Birmingham	32,485	36,720	35,394	9.0	52.1
Cardiff	12,030	13,900	13,398	11.4	57.9
Glasgow	20,355	22,960	22,131	8.7	54.7
Leeds	26,775	32,605	31,428	17.4	64.5
Liverpool	13,565	15,355	14,800	9.1	47.4
Manchester	17,360	22,170	21,369	23.1	60.4
Newcastle	9130	10,150	9783	7.2	51.2
Nottingham	9830	10,725	10,338	5.2	49.0
Sheffield	16,495	18,040	17,389	5.4	48.8
Great Britain	2490 m	2825 m	2723 m	9.4	70.9

Source: Bristol Economic Briefing (2016, p. 5)

4 Conclusions

The study of alternative currencies reveals a new reality for local and national economies. The complementary currency systems (CCS) is not a new phenomenon as LETS constitute a reality since the 1980s. But two major changes have given a new push to the attempts for alternative currencies. First is the development of technology that gives more trade opportunities for participants in market systems. The most characteristic example is Bitcoin, which constitutes a peer-to-peer money system. The weakness of this case is the absence of a central authority for the confrontation of fluctuations (Boonstra et al. 2013). As we saw, local currencies are

driven by technology even if they use still the traditional way of issuing vouchers-banknotes. On the other hand, the manifestation of the world economic crisis has led to challenges with powerful currencies such as the euro, and the cohesion of the eurozone (Koutsoukis and Roukanas 2014).

We focused on local currencies as a part of the complementary currency systems (CCS) in the European Union. Local currencies are developed especially in Germany and the United Kingdom. The Chiemgauer in Prien am Chiemsee, Bavaria, and the Bristol Pound in Bristol are the most successful examples of local currencies in both countries. Deutsche Bundesbank and the Bank of England have pointed out the limitations, risks, legal status and possible positive impacts of local currencies in local economies. The Chiemgauer and Bristol Pound seem to have positive consequences to local economies, especially to business activity. In conclusion, a further study of the correlation between local currencies and local economies will reveal to what extent local currencies can present an opportunity to overcome stagnation of the European economy.

Acknowledgement The publication of this paper has been partly supported by the University of Piraeus Research Centre.

References

- Blanc, J. (2011). Classifying “CCs”: Community, complementary and local currencies, types and generations. *International Journal of Community Currency Research*, 15, 4–10.
- Boonstra, L., Klammer, A., Karioti, E., Aldo Do Carmo, J., & Geenen, S. (2013). *Complementary currency systems: Social and economic effects of complementary currencies*. Stichting DOEN: Erasmus University Rotterdam.
- Bristol City Council. (2015). *State of Bristol key facts 2015: July Update*. Bristol City Council.
- Bristol Economic Briefing. (2016). *Bristol economic briefing March 2016*. Summary, Bristol City Council.
- Bristol Pound. (2016a). *What is the Bristol Pound?* Accessed April 25, 2016, from <http://bristolpound.org/what>
- Bristol Pound. (2016b). *Bristol Credit Union*. Accessed April 26, 2016, from <http://bristolpound.org/creditunion>
- Bristol Pound. (2016c). *The Story of the Bristol Pound*. Accessed April 26, 2016, from <http://bristolpound.org/blog/2014/02/11/the-story-of-the-bristol-pound/>
- Community Currency Knowledge Gateway. (2016). *Chiemgauer*. Accessed June 21, 2016, from <http://community-currency.info/en/currencies/chiemgauer/>
- Deutsche Bundesbank. (2013). The cost behind the moniker: Local currencies in Germany. Accessed June 26, 2013, from https://www.bundesbank.de/Redaktion/EN/Topics/2013/2013_06_26_the_cost_behind_the_moniker_local_currencies_in_germany.html
- Gelleri, C. (2009). Chiemgauer regiomoney: Theory and practice of a local currency. *International Journal of Community Currency Research*, 13, 61–75.
- Gelleri, C. (2015). Chiemgauer-Statistik 2003 bis 2014, Chiemgauer e.V.
- Koutsoukis, N.-S., & Roukanas, S. (2014). The GrExit Paradox. *Procedia Economics and Finance*, 9, 24–31.
- Naqvi, M., & Southgate, J. (2013). *Banknotes, local currencies and central bank objectives, Bank's Notes Division*. Quarterly Bulletin Q4, Bank of England.

- Seyfang, G., & Longhurst, N. (2013). Growing green money? Mapping community currencies for sustainable development. *Ecological Economics*, 86, 65–77.
- Thiel, C. (2011). Complementary currencies in Germany: The Regiogeld system. *International Journal of Community Currency Research*, 15, 17–21.
- Toth, I. B. (2001). The function of local currencies in local economic development: The Bavarian ‘Chiemgauer Regiogeld’ and the ‘Kékfrank’ in Sopron. *Public Finance Quarterly*, 1, 67–78.
- Warner, J. (2014). The future of community currencies: Physical cash or solely electronic?. In *International Cash Conference 2014 The usage, costs and benefits of cash – revisited* (pp. 477–519). Frankfurt am Main: Deutsche Bundesbank.

The Role of FDI in Increasing Employment for South-East European Countries



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Abstract According to neoclassical and liberal economic doctrines, foreign direct investments represent the best chance for developing countries to accelerate their economic growth. The attraction of foreign capital would not mean just the import of capital but the absorption of new working methods, manners, traditions, and technology too. Famous authors such as Moose (Foreign direct investment: theory, evidence, and practice. Palgrave, 2001) suggested that FDI plays a very important role in transforming countries, especially post-communist ones. Foreign investments change the economic structure of the host country and increase international trade exchange, orienting national products in each country toward comparative advantages or toward those products and services where each country is specialized.

Lall and Streeten (Foreign investment, transnational and developing countries. Macmillan, 1977) add that FDI enhances the wellness of the host country, under certain optimal features, creating the conditions in order to maximize the profits of international companies, investing in local specialized companies, and using a comparative advantage of the country. Beyond the theoretical thought, it should be clarified that FDI does not always have a positive effect on economic growth and even more questionable is their role in the employment growth, as regards the developing countries.

In the case of Eastern Europe countries, after the fall of Communism, numerous privatizations of former state-owned enterprises led to a reduction of jobs in favor of creating profit for the new private owners. In other cases those privatization processes ended with the bankruptcy of enterprises. Foreign direct investment in other cases intervened in open sectors inducing a higher level of competition but without creating new jobs or higher levels of GDP. High competition in certain sectors did not bring a higher production or more employment but higher uncertainty for the workplace as a result of a more pronounced competition. Last but not least, Jones affirms that FDI could cause negative externalities in other sectors of economy in the case connected to the environmental pollution and health damages.

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New investments can provoke contamination in water sources and in the air, compromising economic and health activities relating to them.

In this paper will be analyzed the effects of Foreign Direct Investment in countries of South-East Europe and will be shown whether FDI brought an economic growth and increased employment at the aggregate level during the years 2001–2014 or if for this region too, are confirmed concerns over collateral effects that FDI can have on the economy. Through the program e-views will analyze time series regressions between FDI, economic growth, and employment growth. In this paper it will be clear that in South-East Europe, FDI generally played a positive role not only in economic growth but also on employment growth, especially in those sectors where these investments were more concentrated. Finally, after having appreciated the effects of FDI, we will set up a recipe on how FDI may be channeled in order to give greater effects on GDP and employment.

Keywords Foreign direct investment • Employment • Economic growth • Gross domestic product • Externalities • South-East Europe

1 Introduction

Foreign direct investment (FDI) is the process whereby residence of one country acquires ownership of assets for the purpose of controlling the production distribution and other activities of a firm in another country. The definition of FDI is not only limited to a simple transfer of money but has now extended to being defined as a measure of foreign ownership of domestic productive assets such as factories, land and organizations, and other intangible assets like technologies, marketing skills, and managerial capabilities.

Economic literature has been dominated by FDI over the last 30 years, especially the developmental areas of economics due to the highly receivable potential benefits of a host country. The effects experienced spread over a wide range, from influencing production, generation of employment, change in income levels, import and exports, impact on economic growth, balance of payments, to the general welfare of the host country.

Historically speaking, FDI started to grow in the post Second World War period, causing the improvement in transport and communications and causing the need of western countries to finance reconstruction following the damage inflicted by the war. The surge in FDI in the 1980s is attributed to the globalization of business. It is also attributed by Aizenman (1992) to the growing concern over the emergence of managed trade. Total flows of FDI from industrial countries more than quadrupled between 1984 and 1990 in the USA. After the 1990s, FDI maintained high level of flows because the investments were no longer confined to large firms, as an increasing number of smaller enterprises became multinational. On the other hand, the number of countries that where outward investors of host of FDI grows considerably. During this period considerable improvements in the investment climate where made enhanced by deregulations and privatizations.

The rapid growth of FDI after the 1980s was caused by the growing of global competition as well as from the tendency to free up financial, goods and factor markets. It has been observed that FDI flows continue to expand even when world trade slows down (Jeon 1992; Moore 1993).

Lipsey (2000) suggests that if FDI flows represented mainly responses to differences among countries in the scarcity and price of capital, countries would tend mainly to be sources or recipients of FDI. It is a common belief that if the economy is in a boom, FDI inflows will increase and FDI outflows will decrease and vice versa. Lipsey (2000) shows that if FDI flows represent mainly an aftermath to differences in the price of capital among countries, these countries would tend mainly to be sources or recipients of FDI. FDI inflows in the European Union were 76.9 billion US dollars in 1994. FDI inflows, 5 years later, were almost five times higher with 305.1 billion US dollars in 1999 (UNCTAD 2000).

FDI involves the transfer of financial capital, technology, managerial skills, marketing, accounting skills, and so on. This process gives rise to costs and benefits for the countries involved. Kindleberger (1969) explains that one country's losses are not necessarily other countries' gains and the relationship arising from the FDI process is not a zero-sum game. The effects of FDI on the host country can be classified into economic, political, and social effects. Neoclassical economics argues that FDI raises income and social welfare in the host country if the market conditions are not distorted by protection, monopoly, and externalities (Lall and Streeten 1977).

If we assume that the markets are perfect, with constant returns to scale, the free capital would flow from a low-return country to a high-return country. This causes a consequent reduction of return of the second country and rise in the low-return country (Winters 1991). The economic effects of FDI include the implications for economic variables such as the output, balance of payments, and market structure. The political effects include the question of national sovereignty, and the social issues are concerned mainly with the creation of enclaves and foreign elite in the host country, as well as the cultural effects on the local population.

The critics look at FDI as the biggest symbol of new colonialism or imperialism, and on the other extreme, the supporters look at FDI flows as the necessary fuel for the biggest part of world countries. FDI offers the possibility for channeling resources to developing countries according to Lipsey (1999). Moreover, FDI provides new technologies in managerial field and technical and marketing skills. FDI is one of several approaches that business enterprises can use to enter in foreign markets, allowing a firm to circumvent actual or anticipated barriers to trade.

FDI can also take the form of joint ventures, either with a host country firm or a government institution. One side normally provides the technical expertise and its ability to raise finance, while the other side provides the local knowledge of the bureaucracy, as well as of local laws and regulations.

One of the most important aspects of FDI is the economic growth effect in the host country. Theories of economic growth and development focus on the increase in real per capita income and relate this increase to the capital accumulation, population growth, technological progress, and discovery of natural resources. However capital accumulation is seen as the driving force behind faster growth. It is obvious that FDI

influences and boosts the capital accumulation. In contrast to the traditional Solow growth model, the recent literature highlights a link of economic growth on the state of domestic technology relative to the rest of the world. Borensztein et al. (1995) suggests that FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than does domestic investment. FDI has the effect of increasing total investment in the economy more than proportionately.

In his *General Theory*, Keynes (1936) suggested the existence of the direct relationship between investment and employment. Baldwin (1995) categorizes the FDI in three cases. The first one treats FDI as substitutes for domestic investments, the second feature shows that FDI stimulates exports of intermediate goods, and the last one when FDI involves the construction of new plants or simply the acquisition of existing facilities. FDI is capable of increasing employment by directly setting up new facilities or stimulating employment in distribution. FDI can preserve employment by acquiring and restructuring ailing firms. FDI can also reduce employment through divestment and the closure of production facilities. Vaitsos (1976) suggests that the evidence of FDI effect in employment is low. Feldstein (1994) argues that the total employment in an economy with a well-functioning labor market will not be affected by the volume of FDI. Krugman (1991) concluded that the net impact of FDI on US employment is approximately zero.

Krugman noticed an almost in-existent net impact of FDI in creating new employment in developed countries because all sectors exist yet and are populated by different companies. FDI does not create new sectors, but they intervene in existing sectors by improving technology and efficiency of management and substituting the existing jobs. On the other side, it would be reasonable to think that in developing countries or poor countries, not all the fields of production are being exploited, and as a consequence FDI opens new sectors importing not only technology and human resources but creating also new jobs; being the investment bearers, they are the first, and as a consequence, they do not enter in competition with other firms.

The governments of developing countries may inflict damages on the environment in attempt to attract FDI. FDI is a boon for the environment in a developed country and could be a bane for developing countries. The cost of pollution are nonlinear, as the initial increment of pollution probably has very low costs for developing countries, and there are lower levels of protests by civil society and environmental activists.

There have been many studies that link the presence and growth of FDI with the creation and increasing of the production. Evidences from different authors show that after the FDI flows, there has been also an increase in import and export in different countries. It is confirmed too that FDI flows contributed positively in the GDP growth, but not always there have been clear effects between FDI growth and employment growth. The reason why this connection remains unclear is because the FDI is normally performed by enterprises which have established accumulations of capital as a result of their good management and efficiency between the numbers of employees and the final output. The new enterprises bring to the host country's best practices not only in technological field but in managerial level too, by having a tendency to improve as much as it can the relationship between the employees and production.

Most likely FDI creates a reduced number of new employments, but the incomes for any new jobs are on average higher in comparison with the revenues of existing employment in the host country. The case of South-East European countries is unique because most of them came from a nearly 50-year experience of a planned economic system. The initial effect from the privatization was the reduction of the number of employees of the former public enterprises in the cases when privatizations have been successful too.

It's important to see that FDI in the Balkan region continued beyond privatization and different turbulences. The FDI created new sectors in host countries, with no tradition in production, employing and training people with new skills. In these cases FDI brought an increase in employment, supported by international liberalization processes of markets in the South-East Europe countries. This processes allowed the growth of competitiveness in various sectors.

Our goal in this paper will be to clarify exactly whether FDI brought an increase in employment in the analyzed countries or the abovementioned effects have diluted the growth of new jobs. The analyzed period starts from 2002 to 2014. This period was chosen because until 2000–2001, Balkans has been concerned by the social irregularities and conflicts such as the one of Kosovo in 1999–2000 and that of FYROM in 2000–2001. At the same time, the Milosevic government falls in Serbia. By 2002 and beyond South-East Europe began a period of relative political tranquility which continues until today, and this situation constitutes a fundamental prerequisite for the development and growth of foreign direct investment. Countries that will be analyzed are Albania, Bulgaria, Greece, Croatia, Hungary, Montenegro, Serbia, and Slovenia. Countries that are not taken into analysis were Kosovo and Bosnia and Herzegovina; the first country is not analyzed because there is a short series of data collected only after independence in 2008, while Bosnia and Herzegovina has a quite fragmented system of data collection, divided between the Bosnian Serb Republic and the Muslim-Croat federation.

The analysis will not only bind together FDI and the number of employees but links in particular the number of nonagricultural private sector employees and FDI, for two reasons. The Government sector is exempted from the analysis because the number of civil servants does not depend on the amount of FDI but by the government structural policies. There is an exclusion from the analysis of the Agricultural Sector too because, as regards South-East Europe, the 98% of FDI flows are not concentrated on the agricultural sector. We should not forget that the FDI investment in agriculture reduces the number of employees because of the mechanization of agriculture.

The analysis relates FDI and the nonagricultural private sector employment at aggregated level between countries and in each country in particular. A particular attention will be given to Albania because the country, historically, had the majority employment engaged in the agricultural sector, while private activities in manufacturing and services had been at the stem in relation to other regional countries. In the case of Albania, we want to see if the attraction of every FDI dollar gave higher results in employment compared with other region countries or the translation coefficient between FDI and employment was similar to those obtained in the other countries.

2 Analysis

2.1 *Analysis of the Evolution of the FDI and Employment Over the Years*

The table below shows the relation between FDI and GDP in each year taken into account. The period analyzed here involves a first phase of high economic growth and a second phase by 2009 and after, where the economic crisis lowered the economic growth path in the South-East Europe countries. From the table we can see that during the time frame 2002–2004, FDI rates have been relatively low with the only exception of Bulgaria, a country which was experiencing approaching toward EU membership. The membership period of the country brought a considerable growth in FDI, reaching the highest value in 2007 where FDI was 31% of GDP.

Bulgaria returned to relatively low values of FDI, around 3%, showing that the country was not able to create the right environment to carry on attracting FDI at high levels. A special case was Greece, a country which in the analyzed period absorbed very low levels of FDI; this is due to the bureaucratic environment with relatively high taxes. From the beginning of the period analyzed, Slovenia achieved a good level of wellness, but the levels of FDI were not satisfying. Albania was a positive surprise for constantly increasing the FDI flows. The country was able to make the necessary reform to lower the level of bureaucracy, tax cuts, and improvement of the infrastructural situation during 2007–2013.

Albania positive results are more valuable, particularly if we consider the global economic crisis, and FDI allowed the country to create a countercyclical economic trend which didn't let Albania to experience the economic recession. Serbia has also experienced positive results over the period 2005–2011 because of the opening of markets to FDIs. After 2011, the FDI flows decreased because of the increasing tax level. Hungary has been the country which has experienced a pronounced volatility in FDI by having very high flows (50.8% of GDPs in 2008 and –16.1% in 2010).

Negative results of Hungary from 2010 and beyond are justified by diffident and suspicious policies against FDI by Victor Orban's government, which has all the characteristics of a right nationalist and authoritarian party. Montenegro since independence in 2007 had great levels of FDI which are concentrated in the tourism sector by numerous investors, in particular from Eastern Europe and Russia. Although these investments were reduced after 2010, they continue to remain at high levels, and they are crucial to economic and employment growth. Croatia recently has middle levels of FDI, because the government philosophy stayed at intermediate levels between the liberal and neoliberal ideology with low taxes and a country with etatiste traditions with higher taxes. FDI flows decreased during the economic crisis of 2009–2013 not supporting the economic growth of the country (Table 1, Figs. 1 and 2).

Table 1 FDI/GDP in percentage

Country name	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Albania	3.0	3.1	4.7	3.2	3.6	6.1	9.6	11.2	9.1	8.1	7.5	9.8	8.7
Bulgaria	5.5	9.9	10.2	13.7	23.0	31.0	18.8	7.5	2.5	3.7	3.3	3.6	3.5
Greece	0.0	0.7	0.9	0.3	2.0	0.6	1.6	0.8	0.2	0.4	0.7	1.2	0.7
Croatia	4.1	5.9	2.6	4.0	6.5	7.6	7.4	5.1	2.4	2.3	2.6	1.6	6.9
Hungary	4.5	2.6	4.1	7.6	16.3	50.8	47.8	-2.3	-16.1	7.5	8.3	-2.9	9.0
Montenegro	0.0	0.0	0.0	0.0	0.0	25.6	21.6	37.4	18.3	12.3	15.1	10.0	10.8
Serbia	3.5	6.6	4.1	7.8	16.2	11.0	8.2	6.9	4.3	10.6	3.1	4.5	4.6
Slovenia	7.0	1.0	2.4	2.7	1.7	3.9	1.9	-0.7	0.7	1.7	0.1	0.2	2.1

Source: World Bank

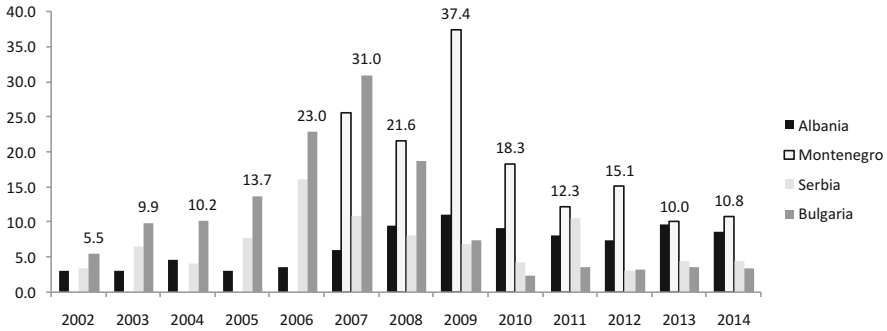


Fig. 1 FDI/GDP in percentage over the years. Source: World Bank

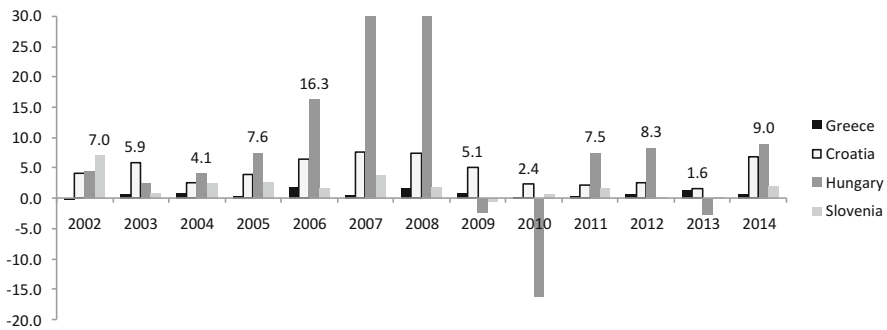


Fig. 2 FDI/GDP in percentage over the years. Source: World Bank

Albania experienced a more pronounced growth in employment from 2002 to 2014. These data belongs to nonagricultural private sector only, leaving out the agricultural sector and the civil servants. The reasons why Albania had the best performance in relation to other countries are because industrial activity and services occupied a very small weight in relation to employees in total. Only 22.6% of total employees were part of the private nonagricultural sector. The share of agricultural sector was more than 60%. In 2014, the share of private nonagricultural employees increased to 34.4% of total employees because of FDI concentration in industry and service sector. Montenegro had very positive results that increased the number of employees by 33%, especially in the tourism sector. A positive situation by 2002 and so on was created in Croatia, Bulgaria, and Hungary too. The results were quite negative in Slovenia, Greece, and Serbia, where the number of employees in the nonagricultural private sector has suffered a constant decline, especially after the economic crisis (Table 2 and Fig. 3).

Table 2 Employment growth starting from 2002

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Albania	100	101.6	102.5	103.5	107.9	110.7	115.0	114.2	116.4	123.4	129.3	140.0	153.3
Bulgaria	100	104.8	109.9	114.8	120.9	127.4	133.1	129.9	125.1	122.5	119.6	118.2	118.3
Greece	100	102.2	105.2	107.0	108.7	110.4	112.8	111.6	107.5	99.1	91.9	87.6	88.0
Croatia	100	103.5	106.4	107.7	113.5	119.7	123.8	118.1	112.5	111.3	110.3	107.4	124.7
Hungary	100	100.9	100.2	101.2	102.2	102.7	101.7	97.3	95.9	96.7	98.0	99.4	104.6
Montenegro	100	102.7	103.3	104.4	109.3	113.4	122.0	129.3	119.0	120.7	124.1	129.1	133.1
Slovenia	100	98.5	97.8	96.9	99.7	105.3	109.7	106.1	102.7	100.3	98.0	95.5	96.8
Serbia	100	98.0	97.7	98.4	96.4	95.1	94.8	89.1	84.5	82.8	82.9	83.1	82.2

Source: National Statistical Office (Al, Bu, Gr, Hr, Hu, Mn, Sl, Sr)

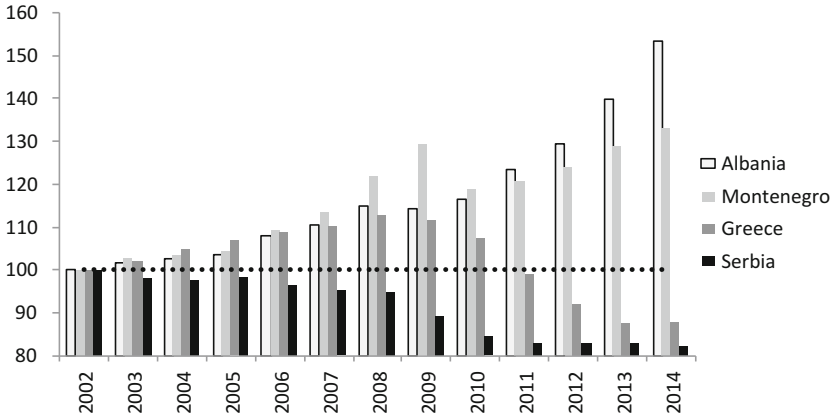


Fig. 3 Employment growth in comparison between different countries. Source: National Statistical Office (Al, Gr, Mn, Sr)

2.2 Regression Model and Results

The data for the regression model on FDI and employment will be obtained on an annual-based frequency from the year 2002 to 2014. The data of FDI are collected from the database of World Bank and the data of employment from the statistical institute of each country of South-East Europe analyzed in this paper. The sample period has been limited only to 2014 due to the unavailability of data for employment and FDI for the next few years up to 2016.

In this study, two different regression equations will be required. First, the impact FDI has on the total employment generated in the nonagricultural private sector on aggregate level. It used panel data through least-squares method with the help of the EViews software to empirically analyze the correlation of the data sets of FDI and employment for each country. Second, the impact that FDI has on the employment generated in the nonagricultural private sector for each countries of South-East Europe.

The next step is focused on the interpretation of statistical results referred to the valuation of the parameters analyzed by EViews program.

The first model proposed in this paper is represented by the following equation:

$$EMP_t = \alpha_0 + \alpha_1 FDI_t + \alpha_3 u_{t-1} + \alpha_4 u_{t-2}$$

We denote with EMP_t (dependent variable) the number of employees in the nonagricultural private sector in period t while with FDI_t (independent variable) the value of foreign direct investment in the period t , for each country of Eastern Europe analyzed in the paper separately. α_0 represents the basic factor noninfluenced by FDI. With u_{t-1} and u_{t-2} , we intend residuals of one and two lags.

Dependent variable: EMP				
Method: panel least squares				
Variable	Coefficient	Std. error	t-Statistic	Prob.
C	1425539	18258.58	78.07499	0.0000
FDI	1.12E-06	2.99E-07	3.733833	0.0004
AR(1)	1.662777	0.071081	23.39266	0.0000
AR(2)	-0.876033	0.074781	-11.71466	0.0000
Effect specification				
Cross section fixed (dummy variables)				
R^2	0.999072	Mean dependent var		1.434771
Adjusted R^2	0.998952	S.D. dependent var		1093977
S.E. of regression	35415.40	Akaike info criterion		23.90415
Sum of squared resid	9.66E+10	Schwarz criterion		24.21382
Log likelihood	-1040.783	Hannan-Quinn criter		24.02891
F-statistic	8293.702	Durbin-Watson stat		1.650635
Prob (F-statistic)	0.000000			

Estimation equation:

$$\text{EMPJ} = C(1) + C(2) * \text{FDI} + [\text{CX} = F] + [\text{AR}(1) = C(3), \text{AR}(2) = C(4)]$$

Substituted coefficients:

$$\text{EMPJ} = 1425538.73193 + 1.11655791252e - 06 * \text{FDI} + [\text{CX} = F] \\ + [\text{AR}(1) = 1.66277720763, \text{AR}(2) = -0.876033105219]$$

The analysis shows that the probability of the independent variable (FDI) is $0.0004 < 5\%$ (significance level $\alpha = 0.05$); we reject the null hypothesis, which means that this variable is significant; so FDI in the case of Albania is an important variable in order to explain the dependent variable, who in our case is employment in the nonagricultural private sector. In addition, the value of F -statistic is (8293.702) with Prob (F -statistic) = 0.000000; since the p -value $< 5\%$, it means that we reject the null hypothesis that all slope coefficients are equal to zero, proving the significance of the regression model.

The R^2 is typically read as the “percent of variance explained.” It is a measure of the overall fit of the model. The adjusted R^2 is 0.998952; this is a value closer to 1 indicating that a greater proportion of variance is accounted for by the model. This means that the fit explains 99.89% of the total variation in the data about the average.

The Durbin-Watson is a number that tests for [autocorrelation](#) in the residuals from a statistical [regression](#) analysis. The Durbin-Watson statistic in the case of Albania which is 1.65 that is quite near to the value of 2 means that there is not a big risk of autocorrelation in the sample.

The problem of autocorrelation (autoregressive) is eliminated; we can see the AR(1) and AR(2) problem is 0.0000.

By these data we can see that in the eight South-East European countries analyzed, generally speaking FDI played a positive role in the sense of creating new jobs. This would mean that investments didn't arrive in host countries simply because of privatizations, reducing the number of employees, but investments were spread in different sectors. The effect in creating employment has been quite positive.

Referred to the analysis, we can see that for every UD dollar of FDI in South-East Europe, 0.0000112 new employments are created. *Otherwise for each \$1 million FDI invested, 11.2 people found a new job on average in nonagricultural private sector.*

In the following table, there are data for each country. The result suggests big differences as regards the FDI coefficient. By the table we can notice that the most pronounced and evident positive result belongs to Albania where for every 1 million dollars invested, more than 94 new jobs were created. Other countries like Bulgaria and Croatia had good results with more than 10 new employees created for every 1 million dollars of FDI. The results are quite moderate for countries like Greece and Montenegro. As regards Greece the result needs to be taken with the benefit of the doubt because of the high significant error (0.447). The results are not clear or neutral in the case of Slovenia and Hungary. On the contrary Serbia represents the case where the FDI inflows were concentrated in economic fields populated previously by Serbian enterprises. These investments increased GDP and improved the technology of production, but on the other hand, these processes brought reduction of employees engaged in these different sectors (Table 3).

3 Conclusion

- The results suggest that FDI flows in South-East European countries had a positive impact on employment growth. On average it turns out that for every million dollar FDI, there are 11.2 people employed in nonagricultural private sector.
- The countries with positive results in employment for each million dollar FDI were Albania with 94 employees, Croatia with about 31 employees, and Bulgaria with more than 16 employees.
- In Serbia FDI flows intervened in sectors where many companies were privatized and that provoked, as a result of their recovery, a decrease in number of employees.

The limitations of this model consist in the fact that the period of analysis may be quite short. In this case we analyzed those sectors of private economy not related with agriculture. We decide that because FDI flows in the agricultural sector have been around 1% of total FDI. The FDI involvement in the analysis, together with the number of the employees in agriculture, would impede finding clear and reliable results. The last but not the least limit is about the fact that the increase of the

Table 3 Summary of regression results

	Albania	Bulgaria	Greece	Croatia	Hungary	Montenegro	Serbia	Slovenia
FDI coef.	9.43E-05	1.63E-05	2.48E-06	3.06E-05	9.81E-07	9.75E-06	-5.44E-12	9.99E-07
Prob.	0.0000	0.0181	0.4470	0.0002	0.0241	0.0000	0.0025	0.1401
AR(1) prob.	0.0129	0.0000	0.0000	0.0107	0.0036	-	-	0.0004
AR(2) prob.	-	-	0.0001	-	0.0221	-	-	0.0048
R^2	0.997523	0.849244	0.981748	0.876512	0.806754	0.871017	0.553850	0.875071
Adjusted R^2	0.996973	0.815742	0.973926	0.849070	0.723935	0.859291	0.513291	0.821530
Prob.	0.000000	0.000201	0.000002	0.000082	0.006807	0.000003	0.003530	0.001524
Durbin-Watson stat	1.157.165	0.956341	1.958.083	2.082.188	2.255.321	1.580.786	0.629642	2.204.417
1 million \$ FDI	94.3 emp	16.3 emp	2.5 emp	30.6 emp	0.98 emp	9.8 emp	-0.000009 emp	0.99 emp

Source: Author

employees is attributed exclusively to FDI and not to public and private inward investment. We considered in our model the domestic investment as similar or constant in the eight analyzed countries.

FDIs can create in most cases two alternative effects. The first one regards an increase in GDP accompanied by a low growth or no growth in employment which is due to a higher efficiency between output and labor factor. On the other hand, FDI could bring an increase in employment, not always accompanied by an increase in GDP. Policy makers could choose to address FDIs in relation to their contingency needs or according to their perspective plans in favor of employment growth or increasing the productivity and the modernization of their economies.

References

- Aizenman, J. (1992). *Foreign direct investment as a commitment mechanism in the presence of managed trade* (NBER Working Paper No. 4102).
- Baldwin, R. E. (1995). *The effect of trade and foreign direct investment on employment and relative wages* (NBER Working Paper No. 5037).
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1995). *How does foreign direct investment affect economic growth* (NBER Working Paper No. 5057).
- Feldstein, M. (1994). *Taxes, leverage and the national return on outbound foreign direct investment* (NBER Working Paper No. 4689).
- Jeon, Y. D. (1992). The determinants of Korean foreign direct investment in manufacturing industries. *Weltwirtschaftliches Archive*, 128, 527–541.
- Keynes, J. M. (1936). *The general theory of employment, interest and money*. London: Macmillan.
- Kindleberger, C. P. (1969). *American business abroad: Six lectures on direct investment*. New Haven, CT: Yale University Press.
- Krugman, P. (1991). Increasing returns and economic geography. *Journal of Political Economy*, 99(3), 483–499.
- Lall, S., & Streeten, P. (1977). *Foreign investment, transnational and developing countries*. London: Macmillan.
- Lipsey, R. E. (1999). The role of FDI in international capital flows. In M. Feldstein (Ed.), *International capital flows*. Chicago, IL: University of Chicago Press.
- Lipsey, R. E. (2000) *Interpreting developed countries' foreign direct investment* (NBER Working Paper No. 7810).
- Moore, M. O. (1993). Determinants of German manufacturing direct investment in manufacturing industries. *Weltwirtschaftliches Archive*, 129, 120–137.
- Moose, A. I. (2001). *Foreign direct investment: Theory, evidence, and practice*. New York: Palgrave.
- National Statistic Office of Albania. *Labor market*. Available at: <http://www.instat.gov.al/en/themes/labour-market.aspx>
- National Statistic Office of Bulgaria. *Labor market*. Available at: <http://www.nsi.bg/en/content/6316/labour-market>
- National Statistic Office of Croatia. *Labor market*. Available at: http://www.dzs.hr/default_e.htm
- National Statistic Office of Greece. *Labor market*. Available at: <http://www.statistics.gr/en/statistics/eco>
- National Statistic Office of Hungary. *Labor market*. Available at: https://www.ksh.hu/labour_market
- National Statistic Office of Montenegro. *Labor market*. Available at: <http://www.monstat.org/eng/page.php?id=23&pageid=23>

- National Statistic Office of Serbia. *Labor market*. Available at: <http://webrzs.stat.gov.rs/WebSite/public/ReportView.aspx>
- National Statistic Office of Slovenia. *Labor market*. Available at: <http://www.stat.si/StatWeb/en/field-overview?idp=3&headerbar=12>
- UNCTAD. (2000). *World investment report: Cross-border mergers and acquisitions and development*, New York, United Nations.
- Vaitsos, C. V. (1976). *Employment problems and transnational enterprises in developing countries: Distortions and inequality*. International Labor Office, World Employment Programme Research, Working Paper II.
- Winters, L. A. (1991). *International economics* (4th ed.). London: Harper-Collins.
- World Bank. *Foreign direct investments net flows*. Available at: <http://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD>

Trends in the Balkans and Eurasia Under Globalization: Geostrategic Analysis



Efstratios Kyriotelis

Abstract Potential possibilities of Eurasia become global realities and commencement of solving major global-historical problems. In this context, the area of the Balkans and the countries located at the edge of both sides of EU and Eurasia have become the scope for developing relationships, which are trying to influence both two sides. Geopolitical balances, in the sphere of control of sources and in the sphere of circulation, transmission and distribution networks, are changing. G20's intervention approaches the general 2008s crisis, as a global affair and not unilateral, affecting the interests of all people and partial solutions are not acceptable. Including global community's interests and developing all its potential, it gives the course of global governance, reveals its general character and degrades monopolization, attesting the guarantees and sustainable arrangements. This intervention is universal and deals with the unification of production and management of the economy, the dialectics between politics and economy and geopolitics and geoeconomics. A careful and penetrating review testifies to the objective fact that the immediate preceding major realities are incorporated into the mainstream of Eurasia, the movement of which is now designated increasingly by its own determinism. This review also states, with reference to the dynamism and realities of the region, that the Eurasian countries have substantial reserves with which to confront the general crisis and align themselves with the challenges of the times. Furthermore, Eurasia is the most important area in world affairs in terms of material conditions. This is demonstrated by reliable theoretical and statistical data which substantiate the position/conclusion that the trends manifested within Eurasia have objectively upward-moving and progressive global characteristics, exuding a sense of optimism and encouraging the global community to demonstrate a similar realism.

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1 Introduction

In terms of geography, Eurasia is becoming the base of reception and bearer of promotion, radical-qualitative restructuring the global affairs. The consequences begin to become visible as elements of a progressive movement, corresponding to the format and essence of Eurasian region. Based on these data, the analysis led to the theoretical position that whole global evolution currents converge with unique acceleration in Eurasia region, which makes it organically tied with the procedures of the transitional period. On the basis of all these, Ricardo, the classics of bourgeois political economy and Marx are met with the theory of value. The description of the current situation, which is oriented to the future, owes to focus on the views of the historical events, enabling to shape the future ones. The equality, reciprocity and solidarity of Eurasian economic processes developed especially in Asia lead to economic development despite the obstacles posed by geostrategy of supranational capital. From the other side, the inequalities of capitalism reciprocated in the midst of global crises recurses in geostrategy in order to replace the inadequate economic systems in global governance.

2 Keynesianism: Neoclassicism Withdrawal and Rising of Geostrategy

The economy is based on the accumulation of capital, carried out in both socio-economic systems in a different form but with the same content. Europe was organized by the late nineteenth century (Keynes 2009) in a way that ensures maximum capital accumulation. This necessity submitted to general economic law and constitutes object of ideological struggle of the two opposite socio-economic systems, with main reference point the relations of production. In this context, the opposing views converge in the common position of Keynesianism with the law of the classical socialist economists that the accumulation of capital in capitalism is possible only with inequality of distribution. “In fact, it was precisely the *inequality* of the distribution of wealth which made possible those vast accumulations of fixed wealth and of capital improvements [...] which distinguished that age from all others. Herein lay, in fact, the main justification of the Capitalist System” (Keynes 2009). This process has resulted in the development of productive forces in conjunction with scientific-technical progress (STP), exploited in monopoly capitalism, with concentration of production and socialization of productive forces. That was continued till the 1970s where two significant events with crucial importance occurred, inception of general crises of capitalism and strategic-military balance of powers in world state affairs, institutionalized in Helsinki Final Act (HFA). Crises of the 1970s had serious consequences on the global economy, especially on the part of capitalism. These crises originally associated with individual phenomena, initially underestimated and ignored their long-term

character, were extended to all subsequent decades (Krugman 2000) until today and occurred in different places worldwide with high acidity and unprecedented elements. These crises constitute an inherent general crisis of the capitalist system. The essence of 1970s crisis linked to the economy of energy and raw materials (EERM). The postwar economic management mechanism associated with the polemic developed between two theoretical schools and the corresponding currents that of Neoclassicism and Keynesianism, with the prevalence of the second, owing to pragmatism elements. The free market and state-monopoly mechanism became the core of the economical state of affairs. The state-monopoly economic regulation mechanism has proved ineffective, unable to meet the requirements of the countercyclical corrective intervention mechanism in economy stabilization. The position of economic methods of management was replaced by geostrategy with corresponding components geopolitics and geoeconomics. The inter-imperialistic contradictions that occurred before the two world wars manifested postwar to another level and with different contents. The first big contrast at the level of state-monopoly competition concerns “Atlanticism” within the geostrategic setting of economy. The binding of STP and internationalization is an indicator of development of productive forces and production relations. The dynamic of the dialectic between internationalization and STP, with the latter to be the core, exerts a strong pressure inside both socio-economic systems, changing relations of production with appropriate limitations related to their fundamental differences. The capitalist system must face the fleeing of capital forward, finding obstacle to the nation-state, which is a limiting factor of capital integration into a single global capital. The pressure on the inside bond, capital-state, reinforces the internal relationship between the two and prevents its transformation to external. Capital globally encounters an obstacle at dismantled capitalist markets and fragmented world market and limited movement to the east, where the main obstacle is Eurasia. At the next level of abstraction, the confrontation passes to increasing labour wages following the STP and the dissolution of the colonial system. These new conditions are manifested in systemic crises which break out in the relationship between capital and nation-state, private capitalist ownership, which is sacrificed in order for capitalist ownership in general to survive. This is the first sacrifice of capitalism caused by the crisis of 1929. This new state of affairs also assumes the form of a crisis of private capitalist ownership, similar to that of 1929–1933. Then, in order for the system to survive, private-monopoly ownership was sacrificed, producing the corresponding state-monopoly form, i.e. state intervention based on mixed monopoly and partnering the state with individuals. Now, under the conditions of integration and the new level of STP, the reproduction of the skilled labour force requires this mixed monopoly to be sacrificed in its turn (Ntouskos 2000a, b). Free-market economy is unable to respond to actions and results of state-monopoly capitalism (SMCa), and a new system of regulation in the sphere of economic management becomes essential. Keynesianism fulfils such settlement until the beginning of the 1970s. The pressure exerted by the SMCa and the state-monopoly regulation to further economic development occurs in the inter-imperialistic contradiction system as Europeanism-Atlanticism contrast, expressed as

Keynesianism-Neoclassicism contradiction. The above contradiction is subject in the inter-imperialistic contradiction system, which introduces the Atlanticism in the 1970s with the corresponding geostrategy performed from the Atlantic capital. The postwar period Europeanism and Atlanticism were faced in the two components of the above geostrategic, geopolitical and geoeconomics. In the sphere of geopolitics, England is an ally of Atlanticism while is held specific gravity into the European state affairs. Under the pressure for further expansion of supranational capital (SCa), both Keynesianism and Neoclassicism are withdrawn and replaced by geostrategy.

3 The Trilateral Geostrategy

The postwar socio-economic system is particularly dynamic and finds its institutional political expression in NATO. The need for a European equivalent mechanism, even embedded in NATO structures by the creation of the European Political Union and the European Defense Community, was rejected by France on 30 August, 1954 (Ntouskos 2000a, b), giving precedence to the claims of Atlanticism. In the same period, the necessity of full symmetry of the corresponding options pressed for the cancellation of the Potsdam Treaty and rearmament of W. Germany in order for it to be able to participate in the imperialist wars (Kissinger 2014) of that period. In the sphere of geoeconomics, Keynesianism meets neoclassical economics; in other words, the state sector meets the free-market economy, institutionalized in the European Coal and Steel Community (ECSC) as the counterbalance to the US economic penetration of Europe via the Marshall Plan. In the sphere of geopolitics, Britain is an ally of Atlanticism while also playing a weighty part in European affairs. The first important step towards Europeanization was the creation of the EEC, especially after Britain's entry in 1972, although with a contradictory attitude. Moreover, the specific historical juncture is significant, particularly given Britain's contradictory attitude towards the Western European mainstream, struggling to make it compatible with the Atlantic standards while stubbornly undermining each step towards the constitution of an independent Europe (Ntouskos 2000a, b). The next step is recourse to the statutory instruments of the international system, the IMF, the World Bank and the OECD, in order to increase the pressure on the side of Europeanism within a double time horizon. In the medium term, these international institutions were used to control European countries, especially the economically weaker ones and more specifically the countries of the Balkan Peninsula (Kypriotelis 2015). In the long term, these mechanisms constitute, with GATT, the framework promoting the upcoming Transatlantic Union, the harbinger of which is the Transatlantic Trade and Investment Partnership (TTIP). The international institutions (IMF, World Bank, NATO, EU, etc.) have been trying since the 1950s to shape the policies of economic and political actors, with a view to removing interstate systems and enforcing transnational networks and supranational management of the economy. The aim is to bypass the nation-state as a

geo-economic space of production and as a geopolitical space of techno-economic development and socio-economic prosperity. But this bypass constitutes the absorption of the nation-state into the international formations, its melting into them, changing its constituent qualities. The overcoming of national economic narrowness requires the application of similar systems in the sphere of management of the economy; while the corresponding systems are able to exercise them at national level, Keynesianism and neoclassical economics are unable to provide management and control of the economy at international level. Keynesianism by its nature can be applied at the level of nation-state with the state intervention, and the free market at international level cannot be applied without rules and the appropriate level of international governance. “All the World believed that it was sufficient to create a free-trade area, breaking down the barriers to free trade, as to create an international market. [...] Indeed, history had already taught that a market can develop itself in a stable and ordered way only if there is a statehood—national or federal—that can ensure its government” (Velo 2014). It is important at the outset to realize the distinguished difference between the governed market in the limits of a state or periphery and the nongoverned global market where there are no rules to ensure the “social” content of free competition. “A market is not competitive by assumption or by construction. A market becomes competitive, and competitive rules *come to be established* as institutions emerge to place limits on individual behaviour patterns” (Buchanan 1979). At this point the direction of analysis of institutions is trying to reconcile the lack of devices producing sufficient results in free competition and the proclaimed reference position that political constitution can be derived. This approach to global governance is purely idealistic attempt to conceive the development of the global market in terms of a local or regional one (Kypriotelis and Triarchi 2015). Every institutional effort, plan and designed study aiming at developing an area or a nation-state is decided in advance and ignores a number of limitations affecting the development of this region. State-level control is exercised exogenously, and each state, as every region of the planet, is suffering the consequences and implications of external decisions and “actions” as these factors determine the quantitative and qualitative characteristics of each country, region or area under development, affecting the socio-economic reality, form and shape and exploiting the natural resources, the productive forces and the scientific staff. Thus the natural and human resources of the planet are squandered; national sovereignties are suspended; the natural and cultural environment is destroyed; social, religious and cultural conflicts arise; civil wars and conflicts over food break out; and inequalities in the modern world deepen (Rokos). Exogenous control, and particularly that exercised by the sole, until recently, dominant economic and military superpower, “using” the decisions of international institutions in order to maintain political and economic balance and global peace, is subject to its own geostrategy, with the sole aim of global domination. The development model of overconsumption also forms part of the same geostrategy, although it is inefficient under the existing governance mechanism. These movements on the part of (SCa) have two directions concerning the relations between EU and least developed countries. The first direction is towards EU’s destabilization and its integration

into the broader Transatlantic Union under US hegemony and dissolution of nation-states. The second direction is towards integration of former socialist republics of Balkan countries and overcoming obstacles by reconstituting a state-national basis of formerly colonized countries having emerged as powerful nation-states (India, China, S. Africa, etc.). By seeking uneven development as a basic law of capitalism's development, economy destabilized by the continuing 1970s crisis and evolved since then in all countries without phase difference firstly and then with alternating phases and intensity. The relationship between capital and state from internal becomes external with the creation of supranational monopolies, and the nation-states from subjects are transformed into objects of governance, having this general application even to powerful capitalist states, with the USA not exempted from this reality. On the basis of transnational monopoly, three centres of capitalism the USA; Europe, excluding Eastern Europe; and Japan termed *tri-centrism* are created. Simultaneously postwar geopolitical state of affairs is created on the basis of three poles, "tri-polization," West and capitalism, East and socialism and the territory of former colonized countries and others that are in transition and balance between the two systems. In this global ground, capitalism's geostrategy to unify the three centres unfolds and by extension the three poles. The two centres were derived from the diversity of arrangements and relationships from the side of Pacific, based on subjective political Japan dependence on the USA. Europe's obsession to create a political union with its own momentum deprived the possibility of a common tri-centre geostrategy. The EU is a product of monopoly capitalism and follows its own geopolitical and geoeconomics, however subject to the monopoly laws and their two properties, the monopoly control and monopoly superprofit. Monopolies act as the unifying bond between the centres and intensify their osmosis. At the level of geopolitics, that of Atlanticism prevails, preventing the realization of the European political union (Churchill 1946), and enlargement takes the place of deepening, namely, political integration. In geoeconomic level, EU puts forward a system of contradictions, with liberalization internally as management system of the economy, Keynesianism as concerns the convergence economical criteria (Kypriotelis 2016) of the state members and abroad protectionism to establish a common customs tariff with the other countries.

4 Balkans: Historical Recapitulation

The geostrategic analysis above has its corresponding implementation in the Balkan countries, which are the bond in the centre of Eurasian system. It is the place where contradictions evolve from the quantitative level to the purely qualitative. By tipping point economy of energy and raw materials (EERM), the two main management systems of the economy, the neoclassical economics and Keynesianism, with corresponding mechanisms the free competition and state intervention cannot provide a solution to those contradictions created by this crisis. The area of Balkan countries and countries at the edge of EU borderline (Ukraine, Moldova, etc.)

provides the most appropriate conditions in order management of the economic systems to be replaced by geostrategy. These economies have elements originated from dominant economic systems, capitalism and socialism and are deadlocked or are under development. The strategic and geostrategic approach from the powerful countries focused in Balkans creates a vulnerable environment restoring the period of intense volatility, of last decades, which brought nationalism, chauvinism and states' dissolution. The Balkan countries never passed through commodity capitalistic period, and the development of the economies in transition to monopolistic capitalism, from pre-commodity capitalistic period, highlights the weaknesses of rural economies to adapt to the demands of the scientific management methods of the economy. This was expressed through the dynamic efforts of leading powers to pursue imperialistic policies, which were exercised through economic control. The main expression of this trend was the participation of Bulgaria in WWII, by the side of the Axis powers. The nation-state was the only entity that was able to provide the necessary infrastructure and the appropriate management methods. The bourgeoisie class was facing the need for a social direction of production which turned it to state control and strengthened state structures creating in this way the conditions in order government control to be applied by international institutions (EU, NATO, UN, etc.). The control of the nation-states converted from national-territorial to supranational. The ethno-national cultural elements characterize Balkans, and these elements formed the relations of countries with both socio-economic systems. The cultural element was and is strong internal bond of the countries, but it was not strong enough the external bond between states in order to promote the mutual cooperation. Balkan states acquire sovereignty with the Treaty of Berlin, which is the beginning of the passage from prehistory to history in the Balkans. The logic of Berlin Treaty was purely "distributive" and supplemented by that of "exchange," wording "land for peace," and "money for peace," and "power over property," which in other circumstances was destined to be repeated later in the Treaty of Brest-Litovsk (Ntouskos 2004). Practical rhetoric rules, wording the interest of all the ruling classes of Europe to deal with international affairs, depending on their power, according to the model, all European states together and the division between them will be dependent on their strength (Kissinger 2014). The governance, where the ruling classes are expressed through their power, is unstable and time-limited, possible to settle the major issues of the time, but it is impossible to reverse the historical dynamic, evolving as an objective inevitability. The movement of historic progress found its expression in the WWI and the October Revolution breaking out and defusing the contradiction that brought Berlin Treaty. These two major events gave an end to the controversies, overturned the Berlin Treaty. Nevertheless, resolution of issues, according to the model, all European states together and the division between them will be dependent on the strength (Kissinger 2014) had remained. The Russian-Balkan interests, national status and capitalization of the region are the geostrategic consideration of sovereign European countries by considering them as a direct threat to the balance of powers in Europe. Under geopolitical abstraction, it could be seen that this criticism is the cloak which covers the new and old capitulations in developing control over the

communications networks, the routes of energy (Karaoglou 1997) in Balkans, Southeast Europe (SEE), Caucasus and generally Eurasia (Diamond 1994). Geostrategy developed in three dimensions, the national-ethnocratic, the Europe-unionism and the Atlantic. Europe and the Balkans dilated in the form of enlargement. This form occurs in SEE through EU and NATO mechanisms, constituting a system, which is composed primarily of the integration process of economic and political issues. SEE is traversed by arrangements of the conditions created by the dividing lines in modern history (Congress of Vienna and the Treaty of Berlin), which takes the practical application in the concepts of “living space” and “zones of influence” and is developed by the side of a geostrategy, a balance based on bipolarity to pass after 1989 in monopolization. Under this frame the dividing line of modern world began from the borders of Russia in 1917 to anchor in the centre of SEE after the war, where faced with successive doctrines of “containment,” the “condominium” and the “repositioning of US standing in the world,” making regional security process derived largely from these realities (Ntouskos 2000a, b). The concept Balkans expanded along with the concept of enlargement, in an attempt to theoretically downgrade the importance of region and substituting into the concept of SEE. There have been attempts at assimilation and change to the substance of the Balkans as an independent historical entity and the diffusion of the countries’ dynamics across a wider area, by turning the Balkans into a bridge for transnational capital to access the SERM. The same European integration removes the prospects of growth, removing production from SEE, reducing the industries that already existed, moving the area to deindustrialization and converting them from producer countries to consumers. At the same time, a network of complex networking infrastructure in preparation for the role of the region in the modern era was created. The socio-economic reality of the region formed within the geostrategy, where replacing the economy, which takes the main responsibility of destabilization and prolonged crisis. Under this geostrategy the area is limited or extended by political and economic sense depending on the geopolitical and geoeconomic options of Eurasia’s geostrategic concept. The fundamental change takes place in the 1970s, when the opposition of the two systems takes the form of equivalence to manage world affairs by Final Act of Helsinki (FAE). Balkan economies have been steadily growing in the period until 1989 (Source: World Bank). Since 1989, attempts of recapitalization of Eastern Europe and especially Balkan countries have two similar important dimensions. The first serves the aims of Euro-Atlantic Structures (EAS), in the direction of enlargement, in the territory of former socialist countries and in the logic of capitalist expansion. This is realistic and legitimate, the capitalistic mentality of supranational capital and the living space of capitalist development. The second dimension is that of the dissolution of nation-states and supranational governance, through institutions for the benefit of Supranational Corporation. This is of a historical nature and has to do with the Supranational Monopolistic Corporation (SMCo) and the neoclassical current of capitalist movement in general, with the newly established specifically New World Order. It is historic because it is connected with capitalism in the final stage and the unique need of conservation, in a supranational global dimension. The settlement of the Yugoslavian issue with the

use for the first time since WWII nuclear weapons was submitted to the needs of enlargement. This war is qualitatively different from all the previous which continue to threaten Balkans in terms that differ from Sarajevo 1914 because Sarajevo 1995 is a nuclear Sarajevo (Gati 1992) warning to all mankind that nuclear weapon excludes the prospect of war. In general it can be said that in the late twentieth (Source: World Bank) century, a dismantling of structures that had developed in the Balkans was attempted, subject to geostrategic recall of all that had been achieved, on rural development level (cooperative movement in Bulgaria, rural policy in Greece, etc.), industrialization (Yugoslavia, Bulgaria, Greece, etc.) and technological development (Electronica Bulgaria, etc.). Under these developments the Balkan countries are marching, seeking their future under the Euro-Atlantic Structures or looking forward to understand the new developments and their historical validity. The Balkan intellectual elite anxiously look for a new ideology to rely on, ignoring that reality preceded and ideology is formed on this reality. This reality must be seen and be redirected to it. Otherwise they will shift back and forth between vested interests, wondering why things do not improve as expected. It would be a historic error to ignore the historic movement towards progress.

5 Eurasia Ascending

Since the beginning of the last century, various geopolitical theories were made, about the role and position of Eurasia, as a geopolitical phenomenon, also understood in classical geopolitical theories, of the nineteenth century, which brought forward issues similar to those founded today. The position of Eurasia as a geopolitical phenomenon is also understood in classical geopolitical theories, of the thinkers of the nineteenth century, which brought forward issues similar to those found today. Among them Halford Mackinder, British historian, geographer and politician, regarded as the founder of Anglo-Saxon geopolitics, who was director of the London School of Economics. Mackinder formulated the fundamental theorem of the “World Island” and “Heartland Theory,” which highlighted the importance of Eurasia in world domination. Correspondingly he shaped the geopolitical view of the “Atlantic area” as a theoretical base that found its expression in the establishment of the Atlantic Alliance. According to this theory, Eurasia is the heart of the earth and whoever dominates Eurasia can exercise the world domination. “Who rules East Europe commands the Heartland (Wikipedia).” The USA and Canada are Atlantic countries and require the bridgehead towards the Eurasian region, and the bridgehead is the countries of Europe including Britain. The blockage of the area until the sovereignty over this “heart of the earth” will become, by the sovereignty over the Mediterranean, included in the “internal marginal crescent,” which includes Eurasian region. Excluding the Mediterranean will prevent Eurasian land forces from having exit to the sea and challenge the dominance of Atlantic powers. Controlling the Mediterranean means control over the perimeter and allows control of Eurasia. The above brief analysis is distinguished in modern NATO geostrategy

throughout the course of its establishment until today, which is reflected in full expansion throughout the Cold War and evolves on the same line throughout the twenty-first century. This geostrategic line was limited by the 1970s because the balance of power was changed in the world and changed reciprocally the corresponded geostrategy to control the roads leading in Eurasia, which translates into control of the routes to the SERM. US foreign policy has centralized around Eurasia with the emergence of two new strategic “enemies,” revitalized Islam and terrorism and informally the rising China. The proximity of the Balkan countries with the two sides of Eurasia is placing them at the core of this policy. Balkans is subjected in geostrategy of enlargement and mainly enlargement towards eastwards, under dual institutional substance, enlargement of NATO and EE, with common dynamic and uniform motion. The latter geostrategy is twofold with first target-result the road of de-Europeanization that reaches the dissolution of European structures or prevents its completion (The President’s News Conference With European Union Leaders in Madrid, Spain, December 3, 1995) and simultaneously dissolves the European production relations and deprives the historical role of Europe in shaping the geostrategic developments (Kypriotelis 2016). Theoretically an internal relationship between strong and weak states is developed, through the relationship subjects of governance and objects of exploitation, the logical position of neocolonialism in another form produced, by submitting institutions enacted by member states and the proportional weight in decision-making. The above position requires an internal relationship, which exists, namely, that the member states and institutions are not independently established as separate entities. *Id est*, the above two institutions are established by the member states and cannot exist independently. In this sense state and regional entities, EU and NATO type, are not established as distinct entities within a uniform system. The internal relationship between state and international institutions could not exist without the state as an intermediary which carries out functions, making the bond state and international institutions internal. There is, though, a variable that enters into the system and converts the relation between institutions and nation-states from internal to external. This variable is the Supranational Monopolistic Capital. Extension of supranational capital geostrategy is to alienate the essence of Europe itself and by extension the Balkans, starting first from Balkans. Methodology of analysis and methodological findings beyond their profound scholasticism consist verification of a reality that is evolving for more than a century. Abstracting the individualistic features of each case, we come to the content which is the main of this geostrategy, directed against the geographical and political concept of Europe with the ultimate goal of dissolution from inside and gradual and systematic entry into the space of Eurasia. So this method can be summarized as the osmosis of European and Eurasian concepts, increasing the liquidity of the European concept with the dissolution of nation-states, culture and cultural heritage and allowing it, as a neutral concept, to be merged into a unified whole, from the Atlantic to Novosibirsk. This pursuit is the extension of the EU’s absorption of Euro-Atlantic Union and subjection into the arrangements of supranational capital. It is also highlighted that the world moves on the axis of contradictions of both socio-economic systems,

the issue of their development and the survival of both socialism and capitalism specifically becoming reference position to the fundamental variable parameter, the dialectical relationship between them, represented, respectively, first and foremost, in the first innovation and the second tradition. These two systems meet in the economy through the theory of value and monopolization position by systemically the context of commodity production. This constitutes superior cultural conquest, and its functioning is determined by the system of its specific economic laws, the main among them the law of value (Sraffa and Dobb 1951). A key feature of commodity production is the special reserves which enclose and serve functionally in transitional periods, satisfying the terms and requirements of transition from one social formation to another.

6 New Economy and International Institutions

The international stage is a transitive stage towards universality and includes all the organic elements of national, nation-state, culture and national economies and the characteristics of broader realities, peripheries and international institutions. Under the international approach, the overcoming of nationality is becoming effective, and through the coexistence of national and international, the passage to universalism is more even. The national dynamic effectively exploits the national elements and the productive forces, according to the interests of the states, and all nations act as factors of the global joint creation. Acting together as unity and independently leads from periphery to universal integration with stable structural element the nation-state as the first gradual step to the globalization where will be held the withdrawal of the state when the appropriate preconditions, that should allow it, will be created. This is a historical determinism and manifested in the content of integration which is expressed in different forms in different areas, requesting the subjective intervention to the objective circumstances in order the form and the substance to be equated implementing a planned comprehensive and universal movement towards globalization. The transition from national forms of organizing to the universal community is a realistic objectivity, and its consistence is proportional to its occurrence. The peripheries and their integration are the intermediate form in order to overcome the national narrowness. The complex creation of a single universality requires the integration of all countries and peripheries, as organic components, of the global system and positive contribution of the accumulated cultural and political elements and all their available reserves. The nation-states, international organizations and regional associations corporate as subsystems and systems, organically adapting and constituting as a whole. In this sense the dialectic of national and international subsystems moves objectively and increasingly in universal parameters. This, in turn, leads to the conclusion that in the current circumstances, the dialectic interaction, of these two subsystems, generates a process, with the main characteristic, as to use its resources in universal basis. The ecumenical basis of dialectical development calls for an ecumenical vision of this

process, where the nation-states, in practice, developed as an integral part of global growth. The development, however, in the modern world has already been modified in the scientific process, and the result is distinguished, increasingly, for scientific-technical content (Ntouskos 1999). The production capital is oriented towards the production of high-tech products, and the current global product contains a scientific-technical integration rate, which increases as the scientific-technical progress (STP) grows, while the larger the percentage of integration, the lower the production cost (Kypriotelis 2015). The direction that has taken the world today is that of scientific-technical content of the product. This relies, with regard to STP (Ntouskos 2008), on extending the “scientification” and the corresponding standardization of social production and increasing the scientific-technical content of the social product, utilizing the historical stock of global creation. The production capital is dependent today on the acquisitions of STR, where indeed the investment in high-tech products presupposes huge investments of capital. The STP is an extremely dynamic category with historical developing content, and its degree of complexity is correlated with its qualitative and quantitative movement. The cost of the product sought in the cost of raw materials and structural change in the workplace, relegating the economy at the level of primitive capital accumulation. With the body of knowledge revolving around the economic issues, the analysis moved on this level of abstraction in order to examine in practice those elements, objectively and subjectively, which substantiate the optimistic assessment on the course of the world affairs. In Eurasia for a long-term period, a planning policy based on the absorption of the STP has been selected, which allowed the transformation from production and agricultural economy to high-tech production, under state limitations and the equalization of all sectors of economy. In this process the STP originated both exogenously and also as long-term plan from the central authority. At a first level of abstraction, Eurasia was the source of economic wealth, both in terms of energy and resources and in the workforce level. New management of the economy systems created in the space of Eurasia, and new control methods are applied using budgets at companies, partnerships, countries and institutions. The global pressure created new economic relations, and new regional economic formations developed, based on resources and the productive and the scientific forces. The geostrategic aspect of world affairs based on the perception of monopolization governance was the main purpose and content of monopolization, the Truman Doctrine and the global dominance of the USA, and means of achieving these is the line of containment, aggressiveness and military in its substance. This venture came to realization in these terms in the early 1950s, setting focused on Asia, more precisely Eurasia, and since then hovering on the horizon, while under the conditions of general 2008 crisis, it loses ground and begins its withdrawal. The meaning of this withdrawal and the elements of realism and optimism that accompany it are linked to the strategic-historical assessment of Asia’s position in the global socio-economic developments. The world economy today is reoriented towards Eurasia’s economy and especially those of Asian countries with core the Chinese economy. China has combined the best advantages of socialistic means of production which includes the integration of the STP in the resulting product. China

has benefited from capitalist globalization through the global economy and turned external into internal sources, overturning the basic law of imperialist monopoly capitalism so as to work in its favour. Funds and technology are transferred to China in order to exploit cheap labour force and to convert the internal resources to external. But just the opposite happened, external means converted, in China, to internal, and the generated goodwill was not exported but remained in the country and distributed in socialistic terms. Here applies the law of higher culture primacy according to which even the conqueror loses its own characteristics and is eventually absorbed by the conquered. People's Republic of China policy is expressed, in recent rhetoric, "One State, Two Systems." The commodity production becomes expanded reproduction. New institutions take their place in world affairs and define the terms of cooperation, which are terms of peaceful coexistence, reciprocity, solidarity and equity. Confrontation and cooperation simultaneously highlight the direction of world affairs in the transitional period. The economy reoriented towards international cooperation, and whoever "does not follow" lives, not just behind but beyond. The reorientation takes the direction of the content of two institutions emerging in Asia. The Eurasia was deemed as the next level of enlargement subject to subjective perception (Congressional Research Service 2014) that real socialism has been overthrown and has collapsed. Moreover, the same review concerns also the Eurasia, the most critical area in terms of material conditions of world affairs, which is for this a reliable statistical sample and able to document the position conclusion that the trends manifested its limits, getting objective rising character, global and progressive, suggesting a similar class realism and emitting optimism of the same nature. Conversely, historical-economic creation of Eurasia takes the historical legitimacy of the Russian Federation as the successor of USSR and the People's Republic of China. Cooperation between them takes the institutionalization in the *Treaty of Good-Neighborliness and Friendly Cooperation* (FCT), which is today one of the leading institutions of global governance. The FCT integrates the strategy of the joint course of two largest countries of Eurasia in world affairs, based on the above principles and their dimensions, surpassing strategy, stemming from it and extending between the others in economy. The economic dimension is expressed by the creation of Asian Infrastructure Investment Bank (AIIB), which came to cover the failure of World Bank and IMF to meet the demands of the dynamic emerging Asian economies. This deficit emerged from the transition of global developments in the geographic area of Asia and highlighted the need to create an institution which would give equitable management of the members and at the same time would be able to orient the size of Asian country economies, highlighting the importance of Asian economy in world affairs. This deficit emerged from the transition of global developments in the geographic area of Asia and highlighted the need to create an institution which would give equitable management of the members and at the same time would be able to orient to the size of the economies of the Asian countries. These developments led the USA to turn foreign policy towards Eurasia entering the top NATO-Russia relationship. On the other hand, in Russia today rapid growth of primary production (Fyodorov 2014) is noted in all levels, proving that the "real"

planning production is a key factor of economic development. The USA depended on the Russian technological production and continues, especially in space technology (Richmond 2015), and retains their commercial relation (Radio free Europe 2015) with Russia despite the embargo imposed by the western countries against Russia. While Xi Jinping likes to talk of China's "peaceful rise" and a "new type of great-power relationship," the USA is seeking new weapons trying to break through China's growth (The Economist 2015). China has the advantages against its economic competitors, and the low yuan rates promote Chinese exports. It is difficult for the western world to compete, while the economic growth rate of the USA and EU is lower, and combined with the aging population (Source: World Bank), social expenditures will peak, with an expected drop of economic progress and living standards. The western economy also owes its high-level indicators in financing with huge debts, in need of steady inflow. The situation can be described by the USA and China–India in two sides and EU in the midst to be crushed. The division of Europe comes from its disorientation in the race of globalization, where the two rising stars are pushing from behind and the USA slowing down at the front and in the middle EU is smashing. Slowdown in economic growth from the 10 to 1.8% (July 2015) was a meditation in the contrasting problem, which is hazardous for all economies rising in such rates. Asia leads world economy in terms of production, foreign trade and world aggregate GDP (Source: World Bank), causing even bigger problems in the western economy by replacing the dollar, hinting at the US decline as a regional or world leader. The current era is transitional, marked objectively and deterministically, from the coexistence of two modern and opposing socio-economic systems, and this contradiction reveals a new direction with new components and new quality. In this crisis a new mechanism of the G20 was born and associated with degradation of monopolization. G20 passes the role of controlled and coordinated management of the 2008 crisis process, so its elements to be led constitutionally in *smoothly transition* proceedings are submissive to the line of the global progressive development. The corresponding scientific attitude is necessary to comprehensively summarize historical experience and to effectively combine all general deterministic and specific conditions and peculiarities in either the form or in the development process. This process revealed a new mechanism in management of global affairs, the G20–TFC–UN mechanism, with individual component institutions which emerge credibility in world governance. The essence of this credibility is that, in the context of crisis of monopolization and capitalistic property, the private ownership of production means incurred radical shaking in general and new economy is relied on capitalism and socialism to protect the man-nature-society system and make it an irrevocably certainty. Those are an indicator of maturation of historical developments and indicate the existence of developed realism in the world political system, deepening democratization and, consequently, strengthening the optimism in the world. Next to these, same dynamics distinguish the new qualitative institution in the global system, the economy and politics, that of *partner* replacing the stereotype of the *opponent*. It is also noted that these events are the dialectic expressions of strategy and geostrategy in the sphere of global economy and the homonym community. Strategy gains ground against

geostrategy, not in the field of competition and conflict, but in the grounds of cooperation. Within this cooperation even geostrategy manifests elements of realism and optimism.

7 Conclusion

Globalization brought a new novelty in global affairs the institutionalism of the “supranationalism” with its typical expression in geostrategy of the western European capital and primary line the deepening of integration and the federation logic. The novelty here is that supranationality is institutionalized as principle of sovereignty above the national; the equivalent in the sphere of management of the economy is de-nationalization and the assumption of state powers by transnational capital (TC). The external is no longer the framework of the internal but becomes the host in the cell of the nation-state, the constitution and national laws, expanding to any national activity, economic, political, social, private and cultural, and alters its substance. The continuous extension of human economic activity, overcoming the limits of a closed economy and expressed in the dialectic unity between the national and the international, involves cooperation and contradiction as the deterministic process of the universal interdependence of the countries of the world, as stated above. The process intensified the last four decades, leading to the historical passage from national to international and the homonymous productive relations, overcoming the national boundaries. This first manifested in the capitalistic countries, where their economies are depending on the international economic centres. International economic activities require stabilization of the economy and the development under new circumstances of internationalization; the management of the economy passes from national to international level. The national institutions are unable to reciprocate to the needs and complexity of globalized economy and faded against the existed international institutions and the new ones under development. The ascent of international element concerns all countries, both the capitalistic and the socialistic, as it changes the qualitative characteristics of all countries and their international relations, because under this process the qualitative characteristics of the countries are changing and with them altered the political and economic structures and essential parameters of the national and international interrelations are conversed. The overcoming of national economic narrowness requires the application of similar systems in the sphere of the management of the economy, while the corresponding systems are able to exercise them at national level, but Keynesianism and neoclassical economics are unable to provide management and control of the economy at international level. Keynesianism by its nature can be applied at the level of nation-state with the state intervention and the free market at international level cannot be applied without rules and the appropriate level of international governance. The international stage is a transitive stage towards universality and includes all the organic elements of national, nation-state, culture and national economies and the characteristics of broader realities,

peripheries and international institutions. This raises the need of deepening and the inter-implementation of both national and international practices. Under the international approach, the overcoming of nationality is becoming effective, and through the coexistence of national and international, the passage to universalism is more even. Globalization deprives management mechanisms of the economy, and the problem of relations between politics and the economy arises inevitably when an overturn occurs which is world-historical importance and as the industrial revolution created the impression that the economic factor is independent and even indeed superior between social relations, so the geostrategy comes to fill the gap in global economic governance. The geostrategy is expressed with its two components, the geopolitical and geoeconomic. The move towards geostrategy is a confirmation of the weakness of the economical systems and the lack of corresponding mechanisms to meet the requirements of the globalized economy. Under these developments Balkan countries are marching, seeking their future under the EAS or looking forward to understand the new developments and their historical validity. Balkan intellectual elite anxiously look for a new ideology to rely on, ignoring that reality preceded and ideology is formed on reality. It is imperative to realize this reality and the world be redirected to it. Otherwise, the Balkans will shift back and forth between vested interests, wondering why things do not improve as expected. This will be a historic error, ignoring the historic movement towards progress. The dynamic that developed in Eurasia is a product of historical lawful global growth that differs from geostrategy, who evaluates global economy with regional economic terms. Naturally Eurasia has a long way to go, but the whole world is in a transitional period; the issue here stands on the fact that Eurasia shows the way of equality, solidarity and cooperation in the management of world affairs. And even these guarantees are endowed with a moral authority that produces a more evenhanded world order, to the benefit of the whole world. We come to the fundamental conclusion that inequality is a prerequisite of capitalist development, through which the nation-states and regions are dissolved and absorbed by larger entities under the governance of supranational capital. On the contrary Eurasia concentrated on viable elements of both socio-economic systems, which are guaranteed and lead the global economy in transition period. It is, in short, these guarantees, solid realities, the result of the dialectical unity of theory and practice in their brilliant moments, achievements of the people in the region, where values, both material and spiritual, are created, the same strength in the hands and minds of people, authentic creation and true art.

References

- Buchanan, J. M. (1979). *What should economist do?* Indianapolis: Liberty.
 Conference on Security and Co-Operation in Europe Final Act, Helsinki, 1975

- Congressional Research Service. (2014, March 31). *Russian political, economic, and security issues and U.S. interests*. In: J. Nichol, Coord., Last Accessed September, 2015 <https://www.fas.org/sgp/crs/row/RL33407.pdf> (7-57000 RL33407).
- Diamond, L. (1994, January). The global imperative: Building a democratic world order. *Current History*, 93, 1–8.
- Fyodorov, N. (2014). *Agriculture minister of Russian federation*. Last Accessed November, 2015 http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Annual_Moscow_Russian%20Federation_3-30-2015.pdf
- Gati, C. (1992). *From Sarajevo to Sarajevo, Foreign Affairs, Fall*, 64–78
- Geostrategy and Geopolitical Crisis. Accessed June 2015. <http://financialreview-news.blogspot.gr/>
- Karaoglou, G. (1997, June). Οι βαρόνοι της ενέργειας παίρνουν θέση μάχης [The energy barons take battle positions]. *The Capital (oblation)*, 93, 66–77
- Keynes, M. J. (2009). *The economic consequences of the peace* (pp. 11–12). Athens: Editions Papazisi.
- Kissinger, H. (2014). *World order* (pp. 120, 124, 133) (D. Gianaroudi, Trans.). Athens: Editions Livani A.A.
- Krugman, P. (2000). *The return of depression economics*. Kastaniotis Editions: Athens.
- Kypriotelis, E. (2015). *The institutions developed in the EU – Eurasia and the role of Balkan countries – geopolitical and geo-economic analysis* (Vol. 9, pp. 262–263). Economy & Business. Available at <http://www.scientific-publications.net/en/article/1000865/>. ISSN: 1314-7242
- Kypriotelis, E. (2016). Reorientation of the world economy and the unique case of SE Europe. *Advances in Management & Applied Economics*, 6(2), 97–128. http://www.scienpress.com/Upload/AMAE/Vol%206_2_7.pdf. ISSN: 1792-7544 (print version), 1792-7552 (online) Scienpress Ltd.
- Kypriotelis, E., & Triarchi, E. (2015). The transnational monopolistic corporation and the discourse of global governance. *Paper presented at the 2nd International Conference of Applied Innovation, TEI of Epirus, Arta, 16–17 October 2015, Arta Greece*.
- Leaders Statement: The Pittsburg Summit September 24–25 2009, Pittsburg. Available at <http://www.g20.utoronto.ca/2009/2009communiqué0925.html>
- Ntouskos, P. (1999). *Η Σύγκλιση των Οικονομιών στις Χώρες Μέλη της Ευρωπαϊκής Ένωσης* [The consolidation of the economies in Country Members of European Union] (Greek Edition, 2nd ed., p. 51). Athens: Gutenberg.
- Ntouskos, P. (2000a). *Η Μεγάλη Μετάβαση* [The great transition] (pp. 85, 107, 115, 122–124). Athens: Gutenberg.
- Ntouskos, P. (2000b). *Γεωστρατηγική και Σύγχρονος Κόσμος* [Geostrategy and contemporary world] (p. 211). Athens: Gutenberg.
- Ntouskos, P. (2004). *Πολιτικός πολιτισμός και Παγκοσμιοποίηση* [Political Culture and Capitalist Globalization]. Athens: Gutenberg
- Ntouskos, P. (2008). *Ευρωατλαντικός φονταμενταλισμός και κοινωνική ασφάλεια* [Euro-Atlantic fundamentalism and social security] (p. 46). Athens: Gutenberg.
- Obama Pushing Trans-Atlantic Union with EU. Last Accessed November, 2015. <http://www.thenewamerican.com/world-news/europe/item/14612-obama-pushing-trans-atlantic-union-with-eu>
- Radio free Europe. Last Accessed November, 2015. <http://www.rferl.org/content/russia-us-aero-space-deal-rocket-engines-orbital-sciences-energia/26799094.html>
- Richmond, B. (2015). Last Accessed November, 2015. <http://motherboard.vice.com/read/without-russian-rocket-engines-america-will-rely-even-more-on-spacex>
- Rokos, D. *Integrated development of Epirus – Possibilities and prospects*. National Polytechnic University of Athens (study).
- Sraffa, P., & Dobb, M. H. (1951). *The works and correspondence of David Ricardo* (p. 397). Cambridge: Cambridge University Press.

- The Economist, Asian security. *Small reefs, big problems*, July 25, 2015. Last Accessed November, 2015. <http://www.economist.com/news/asia/21659771asiancoastguardsarefrontlinestrugglecheckchinasmallreefsbigproblems>
- The president's news conference with European Union leaders in Madrid, Spain, December 3 1995. Last accessed September 2015. <http://www.presidency.ucsb.edu/ws/?pid=50848>
- Trans pacific partnership, text of the agreement. <https://www.mfat.govt.nz/en/about-us/who-we-are/treaty-making-process/trans-pacific-partnership-tpp/text-of-the-trans-pacific-partnership/>
- Treaty of good-neighborliness and friendly cooperation between the people's republic of china and the russian federation*. Ministry of Foreign Affairs of the People's Republic of China.
- Velo, D. (2014). *The EuroAtlantic Union Review*, 1(0/2014), 7.
- Wikipedia. Last Accessed November, 2015. https://en.wikipedia.org/wiki/The_Geographical_Pivot_of_History
- Winston Churchill's iron curtain speech, at Westminster College in Fulton, Missouri on March 5, 1946. Last Accessed February, 2016. <http://www.historyguide.org/europe/churchill.html>

The Impact of Scandinavian Inward Foreign Direct Investment on the Baltic States



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Abstract Although foreign direct investment (hereinafter FDI) has been the matter of discussion since the early 1970s, it is still one of the most controversial topics in both economic and political terms. The intensity of FDI shows the host country's openness to the foreign capital, its integration into the international market and economic growth. The proponents of the positive attitude state that foreign capital increases competitiveness and labour productivity in the host country and creates new jobs and the host country adopts new technologies. Other scientists are not so optimistic in respect of FDI impact. Inward FDI may be determined by political decisions of the host government. However, some researchers even point out that stimulation of FDI is harmful for the host economy. FDI promotion is acceptable if indirect initiatives are adopted and an appropriate legal system for controlling multinational corporations' (hereinafter MNCs) activities exists. It is noticeable that the main negative consequence of activating inward FDI stimulation is that the host economy becomes dependent on a foreign capital over a certain period of time and MNCs have effect on decisions of the host government. Some studies show that the mobility of foreign capital may exist under an imperfect market conditions only. MNCs are likely to invest into economically weak countries benefiting from a low labour cost. Thus, under the present economic conditions, it is important to identify the benefits of FDI for the host country and to analyse MNC motives for investment.

The article investigates the importance of foreign direct investment in the country, its role in economic development and promotion peculiarities. The authors examine the problems, which exist in attracting FDI. The object of research is the role of Scandinavian capital in the Baltic States. The aim of research is to measure

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the impact of Scandinavian foreign direct investment on the development of the Baltic States. The final results reveal that the Baltic States are dependent on foreign capital. These countries are characterised by favourable business environment, good geopolitical situation and infrastructure and scientific-technological potential. This proves that the Baltic States are attractive for MNCs, which tend to invest in R&D. The research indicates that the Baltic States compete for FDI, especially for investors from Scandinavia.

Keywords Foreign direct investment • MNCs • Baltic States • Determinants of FDI • FDI incentives

1 Introduction

Due to the growing globalisation scale, the attraction of foreign direct investment, the demand for FDI and the FDI impact on the country's economy became one of the most important scientific and economical-political issues. At the international area, countries attracting higher FDI flows are considered to be more competitive than the others in the same geographical area or at a similar stage of economic development level. Iamsiraroj (2016) notices that the developing nations target to attract FDI into their economies as they expect long-term economic growth from additional stable resources in the host countries. The flows of FDI promote the adoption of innovations, which decrease the unemployment level and stimulate the growth of economic development. Besides considering to the business sector, privatisation process, licenses and agreements, FDI encourages the modernisation pace of manufacturing technology. However, the attraction of FDI raises integration of companies into market and targeted spending problems. International capital operating in the particular country influences its independence in direct and/or indirect way. On the other hand, the government directly affects foreign companies. However, some scientists emphasise that FDI stimulation may have negative consequences such as a country becomes dependent on the MNCs by lobbying the host governments which influence their decision. Even more, the bulk inward FDI from one or two countries may have crucial consequences during global economic crisis. For example, Ireland, which developed especially liberal and friendly FDI policy, became dependant on MNCs. Even more, experiencing the consequences of global economic crisis, its economy within 1.5 year shrunk by 6.91%, and in 2009 the country was standing on the edge of bankruptcy (Šimelytė and Antanavičienė 2013). Meanwhile, Scandinavian companies more often for expansion choose Baltic States, which resulted the growth of financial sector.

The purpose of the article is to measure the impact of Scandinavian foreign direct investment on the development of the Baltic States.

Added value: The results of the paper might be used for further research for foreseeing the most promising business areas, which stimulation would increase inward FDI from Scandinavian countries.

2 Foreign Direct Investment Impact on the Development of a Country: Theoretical Point of View

Scientists examine the problems of FDI's influence on development, trade and competitiveness of the host economy since the expansion of companies to foreign countries increased in scale. Even more their investment results some changes in the host economy. Scientific literature reveals two directions of research. The first one analyses the influence of FDI on the host economy, and the other focuses on the determinants of FDI. Furthermore, the role of FDI on economic growth has been a topic of controversial discussion since the early 1950s. At that time, the importance of international capital started to increase. Brown (1950) and Morton (1954) analyse the influence of financial support and foreign direct investment on economic growth. However, both of them notice just negative aspects of FDI on economic growth, stability and a lack of reliability. Meantime, Rostow (1953) provides some solutions of attracting FDI for the emerging countries. Later Ben-Shahar (1967) empathises that one of the economic growth problems is attraction of nontargeted FDI. The other scientists (Humphreys and Padgett 2006) find that the host country benefits from FDI just in short term. However, the interest in attracting FDI and its significance has increased several decades later. Scientific literature (Demir 2016; Lin and Kwan 2016; Sahin and Ege 2015; Choi et al. 2016; Lien and Filatotchev 2015) provides plenty of evidence that FDI may have both negative and positive influence on economic growth. The proponents of the positive attitude state that foreign capital increases competitiveness and labour productivity in the host country and creates new jobs and the host country adopts new technologies. Hanousek et al. (2011) find that positive spillovers are found in more technologically advanced sectors or in more industrialised countries. It might be explained that foreign investor acquires a strong domineering company in the host market and stand out of the other actors in the market. New entering company, which productivity is higher, encourages the existing companies in the market to catch up, and in this way, the competition in a host country increases (Gui-diby and Renard 2015). An investor while entering a market may choose weaker local company. In this case, negative horizontal spillovers occur. Labour or manufacturing costs are one of the FDI determinants. Thus, foreign investor decides to work in exporting industry and does not care about local market. But it uses domestic companies as suppliers, which results positively of horizontal spillovers (Lien and Filatotchev 2015).

The other scientists are not so optimistic in respect of FDI impact (Brown 1950; Chase-Dunn 1975; Kahouli and Maktouf 2015; Xu and Sylwester 2016; Völlmecke et al. 2016). They emphasise that the main negative consequence of activating inward FDI stimulation is that the host economy becomes dependent on foreign capital over a certain period of time and MNCs have effect on decisions of the host government. Hymer (1971) maintains that the mobility of foreign capital may exist only on imperfect market conditions. MNCs are likely to invest into economically weak countries benefiting from a low labour cost. However, inward FDI might be

determined by political decisions of the host government. The goal of investment policy is to create a friendly business environment for FDI, which would positively affect a long-term growth of economic development. Meantime, Hymer (1971) analyses twofold impact on economic growth. According to the first concept, FDI has positive impact on the host economy, especially in emerging economies or economies in transition. In this case foreign investors increase competitiveness in the market. On the other hand, the negative attitude towards FDI underlines that foreign investors might suffer from imperfect competition in the host market. Thus, due to the negative impact of FDI, the movement of foreign capital is associated with risk and uncertainty. MNCs are highly linked to monopolistic imperialism, technological dependence and exploiting pricing. Since the 1950s, it is believed that FDI flows only from the advanced economies to countries in transition period or emerging markets. In this way, the host country is defined as a poor country, using old technologies, which results in low productivity and low wages. Therefore, the host country fails to accumulate funds; thus, the high-level domestic investment is not possible (Lessmann 2013). For that reason, the countries in transition period or emerging markets do not have other option but to attract foreign direct investment.

In conclusion, it might be maintained that FDI has positive influence on the host country, but it also causes risks and uncertainties. Although the host governments by attracting FDI expect positive impact on the economy, however, FDI does not positively affect itself, since MNCs invest seeking to benefit. Thus, intensive flows of inward FDI do not guarantee the growth of host economy.

3 Tendencies and Perspectives of Foreign Investors in the Baltic States

Although Lithuania welcomes FDI from every country, however, Lithuanian investment promotion strategy defines inward FDI from Scandinavia, the USA, the UK, Israel and Western Europe as the most preferable. Even more, in these particular countries, there is the highest concentration of IT companies, in which foreign direct investment is the most desirable as it creates the best-paid jobs and does not pollute the environment. However, at this moment Lithuania has difficulties in fulfilling this target, as the major investors are Germany, Finland, Sweden, Norway, Poland and Estonia. A decade ago, the USA and the UK were the main investors; however this situation has changed. In 2000, the USA invested 265 million euros, while in 2015 this number decreased to 161 million euros. The primary reason for this change was the exit of “Williams” company from the market when it sold “Mazeikiu nafta” (“Mazeikiai oil”). It might be stated that Lithuania did not attract so many companies that would compensate the output of Williams. Meanwhile, Scandinavian companies, since Lithuania obtained independence, have been the most active investors. To wealthy Scandinavian countries, after the restoration of independence and in the fast-growing neighbourhood, Baltic market was

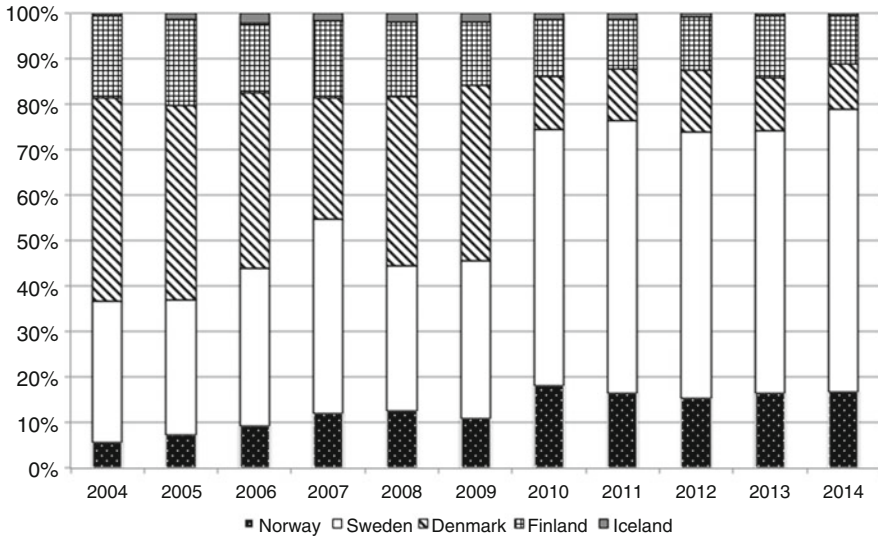


Fig. 1 The structure of Scandinavian foreign capital in Lithuania

interesting and promising; thus, Scandinavian companies have become the strategic investors in many sectors. Lithuania attracted 12,08 billion euros at the end of 2014, while 780,29 million euros out of them have been made by Norwegian companies (4th foreign investor in Lithuania) (Fig. 1).

Norwegian companies invested in finance and insurance activities, manufacturing and real estate activities. More than 230 Norwegian companies operate in Lithuania. Most recent trends show that Norwegian companies start to invest more into development of intellectual products and services rather than in manufacturing. Denmark is the ninth largest investor in Lithuania; its FDI inflows amounted 538.51 million euros. Danish companies mostly invested in transport and storage, manufacturing and real estate transactions. Iceland’s companies made investments in wholesale and retail trade, repair of motor vehicles and motorcycles and manufacturing. Statistics showed that in Lithuania, Swedish FDI flows were oriented towards financial and insurance activities, information and communication, manufacturing and real estate transactions. Denmark was the 15th largest trade partner in 2014. Lithuania’s imports from Denmark accounted for 1.53% of the total import of Lithuania (18th place). Lithuania attracts foreign investors because of its stable political situation, continuous growth of economy, lower taxes, high-qualified labour force and loyal employees. Although Scandinavian companies very often choose Lithuania for FDI, however, statistics show that the international trade between Scandinavian countries and Lithuania was not so active. For example, Sweden was the 11th largest trade partner; thus Lithuanian export volume to this country was only 3.35% out of total exports; Finland was the 17th largest trade partner, and in 2014 Lithuanian exports to Finland amounted to 1.32%. Norway was the 20th largest trade partner and exports volume was 2.29%, Lithuanian exports to

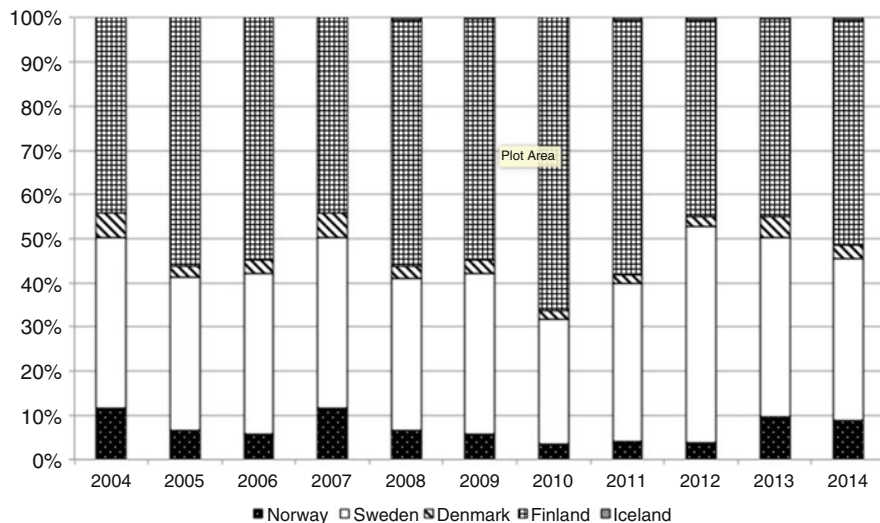


Fig. 2 The structure of Scandinavian foreign capital in Estonia

Denmark amounted to 2.34% out of all exports, while the volume export to Iceland was just 0.08%.

Estonia is among the leading countries in the Eastern and Central Europe regarding foreign direct investments per capita. As of January 1, 2015, Estonia has attracted in total 15.9 billion euros worth of investments of which 27% have been in the financial sector, 17% in real estate activities, 15% in wholesale and retail trade, 13% in manufacturing and 8% into professional, scientific and technical activities. As much as 26% of all investments have been made by Swedish companies, 22% by Finnish companies, 10% by Dutch companies and 6% by Norwegian companies (Estonian Bank 2016) (Fig. 2).

The export of goods and services exceeds approximately 85% of GDP. In 2015, exports of goods from Estonia accounted for 11.6 billion euros and imports to Estonia for 13.1 billion euros at current prices. Finland and Sweden were the two largest trade partners. In 2015, 19% of total exports amounted to Sweden; 16% of all goods and services were exported to Finland. The volume of Estonian service exports to Finland amounted to 28 and 8% to Sweden. The furniture industry is a sector with long traditions in Estonia; more than 500 companies operate in Estonia. The main export countries of destination in 2014 were Finland, Sweden, Denmark and Norway, and the main exported product groups were seats, furniture parts, dining and living room furniture, wooden kitchen furniture, wooden bedroom furniture and other furniture products.

After Latvia's accession to the EU, the inflow of FDI increased rapidly and reached its highest point at the end of the second quarter of 2014 (11.7 billion euros). The main factors fostering FDI inflow were new market opportunities for foreign investors, stable monetary policy, Latvia's advantageous geographic

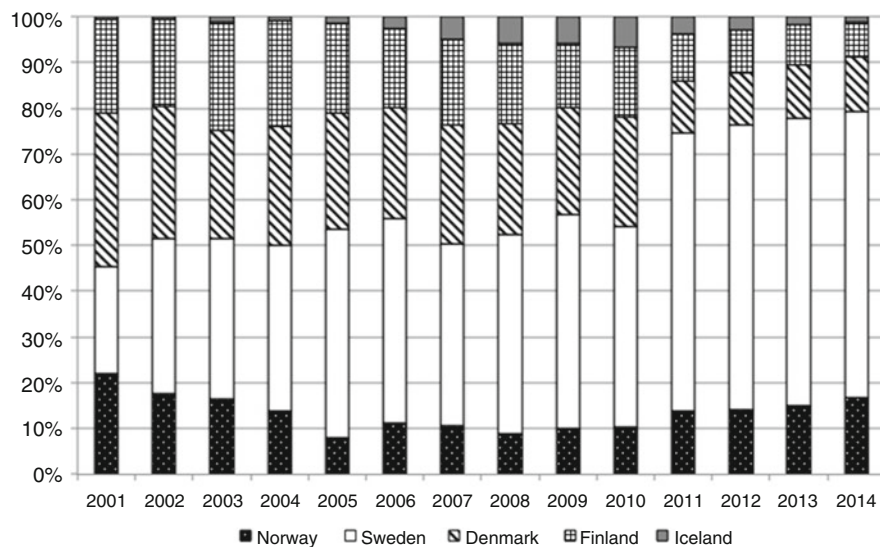


Fig. 3 The structure of Scandinavian foreign capital in Latvia

location between the EU and CIS countries and its well-developed infrastructure. Latvian largest partners are Lithuania, Estonia, Germany, Finland, UK, Russia and Sweden. The largest amounts of investment at the end of the second quarter of 2014 were from Sweden—22% of the total FDI stock at Latvia's economy.

The largest amounts of investment at the end of 2015 were from Sweden—19% of the total FDI stock at Latvia's economy. In 2015, investment from within the EU comprised around 72% of total FDI inflow (Fig. 3).

In 2014, Sweden was the second largest export market for construction materials (14%). A large portion of Latvian constructors drives their export activities in the direction of Scandinavian countries—Sweden (17%) and Norway (6%) (LIAA 2016). Metalworking and mechanical engineering have traditionally played an important role in Latvia's economy, today accounting for 27% (2015) of Latvia's total exports. However, just 3% of Latvia's exports in this business sector amounted to Norway, 4% to Denmark and 5% to Sweden. The woodworking sector accounts for 17% of total Latvia's exports, while the volume of exports of this sector to Denmark was 6%. Eleven percent of production of woodworking sector was exported to Sweden, 3% to Finland and 5% to Norway. In 2014, the foreign trade surplus of ICT services peaked up to 126 million euros. The main trade partners of ICT services were Sweden, the USA, Cyprus and Finland. The fastest-growing segments are books, packaging materials and label printing. Today, the largest export markets of ICT sector are Norway, Denmark, Sweden, Germany, the Netherlands, the UK, Russia, Finland and Poland.

To sum up, Swedish companies more tend to invest into Lithuania and Latvia, while Finland dominates among foreign investors in Estonia. Scandinavian countries are one of the major trade partners in the Baltic States. Especially this tendency

is noted in Estonia and Latvia. Compared to the other Baltic States, Latvia developed strongest relationships with Iceland. However, Iceland's FDI makes just few per cent of total FDI in Latvia.

4 Econometric Model of FDI Impact on Economy

The research covers the impact of Scandinavian FDI on all three Baltic States during the period of 2000–2015. The study is based on national statistics databases. Various studies show that the growth of FDI maintains that a rapidly growing market provides relatively better opportunities for making profits than the markets that grow slowly or do not grow at all (Ginevičius and Šimelytė 2011; Gui-diby and Renard 2015). To determine the relationships between inward FDI and the growth of host economy and market potential, real growth GDP per capita is chosen (Iamsiraroj 2016). According to Solow model, long-term economic growth is based on productivity or technological progress, which increases by accumulating capital and the growth of population. The efficiency in manufacturing and productivity grows due to adopting new technologies.

Thus, several variables regarding technological progress are involved in the research. The first variable is the expenditure on research and development by private companies. Higher productivity and efficiency lead to higher volume of exporting production, which is expressed in millions of euros.

Although one of FDI determinants is low labour cost, usually MNCs pays higher salaries than domestic companies in the same business sectors (Völlmecke et al. 2016). Thus, monthly net income as one of the variables is included in the model.

Even more, the adoption of technologies might be encouraged and stimulated by local government in several ways. One of the local governments while trying to focus on targeted business sectors promotes technological sciences and encourages school students to join specific study programmes, which change the labour force structure in the labour market. As an indirect stimulation of the growth of targeted business sectors, government expenditures in euros on tertiary education are evaluated as well (Chowdhury and Maung 2012; Su and Liu 2016). Higher expenditures on tertiary education reflect on scientific potential in the country, which is directly linked to the growth of innovations and technological progress. Thus, the number of employees holding PhD is included in the model as well.

$$FDI_{it} = \alpha + \beta_1 \text{economy growth}_{it} + \beta_2 \text{exports}_{it} + \beta_3 \text{salaries}_{it} + \beta_4 \text{R\&D}_{it} + \beta_5 \text{scientific potential}_{it} + \beta_6 \text{education expenditures}_{it} + \beta_7 \text{unemployment}_{it} + \varepsilon$$

where t is time period of the research and i is the number of countries to be observed.

To sum up, in this research paper, based on previous studies, it is assumed that net flows of FDI would serve as dependent variable. FDI influences economy growth both positively and negatively (Sahin and Ege 2015), volume of exports

(Demir 2016; Lin and Kwan 2016), increase in salaries (Xu and Sylwester 2016; Völlmecke et al. 2016), development of R&D and scientific potential (Choi et al. 2016), expenditures on tertiary education (Kahouli and Maktouf 2015) and reduces unemployment (Lien and Filatotchev 2015; Su and Liu 2016) in the country.

5 Discussion of the Results and Insights

A targeted developed FDI policy increases inward FDI and has positive impact on economic growth of the host country. Current economic expansion proves FDI influence. Its growth is characterised by the change of GDP. Even more, the ratio between GDP and FDI has increased since 2009 in all the Baltic States. Foreign capital affects positively on host economy as long as ratio of GDP and FDI is growing. According to the statistics data, Estonia has peaked its FDI flows in 2005, which had remarkable impact on GDP, international trade and the growth of wages. Bivariate correlation analysis proves that macro indicators of each Baltic State have significant relationship between FDI and other variables characterising economic situation. The results of empirical tests show that the Baltic States maintain the strongest relationship between inward FDI from Norway and Sweden and macro-economic indicators with positive link to economic growth. An unemployment level does not correlate strongly with FDI in all the Baltic States. Weak inverse relation between FDI and unemployment level is observed in some cases. Other indicators strongly correlate with FDI (Tables 1, 2 and 3).

It is evident that Lithuania has strongest links with foreign investors from Norway and Sweden, while FDI flows from Iceland are not so significant. Norwegian investors and Iceland's companies make the highest impact on R&D.

However, only inward FDI from Norway has notable influence on expenditures on education, which shows that Lithuanian government targets Norwegian companies. Swedish investors have weak impact on R&D, scientific potential and expenditures on education. This might be easily explained that most FDI made by Sweden is in banking and insurance sectors. Meanwhile, inward FDI from Denmark has inverse relationship with most of factors. It is noticeable that Denmark and Finland do not influence R&D and scientific potential in Lithuania. Even more, there exists strong inverse correlation between expenditures on education and inward FDI from Denmark and Iceland. The strongest impact on an unemployment level has Norwegian investors, while correlation between Lithuanian an unemployment level and inward FDI from Finland is the weakest.

The results prove the situation is different in Latvia. For example, FDI made by Denmark's investors has positive correlation with all factors. Even companies from Iceland make higher impact on Latvian economic growth than in Lithuania. Meanwhile, Norwegian and Swedish investors make the greatest influence on Latvian economy. Denmark has the most significant impact on R&D, scientific potential and expenditures on education. Both Norwegian and Swedish investors have unexceptional influence on R&D and expenditures on education; however they

Table 1 Results of bivariate correlation between inward Scandinavian FDI and independent variables in Lithuanian case

Factor	FDI Denmark	FDI Iceland	FDI Finland	FDI Norway	FDI Sweden
GDP	-0.734	0.224	0.387	0.929	0.881
Exports	-0.696	0.094	0.433	0.909	0.880
Salaries	-0.757	0.084	0.495	0.958	0.953
R&D	0.084	0.637	-0.128	0.736	0.477
Scientific potential	0.255	0.659	-0.102	0.653	0.353
Expenditures on education	-0.942	-0.953	0.255	0.845	0.253
Unemployment	-0.732	-0.346	0.285	0.653	0.736
<i>R</i>	0.824	0.801	0.681	0.962	0.968
<i>R</i> ²	0.696	0.642	0.463	0.925	0.937

Table 2 Results of bivariate correlation between inward Scandinavian FDI and independent variables in Latvian case

Factor	FDI Denmark	FDI Iceland	FDI Finland	FDI Norway	FDI Sweden
GDP	0.830	0.672	0.843	0.822	0.890
Exports	0.610	0.519	0.693	0.942	0.948
Salaries	0.797	0.695	0.768	0.837	0.896
R&D	0.733	0.529	0.693	0.633	0.688
Scientific potential	0.739	0.679	0.633	-0.01	0.110
Expenditures on education	0.970	0.931	0.947	0.603	0.723
Unemployment	0.201	-0.230	-0.262	0.004	0.037
<i>R</i>	0.991	0.987	0.987	0.968	0.988
<i>R</i> ²	0.981	0.975	0.975	0.940	0.976

Table 3 Results of bivariate correlation between inward Scandinavian FDI and independent variables in Estonian case

Factor	FDI Denmark	FDI Iceland	FDI Finland	FDI Norway	FDI Sweden
GDP	0.729	0.372	0.460	0.893	0.802
Exports	0.833	0.403	0.417	0.887	0.912
Salaries	0.784	0.395	0.752	0.501	0.769
R&D	0.773	0.357	0.546	0.752	0.828
Scientific potential	0.635	0.351	0.867	0.556	0.563
Expenditures on education	0.803	0.461	0.466	0.683	0.903
Unemployment	-0.226	-0.444	0.263	-0.243	-0.186
<i>R</i>	0.867	0.922	0.971	0.733	0.999
<i>R</i> ²	0.752	0.849	0.942	0.586	0.999

have no effect on scientific potential. Even more, Scandinavian investors significantly influence GDP and export but have no effect on an unemployment level in Latvia.

The investigation reveals that Estonia has developed the best relationship with Norwegian and Swedish investors, which have the greatest impact on almost all factors. Swedish companies have significant impact on R&D and expenditures on education, while relationship between inward FDI from Finland and scientific potential is the greatest. Inward FDI from Iceland, as in Latvia and Lithuania, does not have important effect on the growth of Estonian economy. The same as in Lithuanian case, in Estonia, weak inverse relationships between inward Scandinavian and an unemployment level exist. Finnish FDI, compared to inward FDI from Denmark, Norway and Sweden, has less significant impact on Estonian GDP and export. Meanwhile, Sweden and Denmark have the highest impact on salaries growth in Estonia.

Although the impact of each Scandinavian country differs, it can be stated that the Baltic States are dependent on FDI.

6 Conclusions

The analysis of scientific literature shows that the role of FDI is twofold. The positive attitude states that FDI positively influences the growth of host economy as it creates new job places; domestic companies improve their technological processes due to spillovers of “know-how”. At the same time, large MNCs “push out” of the market local player or start headhunting and cause brain drain from domestic companies. However, various studies prove that FDI at least in short term has positive impact on the growth of host economy. Thus, for the last two decades, the governments of host countries tend to form FDI policies and attract foreign investors. However, some countries while welcoming every foreign investor became highly dependent on FDI.

The empirical study shows that the Baltic States are dependent on FDI from Scandinavian. Each Scandinavian country has impact on Baltic economies; however, the highest influence makes Norwegian and Swedish investors in all Baltic States. Meanwhile, the least important FDI is made by Iceland, which shows that the Baltic States have not developed very strong relationships with Iceland yet. In Lithuanian case, the strongest correlation exists between Norwegian and Swedish FDI and all factors, except an unemployment level. In Latvia’s case, there is no one domineering country. Meanwhile, inward FDI made by Norway, Denmark and Sweden has the significant impact on the growth of Estonian economy. Thus, the study proves that the Baltic States welcome foreign investors from Scandinavian countries and compete with each other for FDI.

References

- Ben-Shahar, H. (1967). Capital formation and government capital policy in developing economies. *Journal of Development Studies*, 4(1), 86–96.
- Brown, W. A. (1950). Treaty, guaranty, and tax inducement for foreign investment. *The American Economic Review*, 40(2), 486–494.
- Chase-Dunn, C. (1975). The effects of international economic dependence and inequality: A cross-national study. *American Sociological Review*, 40, 720–738.
- Choi, J. J., et al. (2016). The effects of institutional distance on FDI inflow: General environmental institutions (GEI) versus minority investor protection institutions (MIP). *International Business Review*, 25 pp, 114–123.
- Chowdhury, R. H., & Maung, M. (2012). Financial market development and the effectiveness of R&D investment: Evidence from developed and emerging countries. *Research in International Business and Finance*, 26, 258–272.
- Demir, F. (2016). Effects of FDI flows on institutional development: Does it matter where the investors are from? *World Development*, 78, 341–359.
- Estonian Bank. (2016). *Statistical indicators* [online]. Accessed January 23, 2016 and available from the internet.
- Ginevičius, R., & Šimelytė, A. (2011). Government incentives directed towards foreign direct investment: A case of Central and Eastern Europe. *Journal of Business Economics and Management*, 12(3), 435–450.
- Gui-Diby, T. L., & Renard, M. F. (2015). Foreign direct investment inflows and the industrialization of African countries. *World Development*, 74, 43–57.
- Hanousek, J., et al. (2011). Direct and indirect effects of FDI in emerging European markets: A survey and meta-analysis. *Economic Systems*, 35, 301–322.
- Humphreys, P., & Padgett, S. (2006). Globalization, the European Union, and domestic governance in telecoms and electricity. *Governance*, 19(3), 383–406.
- Hymer, S. H. (1971). The internalization of capital. *Annual Meeting of the Association for Evolutionary Economics*, 27–28, 91–111.
- Iamsiraroj, S. (2016). The foreign direct investment–economic growth nexus. *International Review of Economics and Finance*, 42, 116–133.
- Kahouli, B., & Maktouf, S. (2015). The determinants of FDI and the impact of the economic crisis on the implementation of RTAS: A static and dynamic gravity model. *International Business Review*, 24, 518–529.
- Lessmann, C. (2013). Foreign direct investment and regional inequality: A panel data analysis. *China Economic Review*, 24, 129–149.
- LIAA. (2016). Sectors and industries [online]. Accessed April 10, 2016, from <http://www.liaa.gov.lv/en/invest-latvia/sectors-and-industries>
- Lien, Y. C., & Filatotchev, I. (2015). Ownership characteristics as determinants of FDI location decisions in emerging economies. *Journal of World Business*, 50, 637–650.
- Lin, M., & Kwan, Y. K. (2016). FDI technology spillovers, geography and spatial diffusion. *International Review of Economics and Finance*, 43, 257–274.
- Morton, W. A. (1954). The structure of capital market and the price of money. *American Economic Review*, 44(2), 440–455.
- Rostow, W. W. (1953). *The stages of economic growth* (2nd ed.). Cambridge: Cambridge University Press.
- Sahin, S., & Ege, I. (2015). Financial development and FDI in Greece and neighbouring countries: A panel data analysis. *Procedia Economics and Finance*, 24, 583–588 (International Conference on Applied Economics, ICOAE 2015, 2–4 July 2015, Kazan, Russia).
- Šimelytė, A., & Antanavičienė, J. G. (2013). Foreign direct investment policy as an instrument for sustainable economic growth: A case of Ireland. *Journal of Security and Sustainability Issues*, 2(4), 25–33.

- Su, Y., & Liu, Z. (2016). The impact of foreign direct investment and human capital on economic growth: Evidence from Chinese cities. *China Economic Review*, *37*, 97–109.
- Völlmecke, D., et al. (2016). FDI, human capital and income convergence—Evidence for European regions. *Economic Systems*, *40*(2), 288–307.
- Xu, X., & Sylwester, K. (2016). The effects of foreign direct investment on emigration: The roles of FDI source country, education, and gender. *Economic Modelling*, *55*, 401–409.

Troika's Economic Adjustment Programmes for Greece: Why They Fail Systematically?



Stavros Mavroudeas

Abstract The three Economic Adjustment Programmes for Greece have been agreed by the Greek government and the EU-ECB-IMF troika as a remedy for the Greek crisis. This paper first analyses the theoretical origins of these programmes which lie in the neoconservative notions of pro-cyclicality and growth-creating austerity and follow the blueprint of IMF's 1990s Structural Adjustment Programmes. Then it shows how, in the Greek case, the initial blueprint underwent crucial modifications that impede seriously its already problematic applicability. The subsequent sections identify the main technical and political-economic deficiencies of the Greek programmes and on this basis explain their systematic failure in achieving their own goals. The main argument is that the neoconservative restructuring strategy of these programmes, while being obligatory for the dominant interests of the EU, violates fundamental economic and social equilibria of the Greek society. This makes it an overambitious and concomitantly extremely precarious strategy.

Keywords Greek crisis • Eurozone crisis • IMF adjustment programmes

1 Introduction

Following the 2007–2008 global economic crisis, the Greek economy entered in 2008 into recession. At the same time, the Eurozone crisis had begun brewing as one of the major peripheral crises that erupted in the aftermath of the global crisis. There is an ongoing debate regarding the origins of the Greek crisis and whether it was linked to the global economic crisis or not (for an extensive review, see Mavroudeas 2014, 2015). The mainstream views—that is, those dominant in official circles and emanating from the so-called new macroeconomic consensus

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that blends mild neoliberalism with conservative New Keynesianism—opted for a *conjunctural understanding of the Greek crisis*. That means that they considered it as the product of erroneous political decisions by Greece rather than as the outcome of deep-seated structural problems and contradictions [see Mavroudeas (2016) for a detailed critique of this approach for failing to understanding the deep structural character of the crisis]. Therefore, the crisis was characterised as a debt crisis with the concomitant liquidity problems. Following from this erroneous conception—and also from the political and economic interests of EU’s elites that underpin it—the Economic Adjustment Programmes (EAPs) for Greece were implemented as a remedy for the crisis. These EAPs are the result of an uneasy agreement between successive Greek governments and the so-called European Union-European Central Bank-International Monetary Fund (EU-ECB-IMF) troika. They provided financial assistance in the form of loans (for addressing the Greek debt problems) conditional upon the implementation of a policy of extremely austere fiscal consolidation and structural reforms.

The Greek EAPs performed dismally from their very beginning. This failure was exhibited in their inability to catch their own milestones and aims. It resulted in their many and successive recalibrations and—most of all—in the addition of one new EAP after the apparent failure of the previous one. Thus, Greece is currently (in 2016–2017) under a third EAP ending in 2018, while there are already official muses about the probable necessity of a fourth EAP. This failure is accompanied by the deep, unexpected by the EAPs and persistent recession of the Greek economy.

This paper offers an explanation for the systematic failure of the Greek EAPs. The next section surveys the intellectual and policy origins of the Greek EAPs, which are found in IMF’s 1990s Structural Adjustment Programmes (SAPs) and the neoconservative theory of expansionary austerity. Then, it is shown how this initial blueprint was clumsily modified at the request of the EU. The subsequent sections discern the analytical and technical errors that characterise the Greek EAPs. The last section concludes by presenting the wider political-economic problems that plague them. The main argument is that the neoconservative restructuring strategy of these programmes, while being obligatory for the dominant interests of the EU, violates fundamental economic and social equilibria of the Greek society. This makes it an overambitious and concomitantly extremely precarious strategy.

2 IMF’s 1990s SAPs, Washington Consensus and the Theory of Expansionary Austerity

In the 1990s, world capitalism faced new challenges. As Marxist political economy argues, the 1973 global crisis was caused by a falling rate of profit leading to an overaccumulation of capital [for a fuller account, see Mavroudeas and Paitaridis (2014)]. The crisis inaugurated a long period of stagnation. The capital attempted to overcome the crisis, the stagnation and its structural underpinnings by embarking in

a series of capitalist restructurings aiming to surpass the crisis. These restructurings followed different perspectives (*conservative Keynesianism*, *monetarist national neoliberalism*, etc.). The last and more long-lasting restructuring perspective was that of *open-economy neoliberalism* (or popularly called 'globalisation'¹). Open-economy neoliberalism based capitalist restructuring on the liberalisation of international capital movements and the subsequent dismantling of national barriers to capital accumulation. Its longevity is derived from the fact that it was more efficient than national policies in increasing labour exploitation and also in imposing the prerogatives of the dominant capitalist economies upon the less developed ones. However, soon this 'globalised new world' showed its limits. 'Globalisation' bolstered capital profitability (by further increasing labour exploitation) but did not fully restore the falling profitability to its precrisis levels (because of its inability to devalorise the overaccumulated capitals to the necessary extent). At the same time, however, it made the world capitalist system more unstable by linking closer national economies and their economic cycles and thus facilitating the faster transmission of a crisis from one economy to the other. Additionally, the increased use of fictitious capital operations (the so-called financialisation) on a global scale increased further the fragility of the system.

In the 1990s, several peripheral crises (Mexico, Russia, Thailand, etc.) acted as harbingers of the new problems ahead. In this landscape, the IMF revised its previous programmes and created a new intervention blueprint in the form of its new SAPs. The theoretical approach underlying behind these new programmes for the 'globalisation' era was the *Washington Consensus*. The latter is the application of open-economy neoliberalism in Development Theory and Policy [for an extensive account, see Mavroudeas and Papadatos (2007)]. It advocates fiscal discipline, free markets and opening of the economy and promises higher growth and development. These grandiose declarations have been convincingly disputed. Marxist political economists have shown that the Washington Consensus is a vehicle for the exertion of imperialist dominance by the developed capitalist economies (and primarily the USA) over the developing and less developed countries. And even mainstream economists have accepted that liberalisation policies do not lead to higher growth rates.

Nevertheless, IMF's SAPs have been systematically applied since then with not the best of the records in promoting growth and alleviating indebtedness and

¹'Globalisation' is named the post-1980s trend of rapid internationalisation of capital. It involves the deregulation and liberalisation of international trade and capital flows and the subsequent removal of protectionist barriers and policies. It is not an unforeseen phenomenon as similar trends existed previously (e.g. the era of 'first globalisation' in the nineteenth century) and were later reversed. The modern trend took place in the aftermath of the 1973 global crisis as a means of restoring profitability. It was shaped by the particular interests and the prerogatives of the dominant Western economies. Contrary to the globalisation theories' mantras, it does not lead to an elimination of the role of the national economies but rather to a reshaping of it. More specifically, the national economies of the dominant countries strengthened and achieved almost free global reign at the expense of weaker national economies.

poverty. Their main prescription is austerity, reduction of the public sector and export-led growth. Their main guidelines for debt-ridden economies are:

1. Fiscal consolidation (to reduce fiscal deficit)
2. Labour market deregulation (to improve competitiveness)
3. Privatisations (so as the private sector becomes the economy's locomotive)
4. Currency devaluation (to ensure a real exchange rate that would improve international competitiveness and restructure economic incentives to expand the production of exports)
5. Opening of the economy (to attract foreign capital): removal of import quotas, tariff reductions and improved export incentives
6. Debt restructuring (to alleviate the debt burden)
7. Tax reforms—aimed at neutrality and administrative simplification including a shift from trade taxes to other taxes, e.g. VAT

IMF's SAPs have another undeclared but crucial feature. As Weisbrot et al. (2009) have shown, these are procyclical programmes in the sense that their measures (austerity, etc.) consciously deepen the crisis believing that in this way it will 'bottom' sooner and the rebound will also be very strong (V-shaped recovery).

More recently, the perspective reflected in the SAPs found a more modern theoretical expression in the theory of *expansionary austerity*. It was initially suggested by Giavazzi and Pagano (1990) as the *expansionary fiscal contraction hypothesis* that argued that, under certain limited circumstances, a major reduction in government spending by altering expectations about taxes and government spending will expand private consumption, resulting in overall economic expansion. But it shot to fame with Reinhart and Rogoff's (2010) study (which is a follow-up to their previous debt-intolerance theory that maintained that under certain conditions, the accumulation of debt by *developing economies* leads to economic instability). The theory of *expansionary austerity* extends this thesis to *developed economies* by asserting that there is a statistical negative correlation between growth and public debt when the latter surpasses 90% of GDP. The Reinhart and Rogoff thesis has been disputed both theoretically (for a review, see Botta 2015) and empirically refuted [as Herndon et al. (2013) has convincingly proved that its selective exclusion of available data, coding errors and inappropriate weighting of summary statistics lead to serious miscalculations that inaccurately represent the relationship between public debt and GDP].

Notwithstanding, the Reinhart and Rogoff thesis continues to guide policy makers and IMF programmes. As already noted, their results are rather dismal.

3 The Greek EAPs: A Hasty, Clumsy and Systematically Failing Programme

The three Greek EAPs are in principle one that is being continuously modified and recalibrated. It was agreed between a hastily and clumsily formed EU-ECB-IMF troika and successive Greek governments.² It depended upon the IMF for technical expertise as the EU lacked any such. On the other hand, the EU posed the political directions and constraints to the programme as the main political body in the deal. The Greek state was an inferior counterpart. The programme suffered from the very beginning from coordination problems and also from conflicting interests.

In technical terms, it is a medium length bail-out and structural transformation programme. It offers to Greece loans (to avoid default) accompanied by economic policy conditions that are formalised in successive memoranda of understanding on Specific Economic Policy Conditionality. Till today the total amount of loans is around 300 billion euros. This is a huge amount comparing to other similar programmes, but it still constitutes only a small fraction of the assistance provided to the European banks in the aftermath of the 2008–2009 financial crisis. On the other hand, austerity measures estimated to amount to approximately 70 billion euros till today have been imposed on the Greek economy.

The programme's declared aims (EC 2010, p. 10), as declared in the first EAP and reiterated in the second EAP, are the following:

1. In the short term to restore confidence and maintain financial stability by (a) fiscal consolidation and (b) stabilising the financial sector
2. In the medium term to improve competitiveness and alter the economy's structure towards a more investment-friendly and export-led growth model.

The third Greek EAP added a rather cosmetic addition to these set of goals by explicitly incorporating the goal of creating a 'modern state and public administration structure'. This addition is rather stylistic as this goal implicitly existed from the very first programme. Its explicit incorporation has to do with the increased emphasis on institutional factors and structural reforms.³

The Greek EAPs follow the SAPs' prescription with significant modifications for a number of reasons. Some of these reasons are purely technical, but the more crucial ones are overtly political. The technical reasons stem from the fact that this is the first time such a large programme is implemented in a developed capitalist

²Most of these governments were elected under anti-austerity platforms. But sooner or later, willingly or unwillingly they succumbed to the troika's pressure and directives and betrayed their electoral declarations.

³There is however a real danger behind this cosmetic addition. The latter implies that Greece is not a 'modern' state. This goes hand in hand with several comments declaring it a 'failed state' (i.e. one that cannot perform its obligations and a threat to international stability). Such comments are usually a harbinger of calls for a more direct and heavy-handed foreign intervention in internal affairs.

economy. The political reasons stem from the fact that Greece is an EU and European Monetary Union (EMU) member. In practice, both sets of reasons overlap creating a very problematic mix.

The main modifications of the SAPs' prescription are the following:

First, the Greek programme is lengthier. Initially, it was conceived as a 3-year programme, as all the IMF programmes. However, because of the almost immediate failure of the first EAP, it was supplemented with the second EAP which extended the programme by 1 year. Then, because also of the failure of this new augmented programme, a third EAP was concluded in 2016. Thus, the Greek programme is—at least at this moment—an 8-year programme (expected to conclude by 2018).

Second, there is no devaluation mechanism because Greece belongs to the EMU. This removes a crucial mechanism of the IMF's toolbox for increasing competitiveness. Consequently, a greater burden is placed upon 'internal devaluation' (i.e. austerity on wages) as a means of augmenting competitiveness.

Third, in the first EAP, there was no debt restructuring provision because the EU objected to that for mainly political reasons. It argued that this would damage the credibility of the European integration process and the international status of the euro. An additional reason was that Greek debt was mainly in private hands and there was—at least at that time—a fear of what would be the cumulative repercussions of a Greek debt restructuring on the international financial markets. However, after the failure of the first EAP, there was a belated and insufficient restructuring of the Greek debt held by private investors (the so-called Private Sector Initiative—PSI). While this restructuring was big in nominal terms, its actual reduction of the Greek debt was negligible as it actually bankrupted Greek banks and welfare funds which had to be recapitalised by the state with the new loans. The only crucial effect of the PSI was that it moved Greek debt from private to public hands, as the EU—and to a lesser extent the IMF—became Greece's main lenders.

Fourth, the Greek programme is extremely front-loaded as the EU freely admits (EC 2010, p. 15). This clause was imposed, contrary to IMF's advice, because the EU wanted to solve the problem soon and avoid contagion to the rest of the Eurozone. However, in reality the opposite happened: the Greek problem dragged one, and the Eurozone crisis soon erupted in several other countries (irrespective of the Greek case as in the Irish private banking-caused crisis).

All these modifications make the Greek programme a very problematic one. Its declared short-term aim is a fast return of Greece to international financial markets. This milestone has been set at 2020 (after the failure of the first EAP that envisaged an even earlier date). It is supposed—against any conventional wisdom—that if Greece has achieved a 120% debt-to-GDP ratio by 2020, then the private international financial markets would be willing to finance it again. The 120% ratio does not derive from any economic analysis but from sheer political trickery. Italy has such a debt ratio, and if the Greek goal was set at a lower point (e.g. the 90%

proposed by Reinhart and Rogoff), then Italy should be put in an adjustment programme. Of course, this is unfeasible for both economic and political reasons.

The problematic nature of the Greek programme is exhibited in its unrealistic partial goals and milestones. For example, in order to achieve the 2020 goal, Greece has to achieve exorbitant fiscal primary surpluses and growth rates for a very long time period (e.g. around 3.5% yearly). These are obviously unrealistic goals in the current global economic situation.

For all these reasons, the Greek programme, despite its numerous revisions, is failing systematically to achieve almost all its general and partial milestones (growth rate, debt-to-GDP rate, current account balance, price deflation, etc.).

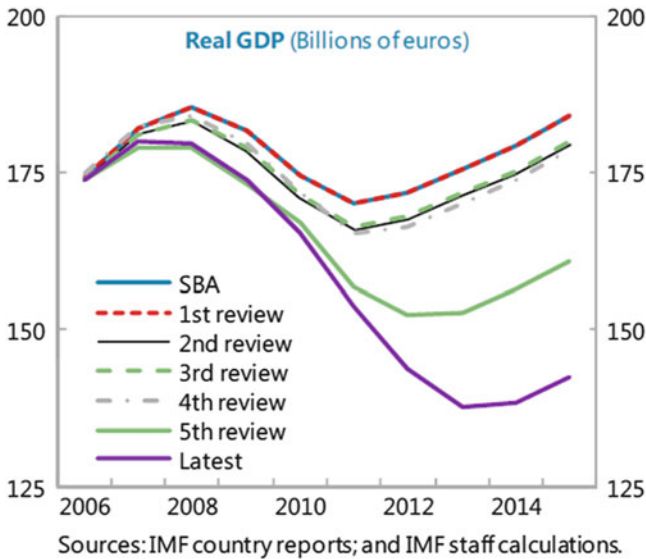
Of all these general and partial milestones, the one that concerns the economy's growth rate is the more crucial one as it encompassed—to a great extent—the impact of the others and also denotes the general state of the Greek economy. Moreover, it plays a crucial role in the evaluation of the debt viability together with the initial debt level, the rate of real interest paid for public debt and the fiscal primary balance as a percentage of GDP. Of all these variables, the fiscal primary balance is the only one controlled by the state, and its ratio depends upon the GDP; the first two are given (or controlled by foreign lenders), and the GDP growth rate expresses the general condition of the economy. As it is obvious, a positive growth rate would enhance the ability to achieve and sustain robust fiscal primary surplus, thus ameliorating the ability to repay debt and debt viability. According to the mainstream mantras, a negative evaluation of debt viability would gravely affect market expectations and thus Greece's ability to return soon to borrowing from private international financial markets.

Why this greater than expected recession happened? By its very logic, the Greek EAP envisaged a programme-caused increase of the recession. The heavy and very front-loaded fiscal consolidation would necessarily lead the dominated by the public sector Greek economy into more recession than the initial one. However, troika's estimation of the fiscal multiplier was rather low (significantly less than unity), hence expecting a small recession. This estimation proved to be utterly wrong (as Blanchard and Leigh 2013, admitted), and the fiscal multiplier is more than unity. Hence, the recession caused by the programme's fiscal austerity was greater than expected. On the other hand, the programme's expectation that the private sector would cover rapidly the gap created by the withdrawal of the public sector did not materialise. Private capitals in a situation of deep recession, with the subsequent collapse of internal demand and in a tumultuous political-economic environment, avoided taking the risk of investing and did it only in a few completely scandalous cases (where public utilities were sold literally for peanuts). Consequently, the Greek EAP caused a much greater than expected recession leading to a cumulative loss, from its beginning till the end of 2016, of approximately 25% of GDP.

At the same time, the programme's expectation of a *deus ex machina* in the form of a greatly improved trade balance (that would boost growth and fiscal revenues)

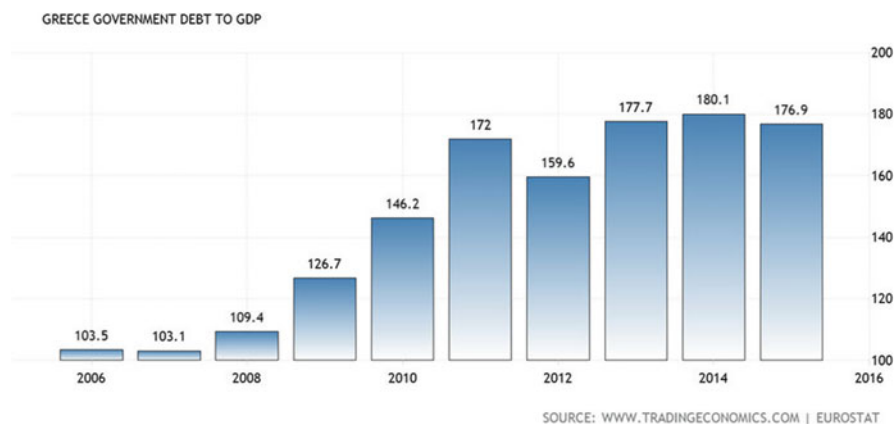
failed also to materialise. Despite the barbaric ‘internal devaluation’,⁴ exports did not increase significantly. There was an amelioration of the trade balance because the collapse of internal demand reduced significantly consumer goods imports. However, Greek exports did not show any significant increase for obvious reasons: the majority of exported goods depend upon imports for their production. Hence, reducing nominal labour unit costs affects only slightly the price of exports as its greater part depends upon the cost of imported intermediate goods.

This greater than projected recession tore down the programme’s projections regarding GDP. For example, for the period May 2010 to May 2013, GDP forecasts have been revised downwards eight times. Similarly, the forecasts for the required fiscal austerity measures have changed from 25 billion euros initially to 66 billion euros. IMF (2013, p. 13), in its ex-post evaluation of the Greek EAP, provides a telling picture of these grossly inaccurate projections:



As a result of this deep recession, the debt-to-GDP ratio instead of falling after a certain point in time—according to the programme’s projections—actually increased (see graph below). Therefore, the 2020 goal of a 120% debt-to-GDP ratio is obviously unachievable.

⁴According to the Greek statistical authority ELSTAT, real wages were reduced by 37 or 8.7% annually during the period 2009–2014.



The following table describes the bleak condition of the Greek economy after 6 years of implementation of the Greek EAPs:

Basic economic indicators	2009	2015
GDP (billion euros)	237	176
Debt (billion euros)	299	321
Debt/GDP ratio (%)	126	183
Deposits in banks (billion euros)	240	120
Investment (billion euros)	50	17
Imports (excluding oil products in billion euros)	45	30
Exports (excluding oil products in billion euros)	15	18
Unemployment rate (%)	9.6	24.4

Nevertheless, the new third EAP—agreed by the new and formerly anti-austerity Greek government by the SYRIZA party—follows the very same lines with its predecessors.

4 The Political Economy of the Greek EAPs

Technical faults and constraints do not suffice to explain the gross debacle of the Greek EAPs. Especially, they cannot explain the stubborn insistence of the EU in an obviously problematic and nonworking programme. The explanation lies in the broader political and economic processes underlying technical choices.

The Greek EAPs is the mainstream strategy of solving the crisis that has been imposed upon Greece by the unequal alliance between EU's dominant countries and the Greek elite. It is unequal in the sense that the former have the upper hand by bailing out the bankrupt Greece conditional upon the implementation by the latter of a very stringent and wide-ranging adjustment programme. This implies that the

troika effectively assumed at least the economic governance of the country and also dictates much of its political governance. On the other side, the Greek elite acquiesced to this unequal deal because of sheer inability to find another solution and at the same time remain within the EU. Greek elite's main priority is to avoid much of the 'pain' associated with the adjustment programme at the expense of the middle and popular strata that bore till today its cost. It understands that the EAP's radical overhauling of the post-war structure of Greek capitalism disrupts its balance of forces and endangers its stability. But on the other hand, the Greek elite is inextricably linked to European integration and does not dare even to envisage a solution to the crisis outside it.⁵

Why the troika has designed such an obviously unworkable adjustment programme and why it insists on that despite its systematic failings? Also, how can the various controversies be explained that erupt within the troika regarding the implementation of the programme? Nowadays it is obvious that there is an uneasy relationship between the main partners of the troika. The controversy between the IMF and the EU that emerged in 2016 reveals—behind its technical aspects—opposing interests.⁶ The key to deciphering this riddle is the post-2007 crisis geopolitical antagonisms between the dominant economies and blocs of the world.

EU expresses the vested interests of the euro-centre economies (with German at the helm), whereas IMF expresses mainly those of the USA. The 2007 global crisis aggravated international antagonisms as its major player attempted to pass part at least of the burden of the crisis to others. In this context—and as the crisis erupted first in the USA and then in the rest of the developed economies—the EU made a sleigh of hands. With the outbreak of crisis, all developed economies abandoned neoliberal prescriptions and used anti-cyclical measures in order to contain it. Thus, both the USA and the new emerging economies implemented expansionary fiscal and relaxed monetary policy. By contrast, the European Union has opted for an initially less expansive and subsequently tighter fiscal and monetary policy (e.g. interest rate cuts were slower and smaller than the Federal Reserve of the United States). This meant that the US and the new emerging economies 'inflated' their economies to address the immediate danger of the crisis but also flirt with the perils of a 'bubble' burst. On the other hand, the EU sought to exploit the 'bubbles' of its competitors (by selling in their markets) while housekeeping its own economy and of course not providing similar facilities to its competitors.⁷

⁵For a detailed analysis, see Mavroudeas (2013).

⁶In a nutshell, the IMF argued that the Greek EAP is problematic, and either a deeper austerity or a debt restructuring is required. The EU ruled out a debt restructuring in the form of a 'haircut' and counter-proposed vaguely that a debt profiling might happen at some time in the future if Greece sticks faithfully to the milestones of the EAP.

⁷In a telling comment of *Wall Street Journal* on January 25, 2012, V. Treier, chief economist at Germany's chambers of commerce, declared that Germany's economy (which accounts for 30% of the Eurozone) has benefited from strong growth in emerging markets such as China and a recovering US economy.

Simultaneously, the European Union initiated a process of 'internal Third World-isation' by pushing the euro-periphery into the debt trap. The aim of this move is to create a wide 'economic special zone' characterised by low wages, flexible labour relations, cheap assets and unregulated markets that would serve as export hubs for EU's multinationals. However, these European 'special economic zones' are destined to produce low technology, mainly traditional goods and/or be lower parts of pan-EU value chains (with limited value added). In this way, the EU would acquire within its borders a production zone for competing both internally and abroad with particularly products from the new emerging economies.

Through this 'sleigh of hands', the EU aspires to upgrade its global position and possible challenge in the near future of the US global supremacy. A crucial aspect of this game is the projection of the euro as a credible international currency in contrast to an unsecure US dollar.

How can these considerations explain the stringent nature of the Greek EAPs? The EU cannot opt for a more relaxed programme (less front-loaded, less anti-cyclical, etc.) because that would drag the Greek problem more in the future and also subvert EU's housekeeping. It could not employ a combination of 'internal' and external devaluation (that would make austerity less traumatic and the collapse of internal demand smoother) because of Greece's participation in the Eurozone. It did not want and only belatedly accepted a half-baked debt restructuring because this loosens discipline within the EU and therefore negates the essence of its 'sleigh of hands'. For all these reasons, the EU required the very inflexible and harsh modifications of the initial IMF blueprint that characterise the Greek EAPs.

On the other hand, the IMF took part in the Greek EAPs' ambiguous experiment—despite its implicit or explicit objections—for a number of reasons. Setting aside the personal and micropolitical games (e.g. those of D. Strauss-Kahn), the main strategic reasons for its participation have to do with US interests. The USA wanted to continue being an influential player in EU's affairs. It did not want to antagonise directly Germany and the EU by not taking part in the bail-out and not offering IMF's much needed technical expertise. But at the same time, it won't let EU's 'sleigh of hands' to succeed. Thus, IMF participates in an obviously unworkable programme but also—from time to time and depending on the evolution of the US-EU antagonisms—presses its own demands and objections. Obviously, its main interest is not the success of the Greek EAP (as IMF's loans are more secure than those of others) but its use as a means to curtail EU's global supremacy ambitions.

The outcome of this game of conflict-cum-compromise within the troika is the Greek EAP. Because of this, it is a very inflexible and unworkable programme. However, the fundamental problem of the EAPs' strategy is much broader. Both its immediate and its structural measures disrupt Greek capitalism's entire post-war architecture and have profound political and economic consequences. First, they violently change Greek capitalism's internal structure which affects corporate groups, the sectoral structure, the import-export balance, etc. This means that powerful economic groups of the past are at risk while new ones are trying to emerge. As this process is very painful and takes time, it makes intra-capitalist

rivalries and conflicts extremely brutal. Furthermore, foreign capital expands at the expense of domestic capital. Second, small and medium enterprises (SMEs)—a traditionally strong branch—are shrinking rapidly as the concentration and centralisation of capital proceeds very intensively. This pushes the small bourgeoisie—which historically was a very large stratum compared to Western standards—towards proletarianisation and undermines one of capital’s fundamental class alliances. Moreover, it destabilises crucial economic processes that are not adequately replenished by other ones. Third, the living standards of the great majority of the population have to be reduced from that of a euro-periphery country to that of a Balkan or even a Third World economy. Only with such a rapid devaluation of the value of labour power and a corresponding increase in labour’s exploitation can profitability recover. Fourth, it is only in this way (i.e. through a large depreciation of capital and a simultaneous increase in its profitability) that Greek capitalism can emerge from its crisis and resume the process of capital accumulation (i.e. economic growth). But this requires a deeper and more prolonged recession than the one envisaged as the private sector is reluctant to take the risk of restructuring and the public sector is weakened. In addition, the restart of economic growth does not mean the end of austerity but the opposite. In order to sustain the capital profitability, austerity should be continued and deepened. Otherwise the recovery of capitalist accumulation will stop again and recession will return. Finally, even when the process of capitalist accumulation restarts, this will happen with the Greek capitalism downgraded and weakened within the international capitalist system.

Summarising, the heavy-handedness of the project disrupts violently crucial economic and social balances. This transforms the crisis from primarily economic to social and political and can lead at any time (even in a phase where normal economic growth might seem restored) to uncontrollable socio-political turbulence.

References

- Blanchard, O., & Leigh, D. (2013). *Growth forecast errors and fiscal multipliers* (IMF Working Paper 13/1).
- Botta, A. (2015). *The theoretical weaknesses of the expansionary austerity doctrine* (Post Keynesian Economics Study Group Working Paper 1511).
- EC. (2010). The economic adjustment programme for Greece. *Occasional Papers* 61, May.
- Giavazzi, F., & Pagano, M. (1990). *Can severe fiscal contractions be expansionary? Tales of two small European countries* (NBER Macroeconomics Annual 5).
- Herndon, T., Ash, M., & Pollin, R. (2013). Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff. *Cambridge Journal of Economics*, 38(2), 257–279.
- IMF. (2013). *Greece: ex post evaluation of exceptional access under the 2010 stand-by arrangement* (Country Report No. 13/156).
- Mavroudeas, S. (2013). Development and crisis: The turbulent course of Greek capitalism. *International Critical Thought*, 3(3), 297–314.
- Mavroudeas, S. (Ed.). (2014). *Greek capitalism in crisis: Marxist analyses*. London: Routledge.

- Mavroudeas, S. (2015). The Greek saga: Competing explanations of the Greek crisis. Kingston University London Economics Discussion Paper Series 20015-1.
- Mavroudeas, S. (2016). The Greek crisis: A structural or a conjunctural crisis? In T. Subasat (Ed.), *The great financial meltdown: Systemic, conjunctural or policy-created? New directions in modern economics series*. Cheltenham: Edward Elgar.
- Mavroudeas, S., & Paitaridis, D. (2014). The Greek crisis: A dual crisis of overaccumulation and imperialist exploitation. In S. Mavroudeas (Ed.), *Greek capitalism in crisis: Marxist analyses*. London: Routledge.
- Mavroudeas, S., & Papadatos, D. (2007). Reform, reform the reforms or simply regression? The 'Washington Consensus' and its critics. *Bulletin of Political Economy*, 1(1), 43–66.
- Reinhart, C. M., & Rogoff, K. S. (2010). Growth in a time of debt. *American Economic Review Papers and Proceedings*, 100, 573–578.
- Weisbrot, M., Rebecca, R., Cordero, J., & Montesino, J. (2009). *IMF-supported macroeconomic policies and the world recession: A look at forty-one borrowing countries*. Washington, DC: CERP.

Trading Volumes of Free Zones in Turkey and Evaluation of Their Contribution to International Business



S. Ozgur Baslangic and Turker Susmus

Abstract The main purpose of the existence of free zones in the world is to increase the volume of trade between the countries. In addition to this purpose, it is aimed in creating new employment positions and contributing them to the economy by opening up new business areas.

The geographical position of Turkey is very important, and certainly it affects the international business activities in Turkey. In this context, there are 19 free zones in Turkey, and there are hundreds of effective companies operating in these important free zones.

In this study these free zones will be assessed as the basis of general business activities annually. On the other hand, trade volumes of the free zones will be assessed in terms of products such as vegetable products, livestock products, fishery products, forestry products, mining and quarrying, processed agricultural products, processed petroleum products, and industrial products. In addition, trade volumes between Turkey and other countries such as OECD and EU countries, other OECD countries, the Commonwealth of Independent States, North Africa, and the Middle East will be compared and analyzed.

Keywords Free zone • International business

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1 Introduction

There are many types of definitions in the literature for the free-trade zones. Generally, it can be defined as places where commercial and industrial activities are simplified and government intervention is reduced to minimum and also a place in the political boundaries of a country but remained outside the customs territory. As can be understood from the description, with its flexibility free zones provide major commercial interests (IZTO, Access Date: 11.04.2016).

When we examine the historical process of free zones, this process can predicate up to ancient Greek and Roman civilizations about 2000 years ago. Greece's Piraeus and Challis Ports are considered as the first examples of this subject. The first free zones are established on the major trade routes. The colonies on these routes eliminated the economic and political controls fully or partially on "free cities" (Tumenbatur 2012, p. 340).

However, in the sense we understand it today, the first examples are Gibraltar Island (1704), Singapore (1819), and Hong Kong (1841) with the treaty between England and China for 99 years (KALKINMA, Access Date: 11.04.2016).

There are also examples from the Ottoman Empire. Today Sulina City remains in the Romanian border where the Danube flows into the Black Sea. This city's port has been turned into a free port during the Ottoman Empire in 1870. This port has been announced as a free zone in 1978 by the Government of Romania (Alpar 1985, p. 13).

There are various port applications in European cities in the early 1900s. Free-trade zones seemed as a way of solving the economic crisis after the Great Depression on 1929. Singapore and Hong Kong free zones which were established before the Second World War and the following ones like Panama, Ireland, Taiwan, and South Korea achieved a great success. These successful implementations have contributed significantly to the adoption of the idea of establishment of free zones in many countries (Karaduman and Zafer 2002, p. 133).

Free zones are implemented in order to improve economic development. In 1980s by rapidly increasing the number of free zones reached to 450 zones over 80 countries. This rapid growth has led to search for new markets. In this respect in year 1978, the World Export Processing Zones Association (WEPZA) was founded under the leadership of United Nations Industrial Development Organization (UNIDO). WEPZA, a nonprofit organization, helps the member countries on market and trade researches and provides important support by reducing cost of research (Tumenbatur 2012, p. 340).

2 Free-Trade Zones and Applications in Turkey

Sudden changes in the political and economic systems are not easy for the countries. The countries who noticed it began to look for different ways to adapt to changing conditions for economic development. At this point, due to more trade

development request without changing the current political and economic system, the phenomenon of the “free zone” was developed. The benefits of such commercial points understood that without making any customs operations and radical changes in the existing commercial system, the imported goods can be stored or can be processed easily. As a result, free-trade zones appeared as safe ports for the storage of goods from abroad or for transit trade (Duzenli 2006, p. 20).

2.1 The Scope of Free-Trade Zones

The main purpose of the establishment and operation of free zones can be determined as follows (Sezgin 2008, p. 12):

- To increase investment and production for export
- To speed up the entry of foreign capital and technology
- To assure the need of the economy for the input cheap and on a regular basis
- To take more advantage of external financing and trade opportunities

On the other hand, some important functions of these free-trade zones can be listed as follows (Sezgin 2008, p. 12):

- Testing of new trade and economic policies
- Introducing new technologies into the country by encouraging foreign capital firms
- Providing direct and indirect employment
- Reducing costs by partial importation to the country
- Removing bureaucratic barriers
- Providing incentives and benefits for low-cost export goods
- Providing economic contribution by enabling transit trade
- Providing world trade for export products by simplifying the distribution.

Meanwhile, it is possible to talk about some substantial benefits of a free trade. These benefits can be listed as follows (Orhan 2003, p. 122):

- Provide benefits for importation (time, storage costs, tax advantages, and quality assurance).
- Provide benefits for exportation (timing and competitive advantage).
- Provide foreign capital entry.
- Provide employment support.

2.2 Free-Trade Zones in Turkey

In Turkey, attempts for establishment of free zones started in 1927. However, they could not find an application area because of the political and economic reasons

until the 1980s. The first application of the free zone is considered at the port Istanbul, and for this purpose a law is issued on 22 June 1927. However, it could not be put into practice because of the inadequate infrastructure, bureaucratic obstacles, and the Great Depression seen all over the world (Bakir 1984, p. 68).

In 1928, a free zone trial is done for Ford Company, but it failed again due to the Great Depression. Similarly, attempts to free zones in 1946 and 1956 are forgotten for a short time. The serious practice for free zones in Turkey has been done after the new economic strategies in 1980. It was thought that such zones could contribute to exports and also attract foreign investors. After various discussions, Mersin and Antalya (1987), Ege and Istanbul Atatürk Havalimani (1990), Trabzon (1992), Istanbul Deri ve Endüstri (1995), Doğu Anadolu and Mardin (1995), IMKB (1997), İzmir Menemen Deri, Rize, Samsun, Istanbul Trakya, Kayseri (1998), Avrupa, Gaziantep, Adana-Yumurtalık (1999), Bursa, Denizli ve Kocaeli (2001), and Tubitak-Marmara Arastırma Merkezi Teknoloji (2002) were established. Although the contribution of current free zones to the economy is discussed, the new zones, Istanbul Kiyi Bankacılığı, Zonguldak-Filyos, and Ipekyolu Vadisi, are established in Turkey (Ozturk 2013, p. 77).

3 Trading Volumes of Free Zones in Turkey and Evaluation of Their Contribution to International Business

When Table 1 is examined, Turkey's export figures can be seen between the years 2011 and 2015. Accordingly, in 2015, approximately Turkey's 45% of the exports realized to the European Union, meanwhile exports from free-trade zones ratio, %, has been 1.33. In this aspect, it can be concluded that there is not an adequate rate of exports made from free-trade zones.

When Table 2 is examined, Turkey's import figures can be seen between 2011 and 2015. Accordingly, in 2015, Turkey imports approximately 38% from the European Union; imports from free zones in Turkey have been 0.59%. If Tables 1 and 2 were compared, it can be evaluated as positive that export rates are higher than import rates.

As of 31 December 2014, a total of 2914 companies operate in free zones of Turkey, and it can be observed from Table 3. Twenty-three percent of these companies are foreign and 77% of them are domestic. In addition, 32% of them makes production, 46% of them concerns in trading, and 22% are operating in other activities. Thirty percent of domestic firms that are located in free zones are production facilities; 37% of foreign firms that are located in free zones are production facilities.

According to Table 4, as of 31 December 2015, the total number of the companies has been decreased by 1.03%. Despite this decline, the number of companies engaged in production increased by 1.40%, and the number of other

Table 1 Exports of Turkey to country groups, 2011–2015 (value: thousand \$)

	2015	2014	2013	2012	2011
Total exports of Turkey	143,861,522	157,610,158	151,802, 637	152,461,737	134,906,869
A. European Union (EU-28)	64,008,890	68,514,370	63,039,810	59,398,377	62,589,257
Rate of European Union in total exports	44.49%	43.47%	41.53%	38.96%	46.39%
B. Free zones in Turkey	1,906,800	2,269,841	2,412,824	2,294,934	2,544,721
Rate of free zones in total exports	1.33%	1.44%	1.59%	1.51%	1.89%
C. Other countries	77,945,833	86,825,947	86,350,002	90,768,426	69,772,890
1. Other European countries	14,143,878	15,183,962	14,213,880	14,166,917	12,734,548
2. North African countries	8,528,402	9,757,935	10,041,750	9,443,604	6,700,805
3. Other African countries	3,922,011	3,996,463	4,103,794	3,913,246	3,633,016
4. North American countries	7,066,716	7,292,336	6,580,293	6,662,554	5,459,299
5. Central America and Caraipts	848,855	938,023	1,004,173	769,630	626,293
6. South American countries	1,309,912	1,852,328	2,126,991	2,191,084	1,840,351
7. Near and Middle Eastern	31,092,055	35,383,669	35,574,660	42,451,153	27,934,772
8. Other Asian countries	10,308,562	11,590,682	12,016,838	10,574,649	10,199,361
9. Australia and New Zealand	619,543	600,042	538,473	490,339	480,755
10. Other countries	105,899	230,507	149,150	105,250	163,690

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companies operating in other activities increased by 2.82%, while the number of trading companies has decreased by 4.53%.

Table 5 situates the annual trade volume of free zones in Turkey. There are 19 free zones in Turkey. It can be obtained that trade volumes fell in year 2011, showed an increase in years 2012 and 2013, but declined again in years 2014 and 2015, respectively. In years 2014 and 2015, 82.5% of the total trade volume has been realized by seven free zones. The remaining 12 free zones performed 17.5% of the total trade volume.

Benefiting from Table 5, as a result of the calculations made by taking into account, seven free zones which performed the highest trading volume is as follows.

Table 2 Imports by country groups, 2011–2015 (value: thousand \$)

	2015	2014	2013	2012	2011
Total imports of Turkey	207,206,813	242,177,117	251,661,250	236,545,141	240,841,676
A. European Union (EU-28)	78,668,832	88,783,651	92,457,992	87,657,462	91,439,406
Rate of European Union in total exports (%)	37.97	36.66	36.74	37.06	37.97
B. Free zones in Turkey	1,227,213	1,260,771	1,267,869	1,045,827	1,038,057
Rate of free zones in total exports (%)	0.59	0.52	0.50	0.44	0.43
C. Other countries	127,310,768	152,132,695	157,935,389	147,841,852	148,364,213
1. Other European countries	28,109,858	36,367,325	41,319,229	37,206,446	35,668,228
2. North African countries	3,006,952	3,435,769	3,508,479	3,308,343	3,342,055
3. Other African countries	2,092,386	2,502,192	2,522,630	2,613,447	3,424,658
4. North American countries	12,057,020	13,834,992	13,952,865	15,084,268	17,345,670
5. Central America and Caraips	1,039,500	1,123,835	1,362,167	1,069,126	903,455
6. South American countries	3,661,121	3,934,733	3,665,676	4,079,580	4,500,367
7. Near and Middle Eastern	13,574,618	20,480,465	22,214,051	21,410,008	20,439,413
8. Other Asian countries	53,339,679	56,162,293	54,648,319	49,602,022	53,143,945
9. Australia and New Zealand	608,577	637,678	1,318,247	861,022	806,922
10. Other countries	9,821,057	13,653,413	13,423,725	12,607,589	8,789,500

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Table 3 Number of companies in Turkey's free zones

Firms's activities	Local	Foreign	Total
Production	679	249	928
Purchasing-selling	1039	309	1348
Other	518	120	638
Total	2236	678	2914

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Free zones	Rate of trade volumes in total (%)
Aegean	19
Mersin	16
Istanbul Industry and Trade	14.5
Europe	11
Bursa	8.5
Istanbul Thrace	7
Istanbul Atatürk Airport	6.5

Europe, Istanbul Thrace, Istanbul Atatürk Airport, Istanbul Industry and Trade, and Bursa are located in the Marmara Region. With reference of this information, 47.5% of the total trade volume of free zones has been performed by the free zones located in the Marmara Region. On the other hand, according to Table 5, when Aegean, Istanbul, Izmir, and Denizli are taken into account, the ratio of Turkey's total trade volume of free zones located in the west is approaching 71%. There can be seen an annual total trade volume of free zones by the direction of trade on Tables 6 and 7.

There are 19 free zones in Turkey. When the years between 2011 and 2015 are evaluated, a total of 111,632,611,000 US dollars in trade volume was recorded during the 5-year period. The direction of the trade can be seen below:

- From zones to Third World countries is 33.3%
- From Third World countries to zones is 31.9%
- From zones to domestic market is 22.8%
- From domestic market to zones is 12%

With the reference of the above ratios, bilateral trade volumes of free zones with foreign countries are 65%. On the other side, bilateral trade volumes of free zones with domestic market are 35%. With the reference of Table 7, it can be said that there is an important decrease of annual trade volume as compared to the previous years. Especially the trade from domestic market to the free zones decreased by 19.3%.

Table 8 shows the distribution of trade of free zones according to the group of countries. As compared with the previous year, the annual trade volumes of free zones to the almost all groups of countries has decreased, but the annual trade volumes with North Africa and Middle East countries, OECD countries, and other European countries, which are not member of the EU, have increased.

Table 4 Changes and breakdown of free zone operation licenses

User's activities	December 2014	December 2015	%
Production	928	941	1.40
Purchasing-selling	1348	1287	-4.53
Other	638	656	2.82
Total	2914	2884	-1.03

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Table 5 Annual trade volume of free zones (US\$1000)

Zones	2011	% 2012–2011	2012	% 2013–2012	2013	% 2014–2013	2014
Istanbul Industry and Trade	3,603,223	-10.63	3,220,084	4.58	3,367,671	-1.18	3,327,829
Aegean	5,747,500	-9.14	5,221,937	-10.37	4,680,242	-8.27	4,293,268
Istanbul Atatürk Airport	2,241,525	-6.15	2,103,566	-14.56	1,797,352	-15.52	1,518,438
Mersin	2,693,049	42.3	3,832,246	-7.31	3,552,257	-1.21	3,509,193
Istanbul Thrace	1,533,749	-5.88	1,443,596	19.42	1,723,958	-5.25	1,633,496
Bursa	1,571,579	-2.5	1,532,317	24.48	1,907,397	1.42	1,934,424
Europe	2,059,462	14.83	2,364,905	3.17	2,439,927	0.32	2,447,756
Antalya	731,252	2.52	749,707	20.36	902,379	-7.64	833,450
Kocaeli	549,607	34.33	738,265	-10.23	662,729	5.75	700,819
Kayseri	700,713	-0.53	696,971	14.53	798,250	1.03	806,459
Izmir	356,553	-8.42	326,535	12.79	368,283	-13.11	319,987
Samsun	118,377	-40.75	70,139	30.48	91,521	21.38	111,085
Adana-Yumurtalik	265,654	11.35	295,816	34.36	397,467	29.72	515,598
Gaziantep	112,053	-8.38	102,659	93.89	199,045	-32.45	134,455
Tubitak-Mam Tech.	196,787	5.7	208,007	12.33	233,652	-25.32	174,486
Trabzon	90,204	-22.31	70,079	-17.48	57,828	-19.47	46,569
Denizli	67,694	6.79	72,293	-21.45	56,783	113.81	121,408
Rize	4565	-12.12	4012	-8.86	3657	-3.69	3522
Mardin ^a	2628	-100	0	0	0	0	0
Total	22,646,175	1.8	23,053,135	0.81	23,240,397	-3.48	22,432,242

^aMardin Free Zone omitted due to negligible trade volume
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Table 6 Directional changes in total trade volume (US\$1000)

	2011	%	2012	%	2013	%	2014	%
From domestic market to zones	2,668,180	11.8	2,971,393	12.9	2,886,929	12.4	2,732,526	12.18
From zones to Third World countries	6,924,450	30.6	7,070,643	30.7	7,701,394	33.1	7,957,871	35.48
From Third World countries to zones	7,252,802	32	7,257,543	31.5	7,490,100	32.2	7,058,603	31.47
From zones to domestic market	5,800,743	25.6	5,753,556	25	5,161,974	22.2	4,683,242	20.88
	22,646,175	100	23,053,135	100	23,240,397	100	22,432,242	100

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Table 7 Directional changes in trade volumes during January–December period (US\$1000)

	January–December 2014	January–December 2015	%
From domestic market to zones	2,732,526	2,205,295	−19.3
From zones to Third World countries	7,957,871	7,493,675	−5.83
From Third World countries to zones	7,058,603	6,549,732	−7.21
From zones to domestic market	4,683,242	4,011,960	−14.3
Total	22,432,242	20,260,661	−9.68

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In 2014 and 2015, a total of 42,692,903 billion US dollars in trade volume realized and its distribution can be observed below:

- EU countries are 31.6%.
- Other OECD countries are 7.6%.
- Other European countries are 0.2%.
- CIS is 5%.
- North Africa and Middle East are 10%.
- Turkey is 31.9%.
- Other countries are 13.7%.

The highest trade volumes of free zones by country have emerged with European Union countries and the Turkey domestic market.

Table 8 January–December period breakdown of trade volume by countries (US\$1000)

Countries	Inflow to zones		%	Outflow from zones		%	Total		%
	(January–December 2014)	(January–December 2015)		(January–December 2014)	(January–December 2015)		(January–December 2014)	(January–December 2015)	
I. OECD and EU countries	4,203,593	3,950,385	-6.02	4,492,078	4,155,811	-7.49	8,695,671	8,106,196	-6.78
A. EU	3,397,823	3,011,110	-11.38	3,741,398	3,367,283	-10	7,139,221	6,378,393	-10.66
B. Other OECD countries	805,770	939,275	16.57	750,680	788,528	5.04	1,556,450	1,727,803	11.01
II. Other European countries	4721	48,125	919.49	16,063	31,462	95.86	20,784	79,587	282.93
III. CIS	421,683	369,873	-12.29	794,645	569,636	-28.32	1,216,328	939,509	-22.76
IV. North Africa and the Middle East	624,316	544,683	-12.76	1,420,381	1,704,811	20.02	2,044,697	2,249,494	10.02
V. Other countries	1,804,291	1,636,666	-9.29	1,234,704	1,031,954	-16.42	3,038,995	2,668,620	-12.19
VI. Turkey	2,732,526	2,205,295	-19.29	4,683,242	4,011,960	-14.33	7,415,768	6,217,255	-16.16
Total	9,791,129	8,755,027	-10.58	12,641,113	11,505,634	-8.98	22,432,242	20,260,661	-9.68

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Table 9 shows the distribution of annual trade volumes of free zones by sector between the years 2011 and 2015. A total of 42,692,903,000 US dollars of annual trade volume of free zones can be summarized as follows:

- Agriculture is 8.48.
 - Vegetables products are 8.1%.
 - Livestock products are 0.18%.
 - Fishery products are 0.017%.
 - Forestry products are 0.345%.
- Mining and quarrying are 0.32%.
- Industry is 91.2%.
 - Processed agricultural products are 5.3%.
 - Processed petroleum products are 2%.
 - Industrial products are 83.9%.

With the light of below information, the biggest share of the annual trade volume is emerged by the industry sector with the ratio of 91.2%.

With the help of Table 9, as compared with the previous year in 2015, the following changes can be observed:

- Vegetable products increased by 38.7%.
- Livestock products decreased by 48.71%.
- Forestry products increased by 17.42%.
- Processed petroleum products decreased by 46.88%.

Table 10 shows the total employment of free zones in Turkey. Apparently, in the year 2015, the total number of employees has increased by 1.19% compared to the previous year and became 62,234 persons. The majority of the employees are workers. An interesting outcome is, while the total trade volume has decreased, the total number of employees has increased.

The distribution of the total number of employees by trade zones can be seen below.

Rate of employment in free zones (%)	
Aegean	28
Bursa	16
Mersin	14
Istanbul Industry and Trade	8.2
Antalya	7.5
Kayseri	6.2
Europe	6
Istanbul Thrace	3
Izmir	2
Istanbul Atatürk Airport	1.9
Kocaeli	1.9
Others	5.3

Table 9 January–December period breakdown of the trade volume by sectors (US\$ 1000)

Sectors	Inflow to zones		Outflow from zones		Outflow from zones		Total	
	(January–December 2014)	(January–December 2015)	(January–December 2014)	(January–December 2015)	(January–December 2014)	(January–December 2015)	(January–December 2014)	(January–December 2015)
I. Agriculture	778,722	915,935	17.62	1,166,737	758,787	53.76	1,537,509	2,082,672
A. Vegetable products	731,858	886,299	21.1	1,144,558	732,396	56.28	1,464,254	2,030,857
B. Livestock products	36,053	17,149	-52.43	8636	14,217	-39.25	50,270	25,785
C. Fishery products	1652	1485	-10.13	2182	2287	-4.61	3939	3666
D. Forestry products	9158	11,003	20.14	11,361	9887	14.9	19,046	22,364
II. Mining and quarrying	41,779	43,246	3.51	15,873	37,177	-57.3	78,956	59,119
III. Industry	8,970,628	7,795,846	-13.1	10,323,024	11,845,149	-12.85	20,815,776	18,118,870
A. Processed agricultural products	532,897	518,785	-2.65	599,608	628,060	-4.53	1,160,957	1,118,393
B. Processed petroleum products	264,549	150,660	-43.05	140,728	284,025	-50.45	548,575	291,388
C. Industrial products	8,173,181	7,126,401	-12.81	9,582,689	10,933,063	-12.35	19,106,245	16,709,089
Total	9,791,129	8,755,027	-10.58	11,505,634	12,641,113	-8.98	22,432,241	20,260,661

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Table 10 Employment structure of free zones in January–December period

Zones	January–December 2014				January–December 2015				Total	%
	Worker	Office staff	Other	Total	Worker	Office staff	Other	Total		
	Aegean	13,900	2720	422	17,042	14,124	2,906	457		
Bursa	8200	990	81	9271	9175	921	20	10,116	9.11	
Mersin	7792	910	632	9334	7322	923	534	8779	-5.95	
Antalya	3739	739	0	4478	3939	790	0	4729	5.61	
Istanbul Industry and Trade	3213	1154	0	4367	3897	1254	0	5151	17.95	
Kocaeli	1188	105	65	1358	1020	105	65	1190	-12.37	
Tubitak-Mam Tech.	1022	385	9	1416	958	429	5	1392	-1.69	
Europe	2836	486	0	3322	3115	631	0	3746	12.76	
Kayseri	3185	299	78	3562	3457	348	74	3879	8.90	
Izmir	1209	271	63	1543	927	293	63	1283	-16.85	
Istanbul Thrace	1568	468	11	2047	1409	471	17	1897	-7.33	
Istanbul Atatürk Airport	494	687	65	1246	498	569	119	1186	-4.82	
Adana-Yumurtalik	1778	97	2	1877	645	78	3	726	-61.32	
Samsun	351	50	0	401	386	54	0	440	9.73	
Gaziantep	94	61	0	155	110	42	1	153	-1.29	
Trabzon	34	6	7	47	34	4	10	48	2.13	
Denizli	24	9	0	33	16	9	0	25	-24.24	
Mardin	3	1	0	4	3	1	0	4	0.00	
Rize	1	1	0	2	1	2	0	3	50.00	
Total	50,631	9439	1435	61,505	51,036	9830	1368	62,234	1.19	

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Table 11 Rate of trade volumes and rate of employment in free zones

Free zones	Rate of trade volumes (%)	Rate of employment (%)
Aegean	19	28
Mersin	16	14
Istanbul Industry and Trade	14.5	8.2
Europe	11	6
Bursa	8.5	16
Istanbul Thrace	7	3
Istanbul Atatürk Airport	6.5	1.9

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When Tables 5 and 10 are compared, the outcoming result is summarized in Table 11.

According to Table 11, the free zones located in Istanbul have lower rates of employment, but on the contrary, the rate of trade volumes is higher relatively. The rate of trade volumes of Bursa and Aegean area free zones is lower than the rate of employment. It can be concluded that there is no evident correlation between the rate of trade volumes and rate of employment.

4 Conclusion

The rapid globalization all over the world is changing the way of business. Free zones are also one of the important reflections of changing business. Despite the turbulent historical past, the free-trade zones are very important points for the world trade today.

Located in various geographic locations of our country, 19 of the free-trade zones have been a very significant contributor to our economy. These free zones have reached the number of direct employees over 50,000 people in total both blue and white collar by 2015.

In these free zones, over 3000 companies carry over 20 billion dollars in trade volume per year. Therefore, these trade zones are very important business points in terms of employment and foreign trade. More than a quarter of the companies that operate in the free zones are foreign companies. That is also very important in terms of foreign capital entry.

On the other hand, Turkey is rapidly evolving and advancing in the region; therefore there must be a further increase in the trading volumes for the free zones in Turkey. The commercial developments which will be revealed in the volume of free zones in Turkey will have a very positive impact on the country's and region's economies.

Consequently, foreign capital should be encouraged and should be provided to contribute to the country's economy by new legal regulations, incentives, and new advantages that may be offered for these important commercial points.

References

- Alpar, C. (1985). *Dunyada ve Turkiye'de Serbest Bolgeler* (1. Basim). Ankara: Dost Kitabevi.
- Bakir, S. (1984). *Serbest Bolgeler: Genel Bir Degerlendirme* (1. Basim). Ankara: TBMM Basimevi.
- Duzenli, C. (2006). *Dogrudan Yabancı Yatirimlerin Gelismekte Olan Ulke Ekonomilerine Etkileri: Serbest bolgeler Açisindan Bir Analiz*, (Unpublished Master. Thesis), University of Suleyman Demirel, Isparta.
- <http://www.ekonomi.gov.tr> (Access Date: 11.04.2016)
- IZTO. Accessed April 11, 2016., from http://www.izto.org.tr/portals/0/iztogenel/dokumanlar/turkiyede_serbest_bolgeler_25.06.2012%2012-46-02.pdf
- KALKINMA. Accessed April 11, 2016., from http://www.kalkinma.com.tr/data/file/raporlar/ESA/GA/1998-GA/GA-98-01-01_Serbest_Bolge_ve_Turkiyede_Serbest_Bolgeler.pdf
- Karaduman, N., & Zafer, Y. (2002). Serbet Bolge Uygulamalarının Dış Ticarete ve Yabancı Sermayeye Katkileri. *Suleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 7(1), 133–152.
- Orhan, A. (2003). Serbest Bolgelerin Sağladığı Avantajlar: Kosbas Örneği. *Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 5(1), 1175–1133.
- Ozturk, L. (2013). Serbest Bolgelerin Geleceği: Türkiye Açısından Bir Degerlendirme. *Uluslararası Yönetim İktisat ve İşletme Dergisi*, 9(19), 75–86.
- Sezgin, T. (2008). *Lojistik Kavramı ve Türkiye'deki Uygulamaları* (Unpublished Master. Thesis), University of Istanbul Teknik, Istanbul.
- Tumenbatur, A. (2012). Serbest Bolgeler ve Türkiye'ye Katkisi Uzerine Bir Degerlendirme. *Çag Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 21(3), 339–356.

Advantages and Disadvantages of the Membership of the Republic of Serbia in the European Union



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Abstract Within the EU enlargement strategy to the Balkan region, it is considered important that the Republic of Serbia becomes a member state of the European Union. The association process of Serbia is rather complicated and is based on implementation of the required criteria. Currently, the application of ‘*acquis communautaire*’ and the elimination of the barriers in the internal market are being emphasized. The accession of Serbia to the European Union will help the regional stability, peace, justice, freedom and security of Europe. This paper analyses the pre-accession process of Serbia for achieving the European Union membership and points out the advantages and drawbacks of being a part of this international organization.

Keywords European Union • Criteria • Legislation of the European Union
• Member state

General Characteristics of the European Union

The European Union is an international organization with legal personality, which brings together countries of the European continent. The European Union is a community of values that gives Europeans peace, stability, prosperity, democracy and protection of fundamental freedoms. It has a single institutional system for the European Union and the European Atomic Energy Community. The activities of the European Union are governed by the principles of subsidiarity and proportionality. The *economic objectives* of the European Union are the creation of the

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internal market, economic and monetary union, the formation of a social market economy with a high competitiveness and the high level of environmental protection and improvement of the quality of the environment. Besides economic objectives, the European Union has social objectives, and those are the elimination of regional disparities, promoting cohesion and the elimination of unemployment and poverty. The current activities of the European Union are not only focused on the development of relations between the member states and third countries but are also focused on international cooperation with other international bodies in different areas (e.g. humanitarian aid) (Nováčková 2012). The next important activity is implementation of innovations in EU countries. The vision of the European future based on knowledge is covered in several EU strategies. They stress the key role of research and development as well as that of knowledge workers (Bajzikova et al. 2014).

1 Conditions for Membership in the European Union

Given that international organizations differ in goals, objectives and functions, there are different criteria for membership in an international organization. Conditions may be political, economic, cultural or social.

Any European state may apply for membership in the European Union. The membership is subject to fulfilment of certain criteria (Table 1).

2 Progress Report 2013: Serbia

In addition to these criteria for membership in the European Union, citizens of the candidate state sometimes decide in a referendum. Citizens of Serbia will also decide in a referendum on the membership in the European Union. The culmination of this process is the process of preparing, signing and entry into force of the Accession Treaty to the European Union. Only after approval of the Accession

Table 1 Copenhagen criteria

Criterion	'Copenhagen criteria'
Political criteria	Stable institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities
Economic criteria	A functioning market economy and the capacity to cope with competition and market forces in the EU
Legislative alignment	The ability to take on and implement effectively the obligations of membership, including adherence to the aims of political, economic and monetary union

Source: Based on the data obtained from the site http://ec.europa.eu/enlargement/countries/detailed-country-information/serbia/index_en.htm, European Commission (2014), accessed on 6 February 2014

Table 2 Criteria

Political criteria	Serbia has paid particular attention to the improvement of the rule of law, which will be a key issue, in line with the new approach on Chapters 23 (judiciary and fundamental rights) and 24 (justice, freedom and security). Serbia adopted comprehensive new strategies in the key areas of judiciary, fight against corruption and anti-discrimination following an extensive consultation process. There was a visible proactive approach to investigations in the fight against corruption, including high-level cases
Economic criteria	Serbia has made some progress towards establishing a functioning market economy. Serbia needs to make significant efforts in restructuring its economy so as to cope in the medium term with the competitive pressures and market forces within the Union
Law criteria	Regarding its ability to take on the obligations of membership, Serbia has continued aligning its legislation to the requirements of the EU legislation in many fields, efforts which were underpinned by the adoption of a National Plan for the Adoption of the Acquis (European Commission 2014)

Source: Based on the data obtained from the site http://ec.europa.eu/enlargement/countries/detailed-country-information/serbia/index_en.htm, European Commission (2014), accessed on 6 February 2014

Treaty to the Council of the European Union, the European Parliament and ratification by all member states in accordance with their respective constitutional requirements, the Accession Treaty enters into force. New members of the European Union are also obliged to pay for the membership fee and reimbursement of capital in financial institutions (ECB and EIB). Serbia still has a long way to go until it belongs to the great family of the European Union states (Table 2).

3 Stabilization and Association Agreement

The Stabilization and Association Agreement between the European Communities and their member states, on one side, and the Republic of Serbia on the other side from September 2013 came into force. The Association Agreement is a multilateral international treaty of a political nature, as it contains the conditions for membership of Serbia in the European Union. In principle, it is an agreement where the acting parties are the European Union, the European Union member states and the Republic of Serbia. The agreement meets the terms of the Vienna Convention on Law of Treaties. This agreement strengthens the already close ties between the European Union and Serbia and creates a contractual relationship between the two parties. The agreement sets out a new framework for political dialogue. It creates a free trade area and strengthens bilateral economic relations which should bring Serbia large economic benefits. The agreement supports the reform processes that contribute to the growth of the Serbian economy and help Serbia develop a fully functioning market economy. Furthermore, the agreement lays the foundation for enhanced cooperation, which may develop in the future between the European Union and Serbia in many areas, not least in the fight against organized crime and

illegal cross-border trade, as well as in the context of improving the existing regulations in the field of environmental protection (Enikő Győri 2013).

Commitments under the Association Agreement are mostly affecting Serbia and are mainly aimed at:

1. Compliance with international law
2. Ensuring regional stability in the region
3. Taking measures which will enable Serbia to become a European Union member state

The *Stabilization and Association Council* has been established in the interest of proper coordination of the accession process policies. It is the partner for negotiations with the Council of the European Union and the High Representative of the Union for Foreign Affairs and Security Policy. On the parliamentary level, political dialogue is conducted in the framework of the *Stabilization and Association Parliamentary Committee* whose competences are governed by Article 125 of the Association Agreement.

The *Stabilization and Association Committee* is an international forum for discussion of issues related to the process of preparation of Serbia's membership in the European Union (Article 123 of the Association Agreement).

In the agreement, Serbia agreed to promote regional cooperation and that it will encourage cooperation with countries of the former Yugoslavia and contribute to regional stability.

On 21 January 2014, the First Intergovernmental Conference took place, signaling the formal start of Serbia's accession negotiations. The process of negotiation is based on the control of law approximation and correct transposition of directives into national law. Serbia has an opportunity to negotiate a transitional period under certain negotiating chapters. For example, in 2004, Germany and Austria negotiated a 7-year transition period for free movement for citizens of the new member states. Slovak Republic, for example, was able to negotiate a 7-year transition period for the acquisition of property rights to land and other agricultural assets (forests) by foreign entities. During the transitional period, subjects which were not resident in the territory of the Slovak Republic could acquire land to rent only. The transitional period was through approval of the European Commission extended by 3 years, and from 30 April 2014, foreign persons can acquire ownership rights to land (Treaty on European Union 2010).

The following chapters will be the subject of the negotiations:

Chapters of the Acquis

Chapter 1: Free movement of goods

Chapter 2: Freedom of movement for workers

Chapter 3: Right of establishment and freedom to provide services

Chapter 4: Free movement of capital

Chapter 5: Public procurement

Chapter 6: Company law

Chapter 7: Intellectual property law

Chapter 8: Competition policy

Chapter 9: Financial services

- Chapter 10: Information society and media
- Chapter 11: Agriculture and rural development
- Chapter 12: Food safety, veterinary and phytosanitary policy
- Chapter 13: Fisheries
- Chapter 14: Transport policy
- Chapter 15: Energy
- Chapter 16: Taxation
- Chapter 17: Economic and monetary policy
- Chapter 18: Statistics
- Chapter 19: Social policy and employment
- Chapter 20: Enterprise and industrial policy
- Chapter 21: Trans-European networks
- Chapter 22: Regional policy and coordination of structural instruments
- Chapter 23: Judiciary and fundamental rights
- Chapter 24: Justice, freedom and security
- Chapter 25: Science and research
- Chapter 26: Education and culture
- Chapter 27: Environment
- Chapter 28: Consumer and health protection
- Chapter 29: Customs union
- Chapter 30: External relations
- Chapter 31: Foreign, security and defence policy
- Chapter 32: Financial control
- Chapter 33: Financial and budgetary provisions
- Chapter 34: Institutions
- Chapter 35: Other issues

4 Relationship of the Serbia Law and the European Union Law

The European Union law defines the code of conduct of entities to which the contract acts and the principles apply, and compliance is enforceable. The essential role of European Union law is to create a legal basis for the functioning of the European Union internal market and sector policies. It is currently used primarily for adjustment of relations between the member states and the European Union. A characteristic feature of European Union law is that it forms part of the national legal systems of the member states. The European legal system is also based on democracy and the rule of law (Article 6 and the preamble to the Treaty on the European Union). The European Union law becomes also a part of the Serbian legal system, and it will need to be correctly observed, because the European Commission shall supervise, within its competence, the correct application of the law by the member states. However, the peculiarity is that Serbia as a member state cannot legislate laws that would be contrary to the law of the European Union. Serbian

courts and national administrative authorities are obliged under its powers to apply European Union law and to disapply national legislation which is in conflict with the European law.

5 Operations of the European Integration Office

The European Integration Office was established on 14 March 2004 in Belgrade. The office was established with the aim of coordinating the process of preparing Serbia to join the European Union.

The European Integration Office performs professional, administrative and operational roles and responsibilities for the Government of the Republic of Serbia related to the coordination of the ministries, special organizations and government agencies relating to:

- (a) Coordination, monitoring and reporting on progress related to the process of preparing Serbia to join the European Union
- (b) Coordination of negotiations with the European Union
- (c) Coordination of implementation of the Stabilization Agreement
- (d) Coordinate the preparation of strategic documents related to the process of accession to the European Union
- (e) Coordination of cooperation with state authorities and European Union institutions
- (f) Coordination of activities related to the approximation of law
- (g) Providing information on the European Union
- (h) Providing assistance to government bodies and local governments on issues of European integration
- (i) Coordination of translation of legal acts of the European Union to the Serbian language
- (j) Coordination of European Union funds spending

The European Integration Office cooperates with the Ministry of Foreign Affairs of the Republic of Serbia and other bodies and organizations involved in the accession process (European Integration Office 2013).

6 Reforms in Serbia

Reforms in Serbia as a result of preparing for membership in the European Union are related to democracy and human rights, economic governance and the harmonization of national legislation with the European Union legislation and standards. The reforms are also aimed at introduction of liberalization measures. Serbia uses several tools of technical help for this purpose. The reforms affect the following areas: technical standardization, provision of services, free movement of capital, money

laundering, competition, state aid, agriculture, regional policy, social policy, recognition of documents on education, direct taxes, indirect taxes, customs policy, fiscal policy, transport, financial services, justice and home affairs and on other areas.

7 Advantages and Disadvantages of the European Union Membership

Membership in any international organization brings certain advantages and also disadvantages. Given the scope of its activities and common goals of the following advantages and disadvantages were identified (Table 3):

Using comparative analysis, we pointed out the advantages and disadvantages of the European Union membership. The above-mentioned facts suggest that the positive aspects outweigh the negative, but the comparative analysis does not include the compulsory payment to the EU budget. This means that in addition to the legal, economic and political commitments, Serbia must also contribute to the Union's budget.

If the Republic of Serbia violates the European Union law, under the Article 260 of the Treaty on the European Union, it may impose a lump sum, which has a negative impact on public finances. Students from Serbian universities get the

Table 3 Advantages and disadvantages of the European Union membership

Advantages	Disadvantages
Customs union	Correct application of the law of the European Union
Free movement of persons European Union citizenship Removal of all forms of discrimination	Partial delegation of the exercise of sovereign rights to the European Union institutions
Freedom of provision of services	The correct application of technical norms and standards for products
Free movement of capital and investment cooperation development	Low competitiveness of Serbian producers and service providers
Observation of rules on competition policy and state aid	Insufficient experience of working with European Union institutions
Representation of Serbia in the EU institutions	
Drawing funds from the European Union structural funds	
Development of trade relations	
Market liberalization	
Inflow of foreign investments—job creation	
Improving conditions for business	

Source: Own

opportunity to study at universities in European Union member states, which enables them to acquire new language skills, knowledge and experience.

In the event that Serbia would become a European Union member state, it has also a chance to become a Schengen Area member state if it meets certain conditions. Membership in the Schengen Area brings benefits to citizens of the European Union member states, to travel without border control on the territory of Schengen Area. One of the economic objectives is also a common currency, the Euro. It means that after the fulfilment of the convergence criteria, Serbia may become a Euro-area member states. These facts suggest that if Serbia implements the recommendations of the European Commission and other institutions, it would improve its foreign policy position and strengthen its position in the international market. Serbia would also participate in decision-making and legislating. Other fairly significant advantages would be opening the European Parliament Information Office in Serbia that will communicate information about events in the European Parliament and the European Union institutions to the citizens of Serbia. It can be clearly stated that the European Union brings benefits to the citizens of the member states and requires the member states to protect the rights of consumers.

8 Conclusion

Given that the European Union can be described as an international community that assembles sovereign states of Europe or as an institutionalized form of European integration, Serbia should not miss membership in these economic integration groups. It seems that Serbia's process of preparing for the membership in the European is single sided. Serbia has many obligations to be fulfilled, but it has voluntarily committed to them. It means that the speed of the Serbian admission process depends entirely on the speed and consistence of fulfilling the admission criteria and other Serbian commitments. Several member states have a positive perception of the process of preparing Serbia to join the European Union including the Slovak Republic. The Slovak economy aims to enter the most developed countries of the European Union as an equal partner. The knowledge of Slovakia is also important for Serbia to follow the path of constant innovation (Bajzikova et al. 2013). The European Union plays a significant role in the development of international relations. Through its activities and its programmes, it contributes to stability and peace in the world and provides also humanitarian assistance.

References

- Bajzikova, L., Sajgalikova, H., Polakova, M., & Wojcak, E. (2013). *Dynamika zmien vo vedomostnej spolocnosti vo vybranych sektoroch slovenskej ekonomiky* (1st ed., 141 p.). Bratislava: Ofprint.

- Bajzikova, L., Sajgalikova, H., Wojcak, E., & Polakova, M. (2014). Dynamics of changes toward knowledge-based economy in Slovak SME. *Procedia – Social and Behavioral Sciences*, 150, 637–647.
- Enikő Gyori v Európskom parlamente. Retrieved June 5, 2013., from <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+CRE+20110118+ITEM-003+DOC+XML+V0//SK>
- European Commission. Retrieved February 6, 2014., from http://ec.europa.eu/enlargement/countries/detailed-country-information/serbia/index_en.htm
- European Integration Office. Retrieved March 17, 2013., from <http://www.seio.gov.rs/kancelarija/o-nama.109.html>
- Nováčková, D. (2012). *Basics of European law for managers*. Bratislava: EPOS, 239 s.
- Treaty on European Union. (2010). OJ EU C 83.

Greek Crisis and Its Spillovers in Southeastern Europe



Natasa Grujic and Dimitrios Kyrkilis

Abstract In moments of recovery from recession of global financial turmoil, Balkan countries started to face a new risk. Greek debt crisis began in 2010 and is one of the deepest economic and financial crises in both the Greek and European Union history. It has already created spillover effects in the weak economies of Southeastern Europe. This is mainly due to the strong economic integration between them and Greece, primarily as a result of intensive trade relations and high flows of Greek direct investments to those countries. The purpose of this paper is to show how Romania, Serbia (and Montenegro), FYROM, Bulgaria, and Albania have been affected by the financial turbulence of Greece. The methodology of the paper is to conduct statistical analysis by using datasets on a series of macroeconomic fundamentals that were found to be severely hit by the crisis. The empirical research uses extensive annual data spanning from 1995 to 2014, in this manner, covering a significant part of the transition period of Balkan countries, the boom period in the region, as well as the time of manifestation of the Greek debt crisis and its impact on Southeastern Europe.

Keywords Greek debt crisis • Balkan countries • Spillover effect

1 Introduction

After the period of communist regimes, Balkan countries especially in the second decade of their transition towards market economy started to have continuous economic growth. In 2008, the financial turmoil that burst in the developed countries affected the less developed economies, including the Balkans as well. Yet, in 2011, a certain level of stabilization was achieved, and the macroeconomic indicators of the Balkan countries showed satisfactory recovery. However, in 2011, the

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Greek sovereign debt crisis erupted, making Greece a source of instability in Europe. Thus, the countries of the Balkan Peninsula that were economically integrated with Greece and still vulnerable from the global financial crisis were deeply affected by the negative spillovers of the Greek crisis. This was mainly due to the significant trade and financial integration between the two areas.

This paper will explore the impact of both crises on the Balkan countries and how the new, unfavorable climate is affecting their economic progress. The analysis will be presented in four sections: the first part will present the role of Greece in the Balkans since the early 1990s. Part two will analyze the economic connections of Greece with Balkan economies since the moment Greece became a member of the Eurozone. Moreover, the third part will present the effects of the global economic crisis on the economies of the region, specifically on region's macroeconomic indicators, trade volume, foreign direct investments, and financial sector. The fourth part will analyze the consequences of the Greek debt crisis that very quickly spilled over into the Southeastern Europe and the EU as a whole. Four transmission channels through which the Greek sovereign debt crisis affected the neighboring Balkans will be examined. In addition, the Granger causality test was used, and the results will be submitted at the end of the section four. In the last section, the conclusions of the study will be given.

2 Greek Role in the Balkans Since the Early 1990s

In 1981, Greece was the only Balkan state that became a full member of the European Economic Community (today European Union). "It was the first time that Greece was accepted as an equal political and economic partner of the most powerful European states, while at the same time having its opinion taken seriously on issues affecting the general future of Europe."¹ A decade later, it was a country with dynamic economy, stable institutional frameworks, and high social prosperity. Still, in the moments when the communist regime was collapsing and Balkan countries (BCs) were facing with social and political instability, Greece lost a unique opportunity to become a leader of development for them and the region as a whole, mainly because of policy mistakes that Greek government was making.²

On the other side, Greek-Balkan exchanges recorded a remarkable expansion during this period.

As it can be seen from Table 1, Greek trade with the Balkan Countries (BCs) was expanding. On the other side, Greek exports to the EU partners did not mark any remarkable growth. By contrast, import penetration by the EU economies to Greece became more intense. On top of that, Greek economy was facing with competitiveness losses in the sectors where traditionally it had comparative advantages.³

¹Svolopoulos (1999, pp. 26).

²Ioakimidis (1999, pp. 172–175).

³Arghyrou and Bazina (2003, pp. 763–767).

Table 1 Greek trade with the Balkan countries (Balkan countries: Bulgaria, Albania, Romania, former Yugoslavia, FYROM) and the EU, million €

	Greek imports from		Greek exports to		Trade balance	
	Balkan countries	EU	Balkan countries	EU	Balkan countries	EU
1989	349.4	9141.2	217.0	4485.7	-132.3	-4655.5
1990	369.0	9988.9	243.5	4008.0	-125.5	-5980.9
1991	392.3	10,490.3	278.2	4454.0	-114.1	-6036.3
1992	256.1	11,646.3	313.0	4977.2	56.9	-6669.1
1993	277.3	11,282.1	591.4	4029.7	314.2	-7252.4
1994	371.3	11,636.6	631.2	4286.4	259.6	-7368.2

Source: Wallden (1999, p. 86), ELSTAT (1989, 1990, 1991, 1992, 1993, 1994)

Despite the political instability, Balkans was a region with great potentials, and that was recognized by the Greek small- and medium-sized companies. Even though the initial investments were low and companies were following short-term strategies, they still were able to earn valuable knowledge and information for their future investments.⁴ Thus, Greek outward direct investments toward the Balkans during this period marked a meaningful dynamism.⁵

In 1995, Greek foreign policy regarding the Balkans changed its direction toward establishing cooperation with countries previously in conflict with.⁶ In addition, Greece government was also encouraging the gradual integration of BCs into the European Union and NATO. Thus, Greek government initiated a meeting of all the foreign affair ministers of Southeastern Europe countries that took place in Sofia, in 1996. The second gathering was held in Thessaloniki 1 year after, and it confirmed the leading role of Greece in the region.

Along with the normalization of Greece's Balkan relations, Greek economic policy in that region had progressed. Total Greek trade with the Balkan countries was increasing from 1.26 billion euros in 1995 to 1.51 € in 1996, 1.84 € in 1997, 1.82 € in 1998, 2.0 € in 1999, and 2.75 € in 2000.⁷ In that period, the Balkans was one of the few areas in the world with which Greece was recording positive trade balance.⁸

Additionally, during this period, a lot of Greek banks established their subsidiaries in Balkan states, especially in Bulgaria and Romania. This was a motivation for the large Greek companies, because they knew they could benefit from the necessary financial backup. However, this time Greek companies were doing market research, implementing long-term strategies. Moreover, privatization was

⁴Maditinos et al. (2011, pp. 209–211).

⁵Wallden (1999, pp. 71–121).

⁶Constas and Papatotiriou (1999, pp. 232–237).

⁷ELSTAT [online] Available: <http://www.statistics.gr/en/statistics/-/publication/SEL30/>

⁸Wallden (1999, pp. 102).

in full speed in Balkan region, so Greek companies developed a lot of joint ventures with firms from BCs.

3 Greece as a Member of the Eurozone

On January 1, 2001, Greece became a member of the Eurozone. Nevertheless, it stayed a relatively closed economy. According to data presented in Table 2, accepting euro failed to improve the export performance of the country. Based on the exports and imports as a percentage of GDP, Greek trade openness was decreasing during the period 2000–2006 and marked just a slight growth in 2007.

A reason behind this was an uneven development in exports and imports, mainly because of the low level of competitiveness. In addition, data is showing that export growth was consistently lower than that of imports. Thus, the difference between these two rates indicates the continuing trade deficit of Greece.

The top destinations for the Greek products were the Eurozone countries in the EU. In 2000, Greek export to the EU countries was 62% of total; it was growing during the period and reached 64% in 2007. The share of the EU member states in the Greek imports decreased from 64.9% in 2000 to 56.1% in 2007.⁹

Trade balance between Greece and six Balkan countries remained positive through the period 2000–2007 (Table 3).

The BCs were, to a great extent, a dynamic export market for Greek products. Greek companies were mostly unprofitable, and their goods were mainly noncompetitive at the EU market; thus they saw the Balkans as an easy outlet. Nevertheless, although trade relations between Greece and the Balkan countries were increasing, the trade volume was low.

Table 2 Greek imports and exports as a % of GDP

	2000	2001	2002	2003	2004	2005	2006	2007
Imports	34.7	33.4	30.2	29.7	29.2	29.6	31.7	35.0
Exports	23.7	22.8	20.1	18.6	20.7	21.3	21.2	22.5

Source: Authors' elaboration based on Bank of Greece data

Table 3 Greek imports/exports to the Balkans as a % of total Greek imports/exports

	2000	2002	2004	2007
Imports	2.0	1.7	2.2	2.5
Exports	5.3	5.4	5.1	5.9

Source: ELSTAT online data (2016)

⁹Magoulios and Athianos (2013, pp. 195).

The most important BCs for Greek imports and exports were Bulgaria and Romania during the observing period. Greek imports from Bulgaria and Romania increased from 426.90 and 411.47 million euros in 2000 to 940.14 and 759.62 million euros in 2007, respectively. Greek exports to Bulgaria and Romania marked a significant growth from 452.06 and 411.47 million euros in 2000 to 1163.57 and 759.62 million euros in 2007, respectively.¹⁰

In addition, Greece was the most important trading partner for Albania and FYROM. As far as Greek exports were concerned, the situation was slightly different. FYROM and Bulgaria were the most dependent from imports from Greece compared with the other examined Balkan countries (Table 4).

Since 2000, the Balkan countries started the deeper process of Europeanization. It means that they continued with the process of stabilization of social, political, and economic environment. As a result, the region became even more attractive for FDI. Over the 2000–2008 period, Greece became a top investor in the region. The country was the number one investor in Albania and FYROM and among the three leading investors in Serbia and Bulgaria. Greek FDI stock in the Balkans increased from 1690.00 million euros in 2001 to 2605.80 million euros in 2007 (Table 5).

More than 4000 Greek companies established their enterprises in the Balkan region, mostly in the sector of trade, services, and manufacturing.¹¹ They were taking part in the mass process of privatization that was taking place in all Balkan countries. In that way they could use already developed distribution networks and existing infrastructure. Additionally, Greek FDIs were highly concentrated in the financial sector. Some of the major Greek banks led by the National Bank of Greece, Alpha Bank, Piraeus Bank, and EFG Bank managed to recover the financial system of BCs, improving its stability and increasing investments and consumption of host population. Therefore, Greek banks had a significant market share in the financial sector of the Balkans: around 30% in Bulgaria and FYROM, 25% in Albania, 15% in Serbia, and 17% in Romania.¹²

According to GDP growth data, Greece along the Southeastern Europe economies, performed strong economic growth rates (Table 6).

Greek annual growth rate was one of the lowest among the Balkan economies. Still, it was one of the highest in the euro area. Notwithstanding, this growth of Greece was fast, but unsustainable, pursued under weakening systemic growth forces.¹³ Greek government was borrowing money at low interest costs, because its credibility rose significantly after the country joined the Eurozone. With borrowed money, the state was financing fiscal expansion; thus, the budget deficit as a percentage of GDP was 6% in 2000, 8.8% in 2004, and 6.7% in 2007.¹⁴ The

¹⁰ELSTAT [online]. Available: <http://www.statistics.gr/en/statistics/-/publication/SEL30/>

¹¹Panagiotou and Valvis (2014, pp. 98–102).

¹²Panagiotou and Valvis (2014, pp. 98–102).

¹³Balcerowicz et al. (2013, pp. 18).

¹⁴EUROSTAT [online]. Available: http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_finance_statistics

Table 4 Greek imports/exports to the Balkan countries as a % of their GDP

	Greek imports as % of GDP per country of origin					Greek exports as % of GDP per country of destination				
	Albania	Bulgaria	Romania	Serbia	FYROM	Albania	Bulgaria	Romania	Serbia	FYROM
2000	1.15	3.04	0.80	1.13	1.18	6.48	3.22	1.01	1.72	12.29
2001	1.08	3.13	0.84	0.68	2.19	8.34	4.18	0.88	1.35	11.18
2002	0.22	1.78	0.70	0.69	1.30	7.01	3.64	0.63	1.05	8.08
2003	0.34	2.02	0.75	0.49	2.15	6.11	3.98	0.58	1.05	7.09
2004	0.29	2.28	0.83	0.70	2.67	5.32	3.82	0.63	1.09	6.77
2005	0.30	2.53	0.54	0.35	3.78	5.29	3.51	0.53	0.53	6.48
2006	0.46	2.93	0.52	0.73	4.24	5.24	3.97	0.61	0.94	6.86
2007	0.82	3.06	0.44	0.61	7.68	6.14	3.78	0.61	0.98	10.14

Source: ELSTAT online data (2016)

Table 5 Greek FDI stock in the Balkans, million €

	Albania	Bulgaria	Romania	Serbia (with Montenegro)	FYROM	Total
2001	108.2	554.7	662.9	203.5	160.7	1690.0
2002	142.6	445.3	771.8	254.6	202.3	1816.6
2003	208.3	493.5	1130.5	338.7	273.1	2444.1
2004	175.0	568.7	1158.3	377.2	371.5	2650.7
2005	284.5	721.5	2002.8	659.2	272.7	3940.7
2006	389.6	924.7	2452.5	1335.5	367.0	5466.3
2007	441.4	1155.0	3940.6	1645.7	423.1	7605.8

Source: Bank of Greece online data (2016)

Table 6 GDP growth rates (annual, %) of Balkan countries

	Greece	Albania	Bulgaria	Romania	Serbia	Montenegro	FYROM
2000	4.2	6.7	5.0	2.4	7.8	3.1	4.5
2001	3.8	7.9	4.2	5.6	5.0	1.1	-3.1
2002	3.9	4.2	6.0	5.2	7.1	1.9	1.5
2003	5.8	5.8	5.1	5.5	4.4	2.5	2.2
2004	5.1	5.7	6.6	8.4	9.0	4.4	4.7
2005	0.6	5.7	7.2	4.2	5.5	4.2	4.7
2006	5.7	5.4	6.8	8.1	4.9	8.6	5.1
2007	3.3	5.9	7.7	6.9	5.9	10.7	6.5
2000–2007	4.1	5.9	6.1	5.8	6.3	4.6	4.2

Source: World Bank online data (2016)

average annual deficit of the general government was 6.4% of GDP in the 2000–2007 period. The very low competitiveness of the Greek products resulted in achronic weakness of the Greek economy where the country's imports were steadily and increasingly exceeding its exports. Hence, the country's trade balance was -7.7% of GDP in 2000 and reached -14.6% in 2007. Additionally, Greek inflation rates were modest between 2000 and 2007 but still relatively higher compared to the EU average.

4 Greece and the Balkans Since 2008

Since 2008, the Balkans were hit by two crises. The first one was during the period 2008–2011, when the region was exposed to the impact of the global economic crisis. Yet, in 2011, certain level of stabilization had been achieved, and macro-economic indicators of the Balkan countries showed satisfactory recovery. How-

Table 7 GDP growth (annual, %) of Balkan countries

	Greece	Albania	Bulgaria	Romania	Serbia	Montenegro	FYROM
2008	-0.3	7.5	5.6	8.5	5.4	6.9	5.5
2009	-4.3	3.4	-4.2	-7.1	-3.1	-5.7	-0.4
2010	-5.5	3.7	0.1	-0.8	0.6	2.5	3.4
2011	-9.1	2.6	1.6	1.1	1.4	3.2	2.3

Source: World Bank online data (2016)

ever, the Greek sovereign debt crisis erupted, making Greece a source of instability in Europe. Thus, certain BCs that were economically integrated with Greece and still vulnerable from the global financial crisis were severely hit by the negative spillover of the former (Table 7).

In 2009, a reduction of GDP was marked in all Balkan countries as a consequence of the global financial crisis. All economies had negative economic growth, except Albania. A reason for this may be “the low volume of Albanian exports and its comparatively low level of integration into the international economy.”¹⁵

The relatively worse affected countries were Greece, Bulgaria, and Romania, which were also the most developed ones in the region. In 2010/2011, the best performing countries were Albania and FYROM, while the other economies continued to stagnate.

Mainly due to economic recession that led to a severe reduction of imports, a huge decline in current account deficits for the BCs did occur. The Greek current account balance (as a % of GDP) improved from -14.5% in 2008 to -9.9% in 2009, the Albanian from -15.7 to -12.9%, Bulgarian from -21.7 to 0.2%, Romanian from -11.4 to -4.5%, Serbian from -21.1 to -8.3%, Montenegrin from -49.9 to -17.4%, and FYROM from -12.5 to -2.5%.

For more than a decade, Greece enjoyed a trade surplus with the BCs. However, the spillover effects of the crisis in the Greek economy could not be avoided. Thus, Greek imports and exports declined heavily in 2009, imports from 87,039.00 million euros in 2008 to 68,319.00 million euros in 2009) and exports from 56,533.00 million euros in 2008 to 45,089.00 million euros in 2009. In addition, Greek imports and exports from and to the Balkan countries, as well as the EU followed the same path, i.e. they both decreased in 2009. Exports of Greece to the Balkan region marked a recovery in 2010 and 2011, but still the value of exports in 2011 was below the level of 2008. Greek imports from the BCs, recorded a small decline in 2009, but still its value was higher than in 2007 (Tables 8 and 9).

The trade balance between Greece and the Balkan economies was in surplus through the period 2008–2011, except in the case of Bulgaria for the year 2010. The trade balance surplus, though, marked a decrease from 1123.62 million euros in 2008 to 928.53 million euros in 2009 and 760.14 million euros in 2010. However, in 2011, it started to increase and reached 1076.80 million euros.

¹⁵Panagiotou (2012, pp. 2).

Table 8 Imports of Greece from the Balkan countries and the EU, million €

	2008	2009	2010	2011
Albania	90.54	72.69	97.23	76.90
Bulgaria	1277.84	962.32	1089.09	1217.48
Romania	548.16	469.48	486.11	505.97
Serbia (with Montenegro)	216.85	140.54	214.74	236.89
FYROM	355.86	213.07	196.47	167.61
Total	2489.25	1858.10	2083.64	2204.85
WBCs % total	2.86	2.72	3.00	3.30
EU	33,910.00	28,100.00	24,230.00	22,320.00

Source: ELSTAT online data (2016)

Table 9 Exports of Greece to the Balkan countries and the EU, million €

	2008	2009	2010	2011
Albania	547.43	514.80	458.02	426.30
Bulgaria	1369.99	1022.71	1082.20	1280.33
Romania	835.97	590.66	614.61	628.96
Serbia (with Montenegro)	403.23	248.39	297.66	380.45
FYROM	456.25	407.07	391.29	565.61
Total	3612.87	2783.63	2843.78	3281.65
WBCs % total	6.40	6.17	5.70	6.21
EU	10,720.00	8870.00	9610.00	10,600.00

Source: ELSTAT online data (2016)

Moreover, during the same period, there was not any other factor e.g. quotas, subsidies, quality standards, administrative procedures, etc. that affected trade between Greece and the Balkan region. Hence, a decrease in trade volumes was a direct consequence of the Greek economic crisis.

As it can be seen from Table 10, all Balkan countries suffered a reduction of their exports to Greece. FYROM suffered the relatively larger loss of more than 50%. On the other side, Greek exports to Serbia, Bulgaria, and FYROM recorded some growth during the period 2007–2011, while to Romania and Albania, they marked a modest decline. Paying attention just on the years 2009 and 2010, Greek imports and exports from and to all BCs followed a downturn path. That is why the significance of these countries trade with Greece fell (Table 11).

From the point of view of the Balkan countries, Greece was one of the most important sources of FDI during the whole previous decade. In 2007, the total Greek FDI stock in the Balkans was 7287.80 million euros and reached its peak of 8821.00 million euros in 2008. The next year the total volume of Greek FDI stock in the Balkan region marked 7738.90 million euros. In all Balkan economies, a fall of the Greek FDI stock as a percentage of total was reported, except for Bulgaria where it marked an increase of almost 2%. In Albania, though, was reported the

Table 10 Greek imports/exports to the BCs as a % of import/export of BCs

	Greek imports as % of exports per country of origin					Greek exports as % of imports per country of destination				
	Albania	Bulgaria	Romania	Serbia	FYROM	Albania	Bulgaria	Romania	Serbia	FYROM
2007	7.35	5.53	1.39	3.06	12.06	16.51	5.04	1.51	2.27	10.25
2008	6.37	6.54	1.46	2.91	13.11	16.77	5.03	1.43	2.47	9.74
2009	2.86	6.10	1.45	2.34	10.93	15.26	5.42	1.42	2.18	11.15
2010	7.56	5.37	1.26	2.92	7.80	13.85	5.08	1.19	2.40	9.51
2011	5.19	4.77	1.11	2.80	5.20	11.57	5.10	1.01	2.66	11.20

Source: Authors' elaboration based on ELSTAT data

Table 11 Greek imports/exports to the BCs as % of their GDP

	Greek imports as % of GDP per country of origin					Greek exports as % of GDP per country of destination				
	Albania	Bulgaria	Romania	Serbia	FYROM	Albania	Bulgaria	Romania	Serbia	FYROM
2007	0.82	3.06	0.44	0.61	7.68	6.14	3.78	0.61	0.98	10.14
2008	1.03	3.61	0.39	0.59	5.28	6.25	3.87	0.60	1.10	6.77
2009	0.84	2.76	0.40	0.42	3.15	5.94	2.93	0.50	0.74	6.02
2010	1.08	3.02	0.39	0.66	2.78	5.11	3.00	0.50	0.91	5.53
2011	0.83	3.16	0.38	0.58	2.22	4.60	3.29	0.48	0.93	7.49

Source: Authors' elaboration based on ELSTAT data

relatively larger decline in all Balkan countries by almost 50% between 2008 and 2011.

The majority of the Greek direct investments was concentrated primarily in the services industry and secondly to the final stage of the production chain of mature products. Additionally, Greek MNCs diversified their expansion into all Balkans economies. All this helped to minimize the negative effects of the global crisis.

Greek presence into the banking sector of Balkan countries was considerable. However, as it was mentioned earlier, the global crisis did not leave the Greek financial sector untouched. Thus, Greek banks started to “retrench and focus on home markets, thereby curtailing and/or putting on hold their business expansion plans in the region.”¹⁶ This means that Greek financial institutions were decreasing their investments and cutting their loan portfolios in the BCs. As a consequence, more than 8000 Greek companies located in the neighboring countries stayed without the financial service they were expecting from the Greek banks. Hence, Greek FDI outflows towards the Balkan economies marked a significant drop in 2010 and 2011.

The global financial crisis weakened the public finances of Greece. Thus, Greek public debt reached 129.7% of GDP in 2009.¹⁷ The same year the new Greek government corrected the estimated budget deficit for that year from 6.7 to 12.7% of GDP.¹⁸ That figure was lately corrected further to 15.7% of GDP.¹⁹ The IMF and the Eurozone sent financial assistance to Greece in 2010 and 2011. However, the numbers were showing that the Greek economy was hit more severely than expected. The EU realized that they were facing with the Greek sovereign crisis which can be a trigger for instability and insecurity in the EU, but also in the Balkan region. As it was stated in the EBRD Transition Report, “the main short-term challenge is to survive possible contagion effects from economic weaknesses in the Eurozone, especially in neighbouring Greece.”²⁰ The Greek crisis slowed down the economies of the Balkans resulting in a drop of imports from Greece and a decline in return of Greek investments. There are a few transmission channels through which the Greek sovereign debt crisis spilled over to the neighboring Balkans.²¹ Those are trade, FDI flows, and the banking sector.

Greek exports to Balkan countries decreased during the period 2011–2015, except for Romania. However, in 2015, Greek trade with Romania marked a negative trade balance for the first time during the last decade. In addition, Greek trade balance with Bulgaria was in deficit for 3 consecutive years, reaching its peak of –145.83 million euros in 2015.

Viewed on a regional level, the Greek trade balance with the BCs decreased from 968.89 million euros in 2011 to 611.08 million euros in 2015. However, the

¹⁶Bastian (2009, pp. 4).

¹⁷Sadiku et al. (2013, pp. 33).

¹⁸Ozturk (2015, pp. 32).

¹⁹Sadiku et al. (2013, pp. 33).

²⁰EBRD (2010, pp. 98).

²¹Backe and Gardo (2012, pp. 31–48).

Table 12 Greek stock as a % of total stock of each Balkan country

	Greek stock as a % of total stocks in Albania	Greek stock as a % of total stocks in Bulgaria	Greek stock as a % of total stocks in Romania	Greek stock as a % of total stocks in Serbia (and Montenegro)	Greek stock as a % of total stocks in FYROM
2008	24.96	4.51	7.39	12.26	15.33
2009	14.94	4.25	6.66	11.35	11.25
2010	16.83	5.92	7.41	9.70	11.76
2011	12.71	5.94	6.23	7.94	11.06

Source: Authors' elaboration based on ELSTAT data

country-by-country analysis shows that the Greek imports as a percentage of Balkan countries' GDP were growing during the observing period. More precisely, Greek imports from the Balkan region was 2297.29 million euros in 2012 and achieved 2713.37 million euros in 2015. A case-by-case examination illustrates that the Greek imports reached its higher values in Romania, FYROM, Bulgaria, and Albania in the previous year. On the contrary, the Greek exports as a percentage of the BCs' GDP marked a drop in all the countries, and the highest fall was in FYROM (from 10.9% in 2012 to 8.31% in 2014). In total, Greek exports decreased from 3793.42 million euros in 2012 to 3324.12 million euros in 2015. The bigger reduction of Greek exports was with Serbia, Albania, and Bulgaria.

The second transmission channel of contagion was FDI. A significant decrease in Greek FDI was evident even before the full impact of the Greek crisis, which is presented in Table 12. Overall, Greek FDI outflows to all Balkan countries decreased considerably and they turned to negative figures in some cases during the Greek crisis, remaining positive in net terms in Albania and FYROM (Tables 13, 14 and 15).

In total, Greek FDI outflows to the BCs was -553.52 million euros, because there were significant disinvestments (Greek companies were selling their assets that were located in the neighboring countries). Greek disinvestment in the Balkan region amounted up to 928.99 million euros. Thus, Greece that was one of the largest foreign investors in the region reduced its significance. The stock of Greek FDI as a percentage of total in the region decreased from 7.94% in 2011 to 4.42% in 2014 in Serbia, from 6.23 to 5.29% in Romania, from 11.06 to 7.25% in FYROM, and from 5.94 to 4.43% in Bulgaria. The only countries where the percentage of FDI stocks from Greece marked an increase were Albania and Romania, where that number rose from 12.71% and 4.78% in 2011 to 26.47% and 5.29% in 2014, respectively (Table 16).

Possibly the most critical transmission channel is through the Greek bank subsidiaries operating in the Balkans. As an agreement between the Greek Ministry of Finance, the Bank of Greece, and the managers of the other Greek banks, the bailout package of 28 billion euros that Greece received in 2009 would be used to support parent banks and lending at home, not at their branches in the neighboring

Table 13 Greek FDI outflows and inflows toward the Balkan economies, million €

	Greek FDI outflows to the country of destination				Greek FDI inflows from the country of origin					
	Albania	Bulgaria	Romania	Serbia	FYROM	Albania	Bulgaria	Romania	Serbia	FYROM
2010	55.58	68.93	-30.17	24.71	8.50	0.34	2.13	6.80	0.30	0.04
2011	22.35	-10.52	-249.3	-14.77	19.34	8.73	8.25	12.93	0.60	0

Source: Bank of Greece online data (2016)

Table 14 Greek trade with the Balkan countries, million €

	Greek imports from				Greek exports to					
	Albania	Bulgaria	Romania	Serbia	FYROM	Albania	Bulgaria	Romania	Serbia	FYROM
2012	82.10	1372.38	493.27	179.19	170.35	414.83	1561.53	590.70	399.00	827.36
2013	64.58	1453.91	526.95	232.55	153.78	343.35	1446.64	617.96	359.14	744.83
2014	89.97	1522.34	625.62	194.49	195.84	411.50	1413.88	653.33	361.11	707.21
2015	99.70	1486.55	729.46	168.74	228.92	348.37	1340.72	722.78	327.53	585.02

Source: World Bank online data (2016)

Table 15 Greek FDI outflows to the Balkans, million €

	Albania	Bulgaria	Romania	Serbia (with Montenegro)	FYROM
2012	21.83	-3.54	-241.18	-16.29	26.35
2013	16.22	-46.43	-52.69	-1.06	30.25
2014	11.69	-64.85	-36.42	-20.01	33.69
2015	6.69	-48.85	-71.91	-22.51	34.38

Source: Bank of Greece online data (2016)

Table 16 Greek stock in the Balkans, million €

	Albania	Bulgaria	Romania	Serbia (with Montenegro)	FYROM
2012	511.80	1914.90	2847.50	1497.40	311.70
2013	589.00	1717.30	2325.80	1264.00	269.90
2014	888.90	1550.8	2973.50	1268.10	280.10

Source: World Bank online data (2016)

countries.²² Consequently, as the Greek debt crisis was spreading and Greek parent banks were facing severe liquidity pressure, they started to withdraw money from their operations in the Balkans. Therefore, the Greek banking sector declined to 23% in Bulgaria, 22% in FYROM, 12% in Romania, 16% in Albania, and 14% in Serbia in 2015.²³ Moreover, in 2015, the Greek banking system experienced capital controls, and the Balkan countries were even more affected. The outcome is uncertain. Yet, one thing is for granted: the crisis will have a deep effect on the Western Balkan EU integration. To start with, BCs are highly dependent of the EU, through subsidies, trade relations, FDI, etc. The crisis slowed down the reforms and progress and deteriorated economic conditions and macroeconomic performance of the Balkan economies. Additionally, Greece, which was the bridge between the EU and the Balkans, cannot play anymore that role.

Finally, the causal links between the Greek FDI outflows to the Balkan countries and GDP of the country of destination were analyzed by using the Granger causality test. Using data from 2000 to 2014, for Albania, Serbia, and Romania, there was no cointegration relationship between the Greek FDI and their growth. However, for Bulgaria and FYROM, the null hypothesis of “GDP does not Granger-Cause FDI” was strongly rejected at 10% level of significance for the tested two legs. Thus, for those two countries, the causality is accepted in the countries’ GDP/Greek FDI relation.

²²Panagiotou (2012, pp. 10).

²³EBRD (2015, pp. 93).

5 Conclusion

As it is presented in the paper, Greece has developed strong, important, and mutually beneficial economic relations with the Balkan region over the last 25 years. Since 1993, Greek trade balance with the neighboring countries was continuously positive and growing over the years. Despite the political instability that still was present in the Balkans during 1990s, Greek small- and medium-sized companies recognized the economic potential of the neighboring countries. Thus, Greek FDI outflows towards them marked a meaningful dynamism. Additionally, a lot of Greek banks established their subsidiaries in the Balkan states, especially in Bulgaria and Romania.

A trend of growth and expansion continued during 2000s. Greece became the first Balkan country that entered the Eurozone. Trade relations with the Balkans were increasing. Moreover, Greece became a top investor in the region. More than 4000 Greek companies established their affiliates in the neighboring countries, mostly in the sector of trade, services, and manufacturing. In addition, Greek banks had a significant market share in the financial sector of the Balkans.

The global financial crisis came in 2008, and it became clear that it will have impact on all dimensions of Greece's relations with the countries in the region. The repercussions were spilled over through several transmission channels. After more than one decade of expansion, Greek trade relations with the Balkans were negatively affected. The biggest decline in Greek imports and exports appeared in 2009. While the volume of imports managed to recover until the next crisis, Greek exports to the neighboring countries had an extensive drop and then they were increasing very slowly. However, the trade balance was in surplus through the period 2008–2011. In 2011, certain level of stabilization was achieved, and the economies of the Balkan Peninsula showed satisfactory recovery; but the Greek sovereign debt crisis had already been erupted. The Greek trade balance surplus with the BCs decreased during the period 2011–2015. However, country-by-country analysis shows that Greek imports were growing during the aforementioned period, yet the Greek exports marked a drop in all Balkan countries.

After expanding rapidly since 2000 and reaching its peak in 2008, Greek FDI stocks decreased. This decline had a negative impact on the economies of the region that were counting on Greek investments. In addition, Greek banks at home were facing a liquidity squeeze; thus they were forced to withdraw their funds from their operations in the Balkans (consolidation through downsizing). Hence, the Greek banking sector assets declined in Romania, Bulgaria, and Serbia where the biggest drop was marked. Consequently, Greek companies located in the Balkans stayed without the level of financial services (business loans, working capital etc.) they were expecting from the Greek banks. Moreover, in 2015, the Greek banks were imposed capital controls, and the banking sector of neighboring countries was even more affected. In total, Greek FDI outflows to the BCs were –553.52 million euros in net terms during the period 2011–2015, because Greek companies were selling

their assets that were located in the neighboring countries. The only Balkan country where the Greek FDI stock marked an increase was Albania.

Due to Greek powerful involvement in the region and strong interdependence between Greece and the Balkan economies, Greek crisis led to the decline of all key economic indicators of those countries. Additionally, Greece that was one of the largest investors in the region has become less significant. The Greek sovereign debt crisis has weakened the dynamism of bilateral relations, and it had a negative impact on Greece's position in the region as well. Greece, lost its role as a leader of the region. In addition, the refugee crisis intensified with thousands of refugees passing through Greece heading to Europe through the Balkan road. Soon after, some Balkan countries closed their borders, and as a result Greece lost part of its geopolitical importance as the external borders of the European Union. The role of neighboring Balkan countries was upgraded.

References

- Arghyrou, G. M., & Bazina, E. (2003). Competitiveness and the external trade of Greece in the 1990s: A cross-sectoral investigation. *Journal of Economic Intergration*, 18(4), 763–793.
- Backe, P., & Gardo, S. (2012). Spillovers of the Greek crisis to Southeastern Europe: Manageable or a cause of concern? *Focus of European Economic Integration* (pp. 31–48). Austrian Central bank.
- Balcerowicz, L., Rzonca, A., Kalina, L., & Laszek, A. (2013). *Economic growth in the European Union*. Growth and Competitiveness Commission, Lisbon Council E-Book.
- Bank of Greece. Greek direct investment figures, 2001–2014 [online]. Accessed March 25, 2016, from <http://www.bankofgreece.gr/Pages/en/Statistics/externalsector/direct.aspx>
- Bastian, J. (2009). *Falling behind again? Southeast Europe and the global crisis*. ELIAMEP Thesis, Athens.
- Constas, D., & Papatotiriou, C. (1999). Greek policy responses to the post-Cold War Balkan environment. In V. Coufodakis, J. H. Psomiades, & A. Gerolymatos (Eds.), *Greece and the New Balkans. Challenges and opportunities*. New York: Pella Publishing Company.
- EBRD (European Bank of Reconstruction and Development) (2010). *Transition report: Recovery and reform* [online]. Accessed March 21, 2016, from <http://www.ebrd.com/downloads/research/transition/tr10.pdf>
- EBRD (European Bank of Reconstruction and Development) (2015) *Transition report 2015–2016* [online]. Accessed March 15, 2016, from <http://www.ebrd.com/news/publications/transition-report/ebrd-transition-report-201516.html>
- EUROSTAT. Government budget as a percentage of GDP, 2000–2014 [online]. Accessed March 12, 2016, from http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_finance_statistics
- Hellenic Statistical Authority ELSTAT. (1989). *Foreign trade of Greece 1989* [online]. Accessed March 23, 2016, from http://dlib.statistics.gr/portal/page/portal/ESYE/showdetails?p_id=10098904&p_derive=book&p_topic=10008070
- Hellenic Statistical Authority ELSTAT. (1990). *Foreign trade of Greece 1990* [online]. Accessed March 23, 2016, from http://dlib.statistics.gr/portal/page/portal/ESYE/yeararticles?p_topic=10008070&p_cat=10008070&p_catage=1990
- Hellenic Statistical Authority ELSTAT. (1991). *Foreign trade of Greece 1991* [online]. Accessed March 23, 2016, from http://dlib.statistics.gr/portal/page/portal/ESYE/showdetails?p_id=10098906&p_derive=book&p_topic=10008070

- Hellenic Statistical Authority ELSTAT. (1992). *Foreign trade of Greece 1992* [online]. Accessed March 23, 2016, from http://dlib.statistics.gr/portal/page/portal/ESYE/showdetails?p_id=10098907&p_derive=book&p_topic=10008070
- Hellenic Statistical Authority ELSTAT. (1993). *Foreign trade of Greece 1993* [online]. Accessed March 23, 2016, from http://dlib.statistics.gr/portal/page/portal/ESYE/showdetails?p_id=10098908&p_derive=book&p_topic=10008070
- Hellenic Statistical Authority ELSTAT. (1994). *Foreign trade of Greece 1994* [online]. Accessed March 23, 2016, from http://dlib.statistics.gr/portal/page/portal/ESYE/showdetails?p_id=10098911&p_derive=book&p_topic=10008070
- Hellenic Statistical Authority ELSTAT. Trade figures, 1992–2014 [online]. Accessed March 13, 2016, from <http://www.statistics.gr/en/statistics/-/publication/SEL30/>
- Ioakimidis, P. C. (1999). Greece, the European Union, and Southeastern Europe: Past failures and future prospects. In V. Coufodakis, J. H. Psomiades, & A. Gerolymatos (Eds.), *Greece and the New Balkans. Challenges and Opportunities*. New York: Pella Publishing Company.
- Maditinos, D., Kousenidis, D., & Chatzoudes, D. (2011). Foreign direct investment (FDI) in the Balkans: The role of Greece. In G. A. Karasavoglou (Ed.), *The economies of the Balkan and Eastern Europe countries in the changed world*. London: Cambridge Scholars Publishing.
- Magoulios, G., & Athianos, S. (2013). The trade balance of Greece in the Euro Era, *South-Eastern Europe. Journal of Economics*, 2, 187–216.
- Ozturk, S. (2015). Effects of global financial crisis on Greek economy: Causes and present economic and political loss of prestige. *International Journal of Managerial Studies and Research*, 3(6), 26–35.
- Panagiotou, R. (2012). *The impact of the economic crisis on the western Balkans and their EU accession prospects* (EUI Working Paper RSCAS 2012/64). European University Institute.
- Panagiotou, R., & Valvis, I. A. (2014). *How is the sovereign debt crisis affecting Greece's relations with the Balkan countries and Greece's standing in the region?* An initial impact assessment, ELIAMEP.
- Sadiku, M., Sadiku, L., & Berisha, N. (2013). *The financial crisis in Greece and its impact on western Balkan countries* [online]. Accessed March 10, 2016, from https://link.springer.com/chapter/10.1007%2F978-3-319-00494-5_2
- Svolopoulos, C. (1999). Cooperation and confrontation in the Balkans: An historical overview. In V. Coufodakis, J. H. Psomiades, & A. Gerolymatos (Eds.), *Greece and the new Balkans. Challenges and opportunities*. New York: Pella Publishing Company.
- Wallden, A. S. (1999). Greece and the Balkans: Economic relations. In V. Coufodakis, J. H. Psomiades, & A. Gerolymatos (Eds.), *Greece and the new Balkans. Challenges and opportunities*. New York: Pella Publishing Company.
- World Bank. GDP annual growth [online]. Accessed March 5, 2016. Available: World Bank: GDP annual growth.

Failure Factors of the Economic Adjustment Programme for Greece



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Abstract The Economic Adjustment Programme for Greece has not met the commitments set out, due to both endogenous and exogenous factors.

Endogenous factors are specified as the particularities of the Greek economy, such as the role and importance of the public sector in the economic results, the clientelist state, the characteristics of the Greek entrepreneurship, and the underground economy.

Exogenous factors are specified as the lack of alternative tools for the implementation of economic policy, as well as the assumptions and oversights of the programme.

Keywords EU • Greece • Crisis

1 Introduction

Since 2009, the Greek economy has faced several difficulties. Important economic indicators and results tend to exceed the thresholds set in the framework of European agreements, while at the same time Greece's support through the European system is being put forwards as a necessity.

The Economic Adjustment Programme established in 2010, as well as others that followed it, in fact records the balance of forces that has taken shape in the European sphere. If the strict operating framework of the European Union and the association of one of its member states with a rescue programme devised by the

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International Monetary Fund are considered jointly with this factor, a specific framework of guidelines, pursuits, and results takes shape in reference to the programme that is being applied (Mavridakis et al. 2014).

The implementation of the programme in the Greek economy did not fulfil the targets defined for it at its outset. The present study aims to search for the causes of this development.

2 Internal Factors

2.1 *Historical Background of the Macroeconomic Condition of Greece*

Table 1 shows the evolution of specific macroeconomic figures for Greece, in comparison with those of the EU member countries and the Euro area countries during the decade prior to implementation of the First Economic Adjustment Programme for Greece. These are the macroeconomic figures whose evolution became a subject of debate and were a criterion for the initial and continued implementation of the programme.

The gross domestic product (GDP) of Greece, at constant prices, increased by 16.24% from 2001 to 2005 by 16.24% and by 4.05% from 2005 to 2009 (see Table 5). In both periods, the GDP growth rate was at least double the respective average rates of the EU member countries and Euro area countries.

During the period from 2001 to 2009, Greek public spending and public revenue (in fixed terms), as well as those of the EU member states and the Euro area countries, were on an upward course. A common characteristic of all three was the excessive increase of public spending compared to the respective increase in public revenues, which led to the creation or growth of budget deficits.

The growth rate of Greece's public spending during the two periods mentioned above was more than double the respective rate for the EU member states and the Euro area countries (see Table 6). In total, during the period from 2001 to 2009, the growth rate of public spending in Greece was 92.72%, while in the EU member states and the Euro area countries, total public expenditure increased by 39.32% and 40.55%, respectively. In fact, the percentage of Greece's GDP represented by public spending grew by almost 10%.

Greece's public revenue increased at a rate that was almost twice the respective rate for the Euro area and the EU member states (see Table 7). In total, during the period from 2001 to 2009, the growth rate of Greece's public revenue was 49.76%, while in the EU member states and the Euro area countries, public revenue increased by 22.09% and 25.57%, respectively.

The disparity between the growth of public spending (92.72%) and that of public revenues (49.76%) led to the rapid deterioration of Greece's fiscal situation throughout the period under consideration (2001–2009), from a surplus of 1.2 billion euros to a deficit of 24 billion euros (see Table 8).

Table 1 Comparison of macroeconomic figures (2009)

	Greece	Euro area	European Union
Gross domestic product at 2010 reference levels (in billions of euro)	239.1	9351.9	12535.1
Total expenditure excluding interest—general government: ESA 2010 (in billions of euro) and percentage of GDP at market prices	116.4 49%	4445.4 47.9%	5850.5 47.7%
Total revenue—general government: ESA 2010 (in billions of euro) and percentage of GDP at market prices	92.4 38.9%	4124.0 44.4%	5346.8 43.6%
Net lending (+) or net borrowing (–) excluding interest—general government: ESA 2010 (in billions of euro) and percentage of GDP at market prices	–24.0 –10.1%	–321.4 –3.5%	–503.7 –4.1%
Net exports of goods and services at current prices (national accounts) (in billions of euro) and percentage of GDP at market prices	–23.2 –9.77%	133.5 1.44%	117.1 0.96%
Current account balance with the rest of the world (national accounts) (in billions of euro) and percentage of GDP at market prices	–29.7 –12.5%	34.4 0.4%	–16.2 –0.1%
General government consolidated gross debt: excessive deficit procedure (based on ESA 2010) (in billions of euro) and percentage of GDP at market prices	300.9 126.7%	7276.2 78.3%	8943.5 73%

Source: Processed AMECO data

Table 2 Composition of SMEs in Greece—2008 (in brackets: average for the EU27)

Enterprise category	Number of enterprises (% of the total)	Number of employees (% of the total)	Added value (% of the total)
Micro (1–9 employees)	96.49 (89.8)	58 (28.1)	35 (19.8)
Small (10–49 employees)	3.04 (8.5)	17 (20.5)	20 (18.3)
Medium-sized (50–249 employees)	0.42 (1.5)	12 (18.3)	18 (20.0)
Total SME's	99.95 (99.8)	87 (66.9)	73 (58.1)

Source: Annual report on EU SMEs EIM/European commission/observatory of European SMEs

Table 3 Exports and imports of goods

At 2010 prices (in billions of euro)						
	2009			2001		
Country	Exports	Imports	Net exports	Exports	Imports	Net exports
European Union	3250.3	3316.6	–66.3	2688.3	2641.6	46.7
Euro area	2506.6	2465.4	41.2	2103.9	2012.9	91
Greece	21.8	57.2	–35.4	18.5	48.3	–29.8

Source: Processed AMECO data

Table 4 Size of the shadow economy (% of national income)

	2007	2005	2001
Greece	26.5	26.9	28.2
Italy	26.8	27.1	26.7
Spain	22.2	22.4	22.4
Portugal	23	23.3	22.6

Source: Schneider et al. (2010, pp. 455–461)

Greece's financial balance with the rest of the world is reflected in its current account balance and the goods and services account. In contrast to the constant surplus that the EU member states and the Euro area countries showed during the period from 2001 to 2009, Greece's net balance of goods and services was negative, as it was for the entire period since World War II. Although this deficit underwent a particularly marked increase during the second half of the period in question (see Table 9), as a percentage of GDP it decreased, falling slightly below 10% of GDP.

The picture of Greece's current account deficit was similar: it showed a continuous increase (see Table 10), which was more intense from 2005 to 2009, with the result that it more than doubled from 2001 to 2009, while its share of GDP increased by 3.5%.

Greece's public debt first exceeded 100% of GDP in 2000. In the first part of the period being examined, it increased by 0.5%, while in the second one, it increased by almost 20% (see Table 11). This situation is justified by the weak growth of GDP and public revenue that was recorded during the second part of the period in question compared to that of the first one, in combination with the contrary directions in which public spending and net exports evolved.

2.2 *Terms and Conditions of the Economic Adjustment Programmes for Greece*

In the short term, the objectives of the First Economic Adjustment Programme for Greece (European Commission 2010) were to restore confidence and financial stability; maintaining the latter urgently required the improvement of public finances. As a consequence, the immediate priority set was, firstly, to contain the government's need for financing (by cutting public spending) and, secondly, to improve the government's effectiveness in raising revenue. The medium-term objectives of the programme were to improve competitiveness and to change the structure of economy, adopting a model for development mainly based on private sector investment and exports (European Commission 2014).

As a continuation of the first two adjustment programmes, the third programme is pursuing a return to sustainable economic growth (European Commission 2015). The reforms that were agreed on in the memorandum of understanding (MoU) mainly fall into four categories:

- (a) Restoring fiscal sustainability: Through tax reforms (VAT, national pension system) and through measures to combat fraud, the achievement of a primary surplus of 3.5% is expected (−0.25% in 2015, 0.5% in 2016, 1.75% in 2017, and 3.5% in 2018).
- (b) Ensuring financial stability by addressing non-performing loans and recapitalizing banks.
- (c) Increasing economic growth, employment, competitiveness, and investment through reforms in the labour and product markets (review of the framework of collective bargaining agreements, collective action, and mass layoffs, tackling undeclared work) and privatization, which is expected to generate a total of 50 billion euros in revenue, of which 6.4 billion euros are expected to arise during the application of the 3-year European Stability Mechanism (ESM) programme.
- (d) Modernizing the public sector by strengthening its efficiency in the provision of basic public goods and services, improving the effectiveness of the justice system, and intensifying the fight against corruption (strengthening the structural and functional independence of key institutions, such as the tax and statistical services).

2.3 Specific Aspects of the Greek Economy

The Greek economy and the country's growth during the postwar era reveal the elements that define the basis and the framework of its evolution (Dovas et al. 2012). The secondary sector and the development of research and technology, fundamental characteristics of the Western capitalist economies, never played as significant a role in the development of the Greek economy.

Progress in the country's growth was mainly supported by favourable international and local circumstances in given periods, and in the end, until it became linked for all practical purposes with the European Union, it did not succeed in creating the necessary economic dynamism that would grant it a similar role in the international and European division of labour. Greece belonged to the periphery of Europe and remained there even after its accession to the European Union.

2.3.1 The Public Sector as a Driving Force for Economic Growth and the Clientelistic State

As recorded in statistical data, the Greek public sector has grown significantly during the entire postwar period, but this is especially true since 1974 (Iordanoglou 2008). Its radical growth after the restoration of democracy in 1974 should be connected with the beginning of a new era in terms of the country's form of growth. The secondary sector failed to continue the impressive growth of the previous period. The primary sector continued to decline, more evidently after 1980 and

following the formal accession of Greece to the EU (Fotopoulos 1993). The tertiary (service) sector accounted for the largest part of Greece's income.

The necessary modernization in terms of institutions and infrastructure required during the post-1974 period was mainly supported by the contribution of public spending. As long as public spending produced a multiplier effect, the impact on national income and public financial magnitudes was positive. However, once this possibility was exhausted, the result for Greece was a bloated public sector and the ensuing burden of deficits and debt. At the same time, the enlargement of the public sector expansion was not accompanied by the creation of structures, strategies, and institutions similar to those developed elsewhere in Europe.

The political system during the post-1974 period did not attempt to establish the conditions for a public administration capable of providing high-quality public goods and services. The fragmented public administration, in spite of its immense size, was not capable of providing the necessary results with its existing structures. Therefore, the public sector became the object of disdain and dispute, and any interventions or results that were achieved were based on fragmentary or isolated data and actions. It is important to note that although the size of the public sector was criticized systematically during all political periods, one fact that has not been pointed out at all is that the most significant part of it for the entire period did not consist of payroll expenditure (the number of state employees), but transfer payments, which is considered to support economic progress directly.

The public sector had a positive effect, although in many cases the criteria for the creation of structures and services did not follow any type of rational plan at the national, regional, or local level; rather, their goal was to perpetuate the clientelistic system of governance prevailing in Greece (Melas 2013). As long as this growth of the public sector contributed to the growth of the economy, it was accompanied by the broader evolution of the political system and the economy. However, when the positive effects arising from the expansion of the public sector diminished or ceased to exist, the end result was a large public sector creating obligations at all levels, which in turn led to deficits and debt.

2.3.2 The Private Sector, Its Characteristics, and Entrepreneurship

As can be concluded from the data provided, the private sector consists of small businesses (with one to nine employees), which by definition limits the possibility of producing added value and progress in the Greek economy as a whole in the long term. These businesses are mainly active only within Greece, possess a low level of specialization, and provide limited added value; they have limited prospects for exports and significant needs in terms of imported materials and accessories. Lastly, it is clear that their main field of operation is the domestic market, and they exclusively depend on domestic demand. Naturally, they are divided into specific sectors of activity.

The contribution of SMEs to employment and to production/income is a key indicator of their role in the economy. The following table represents the share of

total enterprises in Greece and in the EU taken up by SMEs (as defined by the European Commission), as well as the respective percentage of employment and added value produced by them. SMEs in all the EU member states account for more than 55% of employment in the nonfinancial sector (average: 66.9%), while in Greece this figure reaches 87%. In general, SMEs are more significant providers of employment in Southern Europe (Greece, Italy, Spain, Portugal) than in Northern Europe (Germany, the United Kingdom, Sweden, Finland) (Ioannides 2013).

The position of SMEs in Greece in terms of the number of enterprises and persons employed did not really change during the period from 2001 to 2008 (see Table 2). Although their percentage contribution to the total value produced has decreased, it still remains quite significant. However, it is particularly important to study the composition of SMEs in Greece. Greece has the highest percentage of microenterprises and the lowest of medium-sized enterprises among the 27 EU member states. A significant feature of the dynamics of the Greek economy is the fact that 35% of added value is produced by enterprises with less than ten employees.

2.3.3 The Export Profile of the Greek Economy

In the period from 2001 to 2009, both exports and imports of merchandise increased in the EU member states, the Euro area countries, and Greece. The data in Table 3 shows that Greece's export trade features a chronic imbalance between imports and exports; this fact indicates the dynamics and the possibilities of the domestic economy.

2.3.4 The Shadow Economy

The shadow economy and corruption are elements that characterize and influence economic and social life in Greece. Studies on this subject (Negreponi-Delivani 1990; Vavouras et al. 1990) estimate that the size of the shadow economy is close to 30% of GDP. Especially in the construction industry and secondly in health and education, the percentage taken up by the shadow economy is even higher (Pavlopoulos 1987).

During the last two decades, the size of the shadow economy in Greece as a percentage of GDP has ranged from 24 to 29% (Schneider and Williams 2013). It is the highest rate among the Euro area countries; Italy is second (22–28%), followed by Spain and Portugal (20–23%) and Belgium (17–23%). The Euro area average is 18.61%, and the OECD average is 16.1% (Table 4).

The size of shadow economy creates significant side effects, especially when the peculiarities of the Greek economy are taken into consideration. Demand is particularly affected and mainly leads to the consumption of imported goods. It increases the amount of money lost by the state and contributes to the burden placed on insurance and pension funds. In addition, the shadow economy maintains and employs workers, both Greeks and foreigners, at a low cost, which affects the level of payment for work in Greece.

3 External Factors

3.1 The Founding and Structure of the European Union and the Absence of Economic Policy Tools

The founding of the European Union sets and continues to set specific restrictions on its member states and especially on those that comprise the Euro area. The path towards a common currency was determined by concrete efforts and convergence criteria (the “Maastricht criteria”).

The creation of the euro as a currency was based on the theory of optimal currency areas. However, in the case of the euro, the theory is not actually confirmed, since the currency is not supported by a central bank with features similar to those of other countries nor by the necessary possibilities of exercising monetary and exchange rate policies. In addition, economic integration, besides the problems that were created by the establishment of the new currency, did not contribute to or produce common economic policies similar to those needed by the Union’s member states (Lapavitsas et al. 2010).

The European Union has not created the elementary mechanisms and institutions needed in order to compensate for the economic imbalances that appear and exist in every country. The onset of the crisis in 2007 revealed the Union’s inability to stabilize the crisis in the medium term and return to growth in the long term. The countries that in response to the crisis were subjected to the application of Economic Adjustment Programmes—whether this was successful or not—experienced a serious impact on all of their macroeconomic indicators (Ireland, Spain, Portugal, Cyprus, and Greece).

Whether the programmes were successful or not does not negate the failure of the European Union to deal with the fundamental problems of the evolution of its economy, growth, and creating productive investments and macroeconomic mechanisms that would contribute to reducing the imbalances existing among the European Union’s member states or regions. The surpluses of the stronger economies are not systematically directed to areas suffering from deficits in order to create demand. The original imbalance that existed when the EU was formed intensified during the crisis, and as long as the decisions made are guided by a restrictive or punishing mentality, the restoration of economic growth will continue to be sought in vain.

3.2 The Inadequate Estimates and Assumptions of the Economic Adjustment Programme for Greece

The programmes that the IMF proposed were based on specific economic examples and economic growth models that prevailed in certain regions of the world. In particular, the assumptions and hypotheses underlying the application of the

proposed measures were based on observations and conclusions made after the establishment of facts in models that generally show successful economic results. In addition, these analyses, as they are formulated, do not take into consideration the reasons why in many cases the proposed programmes have not been successful (Blanchard and Leigh 2013). Specifically, what is not considered is the factor of timelessness and continuity in the creation of economic conditions. If it is assumed that the Western world represents a successful economic model, what is overlooked in this approach is the fact that it is the product of evolution that has taken place over many years and not the result of a brief period, as established essays of economic conditions usually view it.

The Economic Adjustment Programmes for Greece 2010–2015 was unable to fulfil the terms and conditions set at its outset (Mavridakis et al. 2015). The fight against budget deficit and public debt led to a significant decrease of national income by 25%, the growth of unemployment, a general recession, and further increase of public debt. Greece has already agreed to a third memorandum of understanding in 2015. Except for macroeconomic intervention, the subsequent fiscal policy adjustments and the balancing of the trade deficit (a result of the sharp decline of internal demand), the IMF-supervised Economic Adjustment Programme for Greece failed to meet its own fundamental objectives in terms of the evolution of GDP and to achieve its own predictions in terms of the consequences of its measures on economic statistics.

The observed and recognized omissions on the part of the IMF in terms of debt management, for which a subsequent limited and targeted reduction was attempted, but also in terms of consideration of the particular characteristics of the Greek economy,¹ were an aspect of the proposal formulated by the IMF that in the end affected every aspect of the Greek economy. Internal devaluation did not lead to any improvement of the economic climate, increased productivity, increased exports, or a renewal of the economy.

The arguments developed by the IMF after the fact focused on the inability of Greek politicians to assume responsibility (political ownership) for the programme. Such arguments, however, lack a substantial basis, since they claim and suggest that the failure of the programmes depended on the level of their acceptance by the political system and society, thus ignoring the enormous impact of the measures that have been applied in Greece.

The loss of more than one-quarter of national income and the increase of the officially recorded unemployment rate to 25% of the economically active population provide a picture of the economic situation and its consequent multiplier effects for Greece's economy and society. Ignorance of Greece's economic reality, combined with the application of measures with a specific orientation proved in Greece's case, among others, that viewing economic conditions through a filter of ideological rigidity and the restrictions imposed from the outset as a consequence of the specific framework of the European Union, cannot lead to reforming the economy only through proposals based on the functioning of the market and

¹As set out in detail in the first part of this study.

the respective tools (INE/GSEE 2015). The Great Depression of 1929, just like the contemporary crisis, proved through economic theory that economic recovery and consolidation would be created by strengthening the economy and not restricting it.

4 Conclusions

The founding of the European Union and the establishment of the common currency were political decisions, beyond any criteria and conditions set for them. The institution of the “Maastricht criteria” determined the course of economic union, with a philosophy and objectives commensurate with economic liberalism.

The construction of a common monetary policy, as well as the conditions for it to function efficiently, would require intervention by central authorities in order to solve macroeconomic issues in the EU. The end of the cycle of euphoria after 2008 highlighted the entire range of the project’s fundamental weaknesses. The adjustment programmes for economies facing difficulties in aligning with the EU policies and regulations have proven that the expectations set by them are guided by the same rationale as the criteria for the introduction of the common currency.

However, the existence of a common currency without the corresponding support that economic theory and policy require, with appropriate tools, cannot provide beneficial results for the economy and society in the long term. The argument that the Greek adjustment programme was not successful because the political elite never accepted responsibility for it (Drazen 2002) is not sufficient; in fact, this argument is based on *The Shock Doctrine*. The timely and universal acceptance of these programmes—which even their initiators admit to have been mistaken—would not have led to the results expected, neither in budgetary terms nor in terms of growth. The reasons for their failure were a combination of several factors: mainly the lack of comprehension of the Greek economy’s particularities and the introduction of packaged proposals and solutions (product of the prescriptions adopted by the IMF on a worldwide basis) and the strict framework created in the European Union since its foundation, but also the common currency itself, which was established without the needed supporting mechanisms and policies.

The adoption of policies that affected the public sector adversely (fiscal consolidation) had a cyclical impact on domestic demand, which in turn affected the private sector and simultaneously weakened the state’s support and control system. The goal of increasing competitiveness and improving the conditions of trade was essentially not achieved, since the sharp decline of the economy and domestic demand, in combination with the problematic condition of the banking sector, prevented the strengthening of entrepreneurship.

The application of the adjustment programme involved unforeseen consequences, whose impact was disproportionate and universal, affecting most of Greek society (Giannitsis and Zografakis 2015). In the period from the end of World War II to Greece’s membership in the European Monetary Union, the Greek economy did not succeed in developing a productive model that would ensure the

prospects for its viability in the long term. Different moving forces in various periods managed to keep Greece’s economic development at a tolerable level (the primary sector, the construction sector, the invisible balance, and the public sector), without a national strategy for economic development ever having been devised. Greece’s membership in the European Union functioned as a package distorting reality, especially since the EU’s inherent weaknesses did not help alleviate its imbalances. Even if a sort of economic stability is achieved in the near future, it would be a stabilization at a very low level (following a significant decline in income), and an exit from this situation cannot be provided by the directions that have been put forwards until now.

The economy would need a comparable infusion of investment, which can only be possible through intervention by central institutions, since Greece is currently unable to solve this problem using its own means. However, such an option requires a different approach on the part of the European Union as a whole and the use of different measures. In operational terms, this could occur, but it would require a political decision to be made, which is currently still being sought to no avail.

Appendix

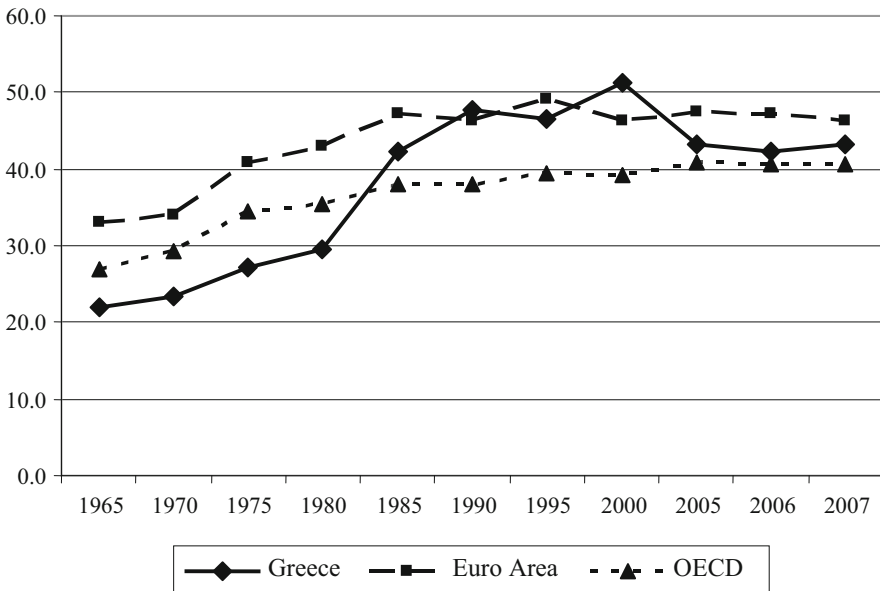


Fig. 1 Public expenditure (% GDP). Source: Rapanos, V. 2009. *Size and scope of the activities of the Public sector*. Foundation for Economic & Industrial Research (IOBE), Athens, Greece

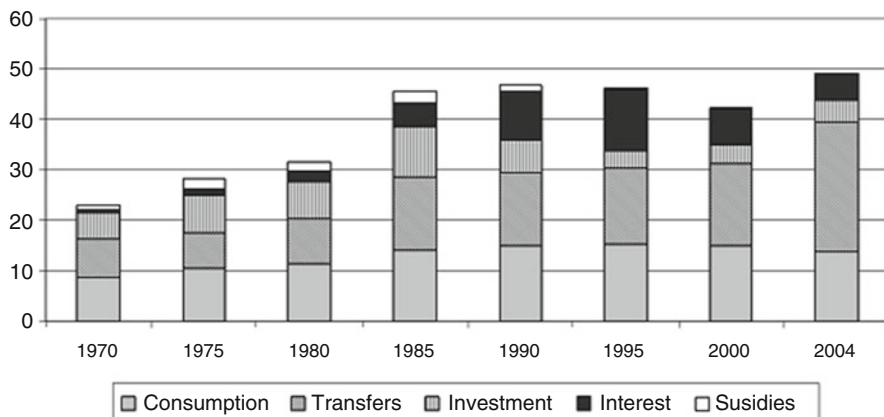


Fig. 2 Public expenditure (% of GDP), Greece. Source: Rapanos, V. 2009. *Size and scope of the activities of the Public sector*. Foundation for Economic & Industrial Research (IOBE), Athens, Greece

Table 5 Gross domestic product at 2010 reference levels (Mrd euro)

Country	2009	2005	2001	2001–2005 (%)	2005–2009 (%)
European Union	12,535.1	12,247.6	11,400.3	743	235
Euro area	9351.9	9165.4	8671.8	569	203
Greece	239.1	229.8	197.7	16.24	405

Source: Processed AMECO data

Table 6 Total expenditure excluding interest—general government: ESA 2010 and percentage of GDP at market prices

Country	2009		2005		2001		2001–2005 (Mrd €) (%)	2005–2009 (Mrd €) (%)
	Mrd €	% GDP	Mrd €	% GDP	Mrd €	% GDP		
EU	5850.5	47.7	4995.2	43.4	4199.2	42.2	18.96	17.12
Euro area	4445.4	47.9	3700.0	43.7	3162.9	43	16.98	20.15
Greece	116.4	49	81.4	40.9	60.4	39.7	34.77	43.00

Source: Processed AMECO data

Table 7 Total revenue—general government: ESA 2010 and percentage of GDP at market prices

Country	2009		2005		2001		2001–2005 (Mrd €) (%)	2005–2009 (Mrd €) (%)
	Mrd €	% GDP	Mrd €	% GDP	Mrd €	% GDP		
EU	5346.8	43.6	5010.2	43.5	4379.4	44	14.40	6.72
Euro area	4124.0	44.4	3727.4	44.1	3284.2	44.6	13.49	10.64
Greece	92.4	38.9	78.4	39.4	61.7	40.5	27.07	17.86

Source: Processed AMECO data

Table 8 Net lending (+) or net borrowing (–) excluding interest—general government: ESA 2010 and percentage of GDP at market prices

Country	2009		2005		2001	
	Mrd €	% GDP	Mrd €	% GDP	Mrd €	% GDP
EU	–503.7	–4.1	14.9	0.1	180.2	1.8
Euro area	–321.4	–3.5	27.4	0.3	121.3	1.6
Greece	–24.0	–10.1	–3.0	–1.5	1.2	0.8

Source: Processed AMECO data

Table 9 Net exports of goods and services at current prices (national accounts) and percentage of GDP at market prices

Country	2009		2005		2001		2001–2005	2005–2009
	Mrd €	% GDP	Mrd €	% GDP	Mrd €	% GDP	(Mrd €) (%)	(Mrd €) (%)
EU	117.1	0.96	88.0	0.76	79.3	0.80	10.97	33.07
Euro area	133.5	1.44	122.6	1.45	106.4	1.45	15.23	8.89
Greece	–23.2	–9.77	–16.5	–8.28	–16.1	–10.58	2.48	40.61

Source: Processed AMECO data

Table 10 Balance on current transactions with the rest of the world (national accounts) and percentage of GDP at market prices

Country	2009		2005		2001		2001–2005	2005–2009
	Mrd €	% GDP	Mrd €	% GDP	Mrd €	% GDP	(Mrd €) (%)	(Mrd €) (%)
EU	–16.2	–0.1	3.3	0	–25.6	–0.3	112.89	–590.91
Euro area	34.4	0.4	26.8	0.3	3.5	0	665.71	28.36
Greece	–29.7	–12.5	–19.5	–9.8	–13.6	–8.9	43.38	52.31

Source: Processed AMECO data

Table 11 General government consolidated gross debt: excessive deficit procedure (based on ESA 2010) and percentage of GDP at market prices

Country	2009		2005		2001		2001–2005	2005–2009
	Mrd €	% GDP	Mrd €	% GDP	Mrd €	% GDP	(Mrd €) (%)	(Mrd €) (%)
EU ^a	8943.5	73	7122.9	61.8	5950.9	59.8	19.69	25.56
Euro area ^a	7276.2	78.3	5850.7	69.2	4927.2	67	18.74	24.36
Greece	300.9	126.7	213.8	107.3	162.6	106.8	31.49	40.74

Source: Processed AMECO data

^aNot consolidated for intergovernmental loans amounting to 0.9 billion euros in 2009; 21.2 billion euros in 2010; 69.3 billion euros in 2011; 193.4 billion euros in 2012; 231.0 billion euros in 2013; and 240.5 billion euros in 2014

References

- Annual Report on European SMEs 2014/2015, Nov 2015, European Commission.
- Blanchard, O., & Leigh, D. (2013). *Growth forecast errors and fiscal multipliers* (pp. 7–12) (IMF Working Papers, WP/13/1).
- Dovas, D., et al. (2012). The policies applied in the European Union to confront the crisis: The case of Greece. In *Proceedings of 4th International Conference of The Economies of Balkan and Eastern Europe Countries in the Changed World* (pp. 85–92). Sofia, Bulgaria.
- Drazen, A. (2002). Conditionality and ownership in IMF lending: A political economy approach. *IMF Staff Papers*, 49(Special Issue), 36–67.
- European Commission, Directorate-General for Economic and Financial Affairs. (2010). *The economic adjustment programme for Greece* (Occasional Papers 61).
- European Commission, Directorate-General for Economic and Financial Affairs. (2014). *The second economic adjustment programme for Greece*. Fourth review, Occasional Papers 192.
- European Commission, Directorate-General for Economic and Financial Affairs. (2015). *Memo-randum of understanding between the European commission (acting on behalf of the European stability mechanism) and the Hellenic Republic and the bank of Greece*. Available in https://ec.europa.eu/info/sites/info/files/01_mou_20150811_en1.pdf
- European Commission, Directorate-General for Economic and Financial Affairs. (2016). *Annual macroeconomic database; macro-economic data for Greece*. Available in http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm
- Fotopoulos, T. (1993). *The Neoliberal Consensus and the crisis of the growth economy*. Athens: Gordios Publishers.
- Giannitsis, T., & Zografakis, S. (2015). *Greece: Solidarity and adjustment in times of crisis*. Study supported by the Macroeconomic Policy institute of the Hans-Broeckler-Foundation, 3/2015, pp. 133–136.
- INE/GSEE-The Labour Institute of the Greek General Confederation of Labour. (2015). The Greek economy and employment. *Annual Report*, 39–45, 163–165.
- Ioannides, S. (2013). *Entrepreneurship in Greece, 2011–2012: The evolution of the entrepreneurship indices during the crisis*. Athens: Foundation for Economic and Industrial Research.
- Iordanoglou, C. (2008). *The Greek economy in the “Longue Durée”: 1954–2005*. Athens: Polis Publishers.
- Lapavitsas, C., et al. (2010). Eurozone crisis: Beggar thyself and thy neighbour. *Journal of Balkan and Near Eastern Studies*, 12(4), 321–373.
- Mavridakis, T., et al. (2014). The effectiveness of the adjustment policy applied to the Greek economy. In *6th International Conference of The Economies of Balkan and Eastern Europe Countries in the Changed World*. Nis, Serbia. Available online at <http://www.sciencedirect.com> (Procedia Economics and Finance 19, 101–109).
- Mavridakis, T., et al. (2015). The results of the adjustment program for the Greek economy. In *7th International Conference of The Economies of Balkan and Eastern Europe Countries in the Changed World*. Kavala, Greece. Available online at <http://www.sciencedirect.com> (Procedia Economics and Finance 33, 154–167).
- Melas, K. (2013). *Little lessons on Greek economy*. Athens: Patakis Publishers.
- Negreponti-Delivani, M. (1990). *The economy of informal economy in Greece*. Athens: Papazisis Publishers.
- Pavlopoulos, P. (1987). *The informal economy in Greece: An initial quantitative definition*. Athens: Foundation for Economic and Industrial Research.
- Rapanos, V. (2009). *Size and scope of the activities of the public sector*. Athens: Foundation for Economic and Industrial Research (IOBE).
- Schneider, F., & Williams, C. (2013). *The shadow economy*. London: The Institute of Economic Affairs.

- Schneider, F., et al. (2010). New estimates for the shadow economies all over the world. *International Economic Journal*, 24(4), 443–461.
- Vavouras, G., et al. (1990). *Informal economy: A direct estimation method of the size of the shadow economy and its application in the case of Greece*. Athens: Kritiki Publishers.

Eliminating Barriers and New Challenges in the European Labour Market



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Abstract One of the pillars of European economic integration is free mobility of employees. The current legal system of the EU facilitates the cross-border mobility of employees and unification of families. The paper analyses the main issues related to the mobility, deals with the elimination of barriers in the EU labour market and also points out the employment conditions for foreigners working in the Slovak Republic. Geographical labour mobility continues to be an important issue for the EU institutions. The efficient allocation of labour within the EU contributes to achieving the objectives of the Europe 2020 growth strategy. Intra-level mobility is regarded as a means to modernize labour markets, and by developing labour skills, the labour participation can be increased and the labour supply and demand can be better matched. This can be achieved by strengthening the institutional framework for mobility, developing effective information networks and removing mobility barriers, such as ensuring social security rights, recognition of qualifications, promotion of languages capacity and access to services and housing. In order to analyse the problems of employee's mobility, it is necessary to identify relevant legislation which is fundamental for free mobility of the employees. The basic method used for our research was the analysis of factors and relations linked to the mobility of workforce in EU. Our inquiry resulted in a summary study of varied links between studied phenomena and in unveiling the causes and prospective tendencies related to them.

Keywords Labour market • Mobility of employees • Barriers of mobility • Equal opportunities

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1 Introduction

The biggest challenges to the economic policy of the Member States of the EU represent the solutions, which would harmonize the consolidation goals with the goals of growth, employment and the quality of life. The expenses supporting the economic growth and employment are favoured. They will create the preconditions for quicker and sustainable economic growth and for achieving the higher level of employment as well as improvement of quality of life. Not only economic development but also the influx of foreign investments has the impact on the development of employment. In today's highly globalized economic surroundings, the focus is on removing unemployment. The economic integration provides for the extension of free movement in order to choose employment. The right of EU nationals to move and live freely with the members of their family in any EU country represents the one of four fundamental freedoms anchored in the EU legal order as well as the fundamental element of European integration. The right to free movement is regulated in the Treaty on the Functioning of the European Union (TFEU), in the Charter of Fundamental Rights of the European Union as well as in the secondary law of the EU. The possibility to move freely other than for labour purposes, for example, in order to retire, study or accompany family, became the main feature of the EU citizenship (Article 21 TFEU). The free movement of workers as part of the single market has the positive influence over the economies and labour markets of the Member States. The free movement of persons brings advantages to the European nationals and to the economy of the EU as a whole (Oznamenie 2013). The Member States and the European Union are jointly responsible for proper functioning of rules on free movement for the benefit of nationals, growth and employment.

2 Free Movement of Employees

The principle of freedom of movement is enshrined in the European law and establishes that every citizen of EU shall have the right to move and reside freely within the territory of Member States (Article 18 of the TFEU). In 1957 the EU has established the principle of free movement of European workers across Member States (Article 45 of the TFEU). This principle entails the right to look for a job in another Member State, the right to work, the right to reside and to remain here and the right to equal treatment in respect to access to employment, working conditions and all other advantages which could help to facilitate the worker's integration in the host Member State.

TFEU stipulates that the Member States have to regard their economic policies and the support for employment as the matter of common interest and to coordinate them within the framework of European policies. Issues related to the free movement of workers have in the course of recent years become the forefront of the

interest not only of professional but, thanks to media, also to wide lay public. At one side we are witnessing the serious approach, which has its legal base, and at the other side, we are confronted with often even demagogic interpretations. The free movement of persons can be understood in two levels. In the broader understanding, it means the elimination of passport controls of the nationals of the EU Member States at the borders. In this context the significant role is played by the Schengen Agreement of 1985, with its main aim to gradually abolish the border checks at EU internal borders for nationals of the EU Member States and allow the free movement of persons, goods and services.

Within the narrower meaning, the free movement of persons means the right to perform working activity on the territory of other Member State in accordance with the conditions stipulated by the hosting state. Free movement of workers represents one of the EU fundamental rights as stipulated by Article 15 of the Charter of Fundamental Rights of the EU. It represents *lex specialis* in relation to the general regulation of the free movement and residence of EU nationals, and it means the right to enter the territory of another Member State for the purpose of searching for employment or preparation, therefore, to reside there during performing the employment and to stay there also after its termination (Svoboda 2011). The possibility to study, work or search for employment in a given state forms part of the free movement of persons. Free movement of workers includes elimination of any discrimination of workers from Member States based on nationality, performed employment, salary for work and working conditions. The EU nationals have the right to access to employment and its performance in other Member State under same conditions as nationals of this Member State (Kral et al. 2012). Nationals of EU Member States make use of free movement mainly from the reasons related to the employment or family. They use the possibility to find a job in the territory of other state with better economic circumstances. At the same time, they produce certain value, they represent the asset for the labour market from the point of view of qualification and they contribute to the social security system. “A pilot initiative of the European Investment Fund—the Social Impact Accelerator (SIA) helps to remove financing barriers of labour market for instance by raising equity finance to support social enterprises promoting social inclusion by providing alternative sources of employment to marginalised social groups who are typically excluded from the mainstream labour market—for instance, socially and financially excluded people, economic and political immigrants and refugees, disabled people, former convicts, and minorities” (Saxunova 2015).

The contribution of EU mobile workers to the employment growth is clear: people moving across EU countries have a higher employment rate (68%) than nationals (64.5%). Moreover, by transferring labour and skills from regions and countries where they are less in demand to those where they are needed, intra-EU mobility makes a more efficient use of human resources (European Commission).

Employment growth is essential since one of the main areas of social economic development is the reduction of unemployment, the integration of immigrants and the eradication of poverty which makes use of social enterprises establishment (Saxunova and Schurmann 2015).

The excessive regulatory and administrative barriers of the labour market are gradually removed within the EU Member States and are replaced by the common legal acts of the EU, especially by the secondary law. For example, in the Slovak labour market, the barriers have been gradually removed in particular with the aim to the principle of equality of all people before the law and the ban of any discrimination, as these two principles represent the fundamental principles of the state governed by the rule of law. Every democratic legal system has to recognize and protect the principle of equality within the framework of general protection of human rights and freedoms and to remove any discriminatory practice. Removal of barriers in the labour market helps to integrate persons and disabled persons into the labour relationships. At present not only in Slovakia but also in other EU Member States the high level of unemployment is being emphasized (more than 25 million in the EU), but there are still labour shortages and vacancy bottlenecks (European Commission). In our view the barriers preventing relatively quick solution of high level of unemployment represent the problems connected with the quality and qualification of workers and their motivation to work, the lack of adaptation of the part of population as well as the systemic deformations in the labour market. We also have the view that the reason for unemployment is the predominance of the low level of employment, insufficient qualification, low self-confidence, weak motivation and insufficient orientation in the labour market, which limit the ability to find employment. The reason may also be the fact that people with difficulties to synchronize working and family life for at least 24 months suffer in particular from a decrease in self-confidence especially in relation to their own abilities. They are afraid of coming back to the open labour market.

The labour force is therefore subject to the pressure to increase their ability to adapt to requirements of the labour market. The employers expect from employees ever higher flexibility and their adaptation to the new production and operational procedures. One part of the employees understands its feasibility to be employed as the necessary life insurance for the purpose of earnings, and the second half perceives their activities in the employment as the part of their mission in life to create certain values and to be added value for the society (Wojcak and Polakova 2015). Real ability of people to find employment—and to be successful in the labour market—is the result of intersection of offered abilities and work results at one side with the existing demand of companies in labour force at the other side. The Member States can introduce limiting measures on the basis of protection of public order or public security (Veci 41/74 Van Duyn). Union citizens or members of their family may be expelled from the host Member State on grounds of public policy, public security or public health. Under no circumstances may an expulsion decision be taken on economic grounds. Measures affecting freedom of movement and residence must comply with the proportionality principle and be based exclusively on the personal conduct of the individual concerned.

2.1 Eliminating Barriers in the Labour Market

The barrier can be considered a legal obstacle, which discriminates nationals from other states when performing economic activities in the territories of other states, i.e. removing of all forms of discrimination based on nationality. The Member States in the European Union have the obligation to remove legal obstacles to the movement of persons with regard to their nationality. And also nationals from third countries and from countries belonging to the European Economic Area cannot be discriminated on the basis of nationality. In other words removing the limitations of the free movement of persons represents the fundamental aim of the European Union (Article 18 of the TFEU). The principle of equal treatment on the basis of nationality includes equal access and equal treatment with employee from the side of his/her employer as well as from the state. Legislative measures have to provide for space for equal chances, because in the opposite case the infringement of this principle would cause legal consequences on the side of employee, who has the right to claim his/her rights. It means that the employee who is discriminated on the basis of nationality has the right for protection of dignity and for favourable treatment. There are many examples in the field of discrimination based on nationality. In the broader context, we have to respect also the particular character of labour market in the Member States, where the particular requirements are applied for employees working in the state administration. The EU legal regulation, as well as international regulation (Council of Europe, International Labour Organisation), contributes in a decisive manner to the full participation of nationals on the economic, social and cultural life in the other states.

The main drivers of labour mobility for EU from eastern European countries are better employment opportunities, higher wages and better working conditions (Eures). Survey found that the main obstacles to moving are separation from the partners and family, having dependent children and family situation.

Cultural and language differences also are obstacles to move to another country. There is some evidence that migration flows between countries with closely related languages tend to be more intensive. The survey data (Eurofound 2014) show that the main obstacles to intra-EU mobility related to language differences, the perceived chances of finding employment, finding suitable housing and cultural adaptation.

Language differences create the barrier to mobility for the following countries: the highest in Lithuania (65%), the lowest in Luxembourg (21%), EU average (52%) and the United Kingdom (58%).

The next barrier is the problem finding the job. The difficulty points out lack of, poor or limited access to information about the job opportunities abroad and insufficient personal contact (Greece 48%, Bulgaria 45%, Ireland 43%, Sweden 16% and France 17%).

Another barrier to moving abroad is finding suitable housing (EU average 16%, Germany 10%, Cyprus 34%).

Adapting to the different culture is the main barrier to mobility in Malta 32%, Cyprus 30%, Greece 28% and Italy 25%.

Another source of barriers is the recognition of qualifications. This should not be an issue for EU nationals; the qualifications should be automatically recognized based on European Qualifications Framework and the Professional Qualifications Directive. In many EU countries, there are professions that require authorization from competent authorities in order to practise (International Organization for Migration 2013). Countries where recognition of qualifications was mostly to be reported as a barrier to mobility were Slovakia 22%, Lithuania 17% and Czech Republic 16%.

2.2 European Employment Services

At the EU level, the European Employment Services (EURES) programme with its internet web portal has been enhanced over recent years precisely to address this mobility barrier and to help EU nationals find employment in EU countries other than their own. However, European and national data show that informal personal networks (friends and acquaintances in other countries) continue to play a central role in the job search process and are important source of information about job opportunities.

EURES is becoming the key provider of information on job vacancies. EURES has played an important role in facilitating the labour mobility. In Germany in 2013, the programme attracted the young and unemployed from other EU countries, particularly from Spain by offering them traineeships and possible access to the German job market. Programme has been successful undertaking because it directly tackles the financial barriers to mobility by providing financial support and German language courses in both the country of origin and of destination.

EURES database also exists at the level of unemployment offices in the Member States. It includes the register of free labour positions. Internet portal EURES regularly publishes information about offered and searched labour positions. Table 1 shows the number of job seekers according to the individual states.

The biggest number of nationals from Italy (48,653) is seeking employment in the EU Member States. Also interesting is the fact that among nationals seeking for jobs are also nationals of Germany (8,582), which ranks among states with the low level of unemployment (6.7%, February 2016).

The job seekers have also mentioned in the questionnaires sent to EURES agency the degree of achieved education. It is interesting that the biggest number of job seekers have the university education. It means that also among people with university diplomas are people that are unemployed or are seeking for employment, respectively. Education is a certain attribute of the ability to find a job. Not all graduates are successful in the labour market, because quite high proportion of universities are educating graduates sufficiently represented in the labour market, and in particular the curricula in the universities do not correspond to the requirements stemming from the economic practice. In this connection we associate ourselves with the opinion of authors Birknerova Z. and M. Frankovsky that the

Table 1 Job seekers per country (EURES 2016)

Country	Job seekers
Italy	48,653
Spain	39,642
Romania	12,590
France	11,923
Croatia	11,838
Poland	10,479
Portugal	10,349
Germany	8582
Greece	7979
Serbia	6234

Table 2 Job seekers per education level (EURES 2016)

University studies (Master)	47,611
University studies (Bachelor)	40,189
Post-secondary (vocational training)	18,552
Upper secondary education	15,433
Advanced university studies (Doctorate)	5082
Basic education	3757
University studies (Master)	47,611
University studies (Bachelor)	40,189
Post-secondary (vocational training)	18,552
Upper secondary education	15,433

success of business depends from a number of factors, while the most important is the human potential (Birknerova and Frankovsky 2015). Table 2 shows the numbers of job seekers according to the level of accomplished education who are searching for employment through the network EURES. This example proves the fact that the problems with employment are not connected only with the quantitative characteristics of the labour market, but also with the qualitative aspects.

Within the framework of EU Member States, the most often searched job according to the internet portal EURES is the profession of waiter/waitress. The second most searched job is the profession of foreign languages teacher. We consider as quite unusual that managers of IT projects are not in demand very much anymore. Other expert professions are being moved towards the forefront of interest (Table 3).

With regard to the fact that many Member States have applied the seven years' transitional period on the free movement of workers, the biggest number of nationals from newly admitted Member States have found their job in the United Kingdom and in Ireland. Also today the United Kingdom is still the sought-after state for nationals from the countries of Central and Eastern Europe.

Table 3 Job seekers per occupation (EURES 2016)

Waiter/waitress	2538
Language teacher	2446
Administrative assistant	2320
Hotel receptionist	2237
Clerk (general)	2109
Translator	1903
Secretary	1903
Architect	1724
IT project manager	1637
Waiter/waitress (café)	1382

2.3 *Employment of Foreigners in Slovakia*

The Slovak Republic has not been applying any legal obstacles for the nationals from Member States nor for third country nationals according to the legal regulation in force. The conditions for employment in Slovakia for the third country nationals are fully harmonized with the legal acts of the European Union. Through the globalization of the current business activity and integration of national economies into the system of global economic relations, one of the predominant tasks that become topical is the issue of the protection of social rights of nationals and providing for better labour conditions (Bakytova 2015). Also the protection of social rights and the protection of family are ensured in Slovakia in accordance with the international regulation (Article 18 TFEU) and in accordance with the Charter of Fundamental Rights of the EU (Article 21 paragraph 2 of the Charter).

The Slovak legal regulation does not include the notion of third country nationals nor does it include the notion of migrant. It is based on the definition of the notion of foreigner. A foreigner is considered within the meaning of Article 2 paragraph 2 of the Law no. 404/2011 Coll. on residence of foreigners as amended to be any person “who is not a national of the Slovak Republic”. The Slovak constitution, however, guarantees in its Article 12 paragraph 2 the fundamental rights and freedoms “to everyone regardless of sex, race, colour of skin, language, religion, political or other beliefs, national or social origin, affiliation to nation or ethnic group, property, descent or another status. No one can be harmed, preferred or discriminated against on these grounds”. The structure of conditions of employment in Slovakia applicable for third country nationals is as follows (Ministry of Employment of Social Affairs and Family of the Slovak Republic):

- (a) Person has to be a holder of the blue card of the European Union.
- (b) Person has been granted temporary residence for the purpose of employment on the basis of confirmation about the possibility to take free job.
- (c) Person has been granted the working permit and the temporary residence for the purpose of employment.
- (d) Person has been granted working permit and the temporary residence for the purpose of family unification.

- (e) Person has been granted the working permit and the temporary residence of a third country national, who has the recognized status of person with long-term residence in the Member State of the European Union; person fulfils criteria according to Article § 23a of the Law no. 5/2004 Coll.—in this case the confirmation about the possibility to take free job nor working permit is required.

By the end of December 2015, there were a total number of 3033 foreigners working in the territory of the Slovak Republic. From among this number, there were 2253 men and 763 women. As for the differentiation according to the nationality, the highest number among them was Ukrainians (921), Serbs (340), Russians (181), Koreans (436) and Chinese (134) (Labour Office of Social Affairs and Family of Slovak Republic).

The positive side when considering these nationals searching for job is the fact that they were able to accommodate themselves with the administrative requirements, with the problems to overcome language and cultural differences, which make the possibility to do the job more difficult. The third country nationals are known for their flexibility, adaptability and mobility (Wojcak and Polakova 2015), and they are not employed further to the humanitarian reasons anymore but further to their ability to adapt in the labour market and to the responsibility they take for their economic situation. In our view only the small part of labour force from the third states is considering employment as the means to develop their personality, to realize themselves and to fulfil their ambitions. There are no vacant positions fulfilling such criteria in Slovakia at present according to the internet portal of jobs. The question arises, why are labour offices not in a position to initiate the fulfilment of a vacant job by appropriate job seekers, when there is still such a high unemployment rate in Slovakia.

3 Conclusion

Employee mobility in the European Union countries contributes to the labour markets and increases their productivity, competitiveness and growth. EURES provides the job seekers with the information about the job opportunities outside their own area. EURES cooperates with national employment services; however the informal personal networks are an important source of information about jobs.

From year 2006 till the present, the labour market in Slovakia has been changing from too rigid towards a more flexible labour market as regards the mobility of labour force. The formal support itself is, however, not sufficient so that the people would be identified with accepting the necessary changes steaming from the common Europe as well as with understanding the importance of investments to the future. The labour market in Slovakia has passed through numerous structural changes (Wojcak 2013). The labour code was amended in the broader context and interrelations. The transformation of social systems took place as well. The

combination of all these factors in the social employment and social sphere has also contributed to the increased level of employment and limitation of unemployment (in 2012 the unemployment rate represented 12.5% and in 2016 around 10% unemployment rate is expected). While having such level of unemployment rate, there are still approximately 34,000 job vacancies. In our view although the barriers in the Slovak labour market have been removed, the economic development has the dominant influence over the development of employment. The economic development of Slovak economy is predominantly based on the production of foreign companies that are combining the use of qualified and cheap labour force and imported technologies. In our view the new jobs could be created in the field of services as well as in the agriculture, both of them being undersized in Slovakia. The services represent the segment, which also brings the added value and the agriculture is the area, where there are no high demands as regards education. There is quite high interest in low qualified labour force.

References

- Bakytova, J. (2015). Analýza hospodárskeho a sociálneho vývoja v Argentíne na prelome 20. a 21. storočia. *Manazment podnikania a veci verejných* 29/2015. Bratislava.
- Birknerova, Z., & Frankovsky, M. (2015). Vnimanie firemneho vzdelavania a motivacia zamestnancov vzdelavat sa. *Manazment podnikania a veci verejných* 29/2015. Bratislava.
- Eures. (2016). <https://ec.europa.eu/eures/eures-apps/cvo/page/statistics?lang=sk>
- Eurofound. (2014). Labour Mobility in the EU: Recent Trends and Policies. https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1456en_1.pdf
- Eurofound. <http://www.eurofound.europa.eu/publications/report/2014/eu-member-states/labour-market-social-policies/labour-mobility-in-the-eu-recent-trends-and-policies>
- European Commission. http://europa.eu/rapid/press-release_IP-14-1016_en.htm
- International Organization for Migration. (2013). Recognition of qualifications and competences of migrants. Brussels.
- Kral, R., Kunertova, T., Kvocakova, L., Moravek, J., Samanek, J., & Stefko, M. (2012). *Volny pohyb pracovníku v EU v kontextu skončení prechodných opatrení* (1st ed.). Praha: Univerzita Karlova v Praze, Právnická fakulta, Vodňany.
- Labour Office of Social Affairs and Family of Slovak Republic. http://www.upsvar.sk/ba.html?page_id=239644
- Ministry of Employment of Social Affairs and Family of the Slovak Republic. <https://www.employment.gov.sk/sk/ministerstvo/europska-unia-a-medzinarodne-vztahy/>
- Oznamenie. Volny pohyb občanov EU a ich rodín: pat opatrení, ktoré môžu priniesť zmenu. V Bruseli 25. 11. 2013 COM (2013) 837 final
- Saxunova, D. (2015). Innovative trends of financing in global environment – experience of Slovakia and its inspiration for Namibia. In ABEM Conference Proceedings 2015. Winnipeg: Academy of Business and Emerging Markets, Winnipeg.
- Saxunova, D., & Schurmann, H. (2015). Potential of social services. *FAIMA Business & Management Journal*, 3(3), 60–71.
- Svoboda, P. (2011). *Uvod do evropskeho prava* (4th ed.). Praha: C.H. Beck.
- Veci 41/74 Van Duyn, bod 18, C-348/09 P. I., bod 23, a C-434/10 Aladzhov, bod 34.
- Wojcák, E. (2013). *Flexibilne formy organizacie prace*. Bratislava: Ofprint, s.r.o..
- Wojcák, E., Polakova, M. Uplatňovanie teleprace (prilezitosti a hrozby). In: Hradec economics days. Magnanimitas, Hradec Kralove (2015)

The Internationalization Process of Small and Medium Enterprises: Case of Albania



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Abstract The global economy is becoming more integrated with each passing day, taking into consideration the rapid process of globalization, which permits small and medium enterprises to internationalize in effective and quick ways. The main issues discussed in this paper are related to the internationalization process for SMEs, the reasons why they decide to become international, and the models they use to finalize this process. The internationalization process has been an interesting topic of focus for researchers, academia, businessmen, and students. This is a phenomenon mostly related to the big companies, but in the last years, the process of internationalization has related to small and medium enterprises since their active roles in the international markets have increased. Different internal and external factors, such as macroeconomic conditions, organizational cultures, technology, and infrastructures, have influenced the way these firms choose their models to realize the internationalization process. This paper focuses on the three main theories of internationalization, which include the following: Uppsala model as well as the network theory and international entrepreneurship theory (specifically in the case of Albania), which is in the first stage of development in comparison to other countries in our region.

Keywords Internationalization • SMEs • Uppsala theory • Network theory • International entrepreneurship theory • Albania

1 Introduction

The internationalization process has always been of interest for students, academia, businessmen, and researchers. During recent years, SMEs have been the focus of research due to their increasing active roles in the international market. SMEs have

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rapidly expanded their business activities in foreign markets and thus have become main instruments of international diversification.

The importance of internationalization is increasing every day due to the interaction of several factors, such as:

1. The reduction of barriers for trading and investing, based on several agreements. As a result, this reduction has contributed positively to companies through the expansion of exporting activities.
2. The continuous developments in the fields of transport and logistics have lowered the costs of importing and exporting.
3. Innovation in business behavior and technology has shown results in creating new goods and services that are attractive in international markets.
4. Markets have become wider and linked among each other because of the development of global electronic commerce, also known as e-commerce.
5. Companies and industries of different countries have become interdependent regarding supplies and business activities.
6. Capital markets have internationalized because of the decrease of internal legislations, and this has contributed to the internationalization process, which nations are actively participating in more and more each day.
7. Different industries among various countries have overcapacities because of increased productivity of existing and new establishments. National and local producers have managed to achieve economies of scale, by utilizing the oversupply in the labor market and selling products in new areas. All these factors have increased the attempts of companies to initiate exporting activities.
8. Global trading has continuously increased more than that of gross national product on a global scale, and this has promoted its importance in the international markets (Albaum 2005).

The most well-known theories of internationalization are the Uppsala model of internationalization process, network theory, international entrepreneurship theory, and some new topics of high importance for today's business world such as new joint ventures or born global (Madsen and Servais 1997).

The theories taken in consideration for this paper attempt to explain the different processes of internationalization that occur when firms tend to expand over national markets. Generally, the internationalization process is related to drawing up new strategies where companies must decide where and when, as well as how, they will enter new markets. There are several ways to enter a new market, such as through exports, foreign direct investments (FDI), joint ventures, licenses, franchises, branches, etc.

In any case, this process is surrounded by risk and insecurity. For the firm to achieve the success it seeks, it should decrease the level of risk and insecurity, and this is possible only by choosing the right model. The key of success is directly related to knowledge of the market, and companies should apply the most useful model of internationalization based on this information. Other factors that should be taken into consideration consist of internal factors such as business network,

previous experience, management skills, the role of ownership, financial resources, government agencies, age and size of the company, organization skills, etc.

The main purpose of this paper is to have a clear view of the internationalization process for the SMEs and the level of SMEs internationalization in Albania. This can be realized by analyzing the role and applicability of the main theories: Uppsala model of internationalization process, network theory, and international entrepreneurship theory from the SMEs that operate in our national markets.

Specific objectives:

Determine the models and methods frequently used by SMEs.

Explain how the model or method chosen by SME affects the finalization of the internationalization process and the firm's performance.

Determine the main reason why SMEs tend to internationalize.

Define the internal and external factors that influence the process of internationalization.

Define the countries where Albanian SMEs intend to enter and occupy the market with their goods and services.

2 Internationalization of SMEs

The existing literature regarding the internationalization and SMEs is wide, especially when considering time extension and diversity of content. According to the objectives we have set at the beginning of the paper, we have focused on the definitions of internationalization, SMEs, analysis of internal and external factors, and the main internationalization theories.

2.1 *Internationalization*

Several authors such as Andersen 1993 or Cavusgil 1980, have proposed different definitions for the dimension of internationalization. From literature review, currently there isn't a definition that all researchers have agreed upon. The origin of this concept is found in the 1960s, when Simmonds and Smith identify internationalization as a successful way to increase export activities (McAuley 2001). Based on their study, the Swedish authors of Uppsala model, who formalized the model of export behavior, Johanson and Vahlne (1977), then Wiedersheim-Paul et al. (1978), have cited that "internationalization usually refers to a company behavior toward foreign activities or performing activities abroad".

Internationalization is a process, in which the firm increases its involvement in the international operations (Welch and Loustarinen 1988). On the other hand, Calof and Beamish (1995) define internationalization as the process of adapting the company operations with the international environment.

Other more complex definitions have determined some typologies through crossing different criteria. For example, Torres (1999) has identified four different categories of companies based on location and operation of these companies, which include local, glocal, international glocal, and global.

For a local company, procurement and location of the resources is done in local, regional, or national level.

For a glocal company, it procures resources itself partially or totally in the international market but sells goods or services in the internal market.

In the third category, an international glocal company performs exporting activities; it procures and sells both in international and national markets.

Finally, in the fourth category, a global company performs part of the production on its own outside the country and conducts research and development activities in international level.

2.2 *Small and Medium Enterprises: SMEs*

2.2.1 Definition and Characteristics of SMEs

Small- and medium-sized enterprises are playing a vital role in the economic development of a country. When we talk about SMEs, we refer to all firms that operate in every kind of sector and do not exceed a specific size. Commonly, the indicators used to determine the size of SMEs are profits, capital, market position, number of employees, and turnover. The most frequently used indicators are annual turnover and the number of employees.

If we refer to the European Union definition (2005), “The category of company’s micro, small and medium—SME consists in all the companies which have less than 250 employees and have an annual turnover not exceeding 50 million euros or an annual balance sheet not exceeding 43 million euros.” According to one of the studies of the European Business Observatory today, of the 19.3 million total enterprises in EU, 98% are small and medium enterprises.

According to the Albanian legislation into force, the category of micro-, small-, and medium-sized enterprises (SMEs) includes all the companies which have less than 250 employees and realize an annual turnover and/or annual balance sheet not exceeding 250 million LEK (in national currency). If it is converted in EUR, it is approximately 1.5 million euros.

In our study, the internal characteristics of SMEs are very important.

First, the organic structure is related to the absence of standardization and the presence of informal working relationships, which make SMEs more flexible in the operative business environment.

Second, SMEs are predisposed to surviving in fluctuating and turbulent environments, where innovation and flexibility are keys to survival.

Third, their flat structure and the absence of hierarchy help them with the changes of labor environment and permit management to establish close relations with employees.

2.3 Theories of Internationalization

2.3.1 Uppsala Model

The Uppsala model is developed by the Nordic school. The construction of the model has passed in two important phases. First, Johanson and Wiedersheim-Paul carefully observed every step of the internationalization process of four national firms back in 1975. Then, in 1977, Johanson and Vahlne discovered and refined the model. Their theory is focused on four important aspects that any firm should take in consideration where it intends to expand the activities abroad.

Market knowledge—that means knowing the threats and opportunities they can find in the new foreign markets.

Engagement of the firm in the market—determines the financial resources that will be engaged and the measure of their engagement.

Engagement during decision-making process—based on the market knowledge and the measure of the engaged resources.

The actual activities of the company—the goods and services the company actually offers in the domestic market.

These four aspects cooperate with each other in a cyclic form. The main assumptions of this theory are:

The market knowledge and the resources engaged in the new market influence the decision-making process regarding the engagement and the way these decisions will be implemented.

The company should start expanding its activities in markets with the shortest physical distance. The physical distance is known as the difference in language, culture, and political system.

The basic scheme to follow is exports—sales representative—branch which offers all services.

2.3.2 Network Theory

Johanson and Mattsson developed the network theory in 1988, and according to this theory, companies, which use the highest technology, do not perform the gradual increasing process, but instead tend to reach internationalization quickly through utilizing the experience and resources of the network's partners.

This theory looks at the firm's internationalization as a natural development and is a result of the network relationship with a foreign company. The network is a

resource that produces knowledge and information about the markets, which in case of network absence requires a lot of time. The importance of the network is related to the close relationship between the firm, the partner, and the facility using the network clients, suppliers, industry, logistic system, regulators, public agencies, etc.

The first step toward internationalization consists of the market knowledge where the network operates, its environmental conditions, and relationship with the partner.

While the firm is involved in the internationalization process, the relationship with the network becomes stronger. While the trust and engagement between the network's participants increase, the firm reaches market penetration.

During the penetration stage, the company is integrated in the foreign market, through using the network, and after this it must get involved in other foreign markets.

According to the network theory, the following four categories of companies exist:

Early entry firms—are all those firms that have few relations with the new market.

They have little knowledge about the market and have lower chances of winning their part of this market.

Internationalize alone—these firms are too internationalized but within an environment that is focused only in the internal market. These firms have capacities to promote the internationalization of the market. They have gained a lot of experience and knowledge about the foreign markets and have greater chances of being successful.

Late entry firms—are all firms, which tend to enter in a market that is already internationalized. These firms have an indirect relationship with the network, so by utilizing this relationship, they have chances of reaching success. They have different disadvantages against their competitors, since they have less knowledge of the market. These firms face difficulties in new markets if they continue to stay in the existing network.

Internationalize against others—this category is related to the firms that are highly internationalized. In this case, both market and firm are internationalized. The knowledge and experience they already have at their disposal help them to establish branches for sale of goods and services. This is due to the fact that they can manage to coordinate activities simultaneously in different countries. These firms have close relationships with international networks, which offer them possibilities to expand their activities (Johanson 2000).

2.3.3 International Entrepreneurship Theory

McDougall and Oviatt developed the international entrepreneurship theory in 2005. This theory studies the entrepreneurial behaviors abroad and focuses on the way they are disclosed, approved, analyzed, and utilized for opportunities to create new goods and services. According to their theory, the international entrepreneurship is

a combination of innovative, proactive, and risk-seeking individuals that exceed national borders and tend to create value for the organization.

The theory is focused on seeking innovative opportunities and converting them into competitive advantages. The entrepreneurship behavior of firms and individuals is the base for entering in a new foreign market. The entrepreneur has skills and all necessary information to evaluate market opportunities to create stable relations with other firms, suppliers, clients, government, and media. A risk-seeker with a lot of experience engages resources in an effective way that the firms can gain a competitive advantage.

2.3.4 Influencing Factors of the Internationalization Process

There are different motives as to why SMEs choose to internationalize. One of the main motives why they want to access new and bigger markets is to achieve a higher financial performance. The companies expand the market for selling their products through exporting or establishment of branches or joint ventures. Some other firms expand abroad to have access to technology and knowledge so that they can stay competitive. This shows that different processes of internationalization are undertaken by firms to reach their strategic objectives.

Firms' reasons to internationalize are influenced by opportunities offered by foreign markets. These opportunities can be exploited only if the firms have the necessary resources to enter those new markets. Companies have internal and/or external motives that influence decisions about the internationalization process. Qualitative and environmental factors play key roles.

Before the company starts the internationalization process, it should make three important decisions:

Which market: they will choose that market that is more attractive for the firm, and they should balance the costs, risks, and benefits.

When to transfer its activities abroad: it is important when a firm decides to enter a new market. It can be the first or the last entrant in the market. The first entrants are those firms that enter an international market before other firms of the same industry enter in a foreign market. The last entrants are those firms that go abroad only after other firms of the same industry have already been transferred and have had success.

Scale of extension: a firm can enter in a new foreign market in wide or tight scale; this depends on the level of resource engagement. To enter in a market in a wide scale means a quick entry and engaging their important resources. To enter in a market in a tight scale lets the firm learn by chosen market, because it is less exposed against this market.

After taking into consideration these three important factors, the management of the company should choose how it should be internationalized. There are different methods of internationalization; we cannot say if there is a better or worse method of internationalization; it depends on the size, age, resources, devotion, and market itself (Penrose 1959).

2.3.5 Conceptual Framework

Based on the internationalization theories explained above, which influence the behavior of SMEs regarding the internationalization process, I have drawn a conceptual framework. The literature, knowledge of foreign markets, business networks, entrepreneurship skills, and individuals' activities are all variables that have important impacts on the internationalization process. We believe that the three theories are related to each other. Through this conceptual framework, we try to show the relation between them. Without the right information about the market, the company cannot compose an internationalization strategy. According to the Uppsala model, the market knowledge increases the activities continuously and firms tend to engage more resources in this market. If we begin thinking according to the network theory, we can say that the basic information about new markets can be provided by local and foreign businesses. The international entrepreneurship theory shows that market knowledge derives by the entrepreneurship behavior and individual activities (Fig. 1).

It's clear that market knowledge in an essential component was derived from previous experience that the entrepreneur might have gained in international

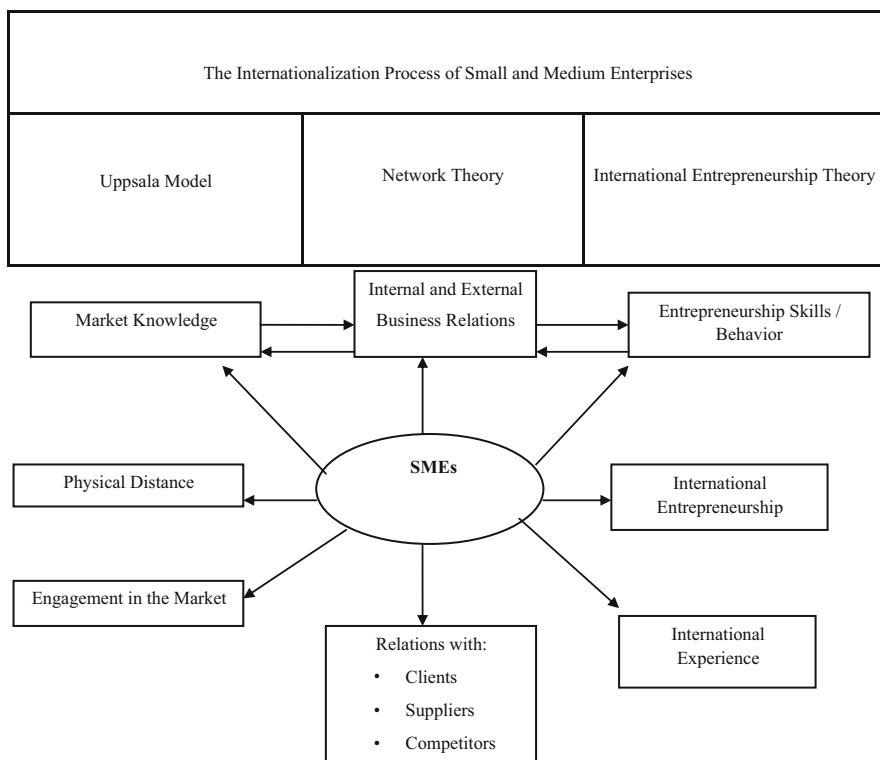


Fig. 1 Conceptual framework

business. In the business world today, all three parts of information mentioned above should be present for SMEs. We can deduce that SMEs use different means to implement each theory and/or combine them to achieve their goal in the internationalization process.

We should underline the fact that the three theories are means that help SMEs to compose the internationalization strategy. SMEs should take in consideration issues related to entering methods, resources, and competitive advantages, so that they can finalize the process successfully.

3 Methods and Procedures

The data collection will be done through unstructured questionnaires at direct meetings with top management to receive qualitative information. The qualitative data will help us to better understand the strategic direction of the firms and the reasons why they choose to internationalize. In addition, we will use electronic structured questionnaires for quantitative data. The information collected will be compared to the international models to determine the most frequently used methods. The questions will be prepared in accordance with the specific objectives we have set in this research. We intend to include in the questionnaires firms of small and medium enterprises in the Albanian market to have clear evidence of which enterprise has the trend to internationalize and the advantage to finalize this process successfully.

The chosen methodology, sample size, used procedures for data collection, and analyses of the collected data will be done in accordance with the specific objectives.

The elaboration of the quantitative data collected will be analyzed by conducting factorial analysis and regression analysis for testing our hypothesis. The descriptive analysis will be done based on the qualitative data collected.

4 Conclusions

This study intends to present a clear view of the internationalization process of SMEs that operate in Albanian markets, through detailed explanation of the factors that influence them to be part of this process. We aim to determine methods and models used by SMEs and the impact the chosen model has in the finalization with success or failure of the process. We believe this research is useful and of interest for different stakeholders. Based on the Business and Investment Development Strategy issued by METE—Ministry of Economic Development, Tourism, Trade, and Enterprise—for the midterm period 2014–2020, today in Albania, SMEs represent 95.3% of the total number of companies which are actively operating in our market and 43.3% of them belong to the commercial sector of the Albanian

economy. In fact, Albanian companies which have one to four employees represent 88% of the total enterprises. They employ 31.7% of total employees of the country and have realized 13.8% of the national turnover. Meanwhile, companies with more than 50 employees dominate the economy through realizing 44.5% of the total national turnover, have 39.7% of employees in total, and have 63.9% of the total investment in Albania. They contribute 73% of the gross domestic product (GDP) and 71% of employment. These firms are mostly with Albanian owners, and they have already started to move toward international markets. According to the definition of SMEs in the Albanian legislation, during the last 5 years, SMEs represent the main group of companies which perform exporting activities, with an average of 96.6% of total exporting companies. One of the goals of METE for the midterm period is to constitute a competitive country through stimulation of SMEs and showing them new opportunities offered by the European and global market.

References

- Albaum, G. (2005). *International Marketing and export management* (5th ed.). England: Pearson Education Limited.
- Andersen, O. (1993). On the internationalization process of firms: A critical analysis. *Journal of International Business Studies*, 24(2), 209–231.
- Calof, J. L., & Beamish, P. W. (1995). *International Business Review*, 4(2), 115–250, Elsevier.
- Cavusgil, S. T. (1980). On the internationalization process of firms. *European Research*, 8, 273–281.
- Johanson, J. (2000). *Global marketing: Foreign entry, local marketing and global management* (2nd ed.). Irwin: McGraw Hill.
- Johanson, J., & Vahlne, J. E. (1977). *Journal of International Business Studies*. UK: Palgrave MacMillan.
- Madsen, T. K., & Servais, P. (1997). The internationalization of born globals: An evolutionary process? *International Business Review*, 6(6), 561–583.
- McAuley, A. (2001). *International Marketing: Consuming Globally, Thinking Locally*. New York: Wiley.
- McDougall, P. P., & Oviatt, B. M. (2005). Defining international entrepreneurship and modeling the speed of internationalization. *Entrepreneurship Theory & Practice*, 29, 537–553.
- Penrose, E. (1959). *The theory of the growth of the firm*. New York: John Wiley & Sons.
- Torres, C. (1999). *Comparative Education: The Dialectic of the Global and the Local*. Lanham: Rowman & Littlefield.
- Welch, L. S., & Loustarinen, R. (1988). *Management Paper No. 14*. Victoria, Australia: Clayton.
- Wiedersheim-Paul, F., & Olson, H. C., & Welch, L. S. (1978). *Journal of International Business Studies*, 9(1), 47–58, UK: Palgrave Macmillan.

Global Economic Governance: Between a New Compromise or Integration



Maria-Eleni Voutsas and George Borovas

Abstract Globalization moves within the limits of the set of governance mechanisms and institutions function. The market has a tendency to exceed the limits of the nation-state but also need global institutional arrangements to ensure sustainable operation.

There is an inherent paradox in globalization. It is what Dani Rodrik has named as “trilemma” of modern times. Three key elements defining globalization are free markets, national sovereignty, and democratic legitimacy. But they cannot combine all three resultants parallelly, creating the “political triangle of incompatibility.”

The imbalances of the modern system of economic governance are not only due to the wrong policies but mainly in combination weakness that can provide all three objectives simultaneously. Currently, globalization is trapped between this combination, in an unfinished selection, leading to instability.

In order to overcome this problem, the world community should either choose a new compromise, like that of Bretton Woods, or to complete its institutionalization, going to an “international economic association.” In this paper, we will study the opportunities and challenges of these prospects.

Keywords Globalization • Bretton Woods • Economic governance

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1 Introduction

The USA held the Bretton Woods conference in order to plan a new global economic order focusing mainly on the dollar and US interests. In 1971, President Nixon announced the abolition of the fixed exchange rate, and this meant the end of the Bretton Woods system, which had constituted the global economy's governance plan for about 30 years.

Today, there is no ultimate authority which is able to take political decisions directly applicable at a global level. The governance mechanisms that have arisen are complicated and varied, though incomplete. Along with the increase of interdependence, the distribution of power and authority has become more diverse, while at the same time the intervention mechanisms have multiplied.

The Bretton Woods system was not replaced by another management mechanism, and despite the extent and intensity of institutionalization, the international system has been hovering among incomplete options ever since, presenting imbalances and inherent instability problems which, as Rodrik argues (2012), constitute manifestations of a "political trilemma" of the global economy. According to "the political trilemma," the economic globalization, the political democracy, and the national sovereignty are mutually incompatible conditions which cannot all be simultaneously combined, but only two of them can.

The policy recommendations for the management of globalization are usually unclear and insufficient. In this paper, an attempt will be made to explore the limits and potentials of global economic governance and the options available between the integration and the creation of a new compromise.

2 The Globalization Phenomenon

The creation of a scheme for the globalization phenomenon faces two key challenges. One relates to the theory of interpretation of the very phenomenon and the other to the complexity of the phenomenon itself.

Different approaches, analysis and interpretations of the phenomenon, of the concept and the characteristics of its, contribute to shaping not only different interpretations of the same world (globalization) but to the configuration of different worlds as well.

Globalization, because of the vagueness surrounding it, cannot be calculated efficiently as a whole (state) and/or as a process. It has multiple forms, i.e., a social, political, economic and cultural ones, and despite—perhaps due to—its diversity, it does not constitute a comprehensive concept as for its content, its reasoning, and the way it functions as a "whole."

Despite its intense economic character, it concerns almost everything. Although many have identified it with the neoclassical model, there is no economic or political theory or theory of international relations that explains it. It lacks

theoretical background as it is practically impossible to formulate a theory about something so complex and intricate that affects all aspects of modern reality. As characteristically reported by Jackson and Sotensen (2003, pp. 313–314), “a social science cannot propose a theory ‘on everything and anything’ because every aspect of globalization must be analyzed in different ways.” The absence of a theoretical framework increases the difficulty of analyzing the phenomenon and compels us to be restricted only to its interpretations.

In any case, globalization is either an existing situation or it does not constitute a reality. As it constitutes a concept of reference and interpretation of various phenomena, if not of the whole contemporary scene, it acquires existence even though its content remains unclear. It has been legalized as an idea to reconstruct, reform, and reconstitute whole systems as the repeated use of the term in the public dialectic and the immersion of issues into its schemata render it an ontological status.

3 The Transformational Approach

What signals the current form of globalization is the content of the economic, social, and political implications and characteristics as well as the quality of relationships developed among local or national, spatial units, and the global totality. It is not simply a gradual but expanding elimination of barriers to the movement of goods, capital, and labor among various countries. Their space, time, and operation are degraded and recomposed in the postmodern society within the context of globalization.

The hyper-globalists believe that globalization has brought about the end of the sovereign nation-state, as global forces undermine its ability in controlling key economic, political, and social issues (Scholte 2005).

In contrast, the skeptics consider globalization to be a “myth” arguing that the nation-states remain the principal shapers of the global political order (Gilpin 2007), noting that there has been a prior period before with a high degree of international economic integration and that the 50 years between 1950 and 2000 were not so remarkable in relation to the period between 1850 and 1914 (Hirst et al. 2000, p. 248). Some even doubt the beingness of globalization, questioning its very existence, while others consider it to be a modern version of imperialism, that is, an ideological construct that serves the neoliberal doctrine.

According to the transformational approach, adopted as an analytical tool in this paper, globalization leads to the globalization of politics and not the abolition of the sovereign state. In the new scene to be formed, an emerging “global policy” appears, in which the traditional distinction between domestic and international affairs is gradually weakened. Consequently, “policies everywhere seem to be related to that prevailing in the rest of the world” (Mcgrew 2005).

During the era we are going through, a decisive change is being made compared to the period before the First World War. The dividing lines between the internal

and the external, the international and the domestic, and the inside and the outside of the nation-state are becoming complicated. The reality is getting much more perplexing. What is gradually being noticed is a deterritorialization of activities no longer organized on the basis of borders. Although borders keep having meaning and significance, they can no longer, as in the past, demarcate—as restrictive elements and measures—activities and actions of any kind. Territorial or national boundaries do not constitute “natural” limits of economic choices and political decisions, even if these are national. We are going through the phase of interdependence among nation-states, that is, internationalization, in a world that acquires features of a common area.

4 The Challenges of Globalization

The Westphalian perception on the sovereignty of states as the sole form of public power and authority is displaced by the emergence of a post-Westphalian world. In this new world, the nation-states retain, for the time being, their dominance with two fundamental differentiations. Dominance is currently being perceived as the exertion of political power and authority at an international level and is not limited by territorial boundaries. Yet the greatest challenge is to ensure that sovereignty, which is divided and distributed through partnerships and multilateral collaborations, leads to joint conformation of decisions through common exercise of public power among national, supranational, regional, governmental, and nongovernmental powers. Power is not a monopoly of most countries, but it is instead diffused to other public and private agents, pro-state and in-state ones.

The autonomy of the unitary state subsides, and its position is undertaken by the image of a decentralized state, the constituent bodies of which are interdependent upon and interact with their counterparts abroad. The national and international concepts are differentiated as the territorial state loses its traditional meaning and, as a result, the internal policy gets internationalized and its global policy becomes an internal matter. Member states do not operate as closed systems and policies cease to be exclusively national.

There are conflicting trends-forces within the globalization process itself. The cataclysmic changes reinforce both the dynamics of integration and the disruptive trends throughout the system. On the one hand, forces that contribute to and enhance the integration of the international system are released, while, on the other hand, the chaotic forces developed contribute to multidimensional disruptive pressures both inside and outside the international system.

As far as the international relations are concerned, the paradox of the opposing forces caused by the complex interdependence in the international scene is being described by the term “fraggementation.” The term constitutes a coinage arising from the compound of the terms fragmentation and integration (Bennett and Oliver 2002, p. 41). Globalization does not imply neither absolute globalism nor universality as it remains highly unequal and asymmetrical. Not all regions, countries, and people are

involved and affected in the same way in global processes. There are different levels of engagement that create a “variable geometry” (Castells 2000).

Despite promises to increase welfare, the globalizing forces and policies that shape it seem to cause inequalities both among and within countries. The elite of a sub-Saharan African country may be much more benefited from the globalization processes in relation to the socially and economically excluded of a richer country.

The phenomenon of globalization presents a particular geography in terms of inclusion and exclusion. For this reason, the emergence of a global community of ethics and culture has not come into being. What has been formed is not a cooperative world order but a world that produces new divisions and uncertainties resulting in a more chaotic and undisciplined state.

This asymmetrical globalization is often perceived as Western globalization that leads to a new form of imperialism. Although new agents in the world affairs have come into appearance, the basic rules of the game are still being determined primarily by the Northern countries and institutions such as the International Monetary Fund and the World Bank (Castles and Wise 2007; Stiglitz 2003). This explains, to some extent, the reactions against the phenomenon of globalization.

Yet the liberalization of the world trade did not benefit all stakeholders. Besides the undoubted advantages for some, mainly industrialized, countries, many others have been negatively affected in their domestic production which went through significant pressures. This led to either their deindustrialization or in the replacement of domestic production with cheap export industries. The capital investment in developing countries may well “have increased six times between 1990 and 1996” (Stiglitz 2003, p. 7), but the share of world income in these countries fell from 32 to 19% between 1970 and 2000 (Castles and Wise 2007, p. 5).

The report on global processes in an era of generalized cuts in public expenditure and the reduction of the state lead to shrinkage of social protection benefits, to excessive exposure to international risks, and to weakness of social policy. As a result, what is being formed is a supranational, multifronted, and heterogeneous movement, which, despite individual differences, is united against what they call neoliberal globalization, projecting its rights. In most cases the reactions do not concern the general idea, that is, the globalization per se, but the specific content it encompasses.

5 The Organizational Structures of Globalization

The current form of globalization differs substantially from the previous ones since it displays dense and multiple weaves of interconnectivity characterized by an unprecedented institutionalism/institutionalization. This dense globalization comprises a powerful systemic framework that configures the parameters and limits of state power. International institutions play a prominent role in the process of organizing the world system.

In the postwar economic system, the preferential agreements among the states were replaced by multilateral relations based on the principle of nondiscrimination and safeguarded by rules of law developed within the international institutions. This led to a rapid development of organizational activity.

During the Cold War, assistance was of highly political nature. The countries of the Western coalition, wishing to impart political neutrality in their actions, used the international institutions as their main means of assistance.

Apart from the UN and the dozens of institutions belonging to its system, a surfeit of global and regional institutions and organizations were also developed which, along with nongovernmental bodies, created an evolving web of global governance with formal and informal structures of relations and the coordination of options. The constituents of the web—i.e., states, institutions, and bodies—develop actions and apply policies in order to intervene or regulate international affairs, creating a complex and multidimensional framework of international organization.

The multilateral relations were promoted by the USA and reflected their desires and interests, which explain why their influence on international institution was undeniable. But the principle of multilateralism offered the institutions a degree of legitimacy and independence which played a determinant role in their success and expansion. Although always influenced by the USA and other powerful countries, they did not constitute their executive bodies, and their philosophy was far beyond the preferential agreements based on overt political power. Despite the individual compromises and perhaps because of them, the creation of international multilateral institutions allowed for the expression and protection of small and poor states in an unprecedented way.

Private and nongovernmental bodies are increasingly and progressively being involved in global affairs and influence them. International rating agencies determine the creditability of countries and companies. This involves the transfer of power from the states and international institutions to private operators, creating, thus, a shadowy private global governance which acts and regulates along with the public authorities, especially in the economic sector. The transfer of control of national, fiscal, monetary, immigrant policy tools to supranational institutions and the dominance of market forces over politics have serious consequences for democracy and the legitimacy of governments.

Influential decisions are taken and often implemented by these external agents resulting in a continuous and ongoing—relative—privatization and denationalization of power. Gradually, the economic, political, military power is organized and exerted by supranational bodies and from a distance, so the subjects and objects of power are distant from each other just like the policies cultivated by the Bretton Woods institutions and implemented through their programs in any region of the planet.

6 The Bretton Woods Global System of Economic Governance and Its Collapse

The Bretton Woods system defined the nature and determined the institutions of the postwar, global economic governance. The restructuring after the great crisis configured and brought to the forefront the principles of a mixed economy. The states would henceforth take part in the economic modernization. Most of the countries that evolved into industrialized ones managed to do so by means of the active guidance and support of the state.

The era after the Great Depression proved that interventions may well have a positive impact as it was a period that the living standards were increased, the economy flourished, and the political liberalism expanded. There was an unprecedented restructuring of capitalism while the economic activity was internationalized with the contribution of technological advancement. In the years after the Second World War, the financial system did not return to the interwar system, but a new kind of capitalism was formed, which constituted a coalescence between social democracy and economic liberalism with economic planning elements.

Those who had the ability to exercise power did not wish in any way to return to the interwar period. The Great Depression was attributed to the failure of the free market that led to the collapse of world trade and the financial system and led to the creation of authoritarian national economies with intense introversion. It was considered that the operation of the market had to be complemented by a public programming. The views on budgetary discipline, currency stability, and inflation were still significant but not so imperative any more. The financial system was led to the “mixed economy” through systematic governmental control.

The Bretton Woods agreement constituted an achievement of institutional innovation and was meant to become the backdrop of the global economic governance for about three decades, highlighting the potentials offered by collective consultation at a global level. Deep in the heart of this venture-mechanism, there was a compromise. On the one hand, what was created was a system that operated as a regulatory framework, and, on the other hand, it gave governments flexibility in managing the economic and social needs of their countries.

It was designed to ensure autonomy with regard to the national policies and international monetary stability at the same time. In order to achieve this objective, it offered a compromise between the gold standard which had been in force in the late nineteenth century, pursuant to which the countries struggled to manage their economy, and the monetary anarchy of the 1930s when governments were racing in a rally of competitive devaluations.

In order to combine autonomy with stability, the mechanism was based on “locked” exchange rates with a relative flexibility so as to enable countries to confront emergencies. The postwar monetary system of fixed exchange rates was proved to be successful by ensuring both its autonomy in terms of national policies and its international monetary stability as well. Without external interference and

strict compliance rules, the countries were able to develop and implement their own domestic policies within a general global context.

This system was constructed in such a manner that it operated redistributively, benefiting and giving opportunities to more agents, as it exceeded the traditional, narrow, national interests and managed to promote the cooperation among countries, besides strengthening the US hegemony. John Ruggie (1982) called the Bretton Woods mechanism “a compromise of embedded liberalism.” This mechanism gave the member states large leeway and allowed them to adjust their policies according to the specific characteristics and their internal needs. That explained what P. Hall and D. Spence described as “variants of capitalism.”

The more developed, capitalist states implemented a different policy mixture. Countries with a clear orientation toward market economy implemented policies with notable differentiations and national characteristics: the Scandinavian model that was based on the welfare state; the German social market model; the French model which was established under the principle of the “indicative central planning” and an extensive regulatory framework; the Japanese model which combined the competitive export orientation with a protected, traditional economy which was determined by a strong regulatory framework; and the US model, which was the most representative example of economic liberalism (Rodrik 2012, p. 128).

However, even the developing countries followed different paths of economic growth and development. As there were no external compliance mechanisms, the countries were free to develop custom development policies. Many of them managed to provide a huge boost to production and to obtain developing economies. Some typical examples are the countries of Southeastern Asia, which marked their own developmental course. An important role in the Asian miracle was played by governments which through their policies managed to achieve high savings rates and simultaneously direct them into profitable investments. The result was an increase in incomes and poverty reduction for three consecutive decades (1960–1990).

In this way, the Bretton Woods institution met with amazing success as it allowed for the liberalization of the economy and the expansion of globalization to the extent that liberalization and expansion did not threaten the internal balances, the domestic institutions, and the redistributive policies of each country. The priorities were formed on the basis of the internal agenda, which to a great extent caused its success to happen. The objective was a modest globalization rather than a profound globalization, a hyper-globalization. The policies designed to satisfy the internal needs of the states and their economic development eventually helped to strengthen globalization.

The rationale behind the establishment of the Bretton Woods institutions was partly based on Keynes’ interpretation of the 1930s recession. Keynes argued that one of the weaknesses of the liberal system was that the market could operate inefficiently, resulting in massive unemployment and might not be able to supply the required funds to the economy of a country. This face, depending on the case in question, might have greater or lesser impact on other states, running the risk of causing a domino effect, leading to global recession.

Although the founders of Bretton Woods shared the belief that markets cannot regulate themselves sufficiently so as to lead to prosperity and stability, they did not embrace Keynes' view that we had to create a fully institutionalized, cooperative surplus recycling mechanism which would be controlled by an international body. The USA wanted to keep the hegemony of an informal surplus recycling mechanism so as not to limit the country's surpluses and its ability to intervene whenever and wherever it considered necessary in order to protect its interests. Therefore, the surplus recycling mechanism was ultimately not included in the Bretton Woods agreement.

Keynes had predicted that the new fixed exchange system would not be able to cope with a serious breakdown if there was no efficient surplus recycling mechanism. This mechanism would aim at preventing the creation of systematic surpluses in some countries and permanent deficits in others. If debt and unemployment crisis struck any deficit country, it would directly implement austerity measures to allow it to remain in the Bretton Woods system. This would result in reducing demand, further resulting in increased public deficits and the collapse of the exchange rate of the country that faced problems. What would follow would be the decrease in the surplus countries' surpluses and the increase in the deficits of other deficit countries, as without escape valves the crisis that would strike a country would inevitably extend to deficit nations.

In an effort to reduce debts, expenses would be cut down, and the aggregate demand would be reduced, leading to a drop in sales and production; unemployment would rise, and prices would fall. So the economy would run the risk of getting trapped into a vicious debt-deflation cycle. With increased fiscal deficit and accumulated public debt, recession would depress taxes and would raise public deficit even more. Private and public expenses would be curbed and domestic demand would collapse.

A country within the Bretton Woods system would have to use its reserves in dollars in order to stabilize its currency. Yet a country ravaged by crisis would be more likely to wish to maintain its reserve and to increase its imports. To achieve this, it would attempt to devalue its currency. Keynes had pointed out that in times of crisis, it is practically impossible for a deficit country to adhere to the agreed rules and, if the crisis were to become generalized, the fixed exchange rate system would collapse as it eventually happened in 1971.

As the IMF's reserves were kept in dollars, the US dollar became the basis of the international monetary system. It was the only currency with direct interconnection to gold and to fixed exchange rates with all other currencies. The official rate was set at \$35 per ounce of gold and the USA undertook the commitment and the obligation to exchange any amount of dollars to anyone owning it anywhere in the world with the proportional amount of gold. In order to promote their plan within the system of fixed exchange rates, they needed other major currencies as safety valves in case they themselves entered into crisis. This role was undertaken by the German mark and the Japanese yen.

Thus, the USA managed for many years to play a hegemonic, though not authoritarian, role as it was not only based on the exercise of military and political

power but it was combined with the redistribution and recycling of its surpluses to its allies. The role of the dollar in the international monetary system facilitated the American alliance system and the operation of the global economy and rendered the USA a dominant economic and political force.

In the early 1971, the US export obligations exceeded \$70 billion, while gold reserves did not exceed 12 billion (Varoufakis 2012, p. 185). The USA exported inflation to the rest of the world, and the other governments had to increase the amount of their currency so as to be able to maintain their exchange rate stable in relation to the dollar, as it was provided for by the Bretton Woods agreement.

When the USA ceased to be surplus and began to accumulate deficits, their fixed exchange rate system began to lurch and gradually reached its end. As confidence in dollar was limited, the foundations of the fixed rate system began to erode. In an effort to restore faith in the system, the IMF created in 1969 the special drawing rights as the new reserve asset.

In August 1971, France requested to swap a large amount of dollars to gold. After a few days, Britain sought to convert \$3 billion into gold. In response to the above legal requirements, President Nixon on August 15, 1971, announced at a press conference the abolition of the fixed exchange rates which were provided for in the Bretton Woods system. The USA would not convert the dollars of other governments and individuals into gold. This decision marked the end of the Bretton Woods system, the global economic governance plan which collapsed due to its intrinsic weakness.

The Bretton Woods global system of economic governance was abandoned, and a new world order was to be formed. It was a new order characterized by the absence of any system, since no generally acceptable rules were established for the settlement of monetary relations.

The crisis that arose in these decades was not just a proof that the capitalist system does not work well but also that its functions have changed and can no longer be controlled. For years the main market management tool was government policies, but as nation-states kept losing the potentials of exercising economic power, the world market peculiarities began to create imbalances. This significant change was not immediately perceived as in the 1970s the belief that the problems were temporary in nature and the system would revert to normal operation was still predominant. The decision-makers tried to repair the damages by continuing to implement the policies that had led to progress and development throughout the previous period. It seemed, however, that these strategies could not work in the new global context that had been formed.

7 The Global Economic Governance After the Bretton Woods Collapse: The Political Triangle of Incompatibility

When the Bretton Woods system was abolished, it was replaced by an ambitious, though not systematic, effort toward economic liberalism and deeper integration. Globalization creates challenges both in the operation of nation-states and markets, creating what Rodrik (2012) had called trilemma of modern times (Fig. 1). This trilemma could also be called “political triangle of incompatibility.” In this scheme there are three options that cannot be simultaneously combined: the hyper-globalization, the nation-state, and democracy (Rodrik 2012, pp. 285–291).

The combination of hyper-globalization and democracy leads to the selection of global governance in a fully globalized economy without national borders, where the exchange of goods, services, and capital movements are not hindered by any intermediation cost.

In this case, the nation-states will lose their essential operations, and their role will be limited to strengthening economic integration and the smooth operation of international markets by removing barriers, constraints, and obstacles. Global institutions with strong regulatory powers and the authority to impose political and economic standards will be created. This will lead to a form of a global federalism, and if the institutions have sufficient political legitimacy, this policy will continue to exist but will be transferred to a global level.

Global governance will mean the end of the nation-state and national sovereignty. National governments may not disappear, but their responsibilities will change and will be limited as the main powers will be transferred to a supranational and central level of a global political and economic supranational authority. The

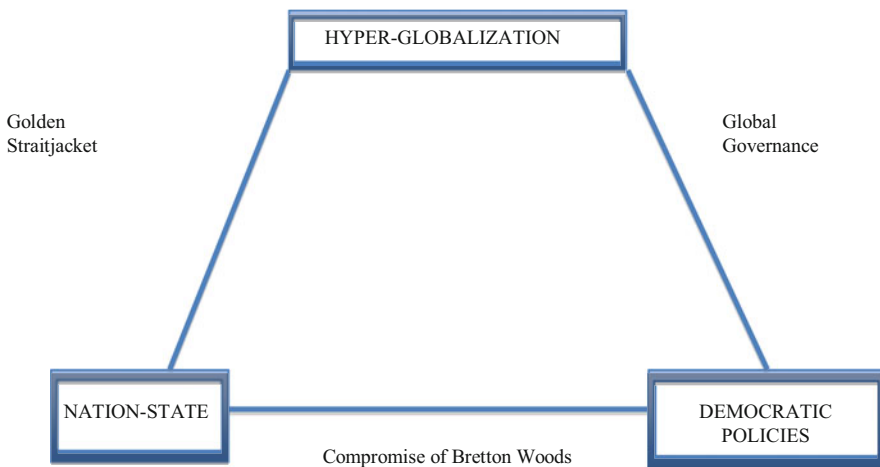


Fig. 1 The political triangle of incompatibility. Source: Rodrik (2012, p. 286)

European Union and the USA are, to some extent, regional examples of this model, but the extent and systematization which this global structure should have by far exceed any form of organization we have known to date.

An international body supervising the global economy with sufficient resources and staff could, in theory, constitute a counterweight to the uncontrolled action of financial markets. The granting of regulatory powers to an independent international technocratic team could lead to more effective governance. In practice, however, this assignment means conferral of the benefits of enacting laws and rules to a superpower, which weakens the relationship between electors and elected ones and the obligation to cover the demands and needs of the electorate.

It is thought that there are foundations which can support a global governance based on democratic principles as it can be established in already existing structures of global institutions (UN, IMF, World Bank) and the decision-making networks (G8, international NGOs) which will have to evolve and acquire new mechanisms of decision-making and accountability.

However, beyond the practical difficulties of implementing a proportional model, there are substantial reasons that render its practical application hard to conduct. The different value perceptions of societies, their different ethics and customs, and their great diversity are hard to unify under common rules through democratic processes. This will lead either to limitation of the democratic legitimacy or to a scheme with weak and ineffective rules.

A supernational management authority of economy would need a corresponding political supervisory structure of international affairs. This principle can operate as a closed club of technocrats with regulatory powers or may pass to another stage of global relations management with wider social targets. It could be a modernized version of the compromise of embedded liberalism and constitute an effort to overcome the multilateral state-centered relations and their evolution into multilateral relations which would integrate business agents and civil society into the global social organization (Rodrik 2012, p. 301).

The modern mechanisms that have been developed may constitute the prelude of hyper-globalization and become the basis for its development, but they are not sufficient enough to support a deep economic and political globalization. In any case though, the weak point of global governance is the lack of clear accountability relationships. In the nation-state, the electorate is the ultimate source of assigning powers and, simultaneously, the ultimate accountability mechanism. Within the ultra-globalization management framework, no commensurate accountability may exist.

The other combination at hand is that of the nation-state with hyper-globalization, and it leads to what Thomas Friedman (1999) had described as the “golden straitjacket.” Friedman argues that the characteristic of globalization is that investors and speculators, the “electronic herd” as he calls it, can carry billions of dollars at the touch of a button, requiring all states to wear a “golden straitjacket” and to comply with certain rules, such as free trade, free markets, and small state.

When this happens, according to Friedman, “the economy will grow, and policies will shrink,” and countries will be led to rapid economic growth. Although

expectations for economic prosperity were not confirmed in states which wore the “golden straitjacket,” such as Argentina, the main argument that hyper-globalization entails shrinking the domestic policy remains true because in order for hyper-globalization to operate in combination with the nation-state, technocrats must take the reins and act away from the requirements and the control of social groups with minimal democratic legitimacy.

This model of international economic and political organization exhibits, to some extent, similarities to the era of the gold standard that existed before the First World War. At that time the countries were not prevented from domestic commitments and social obligations, and governments had focused on adhering to strict monetary rules. A similar operation existed during the period of mercantilism, even though at that time there were no nation-states with the meaning these have today and national formations were required to work under the game rules imposed by corporate monopolies or the imperialist power and deviation chances were minimal.

Although we stand far from the gold standard and the monopolies of commercial companies, in order for hyper-globalization to prevail and operate, what is necessary is a similar elimination of domestic policies that serve the internal needs of each country. Since the main target is to meet the demands of global economy, the possibility of domestic groups to exert control over the decisions is limited, and alongside what is also restricted is the democracy within countries. Thus, the nation-state still remains which in conjunction with the hyper-globalization loses a great amount of its democratic legitimacy and its democratic principles.

The other alternative is to combine the nation-state with a new compromise like that of Bretton Woods which allows the combination of *laissez-faire* capitalism with interventionism, and the exact mixture will be determined depending on the specific needs of each country and from the countries themselves, allowing them to retain their own policies and to shape their own developmental model. Of course we cannot return to the consideration of the postwar decades, but we need to create new structures that will allow for the adoption of a new compromise that meets modern needs.

In this case we come to terms with the fact that the international community remains divided and the possibility of global arrangements is limited but it can focus and be effective in some areas, with clear rules, allowing the countries to formulate their options and policies and developing institutions that are best suited to their specific needs.

This new compromise will create a new reference framework that will not act suffocatingly but will guide member states, allowing them to develop their own path toward development and prosperity. No capitalist model will be imposed, but individual arrangements will be permitted according to local needs while at the same time countries will be able to protect these institutions and their national standards even if they have to raise barriers and legislate for the protection of their interests.

In this conciliatory scheme, no entity or body will be able to oblige any state to comply with certain standards. The compromise that will emerge shall respect

diversity and the different needs of countries, actually reinforcing globalization. With the attempted blending of different resultants and forces, specific international rules may occur that can be respected by states without causing tensions in their interior, and this can lead to the consolidation of globalization on safer foundations which will be louder and will be capable of responding to crises.

Each of the combinations described above requires concessions, but, in any case, the greater the consolidation, the less the possibility of making decisions nationwide. This does not automatically mean that democracy will weaken as even if the people's participation is reduced or if the external rules limit participatory processes within the states, there might arise redeeming benefits such as the representation of minority groups, the restriction of interest groups that prey democracy, and the improvement of participatory processes. The international commitments of countries may upgrade democracy, but they may well downgrade it because in a hyper-globalized environment the main concern focuses on the proper operation of the world economy and not on the consolidation of democratic processes. The major economic interests and the minimization of the costs of mediation will be prioritized over other economic, political, and social targets.

8 Conclusion

Despite the fact that globalization has transformed governance both inside and outside states, the ultimate responsibility for the management remains on the states and national governments. In the recent crisis of 2007–2008, governments were the ones that were called to manage the consequences and policies for getting out of it.

The mismatch between the national range of governments and the global nature of markets constitutes the Achilles' heel of globalization, as its political prerequisites are demanding and require strong institutions in order to enable them to support a global market.

As there is no global regulatory authority, markets suffer the consequences of insufficient governance and are prone to instability, reduced efficiency, and weak people's legitimacy. The aim is not to reverse globalization but to create new institutions that can support it by making it more equitable, sustainable, and efficient.

Hyper-globalization, democracy, and national sovereignty cannot exist at the same time. Either globalization will be restricted so as to enhance democratic legitimacy, or democracy will be limited in the name of globalization and minimization of the mediation cost, or we will be led to globalization of democracy, resulting in a loss of sovereignty. If we take into consideration the fact that the choices available are limited, then we will be able to place the search for compromising solutions on a new basis.

References

- Bennett, A. L. R., & Oliver, J. (2002). *International organizations: Principles and issues*. Upper Saddle River, NJ: Prentice Hall.
- Castells, M. (2000). *The rise of the network society: The information age: Economy, society and culture* (Vol. 1). Chichester: Wiley.
- Castles, S., & Wise, R. D. (2007). *Migration and development: Perspectives from the south perspectives from the south*. Geneva: International Organization for Migration (IOM).
- Friedman, T. (1999). *The Lexus and the Olive tree*. New York City: Farrar Straus and Giroux.
- Gilpin, R. (2007). *Global political economy – Understanding the international economic order*. Princeton: Princeton University Press.
- Hirst, P., Grahame, T., & Simon, B. (2000). *Globalization in question*. Cambridge: Polity.
- Jackson, R., & Sotensen, G. (2003). *Introduction to international relations. Theories and approaches*. Oxford: Oxford University Press.
- McGrew, A. (2005). “Globalization and world politics” in *the globalization of world politics by John Baylis and Steve Smith*. Oxford: Oxford University Press.
- Rodrik, D. (2012). *The globalization paradox – Democracy and the future of the world economy*. Oxford: Oxford University Press.
- Ruggie, J. (1982, Spring). International regimes, transactions, and change: Embedded liberalism in the postwar economic order. *International Organization*, 36(2), 379–415.
- Scholte, J. A. (2005). *Globalization a critical introduction* (2nd ed.). New York: Palgrave Macmillan.
- Stiglitz, J. E. (2003). *Globalization and its discontents*. London: W. W. Norton & Company.
- Varoufakis, Y. (2012). *The global Minotaur*. Athens: Publishing Livani.

Export Performance of Southeastern European Countries



Sofia Gouveia and Micael Santos

Abstract Over the last decades, the European Union (EU) member states have been subject to intensive globalization and international competition, a fact that poses both challenges and opportunities. Additionally, the recent global financial crisis implied a fall in output across economies that was accompanied by a severe contraction in international trade. As a result, countries and firms have had to adjust and actively participate in this new market environment. This paper examines the export dynamics of four Balkan EU member states over the period 1999–2014. The results revealed that there is a tendency for an increase in exports, that persistent trade deficits have decreased since 2008 and that the share of high and medium-high technology manufactured goods has increased, particularly in the case of Romania. The results also indicate some specificities of export performance of Greece, Croatia and Bulgaria, which have had a trade surplus for services throughout the period, suggesting the importance of the tourism sector. We further discuss the main factor that could contribute to enhancing the competitiveness of European countries. Higher foreign demand is found to lead to more exports as is a depreciation in the real foreign exchange rate, although price and income elasticities vary across studies and according to the estimation technique adopted. The evidence also suggests that non-price factors (such as quality, variety, innovation and institutions) are value drivers of exports.

Keywords Exports • Competitiveness • Economic and Monetary Union • Europe's periphery

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1 Introduction

Over the last decades, European Union (EU) member states have been subject to an intensive globalization and international competition, a fact that poses both challenges and opportunities. Additionally, the recent global financial crisis has shown that macroeconomic imbalances can seriously undermine a country's resilience to international economic shocks. Enhancing external competitiveness has thus become of increasing importance, particularly to Southeast European (SEE) countries whose economic growth models have been challenged in recent years and because, in order to join the Economic and Monetary Union (EMU), continued economic converge is required.

In the economic literature on the sustainability of a monetary union—the theory of optimum currency areas (OCA)¹—the issue of adjustment mechanisms to asymmetric shocks by individual member states plays a crucial role. According to Wierts et al. (2014, p. 928), “If countries in the eurozone frequently face asymmetric shocks, the resulting external imbalances may become persistent. As countries no longer have the possibility to devalue their currency or to use national monetary policy to respond to asymmetric shocks, external balance can be restored by improving competitiveness”.

On the other hand, it is well accepted in economic literature that exports are of fundamental strategic value in economic development. With them, the market grows, while opportunities for specialization and outlets for overcapacity are increased. Moreover, exports are the prime source of foreign exchange which is necessary for obtaining imports (Malhotra and Pinky 2012).

The present paper aims to examine export dynamics of the Balkan EU member states of Bulgaria, Croatia, Greece and Romania² over the period 1999 to 2014. From the perspective of their European integration, comparisons are drawn with the export performance of the oldest EMU (EMU12) countries.

In line with OCDE, this paper adopts a broader approach to competitiveness, which is defined as “the extent to which a country is able to compete in global markets”. In our analysis we focus on various indicators of export performance: (i) trade openness, (ii) trade balance of goods and services, (iii) the country's world market shares, and (iv) export composition by technological content.

Furthermore, we survey the literature dealing with the factors driving export performance in European countries. Various factors have been put forward that may influence export dynamics, ranging from foreign demand, domestic demand, real exchange rates, foreign direct investment (FDI), composition of exports and institutions. However, despite the theoretical and empirical analyses to date, it seems

¹First developed by Mundell (1961) and enriched with contribution from McKinnon (1963) and Kenen (1969), amongst others. For an empirical application of the theory of OCA to the Balkan countries, see Gouveia (2014).

²In January 2007, Bulgaria and Romania joined EU and in July 2013, Croatia. Greece joined EU in 1981 and is an EMU member since 2001.

fair to say that there is no consensus on the important determinants of export performance.

The remainder of this paper is structured as follows. Section 2 contains an analysis of the evolution of export performance focusing on Southeast European Union member states. Section 3 discusses factors that drive export performance. The final section offers some concluding comments.

2 The Developments of SEE Countries' Exports

The aim of this section is to analyse the recent evolution of export performance of the four SEE economies. Firstly we characterize the degree of openness and the trade imbalances of Bulgaria, Croatia, Greece and Romania compared with the EMU12 member states; then we examine the effects of big changes in world market shares, comparing SEE market shares with major world exporters; and we conclude by focusing on changes in the composition of exports of manufactured goods in the sample countries.

2.1 *Degree of Openness and Trade Imbalances*

Table 1 presents the ratio of exports of goods and services to GDP for SEE countries and for EMU12 member states. Over the period 1999–2013, all countries under study increased their export openness. The largest ratio amongst SEE countries, in 2013, is observed for Bulgaria (70%), which has improved 26 percentage points (p.p.). Romania and Croatia have both a ratio of 43% to GDP, with different magnitudes of increase during 1999–2013, being 16 and 8 p.p., respectively. An increase in exports as a percentage of GDP indicates that the economy is geared to exports rather than domestic consumption.

Looking at the differentiation amongst EMU12 economies in 2013, we can see that Greece reported the lowest ratio of exports to GDP (28%). By contrast Luxembourg recorded the highest degree of export openness, followed by Ireland, with 159% and 107%, respectively.

Figure 1 shows the contribution of goods and services trade to total trade balance, as a percentage of GDP, for SEE countries. Between 1999 and 2013, the four SEE countries reported large trade deficits, although these have narrowed since the onset of the financial global crisis. In the case of Croatia, trade balance has in fact turned positive since 2010, but the remaining countries continued to report trade deficits, between -0.2 and -0.7% in 2013.

When disaggregating the trade balance into services and goods, we observe that Croatia, Greece and Bulgaria report trade surpluses for services over all the period. Conversely, these countries consistently report substantial trade deficits for goods, most notably shortly preceding the financial global crisis. The largest deficit in

Table 1 Exports of goods and services (% of GDP) for SEE countries and EMU12 member states, 1999–2013

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
SEE															
Bulgaria	43.8	54.2	52.5	47.3	48.6	55.2	56.0	61.2	59.4	58.0	47.6	57.1	66.5	66.8	70.2
Croatia	35.2	40.2	41.9	39.9	43.6	42.9	42.3	42.3	42.2	41.7	36.0	40.1	42.5	43.5	42.8
Greece	18.1	23.5	22.9	20.3	19.0	21.5	21.6	21.3	21.9	23.1	18.3	20.5	23.4	25.6	27.7
Romania	27.4	32.4	33.0	35.2	34.8	35.8	33.1	32.2	29.2	30.3	30.6	35.4	40.0	40.6	43.0
EMU12															
Austria	41.1	45.6	47.4	47.9	47.4	50.7	53.2	55.2	57.8	58.3	49.3	53.5	56.3	56.3	56.3
Belgium	88.5	102.1	103.5	76.1	73.4	75.3	78.5	79.9	81.3	82.5	72.1	78.8	83.8	85.5	86.2
Finland	37.2	43.9	41.8	40.7	38.9	40.2	42.1	45.4	45.9	47.2	37.8	40.8	41.2	41.1	40.5
France	26.3	28.4	27.9	26.9	25.6	26.0	26.2	27.1	26.9	27.0	25.6	27.8	29.6	29.8	29.7
Germany	29.2	33.3	34.8	35.5	35.9	38.6	41.5	45.5	47.3	48.3	42.6	47.9	51.0	51.9	50.9
Greece	18.1	23.5	22.9	20.3	19.0	21.5	21.6	21.3	21.9	23.1	18.3	20.5	23.4	25.6	27.7
Ireland	85.5	93.0	97.2	91.6	82.1	82.0	80.4	79.0	80.2	82.7	89.5	99.3	102.4	107.4	106.9
Italy	24.4	26.9	26.9	25.4	24.4	25.2	25.8	27.6	28.8	28.5	23.7	26.5	28.7	30.2	30.5
Luxembourg	–	–	–	132.7	124.7	139.1	146.6	157.8	162.2	163.2	148.0	153.5	156.8	160.4	158.8
Netherlands	61.0	67.4	64.0	60.8	62.6	65.6	68.9	72.3	73.7	75.1	66.5	76.6	82.6	87.2	88.3
Portugal	27.3	29.1	28.5	28.0	28.0	28.6	28.1	31.4	32.8	33.2	28.7	31.8	36.4	39.1	41.2
Spain	26.8	29.0	28.4	27.2	26.2	26.0	25.8	26.4	27.2	26.7	24.2	27.6	31.0	32.8	34.1

Source: United Nations (UN) Conference on Trade and Development (accessed in April 2016)

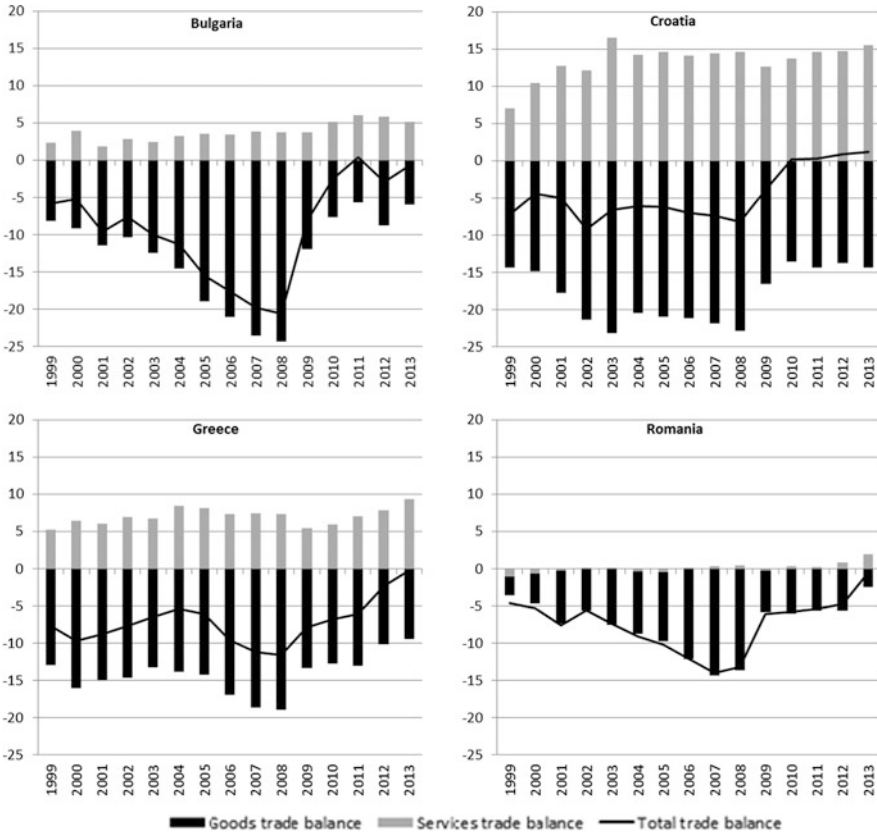


Fig. 1 Trade balance (% of GDP) for SEE countries, 1999–2013. Source: UN Conference on Trade and Development (accessed in April 2016)

goods is reported for Bulgaria in 2008, with -24% of GDP and a total deficit of -21% of GDP. The largest surpluses for trade in services are recorded by Croatia (about 17% in 2003 and 16% in 2013). While Romania registered deficits (in services trade) during almost all of the period, reaching its highest level for trade in services in 2013 at 2% of GDP.

Despite the relevance of service exports in SEE countries, the subsequent analysis concentrates on goods exports due to problems of data availability.

In Appendix, Fig. 3, we can see the trade imbalances in the EMU12 countries, from 1999 to 2013. Member states have widely divergent trade balances with different patterns of evolution, verifying a great inequality between countries. On the one hand, there are countries such as Greece, Portugal and Spain that stand out with deficits over most of the analysis period. On the other hand, countries such as Germany, Austria, the Netherlands, Ireland and Luxembourg have consistent trade surpluses.

2.2 *SEE Shares in Global Exports Compared with Major World Exporters*

In Table 2 we summarize recent shifts in exports of goods shares in total world exports for SEE countries, EMU12 member states, the United States (USA), Japan and China. The columns 1 and 2 present export market share in 1999 and in 2014, respectively, and the third column gives the p.p. changes in export market shares for the whole period.

We can observe that SEE countries have small export shares, ranging from 0.1% to 0.4% of world exports in goods in 2014 for Croatia and Romania, respectively. We also notice that Romania and Bulgaria more than doubled their export market share while Greece and Croatia did not change.

Concerning the EMU12 members states, China, the USA and Japan, the most remarkable development is that China has quadrupled its world market share (from 3.6 % of world market in 1999 to 14.3% of world market in 2014) and surpassed the USA, as the larger exporter, whose ratio decreased from 12.7% in 1999 to 9.9% in 2014. In 1999, Germany had a 9.9% export share of the world exports in goods and in 2014 had a 9.2% (occupying the 3rd position in the world's largest exporters).

Table 2 Exports of goods (% of total global exports) for SEE countries, EMU12 member states, the USA, Japan and China, in 1999 and 2014

	Market share (%)		Δ p.p.
	1999	2014	1999–2014
SEE			
Bulgaria	0.07	0.18	0.11
Croatia	0.08	0.08	0.00
Greece	0.20	0.22	0.02
Romania	0.16	0.43	0.27
EMU12			
Austria	1.08	1.04	-0.04
Belgium	3.27	2.88	-0.39
Finland	0.76	0.45	-0.31
France	5.41	3.46	-1.95
Germany	9.92	9.23	-0.69
Greece	0.20	0.22	0.02
Ireland	1.30	0.72	-0.58
Italy	4.30	3.23	-1.07
Luxembourg	0.14	0.09	-0.05
Netherlands	3.12	3.51	0.39
Portugal	0.45	0.39	-0.06
Spain	2.04	1.95	-0.09
USA	12.67	9.90	-2.77
Japan	7.64	4.18	-3.46
China	3.56	14.31	10.75

Source: Authors' calculations using UN Comtrade database (accessed in April 2016)

Japan lost 3.5 p.p. of the world market from 1999 to 2014. In the same period, the EMU12 lost 4.8 p.p. of its world market share (from 32.0 to 27.2%). With the exception of the Netherlands and Greece, all EMU12 member states had followed such trend: the largest losses in exports shares were posted by France and Italy, 2 p.p. and 1.1 p.p., respectively. As Krugman (1989, p. 1039) points out, “Fast growing countries expand their share of world markets, not by reducing the relative prices of their goods, but by expanding the range of goods that they produce as their economies grow”.

2.3 Composition of Manufactured Exports

The new trade theory of Krugman (1983) and of Grossman and Helpman (1995) is an analysis of imperfect competition, product differentiation and intra-industry trade and highlights the relevance of technological competitiveness. Next, we analyse the development of the composition of exports of manufactured goods differentiated according to the intensity of research and development (R&D). We distinguish four categories of products based in the International Standard Industrial Classification (ISIC) of the OECD: high-technology (HT) products, medium-high-technology (MHT) products, the medium-low-technology (MLT) products and low-technology (LT) products.

Figure 2 presents the share of these four categories of exports in total exports for SEE countries in the period 1999–2011. The SEE countries export mainly MLT products and LT products. In 2011 these two categories represented about 56–68% in Bulgaria, Croatia and Greece while the figure is much lower in Romania (a decrease from 72% in 1999 to 44% in 2011). The share of HT manufactured goods represented about 7–8% for Bulgaria, Croatia and Greece, and for Romania the share has increased from 3% in 1999 to 11% in 2011. Also in Romania, between 1999 and 2011, the share of MHT exports increased by 19 p.p., reaching a share of 35% in 2011.

Shares of the four categories of exports (LT, MT, MHT, HT) in total exports, calculated from EMU12 countries, can be found in Fig. 4 from Appendix. The analysis of EMU12 member states shows wide differences in the share of these categories. In 2011, the countries with the highest shares of the HT manufactured exports were Ireland (52%), France (24%), the Netherlands (21%), Germany (17%) and Belgium (16%). In contrast, the share of high-technology manufactured goods exports in total exports was lowest in the countries of southern periphery (Portugal, with 7%; Greece with 8%; Italy and Spain, with 10%).

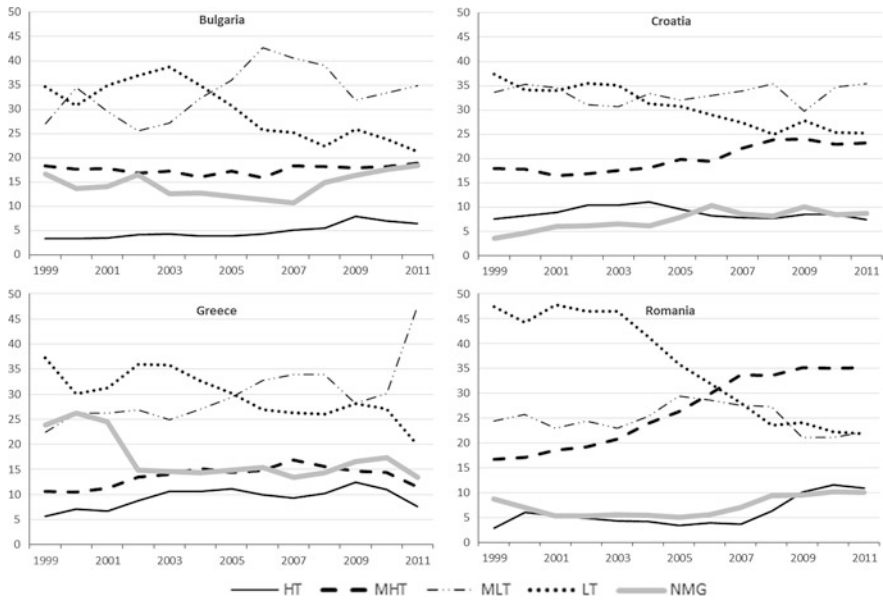


Fig. 2 Decomposition of exports by technological content (share in %) for SEE countries, 1999–2011. Source: Authors' calculations using OECD STAN Bilateral Trade Database (accessed in April 2016). Notes: *HT*, high-tech products; *MHT*, medium-high-tech products; *MLT*, medium-low-tech products; *LT*, low-tech products; *NMG*, non-manufactured goods

3 Factors Driving Export Performance

Many factors have been suggested that may drive export performance. The traditional models of trade specify foreign demand and price competitiveness. Goldstein and Khan (1985) whose export demand equations model has been widely used in analysing the impact of the macroeconomic environment on exports in many empirical investigations (e.g. Bayoumi et al. 2011; ECB 2005) point out that an increase in foreign demand has a positive influence on exports. According to Algieri (2011), there are different views on what to include in time-series behaviour models. The desired model would require information on the type of traded commodity, the main purpose to which the traded product is destined, the institutional and legal structure where the trade occurs and the aim of the modelling analysis as well as the availability of data.

Focusing in the five peripheral countries of the EMU (GIIPS), Algieri (2014) finds that income elasticity ranges between 1.0 for Spain and 3.7 for Ireland. As purchasing power across the world increases, so does the demand for imports, resulting in growth in GIIPS exports. Greater elasticity of demand for GIIPS causes stronger export performance, leading in turn to further economic growth in those

countries. Of this group, Ireland presents the highest income elasticity. This is possibly due to the relatively high value-added of their exported goods and services.

Most studies estimating demand elasticities and their results vary across countries, sectors, indicators, methodologies and periods. For instance, Bayoumi et al. (2011), using a sample of 11 EMU countries, found similar patterns for the aggregate trade data and for intra-euro area trade. Wierdsma et al. (2014) conclude that the effect of partner income on exports becomes larger the higher the share of HT exports in total exports is. Table 3 summarizes these and other studies.

Various indicators for foreign demand have been used in the studies summarized in Table 3. For instance, Algieri (2011, 2014) employs a weighted average of the import volumes of main trading partners, with weights defined as the share of each destination in total exports. Algieri (2014) also uses foreign income constructed as real-world gross domestic production corrected to exclude the GDP of the country in question. Bayoumi et al. (2011) constructed a real foreign demand variable for each country by weighting real GDPs of trading partners using trade weights.

Price competitiveness is another of the key determinants of export performance. The price advantage that a country has over its competitors is usually approximated by the real effective exchange rate (REER). Other conditions being equal, depreciation will decrease the relative price of its products, thus increasing demand for exports (Esteves and Rua 2015). The REER is a weighted geometric average of nominal exchange rates of a country's main trading partners, deflated using alternative price (consumer price indices, producer price indices and GDP deflators) and cost (unit labour costs for manufacturing and total economy) as deflators. There is also little agreement on which of them better reflects a country's price and cost competitiveness; each of them has its own advantages and weaknesses.³

Numerous studies have deeply investigated trade elasticity, and their results show that price elasticities fall in a range of 0 to -4.0 (Algieri 2014). Since the values of price elasticities vary greatly, some authors (Rose 1991; Ostry and Rose 1992) have questioned the effectiveness of real devaluation in affecting exports.

Adopting an unobserved components model, Algieri (2011) reports that price elasticities are relatively small (in the range 0.3–0.8%) for EA, the UK, the USA and Japan. Chen et al. (2013) found that 36% appreciation of the euro relative to the US dollar from 1999 to 2008 implied a 12–15% decrease in exports of EA countries to the USA on average and a 20–25% decrease in exports of the debtor countries (Greece, Italy, Portugal and Spain) on average. Also Algieri (2014) reports for Greece, Ireland, Portugal and Spain estimated price elasticities greater than unity. This means that there will be a relatively large reaction in terms of exports to price changes. For greater price elasticity, there will be more competition internationally for a country's exports. It therefore follows that depreciation will lead to higher income from exports.

³For a discussion of advantages and shortcomings of each deflator for the measurement of a country's external competitiveness, see Giordano and Zollino (2015).

Table 3 Summary of the literature on determinants of export performance in EMU countries

Study	Countries and time period	Export indicators	Model	Conclusion
Algieri (2011)	EA as a whole, France, Germany, Italy, the Netherlands and Spain, the UK, the USA and Japan; 1978:Q1–2009:Q1	Exports volumes of goods and services	Export equations with unobserved components model. Foreign demand, price and non-price competitiveness export	The estimated price elasticities are generally small (in the range 0.3–0.8%) The non-price factor is a valuable driver of export volumes
Bayoumi et al. (2011)	11 EA countries; 1980–2009	Bilateral manufacturing exports, intra- and extra-EA exports	Manufacturing exports explained by REER (four different indicators), foreign demand and EMU dummy	Elasticity of exports with respect to foreign activity is estimated at around 1.7–1.9; the coefficient on the REER varies widely. In the long-term, intra-EA exports are at least two times more sensitive to changes in relative prices than extra-EA exports
Chen et al. (2013)	11 EA countries, 1990–2009	Total bilateral exports of goods, bilateral trade at the sectoral level (HT, MHT, MLT and LT goods)	Exports explained by REER, domestic and foreign real economic activity	Demand elasticities of exports of the EA debtor countries are different for three trade partner regions (China, CEE countries and oil exporters) from the EA average
Algieri (2014)	Five countries of the euro area's periphery for 1980:Q1–2012:Q4	Exports of goods and services	Vector autoregressive error correction model (ECM) including as explained drivers of export demand: REER, foreign demand, real capital stock	Foreign demand and price and non-price competitiveness are all relevant drivers of real exports In the short-term, exports are dominated by movements of foreign demand, while changes in price and non-price competitiveness take longer to affect export performance

Christodouloupoulou and Tkačevs (2014)	16 EA countries; 1995:Q1–2013:Q1	Exports of goods and exports of services	Exports explained by foreign and domestic demand, price competitiveness	Price competitiveness has a larger marginal effect on exports of goods The foreign demand elasticity of exports of goods and exports of services appears to be significant for most EA countries, with an average value of 1.1 and 0.9, respectively
Wierst et al. (2014)	12 EA countries, 1988–2012	Total exports of goods	Exports explained by REER, real income of partner country, composition of exports (HT, MHT, MLT and LT goods), EU and EMU dummies	Export composition has an important direct and indirect effect on exports Higher share of HT exports in total exports is positively related to total exports
Esteves and Rua (2015)	Portugal; 1980:Q1–2012:Q2	Export of good and services index	ECM; the export market share depends on REER, foreign and domestic demand	Negative relationship between lagged domestic demand developments and export performance in the short run, being strong only when domestic demand declines
Giordano and Zollino (2015)	Italy, Germany, France and Spain over the period 1993:Q1–2012:Q4	Exports of goods	Exports explained by price and non-price competitiveness and foreign demand	Price competitiveness plays a significant role in explaining exports in Italy, Germany and France; in Spain export performance appears to be insensitive. Also non-price competitiveness contributes to export growth
Sertić et al. (2015)	27 EU member states; 2000–2011	Total manufacturing exports	Exports explained by domestic and foreign demand, REER, industrial production, labour cost and economic crisis	Foreign demand, industrial production and domestic demand have a positive effect on exports

For instance, Christodouloupoulou and Tkačevs (2014), estimating a separate regression for exports, within the Euro area, for goods on the one hand and for services on the other, found them to be insensitive to changes in price competitiveness or at least with a relatively low level of sensitivity. In general, they found that the marginal effects of price changes on exports overall are higher than those affecting the manufacturing sector only. This would suggest that the reasons for a country's tendency towards higher exports are more than the mere fact of cost and price changes in trade sectors. It was found, moreover, that price competition was a less significant determinant in the exporting of services than it was for that of goods, for most countries in the EA.

Also non-price competitiveness has been argued to affect export performance. The new trade theory suggests that non-price determinants are relevant for export flows and empirical evidence strongly supports this view. According to Verheyen (2015), non-price factors could be split in two groups: (i) quality, variety or innovativeness of the country, and (ii) institutional factors which represent the reliability, stability or similarity of countries.

Quality can be defined as any tangible or intangible attribute of a good that increases all consumers' valuation of it (Hallaf and Schott 2011). Export performance can be affected by the products and the destination market that exporters specialize in (Chepeta et al. 2014). Countries that specialize in products with high demand growth will be able to increase their exports and will specialize in the most competitive products. A country that exports a wide range of products will be less affected by asymmetric shocks because it is not so dependent on one or certain products. A country that has a wide range of market export destinations will suffer fewer shocks caused by the shift of the destination market. Furthermore a country that holds export destinations with high growth in demand for imports can more easily see its exports increase and have more competitive export markets. Technological competitiveness can be defined as the ability to innovate, increase efficiency and reduce costs (ECB 2012). Technological aspects of competitiveness could affect export behaviour in different ways. Highly innovative countries can be expected to export more. Innovation is crucial to the development of new varieties of goods and services as well as in producing products of higher quality than those already available in the market.

Regarding the institutional factor, theoretically, good institutions can be seen as a comparative advantage, and particularly notable differences between institutional frameworks seem to influence exports. Bad institutional quality in destination countries can discourage exports and may have an influence both in the intensive margin of exports (increased volume of exports of incumbent exporting companies) and the extensive margin in exports (increase in the number of companies exporting), but it is expected to have a greater influence on the latter rather than the former (Briggs 2013).

Several studies confirmed a positive impact of innovation—through an analysis of factors such as patenting activity and R&D expenditure—on export performance. The ECB (2005, p. 51) concludes that “technology seems to be increasingly important in determining export performance in world markets”. Using a variety

of non-price competitiveness variables, Algieri (2011) reports evidence which would suggest that FDI inflows, high technology, R&D and investment have a positive effect on exports.

In a later study, Algieri (2014) finds that the size of real capital stock elasticity varies between countries, with the higher effect being seen in Greece, Italy and Spain (elasticity ranging from 3.8 to 4.4). In particular, with the exception of Ireland, non-price competitiveness elasticities are higher than price competitiveness elasticities. One explanation for this is that the more cohesive the trading area is, given more intra-industry trade, the greater will be the competition in terms of product differentiation and the quality of the goods or services. Giordano and Zollino (2015) found that non-price competitiveness has played a role in export performance in recent years. Wierds et al. (2014) investigated to what extent the composition of exports is related to the export performance of EA countries. Their results suggest that export composition has an important direct and indirect effect on exports. A greater share of high-technology exports has a positive effect on exports overall. Moreover, their results suggest that export composition has a bearing on the effects of the real exchange rate and partner income growth regarding exports.

Some studies, summarized in Table 3, have examined whether domestic demand matters for export performance. From a theoretical point of view, a negative relationship between domestic demand and exports can be explained by the following arguments: (i) when domestic demand is growing, the associated inflationary pressures can lead to a decline in the price competitiveness of exports; (ii) during the business cycle, the availability of resources for the exporting sector is affected, which can influence export performance; (iii) in the presence of very different developments for domestic and foreign markets, investment will be most probably be oriented to activities that draw more heavily on the most dynamic market.

Christodouloupoulou and Tkačevs (2014) analyse the effect of domestic demand on exports. The results suggest that during a period of economic contraction exports appear to be a substitute for falling domestic demand. In a study for the Portuguese economy, Esteves and Rua (2015) found that the evolution of domestic demand is relevant for the short-run dynamics of exports. Furthermore, they found that this relationship is asymmetric so that when domestic demand is falling, the effects are stronger and more statistically relevant than when it is increasing.

4 Conclusions

In this paper we have examined the evolution of export performance of the Balkan EU member states of Bulgaria, Croatia, Greece and Romania over the period 1999–2014, by computing different indicators of export competitiveness. Additionally we surveyed various factors that may influence export dynamics of European countries.

The results of this paper show that, since the inception of EMU in 1999, export performance has been heterogeneous across the countries under study. Bulgaria

experienced the highest increase of the ratio of exports of goods and services to GDP, followed by Romania. Meanwhile, Greece and Croatia have shown little increase. These four countries, along with other countries on the periphery of EMU, suffer from persistent trade deficits, with the exception of Croatia, which since 2010 has shown a surplus. However, Croatia, Greece and Bulgaria reported a trade surplus for services throughout the period.

In a globalizing world, improving external competitiveness is a major concern to countries and their economic policymakers. This especially refers to small economies, such as the SEE countries, which have small export market shares (0.1–0.4% of total world exports in goods in 2014). Concerning the quality of manufacturing exports, these four countries export mainly medium-low-technology and low-technology products, despite their increased share of high- and medium-high technology, particularly regarding changes in Romania.

The sustainability of the SEE countries' external position is dependent on improved competitiveness and their ability to export. It is thus imperative to understand the main factors that determine a country's export success. Our survey shows that price competitiveness and external demand are the conventional determinants in explaining export growth. However, foreign demand elasticities and price elasticities vary widely. Furthermore, the survey also demonstrates that price competitiveness and external demand only explain a fraction of export growth in EA countries.

There is a broad category of determinants under the heading of non-price competitiveness. It includes technological innovation, quality of product, workforce competency, the regulation of product markets, business environment factors, patents, FDI, the gross fixed capital formation, industry specialization, efficiency of sales networks, the characteristics of export enterprises and institutions, amongst others. Most studies suggest that one important feature of a country's export success has been the ability to diversify its export market towards economies that are growing faster or for which there are growth prospects. Finally, according to some authors when modelling export performance, one should take into account not only the driving forces of external demand but also domestic demand.

In countries including Greece, Croatia and Bulgaria, whose exports are driven primarily by services centred on the tourist industry, policy could be directed towards appropriate investment strategies focusing on infrastructures, internal logistics and IT systems which would boost tourism.

Various extensions of this study are possible in the future. For instance, a variety of empirical trade studies have analysed the determinants of the export performance of EMU countries. Therefore investigating export demand for SEE countries and other EU countries remains an avenue for future research. Finally, the results of export performance developments could also be considerably improved upon in the future as longer and more disaggregated data, especially for services, become available.

Acknowledgement This work is supported by European Structural and Investment Funds in the FEDER component, through the Operational Competitiveness and Internationalization Programme (COMPETE 2020) [Project No. 006971 (UID/SOC/04011)], and national funds, through the FCT—Portuguese Foundation for Science and Technology under the project UID/SOC/04011/2013.

Appendix

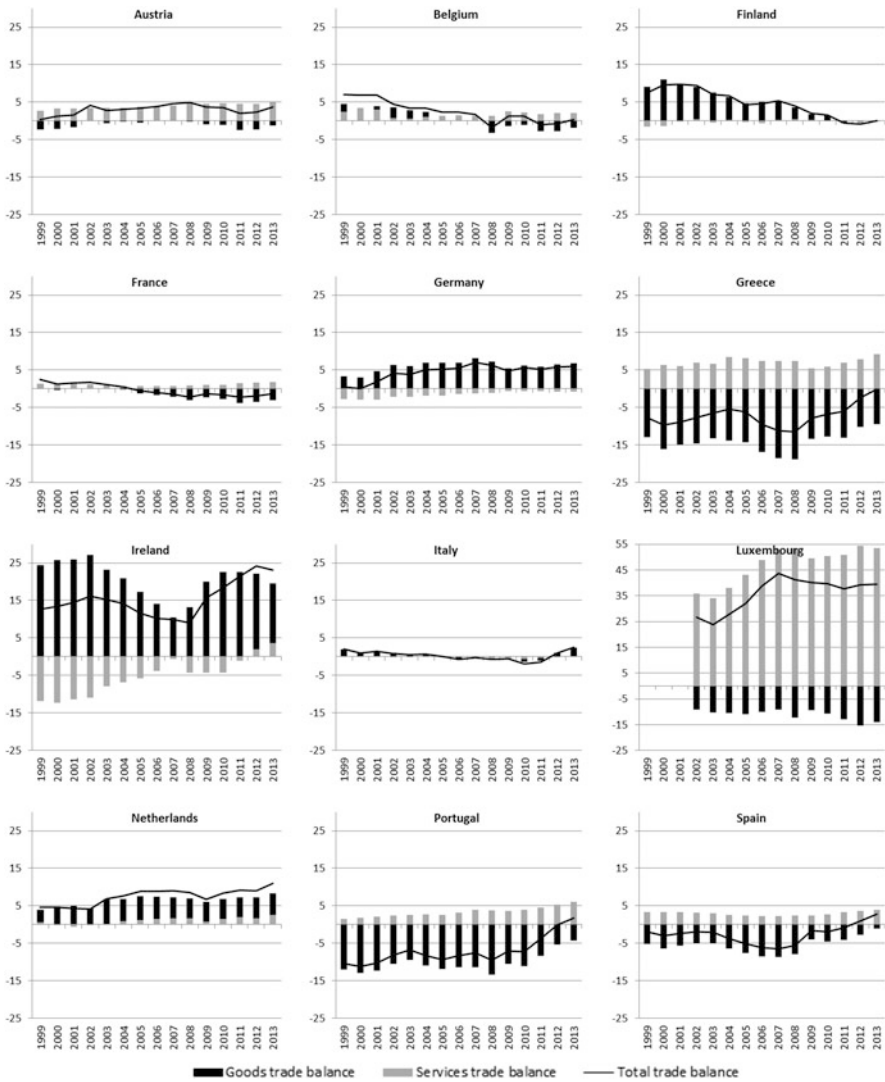


Fig. 3 Trade balance (% of GDP) for EMU12 countries, 1999–2013. Source: UN Conference on Trade and Development (accessed in April 2016)

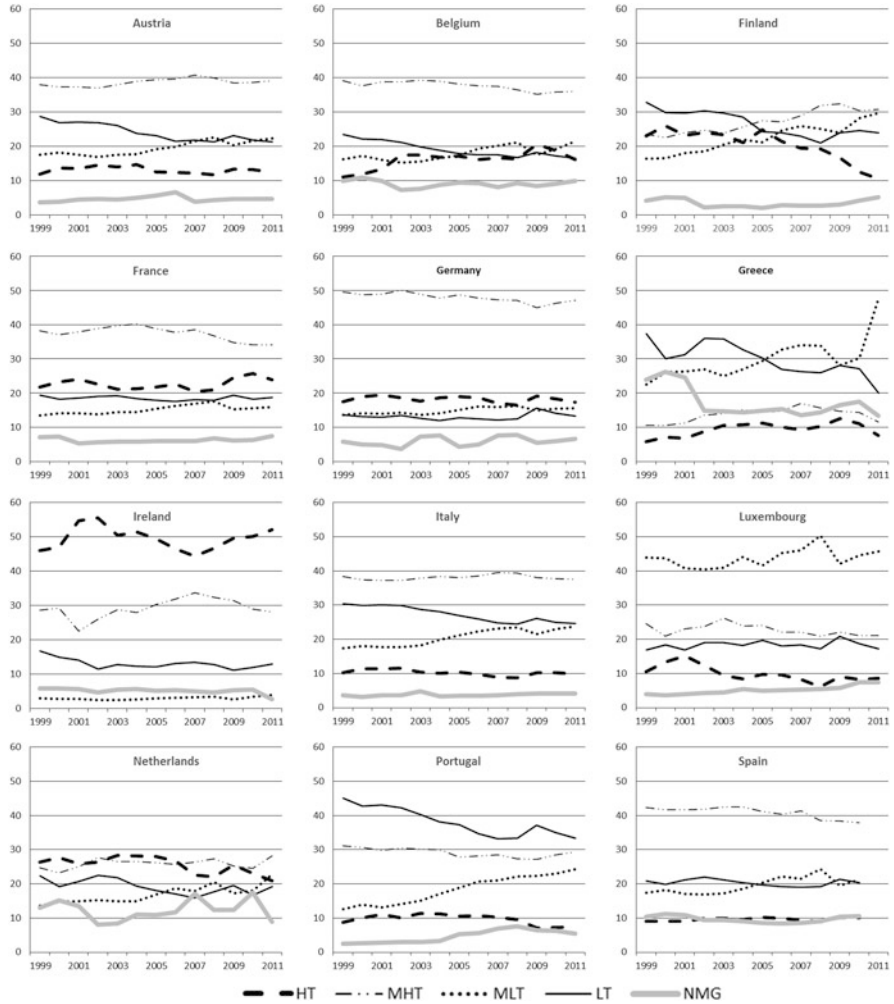


Fig. 4 Decomposition of exports by technological content (share in %) for EMU12 countries, 1999–2011. Source: Authors’ calculations using OECD STAN Bilateral Trade Database (accessed in April 2016). Notes: *HT* high-tech products; *MHT* medium-high-tech products; *MLT* medium-low-tech products; *LT* low-tech products; *NMG* non-manufactured goods

References

Algieri, B. (2011). Modelling export equations using an unobserved component model: The case of the euro area and its competitors. *Empirical Economics*, 41(3), 593–637.

Algieri, B. (2014). Drivers of export demand: A focus on the GIIPS countries. *World Economy*, 37(10), 1454–1482.

Bayoumi, T., et al. (2011). *Euro area export performance and competitiveness* (Strategy, Policy and Review Department IMF Working Paper, No. 140).

- Briggs, K. (2013). Institutional quality as a barrier to trade. *Applied Economics Letters*, 20(16), 1453–1458.
- Chen, R., et al. (2013). External imbalances in the eurozone. *Economic Policy*, 28(73), 101–142.
- Chepeta, A., et al. (2014). European export performance. *Review of World Economics*, 150(1), 25–58.
- Christodouloupoulou, S., & Tkačevs, O. (2014). *Measuring the effectiveness of cost and price competitiveness in external rebalancing of euro area countries: What do alternative HCIS tell us?* (European Central Bank Working Paper Series, No 1736).
- Esteves, P., & Rua, A. (2015). Is there a role for domestic demand pressure on export performance? *Empirical Economics*, 49(4), 1173–1189.
- European Central Bank (BCE). (2012). *Competitiveness and external imbalances within the euro area* (European Central Bank Occasional Paper Series, No. 139).
- European Central Bank (ECB). (2005). *Competitiveness and the export performance of the euro area* (European Central Bank Occasional Paper, No. 30).
- Giordano, C., & Zollino, F. (2015). *Exploring price and non-price determinants of trade flows in the largest euro-area countries* (European Central Bank Working Paper, No. 1789).
- Goldstein, M., & Khan, M. S. (1985). Income and price effects in foreign trade. In *Handbook of international economics* (Vol. 2, pp. 1041–1105). Amsterdam: Elsevier.
- Gouveia, S. (2014). Business cycle correlation between the euro area and the Balkan countries. *International Journal of Business and Economic Sciences Applied Research*, 7(1), 33–49.
- Grossman, G., & Helpman, E. (1995). Technology and trade. In G. Grossman & K. Rogoff (Eds.), *Handbook of international economics* (Vol. 3). Amsterdam: Elsevier.
- Hallaf, J., & Schott, P. (2011). Estimating cross-country differences in product quality. *Quarterly Journal of Economics*, 126, 417–474.
- Kenen, P. (1969). The theory of optimum currency areas: An eclectic view. In R. Mundell & A. Swoboda (Eds.), *Monetary problems of the international economy* (pp. 41–60). Chicago: University of Chicago Press.
- Krugman, P. (1983). New theories of trade among industrial countries. *American Economic Review*, 73(2), 343–347.
- Krugman, P. (1989). Differences in income elasticities and trends in real exchange rates. *European Economic Review*, 33(5), 1031–1054.
- Malhotra, N., & Pinky. (2012). Growth, structure and instability of India's exports. *Journal of International Economics*, 3(2), 57–72.
- McKinnon, R. (1963). Optimum currency areas. *The American Economic Review*, 53(4), 717–725.
- Mundell, R. (1961). A theory of optimum currency areas. *The American Economic Review*, 51(4), 657–665.
- Ostry, J., & Rose, A. (1992). An empirical evaluation of the macroeconomic effects of tariffs. *Journal of International Money and Finance*, 11(1), 63–79.
- Rose, A. (1991). The role of exchange rates in a popular model of international trade: Does the 'Marshall-Lerner' condition hold? *Journal of International Economics*, 30(3–4), 301–316.
- Sertić, M., et al. (2015). Determinants of manufacturing industry exports in European Union member states: A panel data analysis. *Economic Research-Ekonomska Istraživanja*, 28(1), 384–397.
- Verheyen, F. (2015). The role of non-price determinants for export demand. *International Economics and Economic Policy*, 12(1), 107–125.
- Wiers, P., et al. (2014). Composition of exports and export performance of eurozone countries. *Journal of Common Market Studies*, 52(4), 928–941.

Towards Competitive Dynamics View on Oil Companies in Southeast Europe: Analysis of Industrial Concentration



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Abstract Business policy and operations of leading oil industry companies are of strategic interest for each country with defined energy strategy functioning as the basis for developing competitiveness. Companies in the oil industry operate in a specific commercial and political environment, strongly affected by business risks which above all require adapting to market trends and selection of the optimal strategic direction to support the sustainability of increasing competitiveness of each company. It is precisely the level of competitive dynamics which forces companies to constantly develop its business strategies and to adapt to market conditions being the only approach ensuring the survival and growth on the market. Global trends in the oil industry and key factors affecting the future development were analysed in this paper, while the main objectives were feature analysis and presentation of the companies operating in Southeast Europe (with focus on Croatian and its regional market). Several major competitors, companies such as INA, MOL, OMV, Petrol, Lukoil as well as the small competitors as a unique market unit were processed through the SWOT analysis. Market situation was additionally illustrated through the example of analysis of the concentration on the Croatian market, revealing the escalation of competition and increasing of the competitive dynamics among the companies.

Keywords Business strategy • Competitive advantage • Oil industry • SWOT analysis

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1 Introduction

Development of human society through the history was accompanied by the increase in energy consumption. World energy production is in everlasting change and a constant growth. Oil has for decades been one of the most important strategic feedstock, irreplaceable in today's civilization and society in which we live (Cerić 2006). Crude oil, and its derivatives market, is an important factor in the development of world economies, on whose wings many economies, entrepreneur magnates, dictatorships and alike rise (or fall).

It should be emphasized that oil is a limited resource unevenly distributed or concentrated in certain regions of the world. Therefore, continuous significant investments in technology are made aiming to increase the exploitation of the existing sites and finding new supplies (Dekanić 2007). In parallel with these investments, efforts are made in the alternative energy sources, with varying degrees of success, considering still insufficient investments in the business giving the present needs. As oil continues to have primacy over all other energy sources and considering high profits it generates in the context of this business, companies that compete in the oil industry are looking for competitive advantages that can enable the harvest of extra profits (Yergin 2008). Therefore, competitive dynamics among these companies is becoming more pronounced and the behaviour on the market increasingly more aggressive, while the market performance plans are set to achieve the maximum.

Energy market is global and directly affects the energy market of Southeast Europe. Until recently, several major companies had a dominant influence on the local market, but the arrival of competitors with strong resources, clear objectives and aggressive strategy in this market forced all local companies to adapt and organize their business in the most efficient way possible in order to become more competitive and try to keep their market positions (Dragičević et al. 2007).

For example, today the oil industry in Croatia is still under a dominant role of INA, but it is gradually losing its regional markets, which means less exploration and production of oil and gas, refining and distribution. Strategic partnership with MOL, which operates under "mysterious circumstances," caused INA to stagnate and in many aspects to deteriorate (Dragičević and Kolundžić 2001). This certainly is not the best future solution for prospect of INA, but we can emphasize that other companies in the region followed in the similar way the example of INA, e.g., largest oil company in Serbia NIS was sold to the Russian Gazprom Neft; also in Bosnia and Herzegovina, the largest state oil company was sold to foreign owners (MOL), while the Slovenian Petrol is still in the state hands but with the clear intention to be privatized in the near future.

Situation in the oil business in Southeast Europe is becoming more and more complex as the competitive dynamics on the market are constantly rising. Distinctive competition occurs among local oil leaders and the regional (European) leaders, which are aiming to take part in this geostrategic interesting market by their direct penetration on the market or by acquiring local companies and then

integrating them in the parent company as subsidiaries while improving their business processes and operations, which all result that companies now engage in “competitive war” for the customers, market share, profits, etc.

2 SWOT Analysis of Companies Operating in the Oil Industry of Southeast Europe

Industry analysis is made aiming to provide an overview of the current situation in the oil industry in Southeast Europe (with focus on Croatia) and giving insights on future potentials of development. The tool which is used in detecting these advantages, potentials, weaknesses and threats that characterize the observed company is SWOT analysis, which is the basic tool for the analysis of a company’s status and the creation of a general picture of the current situation in which the company is in.

In SWOT analysis it is important to record not only the factors that can be quantified but also those which cannot but can only be mentioned as a qualified statement or belief. SWOT analysis has a time dimension, i.e. whenever possible it is useful to compare and monitor with the results obtained by SWOT analysis in different time periods and to analyse any changes or deviations in situational findings with regard to the different period of observation (Gonan Božac 2008).

In Croatia, for example, there is one dominant company with almost half of the market share operating on the Croatian oil and petroleum product market—INA Oil Industry Zagreb (DZS 2015)—and then several regional companies which expanded their business over the last two decades, mainly through the development of their parent companies backed by big oil players, but also a large number of private small companies, with a small market share which could be taken over by larger market players. The following are SWOT analysis of major companies in Southeast Europe with focus on Croatia.

INA Oil Industry Zagreb is a vertically integrated oil company with more than 10,000 employees in Croatia and region. The company is organized in numerous business units, operating segments, independent business functions, etc. It is expected to achieve the synergistic effect of the whole system. This can be achieved only when all activities in the portfolio of INA are mutually balanced in a way to give optimum performance. This is achieved through the strategic objectives achieved by the appropriate allocation of resources which is now very doubtful because of ownership and corporate governance issues. INA today is facing a transition period and ownership problems regarding disputes and arbitration on strategic partnership contract (Table 1).

MOL is a vertically integrated oil and gas company headquartered in Budapest, Hungary. It operates in the EMEA region (Europe, the Middle East, and Africa) and in the countries of Former Soviet Union employing approximately 15,000 employees worldwide. MOL includes the following companies: MOL Plc.

Table 1 SWOT analysis of INA oil industry, Zagreb

<i>Internal</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Market leader in Croatia, subsidiaries in region • Own stocks of oil and gas • Good geostrategic location of product pipelines and refinery of Rijeka • Long tradition and experience in business segment 	<ul style="list-style-type: none"> • Technical and technological obsolesces of processes and facilities • Low profitability and liquidity • Insufficient utilization of refineries • A large number of unmotivated staff • High rate of debt
<i>External</i>	
Opportunities	Threats
<ul style="list-style-type: none"> • Expected further growth in consumption on the domestic market • The expansion of the other markets in the region • Increasing the know-how by joint action with strategic partner MOL • Obtaining new concessions for the exploration on the Adriatic sea 	<ul style="list-style-type: none"> • Entering of major world predators on the market • Full technical obsolescence • The reduction of own reserves of gas and oil • Shedding of experts due to development stagnation • Losing many of the partially exploited oil fields in the Middle East and Africa

Source: Internal analysis made by the author (2016)

(Hungary), Slovnaft (the largest Slovakian oil company), TVK (one of the leading Central European petrochemical companies) and IES (private company for processing and sale of oil, based in northeast Italy), followed by more than 49% stake in INA (leading Croatian oil and gas company), Tifon, an Austrian company Roth Heizöl, 67% stake in Energopetrol (Bosnia and Herzegovina) through consortium with INA and other international interests in exploration and exploitation of oil in Russia, Kazakhstan, Pakistan, Yemen, Kurdistan, Oman and through INA in Angola, Egypt, Libya and Syria (Table 2).

OMV Although in 2013 OMV sold its oil business in Croatia to a company called CRODUX Derivati Ltd., OMV is still present in the region's market and aims further expanding and penetrating into new market niches, with safe calculations on the right timing and justification for the allocation of financial resources. Therefore, regardless of the fact that OMV brand in Croatia was replaced by another company, we decided to include in the analysis OMV, which is a very powerful company in the field of oil and gas business operating in Central and Eastern Europe. OMV explores and produces natural gas and crude oil, which by processing are sold via retail and wholesale derivatives market. It has a very strong and diversified retail network with over 2500 petrol stations and approximately 34,000 employees in 13 countries. This powerful retail network throughout Europe, as a major consumer region, gives OMV certain competitive advantages (Table 3).

Petrol is the leading Slovenian energy company based in Ljubljana which sells oil, gas and other energy sources on regional market. The Petrol group operates in 9 European countries and employs around 3500 employees. The company

Table 2 SWOT analysis of MOL

<i>Internal</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Extremely good positioning across the region • Successfully performed restructuring, continuous investments and acquisitions across the region • High efficient refineries • Wide retail network • Government support 	<ul style="list-style-type: none"> • Huge dependence on imported raw materials (crude oil and gas) • Unspecified ownership relation over INA • Need of large investments in a joint venture with a strategic partner • Undercapacity in onshore exploration
<i>External</i>	
Opportunities	Threats
<ul style="list-style-type: none"> • Using the support of the Hungarian government in crisis • The synergy with INA and commitment to even better position on the market • Further expansion on the market of Bosnia and Herzegovina • Further acquisition of local competitors 	<ul style="list-style-type: none"> • OMV as an aggressive competitor battling on this market • Threat of a hostile takeover of the Russian supermajors • State agency that limits the increase in market share because of potential monopoly in Croatia and other markets in region

Source: Internal analysis made by the author (2016)

Table 3 SWOT analysis of OMV

<i>Internal</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Market leader in Austria • Big retail network in 13 countries • More than 2000 km long product pipeline across all Europe • Good image and brand • Further investment potential 	<ul style="list-style-type: none"> • Huge dependence of central European market • Insufficient utilization of refining capacity • Reduction of its own reserves and production of oil and gas • Operational problems that hinder supply and sufficient fuel
<i>External</i>	
Opportunities	Threats
<ul style="list-style-type: none"> • Growth in the market of Southeast Europe as still saturated area • Investments in the electricity market • Development of petrochemical production • Increase of refining capacity • Further development of gas business 	<ul style="list-style-type: none"> • Strong pressure of Russian competition • The slowdown of economic activity and further crisis in the Eurozone • The exhaustion of stocks of crude oil and gas from the North Sea • Neglecting the needs of further investment in infrastructure

Source: Internal analysis made by the author (2016)

distributes oil and petroleum products throughout its retail network consisting of approximately 410 petrol stations, mainly in Slovenia, Croatia, Bosnia and Herzegovina. It also offers services and products in their HIP-HOP stores specialized as supporting customer-service facilities along their petrol stations. Petrol besides Slovenian market focuses its operations on regional expansion, especially towards Croatian market. Petrol further investment plan is obvious from their

Table 4 SWOT analysis of petrol

<i>Internal</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • The largest Slovenian retail derivatives chain • Widest presence on the Croatian market after INA • Modern retail network due to large investments • Well built on the brand, distinctive in the whole region 	<ul style="list-style-type: none"> • Lack of own sources of oil—dependent on imports • Failed attempt of a strategic partnership with Lukoil—missed chance for new investment cycle through fresh financial resources • Still strong dependency only on the Slovenian market • Low productivity of the only Slovenian refinery
<i>External</i>	
Opportunities	Threats
<ul style="list-style-type: none"> • Connecting and a strategic partnership with one of the majors • Further expansion of the Croatian and other markets in the region • Stronger investments into new energy areas (firstly electricity) 	<ul style="list-style-type: none"> • The constant pressure of competition • Political instability which can completely undermine the sources of raw materials • Insecurity of future state governance strategy • Its competitors in the market are bigger in size and possessing more financial and other resources which can cause erosion in its market share and profitability

Source: Internal analysis made by the author (2016)

public announcements where they claim to invest even more in region during the next period to further strengthen their position in the downstream, mainly due to the entry of the neighbouring countries in the European Union, in order to further accelerate their cash flow (Table 4).

Lukoil is one of the world's leading vertically integrated companies which produce oil and gas. The main activities of the company are exploration and production of oil and gas, production of petroleum and petrochemical products and their presence on the world market. According to the confirmed reserves of hydrocarbon fuels, Lukoil is the biggest Russian privately owned company and the second largest private oil company in the world. It has about 1% of global oil reserves over 2% of global crude oil production. Lukoil also holds the dominant position in the Russian energy sector, with almost 16% of the total production of oil.

Lukoil owns modern refineries, gas processing and petrochemical plants operating in Russia, Eastern Europe and post-Soviet countries. Most of the products the company sells to the international market. In Russia it owns four large refineries—in Perm, Volgograd, Ukhta and Nizhny Novgorod. The total capacity of the plants of Lukoil in Russia amounted to 44.5 million tons of oil per year (Table 5).

Tifon was founded as a private company which is now 100% owned by MOL Group. It was registered in 1998 in Zagreb. The strategy of Tifon from the beginning was focused on building a good image. The company deals with the storage, trade and transport of oil and oil products on Croatian territory. In addition to selling fuels, car gas and oil lubricants at petrol stations, Tifon offers more than 4000 items of consumer goods and a wide range of hospitality services on their

Table 5 SWOT analysis of Lukoil

<i>Internal</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Vertically integrated business • Great and modern refining capacities • Generous oil rigs under control • Extraordinary financial potential that allows large investments • Good image 	<ul style="list-style-type: none"> • Large dependence on Transneft pipeline • Focus on the oil wells in one area • The failed attempt on market expansion in the region by taking bigger company • Political instability
<i>External</i>	
Opportunities	Threats
<ul style="list-style-type: none"> • The expansion of the market through the further takeover of smaller companies in the market • Strategic partnership with some of the regional leaders • Expected economic and industrial growth in the region, thus growth in the energy consumption (market spreading) 	<ul style="list-style-type: none"> • Fluctuation in the prices of natural gas and oil resulting in revenue drop • The relationship with INA regarding foreclosed property in Serbia • Highly depending business on oil as energy source (potential future growth in the use of alternative fuels)

Source: Internal analysis made by the author (2016)

Table 6 SWOT analysis of Tifon

<i>Internal</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Well built on image • Good location and new gas stations • MOL’s support in business • Well-designed additional services in partnership with specialized firms for this part of business operations 	<ul style="list-style-type: none"> • The lack of a spread of retail network of petrol stations compared to the competition • The perception of customers about prices at petrol stations • The lack of own resources
<i>External</i>	
Opportunities	Threats
<ul style="list-style-type: none"> • Locations along highways, other potential attractive locations • Possibility of positioning as a premium petrol stations • Further focus on the consumer loyalty 	<ul style="list-style-type: none"> • Vigorous battle with other competitors in the market • Loss of competitive advantage in the form of differentiation in the quality of fuel • Monopoly situation that could order the separation of Tifon from MOL

Source: Internal analysis made by the author (2016)

petrol stations. In addition, big attention is given to supporting facilities at their petrol stations, such as Marche restaurants, playgrounds and adjustments for people with disabilities (wheelchair toilets, access roads, etc.) (Table 6).

Small Private Companies (Observed as a Market Segment) Besides the large companies existing in the market, it is important to point out one particular market segment—small private companies. These companies in their portfolios usually have up to 10–15 petrol stations in the Croatian retail market holding little bit more

Table 7 SWOT analysis of small private companies (as a segment)

<i>Internal</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Good locations and relatively new petrol stations • Flexibility in business operations • Avoidance of bureaucratic bottlenecks • Ad hoc reaction to market challenges 	<ul style="list-style-type: none"> • Low spread of the retail network • Poor logistical support • Lack of financial capacity for larger investments • Complete dependence on imported raw materials
<i>External</i>	
Opportunities	Threats
<ul style="list-style-type: none"> • Partnership with some of the market leaders and the use of their resources and knowledge • Restructuring in some of the other energy sectors (electricity, hydrogen, etc.) • Taking on specific market niches (islands, shopping centres, city centres) 	<ul style="list-style-type: none"> • Poor mechanisms of environmental protection • Hard to maintain quality of the image • The price of competitiveness due to dependence on suppliers (low buyer power) • Hostile takeovers

Source: Internal analysis of author (2016)

than 21% market share and surely have to be taken into account and valued in any oil market analysis. Private companies were formed mainly during the Homeland War in Croatia, when in turbulent conditions they operated in the pretty nonregulated conditions on the market and when many agile entrepreneurs entered the oil business by opening petrol stations at locations not held by INA. In the 15 years of war and postwar era, there were several successful small companies such as Zovko, Europe Mill, Euro Petrol and Antunović that were founded. But market and economic trends showed that future development of these companies was in the merger or takeover by larger, more powerful companies which already established themselves in the market. The remaining part of small private companies must determine the strategic development stream and further actions, bearing in mind their own advantages but also limitations (Table 7).

3 Industry Concentration Analysis

Concentration is a common economic term which is used for completely different meanings. Market power is tied to the degree of control over a certain economic resource or activity. The concentration exists when control over a large part of the total resources is realized by a small part of the total number of units which control a certain resource. The market concentration refers to the situation when a small percentage of companies in the industry regulate the entire market (Buble 2005).

Industries can be distinguished by their degree of concentration, defined by the number and relative sizes of companies in the industry. The first factor is the concentration of the absolute number of companies that form an industry. Another factor is the distribution of size of companies in the industry, whereby the size and

proportion of each company are defined proportionally and in relation to the entire industry. Both definitional factors must be mutually taken into account when determining whether or not the industry is concentrated.

Concentration represents the development of certain companies with existing products in the existing markets. The company aims to increase its market share and thereby obtains a competitive position. The higher market share indicates the possibility of better utilization of experience curve effect and creating the potential for economies of scope exploitation. Increasing market share can be realized through new industrial sales or rivals' sales takeover. Concentration can also be carried out by taking over a market share held by the rivals, if the company has developed corresponding competitive advantage whereby it can directly attract customers of the rivals' assortment. The penetration to the competitors' market positions by pricing strategy, production differentiation and comparative promotion cannot be long-lived, if there is no sustainable competitive advantage as a support. In industries where the market share is the key measure of success and where there are no big opportunities for the development of new markets and products, the concentration is the crucial strategic option (Rhoades 1993).

The degree of concentration is an important structural material variable. Many authors emphasize on concentration as an important factor in explaining the greater or lesser efficiency of different industries. Different degrees of concentration of certain industries are the first words that observers notice. The number and size of the companies in some industry defines the basic types of industrial structure, and if we include the structure of the customers, it is possible to obtain a complete overview of the market structure.

In this paper we present the example of industrial concentration analysis of oil retail business in Croatia where several numbers of large competitors can be distinguished, with a one dominant company (INA). Rivalry among competitors is intensifying, and the companies become more and more aggressive in their market approach. Mutual competition began several years ago, and since the market is still developing, there are imminent appearances of new competitors backed with huge financial resources and aggressive strategy for market penetration.

Industry concentration of Croatian oil companies' retail business is determined by the following two indicators, specifically:

1. Concentration ratio
 2. The Herfindahl–Hirschman index
1. Concentration ratio of usually four largest companies in the market represents the percentage of the total share of those four largest companies in relation to the whole market (industry).

From Table 8 the index of industry concentration of four leading companies in the Croatian oil companies' retail business is obvious. Calculation of the relationship of concentration is processed via the following formula:

$$Cr_4 = U_1 + U_2 + U_3 + U_4 = 46.96 + 12.53 + 7.91 + 5.96 = 73.36$$

Table 8 Market share of each company presented by the number of petrol stations operating in Croatia (31 December 2015)

Retail network of oil companies in 2015		
Company	Number of petrol stations	Market share (%)
INA	386	46.96
Petrol	103	12.53
OMV (CRODUX)	65	7.91
Tifon	49	5.96
Lukoil	43	5.23
OSTALI	176	21.41
Total	822	100.00

Since it is generally regarded that an industry is highly competitive, if this index is below 40, and indexes over 90 indicate market monopoly, this concentration ratio with its value of over 70 indicates an oligopolistic industry structure with the increasing lagging of other participants behind the leading quad.

2. Another relevant indicator of industrial concentration is the Herfindahl–Hirschman index (HHI). Industry concentration reflects the number and size of companies in an industry obtained through market share. The Herfindahl–Hirschman index is calculated by the sum of the squared market shares of individual companies in the industry and its value reaches up to 10,000.

If the index trend is towards the lower numbers, then the industry has a large number of companies with a small market share, but if the index is close to or equal to 10,000, this means that the industry is made up of a single enterprise monopolist. It is stated that the concentrated industries have index greater than 1800.

Unlike concentration ratio, the Herfindahl–Hirschman index shows not only the distribution of market shares of the leading companies but also the market shares of other companies. In other words, in order to obtain statistical concentration ratio, HHI squared market shares of all companies in the relevant market, thereby giving more importance to the shares of leading companies and in this way reflecting the relative importance of large companies in case of realization of any merger or in the case of generating any “collusions.” As the distribution of market share shifts from perfect equality, the indicator has higher values, reflecting thus greater industrial concentration.

Calculation of the Herfindahl–Hirschman index (HHI) for Croatian oil companies’ retail business:

$$HHI = 46.96^2 + 12.53^2 + 7.91^2 + 5.96^2 + 5.23^2 + 21.41^2 = 2946$$

Calculated index confirms the high concentration of Croatian oil companies’ retail business, with its value that significantly exceeds 1800. The concentration trend of mergers and acquisitions of smaller companies is further increasing and is progressively taking on the characteristics of oligopolistic market, considering that

“small fish” are being swallowed and integrated into larger and financially more powerful market players.

Based on the two calculated indexes, it is possible to conclude that the Croatian industry retail sales of petroleum products are a consolidated industry, with one company still having a leading role, although competitors continue to increase their market share by network expansion and acquisitions mainly thanks to INA’s slow development or even stagnation.

The Croatian market for a long time had characteristics of a monopoly, while the current level of concentration resulting from two relevant indicators can be assessed as oligopoly with its leader INA having market share of almost 47%. A similar situation was recorded in the regional market, usually with one dominant company. But each year this market is becoming more interesting for new players who are looking for their place in this market niche, which is reflected in the further sharpening of competition. All these results are showing the need to adapt to new business conditions, make faster reactions, be prompt and ready to answer all challenges inflicted by the market.

4 Conclusion

This paper aimed to present the current situation, reflected in the competitive dynamics of the leading oil industry companies in Southeast Europe with specific focus on Croatia. The findings are particularly interesting since they include a detailed breakdown of INA market performance, once the largest regional energy player, today a company in the business transition and restructuring which can resist the invading competitors in the market by only a serious business turnaround.

Stated objectives were met by presenting and analysing the most relevant companies and leaders in the Croatian market and the region. SWOT analysis showed actual situation and potentials about each company. Their internal situation was analysed through the observation of the strengths and weaknesses and external influences by listing the opportunities and threats to their market position. The conclusion was reached that the Croatian market is especially attractive to Eastern oil giants who consider this space as a possibility of deeper entering the market niche of Western Europe. Open access to warm sea transport route, secured supply chain and quality supply routes are the aspirations of oil companies with large resources and a desire to conquer new markets.

In addition we have found that there is a still high index of concentration of companies operating in the oil business in Croatia, which implies the consolidation and strengthening of several major competitors but also shows that market is interesting for entering of possible new players which could led to further increase of the competitive dynamics among the companies. For this reason the constant rise of the level of competitiveness is needed to maximize the companies’ prospects in achieving good results and maintain their market positions.

References

- Buble, M. (ur.). (2005). *Strateški menadžment*. Zagreb: Sinergija.
- Cerić, E. (2006). *Nafta – Proizvodni procesi*. Zagreb: Biblioteka INA.
- Dekanić, I. (2007). *Nafta blagoslov ili prokletstvo – Izvori energije, globalizacija i terorizam*. Zagreb: Golden Marketing.
- Dragičević, T., & Kolundžić, S. (2001). *Privatizacija energetskog sektora – s posebnim osvrtom na INU*. Zagreb: INA Industrija nafte d.d.
- Dragičević, T., Kolundžić, S., & Proštenik, M. (2007). *Doba promjena u energetici – Lice i naličje privatizacije INE*. Zagreb: Kigen.
- DZS. (2015). Statistički ljetopis Republike Hrvatske 2015, Republika Hrvatska, Državni zavod za statistiku, Zagreb.
- Gonan Božac, M. (2008). SWOT analiza i TOWS matrica – Sličnosti i razlike. *Ekonomski istraživanja*, 21, 19–34.
- Rhoades, S. A. (1993). The Herfindahl-Hirschman index. *Federal Reserve Bulletin*, 79, 188–189.
- Yergin, D. (2008). *The prize – The epic quest for oil, money and power*. New York: Free Press.

Websites

- www.ina.hr. Accessed 03.02.2016.
- <http://mol.hu/en/>. Accessed 12.02.2016.
- <http://www.petrol.eu/>. Accessed 15.02.2016.
- www.nis.eu. Accessed 22.02.2016.
- <https://www.omv.com/portal/01/com>. Accessed 26.02.2016.
- <http://www.lukoil.com/>. Accessed 27.02.2016.

Macro and Micro Innovativeness of the Western Balkan Countries



Ivana Bilic, Danijela Ciric, Bojan Lalic, and Danijela Gracanin

Abstract Innovativeness has been identified as a key success factor in today's increasingly competitive and complex environment. It is considered to have a key role as a driver of economic growth and essential instrument for business performance improvement of enterprises especially for emerging economies and economies in transition. Innovation readiness offers a possibility of new growth platforms both on macro level when talking about the economic growth as the biggest national issue and micro level when talking about competitiveness and business performances of enterprises. Engaging innovation potential in a way that will keep up with the pace of technological change and changing demands is indispensable in order to increase competitiveness on both levels. The Western Balkan countries are representative examples of economies in transition as they have witnessed significant changes and economic transformations since the beginning of the twenty-first century, and now they are challenged to keep the growth and improve it. Innovativeness has an influential role in responding to this challenge. The objective of this paper is to analyze cross-country differences and portray the situation in the region giving the answer to the following questions: how are Western Balkan countries ranked on world economies' innovation capabilities scoreboards, how is their ranking changing over time, and how do they differ between themselves? In order to answer these questions, comparative cross-country analysis of innovativeness in Western Balkan countries was conducted. The findings build upon the comprehensive and comparable statistical data from public databases including studies on global innovativeness.

Keywords Innovativeness • Innovation • Western Balkan

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1 Introduction

Innovativeness has been identified as a key success factor in today's increasingly competitive and complex environment. It is considered to have a key role as a driver of economic growth and essential instrument for business performance improvement of enterprises especially for emerging economies and economies in transition. Innovation readiness offers a possibility of new growth platforms both on macro level when talking about the economic growth as the biggest national issue and micro level when talking about competitiveness and business performances of enterprises. Engaging innovation potential in a way that will keep up with the pace of technological change and changing demands is indispensable in order to increase competitiveness on both levels. The Western Balkan countries are representative examples of economies in transition as they have witnessed significant changes and economic transformations since the beginning of the twenty-first century, and now they are challenged to keep the growth and improve it. Innovativeness has an influential role in responding to this challenge. In this paper Western Balkan countries are defined referring to geographical aspects in opposed to common use of this term referring to Southeast European area that includes countries that are not members of the European Union. The objective of this paper is to analyze cross-country differences and portray the situation in the region giving the answer to the following questions: how are Western Balkan countries ranked on world economies' innovation capability scoreboards, how is their ranking changing over time, and how do they differ between themselves? In order to answer these questions, comparative cross-country analysis of innovativeness in Western Balkan countries was conducted. Making this comparative analysis, we got the insight on which country with its innovation-related policies and practices responded best to the challenge of innovation and what are the weaknesses and obstacles in innovation efforts, both in macro and micro environment, that prevent full engagement of innovation potential. Findings are used to indicate the priority areas for improvement. The findings build upon the comprehensive and comparable statistical data from public databases including studies on global innovativeness.

2 Basic Concept of Innovation and Innovativeness

In today's modern society, the concept of innovation and innovativeness has become very important and we could say mandatory. Innovation today is the lifeblood of successful companies and a key driver of economic growth. A clear understanding of what an innovation represents is crucial to assess the innovativeness. The definition of innovation was initially primarily oriented toward the relation between technology and innovation, but in the last 20 years, the wider impact of innovation activity on technical change has been recognized, whereas

technical change increased technological opportunities, with positive impacts on productivity, employment, and wealth creation (Aralica et al. 2008). In the literature (Schumpeter 1934; Myers and Marquis 1969; Drucker 2006; Trott 2012; Schilling 2013), there are countless different definitions of innovation, and they are evolving over time as business and technology advance and innovation opportunities continue to emerge. In order to obtain a better understanding and explanation of the phenomenon of innovation, listed below are some commonly used definitions. Basically innovation is typically understood as the introduction of something new. Based on the work by Schumpeter (1934), innovation has been defined as the first introduction of a new product, process, method, or system. But innovation is more than the generation of creative ideas. Innovation is defined broadly and can encompass the use of products, services, processes, methods, organization, and relationship or interconnections. The key requirement to be categorized as an innovation is that it requires the use of something completely new or vastly improved to the organization (Wingate 2015). Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service. It is capable of being presented as a discipline, capable of being learned, and capable of being practiced (Drucker 2006). According to Myers and Marquis (Myers and Marquis 1969), innovation is not a single action but a total process of interrelated subprocesses. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting in an integrated fashion. Innovation is a process through which the nation creates and transforms new knowledge and technologies into useful products, services, and processes for national and global markets—leading to both value creation for stakeholders and higher standards of living (Milbergs and Vonortas 2005). It is therefore possible to summarize that according to these definitions innovations do not cover only technical and technological changes and improvements but in particular practical application and particularly originate from research (Urbancova 2013) and must be understood in the widest possible sense: as a new product, new production process, new production technologies, improved management methods, enhanced performance, workforce qualification improvement, and so on. Majority of existing research conceptualized innovativeness as the degree to which an individual adopts an innovation relatively earlier than others (Midgley and Dowling 1978). Innovativeness on macro level refers to the country's ability to respond to challenges of innovation through factors that enhance innovation readiness including innovation-related policies and practices that promote long-term growth and create framework conditions for innovations and to produce and commercialize goods and services by using new knowledge and skills (Furman et al. 2002). When talking about innovativeness on micro level, it could be defined as a willingness and capability of an organization to undertake all necessary steps to implement and to produce different types of innovation continuously (Galunic and Rodan, n.d.). The ability to innovate is generally accepted as a critical success factor to growth and future performance of organizations.

3 Innovation and Innovativeness as a Main Source of Competitive Advantage

Innovation and competitive advantage are the words that describe different concepts, but they are highly interrelated. Innovation is increasingly seen as the key to unlocking competitive advantage, as much for country competitiveness in the world economy as for organizations' competitiveness in the field.

Konishi (INSEAD & WIPO, n.d.) pointed that in recent years, with the advancement of the knowledge economy, the world has witnessed the power of innovation and its various constituents in revolutionizing the business and economic landscape and how it empowers individuals, communities, and countries with profound impact on business, politics, and society. The ability to innovate is a precondition of successful usage of new resources, technology, and knowledge (Borocki et al. 2013). On macro level Porter (1990) explains the national competitiveness as the country's ability to create innovation with the aim of achieving or maintaining competitive advantage compared to other countries. The capacities to undertake scientific and applied industrial research; to transfer, adapt, and assimilate new technologies into economic structures; and to diffuse them into society are critical to national competitiveness and growth (World Bank Country Paper Series 2013). On a micro level, organizations are invited to continuously deliver innovation in order to maintain existing and to develop new competitive advantage in a way that will keep up with the pace of technological change, changing demands, and expectations. For different organizations innovation could create the ability to allocate a significant portion of market share or to create an entirely new market opportunity. On national macro level, government shapes the context, institutional structure, and environment for innovation while innovations are created on micro level. Therefore, more than ever, in the current global economic situation, policy makers and business leaders recognize the need to create an enabling environment to support the adoption of innovation and spread their benefits across all sectors of society. The importance of innovation readiness, especially at the national level, has achieved prominence on the public policy agenda, with the realization that the right policies, inputs, and enabling environment can help countries fulfill their national potential and enable a better quality of life for their citizens according to the Global Innovation Report (INSEAD & WIPO, n.d.). The twenty-first century is based on knowledge, information, and innovative economy (Urbancova 2013).

4 Measuring Innovativeness

Innovation tends to be considered as a major driver of both economic growth and competitiveness of companies and industries (Aralica et al. 2008), and along with the current imperative for innovation comes the necessity for it to be adequately measured in order to boost innovation performances both on macro and micro level.

Table 1 Evolution of innovation metrics by generation (Milbergs and Vonortas 2005)

First generation	Second generation	Third generation	Fourth generation
Input indicators	Output indicators	Innovation indicators	Process indicators
(1950s–1960s)	(1970s–1980s)	(1990s)	(2000 + emerging focus)
• R&D	• Patents	• Innovation surveys	• Knowledge
• Expenditures	• Publications	• Indexing	• Intangibles
• S&T personnel	• Products	• Benchmarking innovation capacity	• Networks
• Capital	• Quality		• Demand
• Tech intensity	• Change		• Clusters
			• Management techniques
			• Risk/return
			• System dynamics

Innovation as a wide concept has many dimensions making it hard to have a clear picture on how it could be measured with acknowledgment of all aspects. There is no one-size-fits-all solution. Numerous studies on innovation characteristics of countries and regions are conducted in the last years. The traditional approach of expressing innovativeness is based on parameters such as the number of patent, papers published in scientific journals per million residents, and share of research and development activity costs in gross domestic product. However, how the prevailing understanding is that innovation is multidimensional phenomena, currently, for assessing innovation, complex models based on dozens of parameters are used. Using this complex model and on the basis of innovative features, world economies are ranked in several different annual reports (Tekic et al. 2012) (Table 1).

Countries are ranked according to their innovativeness through different defined methodologies and adopted measures, such as the Global Innovation Index (GII) developed by INSEAD in 2007, the Global Competitiveness Report developed by the World Economic Forum, Innovation Union Scoreboard developed by the European Commission, and Intelligence Unit developed by Economist. On the other side for companies and organizations, there are numerous consultants or governments that developed different measurement frameworks and models for measuring innovativeness.

The findings in this paper build upon the comprehensive and comparable statistical date from public Global Innovation Index database, as the most frequently used indicator of the achieved level of innovativeness at the global level and a leading reference on innovation.

4.1 *Global Innovation Index*

Recognizing the key role of innovation for growth and development of each country, the Confederation of Indian Industry together with INSEAD (Business School for the World) and Canon India has developed a Global Innovation Index (Global Innovation Index—GII). In its eighth edition, it is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO). GII reports rank world economies' innovation capabilities and results. Recognizing the key role of innovation as a driver of economic growth and prosperity and the need for a broad horizontal vision of innovation applicable to developed and emerging economies, the GII includes indicators that go beyond the traditional measures of innovation such as the level of research and development (Kilic et al. 2015).

A country's readiness is linked to its ability to garner the best from leading-edge technologies, expanded human capacities, better organizational and operational capabilities, and improved institutional performance. This report brings together indicators to measure innovation performance, which takes into account all and more of the above factors in the form of the Global Innovation Index (GII). Using this framework, the world's best- and worst-performing economies are ranked on their innovation capabilities, which provide insights into the strengths and weaknesses of countries in innovation-related policies and practices. The Global Innovation Index (GII) relies on two subindices, the innovation input subindex and the innovation output subindex, each built around pillars. Five input pillars capture elements of the national economy that enable innovative activities: (1) institutions, (2) human capital and research, (3) infrastructure, (4) market sophistication, and (5) business sophistication. Two output pillars capture actual evidence of innovation outputs: (6) knowledge and technology outputs and (7) creative outputs. Each pillar is divided into sub-pillars, and each sub-pillar is composed of individual indicators (79 in total). Sub-pillar scores are calculated as the weighted average of individual indicators; pillar scores are calculated as the weighted average of sub-pillar scores. For this eighth edition, the Global Innovation Index 2015 (GII) covers 141 economies, accounting for 95.1% of the world's population and 98.6% of the world's gross domestic product (Fig. 1).

5 **Innovativeness in the WBC Region**

For the Western Balkan countries, the transition from socialism to capitalism and democracy was less smooth than in other parts of emerging Europe. But once the war ended and peace returned, these countries comprehensively rebuild and reform their economies. Reform process was not uniform across the region, as starting positions differed, and has not been completed yet. Innovativeness has been identified as a key precondition of economic growth (Siegel et al. 2003) especially for emerging economies and economies in transition like WBC. In Table 2 we present

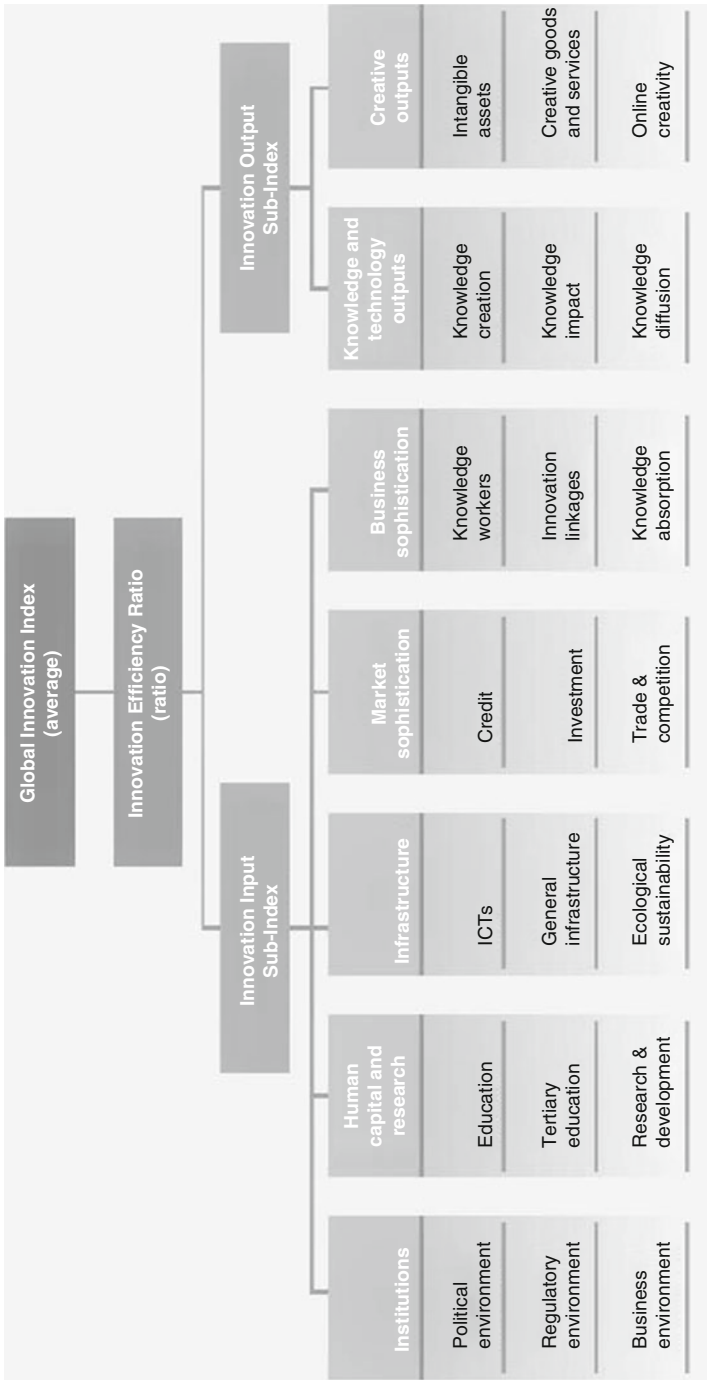


Fig. 1 The Global Innovation Index, INSEAD & WIPO (2015)

Table 2 Global Innovation Index rankings 2007–2015

Global Innovation Index rankings			
	Top 5 countries	WBC overall rankings	WBC rankings in Europe
2007	1. USA	55. Croatia	30. Croatia
	2. Germany	87. FYROM	38. FYROM
	3. United Kingdom	89. Bosnia and Herzegovina	40. Bosnia and Herzegovina
	4. Japan	100. Albania	42. Albania
	5. France		
2009–2010	1. USA	62. Croatia	31. Croatia
	2. Germany	71. Montenegro	34. Montenegro
	3. Sweden	89. FYROM	37. FYROM
	4. United Kingdom	92. Serbia	38. Serbia
	5. Singapore	107. Bosnia and Herzegovina	40. Bosnia and Herzegovina
	121. Albania	43. Albania	
2009–2010	1. Iceland	45. Croatia	26. Croatia
	2. Sweden	59. Montenegro	31. Montenegro
	3. Hong Kong, China	77. FYROM	33. FYROM
	4. Switzerland	81. Albania	34. Albania
	5. Denmark	101. Serbia	36. Serbia
	116. Bosnia and Herzegovina	37. Bosnia and Herzegovina	
2011	1. Switzerland	44. Croatia	29. Croatia
	2. Sweden	55. Serbia	31. Serbia
	3. Singapore	67. FYROM	36. FYROM
	4. Hong Kong, China	76. Bosnia and Herzegovina	39. Bosnia and Herzegovina
	5. Finland	80. Albania	40. Albania
2012	1. Switzerland	42. Croatia	26. Croatia
	2. Sweden	45. Montenegro	29. Montenegro
	3. Singapore	46. Serbia	30. Serbia
	4. Finland	62. FYROM	34. FYROM
	5. United Kingdom	72. Bosnia and Herzegovina	37. Bosnia and Herzegovina
	90. Albania	39. Albania	
2013	1. Switzerland	37. Croatia	25. Croatia
	2. Sweden	44. Montenegro	38. Montenegro
	3. United Kingdom	51. FYROM	32. FYROM
	4. Netherlands	54. Serbia	33. Serbia
	5. USA	65. Bosnia and Herzegovina	36. Bosnia and Herzegovina
	93. Albania	39. Albania	

(continued)

Table 2 (continued)

Global Innovation Index rankings			
	Top 5 countries	WBC overall rankings	WBC rankings in Europe
2014	1. Switzerland	42. Croatia	26. Croatia
	2. United Kingdom	59. Montenegro	34. Montenegro
	3. Sweden	60. FYROM	35. FYROM
	4. Finland	67. Serbia	37. Serbia
	5. Netherland	81. Bosnia and Herzegovina	38. Bosnia and Herzegovina
		94. Albania	39. Albania
2015	1. Switzerland	40. Croatia	27. Croatia
	2. United Kingdom	41. Montenegro	28. Montenegro
	3. Sweden	56. FYROM	35. FYROM
	4. Netherland	63. Serbia	36. Serbia
	5. USA	79. Bosnia and Herzegovina	38. Bosnia and Herzegovina
		87. Albania	39. Albania

how Western Balkan countries are ranked on world economies' innovation capability scoreboards, how their ranking is changing over time, and how they differ between themselves in order to analyze cross-country differences using the data presented in the Global Innovation Report from 2007 to 2015 (INSEAD & WIPO).

Countries like Switzerland, Sweden, the Netherlands, the USA, and the UK are innovation leaders. They have a strong knowledge-based economy in which business and the public sector in an equal way invest in development of innovation. They are characterized by excellent infrastructure, political stability, strong research and development sector with good international connections, a large number of global companies, a wide and constantly upgraded base of talented workforce, and investments in the IT sector (Tekic et al. 2012). When we look at the Western Balkan countries, we can conclude that their positions are changing over the past 8 years in overall world scale ranking. Albania and Bosnia and Herzegovina had ups and downs during the past 8 years, but it could be concluded that there has been some progress in this field when we compare rankings up to this year, but not significantly, as both countries are going back and forward during the past few years. Serbia, FYROM, and Montenegro make more significant progress when we compare rankings up to 2015, and Croatia is holding a similar position since 2009–2010. It is obvious that Croatia, followed by Montenegro, in previous years is much ahead of Bosnia and Herzegovina and Albania.

But when we look at the WBC rankings in the European region, we can conclude that WBC are modest in terms of innovative performances and are lagging behind leading countries. They do not differ so much between themselves; they follow one another in rankings and are at the end of the European list. Croatia is the only WBC country that stands out in ranking, but still it is far behind European leaders. Clearly, we can notice that Croatia is a leading country in WBC region, and this is not surprising as it must be taken into account that she is the only EU member

state. In accession to EU process, Croatia has undertaken several steps to make research and innovation systems more competitive and have a greater impact on the national economy.

Since 2000, the nation’s science system has gradually recovered and become more competitive thanks to the substantial efforts of the Croatian government to reform the science and higher education sectors according to European Union (EU) standards and in line with EU policies (World Bank Country Paper Series 2013). In Fig. 2 and Table 2, we can see a comparison of WBC countries according to innovation input and output subindices and their pillars which captures elements of the national economy that enable innovative activities on the input side and actual evidence of innovation outputs on the output side.

We can see that on the input side there is not much imbalance, but when we analyze innovation outputs, they are on the lower level in Bosnia and Herzegovina and Albania in comparison to other WBC countries. In Fig. 3 we compared in detail

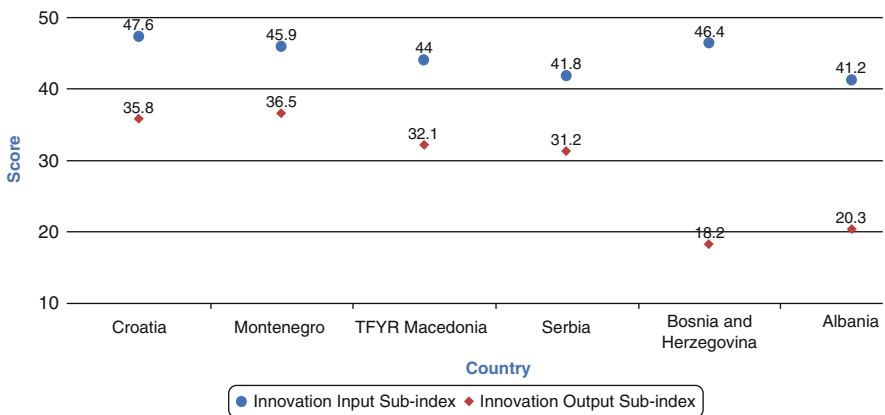


Fig. 2 Comparison of input subindex and output subindex scores in WBC, GII 2015

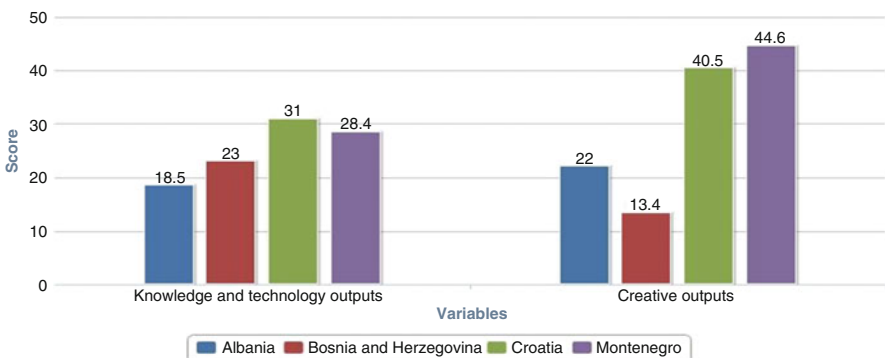


Fig. 3 Comparison of output subindex scores in Albania, Bosnia and Herzegovina, Croatia, and Montenegro, GII 2015

Table 3 Comparison of pillars/sub-pillars of GII in WBC, 2015

Index	Pillar/sub-pillar/indicator name	Albania	Bosnia and Herzegovina	Serbia	FYROM	Montenegro	Croatia
1.	Institutions	60.1	59.6	62.2	67.7	69.5	71.8
1.1	Political environment	49.0	42.1	50.2	47.3	60.9	69.7
1.2	Regulatory environment	58.5	71.0	71.1	69.8	71.1	71.5
1.3	Business environment	72.7	65.7	65.2	86.1	76.6	74.1
2.	Human capital and research	21.8	39.9	30.1	32.7	35.9	36.9
2.1	Education	38.0	89.6	35.3	66.2	54.3	58.1
2.2	Tertiary education	25.7	27.6	40.8	28.9	47.3	37.5
2.3	Research and development (R&D)	1.7	2.6	14.0	3.0	6.2	15.1
3.	Infrastructure	39.0	30.9	42.6	31.4	39.3	44.6
3.1	Information and communication technologies (ICT)	44.2	36.3	49.0	38.4	53.2	52.3
3.2	General infrastructure	26.8	24.9	30.3	16.3	27.5	26.4
3.3	Ecological sustainability	46.0	31.4	48.4	39.6	37.2	55.1
4.	Market sophistication	59.1	61.6	43.9	52.3	51.0	47.1
4.1	Credit	35.8	35.4	31.1	39.1	38.3	26.5
4.2	Investment	72.5	54.2	34.6	34.3	45.2	34.8
4.3	Trade and competition	69.0	95.3	66.1	83.4	69.5	80.0
5.	Business sophistication	26.2	40.1	30.2	35.9	34.0	37.9
5.1	Knowledge workers	22.9	33.6	30.9	40.0	35.1	49.7
5.2	Innovation linkages	19.7	62.2	21.1	31.8	29.0	26.5
5.3	Knowledge absorption	36.0	24.5	38.7	35.8	38.0	37.6
6.	Knowledge and technology outputs	18.5	23.0	27.7	26.3	28.4	31.0
6.1	Knowledge creation	2.9	5.0	21.1	9.6	13.5	20.7
6.2	Knowledge impact	26.0	38.8	29.9	40.1	48.6	46.0
6.3	Knowledge diffusion	26.8	25.2	32.1	29.0	23.3	26.2
7.	Creative outputs	22.0	13.4	34.6	37.9	44.6	40.5

(continued)

Table 3 (continued)

Index	Pillar/sub-pillar/indicator name	Albania	Bosnia and Herzegovina	Serbia	FYROM	Montenegro	Croatia
7.1	Intangible assets	29.6	9.9	38.0	48.9	48.1	47.4
7.2	Creative goods and services	19.5	6.9	33.3	27.3	28.8	34.6
7.3	Creation of online content	9.2	26.9	29.0	26.5	53.3	32.7
A	Innovation input Subindex	41.2	46.4	41.8	44.0	45.9	47.6
B	Innovation output subindex	20.3	18.2	31.2	32.1	36.5	35.8

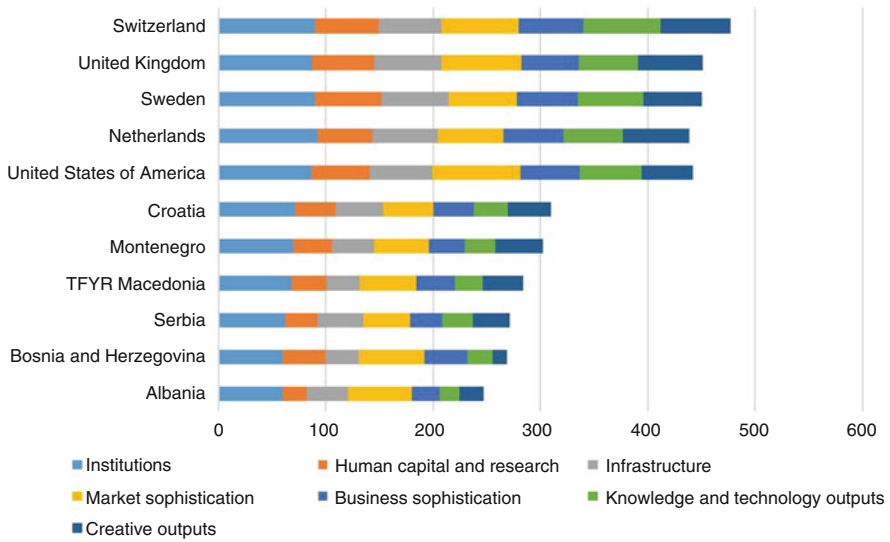


Fig. 4 Comparison of input and output pillars of GII between five top ranked countries and WBC, 2015

two output pillars: (1) knowledge and technology outputs and (2) creative outputs of Croatia and Montenegro as region leaders according to GII with Bosnia and Herzegovina and Albania.

It could be seen that knowledge and technology outputs (knowledge creation, knowledge impact, knowledge diffusion) are much behind Croatia and Montenegro but not as much as it is obvious when looking to creative outputs (intangible assets, creative goods and services, online creativity) where Bosnia and Herzegovina and Albania stay much behind Croatia and Montenegro even though their input index does not differ much.

Analysing Table 3 we can identify some weaknesses that are shared through all six countries in WB: human capital and research which is a consequence of a really low score in research and development and also infrastructure with low scores in general infrastructure, business sophistication where it could be identified that innovation linkage is a weak point, knowledge and technology outputs with low levels of knowledge creation and diffusion, and creative outputs which are on highly low levels in Albania and Bosnia and Herzegovina.

We compared WBC in order to see where differences and gaps exist but in which domains WBC are lagging behind innovation leaders the most. In Fig. 4 we made a comparison of input and output pillars between five top ranked countries and WBC in order to get some closer view into this matter. It could be concluded that WBC are obviously, as it was expected, behind world leaders when we talk about institutions, human capital, and even infrastructure, but when we come to market and business sophistication, the difference is getting bigger and the gap between the

Western Balkans and world innovation leaders is most obvious and widest in knowledge, technology, and creative outputs.

6 Conclusion

Today, one of the most important lessons learnt is about the extraordinary capacity of innovation to drive growth since it can play a critical role not only in facilitating countries' recovery but also in sustaining national competitiveness in the medium to long term (INSEAD & WIPO). Strengthening innovativeness is the key prerequisite of economic growth. Competitive advantage is created at the microeconomic level, while the role of the government is to shape the context, institutional structure, and environment on macro level that encourages organizations to gain competitive advantage. Establishing and implementing an effective research and innovation policy is important for WBC hoping to be competitive and develop the economy in a sustainable way. Countries have effect major reforms in the legislative and business environment, design policies and strategies to promote the creation of a knowledge-based economy. Progress over the last decades has been evident in WBC, but it is necessary to increase investment in research and innovation substantially while introducing innovation systems—the research base, educational sector, public institutions, private sector, and linkages across them—into more forceful, coherent, and competitive systems. Creating the right framework conditions and offering adequate incentives to actors are prerequisites for stimulating new ideas, their transfer to industry, and private sector investment in risky and long-term projects related to innovation (World Bank Country Paper Series 2013). If the Western Balkan Countries do not emulate such efforts, they will stay disadvantaged compared to majority of European countries with respect to innovativeness. All observed aspects are specific to each country politics, and every single local environment with its social and cultural characteristics is different and needs to be considered as such. Global Innovation Index is not perfect, and these rankings are based on GII set of indicators and modes of analysis. Ranking could be changed across the years due to improved or worsening performance on the basis of the previous framework, due to adjustments to the GII framework and inclusion of additional countries/economies. Each ranking reflects the relative positioning of that particular country/economy on the basis of the conceptual framework, the data coverage, and the sample of economies that change from one year to another.

References

- Aralica, Z., Račić, D., & Radić, D. (2008). Innovation propensity in Croatian enterprises: Results of the community innovation survey. *South East European Journal of Economics and*

- Business*, 3(1), 77–88. Available at: <http://www.degruyter.com/view/j/jeb.2008.3.issue-1/v10033-008-0008-6/v10033-008-0008-6.xml>
- Borocki, J., Orcik, A., & Cvijic, M. (2013). Measuring organizational innovativeness. In *Challenges for the future – engineering management*. Faculty of Technical Sciences (Novi Sad, Serbia), Fraunhofer IAO (Stuttgart, Germany) and DAAAM International (Vienna, Austria).
- Drucker, P. (2006). *Innovation and Entrepreneurship*. New York City: Harper Business.
- Furman, J., Porter, M., & Stern, S. (2002). The determinants of national innovative capacity. *Research Policy*, 31, 899–933.
- Galunic, D., & Rodan, S. (n.d.). Resource recombinations in the firm: Knowledge structures and the potential for Schumpeterian innovation. *Strategic Management Journal*, 19, 1193–1201.
- INSEAD & WIPO. (n.d.). Global Innovation Index, Available at: <https://www.globalinnovationindex.org/content/page/past-reports/>
- Kilic, K., et al. (2015). Innovativeness, operations priorities and corporate performance: An analysis based on a taxonomy of innovativeness. *Journal of Engineering and Technology Management*, 35, 115–133. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S0923474814000526>
- Midgley, D., & Dowling, G. (1978). Innovativeness: The concept and its measurement. *Journal of Consumer Research*, 4(4), 229–242.
- Milbergs, E., & Vonortas, N. (2005). Innovation metrics: Measurement to insight. In *White paper of national innovation initiative, 21st century innovation working group, IBM corporation*. Available at: <http://www.innovationmanagement.se/wp-content/uploads/pdf/Innovation-Metrics-NII.pdf>
- Myers, S., & Marquis, D. (1969). *Successful industrial innovation: A study of factors underlying innovation in selected firms* (pp. 69–17). Washington, DC: National Science Foundation.
- Porter, M. (1990). *The competitive advantage of nations*. Boston: Harvard Business Review.
- Schilling, M. (2013). *Strategic management of technological innovation* (4th ed.). New York, NY: McGraw-Hill Education.
- Schumpeter, J. A. (1934). *The theory of economic development*. Cambridge, MA: Harvard University Press.
- Siegel, D., Waldman, D., & Link, A. (2003). Assessing the impact of organizational practices on the relative productivity of university technology transfer offices: An exploratory study. *Research Policy*, 32(1), 27–48.
- Tekic, Z., Borocki, J., & Cosic, I. (2012). O inovativnosti Srbije i regiona. In *Inovacije i preduzetništvo: alati za uspeh na tržištu EU* (pp. 15–31). Belgrade: Fakultet za ekonomiju, finansije i administraciju, Univerzitet Singidunum.
- Trott, P. (2012). *Innovation management and new product development* (5th ed.). Edinburgh Gate, UK: Pearson Education Limited.
- Urbancova, H. (2013). Competitive advantage achievement through innovation and knowledge. *Journal of Competitiveness*, 5(1), 82–96. Available at: <http://www.cjournal.cz/index.php?hid=clanek&cid=127>, <http://library.gcu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=90596323&site=ehost-live&scope=site>
- Wingate. (2015). *Project management for research and development-guiding innovation for positive R&D outcomes*. Boca Raton: CRC Press.
- World Bank Country Paper Series. (2013). *Western Balkans regional R&D strategy for innovation*. Available at: <http://www.worldbank.org/content/dam/Worldbank/document/eca/Western-Balkans-R&D-Croatia.pdf>

Application of Renewable Energy Sources in Hungary in the Southern Transdanubia Region



Tamás Haffner

Abstract The European Union accepted its Europe 2020 strategy in March 2010. The strategy laid down the need to meet the 20/20/20 targets (reduce greenhouse gas emissions by 20%, increase energy efficiency by 20% and increase the renewable energy usage by 20%) in the field of energy policy. In addition to these goals, the Council expressed its long-term and grandiose intention to reduce the carbon dioxide emission by 80–95% in the European Union and other developed and industrialized countries by 2050.

Implementation of the EU commitment and the commitment determined by Hungary that exceeds the EU target requires establishment of hundreds of power plants using renewable energy sources in Hungary or conversion of power plants currently using fossil fuels into power plants using renewable energy sources. The Southern Transdanubia region is on the top in the context of both options. The town of Bóly has played a significant role in the Hungarian use of geothermal energy for public purpose district heating. The project which was started in 2003 brought only partial success, but the town continued the development. The second part finished in 2010, which makes it possible to not only fulfil the town's communal needs but can also heat the town's industrial park. Other towns in the region also use the opportunity in the region's high geothermal gradient for energy purposes. Other towns such as Bonyhád, Szentlőrinc and Szigetvár followed Bóly's positive example. Besides utilisation of the geothermal energy, solar power plants have shown up continuously in the past decade, not only with domestic but small plant nature. In 2013 the town of Sellye inaugurated the 0.5 MW capacity solar power park, which is capable to serve 250 family's electricity need in a year. This plant was the biggest in the country the day it was inaugurated. Two solar power parks were built in Szigetvár between 2013 and 2015 with 0.5 MW capacity each, which is capable to

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serve nearly 500 family's yearly electricity needs. The country's biggest capacity (10 MW) solar plant was finished in the spring of 2016 in Pécs, the centre of the region. This plant probably will reduce the countries carbon dioxide emission by 15.000 ton annually.

The application of the renewable energy sources is supported by tender sources from the European Union and the Hungarian government. The Operational Programme's 'Environment and Energy' fourth priority axis (increasing the use of renewable energy sources) has supported the application of the renewable energy sources in the 2007–2013 EU tendering period. In the framework of the fourth priority, 1624 tenders got support in total of nearly HUF 88 billion. The Operational Programme supported tenders to establish and extend solar cells, solar collectors, geothermal power plants, heat pumps, bioheating plants and hydroelectric power plants. In the Southern Transdanubia region, 262 projects supporting the use of renewable energy sources received subsidies between 2007 and 2015. More than 80% of these projects supported the use of solar cells and solar collectors. The power plant of Pécs using coal and then natural gas was converted to utilise biomass. This power plant has nearly 85 MW electricity capacity and serves the district heating needs of 150.000 citizens in the city of Pécs.

Keywords Europe 2020 strategy • Renewable energy sources • Southern Transdanubia region • Biomass • Geothermal energy • Solar power plant

1 Introduction

Energy policy has been an important strategic issue of nation-states after the 1950s. The unequal geographic location of fossil energy sources dominating power generation divided the world into energy importer and energy exporter countries. The use of energy sources has been and is still largely determined by environmental protection, technological development, political events and deepening of world economy. The development of IT systems and the expansion of transport options, which made transportation cheaper, created the opportunity to obtain the necessary energy sources from a distance, even from the other side of the world. The development of technology influenced the access to energy resources and opened the door to the use of renewable energy sources, and spreading environmental awareness facilitated the expansion thereof.

Hungary is an extremely poor state in terms of energy sources; the energy policy of the country and the structure of energy sources have been and are largely determined by the dependence on energy import. The country that belonged to the Soviet sphere of influence after World War II obtained major part of its energy import needs from the Soviet Union. The import channels established in connection to that (Friendship I and II oil pipelines, Brotherhood gas pipeline, unified electricity system of Comecon countries) still determine the energy procurement options of the country struggling with energy import dependence. Hungary, like other Central

European countries, tried to reduce its unilateral energy import dependence to Russia through several measures in the last 25 years, but these efforts have achieved only partial success. The country's dependence on Russian energy import has remained; thus, Hungary has a particular interest in reducing its energy import needs, regardless of the implementation of EU regulations. The best solution is to increase the use of renewable energy sources.

Implementation of the commitment to increase the use of renewable energy sources determined by Hungary, even transcending the EU target, requires the establishment of hundreds of power plants using renewable energy sources in Hungary or transformation of power plants currently using fossil resources into power plants using renewable energy sources. The Southern Transdanubia region is in the forefront with regard to both options in Hungary, through the example of which the endeavours made in Hungary in connection with the use of renewable energy sources can be presented.

2 The Role of Renewable Energy Sources in Energy Policy

2.1 EU Energy Policy Based on the Use of Renewable Energy Sources

The European Council formulated the new EU energy policy plan on the summit held in Hampton Court in 2005, in favour of which the Council requested from the Commission to rethink the current issues of the European energy policy (Katona 2009). The Green Paper published in 2006 specified sustainability, competitiveness and creation of security of supply as the cornerstones of the EU's energy policy. The Green Paper wanted to achieve sustainability by using competitive renewable energy sources and by cutting back utilisation. It wanted to achieve competitiveness by investing in "clean" power production and in energy efficiency and by supporting innovation. Meanwhile it wanted to achieve security of supply by reducing dependence on import, by improving readiness for emergencies, by ensuring access to energy and by ensuring investments necessary due to increasing energy needs. The European Council adopted basic principles of the common energy policy of the European Union in 2007 in order to achieve the objectives set in the Green Paper, including the 20/20/20 targets. According to the decision, 20% decrease in greenhouse gas emissions, increase of renewable energy sources from 8.5 to 20% within the gross energy consumption and 20% improvement in energy efficiency must be achieved throughout the European Union until 2020.

To implement all these, the European Union adopted the Europe 2020 strategy in March 2010 that identifies three mutually reinforcing strategic directions. By determining intelligent, sustainable and inclusive growth directions, the European Union intends to create a more resource-efficient, more environmentally friendly and more competitive economy based on knowledge and innovation until 2020

(Szezlér 2011). The reasons for creation of the strategy were the growing dependence of the European Union on energy import, the risk of security of supply of the import as well as excessive dependence on fossil energy sources and inefficient use of resources further increasing the problems arising therefrom. Unified action of the EU member states became necessary in order for the European Union to act efficiently to reduce energy dependence and increase energy efficiency. The strategy set forth the necessity of achieving 20/20/20 targets in the field of energy policy. In addition to these objectives, the Council formulated its long-term and grandiose intention that the European Union and other developed, industrialized countries should reduce their carbon dioxide emissions by 80–95% until 2050.

Following the adoption of Europe 2020 strategy, the European Commission adopted the Energy 2020 strategy in November 2010. The strategy aiming to create competitive, sustainable and secure energy supply and energy consumption deals in details with realisation of the energy goals specified in the Europe 2020 strategy. The document states that the basis of the economy and of the development of the European Union is the energy used efficiently that is continuously and securely available to ensure that the European Union has to realise investments with a total investment cost of thousands of billions of euros until 2020, thereby creating diversification of existing energy resources and replacement of obsolete equipment in the energy industry (Gosztonyi 2014). The document draws the attention to that; however, currently nearly 45% of power generation of the EU comes from production using low carbon dioxide emission technologies, this is largely from nuclear power plants and to a lesser extent from the use of renewable energy sources, and it is expected that one third of the production capacity will have to be replaced due to wear and tear until 2020. This is an additional obstacle to achieve the objectives specified in the Europe 2020 strategy (Haffner 2011).

The European Council and the European Parliament determined the 20% target, which is set in the strategy at EU level, regarding the proportion of energy from renewable energy sources to varying degrees with regard to the member states because the starting value, renewable energy potentials and energy source mix of the member states were different. Accordingly, the country-specific objectives were determined differentially by taking the above factors and the economic performance of the country into account in Annex No. 1 of 2009/28/EC directive. In case of Hungary, 13% target has been determined that means 8.7% increase compared to the base value, namely, more than treble of the renewable energy generating capacity (Table 1).

2.2 Hungarian Energy Policy Supporting Renewable Energy Sources

The Hungarian Parliament adopted the energy policy guidelines for 2008–2020 in 2008, in which—in line with the new evolving energy policy directives of the

Table 1 Country-specific targets of Europe 2020 strategy

Country	Proportion of energy from renewable energy sources in the total gross energy consumption in 2005 (%)	Target for proportion of energy from renewable energy sources in the total gross energy consumption in 2020 (%)	Current value (2014) (%)	Expected growth in 15 years (%)
EU-28	–	20	16	–
Belgium	2.2	13	8	10.8
Bulgaria	9.4	16	18	6.6
Czech Republic	6.1	13	13.4	6.9
Denmark	17.0	30	29.2	13
Germany	5.8	18	13.8	12.2
Estonia	18.0	25	26.5	7
Ireland	3.1	16	8.6	12.9
Greece	6.9	18	15.3	11.1
Spain	8.7	20	16.2	11.3
France	10.3	23	14.3	12.7
Italy	5.2	17	17.1	11.8
Cyprus	2.9	13	9	10.1
Latvia	32.6	40	38.7	7.4
Lithuania	15.0	23	23.9	8
Luxembourg	0.9	11	4.5	10.1
Hungary	4.3	13	9.5	8.7
Malta	0.0	10	4.7	10
Netherlands	2.4	14	5.5	11.6
Austria	23.3	34	33.1	10.7
Poland	7.2	15	11.4	7.8
Portugal	20.5	31	27	10.5
Romania	17.8	24	24.9	6.2
Slovenia	16.0	25	21.9	9
Slovakia	6.7	14	11.6	7.3
Finland	28.5	38	38.7	9.5
Sweden	39.8	49	52.6	9.2
United Kingdom	1.3	15	7	13.7

Source: Edited by the author based on Annex No. 1 of 2009/28/EC directive

European Union—security of supply, competitiveness and sustainability are determined as long-term energy objectives of the country. In addition to increasing the proportion of renewable energy sources and energy from waste to achieve the objectives, it aimed to reduce specific energy consumption and gradually introduce environmentally friendly and nature-friendly technologies. By adopting the guideline, the Parliament also called upon the government to develop a strategy to use renewable energy sources.

The ‘National Energy Strategy 2030’ developed on the basis of the guideline, adopted in 2011, specified insurance of long-term sustainability, security and economic competitiveness as primary objective of the Hungarian energy policy. The government intends to guarantee security of supply, to enforce environmental considerations and depending on the options of the country, and to stand up for solving global problems through implementation of the strategy. The strategy determines five priority endeavours that the government considers necessary to achieve the set goals. These are increasing energy saving and energy efficiency, increasing the proportion of renewable energy, preserving the current capacity of nuclear power and using Hungarian coal and lignite assets in power generation in an environmentally friendly way. The strategy intends to achieve the termination of the electricity import balance of the country until 2030 by this ‘nuclear-coal-green’ scenario based on these three pillars. On the one hand, the energy strategy contains specific proposals for the decision-makers and players of the energy sector until 2030, which determines the direction of the 5-year action plans, and on the other hand, it contains long-term visions until 2050, like the EU strategy. The document identifies the establishment of biogas and biomass power plants and utilisation of geothermal energy as priority in order to achieve the proportion not reaching the EU target. Besides, it forecasts the growth of solar-based heat power and electricity and utilisation of wind power after 2020, envisaging a total of 20% renewable energy proportion among the primary sources of energy by the end of this period (Haffner 2015).

The strategy does not detail the outline of growth rate of renewable energy sources; furthermore it does not determine specific measures that should be taken to this end. These were introduced in the National Renewable Energy Action Plan in accordance with the provisions of Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources. The government made a commitment of 14.65% differentiated by sectors in the action plan, exceeding the 13% EU regulation, with respect to the ratio of renewable energy sources in 2020, and an intensive government policy supporting the use of renewable energy sources particularly is necessary to achieve that. Hungary has less than 5 years to implement these objectives (Olajos et al. 2011) (Fig. 1).

The above diagram shows that the proportion of renewable energy sources in the total gross energy consumption increased by 5% all in all between 2005 and 2014 in Hungary. It should be highlighted that this value has not increased, but it decreased by 0.1% since 2012. Increased support of the use of renewable energy sources will be needed to this, which can be ensured by the government by expanding the support and feed-in tariff system related to production of renewable energy sources, encouraging the production of renewable energy sources, and by using EU and national development funds in a way of supporting the use of renewable energy sources as much as possible (Mezősi 2014). In line with Europe 2020 strategy, promotion of renewable energy sources gets high priority in the course of using the EU development funds for 2014–2020. It ensures EUR 995 million funding for power generating companies to replace fossil fuels with renewable energy sources

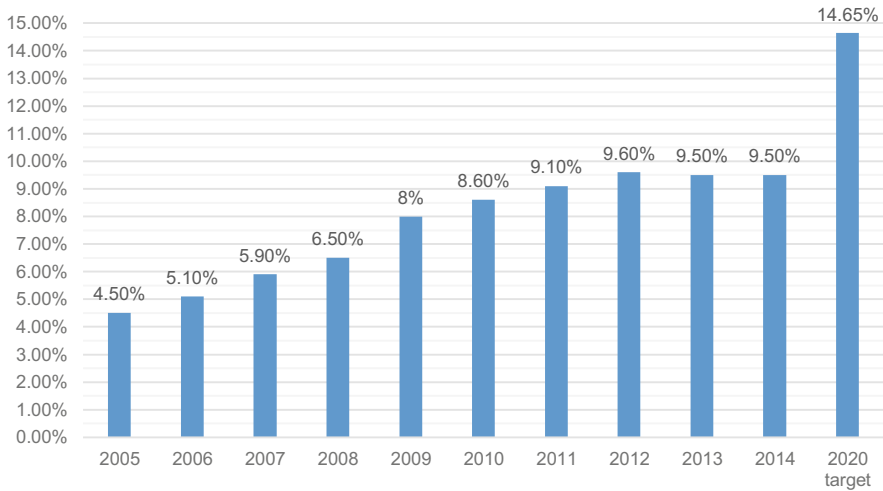


Fig. 1 Proportion of energy from renewable energy sources in the total gross energy consumption. Source: Edited by the author based on Eurostat data

and to establish new power generating capacities using renewable energy sources. In addition to that, it ensures EUR 208 million funding for generating companies and approximately EUR 250 million funding for local governments to cover their own energy needs from renewable energy sources. The funding sources exceeding the previous funding level by orders of magnitude may serve as a basis to meet the targets for renewable energy ratio (Haffner and Schaub 2015).

2.3 Use of Renewable Energy Sources in the Southern Transdanubia Region

The Southern Transdanubia region is in the forefront in utilisation of renewable energy sources in Hungary. From the 27 small-scale power plants subject to licence (capacity between 0.5 and 50 MW) operating in the Southern Transdanubia, 2 partly and 12 fully generate electricity and in many cases combined heat energy by using renewable energy sources (biomass and biogas). Among 22 district heat production licensee companies generating heat energy only, 4 companies use solely and 3 companies use partly renewable energy sources (biomass, geothermal energy). In case of the unlicensed nondomestic small-scale power plants (capacity between 0.05 and 0.5 MW) and the household-sized small-scale power plants (capacity under 0.05 MW), only 5 from 1344 power plants use fossil energy sources, while major part of the domestic power plants (98.4%) use solar power. 99.2% of household-scale power plants using renewable energy sources has been established since 2008. The development funds ensured by the European Union and by the

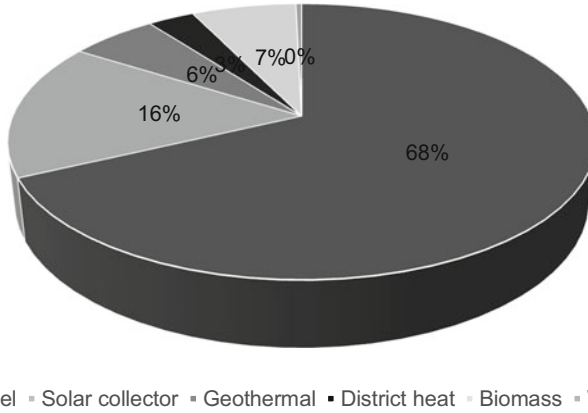


Fig. 2 Distribution of investments in the Southern Transdanubia funded from the Environment and Energy Operative Programme between 2007 and 2013. Source: Edited by the author based on the data of palyazat.gov.hu

Government of Hungary played a defined role in that. The Environment and Energy Operative Programme (EEOP) supported increasing the use of renewable energy sources during the EU tendering cycle between 2007 and 2013. One thousand six hundred twenty-four applications received funding close to a total of EUR 284 million at the national level. From that, 262 projects supporting the use of renewable energy sources received funding in the Southern Transdanubia region. Utilisation of renewable energy sources in the Southern Transdanubia region is presented through the most significant ones from among the funded projects (Fig. 2).

2.3.1 Geothermal Energy Utilisation

Geothermal energy means the internal heat in the Earth’s crust, the extraction of which requires a carrier medium. Advantage of geothermal energy is that unlike other renewable energy sources, it is available continuously not intermittently, although it is limited and its amount and temperature decreases over time. Hungary has highly favourable geothermal conditions that are a great opportunity for geothermal energy utilisation. The geothermal gradient is 45 °C/km in the country that is more than one and a half times the average 20–30 °C/km on the Earth. Accordingly, the country has significant, an estimated 343.000 PJ exploitable geothermal energy reserves. The most commonly used utilisation method of geothermal energy is the direct heat utilisation, which allows utilisation for municipal and industrial heating purposes and electricity generation in addition to utilisation for therapeutic and touristic purposes and in agricultural and industrial production (Gööz 2015). Geothermal energy with less than 30 °C temperature available up to 400 m depth may be utilised through heat pumps. The heat pump collects the geothermal energy, the heat degree of which is directly not recoverable, and

converts it into heat that can be utilised for heating. The warmer fluid, which is in the low- and medium-temperature range between 30 and 140 °C, can be used for heat production and for combined heat and power production above 100 °C (Fischer et al. 2009).

More than 150 geothermal wells has been explored in the Southern Transdanubia region primarily in the course of oil and uranium search then in the last decades consciously for the purpose of energy recovery, significant part of which is not utilised. Most striking form of utilisation of geothermal energy in the region is utilisation for therapeutic and touristic purposes, while utilisation of geothermal energy for heating purpose in district heating system is realised in Bóly and Szentlőrinc, but besides this examples of utilisation of geothermal energy for agricultural purpose and through heat pumps can be found in many areas of the region. The pioneer of utilisation of geothermal energy in Hungary is the city of Bóly. In the small city of less than 2000 inhabitants, the heat source found during uranium ore search in 1983 has been utilised. The settlement started the planning process necessary for exploitation of the well in 1996. The studies prepared promised extremely favourable utilisation opportunities; however the first drilling took place only in 2003 within the framework of the EU's SAPARD programme. The SAPARD programme supported the agricultural and rural development of ten Central and Eastern European countries joining the European Union prior to the accession. Drilling of a 1500 m deep thermal well, establishment of a power line system supplying consumers and thermal stations belonging thereto and implementation of automatic control were planned under the project. However, the project was partially unsuccessful; thermal water was not found until a depth of 1800 m. The exploration of Sarmatian limestone aquifer between 650 and 750 m found low temperature, 40.2 °C water during drilling that ensured the underfloor heating of many cultural institutions from 2005. In lack of reinjection wells, the inefficient system was a significant burden on the operation of the municipal wastewater treatment plant; furthermore it resulted in significant additional costs (mining tax, water resource contribution). Despite the negative experiences, the city decided not to eradicate the system but to develop it. They started implementation of second phase of the thermal project using European Union fund. Water source with higher temperature and higher yield (72–80 °C, 60.0 m³/h) was found during the new drilling. A reinjection well has been developed under the application that made the system more cost-efficient and environmentally friendly. The city started the third phase of the thermal project in 2010 in order to exploit the well with 20% overcapacity compared to the planned capacity, in the framework of which heating of the production halls located in the industrial park of the town was ensured by using additional yield of the well. Besides, the geothermal heating system was built in all the institutions of the local government under the third phase. The local government of Bóly implemented three phases of the investment with a total cost of HUF 627 million, and approximately HUF 9.5 million (in 2011) is spent on the annual operating cost thereof. Thus the town saves approximately more than 650.000 m³ (in 2011) natural gas, the cost saving of which exceeds EUR 2 million (in 2011). In addition to that, the town saves approximately 1373 tons CO₂ emission

annually by replacing the natural gas for heating purpose entirely, which means hundreds of thousands of euros worth of tradable CO₂ quotas savings at the national level (Pálné Schreiner 2013).

In addition to the geothermal energy utilisation in Bóly, the system established in another small town of the region, in Szentlőrinc, is also noteworthy. Szentlőrinc is an agrarian small town in Baranya county with nearly 6500 people, where the possibility of utilisation of geothermal energy emerged at the beginning of the 1990s. Many studies have been prepared regarding the exploitation of hot water under the town and regarding its use in the district heat supply of the town. However, test wells were made just to a depth of 800 m, while the desired hot water is located at a depth of 1500 m, and the town could not realise the cost of exploration thereof from its own resources. Consequently, the exploitation of geothermal energy in Szentlőrinc was awaited for plenty of 20 years. PannErgy Plc. listed on Budapest Stock Exchange deals with implementation of heat and electric power generation projects in several parts of the country using the opportunity arising from utilisation of domestic geothermal energy. Szentlőrinc Geotermia Ltd. established by the company and the local government of the town started the research in the town in 2009, in the course of which they found temperature 83 °C hot water that could be utilised in the existing district heating system. The geothermal heating system ensuring the district heating supply of 590 households and several local government institutions was established within the framework of approximately HUF 1.3 billion project, 34% of which was ensured by the funding won in the Environment and Energy Operative Programme tender. Thus they serve the district heating and hot water needs of significant part of the town at significantly lower fees than earlier by 100% renewable energy sources instead of the previously used coal, then oil fuel, and finally natural gas. It shall be emphasised that similarly to Bóly, the thermal water brought to the surface by pumping, having temperature 60–75 °C even after use, is injected back thus ensuring that the system can be used in an economical and environmentally friendly way for a long time (Haffner 2013).

2.3.2 Biomass Utilisation

Biomass means the total weight of all living and recently dead bodies on land and in water, products of microbiological industries and all organic origin products and waste generated after transformation. Biomass can be divided into three groups based on its consistency and energy utilisation. Solid biomass can be used for heat and electricity production, liquid biomass (biofuel) can be used as propellant, while biogas can be used as propellant and also for heat and electricity production. Hungary's natural conditions are favourable for the use of biomass for energy purposes; this resource has the greatest potential for energy in the country (Pintér 2015). Total biomass reserves of the country are some 350 million tons, and the theoretical biomass energy potential is 417 PJ in Hungary (Lukács 2010). Due to the variety of available technologies, biomass can be used for energy purposes in

diverse ways. It is important to highlight that use of biomass can only be considered utilisation of renewable energy source while retaining certain criteria (use of locally produced biomass, use of covering local needs, production within the framework of sustainable management) (Somogyvári 2007). The gaseous form of biomass, the biogas, has approximately two-thirds of caloric value of natural gas that can be used to generate electricity and heat energy and combined heat and power during utilisation for energy purposes. Biogas can be produced by anaerobic fermentation of organic matter, during management of municipal wastewater, among others, by using sewage sludge generated at a sewage treatment plant. Approximately 0.2–0.4 m³ biogas can be recovered 1 kg of dry material. Biogas can be used by loading it into the natural gas network or by burning it directly in the gas engine. Approximately 1.8 kWh tradable electricity and 5.5 MJ heat energy can be produced by using 1 m³ biogas (Bai 2005). There are numerous examples of utilisation of solid biomass and biogas for energy purposes in the Southern Transdanubia region.

Research began in 1950s in Hungary on the energy recovery of wastewater generated by livestock. Daily 4–5 tons of manure generated on a pig farm were used for the research conducted on the site of Pécsi Állami Gazdaság, which was sufficient for the production of daily 200 m³ biogas. During the research conducted with semi-dry method, biogas has been produced successfully, which ensured the electricity and heat energy needs of the site. Agricultural biogas production and utilisation spread gradually in the country until the 1980s, when significant part of the country's natural gas network was completed, which reduced the importance of biogas production. After accession to the European Union, the opportunities provided by EU development funds for rural development purposes brought a significant upswing in biogas utilisation. Within the framework of New Hungary Rural Development Programme, opportunities opened for establishing biogas plant with 40–70% EU fund intensity. Biogas plants utilising agricultural by-products were established in the Southern Transdanubia, in Kaposvár, Kaposzsekcső, Bicsérd and in Bonyhád under the fund.

Kaposzsekcső is an agricultural town with approximately 1500 inhabitants, located on the border of Baranya and Tolna counties. The first biogas power plant of the Southern Transdanubia that produces electricity as well was established by HUF 1.23 billion investment in the town's industrial park in 2010. Manure and slurry generated on the town's livestock farms are used in three fermentation units of the plant with a total capacity of 7500 m³. The rated electricity generation capacity of the plant is 0.84 MW. In addition to the biogas plant, a bioethanol factory also operates on the site, and the by-products generated during its production are also utilised by the biogas plant, the waste heat of which is used by the bioethanol factory during its production. The bioethanol factory produces an average of 12.000 m³ bioethanol per year by using approximately 30.000 tons of corn, which is sold as fuel additive (Pálné Schreiner 2013).

2.3.3 Solar Energy Utilisation

Energy from the Sun reaches the Earth's surface through the Earth's atmosphere in the form of heat and light. The energy of solar radiation reaching the surface is constantly changing due to the Earth's rotation around its axis and its movement in elliptical orbit around the Sun, the Earth's axial tilt as well as to the change in weather conditions. As a result, the energy reaching the Earth's surface is changing between 200 and 100 W/m² (Sljivav and Topic 2014; Sljivac 2015). Hours of sunshine vary between 1740 and 2080 in Hungary; most of the radiation reaches the country in the southern areas of Transztisza, while the hours of sunshine exceed 2000 in the Southern Transdanubia and in the Alföld as well (Fig. 3).

Solar energy also can be utilised in a passive way by conscious design, choosing appropriate building materials and good orientation and by making use of other environmental conditions. In case of energy (active) utilisation, we distinguish between utilisation with solar collector and solar panel. Solar collectors are used to produce hot water for usage and heating; thus, these tools usually allow only local utilisation of heat energy only. Solar panels converts the energy of solar radiation into electricity, which can be used either for local purposes through battery storage and prompt use or by loading it into the power line system. Utilisation of solar energy has the highest specific investment cost and consequently long, 10–30-year payback period, yet it is one of the most common and popular methods of application of renewable energy sources (Bobok-Tóth 2010; Szabó et al. 2010).

The majority of new power plants established in the Southern Transdanubia region, using renewable energy sources, utilises solar energy. In addition to 1313

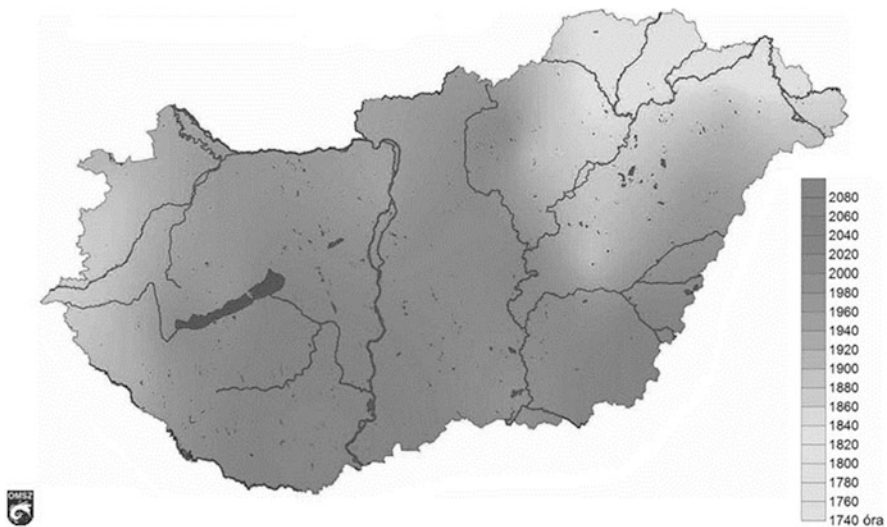


Fig. 3 Hours of sunshine in Hungary. Source: National Meteorology Office

(in 2014) household-sized small power plants (under 0.05 MW capacity) that are producing essentially for their own use, 10 (in 2014) solar power parks producing for network with a capacity primarily around 0.5 MW (however, consciously kept under that due to easier approval process) can also be found in the region. Such power plant with nearly 0.5 MW rated power can be found in Sellye and Szigetvár as well. Sellye is a small town with nearly 3000 inhabitants, centre of the poorest area of the Southern Transdanubia, the Ormánság. The solar power park in Sellye was handed over in 2012, which was the largest solar power plant of the country at the time. 3500 m² solar field surface was created on a 2.5 ha land, which has 0.49 MW rated electricity generating capacity. The average 800.000 kWh of energy generated per year ensures the annual electricity needs of approximately 250 households. The investment was realised from nearly EUR 1.5 million with 50% funding from the European Union and the Government of Hungary. Expected payback period of the investment with respect to the part above the funding is more than 10 years, and it is more than 25 years with regard to the total investment cost. Two solar power plants each with a rated power of 0.49 MW were established under similar parameters in Szigetvár in 2013, which is able to ensure the electricity needs of further nearly 500 households in the region.

The largest solar power park in the Southern Transdanubia and in the country as well has been handed over in the spring of 2016 in the centre of the Southern Transdanubia region and of Baranya county, in Pécs. The rated power of the solar power park built at the cost of more than EUR 15 million is 10 MW, which can ensure the needs of almost 5000 households. The investment was realised with funding from the European Union and the government of Hungary, which funded 85% of the costs. The solar power park is established on the previous ash lagoon of the power plant in Pécs presented above. Forty thousand solar panels have been installed on the 10 ha of land, in eight modules each with a capacity of 1.25 MW. The energy generated is loaded into the national power grid through the power plant in Pécs.

3 Conclusion

Increasing the proportion of renewable energy sources in the gross energy generation is a much more diverse and important goal than achieving the objectives set in the strategy. Hungary and countries of the European Union are poor countries in terms of energy sources; thus, they can ensure their energy needs solely by large-scale use of import. That means special security of supply risk for the countries of the European Union that is a current and growing problem due to the global political events of the past half-decade (Arabic spring, Russian-Ukrainian conflict). Less than 5 years before the deadline set for meeting the energy objectives of Europe 2020 strategy, both Hungary and many member states of the European Union must take serious measures in order to be able to fulfil the objectives. The projects realised in the Southern Transdanubia region, using renewable energy



Fig. 4 Power plants presented, using renewable energy sources in the Southern Transdanubia. Source: Edited by the author

sources, can be good examples for implementation of further developments in terms of utilisation of biomass, solar energy and geothermal energy (Fig. 4).

Acknowledgement The study has been prepared with support of research fellowship of the Pallas Athéné Geopolitical Foundation and of the Hungarian Talent Programme for Young Talent National Scholarship announced by the Ministry of Human Capacities.

References

- 2009/28/EC directive.
 40/2008. (IV. 17.) OGY határozat.
 Bai, A. (2005). *A biogáz előállítása: Jelen és jövő*. Budapest: Szaktudás Kiadó Ház.
 Bobok, E., & Tóth, A. (2010). A geotermikus energia helyzete és perspektívái. *Magyar Tudomány*, 171(8), 926–937.
 Energie 2020 strategy.
 Europe 2020 strategy.

- Fischer, et al. (2009). *Geotermikus villamosenergia-termelés lehetőségei Magyarországon*. Budapest: Regionális Energiagazdasági Kutatóközpont.
- Gööz, L. (2015). *Utilizing geothermal energy in Hungary today. Perspectives of renewable energy in the Danube region* (pp. 251–256). Pécs, Hungary.
- Gosztonyi, J. (2014). Az energiapolitika uniós aktualitásai. *Európai Tükör*, 16(1), 32–42.
- Haffner, T. (2011). *A közösségi energiapolitika helyzete és kihívásai* (pp. 279–310). Budapest: Magyarország és az Európai Unió.
- Haffner, T. (2013). *A közösségi energiapolitika helyzete és kihívásai – a megújuló energiaforrások alkalmazásának lehetőségei. II. Interdiszciplináris Doktorandusz Konferencia, Pécs, Hungary* (pp. 473–490).
- Haffner, T. (2015). *A magyar energiapolitika történeti áttekintése. III. Interdiszciplináris Doktorandusz Konferencia, Pécs, Hungary* (pp. 359–376).
- Haffner, T., & Schaub, A. (2015). Paz energiahatékonyság fokozásának és megújuló energiaforrások használatának támogatási lehetőségei. *Köztes Európa*, VII(17–18), 130–145. Hungary's National Renewable Energy Action Plan 2010–2020.
- Katona, J. (2009). *Energiapolitika* (pp. 1163–1188). Budapest: Bevezetés az Európai Unió politikáiba.
- Lukács, G. S. (2010). *Book of renewable energies*. Budapest: Szaktudás Kiadó Ház.
- Mezősi, A. (2014). Drága-e a megújuló? – A hazamegújuló villamosenergia-termelés hatása a villamosenergiaárra. *Vezetéstudomány*, 45(7–8), 40–52.
- Olajos, P., et al. (2011). A megújulóenergiaforrások szerepe az energiaellátásban. *Európai Tükör*, 13(4), 78–84.
- Pálné Schreiner, J. (2013). *Alternatív energiák hasznosítási megoldásainak vizsgálata. Dél-Dunántúli régió fejlesztése* (Vol. II, pp. 466–505). Pécs, Hungary.
- Pintér, G. (2015). *Biomass transportation into power plants – calculation method of transportation distances. Perspectives of renewable energy in the Danube region* (pp. 348–355). Pécs, Hungary.
- Sljivac, D. (2015). *Solar energy resources in the Danube region. Perspectives of renewable energy in the Danube region* (pp. 257–256). Pécs, Hungary.
- Sljivac, D., & Topic, D. (2014). *The radiation energy of Sun. Solar energy and environment* (pp. 11–12). Hungary: Pécs-Osijek.
- Somogyvári, M. (2007). *A biomasszaenergetika felhasználásának etikaivonatkozásai. A biomasszaalapú energiatermelés* (pp. 10–22). Pécs, Hungary.
- Szabó, S., et al. (2010). Risk adjusted financial costs of photovoltaics. *Energy Policy*, 38(7), 3807–3819.
- Szemlér, T. (2011). Születőben az európai titis? *Európai Tükör*, 13(2), 69–77.

Making Street Lighting ESCO Projects Work in Practice



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Abstract Enhancing energy efficiency is one of the core EU goals determined by the 2012 Energy Efficiency Directive and thus mandatory for all EU member states. The ways of implementing the Directive's energy consumption targets are set in national plans for energy efficiency. Quality street lighting is a public obligation towards the citizens due to personal and road safety and because of good visibility and urban feeling in populated areas.

Street lighting installations are classified as simple constructions, which make them simpler for implementing energy efficiency-targeted measures. These projects are shorter and cheaper than other energy efficiency projects and thus are considered easier to implement for public authorities. Depending on national regulation of the EU member countries, street lighting projects are contracted under public procurement procedures as energy performance contracts (EPCs). The most important feature of EPCs is that the investments in energy efficiency renovation are repaid from the savings in energy consumption over the contracted period. This simple rule is nevertheless very complicated to implement in practice due to many reasons such as ownership rights on the street lighting infrastructure, insufficient public administration capacity for energy efficiency project implementation, insufficient funds, problems with energy efficiency improvement verification and measurement, complicated regulation on public procurement and/or energy service contracting, fiscal rules, etc.

ESCO financing schemes have been promoted as innovative mechanisms for financing energy efficiency projects throughout the EU. Their popularity originates from the public sector indebtedness and inability to finance improvements in energy efficiency via traditional, budgetary project financing mechanism. ESCOs have been encouraged in the Western Balkans region by the international financial

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institutions and the governments. However, they are still not contracted smoothly in practice. This paper aims to investigate why.

The chapter analyses regulatory and practical issues for energy performance contracting in Croatia with respect to street lighting renovation. The analysis includes, but is not limited to, public procurement and public debt rules. Based on the practical experience in implementing several projects for street lighting renovation, the chapter highlights the possible changes in energy efficiency regulation and practical approach to public authorities to make the ESCO projects in street lighting work better in the future.

Keywords Street lighting • Energy performance contracting • ESCO • Public procurement • Project finance • Croatia

1 Introduction

The EU Energy Efficiency Directive's goal is to achieve energy efficiency target of 20% in primary energy consumption by 2020 (EC 2012a, b). Even though it is primarily directed to public buildings, the street lighting equipment and installations are considered as simple public constructions,¹ which make them good candidates for achieving energy saving measures set in the national energy saving plans of the EU member states. Street lighting has been one of the ten identified sectors for implementing energy efficiency measures at a level of 50% of green public procurement (GPP) by 2010 (EC COM 2008). Street lighting typically accounts for 30–50% of the total electricity consumption of municipalities, 15% of global electricity consumption and 6% of global greenhouse gas emissions (UNEP/GEF 2013). According to the estimates disclosed by the EC, DG Communications Networks, Contents and Technology (2013), there are more than 90 million traditional street-lights in Europe, with more than 75% of installations older than 25 years. Energy efficiency measures in street lighting include replacement of lamps, new control systems for street lighting operation, system optimization, retrofitting the poles, complete replacement of luminaires, etc. Due to obsolete infrastructure, street bulb replacement and street light renovation represent a necessity, and a growing number of public authorities pay attention to environmental and economic benefits of such replacements. Depending on the targeted area, investment costs of street lighting renovation range from a few thousands of euros to several million euros with a project payback period typically of up to 10 years. Solid-state lighting (SSL) technology based on light-emitting diodes (LED) is perceived as the one that can achieve both savings of up to 70% of electricity consumption in lighting and significant savings in maintenance and operation costs, reduce CO₂ emissions and

¹As such they are excluded from the full application of the Energy Performance of Buildings Directive (2010), which is the main regulation prescribing the reduction of energy consumption in buildings.

contribute to road safety, compared to the current old lighting installations (EC, DG Communications Networks, Contents and Technology 2013). Due to rapid development of LED-based technology, their technical qualities may vary significantly, while information provided by manufacturers/suppliers may skilfully hide the required technical specifications set in publicly procured tenders. To help public authorities contract cost-effective street lighting renovation, a technical guidance on street lighting and traffic lights has been available from 2012 (European Commission – DG Environment 2012; Valentová et al. 2012; European Commission 2012a). In addition, 2011 many cities opt for intelligent lighting solutions, such as smart controls for dynamically changing lighting levels in response to different times during the night and specific citizen needs.

Energy performance contracts (EPCs) became a synonym for cost-effective measures in energy efficiency (EE) projects. The Energy Efficiency Directive (2012) defines EPC as “a contractual arrangement between the beneficiary and the provider of an EE improvement measure, verified and monitored during the whole term of the contract, where investments, i.e. work, supply or service, in that measure are paid for in relation to a contractually agreed level of EE improvement or other agreed energy performance criterion, such as financial savings”. The European standard EN 15900:2010 defines EE services as agreed tasks for EE improvement and other agreed performance criteria accomplishment, which include an energy audit (identification and selection of actions) and the implementation plan combined with the measurement and verifications of energy savings. The improvement of EE measures has to be quantified and verified over a contractually defined period of time through contractually agreed methods. Thereby, the EE improvement measures may rely on the substitution or improvement of technology, better use of technology and/or behavioural change. Under an EPC arrangement, an external organisation known as an energy service provider or an energy service company (abbreviated as ESCO) develops, implements and finances an EE project or renewable energy project and uses the stream of its income arising from the cost savings or the renewable energy produced to repay the costs of the project, including its investment costs (Bertoldi and Rezessy 2005). Thus, the three defining characteristics of ESCOs are ESCOs guarantee energy savings and/or provision of the same level of energy service at lower cost; the remuneration of ESCOs is directly tied to the energy savings achieved; and ESCOs can finance or assist in arranging financing for the operation of an energy system by providing a saving guarantee (Bertoldi et al. 2014). The Energy Efficiency Directive (2012) further defines an ESCO as “a natural or legal person who delivers energy services or other EE improvement measures in a final customer’s facility or premises”. According to Bertoldi and Rezessy (2005), ESCOs can provide a range of services including, but not restricted to, energy analysis and audits, energy management, project design and implementation, maintenance and operation, monitoring and evaluation of energy savings, property/facility management, energy and/or equipment supply, provision of service such as heating/cooling or lighting, advice and trainings, etc. Such a broad number of services qualify ESCOs as turnkey service providers in many cases. EPC has been in use since the 1980s in the EU (Mayer et al. 2010).

Still, it has not gain popularity until the launch of the EPC campaign in the EU at national, regional and local levels in 2012. EPC is now accompanied with the 2014–2020 financing framework promoted by the European financial institutions such as EIB, EBRD and CEB and national authorities.

The success of street lighting EE renovation projects depends very much on the national EE policies of the EU member countries. Various *ex ante* and *ex post* EE project implementation grant mechanisms have been designed and available to different types of end-users, including both public and private sector entities. Although the EU policy has been stimulating ESCO market development through various programmes and support measures from the 1990s, many EU member state national markets have not been receptive to such measures so far. Many EU countries have failed in designing adequate grant schemes for EE as well. Thus, the differences between ESCO market developments are great on the common EU territory.

The establishment of the first ESCO in Croatia was funded by the World Bank in 2003.² In the following decade, about ten ESCOs have been set up. Nevertheless, street lighting renovation has until recently been widely neglected (Glavaš et al. 2012). According to the EEA, the public sector is obliged to maintain and reconstruct street lighting in order to reduce energy consumption and CO₂ emissions. It is obliged to analyse electricity consumption in street lighting at least once a year and deliver the data to the national coordination body—Centre for Monitoring Business Activities in the Energy Sector and Investments. The National Action Plan for Green Procurement for the period 2015–2017 (2015) identifies electricity as one of the seven identified sectors for implementing EE measures. It is anticipated that in 2017 the number of “green contracts” will reach 40% of all public contracts.

The goal of this paper is to analyse the energy performance contracting regulation and practice in Croatian municipalities, identify barriers to smoother and more frequent EPC and give recommendations in support of more intensive use of EPC mechanisms that should ultimately result in lower energy consumption and greater satisfaction of street lighting end-users. According to the valid administrative territory split, there are 555 local self-government units in Croatia, divided between 126 smaller or larger cities and 429 municipalities, 20 regional government units (counties) and the city of Zagreb that has a combined status of a city and a county. The fiscal strength of vast majority of public authorities is not sufficient to finance EE projects via traditional project delivery. Public authorities are obligors of public procurement rules, and the EU and national EE regulation give public authorities the leading role in conducting EE-targeted renovation projects.

This paper is organised in five sections. After the introductory part on the importance of street lighting in electricity consumption and defining features of energy performance contracting with the ESCOs, the second part of the chapter deals with the regulatory framework applicable for the street lighting renovation projects in Croatia. The second part of the chapter elaborates street lighting project

²<http://web.worldbank.org/archive/website00978/WEB/OTHER/6737A500.HTM>

renovation in line with the EE laws and rules; the third section explains the impact of fiscal and financing constraints on EE project implementation. The fourth part compares good and bad characteristics of energy performance contracting in street lighting in Croatia. The last part concludes by giving recommendations for smoother realisation of EE contracts in Croatia and in all other countries that may face similar constraints for EE project delivery.

2 Regulatory Framework of EPC

Public authorities (including local and regional self-government) implement energy efficiency projects either by contracting for equipment/work/service delivery with third parties (vendors) or by contracting for the energy service supply. According to the Utilities Act, public authorities have, among other duties, an obligation to ensure proper functioning of street lighting on their administratively determined territory. Although there may be some open issues regarding the ultimate legal ownership over certain parts of street lighting installations between the national electricity company and the local public authorities, the latter exercise economic ownership over the street lighting installations. As such, they are obliged to enable all the necessary permits required for street lighting renovation.

When public authorities contract for equipment/work/service rendering, they directly finance the investment. The process is also known as direct project financing, whereby it does not matter whether they finance the project by their own or borrowed funds. However, if public authorities borrow funds for this purpose, a two-way public tender procedure is required—one for obtaining the lacking funds and the other for contracting for equipment/work/service delivery.

Contracting for energy service is a single public tender procedure in which a contract-awarded energy service company (ESCO) provides energy services and finances the investment under an energy performance contract (EPC). As defined in the Energy Efficiency Act (EEA), an energy service is a service of implementation of an energy efficiency project and other related activities on the basis of an Energy Efficiency Performance Contract (EnPC/EPC), under which the energy service provider (ESCO) guarantees verifiable and measurable improvement of the energy efficiency and/or in savings in energy consumption and/or savings in water consumption to the client after project implementation. The ESCO takes over financing of the investment costs for renovation of street lighting installations, while the public authority pays to the ESCO for the provided energy service. The payments arise from the savings achieved as a result of the investment in EE improvement.

Contracting the energy service is governed by the Public Procurement Act (PPA), the Energy Efficiency Act (EEA)³ and the Regulation on Contracting and

³The Energy Efficiency Act came into force on November 5, 2014, and transposes into the national legal system the Directive 2012/27/EU of October 25, 2012, which supplements the Directive

Implementation of Energy Service in the Public Sector which enjoins a public procurement procedure in case of choosing an EPC.⁴ When contracting for energy service provision in street lighting renovation with ESCOs, public authorities can, as a rule, choose between an open procedure and a restricted procedure. The negotiated procedure and the competitive dialogue are rather an exception which can be exercised in very limited cases.⁵

The public authorities have no freedom of choice of contract award criteria with EPCs, since the EEA prescribes that the only possible award criteria shall be the most economically advantageous bid. It means that the quality of the bid must be judged based on the price (quantitative) as well as on the, by public authority itself set, qualitative criteria. The PPA hereby helps the public authorities by setting out a non-exhaustive list of qualitative criteria which may be chosen, such as the quality of products (service), delivery date, product life expectancy, aesthetic criteria, quality of after-sale service, etc. Such criteria do not need to be of a purely economic nature but, as a whole, must allow in determining the tender that offers the best value for money. The criteria, nevertheless, must be stated in a clear and concise manner that allows all reasonably well-informed and diligent tenderers to interpret them in the same way. The criteria and respective weighting must be indicated in the tender documents. If weighting is not possible for demonstrable reasons, the criteria shall be indicated by descending order of importance. When tenders are being assessed, the award criteria must be applied objectively and uniformly to all tenderers. The principle of transparency requires the disclosure of the existence, scope and relative importance of all the elements which a contracting authority takes into account to determine the most economically advantageous bid. Any subsequent refinement of the contracting authority evaluation methodology to include elements which had not been disclosed before submission of tenders is prohibited, unless they do not alter the criteria, do not affect the preparation of tenders and are non-discriminatory. In other words, contracting authority cannot apply weighting rules or sub-criteria which it has not previously brought to the tenders' attention.

Lots of decisions precede contracting the energy service delivery with an ESCO, such as defining the needs of a public authority for energy services, conducting an annual plan for energy service contracting that has to be submitted to national

2009/125/EZ and the Directive 2010/30/EU. The Energy Efficiency Act replaced the Act on Efficient Use of Energy in Direct Consumption (OJ 152/2008; 55/2012; 101/2013).

⁴Brought in OJ 69/2012 but superseded by the new one in OJ 11/2015.

⁵In very limited cases explicitly listed in the PPA, the public authorities shall have the right to follow a negotiated procedure or a competitive dialogue. These circumstances include (i) no tenders or no suitable tenders have been submitted in response to an open procedure or a restricted procedure, provided that the initial conditions of the contract are not substantially altered, (ii) the nature of a service and risks associated with the service prevent the tenderer to quote a price, (iii) the nature of services is such that the subject matter of a tender cannot be substantiated with sufficient accuracy and (iv) a tender is very complex, making the contracting authority believe that contract award in an open procedure or a restricted procedure is not a feasible option.

authorities not later than by October 1 of the current year for the next year, deciding on whether to contract the energy service via EPC or via traditional project delivery, etc. Once the decision on contracting energy service through EPC is made, the lengthy and demanding procedure of public procurement to choose an ESCO can start. The steps that need to be followed by public authorities from the moment of deciding on implementation of EE measures over choosing the ESCO and concluding the EPC with the ESCO to project implementation and determining the achieved savings thereof via verification and measurement protocol during the contract term are illustrated in Fig. 1. Even when the public authority opts for EPC, it has to run two separate public procurement procedures, unless below the procurement thresholds (HRK 200,000 for services and HRK 500,000 for works). The first one relies on contracting an energy audit service, while the second one refers to the EPC. An energy audit service is a so-called precheck for determining the current

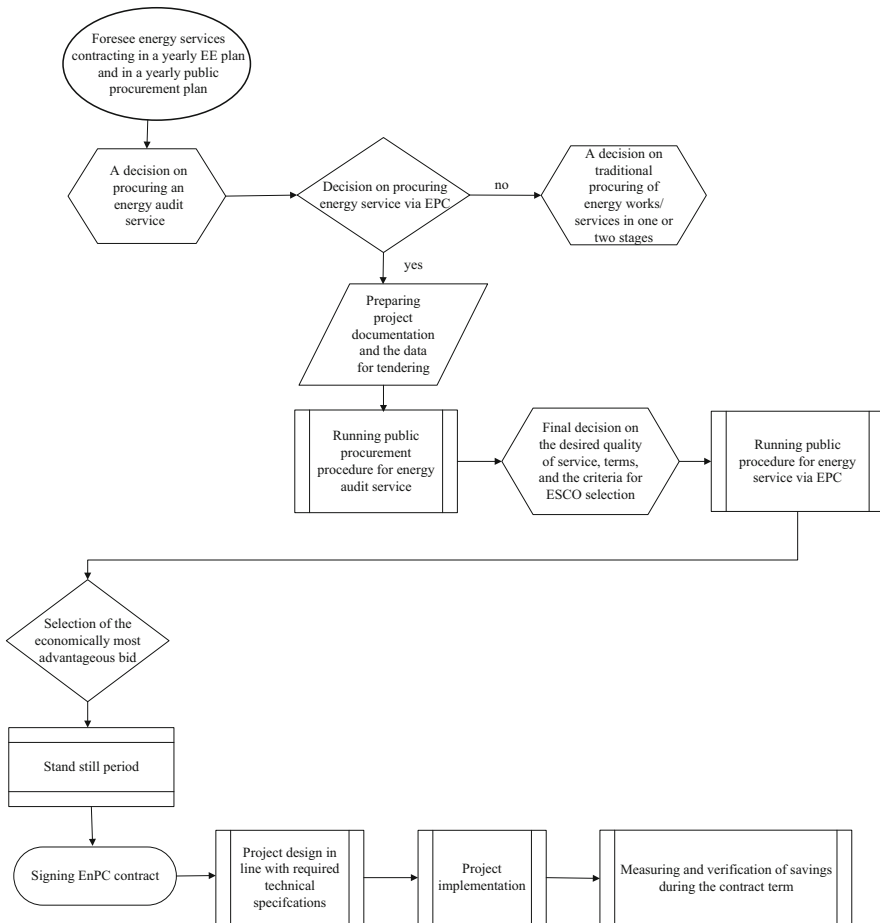


Fig. 1 EPC procedure between a public authority and an ESCO. Source: Authors' illustration

state of street lighting installation and electricity consumption thereof. According to the EEA, an energy audit must be conducted every 5 years. In addition, despite its complexity, the interim steps required for conducting street lighting renovation are considered simpler than for other constructions, as street lighting belongs to simple constructions according to the Law on Construction.

3 Financial Aspects of Energy Performance Contracts

Guaranteed saving energy performance contract in street lighting resembles financial leasing contract in terms of accounting treatment of the street lighting assets. Assets are kept and depreciated in the books of the ESCO until the end of the EPC when they are transferred to the public authority which is its owner all the time. The ESCO finances the investment costs of the street lighting installations up front and recovers its investment over the contract term. The contract term is divided into a project implementation phase and a guaranteed saving phase. In the first phase, the project is implemented, and there is no payment to the ESCO, while in the second phase of the contract, a stream of payments are transferred from public authorities to the ESCO if the guaranteed savings are achieved. The “baseline” scenario determined in the technical part of the project documentation is the starting point for calculating the project savings and thus ESCO’s fee which is earned in instalments during the guaranteed saving phase. Energy consumption and energy costs are compared to those of the reference year to avoid the influence of price fluctuations on the fee size during the guaranteed saving period.

The possibility to contract energy service rendering with an ESCO has provoked a growing interest of indebted Croatian public authorities as the debt incurred for the initial investment cost is kept off-the-public balance sheet during the EPC term. Energy service can be contracted even if public authorities do not have sufficient funds for street lighting renovation as ESCOs facilitate access to commercial financing (Sarkar and Singh 2010). The essence of the transaction is that electricity consumption bills charged regularly to the public authorities for the operation of street lighting do not change. Actually the electricity consumption bills are much lower for the public authority after the application of the EE measures, but the difference between the new amount due and the amount due before the street lighting renovation is a saving surplus used to gradually repay the investment and other costs of energy service provision to the selected ESCO during the guaranteed saving phase of the contract term. The higher the initial investment costs, the longer is the investment payback period, i.e. the longer the contract term with the chosen ESCO.

Croatian regulation recognises guaranteed saving contracts as a variant of EPCs. In such contracts, the ESCO is typically responsible for the entire design, installation and saving performance risks, while the client/public authority is responsible for financing the project. However, high levels of public debt altered the typical allocation of financing risk, common in guaranteed saving contracts in international

practice, as public authorities expect the ESCO to assume financing risk, i.e. credit risk arising from borrowing funds for project realisation. The payment in instalments, by public authorities to ESCOs, is conditional on regularly achieved guaranteed savings which is demonstrated by periodically measured and verified savings. If the savings are not as promised, there is no payment from the public authority, and hence, the entire financing risk remains with the ESCO. The model EPC with guaranteed energy savings goes hand in hand with the third-party financing, in which ESCO bears investment and credit risk; the municipality assumes operational and user behaviour risk, while other risks such as inflation or foreign exchange risk are typically shared between the ESCO and the public authority (Bertoldi et al. 2014).

Grant award for implementing EE projects has become very common in the public sector. Grant is a co-funding instrument in EE investments which is awarded in public calls. The calls for EE grants are typically issued annually for public authorities, and they are either open for a limited period of time, or they are open until the annual cap for supporting investment projects in all sectors is reached. Grants have been offered from the central budget via designated public institutions such as the Environmental Protection and Energy Efficiency Fund or the Croatian Bank for Reconstruction and Development, or they are available via EU programmes (EIB's ELENA, EBRD's WeBSEFF and others). Grant award is, nevertheless, also subject to the expected/proven savings after the implementation of the EE measures. Depending on the regional development of a project location, the Environmental Protection and Energy Efficiency Fund typically approves grants amounting from 40 to 80% of acceptable (justifiable) investment costs. Grant award is also subject to the upper limit of the investment value for street lighting reconstruction, meaning that depending on the specific call, smaller or larger projects can be preferred but also meaning that the same public authorities may turn larger projects into a stream of smaller projects hoping to get grants for their realisation year after year. The grants may be approved regardless of the prevailing financing option (traditional budgetary financing, third-party financing/ESCO or borrowing from commercial banks), or they may be bound to the loans. In the latter case, the amount of grant depends on the type of the borrower the grant programme has been designed for, i.e. public authority or the ESCO.

4 Practical Issues in EPC Implementation

Based on several case studies in EPC implementation performed in Croatia from 2014 to 2016, a number of advantages and barriers are identified and presented in Table 1. They are split according to the specific phases of EE project implementation as well as according to some general observations. The observed advantages and disadvantages are described from a public authority's stance as public authorities are bound by law to implement the EE measures in street lighting.

Table 1 Advantages and disadvantages of EPC from public authorities' view

Project phase	Advantages	Disadvantages
Pretendering phase	<ul style="list-style-type: none"> Public authorities are expected to prepare as many documents as possible in advance, anticipate public needs and define the scope of the project 	<ul style="list-style-type: none"> A rather complicated interference of governing regulatory and by-regulatory acts Timing caused by administrative and fiscal reporting rules
Tender preparation phase	<ul style="list-style-type: none"> Technical assistance funded from the EU/IFIs for preparing tender documentation is available The criteria for evaluating the ESCOs' bids need to be prepared and disclosed in advance 	<ul style="list-style-type: none"> Technical knowledge of public authorities with regard to defining technical scope of the project, preparing tender documents and setting the criteria for tenderer selection is limited Reliance on available grant programmes Long decision-making process by public authorities which raises the transaction costs of project implementation A tendency of public authorities to prefer lower price bids
Tendering phase	<ul style="list-style-type: none"> Transparency of public authorities towards the ESCOs Flexibility to contract whatever type of energy service ranging from design to operation of street lighting Strict fiscal rules are avoided 	<ul style="list-style-type: none"> High administrative requirements towards the tenderers A lengthy process
Project implementation	<ul style="list-style-type: none"> Public authority remains the legal owner of street lighting equipment Public authorities are held responsible for all permits necessary for project implementation Public authorities let ESCO take over major project risks 	<ul style="list-style-type: none"> No shared saving contracting is explicitly allowed, and hence there are no incentives for the energy efficiency greater than the guaranteed ones Shared ownership over street lighting infrastructure between public authorities and utilities complicates complex project implementation Public authorities cannot choose between the preferred financial options

Source: Authors

In a *pretendering phase*, a public authority has to determine the current condition of street lighting by conducting an energy audit check. Based on this report, it has to define public needs and the scope of the project, estimate maximum affordable investment costs of the street lighting renovation and choose between various technical solutions available in the market on the public cost-benefit principle. Fiscal position of public authorities is very important as it influences the preferred financial option and thus the whole tendering procedure via traditional

or project-based financing. The mixture of governing laws and by-laws for EE is substantial, ranging from EE acts, over budgetary acts, to construction laws and ownership laws. The list of the applicable laws includes, but is not limited to:

- EPC-related regulatory framework which includes Energy Efficiency Act (OJ 127/14), Environment Protection and Energy Efficiency Act (OJ 107/03), by-law on contracting for and execution of energy service in public sector (OJ 69/12), by-law on methodology for calculating and defining a framework energy saving goal in immediate consumption (OJ 40/10) and by-law on methodology for monitoring, measurement and verification of energy savings in immediate consumption (OJ 77/12)
- Laws related to procurement of energy service: Public Procurement Act (OJ 90/11, 83/13, 143/13), by-law on drafting and handling of public tender documentation and tenders (OJ 10/12) and by-law on supervision over execution of Public Procurement Act (OJ 10/12)
- Fiscal rules: Budget Act (OJ 87/2008, 136/2012, 15/2015), State Budget Execution Act adopted in the beginning of each year (see, for instance, OJ 26/2016), Law on Fiscal Responsibility (OJ 139/2010, OJ 19/2014), economic and fiscal policy guidelines adopted for a 3-year period and by-law on the procedure for borrowing and issuing of guarantees and approvals of local and regional self-government (OJ 55/2009, 139/2010)
- Other related regulations such as Ownership Act, Utilities Act, Public-Private Partnership Act, etc.

In terms of ESCO market development, timing of public authorities' decision on EE renovation is very important. Substantial time can pass from the decision to implement the project with an ESCO as an EPC to announcing the tender in the market. Although the preparatory process of the tender is complex and time-consuming, it is, at the same time, a good experience for the public authorities as ultimate owners of the project, because it makes them aware of many aspects of project implementation and spares them time and effort during the project implementation phase. Nevertheless, public authorities are severely constrained with administrative and fiscal rules that influence project timing. If a public authority has not identified its intention to run the public procurement for energy audit until October 1 of the current year and if it cannot reallocate funds from other budgetary revenue items in the next year for such purpose, the investment into better energy service is postponed for a full calendar year. Public procurement plans are just a reflection of financial plans that need to be prepared by the public authorities and submitted to the Ministry of Finance by September 15 of the current year for the next year. Public authorities' plans include revenues and receipts presented by type, expenditures and expenses for a 3-year period, an explanation of the financial plan proposal and a development plan. Project timing may be influenced by the final decision on available grant programme award. However, the fact that public authorities applied for a grant does not necessarily postpone tender announcement as the intention of financing a part of the project costs needs just to be disclosed clearly in tender documentation together with the amount of expected funding from

grant. The latter is subject to public authority judgement as it depends on the number and quality of all projects nominated for grant funding as well as on the total available public funds for grant payment.

Tender preparation phase is the most demanding one for public authorities. This is because the public authorities must prepare and publish an EPC as part of tender documentation. Often they lack sufficient technical expertise in preparing the tender documents for procurement of the energy service and thus heavily rely on energy audits and pre-assessments of the condition of street lighting infrastructure on their area. The overall decision-making process is slow with public authorities, which is not a sole characteristic of engaging into street lighting projects but in other investment projects as well. Public authorities often “wait for somebody” to decide on something related to the tender announcement or “wait for something” such as the decision on grant availability for the designated project to determine the maximum investment cost in tender announcement. However, the technical assistance from the EU-/IFI-funded programmes is available to all interested public authorities. The financial (quantitative) and nonfinancial (qualitative) criteria for tenderer’s scoring and selection need to be prepared by public authorities in advance. However, since the value of public procurement is all-cost inclusive, the value of investment turns out to be pretty high in most cases, prolonging the project payback period. Hence, the public authorities put the highest weight to price criterion. This criterion can be both favourable and unfavourable for public authorities. The former case occurs when the price criterion relies on the whole economic lifetime of the street lighting usage (total cost of ownership approach), while the latter case occurs when the price is calculated only based on the criterion of investment payback period.

Tendering process may be very lengthy, especially if there are tenderers who appeal the final decision on ESCO selection before the State Commission for Supervision of Public Procurement Procedures. The tender process lasts 6–8 months on average. The probability for lengthening the tendering process increases proportionally with the poorly defined tender requirements. Hence, the time spent on tender preparation may be well repaid in later stages of the project contracting and implementation. It is especially true for the draft version of the EPC contract that is disclosed within the tender documentation. The general tenderer exclusion and selection criteria in public procurement often prevent the tenderers from bidding. The sense for both market demand and supply is crucial in determining the criteria for ESCO selection. For example, if there have not been any contracted ESCO projects in EE in the near past, then the range of acceptable EE projects in the reference list has to be broadened to include the similar in scope EE projects that have been realised in the market. An advantage of contracting the energy service with the ESCO is the flexibility of the public authorities to choose whatever type and scope of energy service, ranging from project design to control of operation and maintenance of renovated installations. The public authorities often exclude maintenance and operation from the energy service provision as they have long-term maintenance contracts with local vendors and as they like controlling street lighting operations themselves. Regarding fiscal constraints, it has to be noted that the total debt and debt securities issued by public authorities at all levels of government are

consolidated into the national public debt. For this reason, the central government imposed restrictions on debt issuance to local public authorities. The State Budget Execution Act, enacted on a yearly basis, discloses the total amount of the public debt at the end of the budget year, as it gives the guidelines for the maximum amount of the new debt that can be issued during the current fiscal year. A local or regional government can make long-term borrowings only for an investment financed from its own budget and approved by its representative body with a prior consent of the Minister of Finance (for investments of up to 10 million HRK, i.e. about 1.4 million euro) or with the consent of the central government (for investments of more than 10 million HRK). All borrowings and debt securities issued cannot exceed a maximum additional debt limit. The total annual liability of a local and regional self-government unit can amount to 20% of its revenues realised in the year preceding the year when the self-government unit makes borrowings. An additional limitation sets a cap for all self-government units' borrowings to a maximum 3% of all budgetary revenues realised by all self-government units in 2015 for the 2016 fiscal year (this amount typically varies between 2 and 3% depending on the fiscal year in question). According to the State Budget Execution Act, the limitation on self-governments' borrowings does not apply for projects cofinanced from the EU funds, for energy efficiency projects and for projects performed by the self-government units in the areas of special government concern. Public authorities can issue performance guarantees based on the received advances in money or assets for infrastructure projects conducted according to the joint venture on concession principles. However, promissory notes, often required by the vendors in contracts concluded with public authorities, create future obligations for the state budget and can be issued only after the approval of the Ministry of Finance.

Project implementation phase is the longest one, especially for big street lighting renovation projects. Public authorities let the ESCO bear major project implementation and financial risk while staying the ultimate legal owners of the project. Operational risk is taken by the public authorities, while other risks that may influence the size of payments and external risks that are not controlled by either contracting party are most frequently a shared responsibility. The energy performance contract obliges the public authority to obtain all the necessary permits for project implementation; hence, there are no excuses for project delay thereof. The Croatian legislation does not account for shared saving contracts, meaning that additional savings over the guaranteed ones are not valued and cannot be used for ESCO company selection. Another significant drawback is the inability of the public authorities to influence the preferred financial option(s) of the ESCO, even if such financial option(s) benefit(s) the public authorities. It often happens that the public authorities want to obtain the grant that would decrease the project costs, but the ESCO may be more prone to financing the project with its own funds as it is irrelevant to them whom the stream of payments comes from (public authorities or grant-awarding public institutions). Shared ownership over street lighting infrastructure between public authorities and utilities in charge for certain infrastructure installations may not be an obstacle in street bulb renovation but can be an issue in complex renovations of street lighting installations.

5 Conclusion

This paper gives an overview of regular and practical issues in implementing energy efficiency-targeted renovation projects in street lighting. It combines regulatory and financial approach which is very difficult to find in available literature on energy performance contracting. While regulation on implementing EPC is very comprehensive, it is yet scattered between various regulations and by-laws ranging from construction legislation over public procurement to energy laws and fiscal rules. Public authorities are, despite available technical assistance provided by EU institutions, very much left on their own to achieve demanding energy consumption reduction requirements. Public authorities need to define technical characteristics of street lighting equipment and adjust them to available budget and end-user needs. Most of them do not understand the essence of ESCO model contracting and have concerns on disobeying numerous fiscal restrictions imposed by the central government on a regular basis. There is no generic EPC contract template with a preapproved content by the governing ministries for energy and finance, which public authorities can use for the contracting and achieving their energy efficiency goals. Time-consuming public tender preparation and tendering process as well as availability of grants to fund EE projects make public authorities postpone the EE investments and wait for (central government's) grant availability. Meanwhile, old street lighting infrastructure installations do not fulfil public needs. Last but not the least, private sector is reluctant to participate in public bidding process as they find public procurement rules too rigid and too complex for a possible earning margin they can achieve if selected in the tender procedure.

In a nutshell, a lot of effort has to be invested by public stakeholders to promote EPC contracting to public authorities and simplify the procedure required for EPC contracting for the benefit of both public authorities and the private sector.

References

- Bertoldi, P., & Rezessy, S. (2005). *Energy service companies in Europe – Status report*. European Commission, DG JRC, Institute for Environment and Sustainability, Renewable Energies Unit. http://www.energetska-efikasnost.ba/Publikacije/Literatura/ENERGY_SERVICE_COMPANIES_IN_EUROPE.pdf
- Bertoldi, P., et al. (2014). *ESCO market report 2013*. European Commission, JCR Science and Policy Reports. http://iet.jrc.ec.europa.eu/energyefficiency/system/tdf/jrc_89550_the_european_escos_market_report_2013_online.pdf?file=1&type=node&id=8869
- Energy Efficiency Directive (EED, 2012/27/EU). <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012L0027&from=EN>
- European Commission. (2008). *Public procurement for a better environment*. COM (2008) 400 of 16 July 2008.
- European Commission. (2012a). Commission Regulation No. 1194/2012 of 12 December 2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to eco-design requirements for directional lamps, light emitting diode lamps and related

- equipment. *Official Journal of the European Union*, L342, 1–22. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:342:0001:0022:en:PDF>
- European Commission. (2012b). *GPP – Green Public Procurement – A collection of good practices*. http://ec.europa.eu/environment/gpp/pdf/GPP_Good_Practices_Brochure.pdf
- European Commission – DG Environment. (2012). *Street lighting and traffic lights technical background report*. http://ec.europa.eu/environment/gpp/pdf/tbr/street_lighting_tbr.pdf
- European Commission, DG Communications Networks, Contents and Technology. (2013). *Lighting the cities – Accelerating the deployment of innovative lighting in European cities*.
- European Commission, DG Environment. (2016). *Buying green – A handbook on green public procurement* (3rd ed.). <http://ec.europa.eu/environment/gpp/pdf/Buying-Green-Handbook-3rd-Edition.pdf>
- Glavaš, H., et al. (2012). Quality and energy efficiency of public lighting in the area of the Osijek-Baranja county. *Tehnički Vjesnik*, 19(3), 549–556.
- Mayer, A., et al. (2010). *Energy performance contracting in the European Union: Creating common “model” definitions, processes and contracts*. <http://www.institutebe.com/InstituteBE/media/Library/Resources/Existing%20Building%20Retrofits/Issue-Brief-Energy-Performance-Contracting-in-the-EU-Part-2.pdf>
- Sarkar, A., & Singh, J. (2010). Financing energy efficiency in developing countries—Lessons learned and remaining challenges. *Energy*, 38, 5560–5571. <https://doi.org/10.1016/j.enpol.2010.05.001>.
- The United Nations Environment Programme/Global Environment Facility – UNEP/GEF. (2013). *The rapid transition to energy efficient lighting: An integrated policy approach*. <http://www.enlighten-initiative.org/portals/0/documents/Resources/publications/en.lighten%20Brochure%20PDF.pdf>
- Valentová, M., et al. (2012). *Public procurement of LED lighting in EU member states*. European Commission, JRC scientific and policy reports. http://iet.jrc.ec.europa.eu/energyefficiency/system/tidf/public_procurement_of_ssl.pdf?file=1&type=node&id=7358

Fiscal Consolidation - Impact on Labor Market Outcomes



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Abstract Recent global economic crisis and the concerns about long-term sustainability of public finances have resulted in stronger implementation of fiscal consolidation measures. In this context, consolidation has received a lot of attention in both theoretical and empirical literature with the large number of papers investigating its impact on different aspects of economy. Although fiscal consolidation has long been recognized as a hot issue, the literature does not offer a consensus on the impact of fiscal consolidation. Theoretical considerations offer a rationale for both contractionary and expansionary effect of fiscal consolidation on economic activity. Given this state of theoretical literature and quite ambiguous predictions, it is no wonder that the empirical literature has provided evidence supporting both of these views.

At the same time, investigation of fiscal consolidation on labor markets has received relatively little attention (IMF, Fiscal monitor-back to work: How fiscal policy can help, 2014). Given that one of the main goals of economic policy is labor market outcomes, we find this topic extremely relevant. The existing literature indicates that fiscal consolidation can result in long-lasting negative effects on the labor market (IMF, Fiscal monitor-back to work: How fiscal policy can help, 2014). In addition, the literature also recognizes possible positive effects of fiscal consolidation. This paper adds to the literature by tackling the issue of fiscal consolidation through an empirical investigation focusing on labor market. More precisely, it investigates the effects on a set of specific labor market outcomes: employment, unemployment, and activity. Given that the debate on labor market impact of expenditure-based versus revenue-based consolidations is not settled in the literature, the special attention in this paper has been dedicated to the effects of the design of fiscal consolidation on the labor market outcomes. Additional contribution of this paper relates to the usage of the relatively new database on fiscal consolidations (Devries et al., A new action-based dataset of fiscal consolidation (IMF Working Paper No. 11/128). International Monetary Fund, 2011) in 17 OECD

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countries covering the period 1978–2009. This new approach, following the narrative approach introduced by Romer and Romer (*American Economic Review*, 100 (3), 763–801, 2010), suggests that previous empirical literature has been contaminated by using the indicators for fiscal consolidation which may be subject to serious mismeasurement errors leading to a strong bias toward finding an expansionary effect of fiscal consolidation. Recognizing this as a serious obstacle, the present paper first provides a brief review on the problems in the previous literature and then applies the empirical investigation using the new database which successfully removes most of the problems in providing the representative indicators for fiscal consolidation. Using these new indicators, the paper next provides a thorough empirical investigation through the use of panel data analysis. The findings from this investigation provide novel empirical evidence concerning the effects of fiscal consolidation on labor market outcomes.

Keywords Fiscal consolidation • Labor market outcomes • Panel data

1 Introduction

Recent global economic crisis and the concerns about long-term sustainability of public finances have pushed a number of countries toward implementing fiscal consolidation measures. In this context, consolidation has once again started receiving a lot of attention in both theoretical and empirical literature with a large number of papers investigating its impact on different aspects of economy. Although fiscal consolidation has long been recognized as a hot issue, the literature does not offer a consensus on the impact of fiscal consolidation. Theoretical considerations offer a rationale for both contractionary and expansionary effect of fiscal consolidation on economic activity. Given this state of theoretical literature, it is no wonder that the empirical literature has provided evidence supporting both of these views. As a consequence, this amounts to quite a big problem for policy makers as they are on one side pushed toward fiscal consolidation, while on the other side, they lack a clear idea what these measures might be bringing about across the economy. Given that one of the main goals of economic policy is labor market outcomes, the current paper sheds additional light on this very important issue. It investigates the effects of fiscal consolidation on labor markets that has received relatively little attention (IMF 2014). More precisely, it investigates the effects on a set of specific labor market outcomes: employment, unemployment, and activity rate. Additional contribution of this paper relates to the usage of the relatively new database on fiscal consolidations (Devries et al. 2011) in 17 OECD countries covering the period 1978–2009. This new approach, following the narrative approach introduced by Romer and Romer (2010), suggests that previous empirical literature has been contaminated by using the indicators for fiscal consolidation which may be subject to serious mismeasurement errors leading to a strong bias toward finding an expansionary effect of fiscal consolidation.

Recognizing this as a serious obstacle, the present paper first provides a brief literature review and then applies the empirical investigation using the new database. The findings from this investigation provide novel empirical evidence concerning the effects of fiscal consolidation on labor market outcomes.

The paper is structured as follows: Sect. 2 provides the literature review and in doing so identifies the gaps/problems in previous literature on the topic of the effects of fiscal consolidations. Section 3 explains the modeling strategy and presents the most important findings from the empirical investigation. Section 4 concludes.

2 Theoretical Background and Literature Review

In theory, there are two main channels regarding fiscal consolidation effects on macroeconomic variables: the wealth effect and the confidence (trust) effect. The most important studies that have investigated these effects of fiscal consolidation are the following: Alesina and Ardagna (1998, 2012), Barrios et al. (2010), and Guajardo et al. (2011). The results of empirical studies that examine the effects of fiscal consolidation differ considerably. Exploring the period of fiscal consolidation in all OECD countries in the period from 1960 to 1994, Alesina and Ardagna (1998) concluded that the decrease in public expenditures is more effective for economic growth than tax increases. The same authors obtained similar results using a sample with an extended period of time (Alesina and Ardagna 2012). On the other hand, Guajardo et al. (2011) found evidence according to which fiscal consolidation results in contraction of economic activity. The IMF (2010) also points out that consolidation results in negative economic growth in the short-term but possible expansion in the long-term. Based on the estimated economic models, Barrios et al. (2010) have revealed the determinants of successful consolidations, considering the role of various preconditions: the impact of the financial crisis, the level of public debt and budget deficit, the adjustment of the exchange rate, effect on economic growth, and others. When it comes to the initial economic conditions for the implementation of the fiscal consolidation, the survey results also differ. While one group of authors argues that the fiscal adjustment is more successful if carried out during or immediately after periods of recession (Drazen and Grilli 1993), others believe that a period of expansion is the right time to consolidate (Von Hagen and Strauch 2001).

However, there is an important lack of studies dealing with the impact of fiscal consolidation on labor market. Several papers (Farmer 2009; Romer 2012) dealing with this issue are based on the impact of fiscal policy on labor market. The papers closely related to ours are Turrini (2013) and Bova et al. (2015). Turrini (2013) estimates the impact of fiscal consolidation on unemployment and job market flows across EU countries. His results show that the impact of fiscal adjustment on cyclical unemployment is temporary and significant mostly for expenditure measures. Bova et al. (2015) examine the role of fiscal policies in the dynamics of the

labor market. Through the lenses of the Okun's law, they try to estimate how fiscal policy instruments affect labor market outcomes, primarily employment. Using a panel of 34 OECD countries over the period 1985–2013, they find that fiscal consolidation has a sizeable, positive, and robust impact on the Okun's coefficient. Besides them, Dell'Erba et al. (2014) also examine the consequences of fiscal adjustments in times of persistently low growth and high unemployment. They find that cumulative fiscal multipliers related to output and employment at 5-year horizons are significantly above one during recession episodes.

Earlier presented papers (except Turrini 2013) identify periods of fiscal consolidation on the basis of changes in the cyclically adjusted primary balance. As mentioned in Introduction, this may be problematic, and one of the contributions of the present paper is that we focus on episodes of fiscal consolidations identified through the narrative approach introduced by Romer and Romer (2010). The literature review presented in this section suggests a lack of consensus on the impact of fiscal consolidation on economic activity. This may come as a surprise given the length of the continued research in economic science on this topic, as well as different approaches by many authors that have dealt with fiscal consolidations. In this context, one natural suspect comes to mind as to why this is so. How do you identify and measure fiscal consolidation? This becomes a crucial question in empirical investigation of fiscal consolidation and its effects. A usual approach in the literature (e.g., Giavazzi and Pagano 1990 or Alesina 2010) to identify fiscal consolidation has been to use the budget outcomes (primary balance) in the form of the cyclically adjusted primary balance. As argued by Ball et al. (2013), the cyclical adjustment is needed because tax revenue and government spending move automatically with the business cycle. Unfortunately, it may be shown that previous empirical literature has been contaminated by using these indicators for fiscal consolidation which may be subject to serious mismeasurement errors leading to a strong bias toward finding an expansionary effect of fiscal consolidation. Ball et al. (2013) argue that cyclical adjustment does not fix the problem as cyclical adjustment suffers from measurements errors. More specifically, it fails to remove swings in government tax revenue associated with asset price or commodity price movements from the fiscal data, resulting in the changes in cyclically adjusted primary balances that are not necessarily linked to actual policy changes. An additional problem is that this ignores the motivation behind fiscal measures. The recent narrative approach, introduced by Romer and Romer (2010), seems to provide a solution to the problems identified above. It requires the researchers to look directly at policy actions, where the researchers examine the accounts and records of what the countries actually did (IMF 2010). Although this may seem as a very complicated and tiresome task, it was exactly what Devries et al. (2011) did and obtained the new database which successfully removes most of the problems in providing the representative indicators for fiscal consolidation. This database includes 17 OECD countries covering the period 1978–2009, and it will be used in the empirical investigation in the present paper.

The above review points toward a lack of consensus concerning the impact of fiscal consolidation, allowing for both positive and negative effects on economic

activity. Without an ambition of resolving this conflict of theoretical points of views and the related empirical findings, the present paper attempts to add a modest contribution to the debate through an empirical investigation of the effects of fiscal consolidation on the variables that appear to be under-investigated. To this end, the next section focuses on the empirical investigation, particularly accounting for the effects of fiscal consolidation on the labor market outcomes, unemployment, employment, and activity rate.

3 Data and Empirical Investigation

As suggested above, this paper uses the new database on fiscal consolidation provided by Devries et al. (2011). This database has got the advantage of successfully avoiding the problems that contaminated much of the previous empirical literature. The newly obtained data by Devries et al. (2011) reports the data on fiscal consolidations in the OECD countries. The sample of our countries thus includes the following countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, Portugal, Spain, Sweden, the United Kingdom, and the United States. The data on fiscal consolidations as provided by Devries et al. (2011) is reported in Appendix. A brief look at the data indicates a rich database providing the identified fiscal consolidations by country and by the year it was taking place amounting to an overall number of 173 fiscal consolidations. In consequence, this allows then a serious econometric investigation in the form of panel data analysis. Another careful look at the data reveals another advantage for our investigation as the data on fiscal consolidations are categorized in three categories: total, tax, and spending. This allows us to test all three aspects of fiscal consolidations and in particular to investigate the differences between the tax- and spending-based fiscal consolidations and their effects on economic activity.

Section 2 has through a literature review identified several gaps in previous empirical literature. One of those is of particular relevance for the present paper. Namely, most of the studies investigate the effects of fiscal consolidation by focusing on economic growth, sometimes in pair with unemployment, but the effects on broader labor market outcomes appear to be under-investigated. It is exactly here where the present paper attempts to fill in a gap, and it does it in way that in addition to the effects of fiscal consolidation on unemployment, it also investigates the effects on employment and activity rate. Focusing further on labor market outcomes, we in particular investigate the effects of fiscal consolidation on employment but this time testing it across different age groups, and this is an aspect which has not been analyzed in previous literature. In order to test the abovementioned links, we collected the data from different sources (OECD database and AMECO database). The full dataset used in our empirical investigation is available upon request.

Our empirical strategy rests upon the model used by Turrini (2013) who investigated the impact of fiscal consolidation on unemployment on the sample of 13 EU countries. Thus, following Turrini (2013), we specify the following model:

$$u_{i,t} = \alpha u_{i,t-1} + \beta u_{i,t-2} + \gamma FC_{i,t} + \theta_i + \eta_t + \varepsilon_{i,t}$$

where i denotes country, t year, $u_{i,t}$ denotes unemployment, $FC_{i,t}$ is a fiscal consolidation variable as identified by Devries et al. (2011), θ_i and η_t are country and year fixed effects, and $\varepsilon_{i,t}$ is a standard white-noise error.

In order to avoid repetition, when testing the effects of fiscal consolidation on variables other than unemployment, the model is modified to include employment and activity rate replacing the unemployment variable.

After presenting the data and the model to be estimated, we next present the main findings from our empirical investigation. The models are estimated econometrically using the panel data estimation, in particular the dynamic panels based on the Arellano–Bond dynamic estimator. The reason for using the dynamic version is due to the expected strong persistence in our dependent variables, and this is a usual approach in the empirical literature of this sort. Admittedly, given the nature of our investigation and many different models to be estimated, presentation of our results may become a complicated and difficult task. In order to keep the things as simple as possible, we report our main findings in six tables, with each table comprising of a number of columns corresponding to different models tested and different fiscal consolidation indicators used. At the bottom of each column reporting the model and estimated coefficients, we report the number of observations and diagnostics related to the model tested.

Table 1 presents the estimated effects of fiscal consolidation on unemployment in OECD countries. To allow easy tractability of the evidence presented, in this but also in later tables, let us first explain what is presented in column 1 (titled Option 1) in Table 1. In that option, the Arellano–Bond dynamic panel estimator is used to estimate the impact of fiscal consolidation on unemployment. As we are particularly interested in this relationship, we will refrain from commenting on the other estimated coefficients in this column. Thus, we can see that fiscal consolidation exerts a statistically significant (at 1% level of significance) and positive impact on unemployment. The diagnostic tests (Sargan test and Arellano–Bond test for autocorrelation), reported in rows at the bottom of Table 1, suggest that the estimated models are well specified. The same model is estimated in Option 3 and 5, but instead of the fiscal consolidation variable including both the tax and spending aspect together, in Option 3 we tested only the tax aspect (fiscal consolidation on the revenue side), and in Option 5, we tested only the spending aspect (fiscal consolidation on the cost side). Concerning the tax aspect of consolidation, the effect is positive but statistically insignificant, while the spending aspect results in a significant coefficient suggesting that fiscal consolidation increases unemployment. A similar exercise is repeated in Options 2, 4, and 6, with a modification to the underlying models in the form of adding also a lag of fiscal consolidation to the specification. The results (Option 2) suggest that both the current and lagged fiscal

Table 1 Effects of fiscal consolidation on unemployment (Arellano–Bond dynamic estimator)

Explanatory variables	Dependent variable unemployment					
	Option 1 Total	Option 2 Total	Option 3 Tax	Option 4 Tax	Option 5 Spend	Option 6 Spend
Constant	5.791932*** (0.8923713)	5.994694*** (1.859413)	5.607295*** (0.8740674)	3.849789 (3.915829)	7.125029*** (0.478839)	11.46042*** (2.644995)
Dependent V (<i>t</i> – 1)	1.003827*** (0.1025896)	0.5739935*** (0.1318721)	1.029934*** (0.0505612)	0.7296456*** (0.279322)	0.8351207*** (0.0554164)	0.6558817*** (0.2055181)
Dependent V (<i>t</i> – 2)	–0.421165*** (0.0394213)		–0.431436*** (0.0405102)		–0.3479888*** (0.0251514)	–0.4695329*** (0.1083004)
Fiscal consolidation	0.0294341*** (0.0037329)	0.0474889*** (0.0083123)	0.0039595 (0.0032131)	0.0082768 (0.0120139)	0.032991*** (0.0038865)	0.050016 (0.0483149)
Fiscal consolidation (<i>t</i> – 1)		0.0506645*** (0.0059216)		0.0695314*** (0.0251587)		0.0454608*** (0.0182207)
Number of observations	84	57	60	34	70	45
Sargan test ^a (<i>p</i> -value)	0.8465	0.9775	0.8777	0.9691	0.8597	0.7645
m2 test ^b (<i>p</i> -value)	0.4321	0.7028	0.3477	0.2181	0.2817	0.7233

Source: Calculation by authors

*, **, ***Significant at the level of 10%, 5%, and 1%; standard errors are reported in parentheses

^aSargan test of overidentifying restrictions (validity of instruments)^bArellano–Bond test for zero autocorrelation in first-differenced errors

consolidations (total) increase unemployment with the estimated coefficient being positive and statistically significant and with the impact on unemployment being stronger as compared to the case where only the current fiscal consolidation was included in the model. In Option 4 (lagged fiscal consolidation added), the current fiscal consolidation is still insignificant, but the coefficient on the lagged variable seems to suggest that now even the tax-based FC may be increasing unemployment but with a lag. A similar result can be observed with the spending-based FC. A look at the diagnostics across different models indicates that all of the models are well specified.

We next present the estimated effects of fiscal consolidation on employment.

Table 2 reports the estimated effects of fiscal consolidation on employment. Again different models were tested, as well as different consolidation indicators (total, tax, and spend), resulting in six options (columns). The results in Option 1 suggest that fiscal consolidation (total) exerts a negative and statistically significant effect on employment. We can also observe a negative effect of fiscal consolidation when using the tax-based FC indicator (Option 3), as well as when using the spending-based FC indicator (Option 5), but note that only the latter is statistically significant. Options 2, 4, and 6 (all of which allow the inclusion of the lagged fiscal consolidation in the model) follow a similar pattern as before concerning the negative impact of fiscal consolidation on employment, with an addition that in the case of tax-based fiscal consolidation, the lagged variable now turns statistically significant (Option 4). The diagnostics at the bottom of Table 2 suggest that all the models are well specified. Overall, based on the results in Table 2, it can be concluded that fiscal consolidation decreases employment. The effect on employment will be further tested across different age groups in Tables 4, 5, and 6, but let us first check the effects of FC on the activity rate in Table 3.

As for the impact of fiscal consolidation on the activity rate, the evidence in Table 3 may be summarized as indicating a negative and statistically significant impact of fiscal consolidation. The estimated effects of lagged FC are statistically insignificant with an exception of the spending-based FC (Option 6) which is surprisingly found to be positive.

In Table 2, we established a negative impact of fiscal consolidation on employment, or to be more precise, the effect was found to be significant in cases where we used the FC indicator including both the tax and spending aspects of fiscal consolidation (total), as well as the FC-based on spending. The tax-based FC was found to have a significant effect only in the case of a lagged FC indicator. Given these findings, we next set to investigate the effects of fiscal consolidation on employment, but this time, we test the effects on employment across three different age groups: 15–24, 25–54, and 55–64. In this way, we want to check whether the impact of fiscal consolidation may be different over these groups. Thus, Table 4 reports the estimated effects of fiscal consolidation on employment (age group 15–24), while Tables 5 and 6 report the effects on employment in age groups 25–54 and 55–64, respectively.

The results in Table 4 indicate that fiscal consolidation (total) exerts a significant negative impact on employment in the age group 15–24. The same appears to be the

Table 2 Effects of fiscal consolidation on employment (Arellano–Bond dynamic estimator)

Explanatory variables	Dependent variable employment					
	Option 1 Total	Option 2 Total	Option 3 Tax	Option 4 Tax	Option 5 Spend	Option 6 Spend
Constant	5.205126*** (0.7178731)	6.707366*** (0.9155334)	3.667859*** (0.8772788)	4.740696*** (2.009844)	6.784409*** (0.2017053)	6.752147*** (1.668751)
Dependent V (<i>t</i> – 1)	1.194301*** (0.0351341)	1.082695*** (0.0685778)	1.033363*** (0.0923081)	0.932273*** (0.1009191)	1.203119*** (0.0253038)	0.8528598*** (0.1796153)
Dependent V (<i>t</i> – 2)	–0.5136437*** (0.0489292)	–0.4933395*** (0.0550972)	–0.257557*** (0.0984591)	–0.2238606 (0.1418898)	–0.6202656*** (0.0324979)	–0.2694261 (0.226159)
Fiscal consolidation	–0.0051981*** (0.0009972)	–0.0072419*** (0.0013288)	–0.0018032 (0.0011626)	–0.0030992 (0.002042)	–0.0024775*** (0.0010032)	–0.0046867*** (0.0023313)
Fiscal consolidation (<i>t</i> – 1)		–0.0018471 (0.0024677)		–0.0061782*** (0.002146)		–0.0032093*** (0.0037335)
Number of observations	84	57	60	34	70	45
Sargan test ^a (<i>p</i> -value)	0.8581	0.9963	0.8617	0.9975	0.7655	0.9791
m2 test ^b (<i>p</i> -value)	0.2712	0.4846	0.3370	0.5699	0.4410	0.3591

Source: Calculation by authors

*, **, ***Significant at the level of 10%, 5%, and 1%; standard errors are reported in parentheses

^aSargan test of overidentifying restrictions (validity of instruments)

^bArellano–Bond test for zero autocorrelation in first-differenced errors

Table 3 Effects of fiscal consolidation on activity rate (Arellano–Bond dynamic estimator)

Explanatory variables	Dependent variable activity rate					
	Option 1 Total	Option 2 Total	Option 3 Tax	Option 4 Tax	Option 5 Spend	Option 6 Spend
Constant	2.190789*** (0.2865957)	3.296054*** (0.6778555)	2.203683*** (0.7110117)	0.5547892 (1.627043)	2.145212*** (0.2143885)	2.90743*** (0.6069668)
Dependent V (<i>t</i> – 1)	0.8675033*** (0.0711558)	0.587864*** (0.1691412)	0.6560753*** (0.2245697)	0.3996939* (0.244811)	0.9043244*** (0.078878)	0.5934345*** (0.1802293)
Dependent V (<i>t</i> – 2)	–0.3983545*** (0.067851)	–0.3850361*** (0.0625159)	–0.1872354 (0.2816125)	0.467543 (0.5717907)	–0.4229258*** (0.0620966)	–0.2981163*** (0.0663358)
Fiscal consolidation	–0.0010498* (0.0005729)	–0.0028799** (0.0014398)	–0.0008466** (0.0004154)	0.000911 (0.0012578)	–0.0009474** (0.0004464)	–0.0046275** (0.0023284)
Fiscal consolidation (<i>t</i> – 2)		–0.0001456 (0.0007855)		0.000448 (0.000526)		0.003429*** (0.003429)
Number of observations	84	57	60	34	70	45
Sargan test ^a (<i>p</i> -value)	1.0000	1.0000	1.0000	0.9627	0.7976	0.9999
m2 test ^b (<i>p</i> -value)	0.0562	0.1324	0.6674	0.0597	0.0678	0.3927

Source: Calculation by authors

*, **, ***Significant at the level of 10%, 5%, and 1%; standard errors are reported in parentheses

^aSargan test of overidentifying restrictions (validity of instruments)^bArellano–Bond test for zero autocorrelation in first-differenced errors

Table 4 Effects of fiscal consolidation on employment 15–24 (Arellano–Bond dynamic estimator)

Explanatory variables	Option 1		Option 2		Option 3		Option 4		Option 5		Option 6	
	Total		Total		Tax		Tax		Spend		Spend	
Constant	1.544737*** (0.0787395)		3.252319*** (0.3391369)		1.921832*** (0.0292444)		4.312538*** (0.7140215)		1.59823*** (0.11110235)		3.631713*** (0.3265688)	
Dependent V (<i>t</i> – 1)	0.8599381*** (0.0300821)		0.3296272*** (0.1195112)		0.5718963*** (0.0176842)		0.2022859 (0.1739482)		0.9941935*** (0.1427493)		–0.0336992 (0.2546313)	
Dependent V (<i>t</i> – 2)	–0.2707237*** (0.0403896)		–0.1935742*** (0.0614362)		–0.079499*** (0.0197666)		–0.335986*** (0.0727312)		–0.4198863*** (0.1148805)		0.0587852 (0.1760611)	
Fiscal consolidation	–0.0025965*** (0.0003444)		–0.0062577*** (0.0022552)		0.0010031*** (0.0000869)		0.00343 (0.0040179)		0.0014207 (0.0030082)		–0.0232088* (0.012487)	
Fiscal consolidation (<i>t</i> – 1)			–0.0096793*** (0.0013882)				–0.0060075* (0.0035509)				–0.0156319*** (0.0069727)	
Number of observations	82		57		58		34		66		42	
Sargan test ^a (<i>p</i> -value)	0.8817		0.9896		0.8843		0.9940		0.7760		0.8510	
m2 test ^b (<i>p</i> -value)	0.7750		0.4154		0.4724		0.4678		0.9751		0.3952	

Source: Calculation by authors

*, **, ***Significant at the level of 10%, 5%, and 1%; standard errors are reported in parentheses

^aSargan test of overidentifying restrictions (validity of instruments)

^bArellano–Bond test for zero autocorrelation in first-differenced errors

Table 5 Effects of fiscal consolidation on employment 25–54 (Arellano–Bond dynamic estimator)

Explanatory variables	Option 1		Option 2		Option 3		Option 4		Option 5		Option 6	
	Total		Total		Tax		Tax		Spend		Spend	
Constant	1.595123*** (0.1791257)		2.545103*** (0.4841269)		-0.0627576 (0.549951)		3.136475* (1.76266)		2.236618*** (0.0344661)		3.582083*** (0.6441161)	
Dependent V (<i>t</i> - 1)	0.9584046*** (0.0484792)		0.7894828*** (0.1339726)		1.016582*** (0.1048056)		0.6563632* (0.3964535)		0.9244183*** (0.036956)		0.5605743*** (0.1736503)	
Dependent V (<i>t</i> - 2)	-0.3288359*** (0.0694883)		-0.3786964*** (0.0628469)		-0.0011784 (0.0902332)		-0.3842671 (0.4010255)		-0.4431429*** (0.0366196)		-0.3892392*** (0.0537845)	
Fiscal consolidation	-0.0010823 (0.0012152)		0.002077 (0.0036814)		0.0011326 (0.0004142)		-0.0005729 (0.0034373)		-0.0018732** (0.0008057)		-0.0049442 (0.0053319)	
Fiscal consolidation (<i>t</i> - 1)			0.0013006 (0.0014202)				-0.0018415 (0.0044663)				-0.0039359* (0.0021168)	
Number of observations	82		57		58		34		66		42	
Sargan test ^a (<i>p</i> -value)	0.9284		0.9929		0.9835		0.9796		0.6983		0.9354	
m2 test ^b (<i>p</i> -value)	0.3129		0.8202		0.4730		0.8403		0.7811		0.2789	

Source: Calculation by authors

*, **, ***Significant at the level of 10%, 5%, and 1%; standard errors are reported in parentheses

^aSargan test of overidentifying restrictions (validity of instruments)^bArellano–Bond test for zero autocorrelation in first-differenced errors

Table 6 Effects of fiscal consolidation on employment 55–64 (Arellano–Bond dynamic estimator)

Explanatory variables	Option 1		Option 2		Option 3		Option 4		Option 5		Option 6	
	Total		Total		Tax		Tax		Spend		Spend	
Constant	1.125599*** (0.1220568)		2.622206*** (0.7264626)		-0.4256588 (0.3710614)		0.8968122 (0.8976832)		1.918245*** (0.0711759)		3.723808*** (0.7734369)	
Dependent V (<i>t</i> - 1)	1.206743*** (0.0289089)		0.697447*** (0.1599674)		0.819489*** (0.1181091)		0.1983807 (0.1938711)		0.984529*** (0.1158917)		0.4720795** (0.2063673)	
Dependent V (<i>t</i> - 2)	-0.5124704*** (0.0465313)		-0.4016553*** (0.118879)		0.2930916*** (0.0427155)		0.562798*** (0.1486746)		-0.5036243*** (0.0977799)		-0.4765849*** (0.0712689)	
Fiscal consolidation	-0.0103787* (0.0064182)		-0.0065273** (0.0034069)		-0.0005359 (0.0005237)		0.0011972 (0.0018403)		-0.0037944*** (0.0005089)		-0.0100593 (0.0095827)	
Fiscal consolidation (<i>t</i> - 1)			-0.0014482 (0.0037357)				0.0006373 (0.002855)				-0.0078652* (0.0041981)	
Number of observations	82		57		58		34		66		42	
Sargan test ^a (<i>p</i> -value)	0.9002		0.9263		0.9195		0.9559		0.6812		0.8220	
m2 test ^b (<i>p</i> -value)	0.5706		0.1464		0.8823		0.5185		0.2033		0.0560	

Source: Calculation by authors

*, **, ***Significant at the level of 10%, 5%, and 1%; standard errors are reported in parentheses

^aSargan test of overidentifying restrictions (validity of instruments)

^bArellano–Bond test for zero autocorrelation in first-differenced errors

case with spending-based FC but only in the model where the lagged FC indicator is added. A surprising effect is found for the tax-based FC (Option 3) which is positive and highly significant, suggesting that in this age group fiscal consolidation may be increasing employment. Note, however, this finding is not confirmed when a lagged FC indicator is added to the model (Option 4) and where the current FC indicator loses significance and the lagged one is negative but significant at only 10%.

The results in Table 5 suggest a very weak impact of fiscal consolidation on employment in the age group 25–54. The estimated effects are mainly statistically insignificant, and only spending-based FC is found to have some effect on employment in this age group.

The estimated effects for the age group 55–64 in Table 6 again suggest no impact of tax-based FC on employment in this age group, while the FC indicator accounting for both tax and spending aspect exerts a negative impact (at 10% and 5% level of significance). The statistically most significant effect (1%) is found for spending-based FC (Option 5), and it is negative but loses significance when a lagged FC indicator is added to the model.

Overall, the investigation of fiscal consolidation on employment across different age groups seems to suggest that the effects may be different across these groups. While the detailed discussion why this is so is out of the scope of the present study, the evidence presented here provides an important avenue for future research, and these effects should be further empirically tested, and also a theoretical elaboration should be looked for.

4 Conclusion

This paper investigated the effects of fiscal consolidation on labor market outcomes. While the topic of the effects of fiscal consolidation has been extensively explored, the focus on its effects on the labor market outcomes has been rare in previous literature. The paper thus contributes to the empirical literature by investigating this important issue on the sample of 17 OECD economies covering the period 1978–2009. After explaining as to why the previous empirical literature has been contaminated by using inappropriate fiscal consolidation indicators, we conduct our empirical investigation using the recently provided database on fiscal consolidation by Devries et al. (2011). A particular advantage of application of this database is to do with the classification of FC indicators into three categories: FC accounting for both the tax and spending aspects (total), the tax-based FC (tax), and spending-based FC (spend).

Our empirical investigation provides novel evidence by testing the impact of FC on unemployment, employment, and activity rate. The findings suggest that fiscal consolidation increases unemployment in OECD countries, while the effects on employment and activity rate appear to be negative. Our analysis also suggests that the spending-based FC is more effective than the tax-based FC. These findings also have important policy implications for fiscal authorities. An additional contribution

of the paper is the investigation of the impact of FC on employment across three different age groups: 15–24, 25–54, and 55–64. It is interesting to note that FC exerts significant effects only in the 15–24 and 55–64 age groups which are mainly negative. We can also notice that the tax-based FC consolidations are rarely found to have a significant effect. While the findings from this exercise may be taken as preliminary and with caution, they provide an important avenue for future research.

Appendix: Deficit-Driven Fiscal Consolidation (Percent of GDP)

Country	Year	Total	Tax	Spend	Country	Year	Total	Tax	Spend
AUS	1985	0.45	0.00	0.45	DEU	1984	0.18	-0.41	0.59
AUS	1986	1.02	0.17	0.85	DEU	1991	1.11	1.08	0.03
AUS	1987	0.90	0.19	0.71	DEU	1992	0.46	0.27	0.19
AUS	1988	0.10	-0.27	0.37	DEU	1993	0.11	-0.07	0.18
AUS	1994	0.25	0.25	0.00	DEU	1994	0.91	0.08	0.83
AUS	1995	0.50	0.50	0.00	DEU	1995	1.08	0.84	0.24
AUS	1996	0.62	0.34	0.28	DEU	1997	1.60	0.50	1.10
AUS	1997	0.70	0.18	0.53	DEU	1998	-0.10	0.00	-0.10
AUS	1998	0.37	0.05	0.32	DEU	1999	0.30	0.30	0.00
AUS	1999	0.04	-0.04	0.07	DEU	2000	0.70	-0.05	0.75
AUT	1980	0.80	0.11	0.69	DEU	2003	0.74	0.74	0.00
AUT	1981	1.56	0.50	1.06	DEU	2004	0.40	-0.70	1.10
AUT	1984	2.04	1.30	0.74	DEU	2006	0.50	0.00	0.50
AUT	1996	2.41	0.88	1.53	DEU	2007	0.90	0.50	0.40
AUT	1997	1.56	0.44	1.12	DNK	1983	2.77	0.92	1.85
AUT	2001	1.02	0.90	0.12	DNK	1984	2.38	0.67	1.71
AUT	2002	0.55	0.00	0.55	DNK	1985	1.54	0.77	0.77
BEL	1982	1.66	0.00	1.66	DNK	1986	-0.72	-0.72	0.00
BEL	1983	1.79	0.69	1.10	DNK	1995	0.30	0.30	0.00
BEL	1984	0.69	0.28	0.41	ESP	1983	1.90	1.90	0.00
BEL	1985	1.61	0.73	0.88	ESP	1984	1.12	0.37	0.75
BEL	1987	2.80	0.00	2.80	ESP	1989	1.22	0.98	0.24
BEL	1990	0.60	0.40	0.20	ESP	1990	-0.40	-0.25	-0.15
BEL	1992	1.79	0.99	0.80	ESP	1992	0.70	0.30	0.40
BEL	1993	0.92	0.43	0.49	ESP	1993	1.10	0.80	0.30
BEL	1994	1.15	0.55	0.60	ESP	1994	1.60	0.00	1.60
BEL	1996	1.00	0.50	0.50	ESP	1995	0.74	0.00	0.74
BEL	1997	0.91	0.41	0.50	ESP	1996	1.30	0.20	1.10
CAN	1984	0.27	0.27	0.00	ESP	1997	1.20	0.10	1.10
CAN	1985	1.03	0.53	0.50	FIN	1992	0.91	0.00	0.91
CAN	1986	0.99	0.84	0.15	FIN	1993	3.71	0.00	3.71

(continued)

Country	Year	Total	Tax	Spend	Country	Year	Total	Tax	Spend
CAN	1987	0.28	0.14	0.14	FIN	1994	3.46	0.69	2.77
CAN	1988	0.30	0.33	-0.03	FIN	1995	1.65	-0.63	2.28
CAN	1989	0.31	0.24	0.08	FIN	1996	1.47	0.00	1.47
CAN	1990	0.86	0.57	0.29	FIN	1997	0.23	-0.70	0.93
CAN	1991	0.40	0.13	0.27	FRA	1979	0.85	0.85	0.00
CAN	1992	0.21	-0.01	0.22	FRA	1987	0.26	-0.50	0.76
CAN	1993	0.35	-0.01	0.36	FRA	1989	-0.20	-0.20	0.00
CAN	1994	0.49	0.04	0.45	FRA	1991	0.25	0.00	0.25
CAN	1995	0.99	0.18	0.81	FRA	1992	-0.10	0.00	-0.10
CAN	1996	0.97	0.09	0.88	FRA	1995	0.28	0.43	-0.15
CAN	1997	0.47	0.01	0.47	FRA	1996	1.33	0.86	0.47
DEU	1982	1.18	0.56	0.62	FRA	1997	0.50	0.41	0.09
DEU	1983	0.87	0.30	0.57	FRA	1999	-0.10	-0.10	0.00
FRA	2000	-0.20	-0.20	0.00	NLD	1982	1.71	0.00	1.71
GBR	1979	0.27	-0.45	0.72	NLD	1983	3.24	0.49	2.75
GBR	1980	0.08	-0.13	0.21	NLD	1984	1.76	0.00	1.76
GBR	1981	1.58	1.43	0.16	NLD	1985	1.24	0.00	1.24
GBR	1982	0.53	0.48	0.05	NLD	1986	1.74	0.00	1.74
GBR	1994	0.83	0.68	0.15	NLD	1987	1.48	1.48	0.00
GBR	1995	0.28	0.23	0.05	NLD	1988	0.06	-0.69	0.75
GBR	1996	0.30	0.00	0.30	NLD	1991	0.87	0.87	0.00
GBR	1997	0.69	0.53	0.16	NLD	1992	0.74	-0.58	1.32
GBR	1998	0.31	0.30	0.01	NLD	1993	0.12	-0.16	0.28
GBR	1999	0.21	0.21	0.01	NLD	2004	1.70	0.40	1.30
IRL	1982	2.80	2.54	0.26	NLD	2005	0.50	0.20	0.30
IRL	1983	2.50	2.44	0.06	PRT	1983	2.30	1.35	0.95
IRL	1984	0.29	0.29	0.00	PRT	2000	0.50	0.00	0.50
IRL	1985	0.12	0.12	0.00	PRT	2002	1.60	1.20	0.40
IRL	1986	0.74	0.74	0.00	PRT	2003	-0.75	-0.75	0.00
IRL	1987	1.65	0.53	1.12	PRT	2005	0.60	0.52	0.08
IRL	1988	1.95	0.00	1.95	PRT	2006	1.65	1.10	0.55
IRL	2009	4.74	2.35	2.39	PRT	2007	1.40	0.50	0.90
ITA	1991	2.77	1.69	1.08	SWE	1984	0.90	0.21	0.69
ITA	1992	3.50	1.60	1.90	SWE	1993	1.81	0.42	1.39
ITA	1993	4.49	2.00	2.49	SWE	1994	0.78	0.19	0.59
ITA	1994	1.43	-0.27	1.70	SWE	1995	3.50	1.40	2.10
ITA	1995	4.20	2.41	1.79	SWE	1996	2.00	0.80	1.20
ITA	1996	0.34	-0.74	1.08	SWE	1997	1.50	0.60	0.90
ITA	1997	1.82	0.89	0.93	SWE	1998	1.00	0.40	0.60
ITA	1998	0.68	0.01	0.67	USA	1978	0.14	0.14	0.00
ITA	2004	1.30	0.67	0.63	USA	1980	0.06	0.06	0.00
ITA	2005	1.00	0.40	0.60	USA	1981	0.23	0.23	0.00
ITA	2006	1.39	0.50	0.89	USA	1985	0.21	0.21	0.00

(continued)

Country	Year	Total	Tax	Spend	Country	Year	Total	Tax	Spend
ITA	2007	1.03	1.32	-0.29	USA	1986	0.10	0.10	0.00
JPN	1979	0.12	0.12	0.00	USA	1988	0.85	0.39	0.46
JPN	1980	0.21	0.21	0.00	USA	1990	0.33	0.26	0.07
JPN	1981	0.43	0.43	0.00	USA	1991	0.58	0.29	0.29
JPN	1982	0.71	0.31	0.40	USA	1992	0.52	0.24	0.28
JPN	1983	0.42	0.06	0.37	USA	1993	0.32	0.08	0.23
JPN	1997	1.43	0.98	0.45	USA	1994	0.90	0.40	0.50
JPN	1998	0.48	0.33	0.15	USA	1995	0.53	0.20	0.33
JPN	2003	0.48	0.00	0.48	USA	1996	0.29	0.08	0.22
JPN	2004	0.64	0.19	0.45	USA	1997	0.30	0.06	0.24
JPN	2005	0.28	0.06	0.22	USA	1998	0.15	0.00	0.15
JPN	2006	0.72	0.45	0.27					
JPN	2007	0.15	0.15	0.00					
NLD	1981	1.75	0.53	1.22					

Source: Devries et al. (2011, pp. 86–87)

Note: Table records budgetary impact of fiscal consolidation measures. Positive values indicate budgetary savings, negative values indicate budgetary costs. See text for details. *AUS* Australia, *AUT* Austria, *BEL* Belgium, *CAN* Canada, *DEU* Germany, *DNK* Denmark, *ESP* Spain, *FIN* Finland, *FRA* France, *GBR* United Kingdom, *IRL* Ireland, *ITA* Italy, *JPN* Japan, *NLD* Netherlands, *PRT* Portugal, *SWE* Sweden, *USA* United States

References

- Alesina, A. (2010). Fiscal adjustments-lessons from recent history. *Prepared for the Ecofin meeting*, Madrid, April 15, 2010.
- Alesina, A., & Ardagna, S. (1998). Tales of fiscal adjustments. *Economic Policy*, 13(27), 489–585.
- Alesina, A., & Ardagna, S. (2012). *The design of fiscal adjustments* (NBER Working Paper, No. 18423). Washington, DC.
- Ball, L., Leigh, D., & Loungani, P. (2013). *Okun's law: Fit at 50?* (NBER Working Paper, No. 18668). Cambridge.
- Barrios, S., Langedijk, S., & Penc, L. (2010). *EU fiscal consolidation after the financial crisis-lessons from past experience* (European Commission Economic Paper, Br. 418/2010). Brussels: European Commission.
- Bova, E., Kolerus, C., & Tapsoba, J. A. (2015). A fiscal job? An analysis of fiscal policy and the labor market. *Journal of Labor Policy*, 4, 13.
- Dell'Erba, S., Koloskova, K., & Poplawski-Ribeiro, M. (2014). *Medium-term fiscal multipliers during protracted recessions* (IMF Working Paper No. 14/213). International Monetary Fund.
- Devries, P., Guajardo, J., Leigh, D., & Pescatori, A. (2011). *A new action-based dataset of fiscal consolidation* (IMF Working Paper No. 11/128). International Monetary Fund.
- Drazen, A., & Grilli, V. (1993). The benefit of crises for economic reforms. *American Economic Review*, 83(3), 598–607.
- Farmer, R. (2009). *Fiscal policy can reduce unemployment: But there is a less costly and more effective alternative* (NBER Working Paper, No. 15021). Cambridge.

- Giavazzi, F., & Pagano, M. (1990). Can severe fiscal contractions be expansionary? Tales of two small european countries. In *NBER Macroeconomics Annual 1990* (Vol. 5, pp. 75–122). Washington, DC.
- Guajardo, J., Leigh, D., & Pescatori, A. (2011). *Expansionary austerity-new international evidence* (IMF Working Paper, WP/11/158).
- International Monetary Fund. (2010, October). Will it hurt? Macroeconomic effects of fiscal consolidation. *World Economic Outlook*, 93–124.
- International Monetary Fund. (2014, October). *Fiscal monitor-back to work: How fiscal policy can help*. Washington, DC.
- Romer, C. (2012). *Fiscal policy in the crisis: Lessons and policy implications*. Washington, DC: IMF Fiscal Forum.
- Romer, C., & Romer, D. H. (2010). The macroeconomic effects of tax changes: Estimates based on a new measure of fiscal shocks. *American Economic Review*, 100(3), 763–801.
- Turrini, A. (2013). Fiscal consolidation and unemployment: Does EPL matter? A look at EU countries. *Journal of Labor Policy*, 2(1), 8.
- Von Hagen, J., & Strauch, R. (2001). Fiscal consolidations-quality, economic conditions, and success. *Public Choice*, 109(3–4), 327–346.

Symptoms of Burnout in the Workplace: Comparison Between the Older and Younger Employees in Slovenian Companies



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Abstract It is important to know that a satisfied and motivated employee is a vital prerequisite for a healthy company. Stressful, depressed, and dissatisfied employees would not be able to obtain the same quality level of work and productivity as those employees with low stress and high satisfaction. From this perspective, it is important that employers can create a safe and friendly environment to work.

Further, it has become important to understand the role of individual differences in examining the effects of job characteristics on job attitudes. That means that job characteristics are not experienced in the same way by all workers. Given the demographic shifts in today's workplace, worker age would appear to be such an important individual difference. The role of age in the relationship between job characteristics and job attitudes is important, because with the aging population, it is important to see how jobs might be redesigned to enable people to continue to work successfully. To examine the interplay between age and work characteristics is appropriate because people generally spend a significant part of their life span working and, therefore, have ample opportunity to display these adaptive processes throughout their working lives, but the role of age in job design has largely been ignored.

The main aim of this paper is to present burnout in the workplace of older employees compared to younger employees in Slovenian companies. We examined burnout in the workplace with physical, emotional, and behavioral symptoms. The paper reports on a research including a survey between two age groups of employees, namely, the younger employees that were classified in the group of under 50 years of age and the older employees that were classified in the group of above 50 years of age. Since the Kolmogorov–Smirnov and Shapiro–Wilk test showed that the data were not normally distributed, the nonparametric Mann–Whitney U test was used to verify differences in the physical symptoms of burnout, emotional symptoms of burnout, and behavioral symptoms of burnout in the workplace between two groups. The results show that there are significant

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differences in the great majority of the variables describing the physical symptoms of burnout, emotional symptoms of burnout, and behavioral symptoms of burnout in the workplace between younger and older employees in Slovenian companies.

Keywords Physical symptoms of burnout • Emotional symptoms of burnout • Behavioral symptoms of burnout • Employees • Human resource management

1 Introduction

Modern organizations are faced with an important problem: burnout in the workplace and as a result of burnout dissatisfaction and demotivation of their employees in the workplace.

Age-related differences are apparent in the nature of stressors likely to be encountered at work (Hansson et al. 2001).

Satisfied employees are a vital prerequisite for a healthy company (Halkos and Bousinakis 2010). Stressful and dissatisfied employees would not be able to obtain the same quality of work and productivity as those employees with lower stress level and higher satisfaction. Therefore, it is important that employers create a safe and friendly environment to work (George and Zakkariya 2015). However, stress can be considered as an unpleasant emotional situation that we experience when requirements (work-related or not) cannot be counterbalanced with our ability to resolve them, which leads to burnout. This results in emotional changes as a reaction to this danger (Halkos and Bousinakis 2010). Occupational stress and burnout have impacted the health and psychological well-being of workers with the attendant effects on their attitude to work (Brandy and Cox 2002). When the working environment is perceived to be conducive, there is less stress, and job performance is greatly enhanced (Parkes 2002).

Lester and Brower (2001) pointed out that the effects of stressors are more felt by workers above 45 years than those below 40 years of age (Lester and Brower 2001).

Burnout refers to a state of emotional and mental exhaustion caused by long-term chronic, emotional, and interpersonal stress while carrying out a role. It is a psychological withdrawal from work in response to excessive stress or dissatisfaction (Leiter et al. 2001). Burnout is a result of prolonged exposure to stress at work and relates to feelings of incompetence and a lack of performance and also productivity at work (Shirom 2003). Burnout mediates a relationship between job stressor consisting of role conflict, role ambiguity, and role overload and job outcomes consisting of job performance, job satisfaction, and turnover intention (Ambrose and Norman Benson Wier 2010; Fogarty et al. 2000). Intiyas Utami and Supriyadi (2013) clearly suggested that the increase of pressure on antecedent factor (job stressor) will increase the burnout intensity and then will result in diminished job outcomes.

Burnout of older employees can be explained by a high workload and a lack of challenge and physical demands of the job, less opportunities for growth, and a lack of social support, especially from colleagues in the organization where they work (Henkens and Leenders 2010).

The demographics of the global workforce are changing, specifically with a more age-diverse workforce bringing new research questions. It becomes more important to find ways for people to stay satisfied and engaged in their work at different life stages (Zaniboni et al. 2014).

Further, it has become important to understand the role of individual differences in examining the effects of job characteristics on job attitudes (Grant et al. 2010; Morgeson and Humphrey 2006). That means that job characteristics are not experienced in the same way by all workers. Given the demographic shifts in today's workplace, worker age would appear to be such an important individual difference.

Zaniboni et al. (2014) demonstrated that the role of age in the relationship between job characteristics and job attitudes is important, because with the aging population, it is important to see how jobs might be redesigned to enable people to continue to work successfully. To examine the interplay between age and work characteristics is appropriate because people generally spend a significant part of their life span working and, therefore, have ample opportunity to display these adaptive processes throughout their working lives, but the role of age in job design has largely been ignored (Truxillo et al. 2012).

In this paper, we present the importance of human resource management in the age diversity of employees in the context of burnout in the workplace.

The main purpose of this research is to examine if there are statistically significant differences in burnout in the workplace between younger and older employees. We examined burnout in the workplace with physical, emotional, and behavioral symptoms of burnout.

This paper aims to answer the following research question: (1) RQ1: Are there statistically significant differences in the burnout symptoms in the workplace between older and younger employees?

2 Methodology

The quantitative method of data gathering was used in the empirical study to examine the burnout in the workplace between younger and older employees, where we included physical, emotional, and behavioral symptoms of burnout. When designing the measuring instrument for measuring the burnout of employees in the workplace, we based on the following theoretical principles and research of the following authors: Yunus and Mahajar (2009), Shirom (1989), Fairbrother and Warn (2003), Grebner et al. (2010), Malik et al. (2010), Michael et al. (2009), and Moore (2000). To determine the burnout of older and younger employees in the workplace, the employees indicated on a 5-point Likert scale labeled from 1 to 5 their agreement to the listed statements, whereby the meaning is 1, strongly

disagree, and 5, completely agree. The employees were divided into two age groups, namely, the younger employees were classified in the group of under 50 years of age, and the older employees were classified in the group of above 50 years of age. In the literature, the definitions of older employees vary. In most cases, the lower age limits defining older employees are 45 years (Brooke 2003) or 50 years (Ilmarinen 2001). The term “older employees” includes employees between 40 and 50 years of age (Ghosheh et al. 2006). Because of the different theoretical principles, we decided that for our research, we took boundary 50 years. The sample consists of 400 employees: 174 younger employees and 226 older employees answered the questionnaires.

The Kolmogorov–Smirnov and Shapiro–Wilk tests were used to verify the normality of the data distribution. We found that the data are not normally distributed; therefore, we have verified the differences between younger and older employees with the nonparametric Mann–Whitney U test (which is a substitute for the parametric *t*-test of independent samples).

3 Results

The Kolmogorov–Smirnov and Shapiro–Wilk tests showed that the data is not normally distributed ($p < 0.001$) for any statement that describes the burnout of employees; therefore, the differences between two independent samples were examined with the nonparametric Mann–Whitney U test.

Table 1 presents the average ranks and sums of ranks for answers about the physical symptoms of burnout of younger and older employees on which the Mann–Whitney U test is based. They are shown to facilitate the understanding of the test results. To implement this test, the values of the numeric variable are converted into ranks. In Table 2, the arithmetic mean and the median of the age groups are shown. Further results are shown in Table 3.

The review of average ranks shows that in most cases, significant differences in the physical symptoms of burnout exist between the groups. Almost all statements reflect more physical symptoms of burnout in older employees than in younger ones.

The arithmetic means and the medians for answers about the physical symptoms of younger and older employees show that on average, physical symptoms are more common in older employees. Statements are sorted from the highest to smallest mean values. These statements are I have headaches, migraines (mean, 3.38; median, 4.00); I have lower back pain, shoulder pain (mean, 3.27; median, 4.00); I often have the flu or virosis (mean, 3.04; median, 3.00); I have increased heart rate (mean, 2.40; median, 2.00); I have stomachaches (mean, 2.25; median, 2.00); my blood pressure varies (mean, 2.11; median, 2.00); I have indigestion (mean, 2.03; median, 2.00); I have sweaty and cold hands (mean, 2.02; median, 2.00); I have vertigo (mean, 1.97; median, 2.00); and I’m sweating (mean, 1.97; median, 2.00).

Table 1 Average ranks and sums of ranks for answers about the physical symptoms of burnout of younger and older employees

		<i>N</i>	Mean rank	Sum of ranks
tsi1: I have headaches, migraines	18–49 years	174	192.56	33,505.50
	50–65 years	226	206.61	46,694.50
	Total	400		
tsi2: My sleep cycle is messy	18–49 years	173	200.97	34,768.00
	50–65 years	226	199.26	45,032.00
	Total	399		
tsi3: I have vertigo	18–49 years	174	132.59	23,071.00
	50–65 years	226	252.78	57,129.00
	Total	400		
tsi4: I'm sweating	18–49 years	173	154.16	26,670.00
	50–65 years	226	235.09	53,130.00
	Total	399		
tsi5: I have sweaty and cold hands	18–49 years	174	159.14	27,690.50
	50–65 years	224	230.85	51,710.50
	Total	398		
tsi6: My blood pressure varies	18–49 years	174	151.88	26,426.50
	50–65 years	225	237.22	53,373.50
	Total	399		
tsi7: I often have the flu or virosis	18–49 years	173	177.82	30,763.50
	50–65 years	226	216.98	49,036.50
	Total	399		
tsi8: I am often tired, exhausted	18–49 years	174	205.67	35,787.00
	50–65 years	226	196.52	44,413.00
	Total	400		
tsi9: I have stomachaches	18–49 years	174	156.29	27,195.00
	50–65 years	225	233.80	52,605.00
	Total	399		
tsi10: I have increased heart rate	18–49 years	174	156.61	27,250.50
	50–65 years	226	234.29	52,949.50
	Total	400		
tsi11: I have lower back pain, shoulder pain	18–49 years	173	196.78	34,042.50
	50–65 years	225	201.59	45,358.50
	Total	398		
tsi12: I have indigestion	18–49 years	174	131.62	22,902.50
	50–65 years	224	252.23	56,498.50
	Total	398		

On average, higher agreement of younger employees is achieved with the following statements describing physical symptoms: I am often tired, exhausted (mean, 3.60; median, 4.00) and my sleep cycle is messy (mean, 3.50; median, 4.00).

Table 2 The arithmetic means and the medians for answers about the physical symptoms of younger and older employees

	18–49 years		50–65 years		Total	
	Mean	Median	Mean	Median	Mean	Median
tsi1: I have headaches, migraines	3.32	3.00	3.38	4.00	3.36	3.00
tsi2: My sleep cycle is messy	3.50	4.00	3.44	4.00	3.47	4.00
tsi3: I have vertigo	1.29	1.00	1.97	2.00	1.68	2.00
tsi4: I'm sweating	1.53	1.00	1.97	2.00	1.78	2.00
tsi5: I have sweaty and cold hands	1.61	1.00	2.02	2.00	1.84	2.00
tsi6: My blood pressure varies	1.58	1.00	2.11	2.00	1.88	2.00
tsi7: I often have the flu or virosis	2.66	3.00	3.04	3.00	2.88	3.00
tsi8: I am often tired, exhausted	3.60	4.00	3.47	4.00	3.53	4.00
tsi9: I have stomachaches	1.70	1.00	2.25	2.00	2.01	2.00
tsi10: I have increased heart rate	1.79	1.00	2.40	2.00	2.13	2.00
tsi11: I have lower back pain, shoulder pain	3.21	3.00	3.27	4.00	3.24	3.00
tsi12: I have indigestion	1.31	1.00	2.03	2.00	1.72	2.00

Table 3 Statistically significant differences in physical symptoms of burnout between younger and older employees

	Mann–Whitney U	Asymp. sig. (2-tailed)
tsi1: I have headaches, migraines	18,280.500	0.195
tsi2: My sleep cycle is messy	19,381.000	0.874
tsi3: I have vertigo	7846.000	0.000
tsi4: I'm sweating	11,619.000	0.000
tsi5: I have sweaty and cold hands	12,465.500	0.000
tsi6: My blood pressure varies	11,201.500	0.000
tsi7: I often have the flu or virosis	15,712.500	0.000
tsi8: I am often tired, exhausted	18,762.000	0.404
tsi9: I have stomachaches	11,970.000	0.000
tsi10: I have increased heart rate	12,025.500	0.000
tsi11: I have lower back pain, shoulder pain	18,991.500	0.667
tsi12: I have indigestion	7677.500	0.000

Table 3 represents the results of the Mann–Whitney U test for considering statistically significant differences in the physical symptoms of burnout among older and younger employees.

The results of the Mann–Whitney U test show that the differences are statistically significant ($p < 0.001$) in most (i.e., 66.7%) variables of physical symptoms of burnout. These statements are:

tsi3: I have vertigo.

tsi4: I'm sweating.

tsi5: I have sweaty and cold hands.

tsi6: My blood pressure varies.

tsi7: I often have the flu or virosis.

tsi9: I have stomachaches.

tsi10: I have increased heart rate.

tsi12: I have indigestion.

Based on this result, we can answer the research question that there are statistically significant differences in the physical symptoms of burnout between older and younger employees.

Further, Table 4 presents the average ranks and sums of ranks for answers about the emotional symptoms of burnout of younger and older employees on which the Mann–Whitney U test is based. In Table 5, the arithmetic mean and the median of the age groups are shown. Results are shown in Table 6.

The review of average ranks shows that in most cases, significant differences in the emotional symptoms of burnout exist between the groups.

The arithmetic means and the medians for answers about the emotional burnout of younger and older employees show that on average both of them are not emotional burnout. On average, younger employees are more tense (mean, 3.76; median, 4.00) than older employees.

Table 6 represents a statistically significant difference in the emotional symptoms of burnout among older and younger employees.

By using the Mann–Whitney U test, we verified whether the observed differences are statistically significant. The differences are statistically significant ($p < 0.001$) in most (i.e., 72.7%) statements. These statements are:

csi2: I am tense.

csi3: I feel panic.

csi4: I am afraid of losing the job or not finishing the work on schedule.

csi5: I am sad.

csi6: I have a feeling of helplessness.

csi7: To me, everything seems meaningless.

csi8: I am emotionally exhausted.

csi9: I am exceedingly sensitive.

Based on this result, we can answer the research question that there are statistically significant differences in the emotional symptoms of burnout between older and younger employees.

In the following, we present the results of behavioral symptoms of burnout. Table 7 presents the average ranks and sums of ranks for answers about the behavioral symptoms of burnout of younger and older employees on which the Mann–Whitney U test is based. In Table 8, the arithmetic mean and the median of the age groups are shown. Further results are shown in Table 9.

The review of average ranks shows that in all cases, significant differences in the behavioral symptoms of burnout exist between the groups. Almost all statements reflect more behavioral symptoms of burnout in older employees than in younger

Table 4 Average ranks and sums of ranks for answers about the emotional symptoms of burnout of younger and older employees

		<i>N</i>	Mean rank	Sum of ranks
csi1: I have depressive feelings	18–49 years	174	206.50	35,931.00
	50–65 years	226	195.88	44,269.00
	Total	400		
csi2: I am tense	18–49 years	174	246.51	42,892.50
	50–65 years	225	164.03	36,907.50
	Total	399		
csi3: I feel panic	18–49 years	174	160.07	27,851.50
	50–65 years	225	230.88	51,948.50
	Total	399		
csi4: I am afraid of losing the job or not finishing the work on schedule	18–49 years	174	258.16	44,920.00
	50–65 years	225	155.02	34,880.00
	Total	399		
csi5: I am sad	18–49 years	174	162.17	28,218.00
	50–65 years	226	230.01	51,982.00
	Total	400		
csi6: I have a feeling of helplessness	18–49 years	174	143.78	25,018.00
	50–65 years	226	244.17	55,182.00
	Total	400		
csi7: To me, everything seems meaningless	18–49 years	174	129.07	22,458.50
	50–65 years	225	254.85	57,341.50
	Total	399		
csi8: I am emotionally exhausted	18–49 years	174	213.53	37,154.00
	50–65 years	226	190.47	43,046.00
	Total	400		
csi9: I am exceedingly sensitive	18–49 years	174	167.86	29,207.50
	50–65 years	226	225.63	50,992.50
	Total	400		
csi10: I am quarrelsome	18–49 years	174	207.75	36,148.50
	50–65 years	226	194.92	44,051.50
	Total	400		
csi11: I feel anger	18–49 years	174	204.08	35,510.50
	50–65 years	226	197.74	44,689.50
	Total	400		

ones. Behavioral symptoms of burnout among younger employees are primarily reflected in the following statement: I have insomnia.

The arithmetic means and the medians for answers about the behavioral burnout of younger and older employees show that older workers are more susceptible to behavioral symptoms of burnout than younger employees. On average, higher values of agreement of older employees are achieved with the following statements describing behavioral symptoms of burnout: I lack the will to socialize with

Table 5 The arithmetic means and the medians *for answers about the emotional symptoms of burnout of younger and older employees*

	18–49 let		50–65 years		Total	
	Mean	Median	Mean	Median	Mean	Median
csi1: I have depressive feelings	2.60	3.00	2.60	2.00	2.60	3.00
csi2: I am tense	3.76	4.00	3.01	3.00	3.34	3.00
csi3: I feel panic	1.68	1.00	2.05	2.00	1.89	2.00
csi4: I am afraid of losing the job or not finishing the work on schedule	2.98	3.00	2.16	2.00	2.52	2.00
csi5: I am sad	1.82	2.00	2.34	2.00	2.11	2.00
csi6: I have a feeling of helplessness	1.51	1.00	2.13	2.00	1.86	2.00
csi7: To me, everything seems meaningless	1.36	1.00	2.12	2.00	1.79	2.00
csi8: I am emotionally exhausted	2.70	3.00	2.59	2.00	2.64	3.00
csi9: I am exceedingly sensitive	1.87	2.00	2.26	2.00	2.09	2.00
csi10: I am quarrelsome	2.16	2.00	2.09	2.00	2.12	2.00
csi11: I feel anger	2.12	2.00	2.08	2.00	2.10	2.00

Table 6 Statistically significant differences in the emotional symptoms of burnout between younger and older employees

	Mann–Whitney U	Asymp. sig. (2-tailed)
csi1: I have depressive feelings	18,618.000	0.334
csi2: I am tense	11,482.500	0.000
csi3: I feel panic	12,626.500	0.000
csi4: I am afraid of losing the job or not finishing the work on schedule	9455.000	0.000
csi5: I am sad	12,993.000	0.000
csi6: I have a feeling of helplessness	9793.000	0.000
csi7: To me, everything seems meaningless	7233.500	0.000
csi8: I am emotionally exhausted	17,395.000	0.037
csi9: I am exceedingly sensitive	13,982.500	0.000
csi10: I am quarrelsome	18,400.500	0.230
csi11: I feel anger	19,038.500	0.550

co-workers (mean, 3.03; median, 3.00); I lack the will to work (mean, 3.01; median, 3.00); I avoid activities (mean, 2.82; median, 3.00); my working ability has declined (mean, 2.65; median, 3.00); and I have nightmares (mean, 2.58; median, 2.00). On average, older employees are neither agree nor disagree with these statements.

On average, younger employees have the next lowest symptoms of burnout: I have difficulties with concentration and memory (mean, 1.44; median, 1.00); I wish for solitude (mean, 1.54; median, 1.00), and my working ability has declined (mean,

Table 7 Average ranks and sums of ranks for answers about the behavioral symptoms of burnout of younger and older employees

		<i>N</i>	Mean rank	Sum of ranks
vsi1: I have attacks of rage and cry	18–49 years	174	172.25	29,972.00
	50–65 years	226	222.25	50,228.00
	Total	400		
vsi2: I avoid activities	18–49 years	174	175.30	30,503.00
	50–65 years	226	219.90	49,697.00
	Total	400		
vsi3: I have nightmares	18–49 years	174	175.89	30,604.50
	50–65 years	226	219.45	49,595.50
	Total	400		
vsi4: I have insomnia	18–49 years	173	213.92	37,007.50
	50–65 years	226	189.35	42,792.50
	Total	399		
vsi5: I have difficulties with concentration and memory	18–49 years	174	135.31	23,543.50
	50–65 years	225	250.03	56,256.50
	Total	399		
vsi6: I wish for solitude	18–49 years	173	139.18	24,078.50
	50–65 years	226	246.56	55,721.50
	Total	399		
vsi7: My working ability has declined	18–49 years	174	134.99	23,488.50
	50–65 years	225	250.27	56,311.50
	Total	399		
vsi8: I lack the will to work	18–49 years	174	163.64	28,474.00
	50–65 years	226	228.88	51,726.00
	Total	400		
vsi9: I lack the will to socialize with co-workers	18–49 years	174	150.57	26,198.50
	50–65 years	225	238.23	53,601.50
	Total	399		

1.69; median, 1.50), while the mean value indicates a higher burnout symptom of which is: I have insomnia (mean, 3.10; median, 3.00).

Table 9 represents a statistically significant difference in the behavioral symptoms of burnout among older and younger employees.

By using the Mann–Whitney U test, we verified whether the observed differences are statistically significant. The differences are statistically significant for all statements. Based on this result, we can answer the research question that there are statistically significant differences in the behavioral symptoms of burnout between older and younger employees.

Table 8 The arithmetic means and the medians for answers about the behavioral symptoms of burnout of younger and older employees

	18–49 years		50–65 years		Total	
	Mean	Median	Mean	Median	Mean	Median
vsi1: I have attacks of rage and cry	1.80	2.00	2.10	2.00	1.97	2.00
vsi2: I avoid activities	2.40	3.00	2.82	3.00	2.64	3.00
vsi3: I have nightmares	2.18	2.00	2.58	2.00	2.40	2.00
vsi4: I have insomnia	3.10	3.00	2.93	3.00	3.00	3.00
vsi5: I have difficulties with concentration and memory	1.44	1.00	2.21	2.00	1.87	2.00
vsi6: I wish for solitude	1.54	1.00	2.26	2.00	1.94	2.00
vsi7: My working ability has declined	1.69	1.50	2.65	3.00	2.23	2.00
vsi8: I lack the will to work	2.32	2.00	3.01	3.00	2.71	3.00
vsi9: I lack the will to socialize with co-workers	2.16	2.00	3.03	3.00	2.65	3.00

Table 9 Statistically significant differences in the behavioral symptoms of burnout between younger and older employees

	Mann–Whitney U	Asymp. sig. (2-tailed)
vsi1: I have attacks of rage and cry	14,747.000	0.000
vsi2: I avoid activities	15,278.000	0.000
vsi3: I have nightmares	15,379.500	0.000
vsi4: I have insomnia	17,141.500	0.028
vsi5: I have difficulties with concentration and memory	8318.500	0.000
vsi6: I wish for solitude	9027.500	0.000
vsi7: My working ability has declined	8263.500	0.000
vsi8: I lack the will to work	13,249.000	0.000
vsi9: I lack the will to socialize with co-workers	10,973.500	0.000

4 Discussion and Conclusion

On average, older employees are more susceptible to physical symptoms of burnout than younger employees. This is reflected in headaches and migraines and flu or virosis. Although the results show that older employees on average disagree with the statements describing emotional burnout, the average values of their agreement are higher in the case of feeling panic, being sad, having a feeling of helplessness and meaninglessness, and being exceedingly sensitive. Physical symptoms and emotional symptoms of burnout may be related to discriminatory and stereotyped treatment of older employees in the workplace. Older employees often have difficulties in the case of education, training, remuneration, and promotion within the workplace since they are treated differently than younger employees. Usually, employers only see obligation in older employees rather than using them as a

valuable resource since they have a lot of knowledge and experience. Age discrimination, prejudices, and stereotypes about age by the employers have a significant negative impact on the working environment, well-being, and state of health of the older employees. Younger employees often suffer from an imbalance between work and private life; therefore, they often experience stress or fail to complete their work on schedule. Younger employees are faced with tension within a workplace, or when carrying out work tasks, they do not have so much professional experience and expertise as older workers which cause additional strain resulting in emotional symptoms of burnout.

On average, older and younger employees are not exposed to behavioral symptoms of burnout. But, on average, older employees are more neither agree nor disagree with the following: I lack the will to socialize with co-workers, I lack the will to work, I avoid activities, my working ability has declined, and I have nightmares. Both of older and younger employees on average neither agree nor disagree with: I have insomnia.

The results of the Mann–Whitney test helped answer the research question: there are statistically significant differences in the burnout symptoms in the workplace between younger and older employees in Slovenian companies. Managing diversity requires a strategic approach to managing people at work and is an important part of human resource management, which includes a wide range of activities that improve the functioning of individuals and organizations (Beaver and Hutchings 2005).

To examine the interplay between age and work characteristics is appropriate because people generally spend a significant part of their life span working and, therefore, have ample opportunity to display these adaptive processes throughout their working lives, but the role of age in job design has largely been ignored (Truxillo et al. 2012).

The established link between job stressors and well-being of employees (Patterson et al. 1997) and work satisfaction (Fairbrother and Warn 2003) places a clear moral obligation on employers to provide a healthy environment (Patterson et al. 1997).

Burnout in the workplace leads to lower productivity, motivation, work satisfaction, and engagement of employees and has the impact on employee health. Organizations that do not manage the stress and burnout of their employees will not be successful in their operations. It is important that the leader detects the presence of stress and its sources in the workplace and tends to the well-being of their employees (Leka et al. 2003). Jamal and Baba (2000) also argue that organizational factors tend to play an important role in employees' stress, burnout, and well-being; it is recommended that organizations should actively try to detect such factors and take corrective actions for the better health and well-being of the employee.

Robertson and Cooper (2010) argue that the high level of well-being of employees plays a central role in achieving significant results within the organization. Wright and Cropanzano (2000) in their study prove positive relationship between employee well-being and work performance. Also, their studies show

that employees with higher levels of welfare in the organization are more successful at work than those with lower levels of well-being.

Human resource management policies affect the functioning of employees in the organization, while organizations are still insufficiently aware of demographic changes and challenges of an aging workforce for their future development and operation. Ilmarinen (2001) argues that aging of workforce at certain level of organization requires consideration factors of age of employees in their daily management. The author also stresses that workload must be reduced with age.

An important role in reducing burden and stress of employees at workplace has leaders by providing adequate complexity of work (Yavas et al. 2013). Despite changes and new directions, organizations devote very little focus to safeguard welfare and satisfaction of employees in the workplace. Some companies would not change their activities, even if this would adversely affect the well-being of employees (Rumbles and Rees 2013). Cartwright and Cooper (2008) make clear that employees with higher levels of well-being in the workplace are healthier, both mentally and physically, which also affects employment commitment of employees.

References

- Ambrose, J., & Norman Benson Wier, C. S. (2010). Healthy lifestyle as a coping mechanism for role stress in public accounting. *Behavioral Research in Accounting*, 22, 21–41.
- Beaver, G., & Hutchings, K. (2005). Training and developing an age diverse workforce in SMEs: The need for a strategic approach. *Education + Training*, 47(8/9), 592–604.
- Brandy, K. L., & Cox, G. O. (2002). *Management of occupational stress*. New York: Macmillan.
- Brooke, L. (2003). Human resource costs and benefits of maintaining a mature-age workforce. *International Journal of Manpower*, 24(3), 260–283.
- Cartwright, S., & Cooper, C. L. (2008). *Oxford handbook of organisational well being*. Oxford: Oxford University Press.
- Fairbrother, K., & Warn, J. (2003). Workplace dimensions, stress and job satisfaction. *Journal of Managerial Psychology*, 18(1), 8–21.
- Fogarty, T. J., Singh, J., Rhoads, G. K., & Moore, R. K. (2000). Antecedents and consequences of burnout. *Behavioral Research in Accounting*, 12, 31–68.
- George, E., & Zakkariya, K. A. (2015). Job related stress and job satisfaction: A comparative study among bank employees. *Journal of Management Development*, 34(3), 316–329.
- Ghosheh, N. S., Jr., Lee, S., & McCann, D. (2006). *Conditions of work and employment for older workers in industrialized countries: Understanding the issues*. Conditions of work and employment series. Geneva: International Labour Organization.
- Grant, A. M., Fried, Y., & Juillerat, T. (2010). Work matters: Job design in classic and contemporary perspectives. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology* (pp. 417–453). Washington, DC: American Psychological Association.
- Grebner, S., Elfering, A., & Semmer, N. K. (2010). The success resource model of job stress. In P. L. Perrewé & D. C. Ganster (Eds.), *New developments in theoretical and conceptual approaches to job stress, Research in occupational stress and well-being* (Vol. 8, pp. 61–108). Bingley, UK: Emerald Group Publishing Limited.

- Halkos, G., & Bousinakis, D. (2010). The effect of stress and satisfaction on productivity. *International Journal of Productivity and Performance Management*, 59(5), 415–431.
- Hansson, R. O., Robson, S. M., & Limas, M. J. (2001). Stress and coping among older workers. *Work*, 17(3), 247–256.
- Henkens, K., & Leenders, M. (2010). Burnout and older workers intentions to retire. *International Journal of Manpower*, 31(3), 306–321.
- Ilmarinen, J. (2001). Aging workers. *Occupational and Environmental Medicine*, 58(8), 546–552.
- Intiyas Utami, S. C., & Supriyadi, G. M. (2013). Flexible working arrangement and stress management training in mitigating auditor's burnout: An experimental study. *Accounting & Taxation*, 5(1), 97–113.
- Jamal, M., & Baba, V. V. (2000). Job stress and burnout among Canadian managers and nurses: An empirical examination. *Canadian Journal of Public Health*, 91(6), 454–459.
- Leiter, M. P., Frizzell, C., Harvie, P., & Churchill, L. (2001). Abusive interactions and burnout: Examining occupation, gender, and the mediating role of community. *Psychology and Health*, 16(5), 547–563.
- Leka, S., Griffiths, A., & Cox, T. (2003). *Work organization and stress*. Institute of work, health, organisations. Pridobljeno dne 1.2.2015 s spletne strani: http://www.who.int/occupational_health/publications/en/oehstress.pdf
- Lester, J. M., & Brower, K. L. (2001). *Industrial psychology*. New York: Macmillan.
- Malik, O. F., Waheed, A., & Malik, K. U. R. (2010). The mediating effects of job satisfaction on role stressors and affective commitment. *International Journal of Business and Management*, 5(11), 223–235.
- Michael, O., Court, D., & Petal, P. (2009). Job stress and organizational commitment among mentoring coordinators. *International Journal of Educational Management*, 23(3), 266–288.
- Moore, J. (2000). One road to turnover: An examination of work exhaustion in technology professionals. *MIS Quarterly*, 24(1), 141–168.
- Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, 91(6), 1321–1339.
- Parkes, H. L. (2002). *Human health and management*. London: Macmillan.
- Patterson, M. G., West, M. A., Lawthom, R., & Nickell, S. (1997). *Issues in people management: Impact of people management practices on business performance*. Retrieved January 21, 2005, from Institute of Personnel and Development Web site: <http://www.cipd.co.uk/NR/rdonlyres/75D39FB0-061E-4983-B681-FB1E0C43CB96/0/ImpactofPeoplMgmntinBusPerf.pdf>
- Robertson, I. T., & Cooper, C. L. (2010). Full engagement: The integration of employee engagement and psychological well-being. *Leadership & Organization Development Journal*, 31(4), 324–336.
- Rumbles, S., & Rees, G. (2013). Continuous changes, organizational burnout and the implications for HRD. *Industrial and Commercial Training*, 45(4), 236–242.
- Shirom, A. (1989). Burnout in work organizations. In C. L. Cooper & I. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 25–48). Chichester: Wiley.
- Shirom, A. (2003). Job-related burnout: a review. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 245–264). Washington, DC: American Psychological Association.
- Truxillo, D. M., Cadiz, D. M., Rineer, J. R., Zaniboni, S., & Fraccaroli, F. (2012). A lifespan perspective on job design: Fitting the worker to the job to promote job satisfaction, engagement, and performance. *Organizational Psychology Review*, 2(4), 340–360.
- Wright, T. A., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology*, 5(1), 84–94.
- Yavas, U., Babakus, E., & Karatepe, O. M. (2013). Does hope moderate the impact of job burnout on frontline bank employees in-role and extra-role performances? *International Journal of Bank Marketing*, 31(1), 56–70.

- Yunus, M. J., & Mahajar, A. (2009). The empirical study of burnout among nurses of public hospitals in the northern part of Malaysia. *Journal of International Management Studies*, 4(3), 1–9.
- Zaniboni, S., Truxillo, D. M., Fraccaroli, F., McCune, E. A., & Bertolino, M. (2014). Who benefits from more tasks? Older versus younger workers. *Managerial Psychology*, 29(5), 523–508.

Workers in a Poultry Cooperative: A Study on Their Job Satisfaction



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Abstract Poultry sector in Balkan countries presents a significant dynamic in both terms of consumption and production. Even if small-scale poultry production in farmers' backyards is very common in all Balkan countries, modern and industrialized poultry farming facilities have been developed to confront the increasing demand for poultry products. On the other hand, there are many studies that associate business performance to job satisfaction for employees and workers. Thus, it is worth examining job satisfaction and the factors that determine the derived satisfaction as a first step to study poultry sector and its contribution to food and beverage sector. In this study job satisfaction is examined for workers in a Greek poultry cooperative, since agricultural poultry cooperatives in Greece perform better than other sectors. In addition, the largest agricultural cooperative in Greece is a poultry cooperative that has a 30% market share. A similar situation is observed for many Balkan countries.

In order to examine job satisfaction, a questionnaire was developed based on the well-established questionnaires "Job Satisfaction Survey" and "Job Descriptive Index" in order to evaluate workers' overall satisfaction. The survey took place in a medium-sized poultry cooperative located in Epirus, Greece, with more than 300 employees and workers. However, only workers in the production line were selected to participate in the survey excluding desk officers, salesmen, and workers in the logistics of the cooperative. As a result, about 90 fully completed questionnaires were returned representing more than 1/3 of the total workers of the cooperative.

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The first results of the study through a regression analysis indicate that two groups of characteristics affect workers' satisfaction: the relationships among workers and the personal opportunities for development and recognition. Moreover, workers' educational level seems to affect the perceived satisfaction for workers. This study could provide to poultry cooperatives' managers, in practical terms, specific directions that can be used in motivating workers to be engaged with the cooperative business and increase their satisfaction, and even more this study could be used to investigate further if job satisfaction could lead in better business performance for the poultry sector.

Keywords Agricultural cooperatives • Poultry • Job satisfaction • Greece

1 Introduction

The poultry sector in Greece is one of the most dynamic sectors of animal production and rural economy. It now accounts for 5% of the total value of agricultural production, while the organized poultry companies annually produce 120 million chickens and 1.5 billion eggs covering this way more than 90% of the domestic demand (Gaia 2016). In the sector there are about 80 companies of various sizes located mainly in Epirus (45%), in Central Greece (27%), and in Macedonia and Thrace (18%). The poultry sector directly employs more than 4000 workers and 6000 farmers, and in addition there are more than 5000 people indirectly involved with the sector. An interesting fact of the sector in Greece is that no more than ten vertical intergraded poultry companies hold about 80% of the market share. In addition, four of the largest companies hold about 60% of the total market share. What is more, two of the four largest companies are agricultural cooperatives.

The population of Greek agricultural cooperatives is larger in comparison to those of most other European Union countries (Iliopoulos and Valentinov 2012). Yet, this fact does not translate into a significant market share in food supply chains. In some cases, a significant percentage of a commodity is marketed through cooperatives. However, given the negligible presence of agricultural cooperatives in processing, cooperatives' market shares in final product markets are extremely low. The only exception exists in the poultry sector (Iliopoulos 2012). Thus, the cooperatives of the poultry sector could be used as a useful example for other agricultural cooperatives in Greece. Consequently, the strategic choices of poultry cooperatives could show the way to other agricultural cooperatives in order to adapt their strategies and create and maintain value in the cooperatives' organization in the face of the changing environmental conditions and the major economic crisis faced by the Greek economy (Kontogeorgos et al. 2016). It is well known that changing environments can pose constraints as well as create opportunities for organizations (Sternad 2012). For this reason, the poultry sector in Greece and especially the poultry cooperatives should be further examined.

This study attempts to examine workers' satisfaction in a poultry cooperative. If workers are satisfied and happy with their employer and their work environment, then definitely they will put their best efforts to make a business successful. Job satisfaction is one of the closely associated concepts with performance of an organization; however, performance seems to be strongly dependent on firms' strategy choices even agricultural cooperatives (Salavou and Sergaki 2013).

Measuring employee satisfaction is very imperative for employers, if they want to get quality work from their employees. This will not only build the trust of employees on their employer but protect and build up their confidence as well. Measuring job satisfaction is an essential tool used by smart organizations to keep their employees or other workforce happy and motivated. Measuring employee satisfaction is also very beneficial because it makes employees feel that they are an important part of the organization. Also, by executing the surveys, employers can be rest assured that their employees will stay loyal to the company and work more efficiently for the benefit of the organization. In the examined case the results of such a survey could be used to strengthen the resilience of the cooperative business model in times of crisis as it is suggested by Birchall and Ketilson (2009).

2 Job Satisfaction

Hoppock (1935; in Scott et al. 2005) defined job satisfaction as "any combination of psychological, physiological, and environmental circumstances that causes a person truthfully to say, 'I am satisfied with my job'." Employees may be satisfied with some aspects of their jobs while being dissatisfied with others. It is assumed that employees are able to balance the specific satisfactions against the specific dissatisfactions and arrive at a composite satisfaction with the job as a whole. This way satisfaction can be described as approval, pleasure, happiness, fulfillment, contentment, agreement, or liking. All of these terms describe feelings that are formulated about the work environment that influences one's perceptions of satisfaction or dissatisfaction (Gilman et al. 2012). Thus, job satisfaction refers to how content an individual is with his or her job in an organization. Locke (1976) defined job satisfaction as a pleasant or positive emotional condition, derived from an employee's appreciation for their occupation or work experience. However, there is not a single and unique definition for job satisfaction, since it is a multidimensional concept, as indicated by Zournatzi et al. (2006).

Nevertheless, what makes work worth doing? Work provides a means of making a living, a way to occupy one's time, and a forum to satisfy achievement needs. However, from a positive psychological perspective, the answer to the question of why work is worthwhile goes far beyond these reasons. Instead, we should anticipate that the best work experiences add value to people's lives and are an important part of their personal and communitarian flourishing (Steger et al. *in press*). The same authors claim also that ideally work also is enjoyable, provides a desirable sense of challenge, and both cultivates and makes use of people's strengths. At its

best, work also contributes to the health and equity of organizations, communities, and societies.

There is a substantial volume of research on job satisfaction, the most widely studied topic in organizational behavior research and long a focal construct in both industrial-organizational and vocational psychology. A very important factor that positively affects job satisfaction is the salary (Sdrolias et al. 2014). Job satisfaction is positively related to income and negatively to the hours spent in work. However, when considering job satisfaction, demographic variables should be considered to thoroughly understand the possible factors that lead to job satisfaction and dissatisfaction. There are also other equally important factors associated with job satisfaction. For instance, the higher the educational level of the employees, the higher the levels of job satisfaction. Furthermore, Moradi et al. (2012) found that self-awareness, empathy, emotional intelligence, and social skills are positively associated with job satisfaction, while job satisfaction is negatively connected to turnover and positively connected to the increased performance of employees (Dixon and Warner 2010). An additional factor that can affect job satisfaction is the balance between the family and the work life, as work and family conflicts can result on reduced job satisfaction (Kalliath and Kalliath 2013). Moreover, team working also seems to be related to job satisfaction; Williams (1998) argues that team working is also connected to job satisfaction since it can make the work more meaningful and interesting.

Job satisfaction is associated with performance of an organization. Several studies have shown the impacts of job satisfaction on other essential factors of organizations. Bowran and Todd (1999) asserted that “behavioral and social science research suggests that job satisfaction and job performance are positively correlated”. Productivity is a good indicator of employee satisfaction. If an employee’s quality of work falls off dramatically, it may be an indication of dissatisfaction. It could also be caused by personal issues or problems with co-workers, so it’s important to find out the underlying cause. Regular errors, sloppy work, and low productivity are not only signs of a dissatisfied employee; they can affect a company’s bottom line. The signs and symptoms of dissatisfaction and low morale are often more subtle. Disgruntled employees can negatively affect productivity, morale, and the reputation of your company.

To sum up, job satisfaction stems from employees’ perception of certain aspects of the job and the relationship between their expectations or needs and the perceptions they have when carrying out the job. Different ways have been used to measure employees’ job satisfaction in the literature. Measuring overall job satisfaction or assessing each element of job satisfaction, such as pay and supervision, has been widely discussed in previous studies. However, since jobs cannot be perceived or evaluated from a single unit, measuring overall satisfaction is the sum of the evaluations of the job elements (Locke 1969). This study was designed to identify poultry workers’ personal characteristics and their relationships with job satisfaction.

3 Data and Methodology

Job satisfaction has been measured predominantly using self-report instruments that can be divided into two categories: (1) facet measures, which assess satisfaction with specific aspects of a job such as job security, co-workers, working conditions, company policies, and opportunities for achievement, accomplishment, and advancement, and (2) global measures, which focus on overall appraisals of a job. As Fritzsche and Parrish (2005) note, no theory is available to guide selection of which facets are most important under which circumstances.

The outcome variable of this study is the level of job satisfaction of workers in a poultry cooperative. Assessment of job satisfaction was performed by using multidimensional job satisfaction scales. Steger et al. (2017) claim that the most popular facet measures of job satisfaction are the Job Descriptive Index (JDI), the Job Satisfaction Survey (JSS), and the Minnesota Satisfaction Questionnaire (MSQ). The instrument used in this survey to measure job satisfaction is based on the above facet measures of job satisfaction.

Measuring employee satisfaction is an effective way to know if the employees and workers of an organization are satisfied and contented with their job or not. In order to protect the confidence of employees and to build their trust, it is important for an organization to measure the satisfaction level of their employees. If the employees are satisfied with their work and working environment, then they will put more efforts, stay loyal, and work with more sincerity and dedication. Another way of measuring employee satisfaction is by carrying out personal interviews. This way of measuring was avoided in this survey due to time constraints and even more to avoid workers' personal interaction with the interviewers which could make workers feel that their concerns and notions are being noticed and heard by the higher authorities and management, leading to biased answers.

The applied job satisfaction questionnaire contained 31 items divided into 8 main factors which include the work itself, working conditions, pay compensation, interaction with co-workers, relationship with supervisor, skills development, promotion opportunities, and business environment (see Fig. 1). Each factor has satisfaction subsidiary scales which were measured by Likert scale from highly disagree (1) to highly agree (5). A last (32th) question asked respondents to claim if they are (or not) satisfied with their job. The last section of the questionnaire gathered the respondents' demographic data, including gender, age, education, experience in the current job, and total working experience.

The purpose of the study is to examine the effect of specific aspects of a job on job satisfaction in a poultry cooperative in Greece due to its importance to the Greek agricultural economy. In addition, the relationship between job satisfaction and demographic characteristics for the examined sample was analyzed. For this purpose, the following research questions were explored:

1. What is the relationship between job characteristics and job satisfaction?
2. Which demographic characteristics affect job satisfaction?



Fig. 1 Factors that theoretically affect job satisfaction

The sample of this study consists of 89 workers of the production line of a poultry cooperative with more than 300 personnel located in Epirus, Greece. In this survey, only workers of the production line were selected to participate excluding desk officers, salesmen, and workers in the logistics of the cooperative. Thus, the completed questionnaires that were gathered represent more than 1/3 of the total production line workers of the cooperative. Data were collected through a structured questionnaire that was distributed to poultry workers during the autumn-winter of 2015.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Analysis of variance (ANOVA) was used to explore the differences among satisfied and dissatisfied workers and the differences among the demographic characteristics of the respondents. A logistic regression analysis was conducted to identify the relationship between employees' overall job satisfaction and the factors that affect it.

4 Results

Despite the frequent use of demographic variables and employing them to model human behavior, there is very little certainty as to how these relationships are occurring making it important to examine persistently these relationships. The most commonly examined demographic characteristics that determine job satisfaction are gender, age, education, experience, and the type of the work. The majority of participants in this survey are women (61.8%) who have graduated from high school (77.5%) and are mostly workers in the production line (93.3%) with few foremen. The participants have up to 10 years of experience in the same position (50.0%), and almost one third of them have more than 15 years of working experience. Finally, almost three out of five claim that in general they are satisfied with their job in the poultry cooperative. The demographic profile of the respondents is presented in Table 1.

A multi-item question was used to identify the importance of the theoretical factors in job satisfaction. Table 2 presents the number of the items used to describe each factor along with mean values and their standard deviation. In addition, Fig. 2, a radar diagram, depicts the mean values of the workers' responses to this multi-item question. It is worth mentioning that the highest mean value is ascribed to the relationship with the workers' supervisor indicating that day-to-day management practices are considered to be an important factor according to workers affecting their job satisfaction. On the other hand, it is possible that workers dishonestly assigned a higher than usual value to this section in order to avoid managerial pressure.

This is why it is important to examine the reliability and the validity of the used scales. Cronbach's alpha was used to assess the reliability of measurement scales. Values of Cronbach's alpha greater than .70 are considered to be reliable. The reliability coefficients for the factor scales ranged from 0.715 to 0.921. Considering the minimal acceptable level of alpha coefficient, these values suggested that scales could be considered reliable and used for further analysis (Table 2). The validity of the scales used in this questionnaire is achieved by the well-established job satisfaction instrument used in this study (i.e., Job Descriptive Index, JDI; Job Diagnostic Survey, JDS; Minnesota Satisfaction Scale, MSS).

The second step in this analysis was to compare the responses for both satisfied and dissatisfied group of workers, for this reason one-way ANOVA was used. ANOVA could illustrate if there are statistically significant differences between the two groups of respondents. Table 3 presents the results of the analysis; it seems that for all the examined factors, mean values are statistically different.

The next step in the analysis was to examine the responses for the examined demographic characteristics. Table 4 presents the results of the analysis for age and gender. ANOVA results indicate that only for the *pay compensation* factor mean values are statistically different for men and women. Men workers are less satisfied with their reward for the efforts they put in their job. At the same time, younger workers are rating higher the promotion opportunities offered by their job.

Table 1 Demographic characteristics for respondents participating in this survey

Workers' characteristics	Count	Percentage (%)
<i>Gender</i>		
Female	55	61.8
<i>Age</i>		
26–35	33	37.1
36–50	44	49.4
>50	12	13.5
<i>Educational level</i>		
<12 years (basic up to level 4)	69	77.5
12–14 years (level 5)	3	3.4
14–15 years (level 6)	12	13.5
15–16 years (level 7, MSc)	5	5.6
<i>Current position</i>		
Workers	83	93.3
Foremen	6	6.7
<i>Working experience (in the current position)</i>		
<5 years	34	38.2
6–10 years	20	22.5
11–15 years	13	14.6
16–20 years	3	3.4
>20 years	19	21.3
<i>Total working experience</i>		
<5 years	18	20.2
6–10 years	27	30.3
11–15 years	17	19.1
16–20 years	6	6.7
>20 years	21	23.6
<i>Job satisfaction (dichotomous answer to the question: In general, your job could be characterized as satisfied)</i>		
Yes	51	57.3
No	38	42.7

Source: Survey results

Table 2 Mean values and std. deviation of the factors used to measure job satisfaction

Factors used to measure and influence job satisfaction	Items	Cronbach's alpha	Mean ^a	Std. deviation
The work itself	3	0.715	3.8873	0.67580
Working conditions	5	0.715	3.8404	0.69163
Pay compensation	4	0.744	3.3567	0.81262
Interaction with co-workers	4	0.851	3.5281	0.78826
Relationship with supervisor	3	0.921	4.3409	0.68549
Skills development	3	0.804	3.2578	0.99258
Promotion opportunities	5	0.821	2.8944	0.86344
Business environment	4	0.885	3.5955	0.88910

^aMann-Whitney U test indicates that means for both satisfied and dissatisfied workers are not the same for each factor that affect job satisfaction

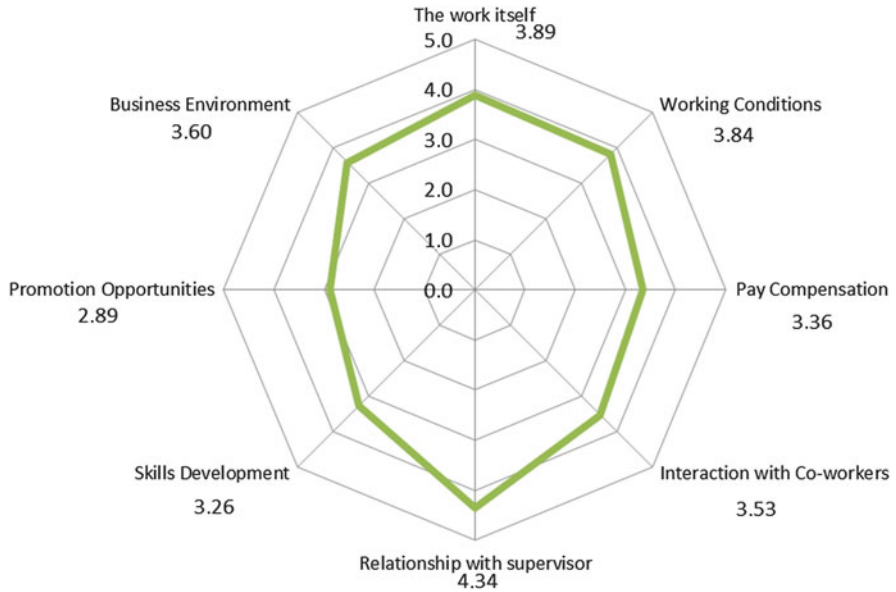


Fig. 2 Mean values assigned to the factors that theoretically affect job satisfaction

Table 3 ANOVA analysis for the satisfied and dissatisfied workers' group

Satisfaction dimension:	Workers' group	Mean	Std. deviation	df	Mean square	F	Sig.
The work itself	Dissatisfied	3.4824	0.67434	1	10.874	32.269	0.000
	Satisfied	4.1890	0.49983	87	0.337		
Working conditions	Dissatisfied	3.3474	0.66849	1	16.123	54.008	0.000
	Satisfied	4.2078	0.43444	87	0.299		
Pay compensation	Dissatisfied	2.9145	0.68348	1	12.971	25.000	0.000
	Satisfied	3.6863	0.74640	87	0.519		
Interaction with co-workers	Dissatisfied	3.0066	0.72244	1	18.036	42.820	0.000
	Satisfied	3.9167	0.58878	87	0.421		
Relationship with supervisor	Dissatisfied	4.0171	0.68865	1	6.952	17.584	0.000
	Satisfied	4.5822	0.58054	87	0.395		
Skills development	Dissatisfied	2.5955	0.77264	1	29.081	43.912	0.000
	Satisfied	3.7512	0.84296	87	0.662		
Promotion opportunities	Dissatisfied	2.3053	0.54373	1	23.015	47.011	0.000
	Satisfied	3.3333	0.79565	87	0.490		
Business environment	Dissatisfied	3.1579	0.91611	1	12.699	19.430	0.000
	Satisfied	3.9216	0.71849	87	0.654		

In addition, Table 5 presents the results of the analysis for the total working experience. It seems that workers belonging to the lower and upper groups in general are rating higher their derived job satisfaction. This phenomenon could

Table 4 ANOVA for age and gender (only the statistically significant factors)

	Demographic characteristic	Count	Mean	Std. deviation	F value	Sig.
	Gender					
Pay compensation	Male	34	3.0956	0.63965	6.005 (1.87)	0.016
	Female	55	3.5182	0.86983		
	Total	89	3.3567	0.81262		
	Age					
Promotion opportunities	26–35	33	3.2061	0.89231	3.691 (2.86)	0.029
	36–50	44	2.7318	0.85284		
	>50	12	2.6333	0.57735		
	Total	89	2.8944	0.86344		

be justified by bringing in mind that the Greek economy is still under a severe economic crisis with enormous unemployment rates.

Having used a dichotomous variable to measure the overall satisfaction, two groups of workers (satisfied and dissatisfied) were created. The results of the previous ANOVA analysis suggest that workers' satisfaction differs according to the importance assigned by the workers to the theoretical factors of job satisfaction and even more to some of their demographic characteristics. Nevertheless, ANOVA analysis can only be used to demonstrate statistically significant differences and not present the way that these differences affect satisfaction. For this reason, a logistic regression analysis was applied to demonstrate these relationships.

Binary logistic regression is useful in cases where we want to model the event probability for a categorical response variable with two outcomes. Since the probability of an event (satisfied and dissatisfied workers) must lie between 0 and 1, it is impractical to model probabilities with linear regression techniques, because the linear regression model allows the dependent variable to take values greater than 1 or less than 0. The logistic regression model is a type of generalized linear model that extends the linear regression model by linking the range of real numbers to the range 0–1. The results of the logistic regression analysis are presented in Table 6.

In the logistic regression analysis, the examination of residuals is required in order to identify both cases, where the estimated model has small adaptation and cases that have an enormous effect in the model. Field (2005) provides analytical directions for a residual analysis of such models. In this study the residual analysis indicated that there is no need for special treatment over data in order to face extreme values or effects of specific cases in the total adaptation of the model. Having verified that the estimated model is statistically acceptable, we can proceed to the interpretation of the results. The classification table (Table 7) and the different types of R^2 suggest that the estimated model adequately fits the data. Thus, the estimated model could correctly predict about nine out of ten cases.

Table 5 ANOVA for total working experience (only the statistically significant factors)

	Total working experience	Count	Mean	Std. deviation	F value	Sig.
The work itself	<5 years	18	4.0917	0.69207	2.899 (4.84)	0.027
	6–10 years	27	3.7404	0.55808		
	11–15 years	17	3.6082	0.76503		
	16–20 years	6	3.6667	0.69985		
	>20 years	21	4.1900	0.60258		
	Total	89	3.8873	0.67580		
Working conditions	<5 years	18	4.2333	0.62966	2.899 (4.84)	0.003
	6–10 years	27	3.6889	0.59829		
	11–15 years	17	3.6353	0.86092		
	16–20 years	6	3.2333	0.38816		
	>20 years	21	4.0381	0.56078		
	Total	89	3.8404	0.69163		
Relationship with supervisor	<5 years	18	4.5556	0.60586	3.820 (4.84)	0.007
	6–10 years	27	4.3700	0.74751		
	11–15 years	17	4.6082	0.59206		
	16–20 years	6	3.6117	0.39035		
	>20 years	21	4.1114	0.62643		
	Total	89	4.3409	0.68549		
Skills development	<5 years	18	3.9450	1.04959	5.020 (4.84)	0.001
	6–10 years	27	3.2704	0.96578		
	11–15 years	17	2.9394	0.92923		
	16–20 years	6	2.2217	0.58513		
	>20 years	21	3.2062	0.75721		
	Total	89	3.2578	0.99258		
Promotion opportunities	<5 years	18	3.3333	1.15809	2.987 (4.84)	0.023
	6–10 years	27	2.9926	0.70707		
	11–15 years	17	2.7647	0.92800		
	16–20 years	6	2.1333	0.30111		
	>20 years	21	2.7143	0.60851		
	Total	89	2.8944	0.86344		
Business environment	<5 years	18	3.9861	0.77399	3.299 (4.84)	0.015
	6–10 years	27	3.5926	0.80308		
	11–15 years	17	3.4412	1.09519		
	16–20 years	6	2.5833	0.37639		
	>20 years	21	3.6786	0.81449		
	Total	89	3.5955	0.88910		

Table 6 Logistic regression analysis of factors associated with job satisfaction of poultry workers

Variables (workers' characteristics and factors)	B	S.E.	Statistic Wald	Wald Sig.	Exp(B)
Gender (categorical)	<i>Not in the equation</i>				
Age	<i>Not in the equation</i>				
Education	<i>Not in the equation</i>				
Current position (categorical)	<i>Not in the equation</i>				
Experience	<i>Not in the equation</i>				
<i>The work itself</i>	2.100	0.887	5.603	0.018*	8.164
<i>Working conditions</i>	2.427	0.930	6.808	0.009*	11.330
Pay compensation	<i>Not in the equation</i>				
<i>Interaction with co-workers</i>	2.068	0.677	9.341	0.002*	7.909
Relationship with supervisor	<i>Not in the equation</i>				
Skills development	<i>Not in the equation</i>				
<i>Promotion opportunities</i>	2.439	0.894	7.432	0.006*	11.457
Business environment	<i>Not in the equation</i>				
<i>Constant term</i>	-30.909	7.806	15.679	0.00	0.00

Estimation method = forward stepwise (Wald)

$R^2 = 0.939$ (Chi² 2.93, df = 8 – Hosmer & Lemeshow), 0.578 (Cox & Snell), 0.777 (Nagelkerke)

Significance: * $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$

Table 7 Classification table^a

Observed	Predicted		Percentage correct (%)
	Satisfied workers	Dissatisfied workers	
Satisfied workers	34	4	89.5
Dissatisfied workers	6	45	88.5
Total			88.8

^aThe cut value is 0.65

5 Conclusion

The results in this study revealed that a positive correlation existed between the dependent variable, job satisfaction, and the following independent variables:

The work itself and working conditions represents the nature of the work itself and the working conditions of the work. In general, for the logistic regression results' interpretation, it is a fact that when Exp(B) is less than 1, increasing values of the variable correspond to decreasing odds of the event's occurrence. Thus, the higher a worker rates his satisfaction that comes from the work itself, the more possible is to belong to the satisfied group of workers. Because employees spend so much time in their work environment each week, it's important for a company to try to optimize working conditions. By providing the required facilities and improving the working conditions, an organization can definitely enhance the level of satisfaction of their employees to a greater extent. Such things as providing spacious work areas, adequate lighting, and comfortable work stations contribute to

favorable work conditions. Providing productivity tools to help employees accomplish tasks more efficiently contributes to job satisfaction as well.

Interaction with co-workers represents the relationships among workers. Having in mind that when $\text{Exp}(B)$ is greater than 1, then an increase in the values of the variable corresponds to increasing odds of the event's occurrence. Thus, when interaction with other workers is increasing, then the probability to belong to the less conscious group is decreasing. We assume that workers seek to be treated with respect by those they work with. A hostile work environment – with rude or unpleasant co-workers – is one that usually has lower job satisfaction. Managers need to step in and mediate conflicts before they escalate into more serious problems requiring disciplinary action. Workers may need to be reminded what behaviors are considered inappropriate when interacting with co-workers.

Promotion opportunities is the fourth variable that affects positively the overall job satisfaction. It seems that workers are more satisfied with their current job if they see a path available to move up the ranks in the company and be given more responsibility and along with it higher compensation. Many companies encourage employees to acquire more advanced skills that will lead to the chance of promotion. During a workers' performance review, a supervisor should map out a path showing them what it is needed to be accomplished and what skills are needed to be developed by workers in order to achieve the company goals.

To sum up, managers everywhere in every organization have been trying to figure out what promotes performance. There is no one standard procedure; every entity is different, so the manager must find what works for his or her workforce. For some employees, their job and career are very important to them; for others they look at their career as just a job and seek no motivation. At all, effective human resource management in the organization must recognize and act on what improves performance of staff. For these reasons, more and more organizations are making use of surveys that help in measuring employee satisfaction. These surveys help an organization to improve overall performance, employee retention, productivity within the organization, and working environment. Thus, it is crucial for an organization to monitor the entire process of business and employee's effectiveness to ensure that the business is running smoothly and efficiently. A smart organization implements diverse ideas and methods to keep their employees and workers motivated and happy.

The purpose of such a study would be to determine how job satisfaction is viewed by workers in other settings compared to the workers in this study. Another recommendation would be to conduct further studies with workers regarding their commitment to their organizations. Finally, it must be noted that this study was suffered from the usual limitations. The sample size of the study is relatively small and restricted to only one poultry cooperative in the Epirus Region. Consequently, the findings may not be generalized to cooperative or poultry workers in other districts or other contexts.

References

- Birchall, J., & Ketilson, L. H. (2009). Resilience of the cooperative business model in times of crisis, International Labour Office, Sustainable Enterprise Programme. Geneva, ILO. Available from http://www.ilo.org/empent/Publications/WCMS_108416/lang--en/index.htm
- Bowran, J., & Todd, K. (1999). Job stressor and job satisfaction in a major metropolitan public EMS service. *Prehospital and Disaster Medicine, 14*, 236–239. <http://www.ncbi.nlm.nih.gov/pubmed/10915409>.
- Dixon, M. A., & Warner, S. (2010). Employee satisfaction in sport: Development of a multi-dimensional model in coaching. *Journal of Sport Management, 24*, 139–168.
- Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage.
- Fritzsche, B. A., & Parrish, T. J. (2005). Theories and research on job satisfaction. In R. Brown & R. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 180–202). New York: Wiley.
- Gaia. (2016). *Poultry production in Greece*. Available from <http://www.gaiapedia.gr/gaiapedia/index.php/>
- Gilman, D., Peake, J. B., & Parr, B. (2012). A gender analysis of job satisfaction levels of agricultural education teachers in Georgia. *Journal of Career and Technical Education, 27* (2), 98.
- Iliopoulos, C. (2012). *Support for farmers' cooperatives; Country report Greece*. Wageningen: Wageningen UR.
- Iliopoulos, C., & Valentinov, V. (2012). Opportunism in agricultural co-operatives: The case of Greece. *Outlook on Agriculture, 41*(1), 15–19.
- Kalliath, P., & Kalliath, T. (2013). Does job satisfaction mediate the relationship between work-family conflict and psychological strain? A study of Australian social workers. *Asia Pacific Journal of Social Work and Development, 23*(2), 91–105.
- Kontogeorgos, A., Chatzitheodoridis, F., & Loizou, E. (2016). Adaptation strategies for the Greek agricultural cooperatives during the economic crisis. *Agricultural Economics, 1*(62), 26–34. <https://doi.org/10.17221/22/2015-AGRICECON>
- Locke, E. A. (1969). What is job satisfaction? *Organizational Behavior and Human Performance, 4*(2), 309–336.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297–1349). Chicago, IL: Rand McNally.
- Moradi, M., Honari, H., Jabari, N., & Azarpira, G. (2012). The relationship between emotional intelligence and job satisfaction among coaches in premier under-20 football league. *International Journal of Academic Research in Business and Social Sciences, 2*(6), 73–83.
- Salavou, H. E., & Sergaki, P. (2013). Generic business strategies in Greece: Private food firms versus agricultural cooperatives. *Journal of Rural Co-operation, 41*(1), 44–59.
- Scott, M., Swartzel, K. A., & Taylor, W. (2005). The relationships between selected demographic factors and the level of job satisfaction of extension agents. *Journal of Southern Agricultural Education Research, 55*(1), 102.
- Sdrolias, L., Belias, D., Koustelios, A., Gkolias, A., Koutiva, M., Thomos, A., & Varsanis, K. (2014). Job satisfaction and motivation in the Greek banking sector. *MIBES Transactions, 8*.
- Steger, M. F., Dik, B. J., & Shim, Y. (in press). Assessing meaning and satisfaction at work. In S. J. Lopez (Ed.), *The Oxford handbook of positive psychology assessment* (2nd ed.). Oxford, UK: Oxford University Press.
- Sternad, D. (2012). Adaptive strategies in response to the economic crisis: A cross-cultural study in Austria and Slovenia. *Managing Global Transitions, 10*(3), 257–282.
- Williams, T. (1998). Job satisfaction in teams. *The International Journal of Human Resource Management, 9*(5), 782–799.
- Zourmatzi, E., Tsiggilis, N., Koystelios, A., & Pintzopoulou, E. (2006). Job satisfaction of physical education teachers of primary and secondary education. *Management of Sport and Leisure, 3*(2), 18–28.

Employee Performance, Working Time and Tiredness in Creative R&D Jobs: Employee Survey from Estonia



Aaro Hazak, Marko Virkebau, Viiu Tuulik, Piia Tint, Viive Pille, and Erve Sõõru

Abstract Optimal use of the intellectual resources of R&D employees is a significant success factor for achieving innovation and socio-economic development. Statutory and company level regulation of working time, including the durations and timing of a working day and a working week, remains a common feature in many countries, and these rules often apply, among others, to creative R&D employees. Our study seeks to investigate the relationships between the drivers and outcomes of creative R&D employees' work performance with particular focus on working time arrangement and the related tiredness, workability, work satisfaction and creativity issues. Our survey covers a sample of 160 creative R&D employees in Estonia. This conference proceedings paper gives an overview of some aspects of the first phase of our survey, while the more detailed results will be published in separate papers. Our findings include that 79% of the surveyed employees would prefer to work under a different working schedule compared to the standard 5-day working week, and 81% would prefer to have a daily schedule with an irregular start and/or end time of the working day. Emotional tiredness, sleepiness, low salary and inefficient time use are seen as major obstacles to achieving creative work results.

Keywords Working time • Tiredness • R&D jobs • Employee performance • Estonia

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1 Introduction

Creativity and efficient use of knowledge have become key success factors for innovation, economic development and broader socio-economic sustainability in the modern highly competitive world. Various programmes and regulations have been implemented to stimulate innovation in the battle for gaining or sustaining competitive advantages. The role of working time regulation in creative research and development (R&D) jobs has however been largely disregarded.

Setting the durations of a working day and a working week remains a common feature in many countries, and these rules often apply to creative work similarly to other jobs. Also, companies, including employers of R&D professionals, tend to set a standard start and/or end time to the working day. There is however very limited empirical evidence on the relationship between working time patterns, tiredness and creativity.

The design of our study stems from the understanding that the fit-for-all working time regulations ignore job- and profession-wise differences in terms of the creativity and time freedom required. Creative work might be more efficiently performed under a flexible arrangement where the working time can be primarily decided upon by the employee. Employer considerations, including, for example, teamwork requirements, access to physical resources and project management aspects, should be however addressed.

Our broader study comprises conceptual argumentation and empirical research on the impact that working time regulation has, through different channels and mechanisms, on individual creativity. Potential paradigm shift and revision of statutory and company level working time regulations may have a significant contribution to stimulating creative R&D employees' work performance. This conference proceedings paper gives a brief overview of some aspects of our survey, while the more detailed results will be published in separate papers (see, e.g. Hazak et al. 2016, 2017; Virkebau and Hazak 2017).

2 Literature

Previous research in the field has mainly looked into the direct and indirect factors that influence job performance, while working time arrangement has been one of those factors. The concept of flexible working time and the first empirical studies on that originate from the 1970s—for a survey on inaugural research on the effects of flexible working time arrangements, refer to Golembiewski and Proehl (1978). Research within the past 40 years has demonstrated that the design of working time has an impact on work motivation, workability and job satisfaction (see, e.g. Parker and Wall 1998; Grant and Parker 2009) as well as on employee performance (see, e.g. Fried and Ferris 1987). Also, the linkages between working time, employee health and broader well-being have been shown—refer to Grant and Parker (2009) for a detailed review of conceptual and empirical studies.

Kelliher (2008), for example, has found that job satisfaction, organisational commitment and perceived stress level are among the key impact factors of job performance. Additionally, she notes that the impact is stronger when individuals have more flexible work options available. Kelliher (2008) also claims that flexible working encourages positive attitudes towards work and organisations, which translates into harder work effort and improved performance.

Out of the previous research on the relationship between work time flexibility and stress and health symptoms, Moen et al. (2011) have found evidence that higher work schedule flexibility is associated with better sleep and health behaviour as well as improved well-being. Their study does not relate to creative jobs however (but white-collar employees in general) and the working time-health-creativity nexus remains a gap yet to be filled in literature.

Amabile et al. (2002), focusing on creative jobs, have found evidence that stress and constant time pressure are the main factors that are having a negative effect on creative work results. They also claim that a fixed working time arrangement amplifies the negative effect of the counter-creativity factors.

Overall, the research results on the interrelations between working time arrangement, work performance, job satisfaction and health issues have been however very controversial. In a recent comprehensive review, de Menezes and Kelliher (2011) highlight that 31% of the studies to date have found support that flexible working time encourages employee performance or productivity, whereas 69% of the studies did not identify such an effect. Moreover, 57% of the studies reviewed by de Menezes and Kelliher (2011) have found evidence that flexible work time supports job satisfaction, while 40% find no such effect, and 32% of the studies have demonstrated that flexible work time supports the health or well-being, while 69% find no such effect.

As an example of recent studies focusing on creative jobs, Seo et al. (2015) have investigated the impact of absorptive capacity, exploration and exploitation on individual creativity. Based on a survey analysis, they find evidence that creative self-efficacy, which is a subjective belief that an individual possesses a personal creative ability, is positively related to actual creative abilities. Additionally, they find that subjective well-being moderates the relationship between creative self-efficacy and creativity. Generalising their results, work motivation and subjective well-being have expectedly a significant impact on creativity and innovativeness.

3 Data and Methodology

We have performed a survey among creative R&D employees in Estonia. For our study, we have defined creative R&D employees as the “researchers” under the R&D employees’ category as per the following Statistics Estonia definition. An employee is considered to be engaged in R&D if at least 10% of his working time is spent on R&D tasks. A “researcher” means “a professional with an academic degree or higher education diploma, engaged in basic or applied research or

experimental development to create new knowledge, products, processes, methods and systems; all academic staff engaged in R&D activities, as well as managers and administrators engaged in planning and management of the scientific and technical aspects; postgraduate students and persons attending doctor's courses, who perform original research". We have excluded the "technicians" and "supporting staff" under the R&D employees' category as their working tasks are not necessarily creative. Based on the 2012 data by Statistics Estonia (which we have used as the basis for compiling our sample), there are a total of 4.6 thousand creative R&D employees in Estonia.

As a next step, we have excluded from the population of interest for our study the creative R&D employees working for higher education (2.5 thousand employees) as the working time arrangement at higher education institutions is strongly determined by teaching schedules which significantly interfere with the fixed versus flexible working time choices that our present study is focused on. We have also excluded microenterprises and research institutes with less than 15 creative R&D employees (total 1.0 thousand employees in full time equivalent) as we believe that the considerations for working time arrangements at microentities are significantly different from these at larger organisations. As a consequence, the population of Estonian creative R&D employees, excluding those of universities and microentities, totals approximately 1.0 thousand.

We have identified that the above population comprises the employees of a total of 23 employers, i.e. private companies and public research institutes. We have contacted all of those employers with a proposal to participate in our study. In the first phase of the study, which the present conference proceedings paper summarises, eight employers accepted our invitation. The participating entities represent different areas of activity, as outlined in Table 1. The table also shows the number of participants from each entity whose responses to the survey were taken into account. The latter eliminations of participants with completed survey responses from the sample relate to two reasons:

- Removal of observations where respondents had given the question "Do you consider your work a research and development activity, which requires creativity?" an answer "Rather not" and "Not at all" (13 such responses)
- To avoid distorted results, removal of observations where respondents had answered that they also work for another employer for more than 20 h a week, as such results may indicate that the creative R&D work might not be the main job of the respondent (two such responses)

Our sample of 160 employees thus represents 15% of the total population of 1.0 thousand. We note that the employees in the population were not approached randomly but on a company basis, and individual employees in the population therefore had a chance of being included in the sample only in case their employer agreed to participate in the study. We address the related selection bias for econometric modelling by weighting the results considering (1) the field of activity in each of the participating entities and (2) gender. We employ, additionally, clustering of standard errors by employers to address the selection bias. Results and further

Table 1 Entities and employees in the sample

Sector	Industry	Number of employees in the sample
Private	Technology	45
Private	Banking	30
Private	IT	27
Public	R&D	16
Public	R&D	12
Private	R&D	12
Private	Banking	9
Private	Banking	9
Total		160

methodological aspects of the econometric models will be available in separate papers, and due to copyright considerations, the current conference proceedings paper is limited to some descriptive statistics and general commentary on the study.

The electronic questionnaire-based survey was undertaken in spring-summer 2015. Participation by the employees whom we invited to complete the Internet-based survey was voluntary and confidential. The questionnaire comprised a total of 90 questions in the following areas:

- Organisation of work
- Work satisfaction
- Work results
- Sleepiness
- Sleep patterns
- Tiredness
- Health
- Additional information

The following section outlines some of the preliminary results from the questionnaire survey.

4 Preliminary Results

As a starting point, we seek to identify whether there is any gap between the actual and desired working time arrangement of the creative R&D employees in our sample.

It appears that a large majority (61%) of the creative researchers and developers would prefer their work to be concentrated to 3–4 days per week. Only 21% of the employees who participated in the survey would like to work for the standard 5 days per week, while some would prefer the working week to be distributed over 6–7 days, and some would wish to work in an extra concentrated way so that weekly work could be allocated to just 1–2 days (refer to Fig. 1). These preliminary findings

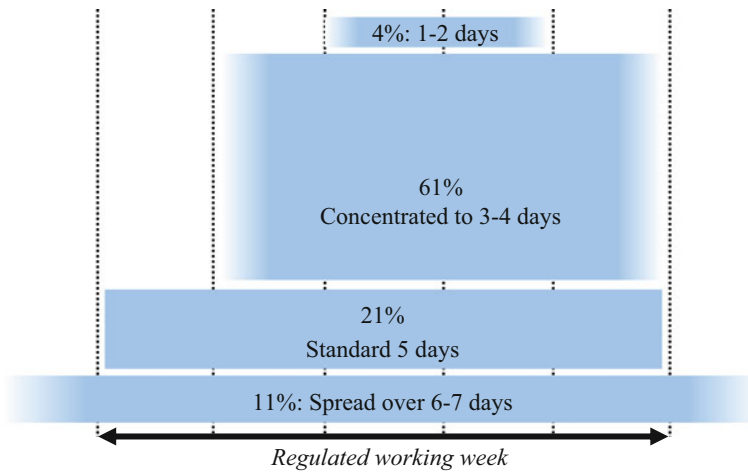


Fig. 1 Employees' preferences for a working week in R&D jobs (*our survey results*)

support setting the hypothesis for further analysis that forcing creative R&D employees to work at nonpreferential time may lead to inefficient use of their creative capacities as well as have an adverse impact on their work-life balance and work motivation.

Furthermore, we enquired the survey participants about their preferences regarding the distribution of working time over the working day, and the preliminary results signal a strong contrast between the standard working time regulation and desired working time arrangement. Only 19% of the survey participants would prefer a working day with a fixed start and end time (refer to Fig. 2). Thirty-five percent of the respondents would prefer total flexibility in daily working time as they would like to work for different hours at different days. Further 21% would prefer to have a regular part of the working day (for meetings, teamwork, etc.) with the rest of the working day being with flexible timing. Again, we find support to setting a hypothesis for the more detailed analysis that the gap between regulated working hours and desired daily working time allocation may lead to both company and employee level inefficiencies.

As a next step, we are interested in the perceived impact that switching from fixed to flexible working time, and vice versa, would have on the employees' work satisfaction, work results and quality of their work. 117 (73%) of the survey participants regarded their current working time arrangement as flexible and 43 employees (27%) as fixed.

As illustrated on Fig. 3, the survey participants with a fixed working time considered a potential change to flexible working time regime to have a major positive impact on their work satisfaction as well as both work results and the quality of work. Those working under a flexible working time regime considered a potential change to fixed working time to have a negative effect, but interestingly the perceived impact is not large. Overall, these survey responses advocate for

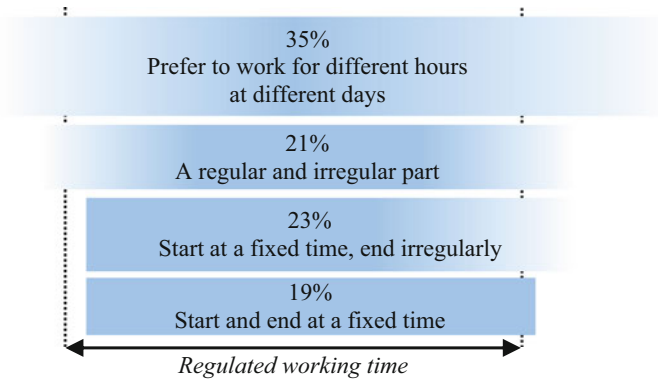


Fig. 2 Employees' preferences for a working day in R&D jobs (our survey results)

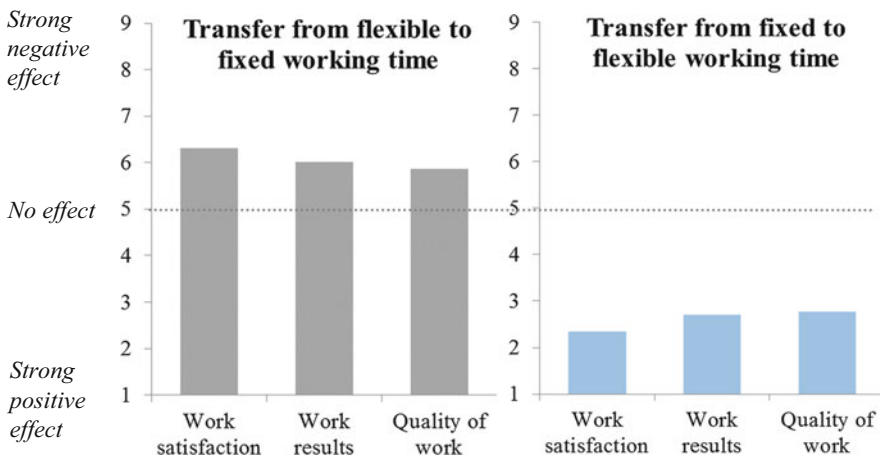


Fig. 3 Perceived effect of changing working time regime in R&D jobs (our survey results)

setting a hypothesis for further analysis that flexible working time would have a positive effect on work satisfaction of the creative R&D employees as well as on their work results and quality of work.

Next, we were interested in the drivers of the creative R&D employees' work satisfaction, work results and quality of work. Among other questions, we asked the survey participants which factors have a negative impact on their work satisfaction. As illustrated on Fig. 4, the key perceived problem areas appear to be emotional tiredness, sleepiness, low salary, working environment, inefficient time use and unclear work tasks as well as physical tiredness and managerial problems. These are the areas that our further study is focused on in more detail.

The survey participants were asked a similar question on the obstacles to achieving work results, and their responses reveal that emotional tiredness, sleepiness, unclear work tasks, inefficient time use and working environment are

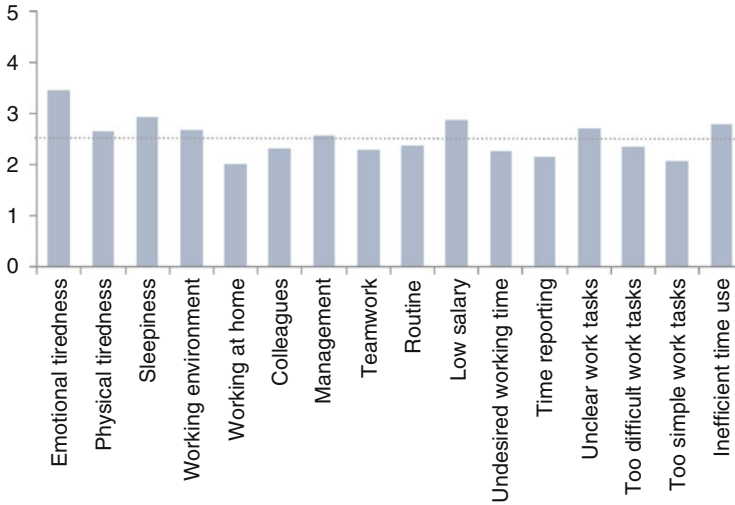


Fig. 4 Perceived factors decreasing work satisfaction (*our survey results*). Note: The figure shows the respondents' mean assessment of the impact of a particular factor on the following scale: 1 no impact, 2 little impact, 3 medium impact, 4 large impact, 5 full impact

perceived as factors which have the strongest negative impact on achieving desired work results.

Among other questions, we enquired the survey participants about the perceived causes of their emotional tiredness—the main distracting factor for both work results and work satisfaction. The results are outlined on Fig. 4, which shows the number of respondents who mentioned these particular factors among the main causes of tiredness.

It appears that high workload, sleepiness and anxiety are among the main perceived causes of emotional tiredness of the creative R&D employees who participated in our survey. We also note that out of the 43 employees in the sample who work under a fixed working time regime, 27 (63%) considered the fixed working time that does not suit their time preferences as a major cause of their emotional tiredness (Fig. 5).

Overall, the preliminary results of our study suggest that emotional tiredness and sleepiness are major problems in creative R&D jobs in the sample of Estonian companies and research institutes which participated in our survey. These issues along with inefficient time use which is perceived as another key problem in achieving better work results and work satisfaction could be at least partially addressed by introducing more flexible work options to creative employees. While the current conference proceedings paper provides a brief introduction, more detailed results of our study will be available in separate papers. We would like to note that this is part of a larger effort by the research group to investigate the company level (Hazak and Männasoo 2010; Maripuu and Männasoo 2014),

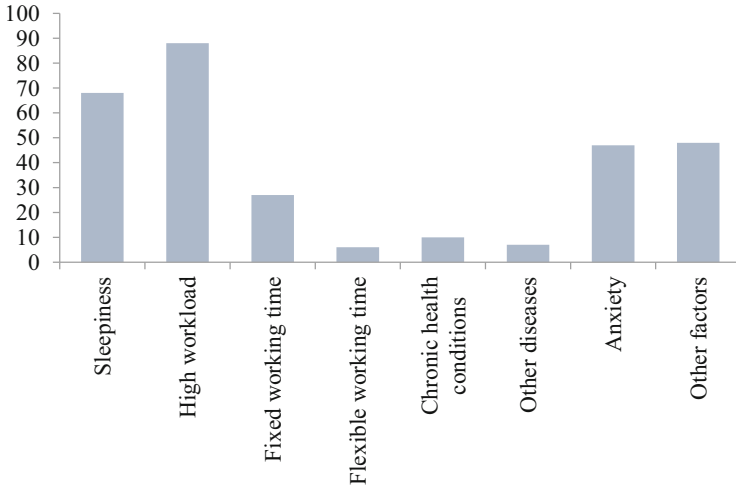


Fig. 5 Perceived causes of emotional tiredness (*our survey results*)

regulatory (Hazak 2008, 2009), financial and market driven (Avarmaa et al. 2011, 2013; Männasoo et al. 2017) aspects of development in emerging markets focussed on increasing R&D and knowledge intensity. We hope that these papers help to stimulate discussion on these important topics in society.

Acknowledgements Support from the Estonian Research Agency grant PUT315 “Towards the Knowledge Economy: Incentives, Regulation and Capital Allocation” is gratefully acknowledged.

References

- Amabile, T. M., Hadley, C. N., & Kramer, S. J. (2002). Creativity under the gun. *Harvard Business Review*.
- Avarmaa, M., Hazak, A., & Männasoo, K. (2011). Capital structure formation in multinational and local companies in the Baltic States. *Baltic Journal of Economics*, 11(1), 125–145.
- Avarmaa, M., Hazak, A., & Männasoo, K. (2013). Does leverage affect labour productivity? A comparative study of local and multinational companies of the Baltic countries. *Journal of Business Economics and Management*, 14(2), 252–275.
- de Menezes, L. M., & Kelliher, C. (2011). Flexible working and performance: A systematic review of the evidence for a business case. *International Journal of Management Reviews*, 13(4), 452–474.
- Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, 40, 287–322.
- Golembiewski, R. T., & Proehl, C. W. (1978). A survey of the empirical literature on flexible work hours: Character and consequences of a major innovation. *The Academy of Management Review*, 3(4), 837–853.
- Grant, A. M., & Parker, S. K. (2009). Redesigning work design theories: The rise of relational and proactive perspectives. *The Academy of Management Annals*, 3(1), 317–375.

- Hazak, A. (2008). Profit vs. distributed profit based taxation and companies' capital structure. *International Journal of Entrepreneurship and Innovation Management*, 8(5), 524–541.
- Hazak, A. (2009). Companies' Financial Decisions Under the Distributed Profit Taxation Regime of Estonia. *Emerging Markets Finance and Trade*, 45(4), 4–12.
- Hazak, A., & Männasoo, K. (2010). Indicators of corporate default - EU-based empirical study. *Transformation in Business & Economics*, 9(1), 62–76.
- Hazak, A., Virkebau, M., Tuulik, V., Tint, P., Pille, V., & Sõõru, E. (2016). Social innovation potential in working arrangements of R&D employees: Repeated employee survey from Estonia. In *Emerging Technologies and Innovative Business Practices for the Transformation of Societies (EmergiTech)*, IEEE International Conference on (pp. 210–213). IEEE.
- Hazak, A., Männasoo, K., & Virkebau, M. (2017). Effects of work arrangements on creative R&D work outcomes. *Eastern European Economics*, 55(6), 500–521.
- Kelliher, C. (2008). *Flexible working and performance: Summary of research*. London: Working Families Publication.
- Männasoo, K., Maripuu, P., & Hazak, A. (2017). Investments, Credit, and Corporate Financial Distress: Evidence from Central and Eastern Europe. *Emerging Markets Finance and Trade*, (forthcoming).
- Maripuu, P., & Männasoo, K. (2014). Financial distress and cycle-sensitive corporate investments. *Baltic Journal of Economics*, 14(1–2), 181–193.
- Moen, P., Kelly, E. L., Tranby, E., & Huang, Q. (2011). Changing work, changing health: Can real work-time flexibility promote health behaviors and well-being? *Journal of Health and Social Behavior*, 52(4), 404–429.
- Parker, S. K., & Wall, T. (1998). *Job and work design: Organizing work to promote wellbeing and effectiveness*. London: Sage.
- Seo, Y. W., Chae, S. W., & Lee, K. C. (2015). The impact of absorptive capacity, exploration, and exploitation on individual creativity: Moderating effect of subjective well-being. *Computers in Human Behavior*, 42, 68–82 (Digital Creativity: New Frontier for Research and Practice).
- Virkebau, M., & Hazak, A. (2017). What type of research and development employees use flextime? *The International Journal of Organizational Diversity*, 17(2), 1–9.

Analysis of Predictors in Bankruptcy Prediction Models for Slovak Companies



Lucia Svabova and Tomas Kliestik

Abstract The creation of bankruptcy prediction models is in the last years a topic, which much attention has been dedicated to. Researchers and economists in many countries have created prediction models which are useful for failure prediction of companies in that country. These prediction models used various financial ratios or other predictors to reach the best bankruptcy prediction. The effort of researchers leads to build a strongly prediction model that is able to predict a bankruptcy of companies or can, with some probability level, classify the companies into a group of prosperous or a group of non-prosperous ones. Previous works have shown that these models are then less effective in application in another country or in another time. Our work will lead to a creation of bankruptcy prediction model for Slovak companies. One of the first steps in this process is to choose an appropriate set of predictors, such as financial ratios of companies or characteristics of the environment, in which the company operates. For this purpose we do the preliminary statistical analysis of financial ratios of real Slovak companies. This analysis is made separately in different regions of Slovak Republic in order to analyze which regions are sufficiently similar in their characteristics and therefore could be analyzed together and, on the contrary, which regions are so different that we have to analyze them separately. Then, we can apply cluster analysis on basic statistical characteristics of financial ratios and get the clusters of Slovak regions that are for predicting bankruptcy appropriate to be analyzed together. This result will be very useful during the process of failure prediction model development in the future.

Keywords Bankruptcy prediction models • Financial ratios • Failure prediction • Financial distress • Default prediction • Statistical characteristics

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1 Introduction

Prediction of financial distress of a company on the basis of financial analysis is nowadays an important and interesting issue. This prediction is based on estimating of whether the analyzed company is in a state of financial threats or not or whether its next development leads to bankruptcy or not. For the purpose of early detection of imminent problems of an analyzed company, prediction models are often used. Their task is to evaluate the financial health of the company on the basis of selected financial indicators or characteristics of the company and then to identify imminent bankruptcy in advance (Misankova and Kral 2015). The identification of the impending problems of the company can be important not only for company owners but also for business partners, potential or existing creditors, or employees (Bartosova et al. 2014).

In recent years many authors in different countries devote to the creation of prediction models for predicting imminent bankruptcy. Prediction of corporate financial distress and bankruptcy is an interesting topic for financial researchers. The first prediction models were constructed in the late 1960s by well-known authors, such as Beaver (1966), Altman (1968), Ohlson (1980), Springate et al. (1983), Zmijewski (1984), Fulmer et al. (1984), Shirata (1995), Dimitras et al. (1996), Shumway (2001), and others. Currently, there exist hundreds of prediction models developed at a particular time and in conditions of particular economies. Many of them are used in economic practice.

Many models were developed in different countries all over the world in recent years by the application of real data about financial ratios of companies. For example, Chung et al. (2008) have created MDA classification model for companies in the field of finance industry in New Zealand. Anandarajan et al. (2004) have used the artificial neural network for modeling bankruptcy in Germany. Altman and Sabato (2005) have developed the logit model for small companies in the USA. Lieu et al. (2008) have used logit model for companies in Taiwan. Logit model has also been used in the work of Lin and Piesse (2004) for industrial companies in the UK. Bandyopadhyay (2006) has used MDA for companies in India for bankruptcy prediction 1 year or 2 years in advance. Sun and Li (2012) have used logit and MDA too for China companies. Shams et al. in Iran (2011) have developed a logit model for securities and exchange organization. Bellovary et al. (2007) have processed the situation about existing bankruptcy prediction studies from 1930 to present.

These bankruptcy prediction models use for analysis different financial indicators of the company, the most frequently used are financial ratios, or some other characteristics of the company or environment in which it operates (Misankova et al. 2015). Our work in the future will lead to a comprehensive bankruptcy prediction model for Slovak companies, based on real data from the accounting statements of real Slovak companies. This model will be created using multivariate statistical methods, e.g., multidiscriminant analysis (MDA) or logistic regression (logit). By MDA we would like to create a prediction model that would be able to discriminate companies into a group of prosperous or into a group of

non-prosperous ones. Using logit method we would like to create a model of logistic regression, which would be able to predict a probability of company bankruptcy. Our effort will lead to create a prediction model with strong predictive ability. That means the ratio of correctly classified companies into a group of prosperous or non-prosperous ones will be as high as possible. For these reasons, it is important to do an initial statistical analysis of the variables used in the model first. In this paper we analyze the financial ratios used for prediction and their basic statistical characteristics. This analysis is made separately in eight different regions of Slovak Republic.

2 Methodology

As was mentioned above, in this paper we focus on the initial statistical analysis of predictors (financial ratios of companies) used for prediction model creation. In order to describe the basic relationships and characteristics of financial ratios of the companies, we use basic statistical methods.

To detect the basic characteristics of predictors that later will be used for failure prediction model creation, we use descriptive statistical characteristics of the financial ratios of a given set of Slovak companies. For each variable used to create a prediction model, we list the average value together with standard deviation. The average value gives us an idea of concentration of values of this financial indicator. The standard deviation gives extra information about the distraction of all the values of the indicator around the mean value. Moreover, we mention the maximum and minimum value of the financial indicator to get an idea about the range of all values. Further information gives the median value, which is the center of a set of values of the ratio indicator, that is, medianhalve the ratio values—one half of values are smaller than the median value and the second half are larger than the median.

All the statistical descriptions are made separately for every eight Slovak regions. From the basic characteristics of predictors in each region, we can get an idea of how much these financial ratios of companies are different in parts of Slovakia. We also can determine which regions of Slovakia are sufficiently similar. These results may be useful in the future in the process of model development. Based on an analysis of the basic characteristics, we can deduce which Slovak regions can be analyzed together.

By using the cluster analysis on the characteristics of financial ratios, we could obtain the information which regions of Slovakia can be merged into groups. Then we could analyze them together in the process of model development, because they are sufficiently similar. Cluster analysis is an explorative statistical method that identifies structures within the data. More specifically, it tries to identify homogeneous groups of cases or observations. Cluster analysis is used to identify groups of cases if the grouping is not previously known. Its task is to identify groups of

individuals or objects that are similar to each other but different from individuals in other groups. Because it is an explorative method, it makes any distinction between dependent and independent variables. We use in our analysis the hierarchical cluster analysis, which is the most common method for clustering. It generates a series of models with cluster solutions from 1 (i.e., all cases are in one cluster) to n (i.e., all cases are an individual cluster). From the set of solutions, we choose the one that has such number of groups, which is for us highly usable and easily interpretable. The graphical representation of solutions with all possible models is called dendrogram.

The whole analysis is made on a dataset of 109,550 Slovak companies. We have the values of 11 financial ratios for these companies, obtained from accounting statements of companies of year 2014. The set of financial ratios uses the following notation: OM-current assets; KZ-current liabilities; CK-foreign assets; CM-total assets; VI-the equity; EBIT-earnings before interest and taxes; DT-sales/360; KP-accounts receivable; Z-inventory; CPK-networking capital; and NZ-retained earnings (Kocisova and Misankova 2014; Valaskova and Zvarikova 2014).

The notation of Slovak regions is the following: BA-Bratislava region; BB-Banska Bystrica region; KE-Kosice region; NT-Nitra region; PO-Presov region; TN-Trencin region; TT-Trnava region; and ZA-Zilina region.

3 Results

First we analyzed the means and standard deviations of all financial ratios that we have available. The results are in the following Table 1. The mean and standard deviation are listed for every financial ratio (in columns) and for every region of Slovakia (in rows). In the first line for every region, there is mean value, and in the second line, there is standard deviation. Using this characteristic we could compare the regions of Slovakia, how much they are different, or, on the other hand, which of them are similar in the characteristics of companies operating in the region.

In Table 2 there are the minimum and maximum values of all financial ratios that we have available for companies in all regions of Slovakia. Financial ratios are in the columns of the table; in the rows there are the regions of Slovakia. Each region has two lines of the table, in the first line there is a minimum value for the ratio, and in the second line, there is a maximum value. By comparing the values between each other, we could see the differences between them. Moreover, we could rate the similarity between some regions in order to analyze them together in our next work.

Finally, in Table 3 there are the median values of financial ratios in all regions of Slovakia. All ratios are in the columns of the table, and regions are in rows. By checking the median value, we have added information about concentration and dispersion of the values. Median value divides the set of all values into two parts. One half of all values of the given financial ratio are lower than the median value in

Table 1 Mean and standard deviation of financial ratios in all regions of Slovakia

Mean and Deviation													
Region	OM/KZ	KFM/KZ	CK/CM	CK/VI	EBIT/CM	EBIT/VI	KZ/DT	KP/DT	Z/DT	CPK/CM	NZ/CM		
BA	19.77	12.99	4.86	22.37	-1.29	-1.40	53,805.97	13,913.18	4527.13	-4.08	0.75		
	838.91	788.77	271.39	1743.96	70.56	137.41	3,681,301.85	1,122,308.94	671,614.46	256.28	71.15		
BB	14.50	8.92	18.36	-3.06	-0.43	36.96	23,970.76	72,835.70	487.26	-19.82	0.16		
	222.38	160.58	2206.40	923.08	49.27	3747.78	1,474,210.66	6,355,158.65	23,001.29	2152.92	2.14		
KE	18.87	12.46	9.31	15.18	-0.97	-0.26	9109.46	5052.33	435.00	-7.94	0.15		
	405.97	281.45	406.97	681.97	60.64	53.54	334,980.27	287,450.81	15,575.71	392.26	1.22		
NT	6.50	4.52	7.12	17.78	-3.05	-1.08	3630.08	839.41	270.30	-5.93	-0.02		
	304.81	244.74	406.11	1026.54	245.24	264.11	122,407.23	30,001.41	8867.26	403.52	14.95		
PO	10.58	6.34	2.09	0.72	-0.11	-0.23	-69.95	-25,978.78	417.61	-1.12	0.12		
	172.94	137.59	47.80	786.21	39.86	27.53	1,325,850.02	2,780,749.96	15,857.16	49.22	3.99		
TN	9.93	6.55	3.87	11.52	-0.88	0.16	-57,350.15	-15,358.01	433.89	-2.88	0.17		
	116.11	89.59	134.60	596.47	42.92	31.74	5,934,340.68	1,643,766.44	22,045.48	134.38	2.16		
TT	13.22	7.11	6.45	33.69	-2.58	-2.32	3276.88	716.56	247.55	-4.79	0.42		
	305.17	109.99	352.59	2792.58	230.18	194.96	73,243.74	12,080.14	4510.62	290.00	24.12		
ZA	10.46	7.77	4.93	3.53	-1.06	0.21	6487.62	17,689.10	180.36	-3.76	0.08		
	137.57	130.29	276.49	511.26	76.57	26.10	305,385.29	1,655,639.81	4852.25	275.36	28.45		

Table 2 Minimum and maximum values of financial ratios in all regions of Slovakia

Region	Min & Max												
	OM/KZ	KFM/KZ	CK/CM	CK/VI	EBIT/CM	EBIT/VI	KZ/DT	KP/DT	Z/DT	CPK/CM	NZ/CM		
BA	-12,065.9	-9240.2	-16,068.4	-91,087.3	-10,303.1	-17,470.0	-31,496,058.0	-34,748,334.0	-1,274,590.1	-27,741.3	-1234.7		
	144,321.8	142,185.8	28,438.2	277,883.5	631.0	2369.7	499,962,960.0	191,215,030.2	124,268,266.3	5660.8	11,827.8		
BB	-1039.7	-470.0	-54,263.0	-91,946.1	-3368.1	-999.0	-13,216,680.0	-150,170.8	-10,588.0	-218,074.0	-12.4		
	15,485.7	12,960.0	218,578.3	16,974.0	2151.3	382,743.5	107,679,240.0	646,618,860.0	2,175,077.0	27,355.0	127.8		
KE	-2872.3	-1655.8	-55.6	-18,704.3	-4656.0	-5351.0	-1,869,877.8	-155,424.8	-2832.0	-38,316.9	-24.7		
	33,200.0	26,007.0	39,924.4	51,472.0	3365.1	1565.1	29,965,320.0	24,375,600.0	1,495,269.4	56.6	65.2		
NT	-29,000.8	-22,637.0	-5240.4	-24,790.3	-25,733.0	-26,802.0	-51,015.9	-1,412,245.2	-12,658.1	-39,652.2	-1637.5		
	7127.5	6055.3	39,653.2	83,128.1	481.4	10,911.8	11,990,520.0	2,418,498.0	912,615.0	5180.2	31.4		
PO	-8739.0	-8739.0	-1653.0	-70,341.0	-1785.4	-2074.5	-122,539,320.0	-279,612,000.0	-64,370.0	-3159.4	-383.5		
	8883.5	5608.2	3163.7	25,110.2	3221.0	683.9	45,149,889.6	6,570,000.0	1,373,036.7	2103.8	74.8		
TN	-205.0	-191.8	-440.0	-10,826.7	-3665.7	-2005.5	-578,625,480.0	-160,162,560.0	-16,042.2	-10,483.4	-17.5		
	5845.1	4672.0	10,484.4	54,901.5	127.3	1197.2	5,350,072.8	5,431,972.8	2,004,561.6	441.0	193.1		
TT	-667.6	-576.5	-16.2	-11,370.4	-22,413.0	-18,794.0	-14,479.8	-36,745.1	-475.9	-27,667.0	-9.4		
	27,923.9	8945.2	33,876.3	271,726.0	902.2	308.7	6,322,434.5	572,762.6	280,478.2	16.5	2351.7		
ZA	-2018.5	-2007.3	-4369.8	-22,693.2	-7338.9	-1826.0	-496,010.8	-150,446.5	-19,991.5	-28,444.9	-2720.0		
	9155.0	8633.0	28,517.1	43,313.5	2401.5	1592.8	31,709,160.0	177,787,314.0	453,745.4	4370.8	1303.0		

Table 3 Median value of financial ratios in all regions of Slovakia and frequencies of companies in regions

Region	OM/KZ	KFM/KZ	CK/CM	CK/VI	EBIT/CM	EBIT/VI	KZ/DT	KP/DT	Z/DT	CPK/CM	NZ/CM	Frequency
BA	1.29	0.36	0.73	0.43	0.02	0.24	123.98	54.64	0.00	0.15	0.00	34,472
BB	1.37	0.33	0.70	0.62	0.02	0.19	104.44	47.57	0.38	0.18	0.00	10,430
KE	1.31	0.29	0.72	0.56	0.02	0.19	106.16	51.20	0.00	0.17	0.00	11,889
NT	1.29	0.32	0.71	0.67	0.02	0.20	110.52	47.38	0.12	0.16	0.00	12,032
PO	1.35	0.31	0.69	0.65	0.02	0.18	101.46	55.10	0.44	0.18	0.00	10,117
TN	1.35	0.32	0.69	0.60	0.02	0.19	104.21	49.32	1.28	0.17	0.00	9509
TT	1.28	0.31	0.70	0.60	0.02	0.20	109.90	49.05	0.31	0.15	0.00	9538
ZA	1.34	0.30	0.71	0.56	0.02	0.19	104.53	54.10	0.36	0.17	0.00	11,565

Median

the table, and the second half are higher than the median value. By comparing medians with the mean value (Table 1), we could recognize the dispersion of values of a particular ratio. Mean value is very sensitive to extreme values. If there is some extreme value, too high or too low in comparison with other values, it has strong influence on the mean value. In contrast, median value is insensitive to existence of some outliers.

By comparing median values between the regions of Slovakia, we have the information which of them are too different and, on the contrary, which are sufficiently similar. This information could be very useful in the following analyses.

In the last column of Table 3, there are the numbers of companies, which operate in the regions. These frequencies will be used during the process of cluster analysis, where we want to create segmentation of regions, which could be analyzed together in the next process of bankruptcy prediction.

3.1 Cluster Analysis

Basic statistical characteristics, which are in Tables 1, 2, and 3, can be used for creating segments of Slovak regions, groups of regions that are so similar that can be analyzed together. We are checking for regions that are as similar in their characteristics as possible and different with regions in other groups. We have performed the hierarchical clustering that gives us all possible solutions. It starts from eight groups, where every region is in its own cluster and stops with one cluster with all regions in it. In the next dendrogram, we can see the models (Fig. 1).

The model with three or four groups of regions is most suitable for us. So we specify these two possibilities. In the model with three clusters, the following regions of Slovakia are in the clusters:

1. Group: Bratislava region
2. Group: Banska Bystrica region
3. Group: other regions—Trnava region, Nitra region, Trencin region, Presov region, Zilina region, and Kosice region

As in this case, both first and second groups are only one region, and all the other regions are in the last group; the possibility with four groups is better usable and more helpful. The model with four groups consists of the following:

1. Group: Bratislava region
2. Group: Banska Bystrica region
3. Group: Trnava region and Nitra region
4. Group: Trencin region, Presov region, Zilina region, and Kosice region

Again, first and second clusters are one region alone, but it means that there regions which are really different from the other regions in other groups and between each other too. In fact, especially Bratislava region is really different

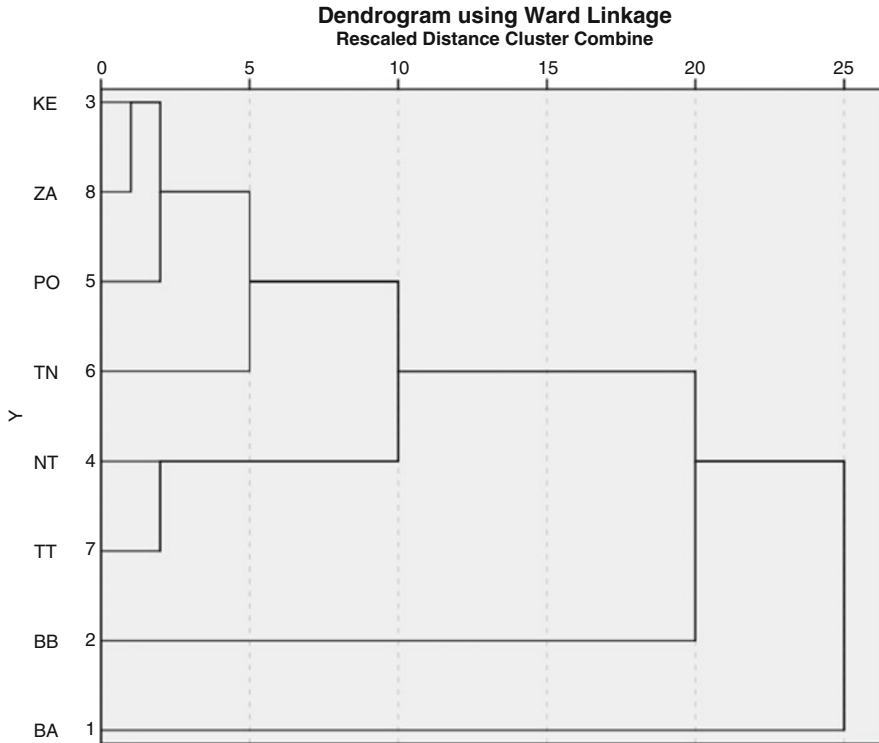


Fig. 1 Dendrogram of hierarchical cluster analysis for regions of Slovakia

from other parts of Slovakia, and the companies there really have different values of financial characteristics. In the third group, there are two regions, Trnava and Nitra. These two regions are both close to Bratislava region of the capital city, and companies in both could be affected by the capital city. Other four regions, namely, Trencin, Zilina, Presov, and Kosice, are together in one group of regions. That means that companies in these regions are similar in characteristics of their financial ratios. Consequently we could analyze these regions together.

4 Conclusion

The essence of our work lies in the analysis of financial ratios of companies in different regions of Slovakia. These ratios are often used in the process of creating the bankruptcy prediction model for companies. Prediction model is able either to predict the probability level, at which the next life of the company will lead into a financial distress, or to classify the company into a group of prosperous or a group of non-prosperous ones. Our next work in the future will be dedicated to derivation

of such prediction model for companies in Slovakia. The first step of the process for us is the basic statistical analysis of the predictors, used in this prediction model. Thus we have introduced the descriptive characteristics and then used them in hierarchical cluster analysis. We get the model with four groups of regions. Similar analysis could be done with the sectors of national economy, in which the companies in our dataset cooperate. The number of these sectors is quite high, so that it will be helpful and usable to find the model with smaller number of groups of these sectors. Then in the next process, the cluster membership of sectors of national economy could be included in the prediction model. Similarly it could be the membership in the group of regions that has been derived in this analysis.

Acknowledgment This research was financially supported by the Slovak Research and Development Agency—Grant No. APVV-14-0841: Comprehensive Prediction Model of the Financial Health of Slovak Companies.

References

- Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *Journal of Finance*, 23(4), 589–609.
- Altman, E. I., & Sabato, G. (2005). Modeling credit risk for SMEs: Evidence from the US market. *Abacus*, 43(3), 332–356.
- Anandarajan, M., Lee, P., & Anandarajan, A. (2004). *Bankruptcy prediction using neural network, business intelligence techniques: A perspective from accounting and finance*. Heidelberg: Springer-Verlag.
- Bandyopadhyay, A. (2006). Predicting probability of default of Indian corporate bonds – logistic and Z-score model approaches. *The Journal of Risk Finance*, 7(3), 255–272.
- Bartosova, V., Hraskova, D., & Paliderova, M. (2014). Basic rules and methodological framework of the financial analysis of the group of companies in the Slovak Republic. *Advances in Education Research*, 61, 86–91.
- Beaver, W. (1966). Financial ratios as predictors of failure. *Journal of Accounting Research*, 4, 71–102.
- Bellovary, J. L., Giacomino, D. E., & Akers, M. D. (2007). A review of bankruptcy prediction studies: 1930 to present. *Journal of Financial Education*, 33, 1–43.
- Chung, K. C., Tan, S. S., & Holdsworth, D. K. (2008). Insolvency prediction model using multivariate discriminant analysis and artificial neural network for the finance industry in New Zealand. *International Journal of Business and Management*, 3(1), 19–28.
- Dimitras, A., Zanakis, S. H., & Zopounidis, C. (1996). A survey of business failures with an emphasis on prediction methods and industrial applications. *European Journal of Operational Research*, 90(3), 487–513.
- Fulmer, J. G., Jr., Moon, J. E., Gavin, T. A., & Erwin, M. J. (1984). A bankruptcy classification model for small firms. *Journal of Commercial Bank Lending*, 25–37.
- Kocisova, K., & Misankova, M. (2014). Prediction of default by the use of Merton's model and black and cox model. *Advances in Education Research*, 51, 563–568.
- Lieu, P., Lin, C., & Yu, H. (2008). Financial early-warning models on cross-holding groups. *Journal of Industrial Management & Data Systems*, 108(8), 1060–1080.
- Lin, L., & Piesse, J. (2004). Identification of corporate distress in UK industrials – a conditional probability analysis approach. *Journal of Applied Financial Economics*, 14(2), 73–82.

- Misankova, M., & Kral, P. (2015). *Application of CreditRisk+ for the calculation of credit risk. Proceedings of 10th International Scientific Conference Financial management of Firms and Financial Institutions* (pp. 807–814). Ostrava: Czech Republic.
- Misankova, M., Spuchlakova, E., & Frajtova-Michalikova, K. (2015). Determination of default probability by loss given default. *Procedia Economics and Finance*, 26, 411–417.
- Ohlson, J. A. (1980). Financial ratios and the probabilistic prediction of bankruptcy. *Journal of Accounting Research*, 18, 109–131.
- Shams, M. F., Sheikhi, M., & Sheikhi, Z. (2011). Financial distress prediction: Comparisons of logit models using receiver operating characteristic (ROC) curve analysis. *African Journal of Business Management*, 5(30), 12164–12173.
- Shirata, C. Y. (1995). Read the sign of business failure. *Journal of Risk and Management*, 23, 117–138.
- Shumway, T. (2001). Forecasting bankruptcy more accurately: A simple hazard model. *Journal of Business*, 74(1), 101–124.
- Springate, G., Sands, E., & Var, T. (1983). Predicting business failures. *CGA Magazine*, 17, 24–27.
- Sun, J., & Li, H. (2012). Financial distress prediction using support vector machines: Ensemble vs. individual. *Applied Soft Computing*, 12(8), 2254–2265.
- Valaskova, K., & Zvarikova, K. (2014). Prediction of credit risk by selected theoretical rating models. *Advances in Social and Behavioral Sciences*, 5, 160–166.
- Zmijewski, M. E. (1984). Methodological issues related to the estimation of financial distress prediction models. *Journal of Accounting Research*, 22, 59–86.

Analysis of Assets in Balance Sheet of Construction Company



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Abstract In this paper we focus on the analysis of the volume of assets in the balance sheet of selected construction company in Slovenia, Reflex. Selected company belongs to a construction branch in the activity of the final works. According to the data by the Statistical Office of the Republic of Slovenia, financial and economic crisis has begun in 2008, which was in Slovenia first expressed in the construction sector. The purpose of the research is to examine the volume of assets in the balance sheet of Reflex and in the construction branch in order to determine whether construction activity after a few years of economic crisis is recovered or not. Developments in the branch affect future operations of the company Reflex. It is very difficult to say that a company or activity recovers if the volume of assets is decreasing.

Research period covers the years 2008–2012.

As studies and statistics data warn, the main problems of construction companies in Slovenia are decline of orders in construction sector, drop in real estate sales, and payment indiscipline. All this affects business volume of the construction company. The volume of business is reflected also in the volume of assets on the balance sheet. Therefore, in this study an accounting analysis of assets volume of the company Reflex and a statistical analysis of the assets in a construction branch in the field of building completion were done. By an accounting analysis, we examined the individual movements in long-term and short-term types of assets of the company Reflex. By statistical analysis we examined whether the volume of assets in companies within the construction branch significantly increased. For the statistical analysis, we used *t*-test (one-sample statistics) for the analysis of the arithmetic mean of assets. Both analyses were done on a sample construction company

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engaged in building completion and finishing which, in 2012, employed at least ten workers. Thus, the selected sample contains 56 companies.

By an accounting analysis of assets volume, we found that the volume of assets in the company fluctuated and in 2012 reached the lowest value; the volume of total assets in 2012 does not even reach the value of assets in 2008. The value of tangible fixed assets of the company dropped significantly; current assets increased mainly due to an increase in operating receivables.

By statistical analysis of the volume of assets of a construction branch, we found that the volume of assets does not increase on such a scale that it would be able to confirm with sufficient accuracy, so we cannot talk about recovery within the analyzed activities.

The limitation of research represents the number of construction companies with final construction work in a sample of companies. On the other hand, on partial accounting analysis, we studied only assets in the balance sheet, but not other economic categories in the financial statements. Based on these limits, after a review of assets in the balance sheet of Reflex, we suggest improving the management of funds, in both long-term and short-term types.

Keywords Balance sheet • Assets • Construction activity • Financial crisis
• Accounting analysis

1 Introduction

Assets include the rights and money available to the company, and with its help the company can pursue its business goals (Kokotec et al. 1997, p. 29). Assets in the balance sheet affect the volume of business and the size of the company. The size of the companies is measured by Simunic (1980, p. 172), Palmrose (1986, p. 99), and Simon and Francis (1988, p. 257) on the basis of the volume of total assets in the balance sheet.

The financial statements of the company have been prepared in accordance with accounting and reporting requirements set by the Slovenian Accounting Standards 2006 (SAS), in accordance with the Slovene Companies Act (CA-1).

The Slovenian Accounting Standards should not be contrary with the International Accounting Standards (IAS) and must summarize the content of Directive 78/660/EEC and Directive 83/349/EEC (CA-1-UPB3, 9195). The financial statements have been prepared in Euros, rounded to unit, for the financial year that equals the calendar year.

The balance sheet is the most important and basic financial statement because in all other statements, we need the balance sheet data (Šuštar 2009, p. 21). The format of the balance sheet is prescribed by the Slovenian Accounting Standards (SAS 24 2006).

The balance sheet is a static and an aggregated financial statement because the data were collected on the last day of the year and represented in aggregate

components. The balance sheet is drawn up for the needs of internal and external financial reporting. It has the form of a double-sided balance sheet, and it is classified in accordance with the requirements of the Slovene Companies Act (Šuštar 2009, p. 22).

Bilateral equilibrium of the balance sheet means that the balance sheet shows the same total value of assets and liabilities. In accordance with accounting standards, in the balance sheet, for the external reporting, assets are classified substantively on the principle of increasing liquidity, which means their distance from cash. Most liquid forms of assets are cash. Liabilities are classified in the balance sheet on the principle of increasing maturity of individual liabilities (Igličar et al. 2013, p. 302). Liabilities show us how the company's assets are financed. The balance sheet is related to other fundamental financial statements, that is, the income statement. This statement will be in the paper devoted with less attention. One of the most important links between the balance sheet and income statement is a company's profit. Profit or loss is the difference between the identified income and expenses in a given period of time (Kokotec et al. 1997, p. 70).

The paper will focus on the accounting and statistical analysis of the company Reflex, d. o. o. (d. o. o. is a limited liability company, defined by the Slovenian Company Law) located in Gornja Radgona, Slovenia. Reflex is an innovative Slovenian company engaged in processing and transforming flat glass for buildings, which for almost three decades has developed and perfected its range of products and services for building construction.

Within the construction branch, it was in 2012 in the Republic of Slovenia when 1356 companies were registered. This figure also includes companies which do not employ workers. Our sample for the study consisted of at least 1 employee for the registered 549 companies and with at least 10 employees for the registered 56 companies. In 2008, a financial and economic crisis has started in Slovenia (SURs 2009), which was first reflected in the construction sector.

Due to the economic crisis, problems in business have occurred in the company Reflex, d. o. o., which has been demonstrated with lower operating income in the years 2009 and 2012. Some problems in construction companies were also pointed out by Anžlovar (2008, pp. 60–61) in his analysis, where he draws attention to the caution needed in real estate investments, insolvency investors, and financial indiscipline, because they can be fatal for the company. Also Pevcin (2009, p. ii) in his study of the production company recognizes the need for urgent reduction of costs, as demand fell markedly. In addition to the findings of Anžlovar and Pevcin, Kolar (2010, p. 24) also in his study detects a reduction in orders in the construction sector and, at the same time, a decline in real estate sales. Realistically construction in Slovenia reaches, in the period from 2005 to 2007, an average of 4% growth but during the period from 2008 to 2012 an average of 6.5% decline (Crisis Mirror 2013, p. 1). Construction is one of the most important branches because it is important from several points. When economic growth is high, construction branch is also booming; if the economy is in crisis, construction may experience the biggest problems. Construction branch has a major impact on other activities, such as transportation, manufacturing, technical business, trade, and others.

Construction also has a major impact on the number of employees, as it was in 2011, when the third branch in Slovenia employed the largest number of workers (ZRSZ 2011, p. 4). The largest drop in GDP in 2009, that is, 7.8%, was recorded in Slovenia. Domestic investment has in that year decreased by 14.4%: exports of goods fell by 19% and exports of services by 15%. Total construction activity decreased by 20%: construction work on residential buildings dropped by almost 25%, construction work on housing by 20%, and part of civil engineering works by 16.5%. The biggest problem of construction is the lack of liquidity, which occurs due to uninvestment. The main problem is the lack of payment discipline between main contractors and subcontractors (Employers' Association of Slovenia 2010, p. 8).

Company Reflex, d. o. o. was, before the economic and financial crisis, one of the most successful construction companies in the area. With the rise of the crisis, more information about the problems of business in the company has appeared.

With the aim to explain the situation and find the causes of the difficulties encountered, we decided to carry out an accounting analysis of key accounting indicators, with the emphasis on assets, and a statistical analysis of the arithmetic mean of the assets in the branch to which the company belongs.

2 The Results of Research and Discussion

2.1 Accounting Balance Sheet Analysis

The balance sheet is the basic financial statement presenting the assets and liabilities that refer to the company's operations. Since the balance sheet is the most important statement of each company, the results and activities achieved by the companies were analyzed and compared. The most useful way of accounting analysis is a comparison of values with their historical data performance, and we do it as well in our analysis. We observed the period from 2008 to 2012.

The balance sheet is one of the basic financial statements and it is part of the annual reports of each company. Annual reports are prepared in accordance with the accounting requirements of the Slovenian Accounting Standards, which are applicable first in 2006. The data in the financial statements are based on accounting documents and books, which are consistent with the Slovenian Accounting Standards. The company has the financial year which corresponds to the calendar year (Annual Reports of the company Reflex Gornja Radgona, d. o. o 2008–2012).

Data from the company's balance sheet shows that in the period from 2008 to 2012, the amount of assets varied both positively and negatively. The company achieved the largest total assets in 2008, and in the following year, the total assets have declined. In the last fiscal year observation, the company recorded a decline in total assets, which shows the low value of the index, which is only 87.5% of total assets in 2008, as can be seen from Table 1. The individual balance sheet items will be shown in further analysis.

Table 1 Values and indexes of total assets of the company

Year, index	2008	Index 09/08	2009	Index 10/09	2010	Index 11/10	2011	Index 12/11	2012
Total assets in TEUR	27,873	96.09	26,782	101.64	27,222	101.28	27,570	88.49	24,397

Source: Edited and calculated by the authors based on AJPES (Agency of the Republic of Slovenia for Public Legal Records and Related Services)

In the assets structure, we found that the share of long-term assets in the observed period decreases, while the volume of current assets increases (Annual reports of the company Reflex Gornja Radgona, d. o. o 2008–2012).

For the evaluation of intangible assets, the company disclosed the cost of purchase value or revalued purchase value/cost (Annual Reports of the company Reflex Gornja Radgona, d. o. o 2008–2012). The value of intangible assets in the company Reflex, d. o. o. since 2009 decreases. Until 2009 the company has procured a variety of software and licenses, so they have expenditure on development, and the volume of these funds by 2009 will increase considerably. From the data in Table 2, it is evident that the value and the index of intangible assets in the last 3 years in the company have fallen.

For the measurement of property, plant, and equipment of the company, accounts books show their purchase value or revalued purchase value (Annual Reports of the company Reflex Gornja Radgona, d. o. o 2008–2012).

The value of tangible assets (property, plant, and equipment) is falling (Table 3) over the years mainly due to the depreciation of equipment. Other components of property and plant are substantially unchanged.

Amortization is calculated from the original acquisition value of depreciable assets. The company uses straight-line depreciation method. Depreciation is calculated at rates that are specified for each asset and does not change during the accounting year (Annual Reports of the company Reflex Gornja Radgona, d. o. o 2008–2012).

Over the analyzed time, the company reduces the range of investment properties.

Long-term financial investments reached a substantial increase in value, in the last year of the observed period, because the index of the year 2012/2011 reached a value of 737.11, reflecting the strong increase in the high long-term loans in the last observed year, as shown by the data in Table 4.

Short-term financial investments represent short-term loans in negligible values.

The company initially valued inventories as cost, consisting of purchase price, import duties, and other charges, and direct costs of purchase. The purchase price shall be reduced by any discounts received. The quantity of units or product work in progress is valued at production cost (Annual Reports of the company Reflex Gornja Radgona, d. o. o 2008–2012). Inventories in the observation period did not change significantly, as shown by the data in Table 5.

Operating receivables are initially recognized at the amount arising from the relevant documents under the assumption that they will be paid. Operating

Table 2 Values and indexes of intangible assets of the company

Year, index	2008	Index 09/08	2009	Index 10/09	2010	Index 11/10	2011	Index 12/11	2012
Intangible assets in EUR	91,239	132.95	121,305	93.17	113,017	59.25	66,966	48.67	32,592

Source: Edited and calculated by the authors based on APJES

Table 3 Values and indexes of tangible assets of the company

Year, index	2008	Index 09/08	2009	Index 10/09	2010	Index 11/10	2011	Index 12/11	2012
Tangible assets in TEUR	15,075	89.6	13,513	93.63	12,652	92.27	11,675	88.64	10,349

Source: Edited and calculated by the authors based on AJPES

receivables, which are assumed not to be settled, are considered as doubtful. However, if the legal proceedings were instituted, they are classified as doubtful debts. Operating receivables denominated in foreign currencies at the balance sheet term are converted into a local currency. Revaluation of assets is a change in their book value carried out at the end of the financial year or during the course (Annual reports of the company Reflex Gornja Radgona, d. o. o 2008–2012).

The company recorded no long-term operating receivables. Table 6 shows that the short-term receivables of the company from 2008 to 2011 increased, and they were decreased only in the last observed year. In 2012 majority share was receivables from customers, and a smaller share of the receivables was from group companies and the rest.

Cash and cash equivalents are carried at the amount arising from the relevant documents. Cash in foreign currencies are converted into local currency at the exchange rate on the date of receipt (Annual report of the company Reflex Gornja Radgona, d. o. o 2008–2012). As can be seen from the data in Table 7, the volume of cash in the period observed fluctuated.

The company has a broad share of off-balance sheet assets, which represents a danger for the company. The volume of off-balance sheet assets in the observed period decreases, but it also reduces the volume of total assets. Table 8 shows that the off-balance sheet items of the company Reflex reach in 2012 at 49% of total assets. The vast majority of these off-balance sheet items represent a mortgage on the property.

Data shown in Table 9 shows that the volume of capital in the company fluctuates; share in terms of total assets is slowly increasing. Slight increase in the proportion of capital shows that the company seeks to increase the share of equity funding.

Long-term liabilities are disclosed as long-term financial and operating liabilities. Long-term financial liabilities are long-term bank loans, while long-term operating liabilities are liabilities from finance leases, notes payable, long-term advances, securities, and deferred tax liabilities. Part of long-term liabilities, which has fallen due or will become due within 1 year, on the balance has been transferred to current liabilities (Annual reports of the company Reflex Gornja Radgona, d. o. o 2008–2012).

The volume of long-term liabilities through all the years of observation is mostly reduced. Also the share in terms of total assets is decreasing in all observed years. Data are shown in Table 10. In 2008 it reached to 27.76% of total liabilities and in

Table 4 Values and indexes of long-term financial investments

Year, index	2008	Index 09/08	2009	Index 10/09	2010	Index 11/10	2011	Index 12/11	2012
Long-term financial investments in EUR	29,564	87.51	25,871	112.23	29,034	91.65	26,609	737.11	196,137
Long-term loans in EUR	21,362	82.67	17,660	75.58	13,347	82.15	10,965	1723.66	188,999

Source: Edited and calculated by the authors based on APES

Table 5 Values and indexes of tangible assets of the company

Year, index	2008	Index 09/08	2009	Index 10/09	2010	Index 11/10	2011	Index 12/11	2012
Inventories in TEUR	3032	98.05	2973	107.26	3189	92.28	2943	118.96	3501

Source: Edited and calculated by the authors based on AJPES

Table 6 Values and indexes of short-term operating receivables of the company

Year, index	2008	Index 09/08	2009	Index 10/09	2010	Index 11/10	2011	Index 12/11	2012
Short-term operating receivables in TEUR	8445	100.87	8519	111.28	9480	115.57	10,956	83.78	9179

Source: Edited and calculated by the authors based on AJPES

Table 7 Values of cash of the company

Year	2008	2009	2010	2011	2012
Cash and cash equivalents in EUR	380,870	5955	180,651	193,635	59,998

Source: Edited and calculated by the authors based on AJPES

Table 8 Off-balance sheet assets of the company

Year	2008	2009	2010	2011	2012
Off-balance sheet assets (in EUR)	13,264,064	13,443,281	/	13,418,729	11,976,261
Off-balance sheet assets (in % of total assets)	47.59	50.20	/	48.67	49.09

Source: Edited and calculated by the authors based on AJPES

Table 9 Values of capital of the company

Year	2008	2009	2010	2011	2012
Capital (in EUR)	5,276,741	5,733,266	6,037,830	6,052,059	5,551,604
Capital (in % of total liabilities)	18.93	21.41	22.18	21.95	22.76

Source: Edited and calculated by the authors based on AJPES

2012 to 18.23 percent. Throughout this period, the greater part of long-term liabilities were long-term financial liabilities to banks.

The index of long-term liabilities and short-term liabilities of the company achieves different values. However, when we compare the value in terms of total assets, we find that the proportion of short-term liabilities increases, which is negative for the company. This may be a sign that the company is financed by long-term assets with short-term financial resources, resulting in the company's occasional insolvency problem.

Table 10 Values and indexes of liabilities of the company

Year, index	2008	Index 09/08	2009	Index 10/09	2010	Index 11/10	2011	Index 12/11	2012
Long-term liabilities	7,738,850	81.05	6,272,533	81.47	5,110,055	112.80	5,764,284	77.18	4,448,707
Long-term financial liabilities to banks	6,567,424	82.12	5,393,260	81.56	4,398,937	121.18	5,330,514	79.76	4,251,843
Short-term liabilities	13,931,159	98.91	13,778,844	110.81	15,267,897	98.62	15,056,930	93.16	14,027,614

Source: Edited and calculated by the authors based on AJPES

Table 11 Values and percentages of assets and liabilities of the company

Year, %	2008	%	2009	%	2010	%	2011	%	2012	%
Total assets in TEUR	27,873	100	26,782	100	27,222	100	27,570	100	24,397	100
Long-term liabilities in TEUR and in % in total assets	7739	27.8	6272	23.4	5110	18.8	5764	20.9	4449	18.2
Short-term liabilities in TEUR and in % in total assets	13,931	49.9	13,779	51.4	15,268	56.1	15,057	54.6	14,028	57.5

Source: Edited and calculated by the authors based on AJPES

The share of short-term liabilities in the first 3 years of observation is increased. Namely, in the last 2 years, the volume of short-term liabilities of the company is reduced, but in relation to total liabilities, short-term liabilities achieve each year a higher proportion. In 2012 they reached 57.5 percentage points (Table 11).

In the observed period, the company still had a higher proportion of short-term liabilities than long-term liabilities. The major part of short-term liabilities represents operating liabilities.

The balance sheet is most associated with net profit/loss for the period. The total revenues of the company were the highest in the company's first observed year; in 2009 the company recorded the largest drop, and the volume of total revenue decreased sharply. Then the total revenue for 2 years grows slowly but is again slightly reduced in the last observed year. Total expenses were observed highest in the first year; in 2009, the same as income, they decreased much lower. By the next year, they regrow; they have been increasing in the last observed year, mainly due to a sharp increase in the financial expenses of the company. In the last observed year, for the first time, the total expenses exceed the total revenue, so the profit or loss for the first time is negative.

2.2 Comparison of Balance Sheet Assets of Construction Company with Data in Construction Branch

Table 12 shows a comparison of growth/decline in volume of each elementary item in the balance sheet. In the above table, we analytically compared the movement of items of the company Reflex in relation to construction branch at the beginning and at the end of the observation period.

The volume of total assets in activity declined as well as in the company. When we compare value of index ($2012/2008 = 87.5$) for company and construction

Table 12 The main categories in the balance sheet of the company and of the construction branch

Year, index	2008		2012		Index 2012/2008	
	Reflex	Construction branch	Reflex	Construction branch	Reflex	Construction branch
Categories in EUR						
Total assets	27,873,194	188,481,517	24,389,579	162,565,954	87.50	86.25
Long-term assets	15,650,487	67,215,801	11,257,383	52,940,502	71.93	78.76
Short-term assets	12,189,337	119,757,154	13,115,448	108,761,983	107.60	90.82
Short-term operating receivables	8,445,453	74,526,797	9,178,821	64,213,536	108.68	86.16
Cash and cash equivalents	380,870	7,402,482	59,999	7,919,683	15.75	106.99
Off-balance sheet assets	13,264,064	20,958,118	11,976,261	24,666,293	90.29	117.69
Total liabilities	27,873,194	188,481,517	24,389,579	162,565,954	87.50	86.25
Capital	5,276,741	51,432,863	5,551,604	53,810,009	105.21	104.62
Long-term liabilities	7,738,850	28,392,993	4,448,708	17,621,224	57.49	62.06
Short-term liabilities	13,931,159	103,289,542	14,027,614	87,664,406	100.69	84.87

Source: Edited and calculated by the authors based on AJPES

branch index ($2012/2008 = 86.25$), we see that in the overall activity, the amount of total assets is even more reduced than in the company.

However, the data shows that the company strongly reduced its long-term assets at only an index value of 108.68 in 2012, while the branch index reached the highest value (78.76).

The company's volume of short-term assets in the observed period increased and reached an index value of 107.6 within the branch; the volume of short-term assets declined, since $2012/2008$ index reaches a value of 90.82.

When we observe the movement of short-term operating receivables, we find a weak side of the observed company, since its claims grew, reaching an index value of 108.68, while within the branch its claims fell, reaching an index value of $2012/2008 = 86.16$.

Cash and cash equivalents in the branch are managed to increase, reaching an index value of 106.99, while the company had a decreased volume of cash, and it reaches an index value of $2012/2008 = 15.75$.

The consequence of such reduction is the current insolvency of the company, which may also shut down the production, if it does not succeed in time to provide raw materials.

The company's off-balance sheet assets have decreased by nearly 10 percentage points; in the branch, the volume of off-balance sheet assets increased, and it reaches an index value of 117.69. However, we must not forget that the volume of assets in the company fell by 13.5 percentage points.

The company's volume of equity in the observed period increased and thus reached an index of $2012/2008 = 105.21$. It has also increased the volume of equity in the branch and reached an index value of 104.62.

Long-term liabilities in the observed period dropped significantly. As shown in Table 12, the company achieved an index value of $2012/2008 = 57.49$ which was within the result for construction branches of 62.06.

Short-term liabilities of the company in the observed period remained almost unchanged since the index value of 100.69. The volume of short-term liabilities in branches successfully reduced and thus achieves an index value of 84.87.

The company has increased the volume of short-term financial liabilities which mainly consist of financial liabilities to banks.

Whereas the balance sheet is also linked to profit/loss for the period, we present greater impacts of the revenues and expenses of the company on its operating profit. The company Reflex reduced business revenues more than the construction branch (Table 13). The construction branch has managed to reduce its operating expenses to a greater extent than its operating income. We analyzed in detail the individual expenditure in the company Reflex, d. o. o., and found that expenses are less declined, mainly on the following items: cost of goods, material, and services and greater reduction in expenses the company recorded in labor costs (Table 13).

Table 13 Revenues and expenses of the company and the construction branch

Category/year, index		2008	2012	Index 2012/2008
Business revenues in EUR	Reflex Gornja Radgona, d. o. o	36,692,252	30,028,490	81.84
	Construction branch	219,473,517	185,728,814	84.62
Business expenses in EUR	Reflex Gornja Radgona, d. o. o	35,033,523	29,780,438	85.01
	Construction branch	211,406,578	170,692,270	80.74
Cost of goods, material and services	Reflex Gornja Radgona, d. o. o	23,164,710	21,031,752	90.79
	Construction branch	152,264,348	114,136,016	74.96
Labor costs	Reflex Gornja Radgona, d. o. o	8,539,282	5,266,146	61.67
	Construction branch	48,638,787	45,831,368	94.23

Source: Edited and calculated by the authors based on AJPES

2.3 Statistical Research of Construction Company Assets

In the following we want to verify the hypothesis that the volume of total assets in companies within the construction branch is significantly increased in the period 2008–2012.

It is very difficult to claim that the company or the branch is recovering if the volume of total assets in the balance sheet is decreasing. On a sample of 54 companies, we will check the movement of assets in branch, which the analyzed company belongs (Reflex).

In the sample, we have companies that in 2012 employed ten or more workers. In parallel to these figures for those companies, we found further information of their total assets in 2008.

We have identified the null hypothesis H_0 and the alternative hypothesis H_1 . In an alternative hypothesis, we wanted to check whether in the construction branch, despite the economic crisis from 2008 to 2012, the volume of total assets has been increased. Because, in the sample chosen in 2008, the average value of company total assets is 1,283,988 €, we have identified the following null hypothesis and the alternative hypothesis:

$$H_0: M \leq 1,283,988 \text{ €}$$

$$H_1: M > 1,283,988 \text{ €}$$

The null hypothesis was assumed that the company, on average, in 2008 had the volume of total assets equal to or less than 1,283,988 € ($H_0: M \leq 1,283,988$). We used the following variables: “*SR 2008*, the volume of total assets in 2008,” and “*Sred 2012*, the volume of total assets in 2012.”

However, since the goal of every company is to expand the volume of total assets and it is also an indicator of the performance of companies or branch, in the alternative hypothesis, we expected that in 2012 the volume of total assets in the

construction branch was increased ($H_1: M > 1,283,988$). If we can confirm that this could mean the recovery of the construction branch, thus, basing on the selected sample, we can confirm or reject the hypothesis of recovery of a branch.

With the analysis of arithmetic mean of the total assets of Slovenian companies from the construction branch, which in 2012 had ten or more employees, we found that the volume of total assets increased on average, in the years we observed.

However, with the statistical method of analysis, *t*-test of equality of mean (one-sample statistics) in Fig. 1, calculated with program SPSS, based on the selected sample, we cannot reject with sufficient accuracy the null hypothesis $H_0: M \leq 1,283,988$. Based on the results of the analysis of the arithmetic mean of total assets in 2012, we get a case of a bilateral test value: Sig (two-tailed) = 0.871.

In our case we have to use a one-sided test; therefore, the exact level of risk is only half the precise degree of risk involved in case of a bilateral test: Sig (one-tailed) = 0.436.

But despite the one-sided test, we cannot reject the null hypothesis because the risk level is still higher than 0.05. Therefore, we accept the null hypothesis. This means that an average Slovenian company in the construction branch in 2012 achieves the same volume of total assets as in 2008 or less.

The same is confirmed by the value of *t*-statistics, since the lower threshold $t_{2012} = 0.164$. Because it does not fall in the critical area of student's distribution, we must accept the null hypothesis and the conclusion that Slovenian companies in 2012 have an average amount of total assets as it accounted in 2008.

So our analysis in this segment does not support the argument that the economy within the construction branch is recovering and that it could be with sufficient accuracy demonstrated and confirmed. In any case, we must, by using the ratings,

► **T-Test**

[DataSet1]

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
SR 2008	54	1283988,17	4133551,095	562505,056
Sred2012	54	1367290,00	3738854,471	508793,649

One-Sample Test

	Test Value = 1283988					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
SR 2008	,000	53	1,000	,167	-1128242,10	1128242,43
Sred2012	,164	53	,871	83302,000	-937208,82	1103812,82

Fig. 1 The values of arithmetic mean of the total assets. Source: Žerdin 2015

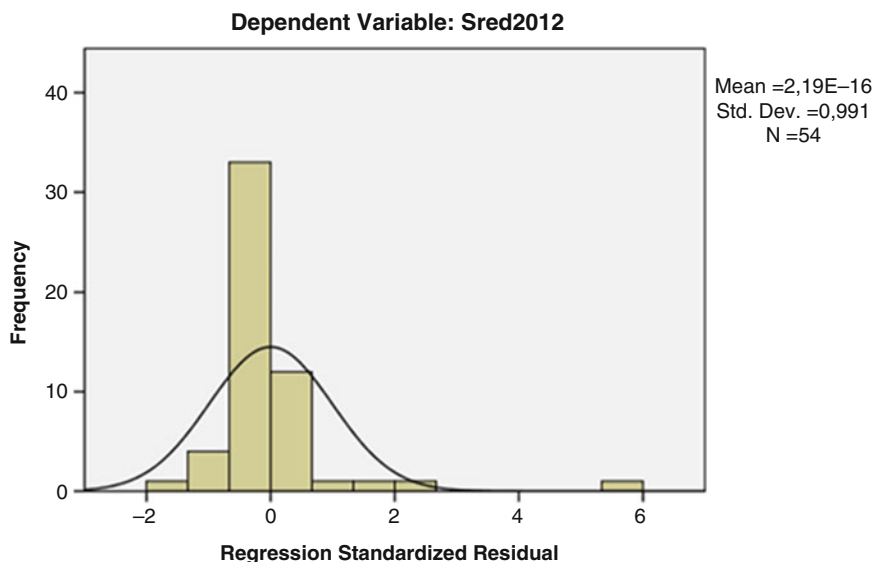


Fig. 2 The distribution value of total assets in 2012. Source: Žerdin 2015

be aware of the limitations of our sample because the results of the analysis are relating to the companies in the branch that employ, in Slovenia in 2012, at least ten workers. The sample upon which we carried out the analysis is fairly small, and the standard error is quite high.

Figure 2 shows the distribution of total assets of companies from a statistical sample. From the graphs it is evident that the distribution is not completely normal, but it is close to normal distribution, and such analysis is suitable for the chosen pattern.

Summarizing all the above analysis, despite the suitability of the selected sample, as evidenced in Fig. 2 and the data in Fig. 1 with the analysis of arithmetic mean of the total assets in the construction branch, we cannot confirm the hypothesis that the volume of total assets in the construction branch increases.

The volume of assets is not yet growing at such a scale that it would be able to confirm with sufficient accuracy, so we cannot talk about recovery within the analyzed branch. Companies within the specified branch in 2012 achieved an average only equal to or less than the volume of total assets in 2008.

3 Conclusion

The volume of assets in the company is fluctuated in the last observed year and has reached the lowest value (index 2012/201 = 88.49). The volume of assets in 2012 does not even reach the value of assets in 2008 and the index 2012/2008 = 87.53.

The company's tangible assets fell sharply. Current assets increased, mainly as operating receivables since the company in 2012 recorded more than in 2008, which reaffirms that we have, in our country, lack of payment discipline. Based on the data from the company, we can claim that payment indiscipline is still deepening, but more encouraging data come within the construction business area, as an index of short-term operating receivables for 2012/2008 = 86.16, compared with value for Slovenia as a whole of 88.71.

With statistical analysis of total assets in the construction branch, we found that the volume of total assets does not increase to such an extent that it could be sufficiently precisely confirmed, so we cannot talk about recovery within the analyzed activities.

After reviewing the assets in the balance sheet, we find that the company is poorly managed by its own assets, both total and fixed assets. So it is necessary to improve the management of assets. The company has high inventories, which bind the money and the high-operating receivables. Consequently, these are high obligations to suppliers, and because it is difficult to obtain financing to meet its obligations, the company must raise expensive loans. In that case the company managed to reduce inventory and operating receivables, which would require less short-term bridge loans for which interest is paid, thus increases financial expenses, which have caused negative net outcome.

The limitation of research represents the number of construction companies with final construction work in a sample of companies. On the other hand, on partial accounting analysis, we studied only assets in the balance sheet, but not other economic categories in the financial statements. Based on these limits, after a review of assets in the balance sheet of Reflex, we suggest improving the management of funds, in both long-term and the short-term types, especially inventories and operating receivables.

The volume of inventories and their management are of major importance in the company, both for operating and for further assessment of value of the company. Essential factors in the management of inventories are (Brigham and Ehrhardt 2008, p. 788):

- Ensuring the availability in the execution of certain operations
- Reducing the costs of purchasing and storing inventories to a minimum

Companies tend to sold directly for money, but competition and market conditions are forcing them to sell on credit. It means that at the supply of the product, it does not receive payment immediately, thus resulting to receivables due from customers. Operating receivables management is depending on the selected credit policy; surveillance is also important. Credit policy can have a significant impact on sales and thus on the performance of the company. Key factors for the credit policy are as follows (Brigham and Ehrhardt 2008, p. 790):

- Payment schedules: Shorter payment periods reduce receivable turnover ratio but discourage buyers, significant deviations in relation to the branch, company cannot afford.

- Discounts with prepayments lowering the price attract buyers, reducing days of receivable turnover ratio; we must also take into account the price of discounts.
- Credit standards: Lower standards increase sales but also increase bad debts.
- Recovery policy: Stricter policy reduces receivable turnover ratio but may discourage a new buyer.

References

- Anžlovar, J. V. (2008). *Analiza dejavnosti strojnih instalacij v gradbeništvu z vidika podjetja Instalacije Grosuplje*. Ljubljana: Ekonomska fakulteta.
- Brigham, E. F., & Ehrhardt, M. C. (2008). *Financial management: Theory and practice*. Mason, OH: South-Western.
- Igličar, A., Hočevnar, M., & Groff, M. Z. (2013). *Uvod v računovodstvo*. Ljubljana: Ekonomska fakulteta.
- Kokotec-Novak, M., Korošec, B., & Melavc, D. (1997). *Osnove računovodstva z bilanciranjem*. Maribor: Ekonomsko-poslovno fakulteta.
- Kolar, N. (2010). *Ekonometrična analiza slovenskega gradbeništvu*. Maribor: Ekonomsko-poslovna fakulteta.
- Krizno ogledalo (Crisis Mirror). (2013). *Dodana vrednost v gradbeništvu lani močno pod povprečno*. <http://kr-og.sta.si/2013/05/dodana-vrednost-v-gradbenistvu-lani-mocno-pod-povprecno/> (February 17, 2014).
- Palmrose, Z.-V. (1986). Audit fees and auditor size: Further evidence. *Journal of Accounting Research*, 24(1), 97–110.
- Pevcin, D. (2009). *Analiza poslovanja podjetja Roletarstvo Arnuš Ivan s. p. v pogojih gospodarske krize*. Ljubljana: Fakulteta za upravo.
- Reflex Gornja Radgona, d. o. o. (2008–2012). *Letno poročilo*. Gornja Radgona: Reflex Gornja Radgona, d. o. o.
- Simon, D. T., & Francis, J. R. (1988). The effects of auditor change on audit fees: Tests of price cutting and price recovery. *Accounting Review*, 63(2), 255–269.
- Simunic, D. A. (1980). The pricing of audit services: Theory and evidence. *Journal of Accounting Research*, 18(1), 161–190.
- Slovenski računovodski standardi (Slovenian Accounting Standards) – (SRS, SAS). (2006). *Uradni list RS*, št. 118/2005.
- Statistični urad Republike Slovenije (SURS). (2009). *Bruto domači proizvod, 1. četrletje 2009*. https://www.stat.si/novica_prikazi.aspx?id=2410 January 12, 2014.
- Šuštar, R. (2009). *Analiza bilanc in revizija*. Ljubljana: Zavod IRC.
- Združenje delodajalcev Slovenije (Employers' Association of Slovenia). (2010). *Prestrukturiranje v gradbeništvu – kako bolje napovedati prihodnje trende*. Ljubljana: Združenje delodajalcev Slovenije.
- Žerdin, K. (2015). *Računovodska analiza gradbenega podjetja*. Koper: Faculty of Management.
- ZRSZ. (2011). *Gradbeništvu v času krize – Pogledi z vidika trga dela*. Ljubljana: Zavod Republike Slovenije za zaposlovanje.

Sand in My Eyes Fled Effect: An Evidence from Saudi Arabia



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Abstract Psychological, cultural, religious and environmental factors affect human decisions and sometimes cause irrational behaviours. Even this is a common truth, traditional economics claims human is rational and many economic theories based on this idea. Behavioural Finance and Behavioural Economics go against this main assertion and postulates human has bounded rationality.

This study investigates influences of the daily weather conditions such as mean and maximum air temperatures, mean and maximum air humidity values and Apparent Temperature Index (ATI) on Riyadh Stock Exchange.

Granger Causality Model has been applied to these data, and found that daily mean water vapour pressure and daily maximum air temperature variables of the daily weather have affected the Riyadh Stock Exchange returns.

Keywords Riyadh stock exchange • Weather effect • Granger causality
• Autocorrelation • Correlation

1 Introduction

During the past few years, psychological factors have gained significant attention in the field of stock market. Among all psychological factors that influence stock market returns, the weather is considered as the most important factor that affects

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decision-making of an investor. Evidence showed that attitudes of people toward risk-taking are dependent upon the environmental factors (Kahneman and Tversky 1979). Weather alters the mood and emotional condition of people. Mood change eventually influences daily activities of a person (Symeonidis et al. 2010).

Studies have reported that sunny days impart more satisfaction in individuals irrespective of their rigid nature toward the weather. When investors are in a good mood because of weather, they have positive expectations of their investment in the stock market (Daniel et al. 1998; Hirshleifer 2001). It has also been observed that individuals suffer from a seasonal affective disorder in winters and they avoid risk-taking. During winters, day length becomes short and people are in the state of depression (Kamstra et al. 2003).

Humid environment and less sunshine are associated with low mood. On the contrary, sunny day and higher weight of the air are associated with good mood. Among the weather factors, humidity, the length of the day, and temperature are the most influential factors (Harwarth and Hoffman 1984). Cunningham (1979) stated that the sunshine is an indication of the good mood of individuals. Moreover, increase in temperature during the summer season is negatively associated with mood.

Cognitive processes become simplified in the state of a good mood. Simplification of cognitive process sharpens the phenomena of decision-making (Isen 1993). Negative emotions that are associated with weather are involved in the improvement of memory (Forgas et al. 2009). Changes in emotions are involved in the alteration of attitudes of people toward taking chances. Experimental results showed that negligible changes in risk-taking behavior of people have a noteworthy impact on decisions of people regarding stock market. Another study has shown that low temperature causes aggression and aggression promotes risk-taking behavior of people. The high temperature is linked with apathy and it hinders risk-taking (Cao and Wei 2005).

Analysis of the New York Stock Exchange has shown that low cloud cover in Manhattan has caused high stock returns. Remarkable difference in stock returns was observed on high cloudy and low cloudy days. Pleasant weather contributes to optimistic moods of individuals and results in high stock returns, while severe weather results in pessimistic mood and ultimately leads to low stock returns (Saunders 1993).

Another interesting aspect has been observed that stock market returns of less-developed countries are more influenced by psychological factors in comparison to the stock market returns of developed countries (Zadorozhna 2009). Possibly, it is because of optimism in the developed countries and pessimism in underdeveloped countries. Countries that are in the state of transition are more influenced by psychological factor because of changing situation. Developed countries have a quite stable condition, and that is the reason behind less fluctuation in stock market returns.

Empirical results have emphasized on the significance of weather on stock market returns. Weather as a form of psychological factor influences the behavior of an investor to a great extent. The influence of weather on stock market returns in some regions of the world such as Baltic States, Bulgaria, Romania, Ukraine,

Slovakia, and Croatia has not yet explored (Zadorozhna 2009). Numerous studies have focused few regions of the world. In the light of numerous empirical studies on the effect of weather on stock market returns, the present study is planned to explore different psychological effects of weather on stock market returns.

Literature Review

Schwarz (1990) reported that individuals who are involved in detailed analytical activity have bad mood, while individuals with good mood are engaged in less information processing. As a result good mood individuals are more open to weaker argument as compared to bad mood individuals who are regarded as receptive to strong argument in Mackie and Worth (1991) paper. Studies of Schwarz et al. (1991), Sinclair et al. (1994), and Wegener et al. (1995) also reported relationship between mood and arguments. Bless et al. (1996) showed that good mood individuals rely on information category and the mistake they make most of the time is stereotyping. Therefore, significant dependence on “preexisting knowledge” does not mean a decrease in motivation and ability of thinking. It was observed that people with good mood are more likely to be influenced by weather during their decision-making process (Dowling and Lucey 2005).

Numerous studies have been conducted from time to time in order to find the relationship between weather and stock market returns (Saunders 1993; Dowling and Lucey 2005; Floros 2008, 2011, Kang et al. 2010; Panetta 2002; Pardo and Valor 2003; Yoon and Kang 2009). Few of these studies were limited to specific locations. Some worthy studies have been included in the present literature review.

The present research highlights the effects of weather on stock returns. Studies have shown that weather conditions influence the mood of individuals. Emotional state of the individuals, their good or bad mood, can affect the process of their decision-making. Present research focused on determining the possible influence of weather on prices and returns of financial assets.

In a study conducted by Cao and Wei (2005), eight stock exchanges were investigated located in the Britain, Canada, Germany, USA, Sweden, Australia, Japan, and Taiwan. In their study, they found that (on average) low temperature is linked with high returns while high temperature is linked with low returns.

Likewise, Floros (2011) studied the association between stock market returns and temperature. For research purposes, he utilized daily data from Portugal. He also examined if the price is influenced by calendar-associated specifications such as the linkage of January with trading. Data was collected by noticing daily financial and weather reports from Lisbon capital and the Lisbon Stock Exchange from the period of 1995–2007. The findings of this research show that temperature badly affects the PSI20 stock returns in Portugal. Furthermore, temperature was determined by both January and trading month effects. In January, there were positive stock returns, and these stock returns reached higher level on fortnight of the month. Higher stock returns were investigated in low temperature in January, and it was because of investors’ aggressive risk-taking.

In a study on the Thai stock market, evidence (Brahamna et al. 2012) showed that temperature has effects on stock market returns. Weather conditions affects

human moods and thus may affect investors' behavior in the stock market. In present study, it was found that temperature has significant impact on the Thai stock market returns. Besides, it was found that Thai stock returns tend to be lower when the weather is hot. The results of the study were supported by psychological facts. It has been suggested that an increase in temperature would make people impatient or upset and thus affect the stock return. Considering that fact, it would also affect investor's decision-making.

Akhtari (2011) investigated the relationship between four weather variables (temperature, rain, sunshine, and wind speed). The study was investigated in a 10-year period in Portuguese stock market during January 2000 to December 2009. Data were weather information from national Instituto de Meteorologia. Positive relation was expected between weather conditions that enhance the mood of individuals that eventually affects stock returns. Results of this study indicated that sunshine hours are positively related to stock prices, whereas wind speed and precipitation are negatively related to stock prices. To put it simply, the better the mood is, the higher will be the stock prices due to the increased optimism or decreased risk aversion.

The association between the mood of individuals and the weather has been supported by numerous psychological studies. Furthermore, it seems that mood influence the decision-making process of individuals especially when decisions that are to be taken are challenging. Therefore, weather may have an indirect impact on market returns. The relationship between mood and temperature is found to be highly complex. Low temperature decreases aggressiveness, and risk-taking behavior of the individuals is increased resulting in positive impact on prices. On the contrary, high temperature promotes aggressiveness with a positive impact on stock price.

In an investigation of the effect of cloudy days in the Turkish stock market, Tufan and Hamarat (2004) have found that cloudy days do not cause ISE 100 Index returns and also that there existed evidence of weak form efficiency.

In a study conducted in an environment relatively similar to the Saudi weather environment, Hammami and Abaoub (2010) investigated whether that people's decisions are affected by their feelings, mainly when the decision involves risk and uncertainty through investigating the consequent relationship existing between neutral economic congenital factors.

To find whether there is a specific relationship between five weather-based proxy factors (i.e., rain, wind, sunshine, temperature, and humidity) and stock market, they also took their data from Tunisian stock market for the period ranging between 1999 and 2006. They collected data relative to five weather factors such as rain, wind, sunshine, temperature, and humidity. For investor mood and daily Tunisian stock prices, they used security prices listed on the Tunisian stock market, as represented by TUNINDEX and BVMT stock market indexes. It has been revealed that all of the weather variables hypothesized in the literature (i.e., rain, wind, sunshine, temperature, and humidity) have a significant relationship with the Tunisian stock. The findings of the study conclude that weather greatly affects the Tunisian stock prices by affecting investor moods.

This study highlights the fact that weather influence mood and mood has an impact on the Tunisian equity prices. Furthermore, a positive statistical relationship

with sunshine and temperature and a negative statistical correlation with humidity, rain, and wind were found.

Brahamna et al. (2012) proposed trading behavior as the description of the day-of-the-week anomaly (DOWA) or Monday irrationality. This study includes several stages in investigating the role of psychological biases on DOWA. The aim of the research was to investigate the affection bias (moon-induced mood and weather-induced mood), as well as cognition bias (cognitive dissonance and attention bias). Furthermore, ability of the psychological biases on constructing the Monday irrationality was determined. To investigate the existence of DOWA, French's model was employed. After that the role of psychological biases was investigated in two ways. First, by introducing the interaction model, in this model, the relationship of the psychological biases was inspected and it was further tested on which day their association is present. Second, they tested the association by degenerating it in a separate day. The psychological effect in each trading weekdays was investigated.

In this research, size does not matter, but perceptive judgment plays an important role concerning DOWA, decision, and investment. The result showed that there is a significant relationship between psychological biases and stock markets; it may be surprising for some finance scholars in terms of the apparent inconsistency with rationality behavior.

The results of this research suggest that human is sensitive to a stimulant. It gives a bias decision through affecting the human psychology. An intuitive judgment of investors is influenced by weather and moon as it follows their mood. Weather and moon occurrences are high on Monday as compared to other days. Therefore, this study suggests the occurrence of mood disorder on Monday and guides investor to irrationality that supported the psychological biases of present study.

As it has been recognized in psychological research, weather can influence an individual's mood which may lead predisposition to activate certain behaviors. The most important finding is that good (bad) weather can induce positive (negative) mood state, which greatly influences the process of rational or optimal decision-making. On the basis of these studies, behavioral finance theory has recently considered the possibility of a correlation in weather factors along stock market. This study investigates the relationship between Thai stock return and weather factors that are temperature, humidity, and rain. In this study, the model was used with GJR-GARCH process to investigate the relationship between stock market returns and weather factors in Thailand from May 4, 1992, to December 30, 2008.

The weather factors include temperature, humidity, and rain. The results showed negative relationship between temperature and stock market returns, while no relationship between humidity and rain was found. Present study has significant implications for both individual investors and financial organizations in Thai stock market. This study implies that Thai stock market may be inefficient due to the irrationality (temperature effect) in the market (Brahamna et al. 2012). Sriboonchitta et al. study the impact of temperature on Thai stock market returns and reported that low temperature is associated with aggression, while high temperature causes aggression as well as apathy.

2 Data and Methodology

2.1 Financial Data

This study investigates whether stock returns and the weather are correlated; we use two data sets: One contains weather information for Riyadh City and the other pertains to the Saudi Stock Exchange (Tadawul) return. The weather data is a daily base data and gathered from Presidency of Meteorology and Environment (www.pme.gov.sa) which covers the period between October 31, 2012, and December 31, 2006. The data is:

Stock exchange data cover the same period and are calculated daily based on closing prices of Tadawul All Share Index (TASI). Both data set which are time series have had 1.539 data equally. Tadawul All Share Index (TASI) converted as return series with applying the formula:

$$R_t = V_t/V_{t-1} \quad (1)$$

where R_t denotes return on t day and V_t, V_{t-1} denotes closing prices on t and $t-1$, respectively.

To search whether there is a one-way causality from weather data to the stock exchange data, we applied a model as:

$$Y_t = \beta_0 + \beta_1 T_t + \varepsilon_1 \quad (2)$$

where Y denotes Tadawul All Share Index (TASI) return series, T indicates ε weather data for the city of Riyadh's error term, and β indicates parameters of the model.

To forecast formula (2), these steps have been followed: Firstly, stationary variables have been searched by applying augmented Dickey–Fuller (ADF) (unit root test).

If the series is not stationary which means there is a unit root, the series has to be transformed as a stationary series. Secondly, cointegration has been searched which means long-term relation between two series. Lastly, Granger causality has been searched between the series.

When creating a time series model, it has to be searched if stochastic process changes during the time. If yes, it means the series is not stationary. So, its future value cannot be predicted using past values. If the stochastic process has stationary in the time, it could be getting a fixed coefficient model. If series has no stationary, autocorrelations have differed from zero (Kutlar 2005, p. 252).

Because of the trend, both series are not stationary and relationship could depend on the trend. Unit root test has been applied, and regression model is shown below (Gujarati 2001, p. 718):

$$Y_t = \rho Y_{t-1} + u_t \quad (3)$$

where Y_t indicates return on t time, Y_{t-1} indicates return at $t-1$ time, and u_t indicates stochastic error. Similarly, the same equation has been created for weather data. As a result, in these equations, $\rho = 1$ indicates that Y_t which is a stochastic variable has a unit root. So, the series is not stationary, and it is called as random walk in time series analysis.

With Granger causality test, regressions could be predicted which are given below:

$$RSR_t = \sum_{i=1}^n \alpha_i HDD_{t-1} + \sum_{j=1}^n \beta_j RSR_{t-j} + u_{1t} \quad (4)$$

In this formula, it is being assumed that there is a relationship between u_{it} 's and error term. Formula (4) indicates that there is a relationship between RSR series' historical values and itself. In this study it has been investigated if the weather variables (HDD) are Granger causality of RSR returns. So, HDD parameters with lags must be statistically different from zero, while RSR parameters must statistically be equal to zero.

2.2 Meteorological Data

In order to detect the possible relations between the Saudi Arabia daily stock return index (Tadawul All Share Index (TASI) return series) and daily weather and daily apparent temperature conditions, we made use of daily mean wind speed (m/s, V_{mean}), daily mean air temperature ($^{\circ}C$, T_{mean}), daily mean relative humidity (% , RH_{mean}), daily mean water vapor pressure (gr/kg, VP_{mean}), daily maximum air temperature ($^{\circ}C$, T_{max}), maximum relative humidity (% , RH_{max}), and calculated daily apparent temperature index (ATI). The meteorological data consist of daily meteorological time series recorded at the meteorological station Presidency of Meteorology and Environment (www.pme.gov.sa) in Riyadh, with a number of 1539 daily values during the period from December 31, 2012, to October 31, 2016. Both data cover five days, from Saturday to Tuesday.

2.3 Methods of Analysis

Daily apparent temperature index (ATI) was calculated by using the daily meteorological time series recorded at the meteorological station of Riyadh City of Saudi Arabia with 1539 daily values with the following basic equation (Steadman 1984, 1994):

$$ATI = T_a + 0.33 \times e - 0.7 \times V - 4 \quad (5)$$

where T_a is dry-bulb air temperature ($^{\circ}\text{C}$), e is water vapor pressure (hPa) in the air, and V is wind speed (m/s) at 10 m. This equation of the *ATI* has been widely used daily by the Australian Bureau of Meteorology based on the scientific rules suggested by Steadman (1994).

To search whether there is a one-way causality from weather data to the stock exchange data, we applied a model as:

$$Y_t = \beta_0 + \beta_1 T_t + \varepsilon_t \tag{6}$$

In order to determine the variability features statistically in the day-by-day variations of the Saudi Arabia daily stock return index and of the daily apparent temperature indices (*ATI*) calculated for the prominent city of Riyadh, *autocorrelation coefficient* (i.e., serial correlation) (r_L) was calculated. Autocorrelation coefficient (r_L) depicts whether the daily series indicate a high daily variability or a serial dependence (i.e., persistence) or they are statistically random against serial correlation, which means that there is not any relationship among the sequential values or observations forming the long time series (e.g., WMO 1966; Sneyers 1990; Türkeş 1998; Türkeş et al. 2002, etc.).

Autocorrelation coefficients (r_L) for the long series of calculated daily stock returns and apparent temperature indices were computed for some of the first lags from $L = 0$ up to $L = m$, where m is maximum lag (m_L) equal to 15 in the study by using the following equation:

$$r_L = \frac{(N - L) \sum_{i=L}^{N-L} x_i x_{i+L} - \left(\sum_{i=L}^{N-L} x_i \right) \left(\sum_{i=L+1}^N x_i \right)}{\left[(N - L) \sum_{i=L}^{N-L} x_i^2 - \left(\sum_{i=L}^{N-L} x_i \right)^2 \right]^{1/2} \left[(N - L) \sum_{i=L+1}^N x_i^2 - \left(\sum_{i=L+1}^N x_i \right)^2 \right]^{1/2}} \tag{7}$$

Statistically significance of the *autocorrelation coefficients* r_L of the indices described above is tested by the following formula of the hypothesis test:

$$(r_L)_t = \frac{-1 \pm t_g \sqrt{N - 1}}{N - 1} \tag{8}$$

where t_g is 1.645 for the 0.05 level of significance, according to the one-sided test of normal distribution. “Null” hypothesis of randomness of the series against the autocorrelation is rejected for the large values of $(r_L)_t$.

On the other hand, monotonic statistical relationships between day-by-day variability of the Saudi Arabia stock return index and day-by-day variability of the daily weather elements and calculated *ATI* used in the present study as a heat-humidity index are analyzed with the well-known nonparametric *Spearman’s rank correlation coefficients* (r_{sp}) by using a number of 1539 daily data from Saturday to Tuesday during the period between December 31, 2012, and October 31, 2016. In using a two-tailed test of the *standard normal probability distribution*, the null hypothesis of the randomness for the absence of any monotonic relationship among the daily series is rejected for the large values of r_{sp} .

3 Results of the Analysis and Discussion

To search stationary and cointegration, unit root test has been applied. For HDD, hypotheses have been created which are shown below:

- H0: Weather variables have a unit root and have no stationary or $H_0: \delta_i = 0, \rho = 1$.
- H1: Weather variables have no unit root and have stationary or $H_1: \delta_i \neq 0$.

For return,

- H0: Stock exchange return variables have a unit root and have no stationary or $H_0: \delta_i = 0, \rho = 1$.
- H1: Stock exchange return variables have no unit root and have stationary or $H_1: \delta_i \neq 0$.

Weather time series data stationary has been searched, and stationary tests have been applied for intercept, trend and intercept, and none situations. If the series has stationary in one of them, it has been accepted as enough. If test statistics of augmented Dickey–Fuller test (ADF) absolute value is smaller than table values at 1, 5, and 10%, the series has no unit root and stationary. Graphics of raw data has been drawn and given below (Fig. 1):

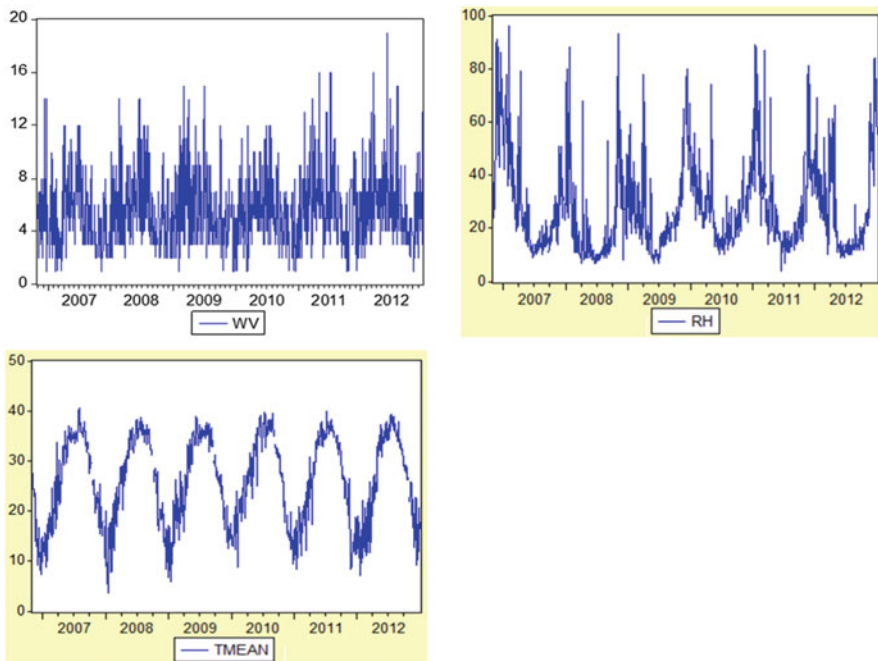


Fig. 1 Long-term temporal variations in daily time-series of the research data

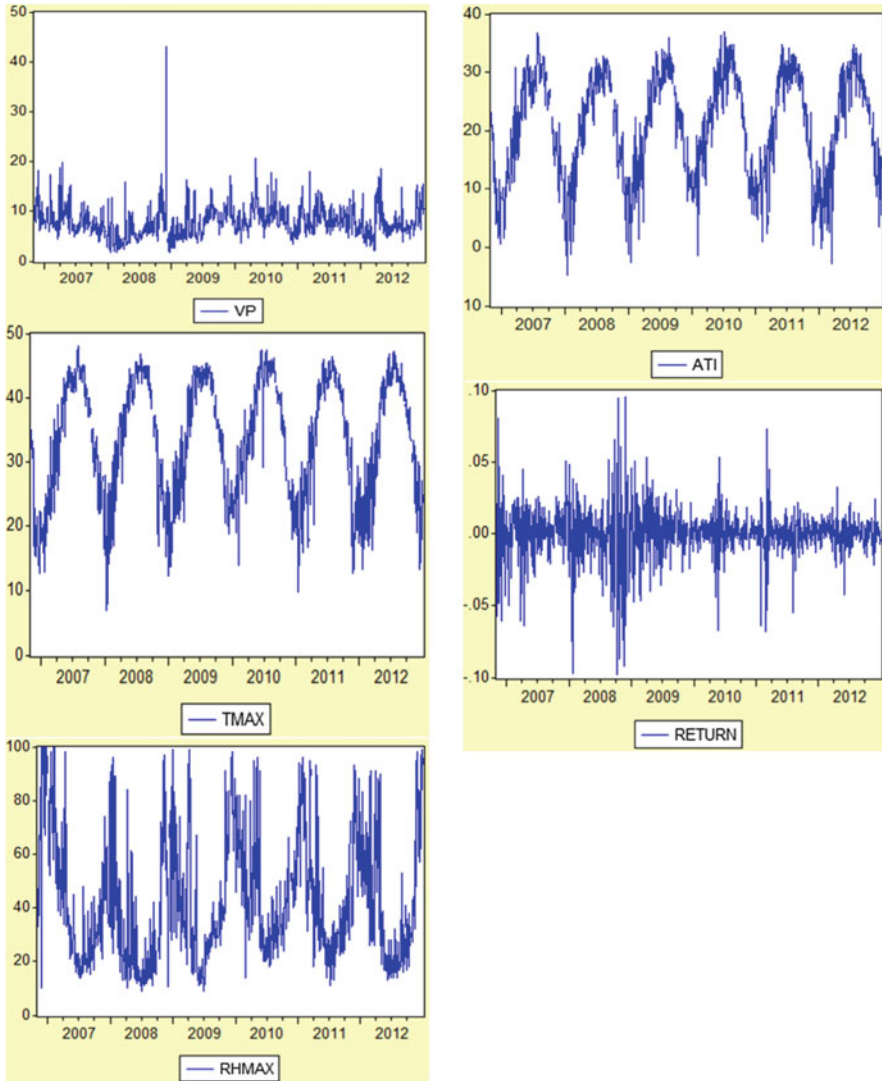


Fig. 1 (continued)

Secondly, unit root test has been applied and found that T_{mean} , T_{max} , and ATI variables are stationary at first degree, while other variables are stationary at level. The results are given below (Table 1):

If the series is stationary at level, it is being accepted that they are cointegrated and have a long-term parallel behavior. On the other hand, the series which are not stationary at level could be stationary at same level and linear stationary; these series are cointegrated. To search cointegration, variables must have stationary at same level (Yıldırtaş, p. 247). Because return series is stationary at level, while

Table 1 Augmented Dickey–Fuller test statistic

Zaman serisi	Difference	Include in test equation	<i>t</i>	Prob.	Birim kök
WV	0	Intercept	-23.87535	0.0000	N
		Trend and intercept	-23.89539	0.0000	N
		None	-1.594537	0.1044	Y
D(<i>T</i> _{mean})	1	Intercept	-18.22433	0.0000	N
		Trend and intercept	-18.22932	0.0000	N
		None	-18.20257	0.0000	N
RH	0	Intercept	-5.025148	0.0000	N
		Trend and intercept	-5.018543	0.0002	N
		None	-2.245231	0.0239	N
VP	0	Intercept	-8.861250	0.0000	N
		Trend and intercept	-8.890783	0.0000	N
		None	-1.381807	0.1554	Y
D(<i>T</i> _{max})	1	Intercept	-17.07957	0.0000	N
		Trend and intercept	-17.08403	0.0000	N
		None	-17.05716	0.0000	N
RH _{max}	0	Intercept	-5.009194	0.0000	N
		Trend and intercept	-5.016207	0.0002	N
		None	-2.059985	0.0379	N
D(ATI)	1	Intercept	-19.00631	0.0000	N
		Trend and intercept	-19.00887	0.0000	N
		None	-18.98755	0.0000	N
Return	0	Intercept	-36.81077	0.0000	N
		Trend and intercept	-36.80776	0.0000	N
		None	-36.82405	0.0000	N

*MacKinnon (1996) one-sided *p*-values

weather variables are stationary at first degree, cointegration test and Granger causality test have been directly applied. The causality could be searched two sides, but this study has not taken care of this because logically it has not been waited that return series cause weather series, so has not been searched. Results are shown in Table 2.

In the present study, apparent temperature index (*ATI*) was supposed to serve as a temperature-humidity index (humidex) for the meteorological station in Riyadh City of Saudi Arabia. In the present study, the number of maximum lag (*m_L*) was taken as 15.

Autocorrelation coefficients (*r_L*) are calculated for determining the statistical characteristics of the day-by-day variability in the Saudi Arabia stock return index and of the daily apparent temperature indices (*ATI*) to detect whether they indicate a high daily (day-by-day) variability or a serial dependence (i.e., persistence), for the Riyadh meteorology station with 1539 daily data from Thursday to Wednesday which are recorded and calculated for the period between December 31, 2012, and October 31, 2016. *ATI* was supposed to serve as a humidex generally showing a human-climate comfort at the outdoor conditions for the use of humans' daily life and physical activities, sporting, shopping, walking, etc.

Table 2 Granger causality test results for weather and return series

Null hypothesis	Lags	F statistic	Prob.
VP does not Granger Cause RETURN	1	6.61153	0.0102
VP does not Granger Cause RETURN	2	4.02500	0.0181
VP does not Granger Cause RETURN	3	2.97264	0.0307
VP does not Granger Cause RETURN	4	2.21614	0.0651
T_{max} does not Granger Cause RETURN	4	2.60182	0.0345
T_{max} does not Granger Cause RETURN	5	2.12070	0.0605
RH does not Granger Cause RETURN	6	1.93270	0.0724
T_{max} does not Granger Cause RETURN	6	1.82887	0.0901
RH does not Granger Cause RETURN	7	1.94781	0.0589
RH does not Granger Cause RETURN	8	1.73979	0.0850
T_{max} does not Granger Cause RETURN	8	1.85211	0.0638
RH does not Granger Cause RETURN	9	1.75521	0.0724
T_{max} does not Granger Cause RETURN	9	1.77039	0.0694
RH does not Granger Cause RETURN	10	1.86796	0.0456
VP does not Granger Cause RETURN	10	1.81925	0.0529

As a weather variable, VP is Granger causality of returns at first, second, and third lags at 5% level, while fourth and tenth lags at 10% level

T_{max} is Granger causality of returns at fourth lag at 5% level, while fifth, sixth, eighth, and ninth lags at 10% level

RH is Granger causality of returns at tenth lag at 5% level, while sixth, seventh, eighth, and ninth lags at 10% level

If the autocorrelation coefficient for the lag-one (r_{L1}) of a series of observations is not statistically significant or significant but has a negative sign, it is assumed that the series does not contain persistence (i.e., positive serial dependence). On the other hand, if the computed r_{L1} is positive and statistically significant, autocorrelation coefficients for the lag-two and lag-three are checked whether they approximate to these exponential relations: $r_{L2} \cong r_{L1}^2$ and $r_{L3} \cong r_{L1}^3$ (WMO 1966; Türkeş et al. 2002).

Table 3 and Fig. 2 show that lag-one autocorrelation coefficients (r_{L1}) computed for the Saudi Arabia daily stock return index and the daily

Table 3 First three autocorrelation coefficients (r_L) computed for the Saudi Arabia daily stock return index and the daily apparent temperature indices (ATI) for the meteorological stations of Riyadh with 1539 daily weather data (without Thursday and Friday data), which are recorded for the period between December 31, 2012, and October 31, 2016

(a) Saudi Arabia stock return			(b) Riyadh apparent temperature		
Lag (L)	Autocor. coeff. (r)	Std. error of the r	Lag (L)	Autocor. coeff. (r)	Std. error of the r
1	0.067*	0.025	1	0.939***	0.025
2	0.030	0.026	2	0.140**	0.025
3	0.019	0.026	3	0.173**	0.025

*, **, and *** Statistical significant autocorrelation coefficients at the 0.01, at the 0.001, and at the 0.000 level of significance

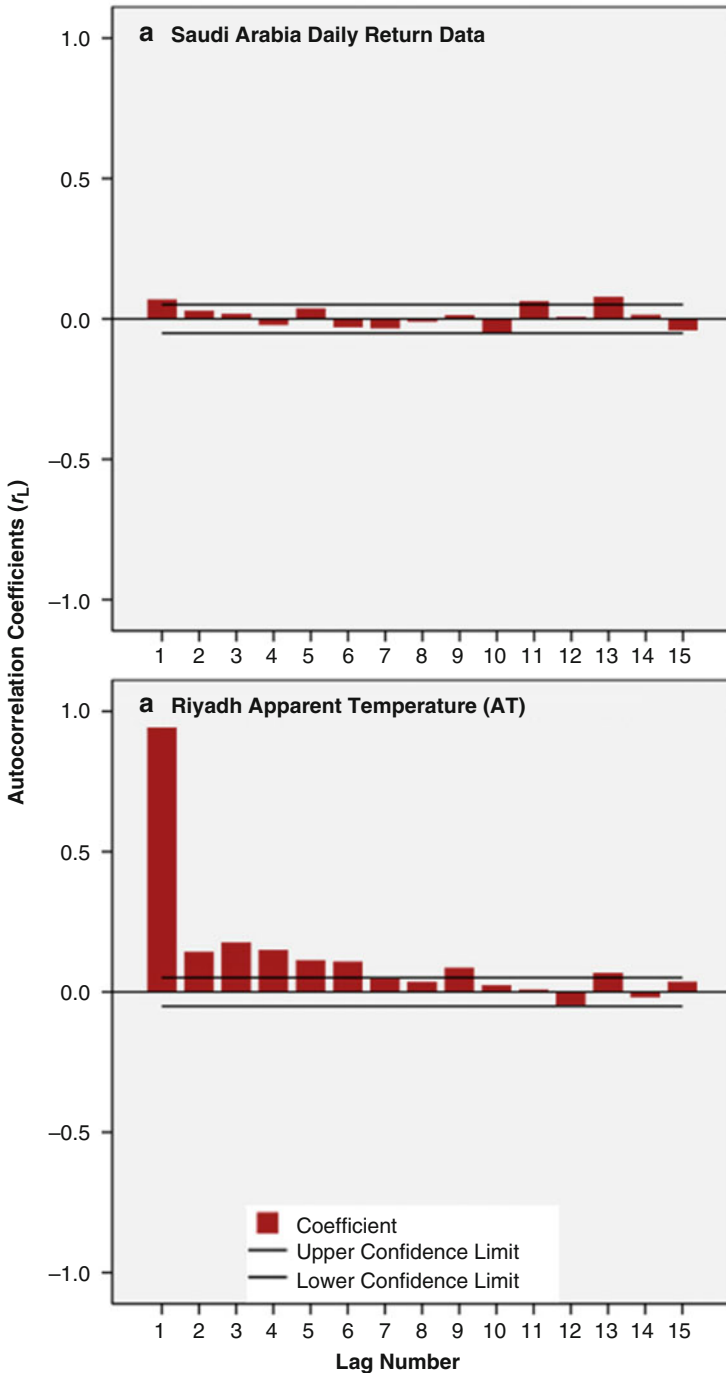


Fig. 2 Correlograms indicating autocorrelation (R_L) functions of the Saudi Arabia stock return index and of the daily ATI of the Riyadh meteorology station drawn for the number of the m_L that was taken equal to 15 for the study

apparent temperature indices (*ATI*) for the meteorological station of Riyadh are positive and statistically significant. Daily *ATI* series calculated for the meteorological station of Riyadh show statistically significant and very strong r_{L3} test statistic (serial dependence), which is significant at the 0.000 level of significance. Resultant test statistics of the lag-two (r_{L2}) and lag-three autocorrelation coefficients (r_{L3}) calculated for the meteorological station of Riyadh are also found as positive and statistically significant, both of which are at the 0.001 level of significance. These results evidently reveal that day-by-day variability in the long-term series of daily *ATI* of the meteorological station of Riyadh has a strong serial dependence (i.e., persistence), whereas daily variability of the stock return index of the Saudi Arabia is characterized with a statistically significant but weak serial dependence in terms of the magnitude of the test statistic during the period between December 31, 2012, and October 31, 2016.

According to the results of the correlation analysis based on the nonparametric *Spearman's rank correlation coefficients* (r_{Sp}), we detected that there is a statistically significant, but not strong negative relationship, between day-by-day variability of the Saudi Arabia stock return index and day-by-day variability of the daily *ATI* used as a heat-humidity index of the meteorological station at Riyadh and the meteorological elements of the daily mean and daily maximum air temperature series (Table 4). This result means that when the magnitude of the *ATI* increases mainly due to increase in the daily mean and maximum air temperatures, human-climate comfort decreases resulting in a general decrease for the Saudi Arabia stock return index. However, correlation coefficients are not strong in spite of the decreased human-climate comforts as expected. Consequently, these results must be very likely associated with the fact that the stock exchange players in Saudi Arabia are mostly rich people, and these players are not dependent on their daily financial and other activities on the variability and magnitude of the daily weather conditions and human weather and climate comfort levels. This is also very likely because the indoor "weather" conditions of the private stock exchange offices or buildings and the private offices and even the automobiles in Saudi Arabia are all installed by powerful air-conditioning systems and increased human comfort hardware.

A Short Discussion

Human psychology is affected by some factors such as culture, religion, and weather conditions. This study gives evidence about it for Saudi Arabia stock exchange. So investors cannot behave rationally, because of weather conditions.

Table 4 Spearman's rank correlation coefficients (r_{sp}) between day-by-day variability of the Saudi Arabia stock return index data and day-by-day variability of the daily mean wind speed (m/s, $W - V_{mean}$), daily mean air temperature ($^{\circ}C$, T_{mean}), daily mean relative humidity (%), RH_{mean}), daily mean water vapor pressure (gr/k.g, VP_{mean}), daily maximum air temperature ($^{\circ}C$, T_{max}), maximum relative humidity (%), RH_{max}), and daily ATI calculated by using daily weather data of Riyadh

Parameter	Return	ATI	$W - V_{mean}$	T_{mean}	RH_{mean}	$VP(e)_{mean}$	T_{max}	RH_{max}
Return	1	-0.054*	-0.020	-0.056*	0.038	-0.024	-0.054*	0.049
ATI		1	-0.021	0.965***	-0.705***	0.246***	0.959***	-0.682***
$W - V_{mean}$			1	0.173**	-0.136**	0.032	0.116**	-0.110**
T_{mean}				1	-0.788***	0.139**	0.985***	-0.739***
RH_{mean}					1	0.441***	-0.802***	0.839***
$VP(e)_{mean}$						1	0.095***	0.271***
T_{max}							1	-0.746***
RH_{max}								1

*Correlation coefficient is significant at the 0.05 level, **correlation coefficient is significant at the 0.001 level, and ***significant at the 0.000 level

References

- Akhtari, M. (2011). Reassessment of the weather effect: Stock prices and Wall Street weather. *Undergraduate Economic Review*, 7(1), 19.
- Bless, H., Clore, G. L., Schwarz, N., Golisano, V., Rabe, C., & Wölk, M. (1996). Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology*, 71(4), 665.
- Brahmana, R. K., Hooy, C. W., & Ahmad, Z. (2011). Psychological biases abilities on constructing weekend anomaly. Available from SSRN 1914124.
- Cao, M., & Wei, J. (2005). Stock market returns: A note on temperature anomaly. *Journal of Banking & Finance*, 29(6), 1559–1573.
- Cunningham, M. R. (1979). Weather, mood, and helping behavior: Quasi experiments with the sunshine. Samaritan. *Journal of Personality and Social Psychology*, 37(11), 1947.
- Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor psychology and security market under- and overreactions. *The Journal of Finance*, 53(6), 1839–1885.
- Dowling, M., & Lucey, B. M. (2005). Weather, biorhythms, beliefs and stock returns some preliminary Irish evidence. *International Review of Financial Analysis*, 14(3), 337–355.
- Floros, C. (2008). Stock market returns and the temperature effect: New evidence from Europe. *Applied Financial Economics Letters*, 4(6), 461–467.
- Floros, C. (2011). On the relationship between weather and stock market returns. *Weather and Stock Market Returns*, 28(1), 5–13. <https://doi.org/10.1108/10867371111110525>.
- Forgas, J. P., Goldenberg, L., & Unkelbach, C. (2009). Can bad weather improve your memory? An unobtrusive field study of natural mood effects on real-life memory. *Journal of Experimental Social Psychology*, 45(1), 254–257.
- Gujarati, N. D. (2001). Basic econometrics (pp. 1–831). İstanbul: Literatür Yayıncılık. ISBN 975-7860-55-7.
- Hammami, F., & Abaoub, E. (2010). Are daily stock market prices related to the weather effects? Empirical evidence from the Tunisian stock exchange. *IUP Journal of Behavioral Finance*, 7(3), 7.
- Hirshleifer, D. (2001). Investor psychology and asset pricing. *Journal of Finance*, 56(4), 1533–1597.
- Howarth, E., & Hoffman, M. S. (1984). A multidimensional approach to the relationship between mood and weather. *British Journal of Psychology*, 75(1), 15–23.
- Isen, A. M. (1993). Positive affect and decision making. *Handbook of Emotion*, 261–277.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica: Journal of the Econometric Society*, 47, 263–291.
- Kamstra, M. J., Kramer, L. A., & Levi, M. D. (2003). Winter blues: A SAD stock market cycle. *The American Economic Review*, 93(1), 324–343.
- Kang, S. H., Jiang, Z., Lee, Y., & Yoon, S. M. (2010). Weather effects on the returns and volatility of the Shanghai stock market. *Physica A: Statistical Mechanics and its Applications*, 389(1), 91–99.
- Kutlar, A. (2005). *Uygulamalı Ekonometri*. Nobel Yayın No: 749, Genişletilmiş 2. Baskı, Ankara, 1–287.
- Mackie, D. M., & Worth, L. T. (1991). Feeling good, but not thinking straight: The impact of positive mood on persuasion. *Emotion and Social Judgments*, 23, 210–219.
- Panetta, F. (2002). The stability of the relation between the stock market and macroeconomic forces. *Economic Notes*, 31(3), 417–450.
- Pardo, A., & Valor, E. (2003). Spanish stock returns: Where is the weather effect? *European Financial Management*, 9(1), 117–126.
- Saunders, E. M. (1993). Stock prices and Wall Street weather. *The American Economic Review*, 83(5), 1337–1345.
- Schwarz, N. (1990). *Feelings as information: Informational and motivational functions of affective states*. New York: Guilford Press.

- Schwarz, N., Bless, H., & Bohner, G. (1991). Mood and persuasion: Affective states influence the processing of persuasive communications. *Advances in Experimental Social Psychology*, 24, 161–199.
- Sinclair, R. C., Mark, M. M., & Clore, G. L. (1994). Mood-related persuasion depends on (mis) attributions. *Social Cognition*, 12(4), 309.
- Sneyers, R. (1990). *On the statistical analysis of series of observations* (Technical Note No. 143, p. 192). Geneva: World Meteorological Organization (WMO).
- Sriboonchitta, S., Chitip, P., Sriwichailampham, T., & Chaiboonsri, C. (2011). Stock market returns and the temperature effect: Thailand. *International Research Journal of Management and Business Studies*, 1(1), 12–16.
- Steadman, R. G. (1984). A universal scale of apparent temperature. *Journal of Applied Meteorology*, 23, 1674–1687.
- Steadman, R. G. (1994). Norms of apparent temperature in Australia. *Australia Meteorological Magazine*, 43, 1–16.
- Symeonidis, L., Daskalakis, G., & Markellos, R. N. (2010). Does the weather affect stock market volatility? *Finance Research Letters*, 7(4), 214–223.
- Tufan, E., & Hamarat, B. (2004). Do cloudy days affect stock exchange returns?: Evidence from Istanbul stock exchange. *Journal of Naval Science and Engineering*, 2(1), 117–126. Available from SSRN: <http://ssrn.com/abstract=546702>
- Türkeş, M. (1998). Influence of geopotential heights, cyclone frequency and southern oscillation on rainfall variations in Turkey. *International Journal of Climatology*, 18, 649–680.
- Türkeş, M., Sümer, U. M., & Kılıç, G. (2002). Persistence and periodicity in the precipitation series of Turkey and associations with 500 hPa geopotential heights. *Climate Research*, 21, 59–81.
- Wegener, D. T., Petty, R. E., & Smith, S. M. (1995). Positive mood can increase or decrease message scrutiny: The hedonic contingency view of mood and message processing. *Journal of Personality and Social Psychology*, 69(1), 5.
- WMO. (1966). *Climatic change* (Technical Note No. 79, 79 pp). Geneva: World Meteorological Organization (WMO).
- Yıldırtaş, Ç. D. (2011). *E-Views Uygulamalı Temel Ekonometri* (Türkmen Kitabevi. Yayın No: 352, 2. Baskı) İstanbul.
- Yoon, S. M., & Kang, S. H. (2009). Weather effects on returns: Evidence from the Korean stock market. *Physica A: Statistical Mechanics and its Applications*, 388(5), 682–690.
- Zadorozhna, O. (2009). *Does weather affect stock returns across emerging markets?* Doctoral dissertation, Kyiv School of Economics.

Financially Constrained Firms: The Impact of Managerial Optimism and Corporate Investment on Inefficiencies Leading to Low Market Valuation - The Case of Greece



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Abstract Financial constraints in capital markets can underline the macroeconomic effect of fluctuations in investment to cash flow and liquidity which has as a result several firms to reduce their access to low-cost finance. The examination of this aspect in detail determines the magnitude of the effects of internal finance on investment. Diversification as an underlying factor of financial constraints can create several costs. Diversified firms have the tendency to overinvest in lines of business which display poor investment opportunities. Diversification indeed reduces value. This loss in value is found mainly for firms of all sizes having managers with a higher level of optimism. The link between optimism and corporate investment is more pronounced in financially constrained firms. When the wedge between the internal and external cost of funds increases, a firm is considered to be more financially constrained. Managers are undisputedly optimistic and firms with optimistic managers tend to invest more. The investment of firms with optimistic managers is more sensitive to cash flow especially for financially constrained firms. Analysing a sample of listed companies in Greece, it is found that the higher the managerial optimism, the lower the excess value of a firm. Optimism and financial constraint measures are based on the insider stock transaction behaviour of all senior managers they have to report to the Hellenic Capital

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Market Commission. These findings show that the investigation of decision-making processes in Greece is crucial.

Keywords Managerial optimism • Investment • Financial constraints • Excess value

1 Introduction

Financing investment may not be a problem for large, well-known firms. However, many analysts believe that smaller, less well-known firms sometimes find it difficult to finance worthy projects. Banks and outside investors may be reluctant to fund unfamiliar firms, forcing these firms to finance their investment internally. As such, these firms can be defined as financially constrained. The implications for the economy are serious if firms are financially constrained. By forcing firms to finance their own investment, financial constraints can make the economy less stable.

A growing body of evidence suggests many firms in the economy are financially constrained. Financial constraints affect both the stability and growth of the economy. By making investment spending more volatile, financial constraints make the economy more volatile. And by slowing investment spending on plant and machinery, financial constraints slow the economy's long-term growth. By making firms dependent on the availability of internal funds, financial constraints make business investment spending more volatile. Aggregate investment spending in the economy fluctuates much more than any other major component of national spending. One of the most significant predictions of the literature is that the link between managerial optimism and corporate investment is most usually encountered in financially constrained or equity-dependent firms.

Heaton (2002) find that optimistic managers prefer internal financing to external financing because they believe market investors underestimate the value of their firm and thus hesitate to raise funds from the financial markets. Several empirical studies, such as Lin et al. (2008) and Hackbarth (2008), confirm this theoretical prediction by Heaton (2002) and show that managerial optimism can explain pecking order preferences in financial decisions. Barros and Silveira (2009) further show that firms with optimistic managers will choose a more aggressive financing policy, resulting in firms that have higher leverage ratios, affecting their capital structure.

Managerial behaviour tendencies may not only affect a firm's financing decisions but also impact its investment decisions. Jensen (1986), using the concept of agency cost of free cash flow, predicts that managers may invest in negative NPV projects due to self-interest. This agency cost between managers and shareholders may thus cause overinvestment, resulting in investment distortions. Malmendier and Tate's (2005a) study is the first to consider managerial optimism in corporate investment decisions. They measure the timing of CEO's stock option exercise as the proxy for CEO optimism and find that overoptimistic CEOs are significantly more responsible for the firm's cash flow. By hand-collecting data on how the press

portrays each CEO as the measure of managerial optimism, Malmendier and Tate (2005b) reconfirm their findings that managerial over-optimism accounts for corporate investment distortions. Using a unique database of German companies to proxy for managerial optimism, Glaser et al. (2008) show that the investment-cash flow sensitivity is higher for firms with optimistic managers, which again supports the findings of Malmendier and Tate (2005a, b).

2 Theoretical Background

2.1 *Overconfidence and Optimism*

The notion that specific managers may be overconfident regarding their own abilities to manage, the selection of upper investment projects and the precision of their knowledge are encouraged by psychological studies of judgement. The most significant finding in this area of study is the phenomenon of overconfidence (Tversky and Kahneman 1986). They simply argue that overconfidence consists of factors such as the illusion of control, insensitivity to predictive accuracy, self-enhancement tendencies and finally misunderstanding of chance processes. All the above-mentioned causes of overconfidence apply to the managerial decision making of mergers. Griffin and Brenner (2004) argue that all concepts that characterise overconfidence are linked.

Weinstein (1980) provides evidence that individuals are especially overconfident regarding projects to which they are highly committed. Malmendier and Tate (2005a, b) argue about the potential of control and commitment concerning managers' internal investment decisions. Optimistic managers tend to invest more. However, the possible case of overinvestment due to overconfidence and managerial optimism may be a source of long-run underperformance (Glaser and Weber 2007). In his seminal paper regarding optimism, Roll's (1986) *hubris hypothesis* suggests that managers share an overly optimistic opinion of their competence to create value. Hubris usually is developed after a person has lived through a period of success. Hubris refers to the extravagant confidence of people who strongly believe that their opinion is always the right one. Consequently, hubris feelings can lead to harmful and unfavourable behaviour, especially for a manager who is seriously affected by hubris and may become a burden to his/her firms. As a result, these managers often trigger their own downfall. Therefore, hubris as a psychological characteristic may induce disastrous outcomes for the manager and his firm.

Generally, the *hubris hypothesis* (Roll 1986) serves as an alternative explanation of corporate mergers and acquisitions. Hubris when referring to individual decision-makers regarding bidding firms can give an explanation on why bids are made even when there exists a positive valuation error. Therefore, bidding firms which are affected by hubris tend to pay too much for their mergers and acquisition investment targets. According to Roll (1986), psychologists offer explanations on the fact that individuals do not always make rational decisions, under risk and uncertainty. In a series of studies (Oskamp 1965; Tversky and Kahneman 1981;

Kahneman et al. 1982), it is observed that economists have a reputation of arrogance due to the fact that they constantly ignore the psychologists' evidence that individuals do not always act rationally. However, Roll (1986) suggests that corporate takeovers usually reflect individual decision making.

The psychology and behavioural economic literature underline self-attribution bias as the most common source of overconfidence. According to Malmendier and Tate (2005a), overconfidence is equal to over-optimism. Over-optimist managers overestimate the returns of their investment decisions and regard external funds excessively costly. Optimistic managers are at higher risk because they use to overestimate the future cash flows of their decisions.

According to Doukas and Petmezas (2007), the overconfidence hypothesis states that managers are overconfident and overinvest. They also feel that they are superior than others and more competent. Specifically, overconfident managers strongly believe that future merger outcomes are mainly under their control. A chief executive officer (CEO) who suffers from delusion of control is more likely to be heavily optimistic about the future outcome of a merger. Malmendier and Tate (2005a, 2008) also try to demonstrate that overconfidence helps explain merger decisions. Positive CEO beliefs based on overconfidence and risk-seeking decisions emerge as the most well-defined ways to integrate private investment and corporate merger decisions.

2.2 Finance Constraints, Diversification and Corporate Investment

In their seminal work, Fazzari et al. (1988) try to address thoroughly the relationship between conventional models of investment and capital market imperfections referring to the access of individual firms to capital markets. Regarding mature firms with well-known prospects and capacities, conventional representative firm models in which financial framework appears not to be relevant to the investment decision may well be applied. Yet, for the rest of the firms, financial factors seem to be extremely relevant due to the fact that external funds are not a perfect substitute for internal funds, especially when referring to the short run. On the one hand, when the cost disadvantage of external finance is small, withholding practices will display little or nothing regarding investment. Thus, firms will use external funds to support investment. On the other hand, when the cost disadvantage is major, firms which tend to invest more of their income may possibly have no low-cost sources of investment finance. Therefore, their investment will be affected by the fluctuations of cash flow.

Financial constraints in capital markets can underline the macroeconomic effect of fluctuations in investment to cash flow and liquidity which has as a result several firms to reduce their access to low-cost finance. In order to examine this aspect in detail, Berger and Ofek (1995) also examine the diversification effect on firm value.

Theoretical arguments recommend that diversification can result in either value-enhancing or value-destroying effects. Greater operating efficiency, greater debt capacity and lower taxes may be some of the possible benefits when a firm functions in different lines of business. On the contrary, the use of increased discretionary resources in order to undertake value-decreasing investments and the phenomenon of cross-subsidies which allows low-performing segments to use resources of the high-performing segments are some of the possible disadvantages of diversification. Therefore, Berger and Ofek (1995) support the idea that there is no clear image regarding the positive and negative effects of diversification on firm value.

Consistent with diversification activity is Berger and Ofek's (1995) theoretical justification developed during the late 1960s regarding the benefits of diversification. Evidently this trend has changed in the recent years. More recent theoretical arguments tend to support the costs of diversification. Chandler (1977) states that due to the fact that multi-segment firms create a pattern of specialised management, they are subsequently more efficient and, therefore, more profitable than focused firms. Weston (1970) suggests that liquidity allocation is more effective and more profitable for internal capital markets.

Diversified firms, therefore, are more efficient in allocating liquidity because they create a larger internal capital market. An alternative version of this argument belongs to Stulz (1990) who argues that the creation of larger capital markets from diversified firms leads to the reduction of underinvestment problem that was also described earlier by Myers (1977). These internal capital market theories foresee that diversified firms overall make more positive net present value investments than they would as separate isolated segments. Additionally, Lang and Stulz (1994) show that Tobin's Q and firm diversification are negatively correlated and consequently diversified firms tend to display lower Tobin's Q values compared to nondiversified firms.

3 Methodology

3.1 Research Question

Research Question: The investment-cash flow sensitivity of firms with optimistic managers is more pronounced in financially constrained (equity-dependent) firms. The following approach is chosen in order to test the second research question. The Kaplan–Zingales index (Kaplan and Zingales 1997) is used which was mainly used in past studies too. This index is meant to capture firms with high need for funds. Another index that is used is the Whited–Wu index (Whited and Wu 2006) which basically captures firms with high costs of external funds. Finally, we incorporate the Cleary index (Cleary 1999) which separates the sample into three categories of firms' dividend payment policies, as well as an index of Glaser et al. (2008) who make an addition to Cleary index (Cleary 1999) by adding firm size.

3.2 *Sample and Data*

The unique sample of Greek nonfinancial firms listed in the ASE was tested in order to produce useful results. These results may be extremely important for managers of Greek companies in order to overcome the difficulties they face. The narrow bounds for investment and rising of firms and the general financial crisis of public as well as private sectors make the role of Greek managers much more difficult. Therefore, the firm sample is multi-faceted. It consists of firms from 11 different industries and sectors in order to incorporate the whole substance of optimism. The process is to exclude financial firms due to the differences in the way they compile their annual reports. Thus, the 184 nonfinancial sample firms will be the starting point for the research, in order to produce significant results and add to the existing knowledge on this subject.

Data is gathered from the stock market as well as from balance sheets and cash flow statements for all firms of the sample. Focus is placed on every firm's annual report in order to gather all necessary data for the methodology. The next step is to classify stock prices on an everyday basis for all firms for the years from 2007 to 2012. Data is accessed from the ASE and is accumulated for every sample firm. Balance sheet data is necessary in order to formulate the basic variables that will be used in regression analysis. Balance sheet data is gathered from the web pages of all firms and is accumulated on an annual basis.

Basic regressions are run from 2005 to 2012 in order to have an analysis of the effects of managerial optimism on subsequent corporate investment, aiming to see if there is something special about the period of interest in terms of investing conditions. The main data source for stock price data is the ASE. ASE is the primary data source of studies that analyse corporate decisions in Greece.

Directors' dealing data is obtained from Directors Deals Global Data and Analysis, a specialised global data market company which analyses and monitors all shared transactions made by directors in the shares of their own company. Therefore, this work uses all the available data regarding the Greek case for the period of 6 years (2007–2012). During this period, a total of 18,575 directors' dealings are reported. Due to the fact that this study focuses on the transaction behaviour of individuals, all transactions that were executed by legal entities are excluded. The procedure is to maintain only the transactions that are described as buys or sells and exclude awards, contract buys, etc.

3.3 *Financial Constraint Measures*

One of the most significant predictions of the literature is that the link between optimism and corporate investment is most usually encountered in financially constrained or equity-dependent firms. The most used index and consequently the most used methodology on financial constraints is of Kaplan and Zingales (1997).

Their index is mainly designed for identifying firms with high need for funds. However, there are other indices too that have emerged in relative literature such as the Cleary index (Cleary 1999) and the Whited–Wu index (Whited and Wu 2006). Both indices are supposed to capture firms with high costs of external funds.

This study opts to choose the following approach. As in Glaser et al. (2008), the Kaplan–Zingales index (Kaplan and Zingales 1997) is used as well as the Whited–Wu index (Whited and Wu 2006) in order to capture the differences in their approaches regarding financial constraints: the high need of funds as well as the high costs of external funds, respectively. These indices have been constructed for the US stocks only. However, there are several studies in literature which incorporate these indices for firms in Europe. Bris et al. (2006) focus on the identification of financially constrained firms in Germany and the rest of Europe with the use of Kaplan–Zingales index (Kaplan and Zingales 1997). These indices are displayed below, as they were presented in Glaser et al. (2008):

$$\begin{aligned} \text{Kaplan – Zingales – index} = & -1.001909^* \frac{\text{cash flow}}{\text{total capital}} \\ & + 0.2826389^* \text{Tobin's Q} + 3.139193^* \text{Leverage} - 39.3678^* \frac{\text{dividend}}{\text{total capital}} \\ & - 1.314759^* \frac{\text{cash}}{\text{total capital}} \end{aligned} \quad (1)$$

Kaplan and Zingales (1997) measure investment or capital expenditures using COMPUSTAT item 128. They also measure cash flow as the sum of earnings before extraordinary items and depreciation. They deflate investment and cash flow by capital, measured as net property, plant and equipment at the beginning of the fiscal year. Finally, they measure Tobin's Q as the market value of assets divided by the book value of assets where the market value of assets equals the book value of assets plus the market value of common equity minus the sum of the book value of common equity and balance sheet deferred taxes.

$$\begin{aligned} \text{Whited – Wu – index} = & -0.091^* \frac{\text{cash flow}}{\text{total assets}} \\ & - 0.062^* \text{dummy (positive dividend)} + 0.021^* \frac{\text{long term debt}}{\text{total assets}} \\ & - 0.044^* \ln(\text{total assets}) + 0.102^* \text{industry sales growth} \\ & - 0.035^* \text{sales growth} \end{aligned} \quad (2)$$

As an additional financial constraint measure, the Cleary index (Cleary 1999) is used. The method of Cleary (1999) suggests that the sample of US firms is divided into three subsamples according to the dividend payment policy which is being followed by each sample firm. The first group consists of firms which increase dividends and are likely not financially constrained. The second group consists of firms which cut dividends and are likely financially constrained, while the third

group consists of firms which do not change their dividend payment policy. His basic tool is a discriminant analysis he performs in order to discover firm characteristics that are related with the categorisation of firms into the above-mentioned three groups.

To calculate Cleary index (Cleary 1999) with Greek coefficients, “dummy” variable is needed as the dependent variable. This “dummy” variable takes the value of 1 if a firm increases dividends and takes the value of 0 if a firm decreases dividends. This variable is controlled for current ratio, fixed charge coverage, financial slack divided by lagged capital, net income margin, sales growth and the debt ratio. To create the index, all coefficients of variables that are significant at the 5% level are used.

Consistent with Glaser et al. (2008), it is expected that this fourth index will best rank Greek firms in analysing the link between managerial optimism and corporate investment for financially constrained firms due to the fact that it is calibrated for a European country (Germany) and thus may serve as a better proxy for the Greek case too. Moreover, it includes the natural logarithm of assets to incorporate firm size to capture one significant case of financial constraints, the high costs of external funds.

3.4 Financial Constraints Scores with the Calculation of Cleary Index (Cleary 1999)

A probit regression is run in order to calculate the Cleary index (Cleary 1999). The choice is this type of regression, due to the fact that the dependent variable is dichotomous and can only take two values. The dependent variable is a “dummy” variable that takes the value 1 if the firm increases dividends and takes the value 0 if the firm cuts dividends. Our dependent variable is regressed across several independent variables: current ratio, fixed charge coverage, financial slack divided by lagged capital, net income margin, sales growth, long-term debt divided by total assets and the natural logarithm of total assets.

The regression equation that arises with the use of the probit regression is presented below. It has a similar form with the linear regression equation with the difference that the dependent variable Y takes the form of $\Phi^{-1}(\pi)$ because Y cannot be observed; only the consequences of Y can be observed. If Y is below a certain level, one is able to observe a success. Otherwise, we are forced to observe a failure. The regression of the dependent variable Y on several independent variables X_1, X_2, \dots, X_7 displays how the boundaries between success and failure change with the incorporation of the independent variable X . The area under the normal curve below the values of the dependent variable Y is the probability of a success for the controlling independent variable X . As the values of X change, the boundary values of Y_x change, having as a result the change of the probability of success. Formally,

the area under the curve less than Y (the standard normal cumulative function) is denoted as

$$\Phi(y) = \int_{-\infty}^y \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx \tag{3}$$

Thus, the probit linear regression model can be written as

$$\pi = \Phi(b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7) \tag{4}$$

This equation gives the model the form of the inverse link. One can, therefore, write the probit model in terms of the link function as follows:

$$\begin{aligned} \text{Probit } (\pi) &= \Phi^{-1}(\pi) \\ &= b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + \varepsilon \end{aligned} \tag{5}$$

- $\Phi^{-1}(\pi)$ = the value of the dependent variable (“dummy” variable)
- X_1, X_2, \dots, X_7 = the values of the independent variables (current ratio, fixed charge coverage, financial slack/lagged capital, net income margin, sales growth, long-term debt/total assets and the natural logarithm of total assets)
- b_0 = constant
- b_1, b_2, \dots, b_7 = coefficients
- ε = the error term

3.5 Optimism and Financial Constraints

Fixed-effect panel regression of capital expenditures on several control variables is used for the one third of all stocks with the highest financial constraints as identified by the indices of Kaplan and Zingales (1997), Whited and Wu (2006), Cleary (1999) and Glaser et al. (2008) in order to examine the impact of the behaviour of optimistic managers to firm financial constraints. The methodology followed is the one of Glaser et al. (2008), and, thus, the firms are separated according to how financially constrained they are. It states that the investment-cash flow sensitivity of firms with optimistic managers is more pronounced in financially constrained (equity-dependent) firms. The classification of managers into optimistic and not optimistic is done by the use of the managerial “dummy” variable. The “dummy” variable is equal to 1 when members of the executive board and the supervisory board (ALL), only the executive board (EB) or only the CEO are classified as optimistic in a given year.

The next step is to assess the constraint scores on all three groups of managers of the study (ALL, EB and CEO) and run several regressions with dependent variable, the capital expenditures divided by lagged assets. The choice is to use an independent variable cash flow divided by lagged assets, lagged Tobin’s Q, managerial

optimism, as well as the optimism \times (cash flow/lagged assets) based on the methodology of Malmendier and Tate (2005a). This new independent variable is constructed to test, due to the fact that Glaser and Hirn (2007) showed that firms which display the highest financial constraints normally do not display the highest investment-cash flow sensitivity, and therefore it is not possible to split the sample in optimistic managers and not optimistic managers. All regressions include firm and year fixed effects, and the time period tested is 2007–2012.

Therefore, for the dependent variable CAPEX/lagged assets (dependent or criterion) and the independent variables (independent or predictors) cash flow/lagged assets, lagged Tobin’s Q, managerial optimism and optimism \times (cash flow/lagged assets), the regression equation that arises with the use of the least square methods has the next form:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \varepsilon \tag{6}$$

Y = the values of the dependent variable (CAPEX/lagged assets)

X_1, X_2, \dots, X_4 = the values of the independent variables [cash flow/lagged assets, lagged Tobin’s Q, managerial optimism and optimism \times (cash flow/lagged assets)]

b_0 = constant

b_1, b_2, \dots, b_4 = coefficients

ε = the error term

3.6 Determinants of the Excess Value

In the last part of the regression methodologies, the procedure involves running several regressions in order to examine whether managerial optimism is associated with inefficiencies which can lead to low market valuation of firms. The choice is to use excess value on a focused-firm “dummy” indicator as a dependent variable on several control variables as Berger and Ofek (1995) propose. Excess value of a company is the natural logarithm of the ratio of a firm’s actual value to its imputed value. A firm’s imputed value is the sum of the imputed values of its segments, with each segment’s imputed value being equal to the segment’s sales multiplied by its industry median ratio of total capital (market value of equity plus book value of debt) to sales. More analytically, excess value EV_i and imputed value $I(V)_i$ of a company i are defined as

$$EV_i = \ln \left(\frac{V_i}{I(V)_i} \right), \text{ and} \tag{7}$$

$$I(V)_i = \sum_{j=1}^n (AI_{ij} \times \text{multiple of segment } j \text{ of firm } i) \tag{8}$$

V = total capital (market value of equity plus book value of debt)

Multiple of segment j of firm i = median ratio of V to accounting item (sales ratio) of focused firms in industry of segment j

AI_{ij} = accounting item of segment j of firm i

n = number of segments of firm i

The independent variables are the natural logarithm of total assets, capital expenditures divided by sales, EBIT divided by sales and managerial optimism “dummy” variable. The process was to first run a pooled OLS regression without the use of managerial optimism for the whole sample of the firms without separating the regressions accordingly to the three groups of managers (ALL, EB and CEO). The pooled OLS regression model assumes that the coefficients are the same for all individuals.

The dependent variable is excess value on a focused-firm indicator as it was calculated previously. The independent variables of the regression are the natural logarithm of total assets, capital expenditures divided by sales and EBIT divided by sales. Therefore, the regression equation that arises has the next form:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \varepsilon \quad (9)$$

Y = the values of the dependent variable (excess value on a focused-firm indicator)
 X_1, X_2, X_3 = the values of the independent variables (the natural logarithm of total assets, capital expenditures divided by sales and EBIT divided by sales)

b_0 = constant

b_1, b_2, b_3 = coefficients

ε = the error term

The next step is to run a series of fixed-effect panel regressions. In regressions 16–21, the managerial optimism “dummy” variable is incorporated. Since there are “dummy” variables in the model, there are $n - 1$ entities included. However, there is only one “dummy” variable. Therefore, the regression equation for fixed-effect panel regressions remains unchanged, as in pooled OLS regression equation that was presented above. The “dummy” variable is equal to 1 when members of the executive board and the supervisory board (ALL), only the executive board (EB) or only the CEO are classified as optimistic in a given year. The managerial optimism “dummy” variable takes lagged values in the last three fixed-effect panel regressions of the study for the determinants of excess value. These lagged values are also incorporated separately in order to compare the possible changes in last year’s and current year’s values.

4 Empirical Findings

4.1 *Financial Constraints and the Effects of Managerial Optimism*

Cash flow is generally highly correlated with investment opportunities. Constrained firms when there are favourable investing opportunities also tend to invest more and consequently issue additional debt to finance these opportunities. Additionally, Tobin's Q and managerial optimism as independent variables also display lower coefficient statistic values when compared to the whole sample firms. This result is consistent with Kaplan and Zingales (1997), Cleary (1999) and Glaser and Hirn (2007).

However, the regression specification does not take into account the effect of debt financing. As a consequence, the investment-cash flow sensitivity of unconstrained firms is enlarged. The difference between unconstrained firms and constrained firms is that on one hand unconstrained firms, with more cash flow, tend to use debt in order to increase both their investment as well as their dividend payment, and on the other hand, constrained firms have to choose whether to apportion their cash flow to investment or dividend payments. Therefore, the link between investment and cash flow sensitivity is weaker for constrained firms (Moyen 2004).

The focus is on the newly added control variable of *optimism* \times (cash flow divided by lagged assets) that was previously introduced. The constraint scores that are of particular interest are the ones based on the index of Glaser et al. (2008). As thoroughly analysed in the previous chapter, the most appropriate index to examine the financial constraints of the sample firms is the Glaser–Schafers–Weber index (Glaser et al. 2008). It contains the natural logarithm of total assets in order to capture the essence of firm size in the results. It has already been tested for German firms, and as Glaser et al. (2008) state, this index is the most suitable to be used for European firm samples. For this reason, the focus is placed on the results of the last three regressions (10–12).

The next step is to test the new optimism control variable that was introduced in the regression model (Table 1). One can observe that for the Glaser–Schafers–Weber index (Glaser et al. 2008), the optimism \times (cash flow divided by lagged assets) variable is significant in all regressions for all three groups of managers (All, EB and CEO). This control variable is significant in ALL regressions for the Kaplan–Zingales index (Kaplan and Zingales 1997) as well as for the Whited–Wu index (Whited and Wu 2006) and in CEO regression for the Cleary index (Cleary 1999). The results are similar when lagged constrained measures are incorporated. It is not surprising, though, due to the fact that there is some persistence of the ranking of firms over time (Glaser and Hirn 2007).

However, not consistent with Glaser et al. (2008) is the fact that there is no strong evidence regarding optimism and CEO transactions. The stronger results of Glaser et al. (2008) are found for the regressions when optimism is based on CEO

Table 1 Empirical results: Optimism and financial constraints

Constraints score	Kaplan–Zingales			Whited–Wu			Cleary			Glaser–Schafer–Weber		
	All	EB	CEO	All	EB	CEO	All	EB	CEO	All	EB	CEO
Optimism based on	1	2	3	4	5	6	7	8	9	10	11	12
Cash flow/lagged assets	0.008 (0.009***)	0.010 (0.008***)	0.014 (0.007***)	0.010 (0.030**)	-0.008 (0.028**)	0.012 (0.006***)	0.012 (0.000***)	0.012 (0.000***)	0.016 (0.000***)	0.011 (0.000***)	0.012 (0.000***)	0.010 (0.000***)
Lagged Tobin’s Q	0.070 (0.007***)	0.023 (0.004***)	0.010 (0.007***)	0.067 (0.008***)	0.019 (0.005***)	0.010 (0.010***)	0.036 (0.000***)	0.037 (0.000***)	0.035 (0.000***)	0.039 (0.000***)	0.036 (0.000***)	0.043 (0.000***)
Managerial optimism	-0.088 (0.005***)	-0.012 (0.005***)	-0.006 (0.007***)	-0.022 (0.009***)	0.011 (0.005***)	-0.005 (0.005***)	0.001 (0.000***)	-0.001 (0.000***)	0.003 (0.000***)	0.004 (0.000***)	0.005 (0.000***)	0.002 (0.000***)
Optimism × (cash flow/lagged assets)	-0.090 (0.030**)	0.003 (0.004***)	0.110 (0.007***)	-0.020 (0.050**)	0.012 (0.005***)	0.005 (0.005***)	0.003 (0.000***)	0.134 (0.000***)	0.200 (0.060**)	0.212 (0.070**)	0.122 (0.100*)	0.220 (0.070*)
Constant	0.046 (0.000***)	0.044 (0.000***)	0.049 (0.000***)	0.047 (0.000***)	0.044 (0.000***)	0.050 (0.000***)	-0.015 (0.000***)	-0.016 (0.000***)	-0.014 (0.019**)	-0.023 (0.000***)	-0.019 (0.076*)	-0.027 (0.000***)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cases	1202	588	614	1202	699	503	1187	663	524	1175	754	421
Firms	61	61	61	61	61	61	61	61	61	61	61	61
Adjusted R ²	0.393	0.189	0.261	0.347	0.280	0.238	0.181	0.351	0.181	0.273	0.196	0.447

This table shows fixed-effect panel regression results of capital expenditures on several control variables for the one third of all firms with the highest financial constraints as identified by the Kaplan–Zingales index, the Whited–Wu index, the Cleary index (with own coefficients) and Glaser–Schafer–Weber index. The dependent variable is capital expenditures divided by lagged assets. In all regressions, we analyse cash flow divided by lagged assets and lagged Tobin’s Q as control variables. Furthermore, we also include an optimism “dummy” variable and optimism × (cash flow divided by lagged assets) as explanatory variables. The “dummy” variable is equal to 1 when members of the EB and SB (ALL), only the EB or only the CEOs are classified as optimistic in a given year. All regressions include firm and year fixed effects. Time period is 2007–2012. All variables are winsorised at the 1% level

Robust *p*-values are in parentheses

***Significance at 1%, **Significance at 5% and *Significance at 10%

transactions. This work's findings, therefore, do not consolidate the fact that CEOs play a key determinant role in firm performance and corporate outcomes (Bertrand and Schoar 2003; Bennedsen et al. 2006).

Interestingly, as already mentioned above in regressions using the Glaser–Schafers–Weber index (Glaser et al. 2008), all *optimism* × *cash flow* variables are significantly related with capital expenditures (regressions 10–12). This work, therefore, is able to state that the investment-cash flow sensitivity of firms with optimistic managers is more pronounced in financially constrained (equity dependent) firms and thus confirm research question of this study.

4.2 *Managerial Optimism and the Determinants of Excess Value*

Based on Glaser et al. (2008), this subsection demonstrates the possibility of the existence of a connection between managerial optimism and inefficiencies which leads to lower market valuation of firms. The main instrument is first of all a pooled OLS regression. This regression model is chosen since there are panel data (both time series and cross section). All the data are put together, without making any distinction between cross section and time series. Therefore, running a regression over all the data using ordinary least squares, it leads to the use of pooled OLS regression. It is the easiest to run, and it is often used as simple benchmark to which more stilted regressions can be compared.

The dependent variable is excess value. According to Berger and Ofek (1995), the excess value of a firm is the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is the sum of the imputed values of its segments, with each segment's imputed value being equal to the segment's sales multiplied by its industry median ratio of total capital (market value of equity plus book value of debt) to sales. The actual value of a firm includes all aspects of the business in terms of both tangible and intangible assets (Table 2).

In regressions 14 and 15, the same regression is run first without the use of fixed effects and second with the use of year fixed effects. The observation made is that the indicators of profitability and firm size are significantly correlated to the excess value of the firm either with the use or not of the year fixed effects. The difference exists regarding the growth opportunity indicator, the ratio of EBIT to sales. Although its coefficient estimate remains at the same levels, there is no statistical significance between the control variable and excess value when fixed effects are run.

The next six regressions (16–21) present results when managerial optimism variable is controlled for with lagged values (regressions 19–21) or not (regressions 16–18) with the use of fixed effects. The results are similar with those presented in Berger and Ofek (1995) and Glaser and Muller (2010). Table 2 shows that the existence of diversification itself does not seem to be the reason for the

Table 2 Determinants of the excess value

Optimism based on	Pooled OLS		All		EB		CEO		All (lagged)		EB (lagged)		CEO (lagged)	
		FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE	FE
Type of regression	1.3	14	15	16	17	18	19	20	21					
Focused firm	0.748 (0.000***)	0.054 (0.360)	0.055 (0.328)	0.051 (0.421)	0.054 (0.285)	0.055 (0.321)	0.055 (0.323)	0.045 (0.331)	0.051 (0.340)					
Ln (total asset)	0.101 (0.000***)	0.146 (0.000***)	0.155 (0.000***)	0.153 (0.000***)	0.156 (0.000***)	0.174 (0.000***)	0.148 (0.000***)	0.144 (0.000***)	0.162 (0.000***)					
CAPEX/sales	0.003 (0.000***)	0.590 (0.000***)	0.359 (0.000***)	0.382 (0.000***)	0.390 (0.000***)	0.631 (0.000***)	0.207 (0.001***)	0.001 (0.230)	0.001 (0.244)					
EBIT/sales	0.058 (0.002***)	0.052 (0.099*)	0.060 (0.120)	0.005 (0.122)	0.005 (0.118)	-0.003 (0.089*)	0.096 (0.060*)	0.013 (0.437)	0.038 (0.164)					
Managerial optimism				-0.047 (0.003***)	-0.039 (0.009***)	-0.031 (0.016**)	-0.083 (0.003***)	-0.022 (0.016**)	-0.058 (0.013**)					
Constant	-0.143 (0.000***)	-0.225 (0.000***)	-0.260 (0.000***)	-0.224 (0.000***)	-0.232 (0.000***)	-0.234 (0.000***)	-0.230 (0.000***)	-0.238 (0.000***)	-0.240 (0.000***)					
Year fixed effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes					Yes
Cases	1799	1799	1799	1799	1799	1799	1754	1754	1754					1754
Firms	328	327	332	330	299	296	320	299	294					294
Adjusted R ²	0.321	0.447	0.448	0.447	0.446	0.447	0.447	0.450	0.447					0.447

This table shows coefficient estimates from regressions of excess value on a focused-firm indicator and control variables such as in Berger and Ofek (1995). Excess value is the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is the sum of the imputed values of its segments, with each segment's imputed value equal to the segment's sales multiplied by its industry median ratio of capital to that accounting item. Control variables are the natural logarithm of total assets, capital expenditures divided by sales and EBIT divided by sales. In regressions 4-6, we include our optimism "dummy" variables. In regressions 7-9, we include lagged values of our optimism "dummy" variables. Regression 1 shows a pooled OLS regression; regression 2 is a fixed-effect panel regression without year fixed effects. Regressions 3-9 show fixed-effect panel regression with year fixed effects. Time period is 2007-2012.

Robust *p*-values are in parentheses

***Significance at 1%, **Significance at 5% and *Significance at 10%

diversification discount and the lower excess value of the firm. Also consistent with Villalonga (2004a, 2004b), this work finds that on average, diversification does not destroy the excess value of a firm.

Another observation is that there exists a negative statistically significant correlation between managerial optimism and excess value. The higher the managerial optimism, the lower the excess value. This result is in line with Glaser et al. (2008) and is found to be robust across all optimism measures. However, this result is not consistent with insider trading based on private information since managers are likely not to be correct with their expectations regarding their firm's performance. As opposed to Glaser et al. (2008), the observation here is that lagged optimism variables maintain their statistical significance at either 1% (ALL) or 5% (EB and CEO). In line with Glaser et al. (2008), the stronger results with the highest coefficient estimates are encountered for the group of ALL managers. There exists the stronger negative statistically significant relationship between managerial optimism and excess value.

To summarise the observation, adjusted R^2 values of the models are stable, and they explain almost 50% of the outcomes of this model. Based on the related literature, low R^2 values are a common phenomenon, and hence the values obtained in this work are accepted since the variables fit the expectations. Finally, it is important to underline the fact that in some firms managers are biased. Often, these biased managers make decisions which end up to be harmful for their firms. The overall findings in this study show that overinvestment due to managerial optimism may serve as one possible explanation for the observed low excess value of firms. Yet, consistent with Glaser et al. (2008), all optimism measures are highly negatively correlated with excess value only where the link between optimism and corporate investment seems to be less strong. Therefore, managerial biases are likely to affect other corporate decision making to the damage of the firm.

5 Conclusions

Research in the field of behavioural finance and optimism as a cognitive, personal characteristic is a rapidly developing field. Usually, optimism is correlated with positive outcomes for the independent director (Ravina and Sapienza 2010) as well as for his firm too. However, the extensive use of optimism in all aspects of everyday life can prove disastrous since over-optimism may often be associated with negative outcomes too. Yet, it should be underlined that being moderately optimistic regarding a future event may induce great personal profits.

It is widely accepted by researchers that managers principally are optimistic. They display optimism in every single aspect of their career. Often, optimism slips into overconfidence and arrogance inducing unfavourable outcomes for the manager and his firm. If the term "hubris" is used for every action of a manager which incorporates overconfidence, one is easily able to see that this "hubris" may often lead the manager to face his personal downfall, not only his firm's decline.

The investment-cash flow sensitivity has also been examined in this thesis regarding the impact of financial constraints on investment. The general assumption that exists is based on the statement that the sensitivity of investment to cash flow should be higher for financially constrained (equity-dependent) firms. These firms are forced to cope with the monotonicity hypothesis which implies that there is a wedge between the internal and external costs of funds. The use of investment-cash flow sensitivity, therefore, has become something of a standard in recent years as far as corporate finance literature is concerned (Shin and Stulz 1998; Malmendier and Tate 2005a; Almeida and Campello 2007; Glaser et al. 2008).

This study added to the existing literature on the field of managerial optimism, by examining its impact on corporate investment in the case of Greece. As part of the literature which links psychological and economic variables to test behavioural finance models, this study is the first to investigate managerial optimism and its impact on corporate investment in Greece. The importance of this study lied in finding how managerial decision making works within a firm, how biased a manager is when he has to make extremely important decisions regarding the firm's future performance and success and how managerial optimism affects corporate investment decision making.

Additionally, this work confirmed the research question too. Financially constrained firms compared to the whole sample of firms did not display high investment-cash flow sensitivities. Constrained firms when there are favourable investing opportunities have the tendency to invest more. They tend to issue more debt in order to be able to finance these advantageous investing opportunities. Moreover, there was no strong evidence regarding optimism and CEOs' transactions. This work's findings did not justify the fact that a CEO plays a significant role in corporate firm performance. Therefore, in financially constrained firms, the investment-cash flow sensitivity with optimistic managers was more noticeable. The fact that a firm is financially constrained implies that optimistic managers affect cash flow of investment at a higher level than managers who are not optimistic. Again, optimism as a managerial cognitive characteristic played an important role in corporate investment decision making.

Finally, this work investigated the impact of diversification and managerial optimism on the excess value of a firm too. First of all, it was found that the existence of diversification did not seem to rationalise the phenomenon of diversification discount and the lower excess value of the firm. Instead, managerial optimism significantly affected the excess value of the firm. More specifically, the higher the managerial optimism, the lower the excess value of the firm. This can be justified because possible overinvestment due to the existence of managerial optimism may constitute an explanation for the low excess value of firms.

Bibliography

- Almeida, H., & Campello, M. (2007). Financial constraints, asset tangibility, and corporate investment. *Review of Financial Studies*, 20(5), 1429–1460.
- Barros, L. A. B., & Silveira, A. (2009). Overconfidence, managerial optimism and the determinants of capital structure. *Brazilian Review of Finance*, 6(3), 293–335.
- Bennedsen, M., Perez-Gonzalez, F., & Wolfenzon, D. (2006). *Do CEOs matter?* (Working Paper No FIN-06-032). New York: New York University.
- Berger, P. G., & Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics*, 37(1), 39–65.
- Bertrand, M., & Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*, 118(4), 1169–1208.
- Bris, A., Koskinen, Y., & Nilsson, M. (2006). The real effects of the Euro: Evidence from corporate investments. *Review of Finance*, 10(1), 1–37.
- Chandler, A. D. (1977). *The visible hand*. Cambridge: Belknap Press.
- Cleary, S. (1999). The relationship between firm investment and financial status. *Journal of Finance*, 54(2), 673–692.
- Doukas, J. A., & Petmezas, D. (2007). Acquisitions, overconfident managers and self-attribution bias. *European Financial Management*, 13(3), 531–577.
- Fazzari, S., Hubbard, R. G., & Petersen, B. C. (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity*, 0(1), 141–195.
- Glaser, M., & Him, C. (2007). *The measurement of corporate financial constraints* (Working Paper). Mannheim: University of Mannheim.
- Glaser, M., & Muller, S. (2010). Is the diversification discount caused by the book value bias of debt? *Journal of Banking and Finance*, 34(10), 2307–2317.
- Glaser, M., & Weber, M. (2007). Overconfidence and trading volume. *Geneva Risk and Insurance Review*, 32(1), 1–36.
- Glaser, M., Schafers, P., & Weber, M. (2008). *Managerial optimism and corporate investment: Is the CEO alone responsible for the relation?* (AFA 2008 New Orleans Meetings Paper).
- Griffin, D., & Brenner, L. (2004). Perspectives on probability judgment calibration. In D. J. Koehler & N. Harvey (Eds.), *Blackwell handbook of judgment and decision making* (pp. 177–199). Oxford: Blackwell.
- Hackbarth, D. (2008). Managerial traits and capital structure decisions. *Journal of Financial and Quantitative Analysis*, 43(4), 843–882.
- Heaton, J. B. (2002). Managerial optimism and corporate finance. *Financial Management*, 31(2), 33–46.
- Jensen, M. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, 76(2), 323–329.
- Kahneman, D., Slovic, P., & Tversky, A. (1982). *Judgement under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press.
- Kaplan, S. N., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints. *Quarterly Journal of Economics*, 112(1), 169–215.
- Lang, L. H. P., & Stulz, R. E. (1994). Tobin's q, corporate diversification and firm performance. *Journal of Political Economy*, 102(6), 1248–1280.
- Lin, Y., Hu, S., & Chen, M. (2008). Testing pecking order prediction from the viewpoint of managerial optimism: Some empirical evidence from Taiwan. *Pacific-Basin Finance Journal*, 16(1–2), 160–181.
- Malmendier, U., & Tate, G. (2005a). CEO overconfidence and corporate investment. *Journal of Finance*, 60(6), 2661–2700.
- Malmendier, U., & Tate, G. (2005b). Does overconfidence affect corporate investment? CEO overconfidence measures revisited. *European Financial Management*, 11(5), 649–659.
- Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, 89(1), 20–43.

- Moyen, N. (2004). Investment-cash flow sensitivities: Constrained versus unconstrained firms. *Journal of Finance*, 59(5), 2061–2092.
- Myers, S. C. (1977). The determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147–175.
- Oskamp, S. (1965). Overconfidence in case study judgements. *The Journal of Consulting Psychology*, 29(3), 261–265.
- Ravina, E., & Sapienza, P. (2010). What do independent directors know? Evidence from their trading. *The Review of Financial Studies*, 23(3), 962–1003.
- Roll, R. (1986). The hubris hypothesis of corporate takeovers. *The Journal of Business*, 59(2), 197–216.
- Shin, H., & Stulz, R. (1998). Are internal capital markets efficient? *Quarterly Journal of Economics*, 113(2), 531–552.
- Stulz, R. M. (1990). Managerial discretion and optimal financing policies. *The Journal of Financial Economics*, 26(1), 3–27.
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211(4481), 453–458.
- Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *The Journal of Business*, 59(4), 251–278.
- Villalonga, B. (2004a). Diversification discount or premium? New evidence from the business information tracking series. *The Journal of Finance*, 59(2), 475–502.
- Villalonga, B. (2004b). Does diversification cause the ‘diversification discount’? *Financial Management*, 33(2), 5–27.
- Weinstein, N. D. (1980). Unrealistic optimism about future life events. *The Journal of Personality and Social Psychology*, 39(5), 806–820.
- Weston, J. F. (1970). The nature and significance of conglomerate firms. *St John’s Law Review*, 0(44), 66–80.
- Whited, T. M., & Wu, G. (2006). Financial constraints risk. *Review of Financial Studies*, 19(2), 531–559.

Conceptual Model of Outcomes of Perceived Fair Insurance Services



Urban Šebjan and Polona Tominc

Abstract Due to intense competition and the emergence of new insurance companies at the Slovenian market, insurance services are becoming increasingly complex, while sales activity by insurance companies is becoming more marketing-oriented at the same time. Insurance services are, by nature, extremely multifaceted and this is reflected in the way in which the insurance market is manipulated. As insurance companies often change the content of their products (insurance conditions, insurance coverage, price, evaluation damage cases, etc.), it is important to know who benefits most from the relationship between insurance companies and customers and whether the content of insurance products is generally fair to customers. Insurance services involve various kinds of transactional interventions, about a new policy and queries raised during the term of an insurance policy or making an insurance claim, in which salespeople are in contact with customers. Some insurance companies demand an intensive sales orientation from their salespeople, gaining new customers as quickly as possible above providing them with full and transparent service. The reason for this may be due to the pressures of management in insurance companies, be it related to income or internal competition. In many cases, the content of insurance products can lead to conflicts and misunderstandings after an insurance policy has been agreed. This is particularly evident when policies are terminated or claims are made. This paper presents different viewpoints in research regarding which insurance services are perceived as fair by customers. The research question was: what is the impact of perceived fair insurance services on customer-insurance company relationship? Using structural equation modelling (SEM) with a sample of $n = 200$ consumers of insurance services, it has been found that perceived fair insurance services have a significant positive effect on perceived relationship value outcomes, as well as perceived quality of customer-insurance company relationship and customer satisfaction. It has also been found that perceived fair insurance services are directly confirmed by customer satisfaction with perceived quality of customer-insurance company

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relationship. The study also has found that perceived relationship quality has a significant and strong positive effect on perceived relationship value outcomes. The study has further found that perceived relationship value outcomes and perceived relationship quality have a significant positive effect on customer satisfaction. Perceived fair insurance services, then, are determined by the relationship between insurance companies and customers and the extent to which customers are satisfied with the insurance services they use. The study's findings are extremely important for institutions operating in the financial and insurance service market for the purpose of creating a relationship strategy.

Keywords Insurance • Services • Fairness • Relationship • Satisfaction

1 Introduction

Insurance without a doubt holds an important place in the world economy and makes a major contribution to economic growth and development. Key challenges in insurance include rising competition, generally soft pricing conditions and tight profit margins. For these reasons, many insurers are investing in technological solutions that improve front-end sales, distribution and customer service and enhance back-end operational efficiency and expense management (SIA 2015, pp. 9; IE 2015, pp. 8; GIO 2015, pp. 1).

Since we live in a time when companies have to deal with ethical dilemmas, social responsibility and moral values within the economy, our study focuses on the fairness of insurance services. Due to the increasingly demanding customer's needs, also complexity and differentiation of the insurance services are growing. Although many different insurance services exist, they have a common characteristic—they are intangible (Edvardsson et al. 2005; Armstrong and Kotler 2011). Many important pieces of insurance information are hidden in the subsidiary requirements or suppressed by the staff of insurance, also staff of insurance company unequally treat the customers, especially at discounts and in the process of after-sales service, rapidly changing conditions of insurance in relation to the performance of insurance, etc.—all this may be reflected in outcomes of perceived fair insurance service. Similarly, Seiders and Berry (1998) found that fairness is especially important for service firms because their products are intangible and difficult to evaluate, forcing consumers to rely on trust. Users find many financial services complex and difficult to understand, including insurance services (e.g. insurance conditions, insurance coverage, additional conditions). This raises doubts about the fairness of insurance services, thus demanding an examination of the relationship between users and insurance companies.

The main research question in this study is about how the perceived fairness of insurance services affects the outcomes of relationship between customers and insurance companies. In the area of financial services, a lot of research has been done on the honesty of banking services (Chen et al. 2012; Worthington and Devlin 2013; Devlin et al. 2014); less research has been carried out on the fairness of

services in the insurance sector. Although some researchers have associated fairness of insurance with the outcomes of relationship (satisfaction, trust, behavioural intention, emotions) and the dimensions of a service (value) through various sales channels (Namkung and Jang 2010; Zhu and Chen 2012; Chen et al. 2012; Chen and Chou 2012; Sekhon et al. 2016), few results have been published on the links between a fair insurance service and the relationship between the service users and the insurance company.

This study is focused on three key research objectives: (1) to determine how perceived fairness of service affects the quality and value outcomes of the user-company relationship and satisfaction of customers, (2) how quality of relationship affects the value outcomes of the user-company relationship and satisfaction of customers and (3) how value outcomes of the user-company relationship affect the satisfaction of customers. Thus, it makes a significant conceptual and empirical contribution to the debate about the outcomes of perceivedness of fair insurance service.

2 Theoretical Review and Development of Hypotheses

2.1 *Perceived Service Fairness*

Fairness is particularly important for service firms, whose product is intangible and hard to evaluate, forcing consumers to rely on trust. When consumers are vulnerable or disadvantaged, violation of justice principles can trigger perception of unfairness which results in intense reactions from customers, who are often driven to get even with the firm (Seiders and Berry 1998). Service fairness is a customer's perception of the degree of justice in a service firm's behaviour and is related to service quality—Kumar et al. (1995) found that the perception of relationship fairness enhances relationship quality.

With a view to maintain the relationship, it is important to develop processes and procedures which the other member of the relationship judges as being fair (Nguyen and Mutum 2012). Furthermore, Giovanis et al. (2015) found that service fairness impacts directly and also indirectly over relationship quality and service quality on customer loyalty. Thus, service quality and service fairness influence loyalty indirectly by strengthening the supplier–customer relationship quality, which was proved to be an important predictor of customer's attitude and behaviour (Vrontis et al. 2013). Many researchers were studying service fairness from different viewpoints, for instance, Devlin et al. (2014) distinguish between procedural and interactional fairness: bilateral communication, courtesy and respect are classified as elements of interactional fairness. Therefore, their final conceptualisation of fairness has the following dimensions: *distributive fairness*, which is the fairness of the outcomes of the exchange; *interactional fairness*, which is the courtesy, respect and consideration shown during the exchange and the degree of bilateral

communication involved; and *procedural fairness*, which incorporates the elements of impartiality, refutability, explanation and familiarity.

Service fairness is a distinct phenomenon. Poor service, on most occasions, is not perceived to be unfair, whereas unfair service is likely to be judged as substandard in quality. Customers' judgments of service fairness surface when their experience conflicts with their fairness standards, and they sense either injustice or uniquely fair behaviour. There are three distributive justice principles which have a distinctive role in service fairness and are widely recognised—those are equity, equality and need. Particularly loyal customers may expect a preferential outcome (equity), the majority of customers expect the same outcome for everyone (equality) and some customers may expect an extraordinary outcome, even if it taxes the service system (need) (Seiders and Berry 1998). Those responsible for policy in the area of financial services view increasing perceptions of fairness as key in raising levels of engagement and provision on the part of consumers. Firms are coming under increasing pressure to show that they are treating customers fairly (Devlin et al. 2014).

2.2 *Perceived Relationship Quality*

The development of successful, long-term, mutually beneficial relationships has attracted the attention of researchers for the past few decades; thereby, the issue of relationship quality has proved to be very important (Athanasopoulou 2009). Hennig-Thurau and Klee (1997) argue that relationship quality is an overall construct which is based on all previous experiences and impressions the customer has had with the service provider. Measures of this overall construct are associated either directly or indirectly with customer loyalty and are therefore viewed as a situation that will lead to repeat business and referrals (Barnes 1997). Crosby et al. (1990) found that relationship quality serves as an indicator of the health and future well-being of long-term service sales relationships. They used relationship quality to determine a salesperson's sales effectiveness and the probability of a customer's future interaction with the salesperson.

Relationship quality contributes to a lasting bond by offering assurance that the salesperson will continue to meet the customer's expectations (satisfaction) and not knowingly distort information or otherwise subvert the customer's interests (trust) (Crosby et al. 1990). Bove and Johnson (2001) state that relationship quality is best used in the context of customer/buyer relationships with a firm/seller and is operationalised as the extent of a customer's/firm's trust and commitment towards a firm. From the customer's perspective, relationship quality is achieved through the salesperson's ability to reduce perceived uncertainty. High relationship quality means that the customer is able to rely on the salesperson's integrity and has confidence in the salesperson's future performance because the level of past performance has been consistently satisfactory (Crosby et al. 1990).

Some studies presented the outcomes of service fairness as customer's behavioural intention. Studies show that price fairness, outcome fairness, interaction, procedure and outcome fairness have important effect on behavioural intentions (Namkung and Jang 2010; Narteh 2016). Chen et al. (2012) developed a conceptual model of fairness of financial services. They found that financial service fairness has a positive effect on level of customer perceived of service quality. The study of Giovanis et al. (2015) shows that service fairness has important effect also on relationship quality. Based on this discussion, this study proposes the following hypothesis:

Hypothesis 1 Perceived service fairness is positively related to perceived relationship quality.

2.3 *Perceived Satisfaction*

The customer who is satisfied with a product or service is more likely to repeat the purchase and to recommend the consumption experience to other persons (Tur-Martinez et al. 2006). For this reason, service companies should give this construct great importance. Oliver (1997) defines satisfaction as the consumer's fulfilment response; hence, satisfaction involves a minimum of two stimuli—an outcome and a comparison referent. Customer satisfaction is an evaluation of emotions reflecting the degree to which the customer believes the service provider evokes positive feelings (Cronin et al. 2000) and has traditionally been regarded as a fundamental determinant of long-term consumer behaviour (Zhang and Prybutok 2005).

Relationship satisfaction is a multidimensional construct which has been conceptualised as a prerequisite for relationship quality. By Crosby and Stevens (1987), it has been attributed with three dimensions: satisfactory interactions with personnel, satisfaction with the core service and satisfaction with the organisation. In a study of life insurance customers, they found that satisfaction with the core service had a significant effect on satisfaction with the contact person and the organisation. All three contribute to overall relationship satisfaction. The underlying principle behind relationship marketing is that organisations can enhance customer satisfaction through a relationship and that can enhance their own performance. For such benefits to appear, relationships must be developed and managed to the customer's satisfaction (Bejou et al. 1998). Customers' satisfaction with a relationship is important, but the satisfaction on its own does not automatically lead to repurchase (Reichheld and Aspinall 1993). Customers who are retained may not always be satisfied, and satisfied customers may not always be retained (Dick and Basu 1994).

Chen et al. (2012) found that financial service fairness has a positive effect on customer satisfaction. With the conceptual model, they also found that perceived service quality is positively associated with a customer satisfaction. Yanamandram

and White (2010) examined the customer's satisfaction with complaints. They found that if perception of distributive, procedural and interactional justice increases, satisfaction with complaint handling increases also. Based on equity theory and the literature, this study proposes the following hypotheses:

Hypothesis 2 Perceived service fairness is positively related to perceived satisfaction of customers.

Hypothesis 6 Perceived relationship quality is positively related to perceived satisfaction of customers.

2.4 *Perceived Relationship Value Outcomes*

Two desired relationship outcomes are customer relationship satisfaction and loyalty. Customer evaluation measures should reflect the type of exchange that is being evaluated, i.e. transactional or relational. Often used measures in a relationship context are relationship quality (Bejou et al. 1996; Crosby et al. 1990; Lang and Colgate 2003) and relationship satisfaction (Abdul-Muhmin 2002; Rosen and Surprenant 1998). Customer loyalty is defined as a deeply held commitment to rebuy or repatronise a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour (Oliver 1999). Wilson and Jantrania (1994) define value as outcomes of a collaborative relationship that enhance partner competitiveness. According to Woodruff (1997), customer value is a customer's evaluation of product attributes, attribute performances and consequences arising from the use.

Outcomes include commitment, longevity, share of purchase, willingness to invest, word of mouth and future intentions (Sharland 1997; Eggert and Ulaga 2002; Grisaffe and Kumar 1998; Hogan 1998; Raval and Gronroos 1996). A study conducted by Grisaffe and Kumar (1998), for example, found a positive relationship between value and future intentions in a service setting, thereby leading to the following: a buyer's future intentions to a service provider are influenced by relationship value. In addition to future intentions, some studies demonstrate the influence that perceived value has on affective commitment or the extent to which parties like to maintain their relationships (Geyskens et al. 1996). This sentiment of allegiance has been demonstrated to mediate the link between relational value and its proposed outcomes (Hennig-Thurau et al. 2002).

Chen et al. (2012) examined the relationship between perceived service quality and customer-perceived value. They found that the perceived service quality and service fairness are positively associated with a customer-perceived value. With the conceptual model of service fairness, they found a positive relationship between customer-perceived value and customer satisfaction. Therefore, this study proposes the following hypotheses:

Hypothesis 3 Perceived service fairness is positively related to perceived relationship value outcomes.

Hypothesis 4 Perceived relationship quality is positively related to perceived relationship value outcomes.

Hypothesis 5 Perceived relationship value outcomes are positively related to the satisfaction of customers.

3 Methodology

3.1 *Method for Analysis*

To ensure content validity, the measures for our constructs were adapted from the extant literature to suit the context of service fairness and the relationship between customer and organisation. Insurance service fairness was measured using items adapted from Devlin et al. (2014), Namkung and Jang (2010) and Chen et al. (2012). Items for relationship quality were adapted from Ndubisi (2007). Satisfaction of customer was measured by adapting items from Chen et al. (2012) and construct relationship value outcomes by adapting items from Barry and Terry (2008).

Finally, the preliminary questionnaires were pretested by six insurance service customers to check their understanding of statements. The suggestions made were considered in the questionnaire's final version, which consisted of 29 items. The respondents were requested to indicate the extent to which they agreed or disagreed by checking the appropriate response to each questionnaire item. All items were measured on a seven-point Likert scale as follows: 1 = not agree at all, 4 = neutral and 7 = absolutely agree. The questionnaire also included four questions gathering demographics of the sample population: age, gender, education and income.

Statistical Package for the Social Sciences (SPSS) and Warp PLS softwares were used to analyse the reliability and validity of the data and to conduct PLS path modelling (PLS-SEM) (Hair et al. 2014). Factor analysis was conducted in two phases. In the first phase, we performed principal component analysis (PCA).

3.2 *Sample*

The data was collected through an online questionnaire from 9 December 2014 to 23 February 2015. The target population represented random users who were legally able to buy insurance services in Slovenia, aged 18 years and older. All returned online questionnaires were correctly completed. For hypothesis testing, data was collected based on a convenience non-random sample of $n = 200$

Table 1 Characteristics of sample

Variables		f_i	f_i (%)
Gender	Male	90	45.0
	Female	110	55.0
Monthly income	Below 300 EUR	40	20.0
	301–700 EUR	44	22.0
	701–1100 EUR	66	33.0
	1101–1400 EUR	32	16.0
	1401 EUR and over	18	9.0
Education level	Grade school	4	2.0
	Vocational school	14	7.0
	Secondary school	66	33.0
	College and over	116	58.0
Age (year old)	18–25	76	38.0
	26–35	52	26.0
	36–45	18	9.0
	46–55	28	14.0
	56 and over	26	13.0

Source: Authors

customers of insurance services from Slovenia. Table 1 shows the summary statistics for the sample.

4 Results

In the first step, the exploratory factor analysis (EFA) was conducted to ensure high factor loadings. All values of factor loadings of all items are higher than 0.5 and all values of communalities are higher than 0.4. The results of the EFA indicate that it is meaningful to use EFA for all four constructs [all Kaiser–Meyer–Olkin statistics (KMO) > 0.5; Bartlett’s test of sphericity (BTS) significance $p < 0.001$]. Results of EFA indicate that 73.0% of the total variance is explained by the perceived insurance service fairness. Furthermore, 87.3% of the total variance is explained with the construct of perceived relationship quality and 74.3% by the perceived satisfaction, while the perceived relationship outcome construct explains 75.4% of the total variance. Finally, the EFA shows that three factors are first-order constructs (perceived relationship quality, perceived satisfaction and perceived relationship value outcomes), while the factor of perceived insurance service fairness is the second-order construct.

In the next step, the CFA was employed; the results are presented in Table 2. All factor weights of items for constructs were higher than 0.5. The square of factor weights, represented by R^2 , are all higher than value 0.5, ranging from 0.596 to 0.912. Item factor loadings were high, ranging from 0.772 to 0.955; and all were significant at the 0.001 level. For this reason, no items of factors have been excluded.

Table 2 Confirmatory measurement model

Items	Perceived relationship quality (RQ)	Perceived satisfaction (S)	Perceived insurance service fairness (SF) ^b	Perceived relationship value outcomes (RVO)
RQ1	0.894*			
RQ2	0.955*			
RQ3	0.955*			
RQ4	0.932*			
S1		0.872*		
S2		0.790*		
S3		0.889*		
S4		0.866*		
S5		0.818*		
S6		0.870*		
S7		0.921*		
SF1			0.943*	
SF2			0.943*	
RVO1				0.807*
RVO2				0.772*
RVO3				0.854*
RVO4				0.865*
RVO5				0.856*
M	5.31	5.12	5.25	5.12
SD	1.192	1.082	1.016	1.082
Skewness ^a	-0.816	-0.570	-0.602	-0.444
Kurtosis ^a	0.318	0.118	0.515	-0.318

Source: Authors

* $p < 0.001$

^aThe skewness and kurtosis are based on simple composites of the constructs

^bSecond-order construct

The correlation matrix is presented in Table 3. All correlations are positive and statistically significant at level 0.001. The highest positive correlation was observed between constructs “perceived satisfaction” and “perceived relationship quality”

Table 3 Correlation matrix of all constructs

Constructs	1	2	3	4
1. RQ	(0.935) ^a			
2. S	0.821	(0.862)		
3. SF	0.760	0.747	(0.943)	
4. RVO	0.652	0.704	0.545	(0.832)

Source: Authors

Notes: All correlations are significant at level 0.001

RQ perceived relationship quality; S perceived satisfaction; SF perceived insurance service fairness; RVO perceived relationship value outcomes

^aSquare roots of average variances extracted (AVEs) shown on the diagonal

Table 4 Indicators of quality of conceptual research model

Constructs	Cronbach's α	ρ_c^{CR}	ρ_c^{AVE}	R^2	Adj. R^2	Q^2	VIF
1. RQ	0.951	0.965	0.873	0.581	0.576	0.580	3.727
2. S	0.942	0.953	0.743	0.753	0.746	0.758	4.029
3. SF	0.875	0.941	0.889	(-)	(-)	(-)	2.666
4. RVO	0.888	0.918	0.692	0.460	0.449	0.462	2.052

Source: Authors

Notes: RQ perceived relationship quality; S perceived satisfaction; SF perceived insurance service fairness; RVO perceived relationship value outcomes

($r = 0.821$; $p < 0.001$), while the lowest correlation was observed between constructs “perceived insurance service fairness” and “perceived relationship value outcomes” ($r = 0.545$; $p < 0.001$).

All Cronbach's alphas (Cronbach 1951) and the composite reliability for all the variables are >0.50 , in relation to the expected factors, showing high reliability (Table 4). The ρ_c^{AVE} values for this model exceeded 0.5 for the reflective constructs (Hair et al. 2014; Fornell and Lacker 1981; Bagozzi and Yi 1988), thus indicating convergent validity for all constructs. Composite reliabilities ρ_c^{CR} for the three reflectively measured constructs ranged from 0.918 to 0.965, exceeding the minimum requirement of 0.7 (Hair et al. 2014). Since all the ρ_c^{CR} values were higher than the ρ_c^{AVE} values, the convergent validity for all studied constructs was established. The examination of the endogenous constructs' predictive power shows that “perceived satisfaction”, which is the primary outcome measure of the model, has a substantial R^2 value of 0.753. Q^2 coefficients are also known as Stone–Geisser Q-squared coefficients, named after their principal original proponents (Geisser 1974; Stone 1974). Acceptable predictive validity in connection with an endogenous latent variable is suggested by a Q^2 coefficient greater than zero (Kock 2015). All values of the latent-variable Q^2 coefficient are greater than zero. Since collinearity between latent variables may exist, variance inflation factors (VIFs) were used to detect it, with the rule that this value should be <5.0 in every dimension or latent variable (Kock 2015). All values of VIFs were <5.0 .

The results of the SEM analysis with the relationships between constructs of conceptual model are depicted in Fig. 1. Results suggest that the perceived

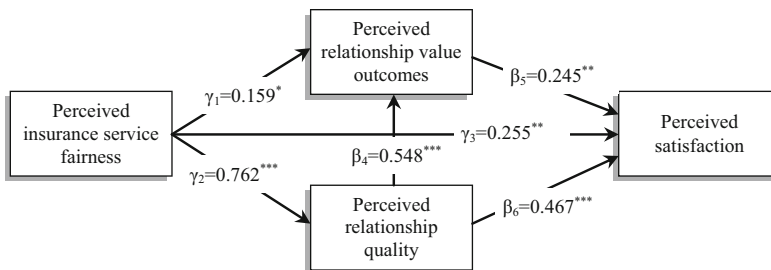


Fig. 1 Results of PLS analysis for conceptual research model. Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Source: Authors

insurance service fairness has a significant and positive relationship with the perceived relationship value outcome ($\gamma_1 = 0.159, p < 0.05$). The perceived fairness of insurance service is significantly and positively related to the level of perceived relationship quality ($\gamma_2 = 0.762, p < 0.001$). It has been also found that the perceived fairness of insurance service has significant and positive impact on perceived satisfaction of customers ($\gamma_3 = 0.255, p < 0.01$). The perceived relationship quality is significantly and positively related to the level of perceived relationship value outcomes ($\beta_4 = 0.548, p < 0.001$) and the level of perceived satisfaction of customers ($\beta_6 = 0.467, p < 0.001$). Finally, the perceived relationship value outcomes have significant and positive impact on the level of perceived satisfaction of customers ($\beta_5 = 0.245, p < 0.01$) which means that customers who perceive higher levels of relationship value outcome seem to be more likely to also perceive satisfaction with the insurance company.

The statistical software Warp PLS calculates fit indices which are meaningful in the context of variance-based SEM. GoF = 0.691, APC = 0.406 ($p < 0.001$), ARS = 0.598 ($p < 0.001$), AARS = 0.590 ($p < 0.001$), AVIF = 2.442, AFVIF = 3.118, SPR = 1.000, RSCR = 1.000, SSR = 1.000, NLBCDR = 1.000. In summary, the overall results of fit indices bring the substantial support to confirming the proposed model based on Fig. 1.

5 Conclusion

This paper examines the conceptual model for the perception of fairness of insurance services. It has been found that the perception of fairness is mostly reflected in how customer satisfaction is perceived in terms of the quality of relationship between the customer and the insurance company. This is because the customers who are in contact with the insurance company are crucial for building strong relationships over a long period of time.

An important finding of this study is also that the perceived fairness of insurance services in terms of customer satisfaction is perceived indirectly through perceived relationship value outcomes. The perception of fairness in insurance services has a significant impact on the perception of the quality of relationship between the customer and the insurance company, perceived relationship value outcomes and perceived satisfaction. Meanwhile, the perceived quality of the relationship between the customer and the insurance company affects the perception of fairness in insurance services. We also found that the perception of the quality of the relationship between the customer and the insurance company has a significant impact on perceived relationship value outcomes, which is reflected indirectly in the perception of customer satisfaction. The perception of fairness in insurance services also has an indirect impact on the perception of customer satisfaction.

These research results are important to those insurance companies that wish to efficiently manage their customers and express their social responsibility through fair insurance services. It is important that insurance companies recognise the

importance of fair insurance services. At the same time, insurance companies must continuously inform their employees about the consequences that may arise in the case of implementing dishonest and unfair insurance services. It should be particularly noted that customers should be afforded the same treatment in accordance with the insurance terms and conditions, which are clearly defined. This is particularly important when additional benefits and discounts are offered and provided by employees of an insurance company to customers in insurance compensation claims. The results of our conceptual model reflect the significant impact that the perceived fairness of insurance services has on the results of customer behaviour.

In future research, the extended conceptual model could include distributive, procedural and interactional fairness of insurance services, as well as ascertain their influence on the quality of the relationship between the client and the insurance company. Also risk perception and customer confidence variables could be included. The survey could also be extended to other countries in order to compare the results. The survey could be specifically focused on the study of how customers are treated in the event of a loss or an accident and how customers perceive fairness when they were treated as the insured person in the insurance claim. Since insurance companies are increasingly focusing on online services, it would also be possible to compare the perception of fairness in insurance services between customers who make personal contact with an insurance company and customers who contact an insurance company via an online application.

References

- Abdul-Muhmin, A. G. (2002). Effects of suppliers' marketing program variables on industrial buyers' relationship satisfaction and commitment. *Journal of Business & Industrial Marketing*, 17(7), 637–651.
- Armstrong, G., & Kotler, P. (2011). *Marketing*. New Jersey: Pearson.
- Athanasopoulou, P. (2009). Relationship quality: A critical literature review and research agenda. *European Journal of Marketing*, 43(5/6), 583–610.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation model. *Journal of the Academy of Marketing Science*, 16(1), 74–94.
- Barnes, J. G. (1997). Closeness, strength, and satisfaction: Examining the nature of relationships between providers of financial services and their retail customers. *Psychology & Marketing*, 14(8), 765–790.
- Barry, J., & Terry, T. S. (2008). Empirical study of relationship value in industrial services. *Journal of Business & Industrial Marketing*, 23(4), 228–241.
- Bejou, D., Wray, B., & Ingram, T. N. (1996). Determinants of relationship quality: An artificial neural network analysis. *Journal of Business Research*, 36(2), 137–143.
- Bejou, D., Ennew, C. T., & Palmer, A. (1998). Trust, ethics and relationship satisfaction. *International Journal of Bank Marketing*, 16(4), 170–175.
- Bove, L. L., & Johnson, L. W. (2001). Customer relationship with service personnel: Do we measure closeness, quality or strength? *Journal of Business Research*, 54(3), 189–197.
- Chen, Y.-T., & Chou, T.-Y. (2012). Exploring the continuance intentions of consumers for B2C online shopping: Perspectives of fairness and trust. *Online Information Review*, 36(1), 104–125.

- Chen, H.-G., Liu, J. Y.-C., Sheu, T. S., & Yang, M.-H. (2012). The impact of financial services quality and fairness on customer satisfaction. *Managing Service Quality*, 22(4), 399–421.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334.
- Cronin, J., Brady, M. K., & Hult, G. T. (2000). Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. *Journal of Retailing*, 76(2), 193–218.
- Crosby, L. A., & Stevens, N. (1987). Effects of relationship marketing on relationship satisfaction, retention and prices in the life insurance industry. *Journal of Marketing Research*, 24(4), 404–411.
- Crosby, L. A., Evans, K. R., & Cowles, D. (1990). Relationship quality in services selling: An interpersonal influence perspective. *Journal of Marketing*, 54(3), 68–81.
- Devlin, J. F., Roy, S. K., & Sekhon, H. (2014). Perceptions of fair treatment in financial services: Development, validation and application of a fairness measurement scale. *European Journal of Marketing*, 48(7/8), 1315–1332.
- Dick, A. S., & Basu, K. (1994). Customer loyalty: Towards an integrated conceptual framework. *Journal of the Academy of Marketing Science*, 22(2), 99–113.
- Edvardsson, B., Gustafsson, A., & Roos, I. (2005). Service portraits in service research: A critical review. *International Journal of Service Industry Management*, 16(1), 107–121.
- Eggert, A., & Ulaga, W. (2002). Customer perceived value: A substitute for satisfaction in business markets? *Journal of Business & Industrial Marketing*, 17(2/3), 107–118.
- Fornell, C., & Lacker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, 61(1), 101–107.
- Geyskens, I., Steenkamp, J.-B. E. M., Scheer, L. K., & Kumar, N. (1996). The effects of trust and interdependence on relationship commitment: A trans-Atlantic study. *International Journal of Research in Marketing*, 13(4), 303–317.
- GIO – Global insurance outlook. (2015). Retrieved April 1, 2016, from [http://www.ey.com/Publication/vwLUAssets/ey-2015-global-insurance-outlook/\\$FILE/ey-2015-global-insurance-outlook.pdf](http://www.ey.com/Publication/vwLUAssets/ey-2015-global-insurance-outlook/$FILE/ey-2015-global-insurance-outlook.pdf)
- Giovanis, A., Athanasiopoulou, P., & Tsoukatos, E. (2015). The role of service fairness in the service quality – Relationship quality – Customer loyalty chain. *Journal of Service Theory and Practice*, 25(6), 744–776.
- Grisaffe, D., & Kumar, A. (1998). *Antecedents and consequences of customer value: Testing and expanded framework* (Working Paper No. 98-107). Marketing Science Institute, Cambridge.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. London: Sage.
- Hennig-Thurau, T., & Klee, A. (1997). The impact of customer satisfaction and relationship quality on customer retention: A critical reassessment and model development. *Psychology & Marketing*, 14(8), 737–764.
- Hennig-Thurau, T., Gwinner, K., & Gremler, D. (2002). Understanding relationship marketing outcomes. *Journal of Service Research*, 4(3), 230–247.
- Hogan, J. (1998). *Assessing relationship value in business markets*. PhD dissertation, Kenan-Flagler Business School NC, Chapel Hill.
- IE – Insurance Europe. (2015, August). *European Insurance—Key facts*. Retrieved April 1, 2016, from <http://www.insuranceeurope.eu/sites/default/files/attachments/European%20Insurance%20-%20Key%20Facts%20-%20August%202015.pdf>
- Kock, N. (2015). *WarpPLS5.0 user manual*. Laredo, TX: ScriptWarp Systems.
- Kumar, N., Scheer, L. K., & Steenkamp, J. B. E. M. (1995). The effects of supplier fairness on vulnerable resellers. *Journal of Marketing Research*, 32(1), 54–65.
- Lang, B., & Colgate, M. (2003). Relationship quality, on-line banking and the information technology gap. *International Journal of Bank Marketing*, 21(1), 29–37.

- Namkung, Y., & Jang, S. C. S. (2010). Effects of perceived service fairness on emotions, and behavioral intentions in restaurants. *European Journal of Marketing*, 44(9/10), 1233–1259.
- Nartheh, B. (2016). Service fairness and customer behavioural intention: Evidence from the Ghanaian banking industry. *African Journal of Economic and Management Studies*, 7(1), 90–108.
- Ndubisi, N. O. (2007). Relationship quality antecedents: The Malaysian retail banking perspective. *International Journal of Quality & Reliability Management*, 24(8), 829–845.
- Nguyen, B., & Mutum, D. S. (2012). A review of customer relationship management: Successes, advances, pitfalls and futures. *Business Process Management Journal*, 18(3), 400–419.
- Oliver, R. L. (1997). *Satisfaction: A behavioral perspective on the consumers*. New York: McGraw-Hill.
- Oliver, R. L. (1999). Whence consumer loyalty. *Journal of Marketing*, 63(4), 33–44.
- Ravald, A., & Gronroos, C. (1996). The value concept and relationship marketing. *European Journal of Marketing*, 30(2), 19–30.
- Reichheld, F. F., & Aspinall, K. (1993). Building high loyalty business systems. *Journal of Retail Banking*, 15(4), 21–29.
- Rosen, D. E., & Surprenant, C. (1998). Evaluating relationships: Are satisfaction and quality enough? *International Journal of Service Industry Management*, 9(2), 103–125.
- Seiders, K., & Berry, L. L. (1998). Service fairness: What it is and why it matters. *Academy of Management Perspectives*, 12(2), 8–20.
- Sekhon, H. S., Roy, S. K., & Devlin, J. (2016). Perceptions of fairness in financial services: An analysis of distribution channels. *International Journal of Bank Marketing*, 34(2), 171–190.
- Sharland, A. (1997). Sourcing strategy: The impact of costs on relationship outcomes. *International Journal of Physical Distribution & Logistics Management*, 27(7), 395–409.
- SIA – Slovenian Insurance Association. Statistical Insurance Bulletin 2015. (2015). Retrieved April 1, 2016, from <http://www.zav-zdrufenje.si/wp-content/uploads/2015/06/Statisticki-zavarovalniski-bilten-2015.pdf>
- Stone, M. (1974). Cross-validators choice and assessment of statistical predictions. *Journal of the Royal Statistical Society, Series B*, 36(2), 111–133.
- Tur-Martinez, V., Peiro, J. M., Ramos, J., & Moliner, C. (2006). Justice perceptions as predictors of customer satisfaction: The impact of distributive, procedural, and interactional justice. *Journal of Applied Social Psychology*, 36(1), 100–119.
- Vrontis, D., Weber, Y., & Tsoukatos, E. (2013). *Confronting contemporary business challenges through management innovation*. 6th Annual Conference of the EuroMed Academy of Business. Estoril: EuroMed Press.
- Wilson, D. T., & Jantrania, S. (1994). Understanding the value of a relationship. *Asia-Australia Marketing Journal*, 2(1), 55–66.
- Woodruff, R. (1997). Customer value: The next source for competitive advantage. *Journal of the Academy of Marketing Science*, 25(2), 139–153.
- Worthington, S., & Devlin, J. (2013). Fairness and financial services in Australia and the United Kingdom. *International Journal of Bank Marketing*, 31(4), 289–304.
- Yanamandram, V., & White, L. (2010). An empirical analysis of the retention of dissatisfied business services customers using structural equation modelling. *Australasian Marketing Journal*, 18, 222–232.
- Zhang, X., & Prybutok, V. (2005). A consumer perspective of e-service quality. *IEEE Transactions on Engineering Management*, 52(4), 461–477.
- Zhu, Y.-Q., & Chen, H.-G. (2012). Service fairness and customer satisfaction in internet banking: Exploring the mediating effects of trust and customer value. *Internet Research*, 22(4), 482–498.

Corruption and Tax Compliance of Greek SMEs



Vasileios Vlachos and Aristidis Bitzenis

Abstract The literature on the determinants and impact of the Greek shadow economy, and moreover, of the latter's interaction with corruption, has greatly expanded since the beginning of the current economic crisis. We look upon a less discussed theme on this subject, which concerns the factors that shape the tax compliance decisions of Greek SMEs. Based on data from the World Bank, we build upon earlier approaches to the subject and control for the role of corruption in tax compliance decisions via conditional logistic regression.

Keywords Bribing • Corruption • Greece • SMEs • Tax compliance

1 Introduction

Similar to all developed economies, small- and medium-sized enterprises (SMEs) are the pillars of economic growth in Greece. Since the eruption of the recent global crisis, which emerged as a subprime mortgage and an energy (oil shock of 2007–2008) crisis that was triggered in 2007 and gradually developed into a financial, sovereign debt and eventually, an economic crisis without precedent in postwar economic history, the SMEs in Greece have borne the brunt of the country's economic depression (continuous recession). For example, chain-linked volumes of GDP (index 2005 = 100) fell from 109.1 in 2007 (the last year of growth) to 80.5 in 2015, and total unemployment (not seasonally adjusted) rose from 8.4% in 2007 to 24.9% in 2015.¹

The aim of this paper is to explore the determinants of SMEs' tax compliance in Greece and the specific effect of corruption. SMEs are defined by the number of employees, and tax compliance is explored according to previous findings. The

¹Data from Eurostat (<http://ec.europa.eu/eurostat/web/main/home>) accessed on 15 April 2016.

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novelty of this study lies on the fact that this is the first attempt to empirically evaluate the effect of corruption on the (other) determinants of Greek SMEs' tax compliance.

The paper is organized as follows. The next section gives a brief background and discusses the method of analysis. The third section presents the findings of our study. Finally, the fourth section makes some concluding remarks.

2 Background and Method

The starting point of our analysis is the work of Vlachos and Bitzenis (2016) on tax compliance behavior of small firms in Greece. The authors discuss the severe consequences of the economic crisis on the Greek business environment and review the relevant literature about the factors influencing enterprises' tax compliance. We aim to expand the research of Vlachos and Bitzenis (2016), which is the first assessment of enterprises' tax compliance in Greece. Although we also base our model, like Vlachos and Bitzenis (2016), on the approach of Alm and McClellan (2012), we differentiate it from Vlachos and Bitzenis (2016) with regard to the variable set explored, the size of enterprises, and the sample.

The data is from the World Bank's Business Environment and Enterprise Performance Survey and covers 2005 (see <http://data.worldbank.org/data-catalog/BEEPS>). Table 1 presents the total sample, prior to selecting for SMEs and matching. Table 1 also presents the frequencies of the set of variables explored, for the total sample. We select only the cases of SMEs and match them in pairs of 1×1 according to the propensity scores obtained from a logistic regression with *SalRep* as the dependent and *Brib* as the independent variable. With propensity score matching, we aim to detect the effect of corruption (bribing) on tax compliance behavior. The matched sample is analyzed with conditional logistic regression.

3 Findings

The findings of conditional logistic regression are presented in Table 2. Five different sets are indicated, one with main effects and four with two-way interactions. The significant main effect findings indicate that:

- An inspection from tax inspectorates or the labor and social security agencies does not have a positive effect on compliance (on the contrary, the odds ratio indicates an inverse relationship).
- Those perceiving corruption as a major obstacle to doing business are more inclined to being tax noncomplied.

Table 1 Sample frequencies

Variable definition (code name)	Frequencies (546 cases)	
	Value = 0	Value = 1
How many full-time employees work for this company today?	440 small, 56 medium, 50 large	
Recognizing the difficulties that many firms face in fully complying with taxes and regulations, what percentage of total annual sales would you estimate the typical firm in your area of business reports for tax purposes? (SalRep)	235 cases tax complied (100% of sales reported)	267 cases tax noncomplied (<100% reported)
Was your establishment in the last 12 months either inspected or required to meet with officials from the tax inspectorate or the labor and social security agencies? (Insp)	280 cases inspected by tax inspectorate and 270 cases inspected by the labor and social security agencies	276 cases inspected by tax inspectorate and 270 cases inspected by the labor and social security agencies
Can you tell me how problematic are these different factors for the operation and growth of your business: taxes? (ObstTax)	233 cases (no or minor obstacle)	308 cases (moderate or major obstacle)
Can you tell me how problematic are these different factors for the operation and growth of your business: tax administration? (ObstTaxAdm)	300 cases (no or minor obstacle)	235 cases (moderate or major obstacle)
Can you tell me how problematic are these different factors for the operation and growth of your business: labor regulations? (ObstLab)	426 cases (no or minor obstacle)	107 cases (moderate or major obstacle)
Can you tell me how problematic are these different factors for the operation and growth of your business: corruption? (ObstCor)	430 cases (no or minor obstacle)	99 cases (moderate or major obstacle)
On average, what percent of total annual sales do firm's like yours typically pay in unofficial payments/gifts to public officials? (Brib)	428 cases do not pay	118 cases pay

(continued)

Table 1 (continued)

Variable definition (code name)	Frequencies (546 cases)	
	Value = 0	Value = 1
Do firms in your line of business pay for protection payments (e.g., to organized crime to prevent violence or property damage)? [Prot]	68 cases do not pay	477 cases pay
Is the principal owner (or one of the principal owners) a female? (Gen)	113 cases females	350 cases males
Considering your main product line or main line of services in the domestic market, by what margin does your sales price exceed your operating costs (i.e., the cost material inputs plus wage costs but not overheads and depreciation) [GProf]	38 cases (1–10%), 87 cases (11–15%), 118 cases (15–20%), 165 cases (21–30%), 99 cases (31% or over)	

Source: World Bank's Business Environment and Enterprise Performance Survey

- The SMEs with gross profit of 21–30% over operating costs are more inclined toward noncompliance.²

The significant interaction findings indicate that:

- Inspections of SMEs run by males reduce the odds ratio for noncompliance.
- Inspections of SMEs with gross profit over 20% of operating costs increase the odds ratio for noncompliance.³
- Bribing by SMEs run by males reduces the odds ratio for noncompliance.
- Those perceiving tax administration as a major obstacle to doing business and paying for protection decrease the ratio for noncompliance.
- Those perceiving corruption as a major obstacle to doing business and paying for protection increase the ratio for noncompliance.
- SMEs paying for protection and with gross profit of 21–30% over operating costs increase the odds ratio for noncompliance.⁴
- SMEs run by males who perceive labor regulations as a major obstacle to doing business decrease the odds ratio for noncompliance.
- SMEs run by males with gross profit of 1–15% over operating costs decrease the odds ratio for noncompliance.

²Although not significant, the odds ratio for noncompliance rises with the size of the gross profit.

³Again, although not significant, the odds ratio for noncompliance rises with the size of the gross profit.

⁴Again, although not significant, the odds ratio for noncompliance rises with the size of the gross profit.

Table 2 Conditional logistic regression results (odds ratios for matched sample)

Variables in equation		dependent		SalRep)/Exp(B) ^a					
Insp	1.555*	Insp by ObstTax	1.408	Brib by ObstTax	1.411	ObstTax by Prot	5.028	Gen by ObstTax	1.302
ObstTax	1.152	Insp by ObstTaxAdm	0.779	Brib by ObstTaxAdm	0.946	ObstTaxAdm by Prot	0.052*	Gen by ObstTaxAdm	0.816
ObstTaxAdm	0.921	Insp by ObstLab	0.684	Brib by ObstLab	0.725	ObstLab by Prot	0	Gen by ObstLab	0.546*
ObstLab	0.675	Insp by ObstCor	2.002*	Brib by ObstCor	1.512	ObstCor by Prot	21.49**	Gen by ObstCor	1.348
ObstCor	1.859*	Brib by Insp	0.716	Brib by Prot	0.81	Gen by Prot	0.095	GProf10 by Gen	0.354*
Brib	0.779	Insp by Prot	1.146	Brib by Gen	0.249*	GProf10 by Prot	2.247	GProf15 by Gen	0.444*
Prot	1.408	Gen by Insp	0.475**	Brib by GProf10	0.837	GProf15 by Prot	4.851	GProf20 by Gen	0.684
Gen	0.695	GProf10 by Insp	0.894	Brib by GProf15	0.921	GProf20 by Prot	6.416	GProf30 by Gen	1.324
GProf10	0.632	GProf15 by Insp	1.488	Brib by GProf20	3.344	GProf30 by Prot	67.56**	GProf30over by Gen	0.654
GProf15	0.702	GProf20 by Insp	1.721	Brib by GProf30	2.376	GProf30over by Prot	2.33E+11		
GProf20	0.887	GProf30 by Insp	4.728***	Brib by GProf30over	2.643				
GProf30	1.897**	GProf30over by Insp	2.328*						
GProf30over	Ref.								

^aLevels of significance: *10%, **5%, ***1%

4 Conclusion

In this paper, we explore the impact of formal and informal institutions on tax compliance in Greece, with particular emphasis on the role of corruption. We perform a conditional logistic regression with data from the Business Environment and Enterprise Performance Survey of the World Bank covering 496 Greek SMEs in 2005. We match the sample in pairs of 1×1 according to the propensity scores obtained from a logistic regression with SalRep as the dependent and Bribe as the independent variable.

The findings indicate that involuntary compliance is not reinforced with inspections. The presence of bribing and corruption may justify this finding and, moreover, indicate that noncompliance of Greek SMEs is mainly voluntary.

The limitations of our study concern the lack of differentiating among industries (i.e., it is expected that it is much easier to evade taxes in the services sector), the consideration of ownership (i.e., foreign ownership usually involves different cultures and norms), the exploration of the compliance behavior of large enterprises, and the effect of the economic crisis on compliance (i.e., data covering a period after the crisis).

References

- Alm, J., & McClellan, C. (2012). Tax morale and tax compliance from the firm's perspective. *Kyklos*, 65(1), 1–17.
- Vlachos, V. A., & Bitzenis, A. (2016). Tax compliance of small enterprises in Greece. *International Journal of Entrepreneurship and Small Business*, 28 (forthcoming).

The Correlation Between Four Input Indicators and Six Demographic and Output Indicators Within the East European Healthcare Systems



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Abstract The purpose of this paper is to compare the relevance of four resource indicators (inputs), in regard to six mortality indicators (outputs) within healthcare systems in 27 East European countries.

The correlation between the following input indicators, number of GPs/100,000 population, health expenditure as % of GDP, total health expenditure PPP \$/capita, pharmaceutical expenditure PPP \$/capita, and the following demographic and output indicators, life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000, was analyzed.

WHO data was used, for the following East European countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Greece, Hungary, Latvia, Lithuania, FYROM, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, and Ukraine. Data from 2011 was used.

The various degrees of correlation between the input and output indicators were analyzed using scatter diagrams and calculating Pearson linear correlation coefficient.

This type of study can be extended to other health outcome indicators as it can be also tried with other healthcare system resource indicators.

The research shows the importance of real data (money) as compared to percentage data.

Many reform projects as well as policy evaluations are based on “weak” indicators, misleading public perception, hiding policy mistakes, and ultimately leading focus to unimportant things.

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The paper tries to shed light on indicators which are really significant from the point of view of policymakers. It might be also of particular interest to students who can understand better the use of indicators.

This paper will be presented as PPT.

Keywords Healthcare • Input indicators • Outcome indicators • Correlation

1 Introduction

Within the public space, the media, and academics, we hear many times that health systems need to be reformed, that performance needs to be improved, and that things need to change for the better. In order to demonstrate the truthfulness of the above, many outcome indicators are called forth. Not all of them are very specific and some are quite broad (to be more understandable). Naturally, there are various ideas about the necessary inputs to achieve good results. The purpose of this paper is to shed some light on this issue, namely, to see what are the correlations between four input indicators and six outcome indicators. A lot of money is put in projects related to healthcare reforms. Important resources are allocated to tackle the issues and improve health outcomes. Policies are debated and adopted based on assumptions that certain input increase will lead to certain good outcomes. The only way to find out how valid these assumptions are is to study the correlation between certain input indicators and outcome indicators.

2 Body of the Paper

2.1 Data

The input indicators used are the following:

The number of the general practitioners per 100,000 population (no. of GPs/100,000). It is assumed that the greater this number, the better healthcare is delivered.

The second input indicator is the total health expenditure as % of GDP. The gross domestic product (GDP) is defined as the monetary value of all goods and services produced in an economy over a certain period of time (Market House Books Ltd. 1990a). So the indicator, “total health expenditure as percentage of GDP,” is merely an indicator of the size of the health sector within the economy of a country, in monetary terms.

The third financial input indicator was the total healthcare expenditure in PPP \$/capita. The indicator total health expenditure/capita is adjusted in the data used with purchasing power parity (PPP) which is parity between two currencies that will give each currency exactly the same purchasing power in its own country (Market House Books Ltd. 1990b).

Finally, the fourth indicator was pharmaceutical expenditure in PPP \$/capita. Again the raw indicator, pharmaceutical expenditure/capita, is adjusted with purchasing power parity for adjusting the purchasing power of various currencies.

The six outcome indicators used for as pairs for the correlation assessment were:

Life expectancy at birth. This is a widely used indicator estimating the life length of a new born if mortality patterns remain the same all its life (World Bank indicators 2016).

The second outcome indicator was the reduction of life expectancy through death before 65 years. This is also a more general indicator but not very frequently used.

The third outcome indicator was estimated infant mortality/1000 live births. It explores the mortality at a very vulnerable age.

The fourth outcome indicator was maternal deaths/100,000 live births, also a mortality indicator of a vulnerable group.

The fifth outcome indicator was SDR diabetes mellitus, all ages/100,000. It explores the standardized mortality rate for a serious chronic disease with large prevalence and deadly complications.

The sixth outcome indicator was SDR tuberculosis, all ages/100,000, exploring the standardized mortality rate of a mortal infectious disease, with high prevalence in certain countries.

All these outcome indicators are measures of multifactorial processes, comprising activities in the healthcare sector. In case of existing Pearson linear correlation, an assessment of the proportion to which input influenced the outcome was conducted, by calculating r^2 .

The data used is from the WHO European Health for All database HFA-DB (WHO 2016) from 2011.

This study comprised data from the following East European, Central European, Balkan, and Caucasus countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Georgia, Greece, Hungary, Latvia, Lithuania, FYROM, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, and Ukraine. Unfortunately the data was not available for all countries and for all indicators, but using Pearson linear correlation analysis, the validity thresholds were clear, and the degree of correlation was obvious.

2.2 Methods

Every input indicator was paired successively with each one of the six outcome indicators, and Pearson linear correlation coefficient (r) was calculated (Triola and Triola 2006a). For the interpretation of the significance of (r), a table with critical values of α was used, for $\alpha = 0.05$ and for $\alpha = 0.01$, respectively (Triola and Triola 2006b). In other words, a value of r exceeding the value of $\alpha = 0.05$ means 95% chance of linear correlation, and a value of r exceeding $\alpha = 0.01$ means a 99% chance of a linear correlation.

For the data pairs which show a Pearson linear correlation, r^2 was also calculated, which is the proportion in variation of one variable which can be attributed to the linear association between the two variables (Triola and Triola 2006c).

2.3 Results

The first input indicator, number of GPs/100,000 population, was paired successively with all the outcome indicators: life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000. Then r was calculated for each pair, and the degree of significance of the Pearson linear correlation coefficient was assessed. This is shown in Table 1.

As we could see, no correlation was found between the number of GPs/100,000 population and the six outcome indicators. An example of no linear correlation is shown in Fig. 1.

The second input indicator—health expenditure as % of GDP—was paired successively with all the six outcome indicators: life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000. Then r was calculated for each pair, and the degree of significance of the Pearson linear correlation coefficient was assessed. This is shown in Table 2.

Table 1 The Pearson linear correlation coefficient between number of GPs/100,000 population and six outcome indicators

No. of GPs/100,000 population	Pearson linear correlation coefficient	n pairs	r value	$\alpha = 0.05$	$\alpha = 0.01$	Interpretation
Life expectancy at birth	0.037692768	16	0.038	0.497	0.623	No correlation
Reduction of life expectancy through death before 65 years	-0.001849907	14	-0.002	0.532	0.661	No correlation
Estimated infant mortality/1000 live births	-0.039387828	20	-0.039	0.444	0.561	No correlation
Maternal deaths/100,000 live births	0.429123428	20	0.429	0.444	0.561	No correlation
SDR diabetes mellitus, all ages/100,000	-0.001865061	16	-0.002	0.497	0.623	No correlation
SDR tuberculosis, all ages/100,000	-0.146237446	16	-0.146	0.497	0.623	No correlation

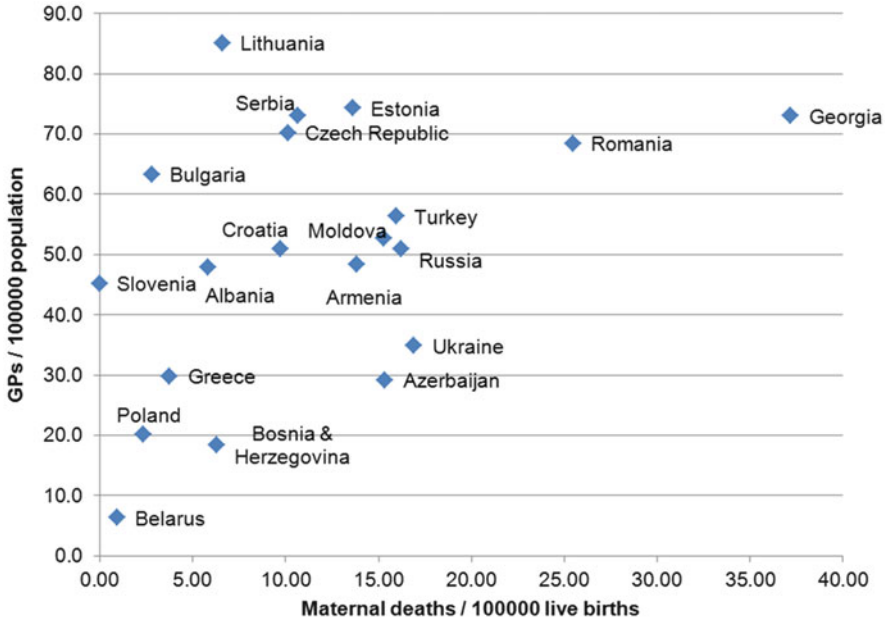
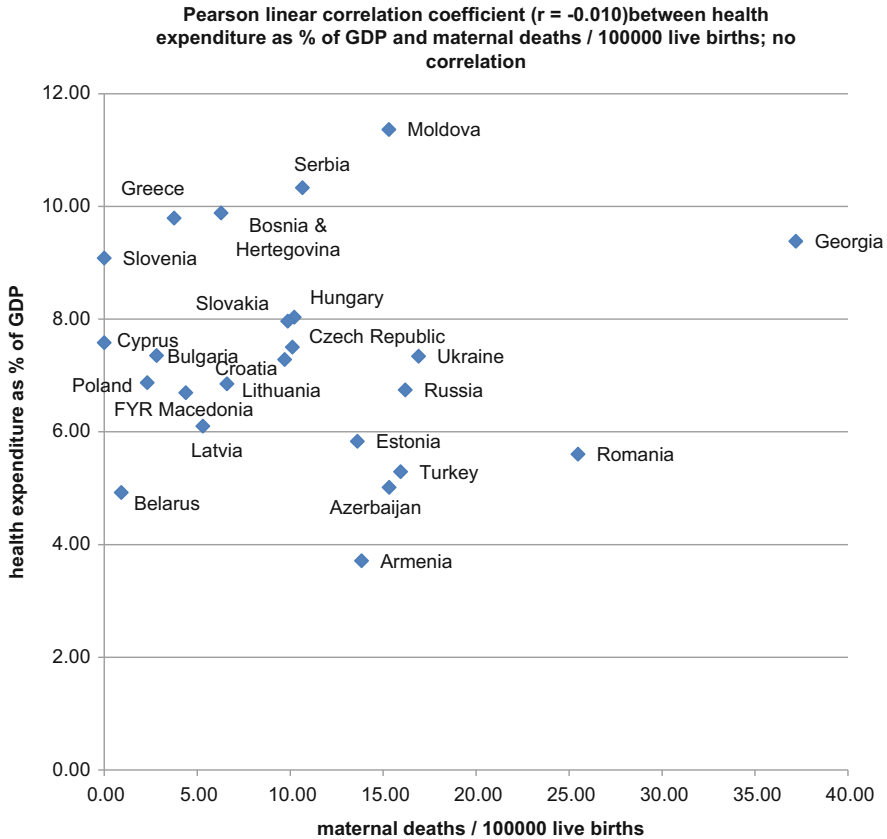


Fig. 1 The Pearson linear correlation coefficient (0.429) between number of GPs/100,000 population and maternal deaths/100,000 live births

Table 2 The Pearson linear correlation coefficient between health expenditure as % of GDP and six outcome indicators

Health expenditure as % GDP	Pearson linear correlation coefficient	<i>n</i> pairs	<i>r</i> value	$\alpha = 0.05$	$\alpha = 0.01$	Interpretation
Life expectancy at birth	0.089727716	19	0.090	0.456	0.575	No correlation
Reduction of life expectancy through death before 65 years	-0.227031144	19	-0.227	0.456	0.575	No correlation
Estimated infant mortality/1000 live births	-0.291055264	24	-0.291	0.404	0.515	No correlation
Maternal deaths/ 100,000 live births	-0.010,112,459	24	-0.010	0.404	0.515	No correlation
SDR diabetes mellitus, all ages/ 100,000	0.255311749	19	0.255	0.456	0.575	No correlation
SDR tuberculosis, all ages/100,000	0.022172505	19	0.022	0.456	0.575	No correlation

This is showing no correlation whatsoever between the health expenditure as % of GDP input indicator and the six outcome indicators: life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000.



The correlations of the third input indicator—total health expenditure in PPP \$/capita—with the six outcome indicators are more interesting. Following the same method, it was paired successively with the outcome indicators: life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000. Then r was calculated for each pair, and the degree of significance of the Pearson linear correlation coefficient was assessed. This is shown in Table 3.

We can notice the following results:

A strong Pearson linear correlation between total health expenditure PPP \$/capita and life expectancy at birth. The r value (0.716) exceeds $\alpha = 0.01$ (0.575). This is shown Fig. 2.

Table 3 The Pearson linear correlation coefficient between total health expenditure PPP \$/capita and six outcome indicators

Total health expenditure in PPP/capita	Pearson linear correlation coefficient	<i>n</i> pairs	<i>r</i> value	$\alpha = 0.05$	$\alpha = 0.01$	Interpretation
Life expectancy at birth	0.716282775	19	0.716	0.456	0.575	Strong correlation
Reduction of life expectancy through death before 65 years	-0.574317813	19	-0.574	0.456	0.575	Correlation
Estimated infant mortality/1000 live births	-0.620829804	25	-0.621	0.396	0.505	Strong correlation
Maternal deaths/ 100,000 live births	-0.454719527	25	-0.455	0.396	0.505	Correlation
SDR diabetes mellitus, all ages/ 100,000	0.074007746	19	0.074	0.456	0.575	No correlation
SDR tuberculosis, all ages/100,000	-0.53891268	19	-0.539	0.456	0.575	Correlation

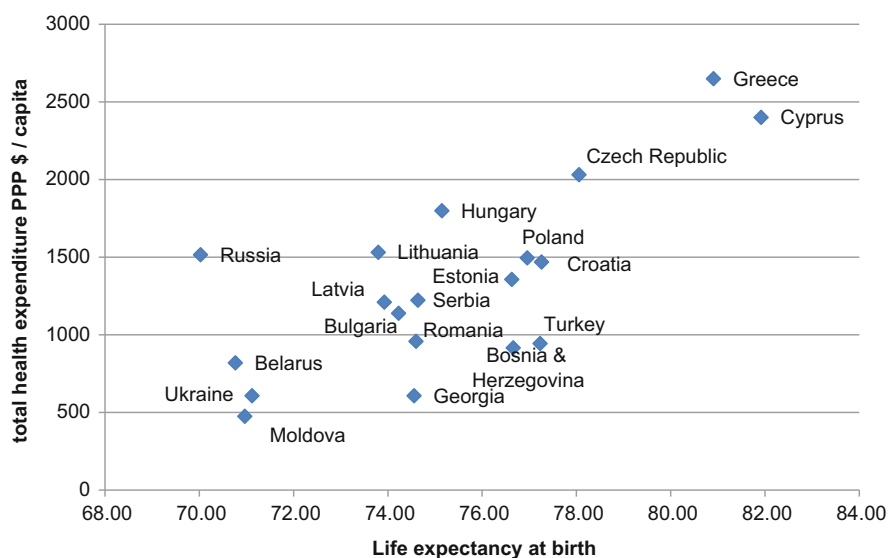


Fig. 2 The Pearson linear correlation coefficient (0.716) between total health expenditure PPP \$/capita and life expectancy at birth

It is obvious that low expenditure in PPP \$ /capita is correlated with low life expectancy at birth, whereas high expenditure in PPP \$/capita is correlated with high life expectancy at birth; r^2 was 0.51, suggesting that 51% of the variation of the life expectancy at birth can be attributed to the total expenditure on health in PPP \$/capita.

The next pair—PPP \$/capita and reduction of life expectancy through death before 65 years—shows a negative correlation. Thus r value (-0.574) exceeds $\alpha = 0.05$ (0.456) and is very close to $\alpha = 0.01$ (0.575). This shows a negative correlation between the two indicators and is presented in Fig. 3.

It is obvious that high expenditure in PPP \$/capita is correlated with low reduction of life expectancy through death before 65 years, whereas low expenditure in PPP/capita is correlated with high reduction of life expectancy through death before 65 years. r^2 was 0.33, suggesting that only 33% of the variation of the

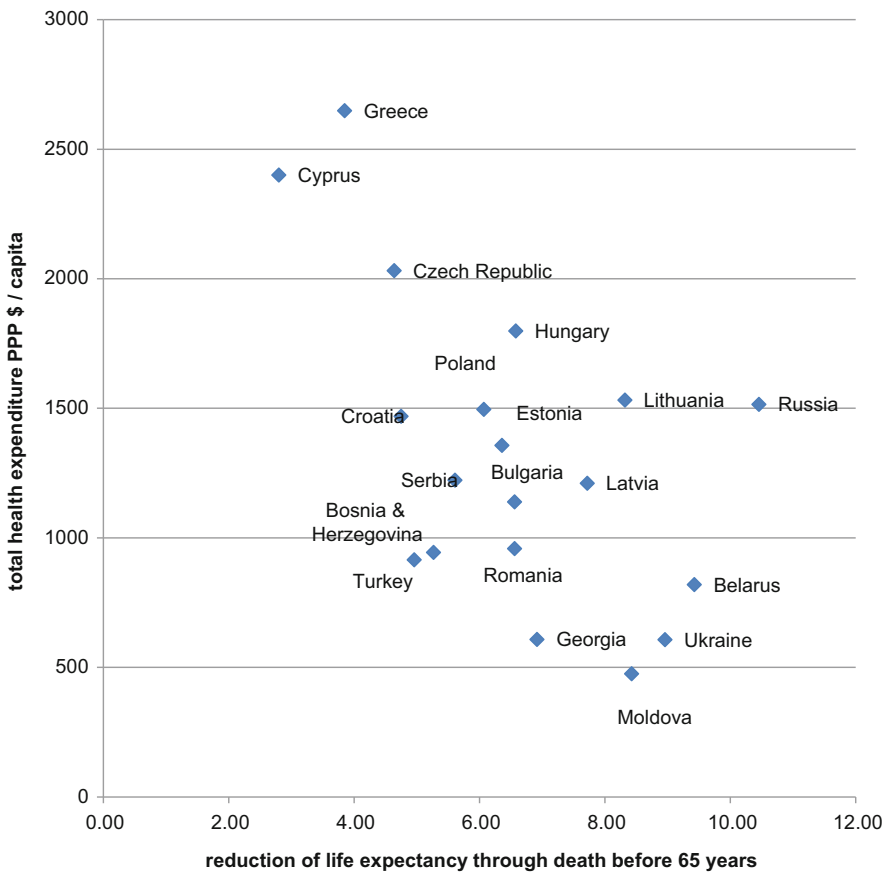


Fig. 3 The Pearson linear correlation coefficient (-0.574) between total health expenditure PPP \$/capita and reduction of life expectancy through death before 65 years

reduction of life expectancy through death before 65 years can be attributed to the expenditure in PPP \$/capita.

The third pair—PPP \$/capita and estimated infant mortality/1000 live births—shows a strong negative Pearson linear correlation between total health expenditure PPP \$/capita and estimated infant mortality/1000 live births. The r value (-0.621) exceeds $\alpha = 0.01$ (0.505). This is shown Fig. 4.

High expenditure in PPP \$/capita is correlated with low estimated infant mortality/1000 live births, whereas low expenditure in PPP \$/capita is correlated with high estimated infant mortality/1000 live births. r^2 was 0.39, suggesting that only 39% of the variation of the estimated infant mortality/1000 live births can be attributed to the expenditure in PPP \$/capita.

The pair—PPP \$/capita and maternal deaths/100,000 live births—shows a negative linear correlation. Thus, r value (-0.455) exceeds $\alpha = 0.05$ (0.396) but

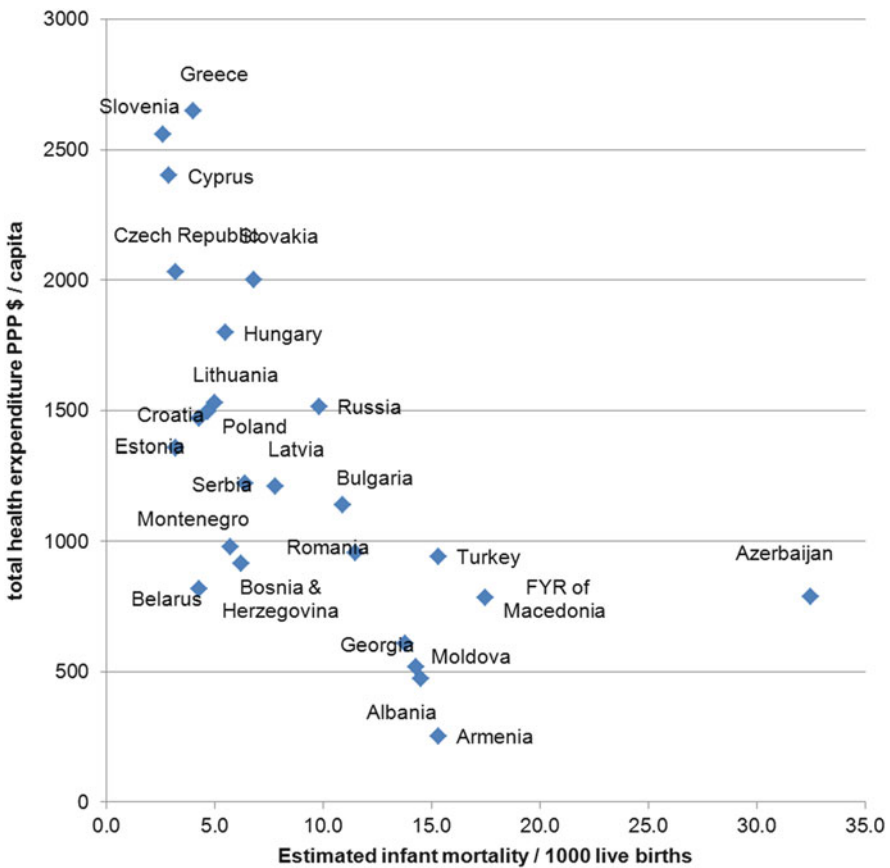


Fig. 4 The Pearson linear correlation coefficient (-0.621) between total health expenditure PPP \$/capita and estimated infant mortality/1000 live births

does not exceed $\alpha = 0.01$ (0.505). This shows a negative correlation between the two indicators and is presented in Fig. 5.

High expenditure in PPP \$/capita is correlated with low maternal deaths/100,000 live births, whereas low expenditure in PPP/capita is correlated with high maternal deaths/100,000 live births; r^2 was 0.21, suggesting that only 21% of the variation of the maternal deaths/100,000 live births can be attributed to the expenditure in PPP \$/capita.

For the next pair—total health expenditure in PPP \$/capita and SDR diabetes mellitus, all ages/100,000— r value (0.074) does not exceed $\alpha = 0.05$ (0.456). Thus, it shows no correlation.

The last pair—total health expenditure in PPP \$/capita and SDR tuberculosis, all ages/100,000—shows a negative correlation. Thus r value (-0.539) exceeds $\alpha = 0.05$ (0.456), but does not exceed $\alpha = 0.01$ (0.575). This shows a negative correlation between the two indicators and is presented in Fig. 6.

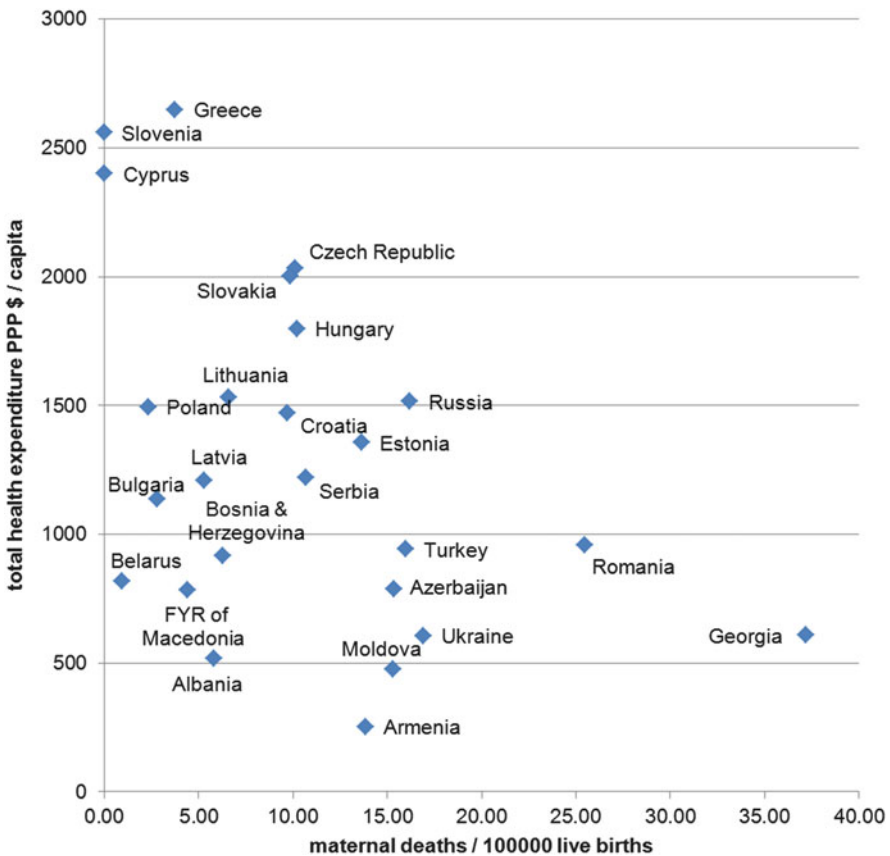


Fig. 5 The Pearson linear correlation coefficient (-0.454) between total health expenditure in PPP \$/capita and maternal deaths/100,000 live births

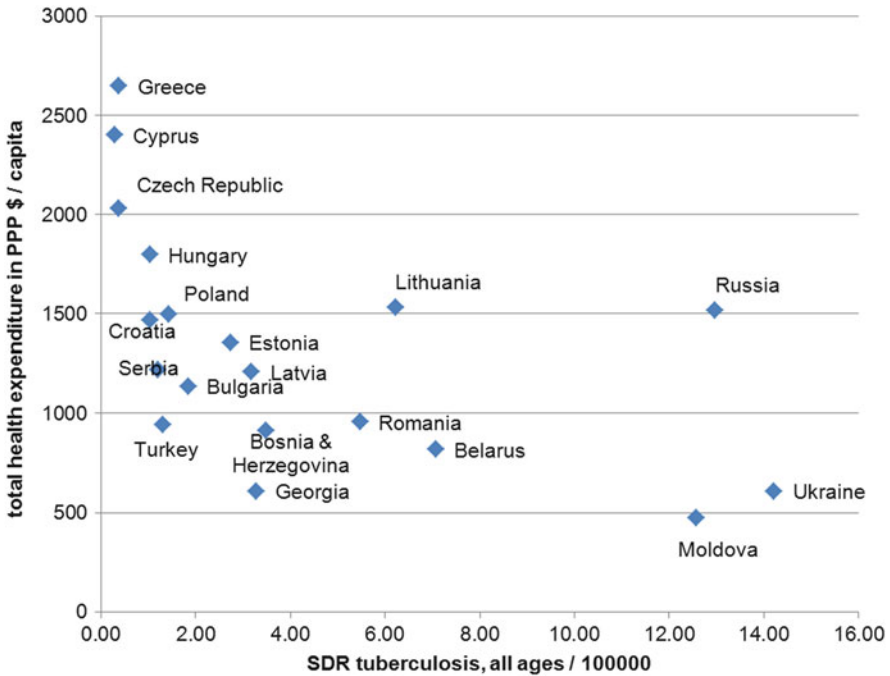


Fig. 6 The Pearson linear correlation coefficient (-0.539) between total health expenditure PPP \$/capita and SDR tuberculosis, all ages/100,000

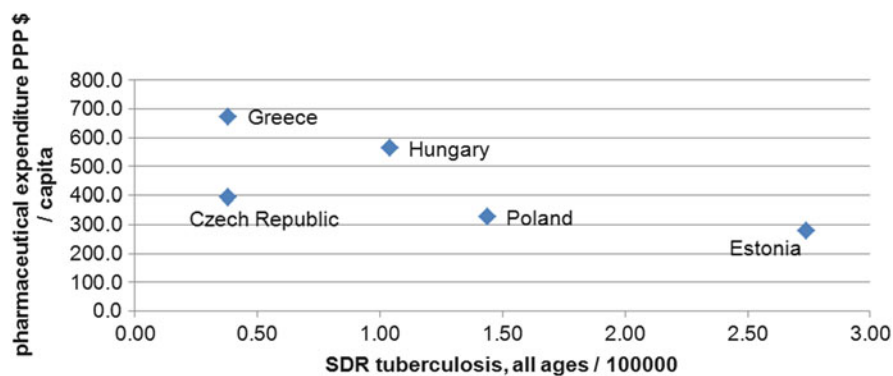
High expenditure in PPP \$/capita is correlated with low SDR tuberculosis, all ages/100,000, whereas low expenditure in PPP/capita is correlated with high SDR tuberculosis, all ages/100,000; r^2 was 0.29, suggesting that only 29% of the variation of the SDR tuberculosis, all ages/100,000, can be attributed to the expenditure in PPP \$/capita.

The fourth input indicator, pharmaceutical expenditure PPP \$/capita, was paired successively with all the outcome indicators: life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000. Then r was calculated for each pair, and the degree of significance of the Pearson linear correlation coefficient was assessed. This is shown in Table 4.

No correlation was found between pharmaceutical expenditure PPP \$/capita and the six outcome indicators. However for one of them—SDR tuberculosis, all ages/100,000—the degree of correlation is the highest among them pretty close to significance especially with the latter: maternal death/100,000 live births. For this set of indicators, there was not enough data, and the number of pairs was limited; therefore, the significance level of α was very high. This is shown in Fig. 7.

Table 4 The Pearson linear correlation coefficient between pharmaceutical expenditure PPP \$/capita and six outcome indicators

Pharmaceutical expenditure PPP \$/capita	Pearson linear correlation coefficient	<i>n</i> pairs	<i>r</i> value	$\alpha = 0.05$	$\alpha = 0.01$	Interpretation
Life expectancy at birth	0.47469867	6	0.475	0.811	0.917	No correlation
Reduction of life expectancy through death before 65 years	-0.523032768	6	-0.523	0.811	0.917	No correlation
Estimated infant mortality/1000 live births	0.340860405	7	0.341	0.754	0.875	No correlation
Maternal deaths/ 100,000 live births	-0.24324785	7	-0.243	0.754	0.875	No correlation
SDR diabetes mellitus, all ages/ 100,000	-0.115767981	5	-0.116	0.878	0.959	No correlation
SDR tuberculosis, all ages/100,000	-0.691421571	5	-0.691	0.878	0.959	No correlation

**Fig. 7** The Pearson linear correlation coefficient (-0.691) between pharmaceutical expenditure PPP \$/capita and SDR tuberculosis, all ages/100,000

2.4 Discussion

This study was limited by the availability of data especially about the pharmaceutical expenditure PPP \$/capita. Another limitation is a methodological one. It explores only the Pearson linear correlation coefficient and not other types of correlations. Within this type of statistical analysis, one should know that a correlation does not necessarily imply causality. In this case, it is just a hint for further studies.

Firstly, this study showed there was no Pearson linear correlation between the number of GPs/100,000 population and the six outcome indicators: life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000. Several reasons should be looked for in this case. There might be other non-healthcare system-related factors which can influence these indicators. GPs play a lesser role than hospitals in medical activities to which these indicators pertain. There social behaviors, genetics, and poverty are also factors influencing the outcome of services rendered for the treatment of these diseases. These hypotheses need to be explored further. However for maternal death/100,000 live births, the degree of correlation is pretty close to significance: maternal death/100,000 live births; $r = 0.429$ while $\alpha = 0.05$ was 0.444. In other words, it is closed to show a conceptual paradox; a higher number of GPs is close to be correlated with a higher number of maternal deaths. This is intriguing and needs to be explored in depth.

Secondly, the study showed no correlation whatsoever between health expenditure as % of GDP and the six outcome indicators: life expectancy at birth; reduction of life expectancy through death before 65 years; estimated infant mortality/1000 live births; maternal deaths/100,000 live births; SDR diabetes mellitus, all ages/100,000; and SDR tuberculosis, all ages/100,000. This suggests that this indicator is not useful in describing the health system but merely in describing the size of the health sector within a country's economy, the attitude of the public, and the attitude of the government toward the health sector. This is quite stunning considering the exceptional wide use of this indicator. A search of this indicator on the internet on April 16, 2016, returned 494,000 results. This indicator is widely used by many international organizations, governments, statisticians, scholars, industry, and unions. Policies are designed based on this indicator. Many projects and investments are set forth based on this indicator. Yet we could see no correlation with important and also widely used health indicators.

By comparison to the above, the third indicator used—total health expenditure in PPP \$/capita—has shown a strong correlation between this indicator and life expectancy at birth and estimated infant mortality/1000 live births, a correlation with reduction of life expectancy through death before 65 years, with maternal deaths/100,000 live births, and with SDR tuberculosis, all ages/100,000. No correlation was found between total health expenditure in PPP \$/capita and SDR diabetes mellitus, all ages/100,000. The latter might be explained by the fact that diabetes mellitus is a disease that can't be cured like TB. Of course, good treatments postpone the death of a patient with diabetes mellitus but never cure the disease. The fact that patients with this disease live longer if the expenditure/capita is higher is supported by the correlation of this input indicator with the other indicators: life expectancy at birth and reduction of life expectancy through death before 65 years.

The fourth input indicator pharmaceutical expenditure in PPP/capita was not correlated with any of the outcome indicators. As said before for this indicator data was scarce, and therefore significance levels were very high.

The fact that only one of the input indicators—total health expenditure in PPP \$/capita—has been correlated with outcome indicators raises few questions. Where does this money go, if other input indicators (resources) are not correlated with the outcomes? The answer to this question is that further studies should be made involving other input indicators. Another hypothesis to explain this is that this indicator—total health expenditure in PPP \$/capita—does not only show the power of money to buy resources but is an indicator of wealth by itself. Countries with high expenditures/capita are richer than others. It is also well known that poor people are sicker than others; or maybe rich people know better how to preserve their health; or money are used more for prevention than to fight disease. Maybe for the pairs with strong correlations, the other factors contributing to the health outcomes like nutrition or hygiene or stress or pollution are better controlled by rich people. All these hypotheses need further studies to be validated or invalidated. It is to be noted that for pairs of indicators which are correlated, there is a consistency of correlation as it is between life expectancy at birth and reduction of life expectancy through death before 65 years or estimated infant mortality/1000 live births and maternal deaths/100,000 live births. These correlations might also suggest that this indicator can provide a better image about the health system. It is so because in any country, the needs for health services of the population are more or less the same. If less money are available to satisfy those needs, poorer resources will be used, and the health outcomes and performance of the system will be low. The health expenditures depend on two factors: the utilization of services and the price of services. The fact that low/capita expenditures are correlated with bad health outcomes suggests that either the utilization of services is inadequate (impaired access, allocative inefficiency) or human and material resources are underpriced and therefore ineffective or both. Indeed, especially prices of medical technology and drugs do not vary as much as per capita expenditure, and the best technology is not available in case of low expenditures (Sava 2014). It might be the case of technical inefficiency. These results suggest that in using indicators for supporting investment projects and improvement programs, one should be careful that bad outcome indicators are multifactorial, and they can only be addressed properly by taking into consideration all inputs. The mix of inputs and the relationships between them are equally important. One way of assessing this is to look for the correlation between many inputs and the specific outputs, as well as going beyond correlations and look for determinants and causalities.

3 Conclusion

In conclusion we can say that from the financial point of view, total health expenditure per capita is correlated better with the performance of the health sector than total health expenditure as % of GDP. The research shows the importance of using direct financial data than percentage data, which in this study proved to be

irrelevant; this input hasn't been correlated with the outcomes it has been paired with.

The paper tries to shed light on indicators which are really significant from the point of view of students and professionals in public health as well as policymakers.

Acknowledgments The author would like to thank the WHO and European Health for All database for maintaining and providing free access to a valuable database with public health indicators, pertaining to European countries.

References

- Market House Books Ltd. (1990a). *A concise dictionary of business* (p. 167). Oxford: Oxford University Press.
- Market House Books Ltd. (1990b). *A concise dictionary of business* (p. 312). Oxford: Oxford University Press.
- Sava, D. (2014). *The correlation between two financial policy indicators and several outcome indicators, a current perspective on health sciences* (pp. 690–700). 1-st Balkan congress on health sciences, Edirne.
- Triola, M. M., & Triola, M. F. (2006a). Correlation and regression. In *Biostatistics for the biological and health sciences* (p. 431). Boston: Pearson Education.
- Triola, M. M., & Triola, M. F. (2006b). Correlation and regression. In *Biostatistics for the biological and health sciences* (p. 640). Boston: Pearson Education.
- Triola, M. M., & Triola, M. F. (2006c). Correlation and regression. In *Biostatistics for the biological and health sciences* (p. 436). Boston: Pearson Education.
- WHO. (2016, April). European health for all database. Available at <http://data.euro.who.int/hfad/>
- World Bank indicators. (2016, April). Available at <http://data.worldbank.org/indicator/SP.DYN.LE00.IN>

IAS for SMEs Adoption: Evidence from the Regions of Kavala and Serres, Greece



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and Eleftheria Panagiotidou

Abstract This paper examines the adoption and implementation of IFRS by SMEs in the regions of Kavala and Serres, Greece. Our main objective is to examine the possibility of direct implementation of the International Accounting Standard for SMEs. Through empirical analysis and in accordance with the literature review, we set the main factors that affect business decision to implement IFRS/IAS.

We investigate whether the willingness of businesses to implement IFRS/IAS depends largely on the educational level and size of companies. We also examine what influences the decision to apply IFRS/IAS and more specifically how much the advantages of using IFRS/IAS and the desire for transparency affect such decision.

The findings of our research suggest that SMEs have insufficient information or guidance about the standards. This is one of the reasons that explain their reluctance to apply standards and be indifferent about the existence of internationally comparable information. Lack of knowledge and infrastructure and given the current economic circumstances in Greece, implementation costs act as a serious deterrent in the implementation of IFRS/IAS.

Keywords International Financial Reporting Standards for SMEs • SMEs
• Factors influencing the IAS for SMEs

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1 Introduction

The overwhelming majority of businesses, in the smaller counties of Greece, are characterized as small to medium enterprises (SME). However, this particular category of businesses does not appear willing to abide by the IAS. The main reason for this attitude is the implementation costs which are particularly high because a specially trained staff is required and needs to have experience in this specific type of modern operating equipment. Therefore, very few companies today, given the economic climate, have the ability to make these types of investments that may hide possible long-term benefits (European Commission 2012a, b).

Nevertheless, the need to implement basic international accounting rules by the remaining businesses has become a necessity especially since international trade by these companies has increased and therefore some form of common reporting standards is needed. In July 2009 the (IASB) International Accounting Standards Board created the (IAS) International Accounting Standards for small- to middle-sized businesses. Their intention was mainly to increase the competitiveness and decrease the operating costs. They are also promoting a simplified set of accounting policies which create a more secure environment for the shareholders and the external traders with respect to the security of their transactions (Milonas and Athanasopoulos 2013, Taxheaven 2009).

These specific accounting standards constitute a separate part of the IFRS, and therefore each country may choose to adopt them regardless of international imperatives. They also provide the flexibility for each country with respect to the definition of the criteria that the companies must possess. In addition, the Committee of International Accounting Standards, IASB provides supporting material to countries for their implementation. The first country which implemented the standard was South Africa, which enrolled this as its national standard for its small to medium enterprises (Student Accountant 2010; The Vima Newspaper 2009).

The purpose of this thesis is to measure as to what degree the small- to middle-sized enterprises in Kavala and Serres have adopted the International Accounting Standards (IAS). We also seek to find the reasons why they are reluctant or positive in their adoption of the IAS. More precisely, with the use of survey questions, we will examine the implementation of the IAS in the greater part of the prefecture of Kavala and Serres, and we will compare the results for the two counties.

2 Literature Review

A significant amount of research exists concerning the advantages and the shortcomings of the application of the IAS. In a research done by Ball (2006), it was found that the advantages of such an application for the investors are both direct and indirect. Investors are greatly assisted by IASs as they promote precision and

comprehension of financial information; in this way they are better positioned to invest on the stock market. At the same time, smaller investors who until recently were in a disadvantage regarding their access to timely and precise financial information have now found themselves in a more favorable position as their information access handicap has been significantly overcome (Ball 2006).

In addition to more precision and comprehension the standards also provide investors with the potential for greater relevance and comparability. In addition, they have been found to lower the cost of processing financial information. In a research paper by Daske (2004), it was noted that the reduction of this cost increases the effectiveness of the processing of the financial information, and this may increase the effectiveness that the stock market incorporates in its prices. Finally, according to Daske, the application of the IAS offers the chance of further development of international trade by lifting obstacles while rewarding investors with higher redemption premium.

Beyond the above direct benefits, the application of the IAS offers a multitude of indirect benefits. For example, reducing the risks to investors may result in reducing business costs relative to their equity. Potentially this may cause an increase in the price of the company's stock, making similar companies more attractive to new investors (Deloitte Touche Tohmatsu 2009).

Similarly, IAS may act as a deterrent to investment. Investors are now in a position to evaluate investment opportunities by analysing financial statements and reject those they consider damaging and thus to move on to an alternative strategy (Ball 2006).

Additionally a research from the FRF (2015) has shown that deregulating SME financial reporting could have a detrimental effect on the relationship between the businesses and the general society. Also it is implied that "each jurisdiction has developed financial reporting requirements for SMEs that suit its own particular circumstances" (Financial Reporting Faculty 2015).

According to research carried out by Albu et al. (2010), relating to the application of IAS in Romania, their adoption is not up to par, as the high quality of accounting standards comes into conflict with the local standards. They have also found that a similar situation may exist in other countries where their national standards differ from IFRS.

Similar conclusions have been drawn after the application of the IAS in countries of the European Union like Portugal. According to a study by, the application caused, as was expected, short-term confusion since the standards in some cases came into conflict with the traditional national standards. However, the study has shown that in most companies that have applied the standards, important changes (increases) in their financial performance had occurred.

The same results were reported in a recent study by two Turkish researchers concerning IFRS for the SMEs in Turkey. After a study concerning the familiarity IAS, it was noted that the employees who worked in the accounting department have moderate knowledge of the IAS for SME, while the executives of the Big

4 group of companies have a slightly increased knowledge. Another important result of the research relates to the fact that on the question about the way of being informed about the IFRS for the SMEs the respondents answered that they were informed mainly from websites and professional magazines than from the official website of the IASB (Uyar and Gungormus 2013).

Finally, in a research by Baldarelli et al. (2006) about the application of the IAS in small- and medium-sized entities in Italy and Croatia, the researchers came to the conclusion that in Croatia the application of the standards showed that some paragraphs do not meet the needs of the country, and so they were not fully adopted by the SMEs even though improvements were considered necessary. The need for improvements was mainly discussed in the chapters “Conceptual Model of Outcomes of Perceived Fair Insurance Services” and “Institutional Voids and the Role of NGOS in Filling Voids: The Case of GIMDES” where it is noted that there was no need to implement IAS for the small- and medium-sized entities.

In the case of Italy, a different approach is observed because of its advanced extroversion. As noted by Nobes (1998), the Italian accounting system belongs to the same category as other European countries such as Germany, Portugal, Spain, Belgium, Greece, etc. The unique characteristic which is observed in these countries is that their governments assume the role of supervisor and tax collector in relation to the businesses causing the need for uniformity in the measuring and the presentation of the financial statements.

However, the basic incentive to adopt the IAS for SMEs in Italy is the need for communication with foreign shareholders who search for enhanced financial systems (Nobes 1998).

3 Research Methodology

Following the literature review, we asked a number of hypothetical questions. Our primary research consists of a questionnaire addressing the SMEs in the prefectures of Kavala and Serres.

One aim of this research is to study the adoption of the IFRS by SMEs. Another aim is to analyse the factors that affect the level of acceptance of the IFRS by SMEs. Additionally, we will be able to compare the results between two similar prefectures. We have tried to focus our attention to the testing of the following hypotheses.

- H1: The educational level and the knowledge of the accountant and of the manager of the SMEs affects either positively or negatively the level of application of the IFRS.
- H2: The size of the SME and their extroversion are positively related with the adoption of the IFRS.

- H3: The ability of the administration and of the employees to implement the IFRS is positively related with the advantages found with the adoption of the IAS for SME.
- H4: The high cost and the lack of required national legislation are negatively related to the willingness of the SME to apply the IFRS. (Tzani 2005)

In addition to being interesting from an accounting point of view, this research has also an accounting interest. In our days the accounting sector attracts the interest of analysts and society at large due to the increased need for the existence of governance rules for economic entities. The current economic crisis makes this attraction inevitable.

For the purpose of this paper, we relied on primary sources. It was therefore deemed necessary to create a locally based research area using a questionnaire.

3.1 Correlation Analysis

At this stage of the research, we will attempt to examine the correlation between the questions that we raised in the context of the research and the decision of adopting the IFRS for SMEs.

Beginning with the hypothesis with respect to the educational level, we found the following:

- H0: The educational level and knowledge of the accountant and the manager of the SMEs doesn't affect the level of application of the IFRS.
- H1: The educational level and knowledge of the accountant and the manager of the SMEs affects the level of application of the IFRS.

Based on the Table 1, we note the correlation that occurs between educational level and the comparative accounting information for each region. For the Table 1 (which concerns the prefecture of Kavala), the p -value = $0.000 < 0.05$. This fact brings us to accept the alternative hypothesis and conclude that the educational level of those asked affects the level of application of the IFRS.

Subsequently, we will examine the correlation between the educational level and the willingness of those asked to adopt the IAS. We are able to claim, as p -value = $0.018 < 0.05$, that (albeit marginally) the educational level affects the degree of adoption of the IAS in a company.

The correlation that arises about the benefit of the firm resulting from the application of the IAS is positive because the p -value = $0.016 < 0.05$.

Based on the above indications, we are able to conclude that the null hypothesis that we claimed earlier is rejected and thus the educational level and knowledge of the accountant and the manager of the SMEs affects the level of application of the IFRS for the region of Kavala.

Table 1 Correlation between the educational background, the internationally comparable accounting information, the willingness from the enterprises to adopt the IFRS, and the benefits which are derived from the adoption of IFRS for the prefectures of Kavala and Serres

			Prefecture of Kavala	Prefecture of Serres
			Internationally comparable accounting information	Internationally comparable accounting information
Spearman correlation	Educational background	Correlation coefficient	0.352	-0.025
		Sig. (2-tailed)	0.000	0.761
		N	130	156
			Willingness of adoption IFRS	Willingness of adoption IFRS
	Educational background	Correlation coefficient	0.176	-0.146
		Sig. (2-tailed)	0.046	0.070
		N	130	156
			Benefit from the adoption of IFRS	Benefit from the adoption of IFRS
	Educational background	Correlation coefficient	0.226	-0.105
		Sig. (2-tailed)	0.010	0.194
		N	130	156

On the other hand, the results for region of Serres may be different than we expect. More specific the Spearman correlation between the educational background and the other three variables (the internationally comparable accounting information, the willingness of adopting the IFRS, and the benefits that derived from this adoption) leads us to conclude that they're all significant enough to accept the null hypothesis. As a result we can assume that for the region of Serres the educational level and knowledge of the accountant and the manager of the SMEs doesn't affect the level of application of the IFRS.

The next research question that we will examine is the following:

- H0: The size of the SMEs and its extroversion is not correlated positively to the adoption of the IFRS.
- H1: The size of the SME and its extroversion is correlated positively with the adoption of the IFRS.

In order for the case to be tested, we must compare the relations arising from the use of the IAS, the degree of existence of comparative accounting data, the degree of adoption of the IAS, and the degree of profit benefit in a series of features for the firms.

With respect to the effect of the use of the IAS by businesses, we have the following conclusions:

For Kavala the variables such as the number of employees, the annual sales, and the foreign competition do not affect the use of IAS. This has come about from the fact that all three variables show great values in the p -value resulting in a level of importance 5% bringing us to the acceptance of the null hypothesis (in order the values are formed as follows: $0.648 > 0.05$, $0.532 > 0.05$ and $0.484 > 0.05$).

The other variables such as the imports, the exports, the capital from foreign investors, the loans from abroad, and the existence of foreign subsidiary companies affect the decision for the use of the IAS. The following variables are less in importance 5% and thus reject the null hypothesis.

On the other hand, for Serres, the results are completely different. The only variable that seems to be significant enough is the existence of foreign competitors (p -value = $0.023 < 0.05$). All the other variables lead us to accept the null hypothesis.

According to Table 8, we can note that for Kavala all of the variables affect our existence of comparative accounting information. Specifically, all the following variables have p -value = $0.000 < 0.05$ (and the variables of foreign subsidiary companies and foreign competitors have a value of 0.012 and of 0.007, respectively, that is again above the 0.05); thus we must accept the alternative case. For the prefecture of Serres, we realize that the existence of comparative accounting information doesn't affect our variables (except the existence of foreign subsidiaries which considered interfacing with the comparative accounting information).

In Table 9 we can observe that for Kavala all stated variables affect the degree of adoption of the IAS. All of the variables, beyond the type of production, are less than the level of importance 5%, and thus the null hypothesis about the non-correlation must be rejected. However, the variable of the type of production of a firm proves that it is not correlated with the degree of adoption of the IAS (so the p -value = $0.264 > 0.05$) (Marouga 2004). Contrary the results for Serres might be different. The Spearman analysis has shown that only the variable of the foreign imports seems to affect the degree of adoption of the IAS.

Beyond the above relationships, and in order to be able to extract reliable conclusions, we must examine the correlation of the chosen variables with the degree of benefit that the IAS provides. In this way, according to Table 10, we observe a similar image with that of the former analysis. Specifically, once again for the prefecture of Kavala, all the variables are found in conjunction with the degree of interest with the application of the IAS except the variable which has to deal with the commodity that is produced by the examined firms which we realize they are not correlated to the degree of benefit of the IAS (because of the p -value = $0.218 > 0.05$). The Table 10 for the prefecture of Serres showed to us that none of the existing variables are significant enough, and as a result we have to accept the null hypothesis.

Based on the analysis preceded, the conclusion for the region of Kavala is that both the size of the SMEs and its extroversion are positively correlated with the adoption of the IFRS. The above results, up to a point, were as expected.

In the past, other researchers have come to the same conclusions. Specifically, after the research of Zeghal and Mhedhbi (2006), they had come to the same conclusion that the extroversion of the firms directly affects and also drives them to the adoption of IAS in an attempt to consolidate economic gains.

On the other hand, the results for Serres have shown that the size of the SMEs and their extroversion are negatively correlated with the adoption of the IFRS.

Turning to the third research question that we raised:

- H0: The ability of the managers to apply the IFRS does not correlate positively with the advantages that stem from the adoption of the IAS for SMEs.
- H1: The ability of the managers to apply the IFRS correlates positively with the advantages that stem from the adoption of the IAS for SMEs.

Table 2 shows the correlation of the above variables with the degree of adoption of the IAS. We observe, therefore, that for Kavala all the variables (contrary to what was observed for the region of Serres) that we have examined reach the null with p -value $0.000 < 0.05$, and thus it pushes us to reject the null hypothesis and accept the alternative which means that the ability of the managers to apply the IFRS is correlated positively with the advantages that derived from the adoption of the IAS for SMEs (Emvalotis et al. 2006).

Finally, the verification of the final research question brings us to the following control correlation:

- H0: Factors such as the high cost and necessary national legislation are not correlated negatively with the willingness of SMEs to adopt the IFRS.
- H1: Factors such as the high cost and necessary national legislation are correlated negatively with the willingness of SMEs to adopt the IFRS.

In order to verify the above question we will use the following variables:

The degree of availability to adopt the IAS

The factors that negatively affect the decision to apply the IAS

With the assistance of Table 3, we note that for Kavala, as in previous checks, all variables are 0.000 (or at least have a minor deviation reaching 0.001). This fact leads us to reject the null hypothesis and the reasoning that the variables such as the high costs and the necessary national legislation are negatively correlated with the willingness of the SMEs to apply the IFRS.

Respectively, it doesn't surprise us the fact that in Serres the results show that factors such as the high cost and necessary national legislation are irrelevant with the willingness of SMEs to adopt the IFRS.

Table 2 Correlation between the willingness from the enterprises to adopt the IFRS and the advantages which are derived from the adoption of IFRS for SMEs

Spearman rho			Prefecture of Kavala	Prefecture of Serres
			Willingness of adoption IFRS	Willingness of adoption IFRS
	Efficiency of pricing capital	Correlation coefficient	0.393	0.053
		Sig. (2-tailed)	0.000	0.508
		<i>N</i>	130	156
	Provision of individual high-quality information	Correlation coefficient	0.509	-0.010
		Sig. (2-tailed)	0.000	0.900
		<i>N</i>	130	156
	Facilitate cross border trade	Correlation coefficient	0.375	-0.064
		Sig. (2-tailed)	0.000	0.425
		<i>N</i>	130	156
	Remove the uncertainty of finding capitals	Correlation coefficient	0.314	0.033
		Sig. (2-tailed)	0.000	0.682
		<i>N</i>	130	156
	Improve consistency in audit quality	Correlation coefficient	0.338	0.126
		Sig. (2-tailed)	0.000	0.118
		<i>N</i>	130	156
	Facilitate lending decisions by the banks	Correlation coefficient	0.371	0.007
		Sig. (2-tailed)	0.000	0.931
		<i>N</i>	130	156
	Vendors from other countries can evaluate the financial health of buyers	Correlation coefficient	0.402	0.014
		Sig. (2-tailed)	0.000	0.862
		<i>N</i>	130	156
	Facilitate and enhance the rating process by the credit rating agencies	Correlation coefficient	0.322	0.159
		Sig. (2-tailed)	0.000	0.047
		<i>N</i>	130	156
	Enhance the transparency of data provided	Correlation coefficient	0.341	0.126
		Sig. (2-tailed)	0.000	0.117
		<i>N</i>	130	156
	Facilitate funding from venture capital firms	Correlation coefficient	0.340	-0.058
		Sig. (2-tailed)	0.000	0.474
		<i>N</i>	130	156
	Help the owners and/or the managers in the decision-making process	Correlation coefficient	0.326	0.020
		Sig. (2-tailed)	0.000	0.801
		<i>N</i>	130	156
	Attract foreign investors and lower the cost of capital	Correlation coefficient	0.347	0.046
		Sig. (2-tailed)	0.000	0.565
		<i>N</i>	130	156
	Provide improved comparability for users of accounts	Correlation coefficient	0.408	-0.013
		Sig. (2-tailed)	0.000	0.870
		<i>N</i>	130	156

(continued)

Table 2 (continued)

		Prefecture of Kavala	Prefecture of Serres
		Willingness of adoption IFRS	Willingness of adoption IFRS
Enhance the overall confidence in the accounts of SMEs	Correlation coefficient	0.381	-0.049
	Sig. (2-tailed)	0.000	0.540
	N	130	156
Facilitate mergers and acquisitions	Correlation coefficient	0.315	0.089
	Sig. (2-tailed)	0.000	0.270
	N	130	156
Reduce the significant costs involved of maintaining standards on a national basis	Correlation coefficient	0.396	-0.017
	Sig. (2-tailed)	0.000	0.834
	N	130	156
Enhance the comparability of financial information	Correlation coefficient	0.281	-0.048
	Sig. (2-tailed)	0.001	0.548
	N	130	156
Improve the efficiency of capital's allocation	Correlation coefficient	0.313	0.048
	Sig. (2-tailed)	0.000	0.553
	N	130	156

3.2 Factor Analysis

According to Jamie DeCoster (1998), “the factor analysis is applied in order to examine the pattern of correlations (or covariance) between the observed measurements. From these measurements which have a high degree of correlation (either positive or negative) it is possible to be affected by the same factors, while those that are correlated with uncorrelated variables may be affected by different factors.”

Table 4 introduces the results of the Kaiser–Meyer–Olkin (KMO) test and Bartlett. The Bartlett test checks the appropriateness of the factor analysis that has been made. Thus we can observe that the value of p -value = 0.000 < 0.05, and thus we reject the null hypothesis and accept that the Bartlett test is more important, stating the fact that there is an outstanding degree of correlation (Voutsinas 2003).

Table 5 shows the communalities for both prefectures. As we observe in their original form, all the variables have fluctuation which is nearly one unit. We observe that there is a difference in fluctuation. Specifically, at this point, we have reached the conclusion that the factor “complex requirements” is the factor that affects more the decision for the application of the IFRS for the SMEs.

Table 3 Correlation between the willingness of adoption IFRS and the factors which affect the willingness of SMEs to implement IFRS

			Prefecture of Kavala	Prefecture of Serres
			Willingness of adoption IFRS	Willingness of adoption IFRS
Spearman rho	Little implementation guidance	Correlation coefficient	0.369	-0.013
		Sig. (2-tailed)	0.000	0.871
		N	130	156
	Mainly locally company operation	Correlation coefficient	0.378	0.004
		Sig. (2-tailed)	0.000	0.960
		N	130	156
	Complex requirements	Correlation coefficient	0.307	0.004
		Sig. (2-tailed)	0.000	0.959
		N	130	156
	Possible lack of comparability in the financial statements	Correlation coefficient	0.286	0.143
		Sig. (2-tailed)	0.001	0.074
		N	130	156
	Highly setup costs	Correlation coefficient	0.342	-0.060
		Sig. (2-tailed)	0.000	0.459
		N	130	156
	Increased cost of preparation and audit of the company's accounts	Correlation coefficient	0.328	-0.025
		Sig. (2-tailed)	0.000	0.756
		N	130	156
	Low disclosure requirements	Correlation coefficient	0.424	0.126
		Sig. (2-tailed)	0.000	0.117
		N	130	156

Table 4 KMO and Bartlett's test

KMO and Bartlett's test		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.828
Bartlett's test of sphericity	Approx. chi-square	938,997
	df	21
	Sig.	0.000

In Table 6 the hierarchy effects factors are presented for each prefecture. We can observe that for Kavala the primary factor in correlation with the decision of the firms is the increased cost of preparation and audit of the company's accounts while for Serres the primary factor is the complex requirements that the implementation demands. Low disclosure requirements is also important factor for the entities.

Table 5 Communalities from KMO and Bartlett's test

Communalities	Initial	Extraction
Little implementation guidance	1000	0.751
Mainly locally company operation	1000	0.691
Complex requirements	1000	0.810
Possible lack of comparability in the financial statements	1000	0.755
Highly setup costs	1000	0.563
Increased cost of preparation and audit of the company's accounts	1000	0.682
There are low disclosure requirements	1000	0.711

Extraction method: principal component analysis

Table 6 Component matrix from KMO and Bartlett's test

Component matrix	Component	
	1	2
Little implementation guidance	0.701	0.510
Mainly locally company operation	0.799	-0.230
Complex requirements	0.559	0.705
Possible lack of comparability in the financial statements	0.750	-0.439
Highly setup costs	0.750	0.012
Increased cost of preparation and audit of the company's accounts	0.824	-0.050
There are low disclosure requirements	0.803	-0.258

Extraction method: principal component analysis

a. One component extracted

4 Conclusion

The research has produced some useful conclusions regarding the way of understanding the ideas of the International Accounting Standards from the viewpoint of the businesses in the prefecture of Kavala and Serres. The sample of companies selected had the criteria deemed necessary by the European Union. In this way the focus was on the so-called small- and medium-sized entities which are founded in the area of Kavala and Serres. In this research we can comprehend that the majority of the sample had no relationship with foreign investments and had moderate relationships in respect to their interest for exports (especially companies that offer services).

It is worth noting that only two sample enterprises in the region of Kavala had foreign subsidiary companies and they already followed the IAS (one that is listed on the stock market). Another fact worth noting is that the majority of those questioned supported the fact that there are foreign competitors. Thus, the conclusion is that the application of the IFRS for SMEs should be the most favoured

choice for companies because the majority are not shown to be able to adopt the full IFRS. This factor assists the imperfect knowledge that they have with respect to the knowledge needed to use the IAS. It is worth noting the fact that the majority of accountants declare moderate knowledge of the Standards while just one manager-owner believes that he has excellent knowledge.

As we have seen in the research in the region of Kavala, factors such as the educational level, the motivation of the businesses, and their extroversion constitute the main factors that affect the attitude of the firms concerning their willingness to adopt the IFRS for SMEs. With reference to other researchers, these factors are classified as regulatory factors that may boost the results of firms. Indicative is the research by Zeghal and Mhedhbi (2006) who among other things believe that the educational level is very important for the decision to adopt the IFRS.

During this research, besides the examination and presentation of the basic hypotheses, we tried to compare the results from the two (demographically common) prefectures. Although we expected to find similar results, we actually found out that each region has a different perspective. As a result the outcome is exactly the opposite of what we expected. The reason for these reactions may form the subject of further research.

It is also deemed necessary at this point to note the importance of the cost of application. Even though in the present research, this particular factor doesn't seem to be the most important, when the decision to apply the IFRS is made, the importance of this step shows more uncertainty. Given the economic conjuncture we are in, such a decision may be judged in such details, something which in the past seemed less possible. The cost is considered very high due to the necessity of detailed knowledge and the staffing of companies with trained personnel.

In order for the IFRS to be suitable for the SMEs in a less developed European nation such as Greece and for the Greek companies to benefit from the advantages that the standards offer, the Greek government should provide an organized legislative framework concerning the IFRS for the SMEs. In order for this to happen, there should be radical changes taken immediately by the national accounting authorities.

Government policy towards small- and medium-sized entities has led them to the noncompliance and essentially to the non-application of the standards. Since the SME constitutes the backbone of the Greek economy, this is not an acceptable situation.

Further research could expand the scope of this study by carrying out this survey in other countries to compare or to verify these results.

Appendix

Table 7 Correlation between the use of IFRS and the factors which affect the adoption of IFRS

			Region of Kavala	Region of Serres
			Use of IFRS	Use of IFRS
Spearman's rho	Number of employees	Correlation coefficient	-0.040	0.116
		Sig. (2-tailed)	0.650	0.150
		<i>N</i>	130	156
	Annual sales	Correlation coefficient	0.055	-0.004
		Sig. (2-tailed)	0.534	0.956
		<i>N</i>	130	156
	Type of production	Correlation coefficient	0.187	-0.011
		Sig. (2-tailed)	0.033	0.894
		<i>N</i>	130	156
	Foreign imports	Correlation coefficient	0.375	-0.034
		Sig. (2-tailed)	0.000	0.678
		<i>N</i>	130	156
	Foreign exports	Correlation coefficient	0.397	-0.093
		Sig. (2-tailed)	0.000	0.250
		<i>N</i>	130	156
	Equity from foreign investors	Correlation coefficient	0.286	0.071
		Sig. (2-tailed)	0.001	0.377
		<i>N</i>	130	156
	Borrowings abroad	Correlation coefficient	0.339	0.056
		Sig. (2-tailed)	0.000	0.489
		<i>N</i>	130	156
Foreign subsidiaries	Correlation coefficient	0.312	0.062	
	Sig. (2-tailed)	0.000	0.441	
	<i>N</i>	130	156	
Foreign competitors	Correlation coefficient	0.062	-0.182	
	Sig. (2-tailed)	0.486	0.023	
	<i>N</i>	130	156	

Table 8 Correlation between the internationally comparable accounting information and the factors which affect the adoption of IFRS

			Region of Kavala	Region of Serres
			Internationally comparable accounting information	Internationally comparable accounting information
Spearman's rho	Number of employees	Correlation coefficient	0.697	-0.025
		Sig. (2-tailed)	0.000	0.761
		<i>N</i>	130	156
	Annual sales	Correlation coefficient	0.428	0.001
		Sig. (2-tailed)	0.000	0.986
		<i>N</i>	130	156
	Type of production	Correlation coefficient	0.370	-0.141
		Sig. (2-tailed)	0.000	0.079
		<i>N</i>	130	156
	Foreign imports	Correlation coefficient	0.828	-0.054
		Sig. (2-tailed)	0.000	0.504
		<i>N</i>	130	156
	Foreign imports	Correlation coefficient	0.879	0.157
		Sig. (2-tailed)	0.000	0.051
		<i>N</i>	130	156
	Equity from foreign investors	Correlation coefficient	0.767	0.042
		Sig. (2-tailed)	0.000	0.600
		<i>N</i>	130	156
	Borrowings abroad	Correlation coefficient	0.519	0.108
		Sig. (2-tailed)	0.000	0.180
		<i>N</i>	130	156
Foreign subsidiaries	Correlation coefficient	0.221	0.168	
	Sig. (2-tailed)	0.012	0.036	
	<i>N</i>	130	156	
Foreign competitors	Correlation coefficient	0.238	0.075	
	Sig. (2-tailed)	0.006	0.353	
	<i>N</i>	130	156	

Table 9 Correlation between the willingness of adoption IFRS and the factors which affect the implementation of IFRS

			Region of Kavala	Region of Serres
			Willingness of adoption IFRS	Willingness of adoption IFRS
Spearman's rho	Number of employees	Correlation coefficient	0.687	0.015
		Sig. (2-tailed)	0.000	0.849
		<i>N</i>	130	156
	Annual sales	Correlation coefficient	0.305	0.012
		Sig. (2-tailed)	0.000	0.881
		<i>N</i>	130	156
	Type of production	Correlation coefficient	0.095	0.030
		Sig. (2-tailed)	0.280	0.714
		<i>N</i>	130	156
	Foreign imports	Correlation coefficient	0.658	0.177
		Sig. (2-tailed)	0.000	0.027
		<i>N</i>	130	156
	Foreign exports	Correlation coefficient	0.670	-0.022
		Sig. (2-tailed)	0.000	0.790
		<i>N</i>	130	156
	Equity from foreign investors	Correlation coefficient	0.497	-0.070
		Sig. (2-tailed)	0.000	0.384
		<i>N</i>	130	156
	Borrowings abroad	Correlation coefficient	0.201	0.012
		Sig. (2-tailed)	0.022	0.880
		<i>N</i>	130	156
Foreign subsidiaries	Correlation coefficient	0.193	0.091	
	Sig. (2-tailed)	0.027	0.258	
	<i>N</i>	130	156	
Foreign competitors	Correlation coefficient	0.277	0.020	
	Sig. (2-tailed)	0.001	0.807	
	<i>N</i>		156	

Table 10 Correlation between the benefit from the adoption of IFRS and the factors which affect the implementation of IFRS

			Region of Kavala	Region of Serres
			Benefit from the adoption of IFRS	Benefit from the adoption of IFRS
Spearman's rho	Number of employees	Correlation coefficient	0.564	-0.070
		Sig. (2-tailed)	0.000	0.387
		<i>N</i>	130	156
	Annual sales	Correlation coefficient	0.411	0.001
		Sig. (2-tailed)	0.000	0.988
		<i>N</i>	130	156
	Type of production	Correlation coefficient	0.108	0.068
		Sig. (2-tailed)	0.223	0.400
		<i>N</i>	130	156
	Foreign imports	Correlation coefficient	0.531	-0.074
		Sig. (2-tailed)	0.000	0.358
		<i>N</i>	130	156
	Foreign exports	Correlation coefficient	0.587	-0.041
		Sig. (2-tailed)	0.000	0.608
		<i>N</i>	130	156
	Equity from foreign investors	Correlation coefficient	0.504	-0.075
		Sig. (2-tailed)	0.000	0.349
		<i>N</i>	130	156
	Borrowings abroad	Correlation coefficient	0.404	0.017
		Sig. (2-tailed)	0.000	0.838
		<i>N</i>	130	156
	Foreign subsidiaries	Correlation coefficient	0.256	-0.006
		Sig. (2-tailed)	0.003	0.942
		<i>N</i>	130	156
Foreign competitors	Correlation coefficient	0.315	-0.102	
	Sig. (2-tailed)	0.000	0.205	
	<i>N</i>	130	156	

References

Book

- Emvalotis, A., Katsis, A., & Sideridis, Γ. (2006). *Statistical methodology of educational research*. A version, Ioannina.
- Marouga, K. (2004). *Statistical analysis of data of general examinations with emphasis on multivariate methods* (Chap. 6, pp. 57–67). Retrieved September 9, 2013 from <http://www.stat-athens.aueb.gr/~jpan/diatrives/Marouga/chapter6.pdf>

Journal

- Albu, C. N., Albu, N., Fekete, S., & Cuzdriorean, D. (2010). *IFRS for SMEs in Europe – Lessons for a possible implementation in Romania*. Presented at the International Conference on Economy and Management Transformation, 24–26 October 2010. WSEAS Press, Romania, pp. 659–663
- Baldarelli, M. G., Demartini, P., & Mošnjaškare, L. (2006). *International accounting standards for SMEs (Empirical evidence from SMEs in a country in transition and in a developed country in stagnation)*. Retrieved August 15, 2013 from http://www.efpu.hr/uploads/media/IFRS_for_SMEs_in_Italy_and_Croatia_01.pdf
- Ball, R. (2006). *International Financial Reporting Standards (IFRS): Pros and cons for investors* (pp. 5–27). Accounting and Business Research, International Accounting Policy Forum.
- Daske, H. (2004). *Economic benefits of adopting IFRS or US-GAAP: Have the expected costs of equity capital really decreased?* (Working paper series/Johann- Wolfgang-Goethe-Universität Frankfurt am Main, Fachbereich Wirtschaftswissenschaften: Finance & Accounting, No. 131).
- DeCoster, J. (1998). *Overview of factor analysis*. Retrieved September 18, 2013, from <http://www.stat-help.com/notes.html>
- Deloitte Touche Tohmatsu. (2009). *Simplified financial reporting – IASB provides relief for SMEs* (p. 31453). London: Designed and Produced by The Creative Studio at Deloitte.
- European Commission. (2012a). *Enterprise and industry SBA fact sheet 2012 GREECE*. Retrieved August 11, 2013, from http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/countries-sheets/2012/greece_en.pdf
- European Commission. (2012b). *Evaluation of the SME's definition*. Retrieved August 11, 2013 from http://ec.europa.eu/enterprise/policies/sme/files/studies/evaluation-sme-definition_en.pdf
- Newspaper The Vima. (2009). *IAS for SME's*. Retrieved August 19, 2013 from <http://www.tovima.gr/opinions/article/?aid=281390>
- Milonas, P., & Athanasopoulos, A. (2013). *SMEs: survey, special issue: extraversion. Management strategy and economic analysis*. Retrieved August 12, 2013 from http://www.nbg.gr/wps/wcm/connect/d54860ed-7f1e-49f5-9cb4fe0076d5db8a/SMES_2012H2_final.pdf?MOD=AJPERES
- Nobes. (1998). *International accounting* (Chap. 4). Retrieved September 11, 2013 from http://highered.mcgraw-hill.com/sites/dl/free/0074716719/363734/sample_ch04.pdf
- Taxheaven. (2009). *The IASB publishes IFRS for SMEs*. Retrieved August 17, 2013 from <http://www.taxheaven.gr/news/news/view/id/4926>

Conference Paper or Contributed Volume

- Financial Reporting Faculty. (2015). *SME accounting requirements: Basing policy on evidence*. Research in Accounting Regulation. Retrieved January 3, 2016, from <http://www.icaew.com/~media/corporate/files/technical/financial%20reporting/information%20for%20better%20markets/sme%20accounting%20requirements%20final.ashx>. Published by ICAEW.
- Student Accountant. (2010). *IFRS for SMES relevant to ACCA qualification paper p2 (INT, SGP, MYS, HK)*. Issue 05/2010. Retrieved August 19, 2013 from http://www.accaglobal.com/content/dam/acca/global/PDF-students/acca/tech/sa_mar10_IFRS_SMEs_INT.pdf

- Tzani, M. (2005). *Notes for the course 'Research Methodology of Social Science'* (pp. 23–27). University of Athens. Retrieved September 9, 2013 from <http://benl.primedu.uoa.gr/database1/method.pdf>
- Uyar, A., & Gungormus, A. H. (2013). Perceptions and knowledge of accounting professionals on IFRS for SMEs: Evidence from Turkey. *Research in Accounting Regulation*, 25(1), 77–87, Published by Elsevier.
- Voutsinas, M. V. (2003). *Chapter 6: Hypothesis testing* (pp. 83–90). Notes of the course Statistics III, Department of Economics, University of Piraeus.
- Zeghal, D., & Mhedhbi, K. (2006). An analysis of the factors affecting the adoption of international accounting standards by developing countries. *The International Journal of Accounting*, 41, 373–386.

Accounting System in Croatian Public Health-Care Sector: Current State and Improvement Perspectives



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Abstract As in many countries, public health-care sector represents a very important subsystem of Croatian general government sector and a very important segment of total public spending. The specificities of Croatian public health-care sector refer to its financing model and asset structure, but mostly to large material and human resources, employment needs and service delivery model/set of procedure complexity. From a health-care financial management macroeconomic point of view, hospitals' spending represents the most demanding and the most expensive segment, while cost-efficiency and effectiveness of hospitals reflect the overall health-care system quality. This implies management efficiency and effectiveness that further require necessary quality, accuracy and complete set of both financial information (which would reflect true and fair view of organization's financial position and performance) and nonfinancial information (which would further indicate the effectiveness level). In addition, Croatian public health system has been a subject to frequent reforms and almost permanent financial recoveries of piled incurred losses.

The paper presents empirical evidence on the current state and functional adequacy of the accounting and financial reporting system as well as the evidence on the perception about the accounting information quality level in meeting Croatian public sector health-care management needs. The empirical research was conducted based on the data collected by means of questionnaire sent to all public health-care institutions in Croatia in the year 2016.

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The results of this study have relevance to all users of financial statements and in particular to accounting professions engaged in public sector accounting information system set of reforms, in their effort to upgrade and advance the existing financial reporting system by implementing accruals in public sector health-care accounting/financial reporting system as business-like (parts of) government. Such a system should insure the integral information base that would enable efficient use of public goods and the existence of accountable financial management.

Keywords Public health care • Government accounting • Financial reporting • Empirical analysis • Croatia

1 Introduction

The health-care service in Croatia is ensured on its entire territory and is aimed at the entire population. It is regulated by the Health Care Act (Official Gazette 158/2008). The National Health Care Strategy 2012–2020 defines health-care system development perspectives. In addition, the adoption of the National Health Care Strategy (Official Gazette 116/2012) is a significant step in the context of EU accession as the existence of such a document is a necessary precondition for the financing of EU projects in public health-care sector.

By the Health Care Act, health-care activities are performed on the primary, secondary and tertiary level as well as in health institutes. The health-care service is carried out on the principles of comprehensiveness, continuity, accessibility and integral approach in primary health care and specialized approach in specialist-consultative and hospital health care. Funding and total resources necessary for health protection and disease fight are limited, while health demands are growing, fostered by the constant progress of science and health awareness, thus creating a gap between the demand for health services and financing options of such health-care expenses.

The financing of the health system in Croatia is arranged as a combination of Bismarck's model (based on social insurance, i.e. compulsory health insurance contributions are mandatory for all employed citizens and their employers) and Beveridge's model, which is based on budget revenues, and all due to the revenue deficit arising from exclusively Bismarck's financing model. These financing models cover about 80% of the health risk costs, while the insured persons are obliged to pay the remaining 20% on their own (<http://www.hzzo.hr/zdravstvenisustav-rh/financiranje-zdravstvene-zastite/>). Market financing of health-care services is still marginal. A growing trend of public health-care expenditures in GDP and the structure of public expenditures have awakened the interest for politics and public health-care financing (Vašiček 2016). According to WHO, health-care expenditures in the Republic of Croatia had an increasing trend until 2010 up to 10.3, when health-care financing was rehabilitated and the expenditures in GDP were reduced on 7.3. In this context, different organizational possibilities of

improving business and financial sustainability of public health institutions have taken place. Last in the series of major reforms of the system was made in 2013 based on the Financial Rehabilitation of Public Institution Act (Official Gazette 2012). The Act is in force at public health institutions whose functioning is threatened by accumulated losses and outstanding financial obligations. Existent or imminent illiquidity and negative financial results were most certainly the signal for “state intervention” since the public health-care system as a vital function must maintain functional in all its aspects (Vašiček 2013). In this context, there is a major demand for more efficient financial management. Consequently, requirements for quality accounting information are imposed. This further stresses the need to review and improve public health-care accounting information system.

The purpose of this paper is to present empirical evidence on the current state and functional adequacy of the accounting and financial reporting system as well as the evidence on the perception about the accounting information quality level in meeting Croatian public sector health-care management needs. The empirical research was conducted based on the data collected by means of questionnaire sent to all public health-care institutions in Croatia in the year 2016. The authors investigated research questions based on descriptive statistical analysis. In the second part of the paper, authors comprehensively analyse the accounting system in Croatian public hospitals. In that part, the authors are providing the information about the flaws of current accounting system for the recording and allocation of costs. In the third part, results from previous research are presented. In the fourth part of the paper, empirical research results are given. At the end of the paper, authors are providing relevant recommendations for the introduction of accrual accounting basis and cost accounting system in the Croatian National Health System (hereinafter NHS) that can be very helpful not just for management process at Croatian hospitals but also for all hospitals that have similar problems with the financing system.

2 Accounting System in Croatian Public Health-Care Sector: Current State

The period from the beginning of 2002 until today marks the intensification of reforms in the Croatian public sector, including the reform of national accounting. This also stands for the public health-care subsector as a very important part of the public sector. Leaving the concept of cash accounting and fund accounting and at the same time introducing the concept of modified accrual accounting basis were the further steps towards modern international trends. Simultaneously, comprehensively and consistently relevant international classifications are introduced in the reporting system to ensure transparency and comparability of the state and its entities. A reform in the financing of the public health-care system changed status of the Croatian Health Insurance Fund (hereinafter CHIF) from an extra-budgetary

user to a part of the central government budget through the State Treasury. Thus, public health-care institutions are financed through contributions from CHIF and behave in accordance with the established standards at the central government (Ministry of Health) but in terms of the accounting regulations become a classic form of budget user. However, the speciality of Croatian public health system is that the health institutions as budget users are not financed exclusively by certain types of expenditure approved in financial plan, but are based on the actual provision of services, within the framework of a contract with CHIF or state that through public hospitals indirectly provides health service to citizens (Vašiček and Roje 2010). The financial reform of the public health sector is included in the mandatory application of the current national accounting based on the modified accrual accounting basis. The Budget Law (Official Gazette 136/2014), Regulation on Budget Classifications (Official Gazette 26/2010) and Regulation on Budget Accounting and Chart (Official Gazette 124/2014) form the legal framework of the current public health accounting system today. Modified accrual accounting basis in particular has the following main features (Dražić Lutilsky et al. 2015):

1. Expenses are defined as decreases in economic benefits during the reporting period, which means that it is recognized at the time of the transaction, regardless of the time of payment.
2. Revenues are defined as an increase in economic benefits during the reporting period in the form of inflows of cash and cash equivalents, which undoubtedly refers to the recognition of revenue retained at cash concept.
3. Revenues and expenses due to changes in the value and volume (value adjustments, deficits/surpluses, write-offs, etc.) of nonfinancial assets and liabilities are not recognized, but these changes are reflected directly in ownership sources (public capital).
4. Costs of acquisition of nonfinancial fixed assets are not capitalized but totally recognized as expenses of the period in which the acquisition occurs. Consequently, health-care entities are not accounted for depreciation of the asset as well as the systematic allocation of the cost over the useful life of its usage, which directly undermines the possibility of monitoring the efficiency of activities.
5. Also, in direct connection with the aforementioned, the recognition of received fund support from the founders (the state and local government) to finance investments in asset is not carried out according to economic logic of the international accounting standards (profit or capital approach), but is recognized as total revenues of the reporting period in which they are realized.
6. Acquisition or alienation of nonfinancial assets free of charge (donations) in the framework of the budget is not recognized as income or expense but is directly expressed as the change in ownership sources (public capital).

It should be noted that since the beginning of 2015, the CHIF as the dominant “buyer” of public health services, after 13 years of functioning in the framework of the State Treasury, regained its financial independence. This fact, however, did not cause any change in the budget and the accounting status of public health-care

institutions as it was the case when the Health Fund was included in the State Treasury.

As for the financial reports, public health-care institutions have been obligated to make balance sheets, reports on revenues, expenses, cash receipts and expenditures, reports on changes in assets' and liabilities' volume and notes as the supplement records which follow up the financial statements. Also, they have been obligated to prepare additional reporting requirements towards the CHIF and Ministry of Health like dominant stakeholders.

The basic features of accounting system show that it is impossible to directly confront revenues and the associated expenses, which is a fundamental premise for expressing real financial results. The expenditures incurred in the operation of earning income during the reporting period are recognized immediately after the occurrence, while in order for revenues to be recognized, claims must be charged. Economic course of business is hereby directly dependent on the financial progress. Thus, financial performance and liquidity of a public health-care institution are directly dependent on the liquidity of a "dominant buyer" of health services, i.e. CHIF, and the founder who, within the framework of decentralization, finances certain expenses. Consequently, health institutions are left without internal financing source in the form of accrued depreciation.

3 The Results of Previous Research

Testing the quality of the existing public health-care sector accounting system in Croatia was carried out in the context of testing the possibilities of adopting the International Public Sector Accounting Standards (IPSAS) in national government accounting system in the year 2006/2007 (Vašiček 2007) and expanded in the year 2009/2010 (Vašiček and Roje 2010). As a part of these studies, the examination was done on perceptions of accountants of the adequacy and appropriateness of existing modified accrual-based accounting and financial reporting system for Croatian public health-care sector. Having in mind the sector's specificities, it was argued that such a system showed discontinuity, and question whether precisely Croatian public health-care sector might represent a segmental accounting subsystem where accruals implementation could prove justifiable was discussed.

Data were collected by means of a self-administrated questionnaire. Respondents to survey were broadly representative of 36 Croatian hospitals (53.73% of all targeted respondents) that represent the most complex and the most important segment of the public health-care sector. Precisely, this study focused on the perception of accountants and financial officers involved in preparing the financial reports. The questionnaire consisted of 58 questions and was divided into two main parts. The first part referred to the financial accounting and reporting system, containing 32 questions, while the second part referred to the cost and managerial accounting methods' development and their implementation in public health-care organizations, containing 26 questions. Further, the first part of our survey

consisted of two parts—financial accounting and financial reports. Therefore, 18 out of 32 questions were used to examine the appropriateness of financial accounting to the health-care organizations' needs, while additional 14 questions surveyed the preparers' perception of the financial report quality.

As discussed above, the first part of the research dealt with a broadly stated research question:

Is the existing modified accrual-based accounting and financial reporting system adequate and appropriate for Croatian public health-care sector?

Regarding the question that was asked if the government accounting model which was introduced in 2002 has brought advantages that would satisfy their reporting needs, 22 of the respondents (61%) did not find that this government accounting model brought advantages that would satisfy their reporting needs. Question which asked the accountants and financial officers whether they found the existing accounting system adjusted towards gathering the financial reports for the external users was answered negatively by 67% of the respondents. This might be due to the main disadvantage of the existing accounting model that it does not enable linking the revenues and expenses of the same period since the revenues are not recognized when earned but when cash or cash equivalents are received.

Also, 58% of the respondents reported that it would be better for the purpose of disclosing true and fair operations' results that the expenses regarding the fixed asset supply are not treated as expenditure in full when obtained but rather capitalized and that the assets' depreciated amounts based on the estimated asset usage period are recognized annually. As well as the fact that 69% of the respondents found the net fixed asset value to be underestimated under the existing accounting model supports the research hypothesis that the existing modified accrual-based accounting system is not completely adequate and appropriate for Croatian public health-care sector. Looking at the results of the research regarding quality of external financial reporting, attitudes of the respondents were divided. So, 19% of the respondents thought that the financial reports enabled true and fair view of organization's financial position and performance; 25% of all respondents answered that financial reports mostly enabled true and fair view of organization's financial position and performance; 33% did not think that financial reports enabled true and fair view of organization's financial position and performance; and 22% mostly disagreed that financial reports enabled true and fair view of organization's financial position and performance.

Looking at the results of the research and ranking the importance of reason for using the prescribed system of financial reporting, it was visible that the most important reason for using prescribed financial reporting system is meeting with the statutory reporting obligations. The second reason is the execution of the financial plan followed by successful conduction of business policy and benchmarking with other equivalent institutions at the end. The results clearly indicate that accounting information systems in public health-care institutions are focused on assembling external financial statements. From the position of public health-care institutions, external reporting is divided in accordance with the

reporting according to the Budget Law. However, with such a complex and challenging external reporting, it remains a fact that public hospitals are missing information needed to make business decisions and to manage hospitals in the short- and long-term. Internal reports needed for governing public hospitals are used occasionally, as the result of the current management demand, and not the quality of developed cost accounting and management accounting methodologies (Vašiček 2011).

Similar results were obtained in the research recently conducted in neighbouring countries to Croatia (Slovenia, Bosnia and Herzegovina) on the content and quality of accounting system in public health-care sector (Dražić Lutilsky et al. 2015).

4 Research Objectives and Methodology

As a part of a larger study on the degree of development and the quality of financial reporting and accounting in Croatian public health-care system, the current attitudes of relevant stakeholders on the appropriateness of prescribed legal solutions were studied. This meant conducting a survey about the perception on the quality of the current accounting systems and external financial reporting in the function of detecting their weaknesses. We were also interested in tendencies of accountants and financial officers regarding upgrading and improvement of accounting system with implementation of accrual accounting basis based on IPSAS. One of the goals of this study was to compare possible changes in the perception of quality external financial reporting and accounting system after 10 years since the last survey was conducted.

The authors have studied the following main research questions:

RQ1: *How do the accountants and financial officers today assess the quality of the public health-care accounting and financial reporting system?*

RQ2: *Are the accountants and financial officers in public hospitals ready for the implementation of accrual accounting basis?*

RQ3: *What do they see as a main constraint in the implementation of accrual accounting basis?*

The principal area of research is to present the current opinion of accountants and financial officers in Croatian public health-care institutions (hospitals) about research questions. To determine all of the above, empirical survey using questionnaires was conducted in December 2015 and January 2016 in all Croatian public hospitals in order to gather the necessary data. The questionnaires were sent by e-mail in an online form to accountant and financial officers in 57 public hospitals. Out of 57 public hospitals (59.65%), 34 responded to the questionnaire. The structure of the sample is shown in the following Table 1.

Most of the questions included in the questionnaire are multiple choice, *yes* or *no* answers or answers on a five-point Likert scale ranging from 1 to 5, where 1 indicates full disagreement and 5 indicates full agreement or in some cases

Table 1 Share of participants in total number of public hospitals

Type of hospital	Number of hospital	Number of responded hospitals	Percentage of participant hospitals in total number (%)
CHC, CH, C	10	5	50.00
General hospitals	21	13	61.90
Specialized hospitals	26	16	61.54
Total	57	34	59.65

Source: authors'

1 corresponds to the lowest degree and 5 to the highest. In addition, it is important to express that the sample representativeness was tested according to the type of public hospital. Types of the hospitals in Croatia are clinical hospital centre (CHC), clinical hospital (CH) and clinics (C) as first category and then general hospitals and specialized hospitals. The sample representativeness was tested by using goodness-of-fit chi-squared statistical test. The test has shown that the sample's distribution is not statistically significantly different from the distribution within the population of 57 Croatian hospitals (empirical chi-square = 0.1896, degrees of freedom = 2, p -value = 0.9096).

Table 2 shows population characteristics like number of contracted beds with CHIF in 2015. Contracted beds are a basis for health-care service provisions. The highest number of contracted beds is in CHC, CH and C, like the number of employees. There are 26 of specialized hospitals, 21 of general hospitals and only 10 of CHC, CH and C.

From the characteristic of population, we can conclude that by the number of contracted beds and by the number of employees, CHC, CH and C are the largest hospitals. Medium hospitals are general hospitals, and specialized hospitals are small type hospitals. When we look at the structure of hospitals, we can see that specialized hospitals make up 46% of the total number of hospitals, general hospitals hold 37% and the CHC, CH and C form 18% of the total number of hospitals. Sample characteristics are given in Table 3.

Table 2 Characteristics of population

Type of hospital	Number of hospitals	Structure of hospitals (%)	Number of contracted beds with CHIF in 2015	Structure of beds (%)	Number of employees on 30.9.2014	Structure of number of employees (%)
CHC, CH, C	10	18	7.695	38	22.367	49
General hospitals	21	37	6.504	32	17.308	38
Specialized hospitals	26	46	5.865	29	6.364	14
Total	57	100	20.064	100	46.039	100

Source: CHIF, internal documents

Table 3 Characteristics of the sample

Type of hospitals	Number of hospitals	Structure of hospitals (%)	Number of contracted beds with CHIF in 2015	Structure of beds (%)	Number of employees on 30.9.2014	Structure of number of employees (%)
CHC, CH, C	5	15	3.484	33	10.513	43
General hospitals	13	38	3.595	34	9.984	41
Specialized hospitals	16	47	3.569	34	3.963	16
Total	34	100	10.648	100	24.460	100

Source: CHIF, internal documents

Table 3 shows that 15% of public hospitals that responded to our questionnaire are large hospitals of type CHC, CH and C, 38% of general hospitals are considered medium and 47% of specialized hospitals are considered small type hospitals.

4.1 Research Results

To answer the first research question, the authors focused on a series of 20 specific sub questions about certain elements of the financial statements, the applied accounting basis and the usability of accounting information for management and reporting of business and the wider environment. Typical attitudes towards the most important issues are presented below. To sub question *whether your financial statements fairly represent the financial position and performance of the institution*, as much as 82% of respondents said *yes* and *mostly yes*. This is a significant increase compared to the research conducted 10 years ago when only 44% of respondents provided “yes” as their answer.

Also, 76% of respondents believe that the content, structure and dynamics of financial reporting are adequate for public health activities. Compared to previous studies, this represents the largest deviation, because back then the answers of the respondents expressed a high degree of dissatisfaction with the prescribed reporting system. On the scale of 1–5, the highest grade about the usefulness of individual financial statements to assess the financial position and operations of the institution respondents gave to the statement of liabilities (average score is 4.28), while the lowest grade was given to cash flow statement (average score is 3.14). When assessing the usefulness of external financial reports for decision-making and management, 38% of respondents consider it significant; while 53% see it as only partially significant. As many as 60% of internal and external users of accounting information consider financial statements understandable, ranking its intelligibility with 4 or 5. Even 70–80% of respondents assess with high grades the reliability of the information contained in the financial statements as well as their comparability

in the context of activities and time course. In the research conducted more than 10 years ago, understandability, comparability and reliability were rated much lower.

Looking at the results of the research and ranking the importance of reason for using the prescribed system of financial reporting, it is visible that the most important reason for using prescribed financial reporting system is meeting with the statutory reporting obligations (rank 4.97), then follows the execution of the financial plan (rank 4.45), external and internal audit and control (rank 4.43), and then the successful conduction of business policy (rank 3.90) followed by benchmarking with other equivalent institutions (rank 3.38) and finally promotion of institution (rank 3.11). These results matched the survey results from 2006. Considering the results of the survey in 2016, based on responses to the research questions, it can be concluded that the financial reporting today receives high grades, and in this respect, in some elements it presents a significant improvement compared to the first years of its implementation. In reviewing the adequacy of the modified accounting basis, research questions focused on the key elements such as recognition of operating expenses, expenses of fixed assets, revenues and financial results. As expected, 91% of respondents believe that the accrual accounting basis is appropriate for the recognition of operating expenses, while only 9% believe the opposite. Regarding capitalization of acquisition costs of fixed assets, under modified accounting basis and under accrual accounting basis, the perception is divided. Thus, 47% of respondents believe that the current system of recognition of acquisition costs of these assets without capitalization is good, while the other 53% think the opposite. In the study carried out in 2006, attitudes on this issue were also divided. So, 58% of respondents then believed that it was necessary to introduce the principle of capitalization of costs of fixed assets, while even 30% had an opposite attitude. The appropriateness of cash basis in recognition of revenue, as the next significant accounting basis, was positively rated by 73% of respondents. In contrast to these results, research conducted in 2006 showed extremely negative attitude on this issue. Back then, 94% of respondents felt that the lack of accrual accounting basis in the recognition of revenues significantly distorts information about the reality of total revenue and financial results.¹ To answer the second research question, accountants and financial officers in public hospitals were asked to state whether the current accounting system should be improved with the

¹Interpreting the comparison of research results and in particular significant differences in some of the results must take into account the following:– The distance between the research is 10 years.– Implementation of reporting system that is the subject matter began in 2002 and the steady growing acceptance of the new system with the passage of time.– The period of the first survey was accompanied by high insolvency system and the inclusion of the health insurance system of the treasury and restrictive financing through the reduction of hospital limits—resistance to changes caused by other factors/outside accounting.– The period of the second survey monitored rehabilitation programme in health care and off CIHI from the treasury system– The survey is based on the attitudes, and perceptions of respondents are not matched with the institutions or persons who responded to the survey.

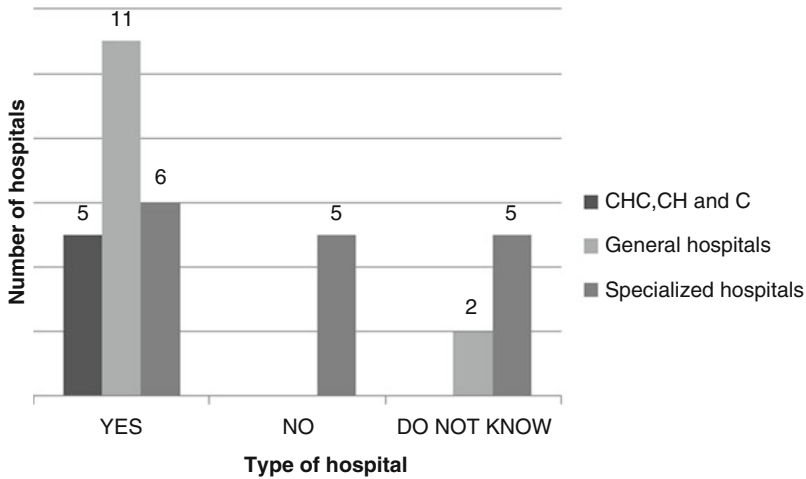


Fig. 1 Accountants and financial officers' opinion about implementation of accrual accounting basis in public hospital accounting system, $n = 34$. Source: empirical research

implementation of accrual accounting basis in public hospitals. Sixty-five percent out of all accountants and financial officers who participated in the study believe that current accounting system should be improved with the implementation of accrual accounting system that would expand the scale of available accounting information.

In Fig. 1, it is visible that only a small number of specialized hospitals are opposing to the implementation of accrual accounting basis. A small part of general and specialized hospitals does not have opinion about the implementation of accrual accounting basis.

Respondents' answers to whether the current accounting system should be improved with the implementation of accrual accounting basis in public hospitals imply that accountants and financial officers in Croatian public hospitals are ready for the implementation of accrual accounting basis in accounting system.

As expected, the attitudes towards full accrual implementation are evenly divided, as the formation of a clear view is based on the comprehensive knowledge of implementation methodology. Slightly more than 30% of respondents (who opted for full accrual implementation) consider that the implementation should be done following one of the options: direct application of IPSAS, upgrading the existent legal framework of accounting or designing national accounting standard for public sector.

The third research question investigates what accountants and financial officers see as a main constraint in the implementation of accrual accounting basis. Again, authors asked about their perception on constraints.

From Table 4, it is visible that the highest average grade is given to the constraint *support of administration and management of hospitals* with an average grade of 4.40. On the second place, accountants and financial officers grade constraint

Table 4 Constraints in implementation of accrual accounting basis

Constraints	Response structure (%)					Average	Standard deviation	Rang
	1	2	3	4	5			
Human resources	6.3	6.3	21.9	31.3	34.4	3.81	1.176	5
Financial resources	3.1	9.4	18.8	37.5	31.3	3.84	1.081	4
IT support	3.2	3.2	22.6	38.7	32.3	3.94	0.998	3
The long duration and complexity of the process	0.0	6.3	34.4	34.4	25.0	3.78	0.906	6
Political and legislative support	0.0	3.1	25.0	31.3	40.6	4.09	0.893	2
Support of administration and management of hospitals	0.0	0.0	20.0	20.0	60.0	4.40	0.814	1

Source: empirical research

political and legislative support with an average grade of 4.09. Constraint *IT support* is on the third place, and then on the fourth and fifth place, they put constraints *financial resource* and *human resource*. On the sixth place, we can find constraint *The long duration and complexity of the process*. From the results, we can conclude that accountants and financial officers found support of administration and management of hospitals extremely important regarding implementation of accrual accounting basis or as the main constraint for the implementation of accrual accounting basis. This may be due to the fact that physicians with little accounting and financial knowledge are in top management of public hospitals. This may indicate that top management does not understand the issue regarding accounting system. In addition, the sixth place of constraint *the long duration and complexity of the process* was surprising. According to Stamatiadis (2009), process of implementation of accrual accounting basis in Greek public hospitals was very complex and time and resource consuming. From the 45 public hospitals that had implemented accrual accounting basis, 60% of them saw the implementation of accrual accounting basis as a very difficult and long-term process (Stamatiadis 2009). The complexity and extensiveness of the implementation process and the harmonization of Croatian national accounting with IPSAS have been described thoroughly in a publicly accessible comprehensive professional edition from 2015 by a group of authors (Vašiček and Roje 2015). Therefore, we can conclude that Croatian accountants and financial officers are not acquainted with the process of the implementation. Their opinion is that if they get the support from management and politics, it would be easier to implement the accrual accounting basis.

4.2 Conclusion Remarks About Research Results

Answers to the first research question (*How the accountants and financial officers today assessed the quality of the public health-care accounting and financial reporting system?*) show that the accounting system and public health-care external

financial reporting have stabilized after almost 15 years of implementation. As accounting only monitors operating and financial processes in a limited delivery and financing of health-care services, the respondents show the lack of critical attitude towards its qualitative inadequacy due to the impossibility of confronting revenues and expenses on the same methodological basis. Consequently, the research results regarding the perception of accounting quality and reporting system were significantly different some 10 years ago in comparison with the recent studies. Although the samples do not match and economic-financial environment is different, one can conclude that respondents show much higher level of satisfaction with the quality and usefulness of accounting information in the financial statements. Nevertheless, the answer to the second research question (*Are the accountants and financial officers in public health-care institutions (hospitals) ready for the implementation of accrual accounting basis?*) unambiguously indicates that practice recognizes the need for further improvement of the accounting system in the form of full accrual basis implementation. Out of 34 accountants and financial officers participating the survey, 65% of them believe that implementation of accrual accounting system in current accounting system would expand the scale of available accounting information. Research results suggest that they believe that with accrual accounting basis, they would obtain reliable, timely and accurate information about costs that would result in better governance in public hospitals. As the main constraint to the improvement of accounting system, accountants and financial officers see support from the management or better to say lack of support. Then, they see political support and on the third place IT support as an important constraint. Ranking of constraints based on perceptions of accountants and financial officers is important because it expresses their opinion about lack of understanding from management and politics but also about low investment in information accounting system of public hospitals.

5 Conclusion

The qualitative analysis determines that the existent accounting model of public health-care institutions, based on modified accrual basis, does not allow for the confrontation of revenues and expenses and the capitalization of costs of acquiring fixed assets. Consequently this can lead to unrealistic statements of financial results, especially in cases of financial delays. Furthermore, fixed asset costs cannot be systematically allocated to cost centres and cost units. In capital-intensive activities (and health-care activities are becoming one of those), this can greatly distort the overall cost management and measurement of the effectiveness of some cost centres. It can therefore be concluded that the existing accounting system does not provide fully reliable information basis necessary to make economic decisions as well as effective control over public assets. The research results on the accountants' perception in 2006 confirm this directly, whereas most recent results relativize the conclusion. This can be interpreted as the difference in the

representativeness of the sample, stabilization of the accounting practice through long-term application of the system and more importantly stabilization of contractual relations in the scope of performing and financing public health-care services. Nevertheless, newer research results strongly indicate the willingness and the need for improvement of accounting system through the accrual basis implementation. Direct or indirect application of IPSAS stands out as a relevant basis. In the respondents' view, support of health-care institutions' management, political support and the willingness to invest in IT support are the key factors for major accounting system reforms.

Acknowledgement This paper is a result of Croatian Science Foundation's funding of the project 8509 Accounting and financial reporting reform as a means for strengthening the development of efficient public sector financial management in Croatia. Any opinions, findings and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the Croatian Science Foundation.

References

- Dražić Lutilsky, I., Vašiček, D., & Jovanović, T. (2015). *Komparacija računovodstvenih sustava javnog zdravstva Republike Hrvatske, Slovenije, Bosne i Hercegovine (Comparison of the accounting system of public health of the Republic of Croatia, Slovenia, Bosnia and Herzegovina)*. II. Interdepartmental Symposium, Vlašić, Bosnia and Herzegovina, July 14–16.
- Official Gazette 58/2008, The budget law.
- Official Gazette 26/2010, Regulation on budget classifications.
- Official Gazette 136/2012, The Law on the rehabilitation of public institutions.
- Official Gazette 124/2014, Regulation on budget accounting and chart.
- Stamatiadis, F. (2009). *Governmental accounting reform in the Greek Public Hospitals: Some preliminary results of its implementation*. 4th Hellenic Observatory PhD Symposium. London School of Economics and Political Science, London, June 25–26.
- Vašiček, D. (2007). *Governmental accounting in function of public management decision making*. Doctoral thesis, Faculty of Economics, Rijeka.
- Vašiček, V. (Ed.). (2011). *Upravljačko računovodstvo i računovodstvo troškova u javnom sektoru – izabrane teme (Management accounting and cost accounting in the public sector – Selected topics)*. Zagreb: CAAFE.
- Vašiček, D. (2013). *Sanacija zdravstvenih ustanova i računovodstveni sustav (The rehabilitation of health facilities and the accounting system)*. TIM4PIN Magazin, 3/2013., Tim4pin d.o.o, Zagreb.
- Vašiček, V. (2016). *Obilježja javnog zdravstvenog sustava Republike Hrvatske*, ("The characteristics of the public health system of the Republic of Croatia"). In I. Dražić Lutilsky (Ed.), *Procesni pristup obračuna troškova u sustavu zdravstva, (Process approach to costing the health care system)*. Zagreb: TIM4PIN.
- Vašiček, D., & Roje, G. (2010). Accounting system in Croatian Public Healthcare Organizations: An empirical analysis. *Theoretical and Applied Economics*, XVII, No. 6(547).
- Vašiček, V., & Roje, G. (Eds.). (2015). *Harmonizacija proračunskog računovodstva u Republici Hrvatskoj s Međunarodnim računovodstvenim standardima za javni sektor (Harmonization of Budget Accounting in the Republic of Croatia with the International Accounting Standards for Public Sector)*. Zagreb: TIM4PIN.

The Comparison of Public Sector Accounting between Croatia and Bosnia and Herzegovina



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Abstract The decisive influence on the shaping of governmental accounting at the country level comes from two sources. The national source defines the specifics that are conditional and dependent on one country social system and economic development, nation's level of education and intellectual capital as well as on country's customs, tradition and culture. The international sources are harmonization and unification of methodological and legislative frameworks and national accounting practices, which further lead to reducing national specifics. The transfer and use of other countries' experiences into national frameworks have its special features with both good and bad sides.

This paper analyses the governmental accounting development in two countries: the Republic of Croatia (RH) and Bosnia and Herzegovina (BIH) from two entities—the Republic of Srpska (RS) and the Federation Bosnia and Herzegovina (FBiH) viewed through a 25-year period (1990–2015). The goal is to compare the path of development and identify key influences on solutions in a particular period of time (several phases of accounting system development).

This work has been supported by Croatian Science Foundation's funding of the project 8509 Accounting and financial reporting reform as a means for strengthening the development of efficient public sector financial management in Croatia. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Croatian Science Foundation.

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Therefore, in this paper authors analyse the characteristics of national governmental accounting in the aforementioned two countries, through various system development periods, and identify factors that have influenced the developments. Also, the paper explores the similarities and differences between the current characteristics of governmental accounting and financial reporting in the RH and BIH. Furthermore, authors explore and detect possible implementation obstacles for application of accrual accounting.

The results of this paper might be helpful to national authorities in continuing the improvements of national governmental accounting legislation and might be useful to other countries that are in comparable situations. We find that this international comparison study contributes to the existing literature and is potentially of interest for the international and national standard setters (i.e. IPSASB).

Keywords Public sector accounting • Accrual accounting

List of Abbreviations

ESA	European System of Accounts
EPSAS	European Public Sector Accounting Standards
GFS	Government Finance Statistics
BIH	Bosnia and Herzegovina
FBIH	Federation of Bosnia and Herzegovina
IMF	International Monetary Fund
IPSASs	International Public Sector Accounting Standards
Moff	Ministry of Finance
NN RH	Narodne novine RH (Official Gazette of the Republic of Croatia)
PSA	Public Sector Accounting
RH	Republic of Croatia
RS	Republic of Srpska
SG RS	Službeni glasnik RS (Official Gazette of the Republic of Srpska)
SN	Službene novine FBIH (Official Gazette of the Federation of Bosnia and Herzegovina)
FBIH	and Herzegovina)

1 Introduction

The comparison of the Public Sector Accounting (PSA) between the RH and BIH was made in order to identify the similarities and differences in the stages of development and to identify the factors that have influenced these developments. The paper also explores whether it is possible and useful to apply PSA experiences of other countries or international authorities in the development of domestic PSA system.

The first research hypothesis is that the development of PSA should be viewed in close connection with the degree of development of the country, which is defined by

the state and political structure, territorial organization, structure of the public sector, economic development and development of the society.

In order to confirm the hypothesis, authors made comparisons between the accounting systems of the RH and BIH and noticed both similarities and differences in developmental stages, as well as the basic features of PSA today. These countries were chosen because their accounting systems had independent lines of development since the disintegration of the common state in the early 1990s. These differences enable us to identify various impacts on the development itself.

The second research hypothesis is that the introduction of full accrual basis in PSA is recognized as the best course of action in these countries.

Therefore authors analysed the fundamental characteristics of PSA in RH and BIH with an emphasis on legal framework, choice of accounting basis and its application and financial reporting.

In addition, an empirical research was conducted in RH through a questionnaire in the field of public health. It questioned the need for change and improvements in PSA, attitudes towards the application of international accounting standards in the public sector as well as possible obstacles to the implementation of these standards.

2 The Development of Public Sector Accounting in the Republic of Croatia and Bosnia and Herzegovina

2.1 Territorial Organization: The Scope of the Public Sector and the Distribution of Public Revenues

BIH and the RH were two out of six republics that formed the former Socialist Federal Republic of Yugoslavia. The last decade of the second millennium witnessed a violent disintegration of the state. The RH gained its independence and international recognition in the early 1990s, while the Dayton agreement ended the armed conflict in BIH, on December 14, 1995, thus forming a democratic, decentralized state with two political entities: the RS and FBIH.

Since its independence, the RH has been organized on two levels: central and local. Today in RH, we can count 20 units of regional government-counties, with Zagreb (regarded as both a county and a city), and 556 units of local government (128 cities and 428 municipalities) (*Act on Counties, Cities and Municipalities of the RH, Narodne novine (NN) RH* 2006, 2006a, 2007, 2008, 2010, 2010a, 2013, 2013a, 2013b, 2015).

Territorial and governmental independence of units of regional and local government is followed by financial independence as well. Funding of units of regional and local government is determined by *the Law on the Financing of Units of Local and Regional Self-government (NN RH* 1993, 1997, 2000, 2000a, 2000b, 2001, 2001a, 2001b, 2002, 2003, 2006c, 2007a, 2008a, 2012, 2014, 2015a). The relations between central state and regional and local level regarding the division of common

revenue and the rights of regional and local levels to collect taxable and nontaxable revenues have changed since 1993.

Croatian system of public financing is highly centralized. The process of fiscal decentralization started in 2001, which included the decentralization of public functions in areas of education, health care and social care from the state to larger regional and local units (county centres and Zagreb). Despite that fact, data from 2014 show that the central state still incurs about 85.5% of total budget expenditures, while the spendings of regional and local units amount to 15.5% of total budget expenditures (Ministarstvo financija 2015a, b).

In BIH funding of the central state, entities and local government is determined by a series of laws, which must all be adopted at all levels of the government, in regard to its jurisdiction and autonomy.

Law on Territorial Organization of the RS (Službeni glasnik RS (SG RS) 2009, 2012a, 2014a) determines that the entity of the RS consists of 57 municipalities and 7 cities.

Law on Budget System of the RS (SG RS 2012, 2014, 2015) determines the funds and amount of money which belongs to the cities and counties for financing their activities.

The funds belonging to the Republic's budget, which are divided between local units and the Republic itself, are put on the Republic's account, while the funds entirely belonging to the local units are put directly on their account. Most significant revenues that fill the budget of the RS are indirect tax revenues which make up 66% of total budget revenues and which are further divided between the Republic, local units and "Republika Srpska Roads" (public company) in a 72:24:4 ratio.

The FBIH consists of ten counties-federal units, with a broad range of financial and administrative authorities. Seventy-nine municipalities and 40 cities make up the lower level of government. Jurisdiction and authority of the specific levels of government are determined by the *Constitution of FBIH*.

The Law on FBIH Institution Budgets (Službene novine FBIH (SN FBIH) 102/13, 13/14, 8/15, 91/15, 102/15) determines planning, implementing and executing of both the Federation's and the local units' budgets.

The amount of public revenue allocated to the accounts of the FBIH and the accounts of local units is determined by *the Law on Public Revenues of FBIH*. The Federation receives 36.20%, counties 51.48% and local units 8.42%, while the Directorate for Roads receives 3.90%. Furthermore, the percentage belonging to the counties is divided between individual counties based on a corrective coefficient, which is derived from multiple parameters.

In RH and BIH, in the purpose of tracking public expenditures, an analytical framework containing statistical and accounting elements has been derived, in regard to both national and international levels. The scope of public sector in both countries can be seen in Table 1 (created by the authors).

Table 1 The scope of public sector in RH and BIH

State/ characterary	The RH	The BIH–RS	The BIH–FBIH
Legal framework	The Budget Act (NN RH 2008, 2012a, 2015b) Ordinance of budget users and extra-budgetary users of the state budget and budget users and extra-budgetary users of local and regional government budgets as well as the manner of maintaining a register of the budget and the extra-budget users (NN RH 2009)	The Law of Budget System of RS (SG RS 2012, 2014, 2015) The rulebook for the status of budget users (SG RS 2013)	The Law on FBIH Institution Budgets (SN FBIH 102/13, 13/14, 8/15, 91/15 i 102/15)
The scope of general state	Central budget and budget of local and regional governments and extra-budgetary users of local and regional government Central budget means state budget and the financial plans of state budget's extra-budgetary users Budgetary users means the state bodies, institutions, minority self-government councils, budgetary funds and local self-government boards whose personnel and material expenditure are secured in the budget Extra-budgetary users mean extra-budgetary funds, companies and legal persons where state or local and regional government exercises a decisive influence over their management	The budget system of the Republic consists of the state budget, budgets of municipalities and cities and budgets of funds Budget users are defined as the authorities, organizations and other entities of the public sector (excluding public enterprises) which are financed from the state, municipalities and budget of cities and funds under their control Funds are: Health Insurance Fund of the RS, Public Fund for Child Protection of the RS, Fund for Pension and Disability Insurance and Employment Agency of the RS	According to the <i>Law on Public Revenues of FBiH</i> (SN FBIH 22/06, 43/08, 22/09, 35/14), the budget system of the FBIH consists of the state budget, budgets of counties, local government budgets and budget of funds. Budget users are ministries, state, counties and local government administration bodies and others who are included in the budget as budget users. Funds under governmental control are: Fund for Pension and Disability Insurance of the FBIH, Health Insurance Fund of the FBIH, Employment Agency of the FBIH and other funds established by the law
Characteristic of the Registry	Registry of the budget users and the extra-budgetary users is the list of the budget users and the extra-budgetary	The establishment of the registry of budget users at all levels of government is foreseen in order to monitor the	Status of the budget user is acquired on the basis of the constitution and the law. The registry of the budget users

(continued)

Table 1 (continued)

State/ charactery	The RH	The BIH–RS	The BIH–FBIH
	users of the state budget and the budget users and the extra-budgetary users of the budget of the local and the regional government	appropriate usage of the approved budget funds and determine the exact number of the budget users	is published in official papers every year (for 2016 in SN 42/16)

2.2 Developmental Stages of the PSA

The development of Croatian system of PSA which occurred in the last 25 years shows a significant change. International institutions (most noticeably IMF and the EU) had a decisive influence in this process, since the international requirements for comparability and transparency had to be met in order to become more seriously involved in international financial flows. The lack of experience and expertise was a cause of a rash acceptance of sometimes inconsistent solutions, which consequently required frequent amendments to the normative regulation of the matter.

Four basic stages in the development of PSA in Croatia can be identified (Roje and Vašiček 2015, pp. 17–48) (see Table 2).

In the RS and the FBIH, PSA developed in accordance with the development of the rule of law and with the strengthening of its institutions. Since the Dayton Agreement to this day, RS was called upon awareness regarding its imminent surroundings and upholding international standards. RS is one of the few countries that moved entirely from cash-based accounting to the application of accrual accounting in its public sector and introduced the International Public Sector Accounting Standards (IPSASs). Since 1992, three main phases can be identified in the development of the PSA in the RS.

On the other hand, development of PSA in FBIH went through four phases, following subsequent passings of new versions of the Budget Act of FBIH. Despite these changes, modified accrual accounting has been in continuous use since 1998.

These phases of development of state accounting in RH and BIH (Table 2, created by the authors) indicate positive developments and progress, especially in terms of:

- Uniformity and unification of a system used by all budgetary entities, which in turn enables a state-level data consolidation
- Introduction of modified accrual accounting and full accrual accounting in the RS
- The introduction of standardized classification at all stages of the accounting process (planning, execution, accounting and financial reporting)

Factors that can be isolated and which have affected the dynamics of the national accounting development in the observed countries are as follows:

Table 2 Stages in the development of PSA in the RH and BIH

Country	Stages of development
The RH	<p><i>First phase (1991–1993)</i></p> <p>The continuity in the application of legislation inherited from the former state. Fiscal and broader budgetary systems rested on taxation and public needs financing models of the former socialist republic (Šimović 1991, p. 23)</p> <p>Accounting and reporting systems of the general state at the time were also based on inherited legislation and accounting models it prescribed</p>
	<p><i>Second phase (1994–1994)</i></p> <p>Introduction and application of a completely new system which included all non-profit organizations, both state and private</p> <p>The system was conceptually based on fund accounting and modified accrual accounting, but its legislative operationalization was nonsystematic and inconsistent (Vašiček et al. 2005). As such, it was abandoned after just 1 year of use. Therefore, year of 1994 can be “considered” lost, as far as accounting system development is concerned. Curiously enough, this system stayed in use for all health-care subjects as far as year 2002</p>
	<p><i>Third phase (1995–2001)</i></p> <p>Modernization of the budget system and accompanying state accounting systems, which included radical move from previously applied solutions</p> <p>During this period, the RH passed down its first Budget Law (1994), established the State Treasury, introduced cash basis in its accounting system and synchronized its classification standards to the standards of the Government Finance Statistics (GFS 1986)</p> <p>The system was set up as an integral element of the State Treasury, i.e. as a part of modern financial information system, with the goal of generating quality information for public expense management. However, this system had certain “unplanned” weaknesses, generated as a result of delays in the implementation of the State Treasury. That way the main advantage of the system, which is efficiency in tracking of public expenses and changes in financial assets, could not be used</p> <p>Attempts to remove informational deficiencies inherent to the application of cash basis were constantly conducted. This included extending the use of accounting procedures on nonmonetary transactions and resources, by introducing General Ledger II and accompanying legislation, sometimes inconsistent and nonsystematic “prolongations” of the budget year as well as a vague definition of a “specific period”. Introduction of General Ledger II greatly supplemented the information based on nonmonetary resources and debts, which among else occurred as a result of monetary transactions recorded in General Ledger I. Significant growth of General Ledger II’s size and scope occurred in 1999, when it started to track obligations and receivable of budget users as well (Vašiček 1999, p. 79)</p> <p>System of financial reporting in RH was often supplemented with data whose input was not demanded from normative legislative framework. This still represented a significant improvement in terms of quality of financial reporting (Vašiček and Vašiček 1998, p. 153)</p>
The RS	<p><i>First phase (1995–2000)</i></p> <p>Establishment of PSA in that period was strongly influenced by post-war events: economic collapse and social and political instability. Accounting and reporting system was characterized by:</p> <ul style="list-style-type: none"> – Lack of systematic overview of public financing caused by existence of large number of accounts – Lack of prescribed and unified accounting framework – Lack of adequate information due to the use of cash basis

(continued)

Table 2 (continued)

Country	Stages of development
	<p>– Disintegrated reporting system which enabled the consolidation of the state's financial statements</p> <hr/> <p><i>Second phase (2000–2010)</i> In cooperation with USAID, the RS passed down its first comprehensive budget and treasury regulation in 2000, thus establishing the state treasury Also, modified accrual basis was introduced into public accounting as well as classification system synchronized with the International Statistical Standards (ISS). Accounting and reporting system was more strongly integrated with budget processes (planning, execution and oversight). Application of accounting system was mandatory for all budgetary users. The General Ledger of Budget was also formed at that time. In addition to prior obligation, budgetary users now have the obligation of presenting public assets in General Ledger as well (Poljašević 2012). Financial reporting was mandatory for all budgetary users, and since it was done in a new and uniformed reporting system, it enabled the consolidation of financial statement of the state</p>
The FBiH	<p><i>First phase (1996–1998)</i> The law on FBiH institution budgets (<i>SN FBiH 3/96</i>) was passed down in 1996 but did not cover accounting regulation well. That part was left for other related legislations which was not adopted until the next budget law. Modified accrual accounting was used, despite the lack of adequate legal regulation</p> <hr/> <p><i>Second phase (1998–2006)</i> The second, more comprehensive Budget Law (<i>SN FBiH 3/96</i>) was passed down in 1998, along with accompanying Directive of Accounting of Budget of FBiH. According to that law, all budgetary users now had to implement national accounting standards (accounting standards of FBiH) when possible. Modified accrual basis was formally introduced into public accounting although it was already in practical use The State Treasury was also established at that time</p> <hr/> <p><i>Third Phase (2006–2013)</i> The third Budget Law (<i>SN FBiH 19/06</i>) was passed down in 2006. It further improved the budget classification system and prescribed the use of IPSASs. However, these standards could not be fully implemented, so modified accrual basis was still largely in use</p>

- State formation process, including significant changes in the social system, war between 1991 and 1995 as well as complex post-war developments
- Countries' level of development and economic growth through the observed period of time
- Increase in the budget spending and a budget spending structure that requires the implementation of structural reforms as well as fiscal consolidation
- Pressure from the IMF and other international institutions to establish a report system which would enable an overview of the public finances and loan-returning capabilities
- European integration processes

Factors hindering the reformation process are as follows:

- Lack of political will and resistance to change from within the administration structure
- Lack of technical capacities and adequate information systems
- Lack of quality education and accounting certification

Finally, we can conclude that because of the same starting grounds, mentioned countries had similar courses of development but differed in the dynamics and the specific applications of their solutions. Despite these differences, all public accounting systems are characterized by law-regulated framework, introduction of state treasury, introduction of a classification system and connecting of planning, execution, accounting and reporting of budget processes, as well as introduction of modified accrual basis into accounting framework. FBIH has used its current accounting framework since 1998, while the latest significant change in Croatian accounting framework was introduced in 2002. The RS made significant change in 2010 with introduction of full accrual basis and IPSASs. Therefore, we can conclude that mentioned countries succeeded in the creation of the system based on internationally recognized solutions, despite somewhat hostile political environment and many aggravating circumstances.

3 The Basic Characteristics of the Contemporary Public Sector Accounting in the Republic of Croatia and Bosnia and Herzegovina

The fourth and latest phase of Croatian accounting system development started in 2002 and is characterized by abandonment of cash-based system and introduction of modified accrual basis. At the same time, relevant international classifications (GFS 2001 and since 2014 ESA 2010 as well) were introduced into the system, thus ensuring transparency and enabling international comparison. This period also witnessed an accelerated introduction of state treasury, followed by a long-awaited increase in its involvement regarding financial management and oversight functions.

The third and latest phase in RS started in 2010 with the establishment of the department of accounting and revision as a part of the Ministry of the Finances. With political support, a series of new laws and regulations was adopted, with the goal of introducing IPSASs, GFS and ESA, meanwhile taking all the characteristics of the domestic public sector into consideration. This resulted in an adoption of a new accounting framework, a new accounting politics and a new financial reporting system.

PSA system currently in use in the FBIH was introduced in 2013, thus starting the fourth phase of its development. Its legal bases are *the Law on FBIH Institution Budgets* and *the regulation on budget accounting*, alongside other accompanying regulations. The change in regulations did not change the core of accounting

solutions as well. However, it did result in the establishment of a fiscal coordination body, system of fiscal responsibility and accounting oversight.

PSA systems are legally regulated, standardized and unified for all of its users. A system of budget classifications was introduced into the general accounting framework, which is extremely important for data consolidation in tracking of public finances and general state's expenses.

Characteristics of contemporary PSA and classification system in both countries can be seen in Table 3 (created by the authors).

A fundamental feature of an accounting and reporting system is its chosen accounting basis, which determines the quality of accounting information.

As mentioned before, Croatia uses modified accrual basis, which has the following characteristics:

- Recognition of revenues within the reporting period in which they became available and measurable. In practice, this means that revenues are generally recognized on a cash basis.
- Regular expenditures and liabilities are recognized on accrual basis.
- The expenses of acquiring of nonfinancial fixed assets are not capitalized. Instead, they are presented as expenses in their full amount within the reporting period in which the acquisition was executed. This means that asset depreciation is not systematically presented as an amortization expense. However, the assets are monitored through balance sheets and corrected through source of ownership during the prescribed period of use.
- The expenses of acquirement of nonfinancial current assets are recognized in the moment of the acquisition and in the full amount of acquisition value. In health-care activities and in execution of one's own trade and manufacturing activities however, the expenses of acquirement of nonfinancial current assets are presented as supplies and are transferred as expenses into the period of assets consumption or resale.
- Donations of nonfinancial assets are presented as incomes and expenses in cases when the donation comes from a non-budget entity, while in cases of in-budget donations, they are presented through the correction of the source of ownership.

The RS on the other hand uses full accrual basis and IPSASs in its financial reporting. Recognition of tax revenues on a full accounting basis is achieved by a system in which the tax administration's office, the MofF, generates information on unpaid tax revenues and then passes that information onto the MofF, which in turn creates a full overview of tax incomes and claims.

Just as the RH, the FBiH uses modified accrual basis in the accounting system. Although adhering to IPSASs is required by the law, as well as regular financial reporting in accordance to those standards, full accrual basis has not yet been entirely implemented.

Two basic types of reports were identified during the analysis of financial reporting in the observed countries: basic financial reports for general use and budget execution reports (Table 4, created by the authors).

Table 3 Characteristics of contemporary PSA and classification system

Country	Characteristics
The RH	<p><i>Legal framework</i> <i>The Budget Act (NN RH 2008, 2012a, 2015b)</i> <i>Ordinance of Budget Classifications (NN RH 2010b, 2013g)</i> <i>Ordinance of Accounting and Chart of Accounts (NN RH 2014)</i></p>
	<p><i>Characteristics of accounting</i> Accounting is standardized and unified for all budget users and closely connected to other budget processes. Furthermore, it uses modified accrual basis It is conducted on a double-book keeping principle and on the prescribed analytical framework, which determines the content of accounts and rules of recording IPSASs are not applied directly, but some of the solutions it prescribes are applied indirectly through national legislation</p>
	<p><i>Budget classifications</i> Revenues, receipts, expenditures and outlays shall be presented according to budget classifications Budget classifications are: – Organizational – Economic – Functional – Location-based – Programme-based – Funding source-based Application of budget classifications is mandatory in all stages of the budget process</p>
The RS	<p><i>Legal framework</i> <i>The Law of Budget System (SG RS 2015, 2014b, 2012b)</i> <i>The Rulebook for Budget Classifications, Content and Application of Chart of Accounts for Users of Budget of the Republic, Municipalities, Cities and Funds (SG RS 2010)</i> <i>The Rulebook for Accounting, Accounting Policies and Accounting Estimations for Budget Users in RS (SG RS 2011a)</i></p>
	<p><i>Characteristics of accounting</i> Accounting is standardized and unified for all budget users and closely connected to other budget processes The prescribed analytical framework enables financial reporting on full accrual basis, as well as budget execution reporting on modified accrual basis IPSASs are applied directly, but with certain adjustments</p>
	<p><i>Budget classifications</i> Budget classifications are: – Organizational – Economic – Functional – Location-based – Programme-based – Funding source-based Application of budget classifications is mandatory in all stages of the budget process</p>

(continued)

Table 3 (continued)

Country	Characteristics
The FBIH	<i>Legal framework</i> <i>Law on FBIH Institution Budgets</i> <i>The Regulation on Budget Accounting</i> <i>The Rulebook on the Accounting Policies for Budget Users of FBIH</i> <i>The Rulebook on the Financial Reporting and Annual Statement of Accounts for Budget Users of FBIH</i>
	<i>Characteristics of accounting</i> Accounting is conducted on double-book keeping principle and on the prescribed analytical framework Use of fund accounting and group of accounts is also legally prescribed IPSASs are prescribed, but not fully implemented
	<i>Budget classifications</i> Budget classifications are: – Organizational – Economic – Functional Application of budget classifications is mandatory in all stages of the budget process and to all levels of government

4 The Survey of Attitudes on Public Sector Accounting in the Republic of Croatia

An empirical research on the subject of user satisfaction with current accounting and reporting systems questioned the need for change and upgrades in the system, attitudes towards implementation of international accounting standards and possible obstacles to the implementation itself. The research was conducted on a sample of 34 health-care institutions (hospitals) out of total of 64 hospitals in RH, during 2015 and 2016, with heads of the accounting and the finance departments as participants.

When asked, *Should the existing system in RH be upgraded with an introduction of full accrual basis, which would broaden the range of accounting information?*, 65% of the participants answered *yes*, 20% said *no* while 20% expressed no opinion on the matter. This result implies that the majority of the questioned personnel still sees possibilities for further improvements in the accounting system.

On question, *In what way would you reform the RH in budget accounting system?*, 32% suggested that it should be through changes in the legislative framework, another 32% recommended adopting either IPSASs or EPSAS, while 36% suggested the creation of national accounting standards, which should be based on international standards template. Preference towards more standardized and unified procedures in an accounting system is evident, with two thirds of the participants calling for uniformed accounting standards.

Finally, participants were asked to rank obstacles which hinder reform implementation by their significance, with the number 1 marking the least and number 5 the most significant obstacle. The resulting attitudes pondered were as follows:

Table 4 Financial reporting

Country	
The RH	<p>The Ordinance of Financial Reporting (<i>NN RH</i> 2015c, 2015d, 2015) prescribes the form and content of financial reports, periods covered by the reports, as well as liabilities and deadlines for their submission.</p> <p>Financial reports are drafted on the following forms:</p> <ul style="list-style-type: none"> – Balance—form BIL – Report on revenues, expenditures, receipts and expenses—form PR-RAS – Report on expenditures according to functional classification—form RAS-funkcijski – Report on changes in the value and volume of assets and liabilities—form P-VRIO – Report on liabilities—form OBVEZE <p>Semi-annual and annual budget execution reports are the most common reports that are produced to make the government accountable for the execution of the budget according to the appropriations legislated by the Parliament</p> <p>Both of the reports are subject to auditing by the state audit office and public disclosure</p>
The RS	<p>Financial reports for general purposes are made according to IPSASs</p> <p>Type of budget user determines the structure and content of the financial report:</p> <ul style="list-style-type: none"> – Budget users who fully operate through the treasury system – Budget users who partially operate outside the treasury system – Budget users who operate entirely outside the treasury system <p>Budget execution reports are also used</p> <p>Both of the reports are subject to auditing and public disclosure</p>
The FBiH	<p>Financial reports are</p> <ul style="list-style-type: none"> – PR—report on revenues and expenditures – BS—balance – NT—report on financial flows – KIF—report on capital expenditure and financing <p>Additional report being drafted annually are</p> <ul style="list-style-type: none"> – Form Special date on salaries and number of employees – GIB—annual budget execution report – INV—annual report on investment activity – ZS—Report on calculated and paid compensation for the protection of natural and other disasters <p>Budget execution reports are also used</p> <p>Both of the reports are subject to auditing by the audit office of the institutions of the FBiH and public disclosure</p>

- 4.18—health institution’s management’s support of the reforms
- 4.09—political and legislative support
- 3.84—financial resources
- 3.81—IT support
- 3.81—human resources (employees and experts)
- 3.78—long duration and complexity of the reformation process

We can conclude that all factors are considered equally important, with lack of political and management support as most significant obstacles.

5 Conclusion

In examining the first research hypothesis through review of the developmental stages in the observed countries and identifying the factors that have influenced this development, we can conclude that the hypothesis has been proved. The decisive stages and courses of development are comparable, although with certain differences specific for each observed country, coming as a result of the basic factors that influenced the development: political structure, territorial structure, organization of the state, public sector structure, economic development and the development of society as a whole.

In proving the second hypothesis that the introduction of full accrual basis in PSA is recognized as the best course of action, it is worth pointing out:

- The research of the legislative framework and the characteristics of the current system indicate that the development of national accounting in the RH and the FBiH moves towards the application of the full accrual basis.
- In the RS, full accrual basis is applied, with certain adjustments to be expected.
- Accountants' attitudes studied in an empirical research show their willingness to adopt the accrual basis but also highlight the obstacles to its implementation, each of which is rated as highly significant.

References

Book

- Roje, G., & Vašiček, V. (2015). *Harmonizacija proračunskog računovodstva u Republici Hrvatskoj s Međunarodnim računovodstvenim standardima za javni sektor*, TIM4PIN d.o.o. za savjetovanje, Zagreb.
- Vašiček, D., Vašiček V., & Sirovica K. (2005). *Računovodstvo neprofitnih organizacija*, ur. Vašiček, D., HZRFD, Zagreb.

Journal

- Šimović, J. (1991). Proračunski (budžetski) fondovi u novom sustavu financiranja javnih potreba. *Računovodstvo i financije*, SRFDRH, Zagreb, 5, 13–27.
- Vašiček, D. (1999). Otvaranje poslovnih knjiga i primjena novog računskog plana, dodatak uz časopis *Računovodstvo i financije*, HZRFD, Zagreb, br. 1/99.

Conference Paper or Contributed Volume

- Poljašević, J. (2012) Prezentovanje i komparacija finansijskih i analitičkih izvještaja i pokazatelja entiteta javnog sektora. 7 Kongres računovođa i revizora Crne Gore, Bečići.
- Vašiček, V., & Vašiček, D. (1998). Prednosti i nedostaci novčane računovodstvene osnove u proračunskom računovodstvu i računovodstvu neprofitnih organizacija. In *XXXIII simpozij Računovodstvo, revizija i financije u suvremenim gospodarskim uvjetima* (pp. 153–172). HZRFD, Pula, Zagreb.

Legislation

- Narodne novine RH.* (2006, 2006a, 2007, 2008, 2010, 2010a, 2013, 2013a, 2013b, 2015). Zakon o područjima županija, gradova i općina u Republici Hrvatskoj, No., 86/2006, 125/2006, 16/2007, 46/2010, 145/2010, 37/2013, 44/2013, 45/2013, 110/2015.
- Narodne novine RH.* (1993, 1997, 2000, 2000a, 2000b, 2001, 2001a, 2001b, 2002, 2003, 2006c, 2007a, 2008a, 2012, 2014, 2015a). Zakon o financiranju jedinica lokalne samouprave i uprave, No. 117/1993, 69/1997, 33/2000, 73/2000, 127/2000, 59/2001, 107/2001, 117/2001, 150/2002, 147/2003, 132/2006, 73/2008, 25/2012, 147/2014, 100/2015.
- Narodne novine RH.* (2008, 2012a, 2015b). Zakon o proračunu, No., 87/2008, 136/2012, 15/2015.
- Narodne novine RH.* (2009). Pravilnik o utvrđivanju proračunskih i izvanproračunskih korisnika državnog proračuna i proračunskih i izvanproračunskih korisnika proračuna jedinica lokalne i područne (regionalne) samouprave te o načinu vođenja Registra proračunskih i izvanproračunskih korisnika, No., 128/09 i 142/14.
- Narodne novine RH.* (2010b, 2013g). Pravilnik o proračunskim klasifikacijama, 2 No., 6/2010, 120/2013.
- Narodne novine RH.* (2014). Pravilnik o računovodstvu i računskom planu proračuna, No., 124/2014.
- Narodne novine RH.* (2015). Pravilnik o financijskom izvještavanju u proračunskom računovodstvu, No., 3/2015, 93/2015, 135/2015.
- Službene novine FBiH.* (2006a, 2008, 2009, 2010, 2013, 2014, 2015). Zakon o proračunima institucija FBiH, No. 19/06, 76/08, 5/09, 32/09, 51/09, 9/10, 36/10 i 45/10, 102/13, 13/14, 8/15, 91/15 i 102/15.
- Službene novine FBiH.* (2006b, 2008, 2009, 2014). Zakon o javnim prihodima FBiH, No. 22/06, 43/08, 22/09, 35/14.
- Službene novine FBiH.* (2010, 2014). FBiH, No. 87/10, 34/14.
- Službene novine FBiH.* (2012a, 2014, 2015). Pravilnik o financijskom izvještavanju i godišnjem obračunu proračuna u FBiH, No. 27/12, 69/14, 14/15.
- Službene novine FBiH.* (2012b, 2014, 2015). Pravilnik o knjigovodstvu proračuna u FBiH, No. 60/14.
- Službene novine FBiH.* (2016). Registar budžetskih/ proračunskih korisnika FBiH, No. 42/16
- Službene novine FBiH.* (2014). Uredba o računovodstvu proračuna i proračunskih korisnika FBiH, No. 34/14.
- Službene novine FBiH.* (2009). Zakon o računovodstvu i reviziji u FBiH, No. 83/09.
- Službeni glasnik RS.* (2013b). Instrukcije za primjenu MRS 23 za Prihode od bezgotovinskih transakcija, No. 116/13.
- Službeni glasnik RS.* (2012, 2014B, 2015). Zakon o proračunu RS, No 121/12, 52/14, 103/15.
- Službeni glasnik RS.* (2009, 2012b, 2014). Zakon o teritorijalnoj organizaciji RS, No. 69/2009 70/2012, 83/2014.
- Službeni glasnik RS.* (2011a). Pravilnik o računovodstvu, računovodstvenim politikama i računovodstvenim procjenama za budžetske korisnike u RS, No. 127/11.

- Službeni glasnik RS.* (2010). Pravilnik o klasifikacijama proračuna, sadržaju i aplikaciji kontnog plana za budžetske korisnike Republike, općina, gradova i fondova, No. 90/10.
- Službeni glasnik RS.* (2011b, 2011c). Pravilnik o financijskom izvještavanju budžetskih korisnika Republike, općina, gradova i fondova, No. 16/11, 126/11.
- Službeni glasnik RS.* (2013a). Pravilnik o stjecanju statusa budžetskog korisnika, No. 116/2013.

Web References

- Ministarstvo financija. (2015a). *Godišnji izvještaj o izvršenju Državnog proračuna za 2014. godinu*, <http://www.mfin.hr/hr/drzavni-proracun-2014-godina>, posjet 10.12.2015.
- Ministarstvo financija. (2015b). *Ostvarenje proračuna JLP(R)S za period 2010–2014*. <http://www.mfin.hr/hr/ostvarenje-proracuna-jlprs-za-period-2010-2014>, posjet 10.12.2015.

Institutional Voids and the Role of NGOs in Filling Voids: The Case of GIMDES



Abdullah Kiray and Oktay Koç

Abstract Recently, institutional voids have been analyzed in many researches. The aim of this study is to determine how institutional voids can be discerned and through which tools and strategies can be filled. Current study depends on a case analysis as a qualitative research method, and in this context, GIMDES as an NGO is addressed. Finally, discerning an institutional void and filling this void are determined step-by-step. Further, the strategies and tools in filling the void(s) are also determined through gathered data.

Keywords Institutional voids • NGOs • GIMDES • Halal product certification

1 Introduction

This study focuses on investigating “why and how an institutional void was filled by a non-governmental organization (NGO) contrary to the established thought in the literature that voids can just be filled through the attempts of the state (Fligstein 1990; Hooks 1990) or business groups (Mair and Marti 2009; Vermeulen et al. 2007).”

The effects of institutions on the fields have been researched to a great extent by economists (e.g., North 1990), sociologists (e.g., Beckert 2002), and organizational theory scholars (e.g., DiMaggio and Powell 1991). Additionally, it is also seen that the subject is discussed by international business management scholars in several studies (e.g., Khanna and Palepu 1997, 2010) contributed to

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the literature with respect to the institutional void conception in terms of IBM. Moreover, organizational theory scholars, recently, also attempt to respond to this movement particularly in the context of “institutional entrepreneurship” framework. Institutional void, as an emerging concept, is defined as “non-existence or weakness of institutional framework that regulates the industry” by Mair and Marti (2009), and through referring to the study of Rao et al. (2000), it is explained as “fields of opportunity that raise desire on the side of entrepreneurs to add new norms, values and beliefs in social structures” (Karatas-Ozkan et al. 2014). The concept can also be addressed as a problem that businesses from developing countries confront with when they try to internationalize, and since mentioned, countries lack necessary institutions that can support main activities of the businesses (Khanna and Palepu 1997).

The study is about why and how an NGO filled an institutional void in an industry. Particular characteristics of this study with regard to institutional void can be stated as it stresses the roles of NGOs to fill the institutional voids. Many of the studies in the literature limelight the role of state, its agencies, and, further, business groups in structuration process of fields and filling institutional voids. In current study, the emergence of GIMDES’s halal product and certification activities as a requirement for Turkish businesses tried to internationalize, the perception of this requirement, and the development and formation of halal fields in Turkey are addressed from a historical perspective through analyzing archive documents and a few interviews. Several remarkable results obtained from this study are as follows: GIMDES firstly started its operations in 2005 in Turkey, and in this scope, GIMDES joined in the WHC (World Halal Council), which is an international umbrella organization for halal, when it was invited to a meeting of the WHC in Thailand in 2008, and finally, GIMDES certificated products as halal for export since 2009 (GIMDES 2011). After that, GIMDES attempted to fill the voids about lack of halal certification in this field by translation texts related to existing halal products and their certifications through undertaking an agency role in the development process of halal field. Then, GIMDES was supported by several organizations in various countries which have already possessed institutionalized rules, norms and arrangements on halal certification and has been gained legitimacy through the acknowledgment as an organization in this field by an international umbrella organization (WHC). Finally, GIMDES became one of the leading organizations during the development of the field (halal certification) and implemented several strategies to keep its place. Finally, the authors consider that the study will contribute to the literature—particularly with respect to organizational theory—from the perspective of the role of NGOs in filling institutional voids, their rationales, and strategies to act in this way.

2 Theoretical Background in the Scope of Institutional Void, Agency and Institutional Entrepreneurship

Markets are seen as private social structures and important mechanisms of exchange. To exist and function, they require specific institutions and rules (Mair and Marti 2009). However, these institutions and rules sometimes do not exist, or they become insufficient during time. Situations like this more often and significantly exist in the developing markets. Khanna and Palepu (2010) put forward common problems of developing markets as weak intellectual property rights, high state bureaucracy and corruption, together with low-quality products, customer disloyalty, and difficulty of employing talented workforce. Campbell and Lindberg (1990) and Dobbin and Dowd (1997) point out that the state takes the most important role by forcing institutional actors and through its policies in shaping markets. Scott (1995), at that point, defines institutions as cognitive, normative, and regulatory structures that provide stability and meaning to the societal behavior. With these tools in hand, it can be claimed that the state provides basic institutional arrangements such as property rights, trade rules, and competition through its regulative power for stabilizing and arranging fields towards creating a healthy economic environment. Institutional voids appear when the state does not pioneer to the formation of institutional arrangements. Khanna and Palepu (2000) define institutional void as nonexistence or weakness of institutional regulations that support the markets and the state of failing to meet the desired performance. This appears particularly in the markets where infrastructure for capital, labor, and product markets has not developed yet. It is the insufficiency of institutional regulations that should support basic business operations and impeding the functioning of the market (Khanna and Palepu 1997, 2000). These voids that are caused by insufficiency or lack of necessary regulations can be filled by actors such as individual actors (Yang 2004) or NGOs (Mair and Marti 2009) as we know that from literature.

In this regard, if it has to be explained more technically, it can be claimed that voids are filled or at least attempted by institutional agencies which are also called as institutional entrepreneurs (cf. DiMaggio, 1988). In line with this, Scott (2008) states that individual or organizational agencies might emerge in virtue of diversity and complexity and in some particular cases in conflicting and unpredictable situations. DiMaggio (1988) puts forward that agency can be discussed in a more centric place from its institutional dimension, and he moves from this idea further to the establishment of institutions and stresses that capable actors with sufficient resources will diversify into “institutional entrepreneur” who will pursue opportunities to which he or she gives utmost importance. Lawrence et al. (2011), at that point, links institutional change and innovation to works that are related to deinstitutionalization. Then the authors expand their study to the creation, maintenance, and disruption of institutions which they refer to as “institutional work.” Battilana et al. (2009) discusses emergence of institutional entrepreneurship which gave more emphasis to the roles of actor and agency in institutional change. From this point of

view, with respect to the creation of institutions, it can be stated that institutional entrepreneurship is equipped with necessary resources as conceptualized by DiMaggio (1988); individual and organizational actors have a central position, and they can attempt to do activities toward filling the institutional voids that they determine particularly in the creation, maintenance, and disruption of institutions (Lawrence and Suddaby 2006; Lawrence et al., 2011). Therefore, filling institutional voids is an activity realized by individual and/or organizational entrepreneurs who take action with a specific purpose as agencies.

3 Agency in Terms of Filling Institutional Voids and NGOs as an Agency

DiMaggio (1988) asserts that institutional entrepreneurs with sufficient resources are required for the creation and transformation of institutions. However, Fligstein (2001) argues that actors with no resources are surrounded mostly by institutions, but in some certain cases, they can also create new institutions by using existing regulations in unexpected ways. In fact, Colomy (1998) states that while entrepreneurs with scant resources have definite weaknesses, they can also become efficient agencies of change. Therefore, it can be said that in the creation of institutions, not only the resources that actors possess but also there can be some other dynamics which trigger purposive action of actors. In their study where they investigate institutional entrepreneurship in detail, Battilana et al. (2009) put forward conditions that they categorized under two main titles as “social position of the actor” and “characteristics of the field” which, they think, are effective in the operations of institutional entrepreneurs. Furthermore, another characteristic of agencies, about this, is their “awareness” that constitutes the basic notion to change their existing institutions (Battilana et al. 2009; Greenwood and Suddaby 2006). Thus, it can be stated that change agencies have to be aware about the requirements and rationales of change before they start an institutional change project particularly when it is about filling institutional voids.

Although NGOs are not mostly emphasized as agencies in the studies about filling institutional voids, several studies (e.g., Mair and Marti 2009) show how NGOs created several platforms and filled institutional voids through bricolage. In addition, Child et al. (2007) put forward that the awareness about the development of environmental protection systems caused active participation of international and national NGOs among other organizations. It is because it can be stated that compared to other organizations, NGOs are more capable of understanding organizations at local- and national-level institutions (Webb et al. 2010). These cases are significant, since they demonstrate two of the main rationales, that NGOs depend upon, which are “filling in the voids in political systems” and “responding to ineffective or corrupted bureaucracy” (Vachani et al. 2009). On the other hand, high level of local knowledge NGOs possess, their embeddedness in multilevel informal networks, and their ability to establish relationship with different

stakeholder groups (Webb et al. 2010) require them to come fore in filling institutional voids as active agencies in a modern society. In fact, NGOs are basically founded to fill the voids that occur due to inefficiency of state and private sector organizations in meeting civic and consumer demands (Teegen et al. 2004).

4 Methodology

This study discusses how an institutional void is filled by a nongovernmental organization (NGO) and which strategies are followed and tools used in filling them. To put more clearly, it is about why and how an NGO filled an institutional void in an industry. It is based on a case study about GIMDES (Food and Consumer Products Inspection and Certification Research Association). In an analysis of the case, scant in-depth interviews were realized to collect primary data, and archival/ documents were reviewed to gather secondary data.

In order to collect data, 5-hour face-to-face interviews were conducted with the one executive and two staff of GIMDES. During the interview process, an interview form consisting of semi-structured questions was used in the direction of previous studies in the literature. In this scope, interviews were held on January 2014 in the headquarters of the GIMDES in Istanbul. Moreover, although we had time constraints, we could catch opportunity for limited observations of the activities of GIMDES in the headquarters during the visit.

In order to find answers to the research question, interviews were conducted with two staff and one executive of GIMDES by the first author. Some information about interviews are presented in Table 1.

Collected data from these sources coded line by line (Charmaz, 2006) for creating categories which can be strongly related to GIMDES’s strategies and tools used in the filling institutional voids, and presented in the findings section of the study. These data provide information about how GIMDES operated to fill in the voids, the strategies taken by GIMDES, and the tools used by GIMDES during the process. Secondary data were used for the purpose in supporting and improving the reliability of the categories which are created by using data gathered from interviews. Information about secondary data sources used in the study are given in Table 2.

Table 1 Information about interviews

Interviewee	Title	Educational background	Duration of interview (h)
Executive 1	CEO	Mechanical Engineer, PhD degree	3
Staff 1	Food Examination and Inspection	Food Engineer	1
Staff 2	Food Examination and Inspection	Chemist	1

Table 2 Information about secondary data

Reference	Date of Publication
Food Report Rewritten (9th Publication) (Book, Author, Dr. Engineer Hüseyin Kami Büyükozer)	2012
GIMDES Book of International Halal Food Conferences (contains presentations of 2, 3, and 4; International Halal Food Conferences held in 2009, 2010, and 2011)	2012
Updated list of Food with Halal Certificate as of 21 May 2013	2013
Updated list of Food with Halal Certificate as of 1 January 2014	2014
GIMDES Operations Book	–
GIMDES Journal (2013 issues)	2013
GIMDES Website (http://www.gimdes.org)	2014

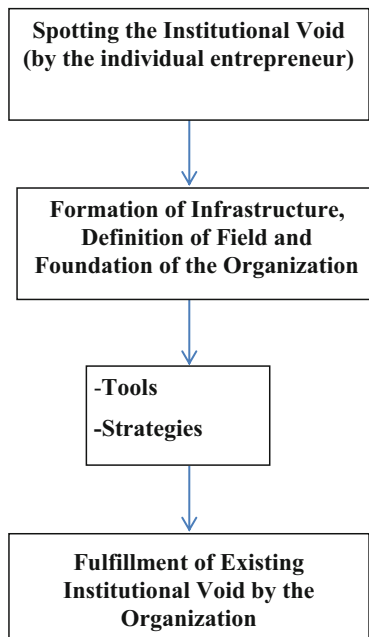
5 GIMDES (Food and Consumer Products Inspection and Certification Research Association)

GIMDES started its operations with respect to halal product and its certification in Turkey in 2005. However, it began issuing halal certificates following the year 2008 when it was invited to the meeting of World Halal Council (WHC) in Thailand and became a member of this international umbrella organization in this field (GIMDES 2011). The purpose of the association, GIMDES (Food and Consumer Products Inspection and Certification Research Association), and its suborganization which functions as an economic unit (GIMDES Halal Products Research Institute) are stated as researching and certifying halal and healthy products which are considered to be the essential part of healthy life for Muslims in Turkey. The association specializes in the fields of food, cosmetics, and health products (www.gimdes.com.tr).

Among other activities, the association also publishes GIMDES bulletin bimonthly and books about its operations. Moreover, the association held six Halal Food Symposiums: the first on 24 February 2008, the second on 25–26 April 2009, the third on 30 September to 3 October 2010, the fourth on 13–14 October 2011, the fifth on 1 September 2012, and the sixth on 7 September 2013 in Istanbul (www.gimdes.org). The association gave halal certificates to 246 products until May 2013 (Updated list of updated products with Halal certificate as of May 21, 2013), and this number increased to 307 in June 2015 (Updated list of products with Halal certificate as of May 21, 2015).

6 Findings

Although there was a cognitive “halal product and halal consumption” awareness in the society before and during the establishment of GIMDES, it is known that no legal or normative framework existed in the field. It is seen that GIMDES which started as the first institution and organizational actor operating in the field of halal product certification in Turkey acted to undertake an institutional entrepreneur or agency role to establish and fill the voids in this field. However, it should be noted that there was an individual actor, who was aware about halal products and certification, in the field as a creator of GIMDES. Therefore, GIMDES’s attempt to form the field and in particular filling voids in the field as an organizational actor can be basically identified as an instrumental role attributed to GIMDES by an individual actor (founder of GIMDES). In a more technical saying, an individual actor, who was aware about the voids in this field cognitively, established the organization called GIMDES which can be considered as a tool to fill in the voids in this field. This process is presented below:



6.1 Spotting the Institutional Void

First stage of the foundation of GIMDES started with the trip of the founder (individual actor) abroad in 1981 for educational purposes. It can be stated that the actor who went to Germany developed awareness of halal foods which have never defined cognitively, legally, or normatively in this country. At that point, the individual actor started to consume products with kosher certificate which have similar characteristics (even more strict to some extent) with halal, instead of halal products in virtue of some environmental factors' effect. Therefore, the awareness that the individual actor has developed for consuming halal products, started with his movement to a totally different institutional order at societal level. This actor and the awareness he possesses also led him to start developing awareness toward halal product certification after he met consumption elements that he was not used to in his consumption habits and helped him step forward. In this regard, the founder of GIMDES's following statement is striking for understanding this finding clearly:

After returning to Turkey, my children were like they had their independence. Including the shopping store, we resided in the neighborhood that we set up ourselves. We said 'go and get whatever you want from the shop.' But surprisingly the children returned shortly and they did not get anything. To our question why they did not buy anything they answered 'every product you forbid to eat in Germany are here in this store.' After this incidence we decided to start about halal product and certification since we thought the knowledge we gained in Germany would be useful here in Turkey (Executive 1).

6.2 Creation of Infrastructure, Definition of the Field, and Establishment of the Organization

Then, the mentioned individual actor conducted researches for nearly 30 years about the halal food and published his book named "(Rewritten) Food Report" first issue of which was in 1986 following eight issues more in the years with updated and expanded forms. Furthermore, the actor organized and joined in the meetings about halal product internationally in different years and, starting from his close circumstance, succeeded in taking the attention of people in Turkey about halal food and halal food consumption. The actor put his effort in the activities of creating awareness and getting public support by discussing both health-related issues and problems with respect to Islam about the subject. Then, the actor together with fellows who were interested in this subject like the actor got into more detailed studies about halal and halal product. They explored that there was no state, private, or civic society sector organization to determine or approve halal food standardization or certification; therefore, no institutional field or regulation existed which was thought to be a deficiency, and they founded GIMDES (Food and Consumption Products Inspection and Certification Association) in 2005 to fill in this void and operate in this field. It was decided that existing voids should be filled by an NGO

instead of other forms of organizations. Because the private sector seems not interested in halal product, they see it as a burden of extra work to themselves, and they thought about organizations that work solely for profit purpose. Political environment during the foundation of the organization also prevented them leaving the studies about halal to the state organizations or at least creation of an expectation that the state would soon do it since it was not suitable to conduct studies like halal during the period. It was noticed in our interviews that the actor had an idea that state was not convenient to establish and function a process of halal system as they stressed halal food subject was a very sensitive subject with regard to religion due to the political structure and functioning of the state then. Therefore, it was stated that the state should not interfere with halal product and certification work; the state relatively attempted to behave subjectively; it could increase the boundaries of this relativity; and so, the halal system which is designed for civic society should be regulated by civic as well. The founder actor's following statements about the process bear importance:

After returning to Turkey in 1984, I shared my knowledge and the results of my research that I collected in Germany with a book that I published in 1986. However, the process of studying on halal product was not an easy process. At first people laughed at me. They said “we are already Muslims, are you trying to teach new tricks to old dogs? All the products raised and grown here are halal already. Have you brought your mind in Germany to here?”

The state did not have any study on this subject then. It tended to follow the applications of Europe totally and adopt and implement the system that existed in Europe. Almost none of the state institutions that might be related to the subject had any study. We already did not want the state to interfere in this business. Because it was not possible to conduct a job highly sensitive with respect to religion in an environment which we think crowded with officials who had the idea that “I do my job and get my salary” and in the existing bureaucratic situation. Even, I thought the state should not be near this. We just expected related state units to make necessary adjustments to the legal framework about this subject. Private sector totally considered this work to improve their sales ratings. Therefore this job needed to be done by independent autonomous organizations (NGOs) other than the state and private sector. That is how GIMDES was born as a fruit of this approach (Executive 1).

6.3 Filling Existing Institutional Voids by the Organization

As an organizational actor, GIMDES used various strategies and tools to achieve its function as stated in the definition of operational field of the organization as “putting effort in research activities to understand the ingredients used in the food, medicine, detergents and cosmetics products that are either produced or imported for consumers, analyzing the additive substances used during the production of mentioned products and establishing halal standards and certification procedure” (www.gimdes.org). The founder of GIMDES stressed the purpose of the association as follows:

The purpose of our institution is to save Muslim's halal which is a religious issue for them and which we think is constrained by several barriers, to establish the conditions of 'halal' and 'tayyip' as stated in the Kuran, to increase the awareness of the society and help sustain

in the reformation of conscious Muslim profile and to operate not only in the fields of food, cosmetics and medicine but expanding 'halal' in every part of life for instance, putting efforts to adjust the service in the hotels and restaurants suitable to Islamic circumstances. With the most general expression, locating halal life system which is not only an issue for Muslim societies but also to all humanity's wellbeing in their lives (Executive 1).

GIMDES used various tools and strategies to fill this void. They are given below:

Tools

- Qualified human resources in their fields (i.e., halal)
- Training activities for expertise (conferences, seminars, panels, and establishment of a vocational high school)
- Published and visual materials to create awareness (books, periodicals such as journals and bulletins)
- Halal Product Certificates
- World Halal Day
- Halal chains
- Membership to related international organizations

Strategies

- Creating social awareness
- In order to be known in the domestic market, putting forth the activities on export products
- Developing infrastructure elements (adopting standards abroad, determining the norms for halal product and certification, etc.)
- Promotional activities (promoting the standards)
- Dissemination of knowledge (putting effort to expand the standards so that everyone knows about them)
- Pursuance (inspection, etc. activities)

7 Discussion and Conclusion

The study is about why and how an NGO filled an institutional void in an industry. Within the scope of the study, one of the pioneer organization in Turkey, GIMDES, was investigated, and in this regard, activities of GIMDES on halal product certification were discussed through collected data from primary and secondary resources.

Findings of the study demonstrate that organization come into existence for specific interests as stated in the agency subject, one of the contemporary topics discussed particularly under new institutional theory. The study also provides basis for the assumption that an agency can be based on an individual (human) or a unit (organization). However, it should be noted here clearly that the current study's contribution to the literature is that it demonstrates related actors can take some strategic choices such as filling an institutional void and another is the identification

of tools and strategies used by the organization in particular in filling institutional voids.

The data used in the structuring of the study focuses on one case study, and scant interviews conducted constitute constraints in the generalization of the findings. Therefore, future studies can eliminate the issues related to validity and reliability of the findings on condition that they are conducted by multi-case studies, by reaching more primary data sources or even a comparative case study.

References

- Battilana, J., Leca, B., & Boxenbaum, E. (2009). How actors change institutions: Towards a theory of institutional entrepreneurship. *The Academy of Management Annals*, 3(1), 65–107.
- Beckert, J. (2002). *Beyond the market: The social foundations of economic efficiency*. Princeton, NJ: Princeton University Press.
- Campbell, J. L., & Lindberg, L. N. (1990). Property rights and the organization of economic activity by the state. *American Sociological Review*, 55(5), 634–647.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: SAGE Publications.
- Child, J., Lu, Y., & Tsai, T. (2007). Institutional entrepreneurship in building an environmental protection system for the People's Republic of China. *Organization Studies*, 28(07), 1013–1034.
- Colomy, P. (1998). Neofunctionalism and neoinstitutionalism: Human agency and interest in institutional change. *Sociological Forum*, 13(2), 265–300.
- DiMaggio, J. P. (1988). Interest and agency in institutional theory. In L. G. Zucker (Ed.), *Institutional patterns and organizations: Culture and environment*. Cambridge: Ballinger.
- DiMaggio, P., & Powell, W. (1991). Introduction. In W. Powell & P. DiMaggio (Eds.), *The new institutionalism in organizational analysis* (pp. 1–38). Chicago, IL: University of Chicago Press.
- Dobbin, F., & Dowd, T. (1997). How policy shapes competition: Early railroad foundings in Massachusetts. *Administrative Science Quarterly*, 42(3), 501–529.
- Fligstein, N. (1990). *The transformation of corporate control*. Cambridge, MA: Harvard University Press.
- Fligstein, N. (2001). Social skill and the theory of fields. *Sociological Theory*, 19(2), 105–125.
- GIMDES. (2012). *International halal food conferences single voice full unity*. Istanbul: Altinluk.
- GIMDES. (2011). *GIMDES Activities Book*.
- GIMDES Web Site. <http://www.gimdes.org>
- Greenwood, R., & Suddaby, R. (2006). Institutional entrepreneurship in mature fields: The big five accounting firms. *The Academy of Management Journal*, 49(1), 27–48.
- Hooks, G. (1990). The rise of the Pentagon and U.S. State Building. *American Journal of Sociology*, 96, 358–404.
- Karatas-Ozkan, M., Yavuz, C., & Howells, J. (2014). Theorizing entrepreneurship: An institutional theory perspective. In E. Chell & M. Karatas (Eds.), *Handbook of research on small business and entrepreneurship*. Cheltenham: Edward Elgar.
- Khanna, T., & Palepu, K. (1997). Why focused strategies may be wrong for emerging markets. *Harvard Business Review*, 75(4), 41–51.
- Khanna, T., & Palepu, K. (2000). Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. *Journal of Finance*, 55, 867–891.
- Khanna, T., & Palepu, K. (2010). *Winning in emerging markets: A road map for strategy and execution*. Boston, MA: Harvard Business Press.

- Lawrence, T. B., & Suddaby, R. (2006). Institutions and institutional work. In S. R. Clegg, C. Hardy, T. B. Lawrence, & W. R. Nord (Eds.), *Handbook of organization studies* (2nd ed., pp. 215–254). London: Sage.
- Lawrence, T. B., Suddaby, R., & Leca, B. (2011). Institutional work: Refocusing institutional studies of organization. *Journal of Management Inquiry*, 20, 52–58.
- Mair, J., & Marti, I. (2009). Entrepreneurship in and around institutional voids: A case study from Bangladesh. *Journal of Business Venturing*, 24, 419–435.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- Rao, H., Morrill, C., & Zald, M. (2000). Power plays: How social movements and collective action create new organizational forms. *Research in Organizational Behaviour*, 22, 239–282.
- Scott, W. R. (1995). *Institutions and organisations*. Thousand Oaks, CA: Sage.
- Scott, W. R. (2008). Approaching adulthood: The maturing of institutional theory. *Theory and Society*, 37, 427–442.
- Teegen, H., Doh, J. P., & Vachani, S. (2004). The importance of nongovernmental organizations (NGOs) in global governance and value creation: An international business research agenda. *Journal of International Business Studies*, 35(6), 463–483.
- Updated list of updated products with Halal certificate as of May 21, 2013.
- Updated list of updated products with Halal certificate as of May 21, 2015.
- Vachani, S., Doh, J. P., & Teegen, H. (2009). NGOs' influence on MNEs' social development strategies in varying institutional contexts: A transaction cost perspective. *International Business Review*, 18, 446–456.
- Vermeulen, P., Büch, R., & Greenwood, R. (2007). The impact of governmental policies in institutional fields: The case of innovation in the Dutch concrete industry. *Organization Studies*, 28(04), 515–540.
- Webb, J. W., Kistruck, G. M., Ireland, R. D., & Ketchen, D. J., Jr. (2010). The entrepreneurship process in base of the pyramid markets: The case of multinational enterprise/nongovernment organization alliances. *Entrepreneurship Theory and Practice*, 34(3), 555–581.
- Yang, K. (2004). Institutional holes and entrepreneurship in China. *The Sociological Review*, 52(3), 371–389.

The Impact of the External Environment on the Functioning of SMEs - Results of Own Studies



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Abstract The sector of small- and medium-sized enterprises (SMEs) is the main group of enterprises impacting the economic development. High degree of flexibility and ability to adapt to new markets allow small- and medium-sized enterprises to develop as a result of their capability of effective use of resources in the economy. The SME sector contributes to job creation, increase in the number of enterprises, and growth of the level of entrepreneurship. However, this group of companies is exposed to a negative impact of the environment, both the macro- and microenvironment, which significantly influences the fundamental strength of an organization. Macroenvironment is in most cases beyond the control of an enterprise, whereas an enterprise has a real impact on its relations with the microenvironment. Turbulence of the environment is one of the most characteristic features of the modern conditions of management; therefore, it is important to be able to manage an enterprise subjected to constant changes. The sector of small- and medium-sized enterprises is especially exposed to the impact of the external environment. This susceptibility results, among other things, from the size of companies, limited possibilities of obtaining external financing, and low level of knowledge among company owners on management of an enterprise.

The aim of the paper is to identify elements of micro- and macroenvironment that impact this development among SMEs carrying out business activity in Southern Poland. The survey conducted in 2016 on a group of 250 enterprises classified, based on the size of employment, as small- and medium-sized enterprises allowed to indicate factors determining the development of enterprises, which are both external in character and represent stimuli from the macroenvironment and microenvironment of an enterprise.

Keywords Development companies • Macroenvironment • Microenvironment • SME sector

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1 Introduction

The sector of small- and medium-sized enterprises (SMEs) plays an important role in each national economy due to economic and social aspects, since it amounts to 99% of the total number of enterprises in the European Union. The enterprises of the SME sector provide about 90 million jobs and significantly contribute to the development of entrepreneurship and innovation of each country (Annual Report 2015). The external environment of organizations, both macro- and microenvironment, is vitally important for the functioning of enterprises. The significance of individual elements of the environment of each enterprise may more or less affect the development of the discussed sector; however, its nature, turbulence, and unexpected changes may determine the success, development, or failure of enterprises. Enterprises themselves cannot influence the elements of macroenvironment, though the results of the impact can be significant in here. In turn, the results of the impact of microenvironment on the activity of enterprises can be under the control of enterprises; therefore, they may determine and affect individual elements of microenvironment. Therefore, it appears to be important to make an attempt to assess the impact of macro- and microenvironment on the process of functioning and development of enterprises of the SME sector to come up with recommendations for a significant number of enterprises.

The aim of the paper is to identify the elements of macro- and microenvironment influencing the development of enterprises of the SME sector conducting their business activity in Southern Poland (the Silesian Voivodeship). The conclusions are based on the results of the survey conducted in 2016 on a group of 250 enterprises, classified as SMEs by the size class of employment, conducting their business in the area of Southern Poland.

2 The External Environment of Enterprises of the SME Sector

The sector of small- and medium-sized enterprises (SMEs) is a group of enterprises which have positive impact on economic growth and competitiveness of the country (Ivanová 2011) due to numerous characteristics of this sector. Among others, they may include high level of flexibility due to the ability to adapt to market changes and the conditions of the changing environment. The SME sector has a major impact on the level of employment and knowledge affecting the development of entrepreneurship. A primarily recognized property of the discussed sector is also the level of innovativeness which significantly depends on the flexibility of enterprises, particularly typical of small and medium enterprises. Innovativeness affects competitiveness and development of the SME sector in a dynamic and competitive environment (Petkovska 2015). Except for economic

indicators, the SME sector positively affects and shapes the social sphere of the country.

The environment, where the enterprise operates, has significant impact on the development of enterprises. Stable environment, with simple external relationships (a small number of suppliers and customers, low level of competition), does not create the conditions for rapid development although the opportunities to succeed are rather significant in here. This frequently involves local success. The changing or turbulent environment of complex nature (a large number of contractors, significant rotation in a group of suppliers and customers, inflow of new competitors) leads to success, although the achievement of clear success is much more difficult in here (Lachiewicz 2013). As Tomski (2011) underlines, markets have become global markets characterized by increased competition and pressure resulting from various sources and growing violence. In such environment, there is a likelihood of the emergence of opportunities and their disappearance in such a short time that the concerned enterprises are not able to notice them and realize their occurrence. Encountering a constant change and turbulences, the effective enterprises are forced to abandon traditional customs in a business activity, adequate to stable, slowly changing conditions of the environment for the benefit of the modes of operation more suitable for highly competitively and environmentally dynamic possibilities. In management practice, there are identified the external environment of an organization and the internal environment of an organization which can be identified with an organization itself (Chi 2009).

In the literature, there are often identified two groups of threats to the development of small and medium enterprises, determined by the criterion of the direction of operation: external barriers whose source is the changing and complex environment and also the relationships between the company and its environment and internal constraints which result from weaknesses of the enterprise including, most of all, shortages of resources or competences (Matejun 2007). The existing barriers contribute to limiting the freedom of operation of enterprises, hinder development processes, and, in extreme cases, lead to crises and fall of an organization. However, on the other hand, they stimulate pro-entrepreneurial and innovative activities and affect decision-making related to recovery and development. In a positive meaning, they can be a stimulus of greater development efforts of enterprises (Matejun 2010). The international literature suggests the division into the barriers: the institutional ones connected with taxation issues, regulations of labor law, trade regulations, and political stability and inflation, which can be defined as the ones coming from macroenvironment; the noninstitutional ones, associated with the resources of the enterprise, market share, and market demand, resulting from microenvironment; and the financial ones (Safdar and Siddiqi 2011). Therefore, as Petkovska (2015) underlines, the development of enterprises of the SME sector is affected by many different economic, social, and legal factors, however, indicating the barriers resulting from the environment and influencing the development of small and medium enterprises. The enterprises of this sector have difficulties in gaining external sources of financing for the realization of capital-intensive

investments, indicating shortages in expertise and management skills, having limited access to some resources, and the latest scientific and technological achievements.

All enterprises, irrespective of their size, conduct their business activity in the specific economic environment and are influenced by a range of external and internal factors. This causes that the environment which surrounds the enterprise shapes the enterprise. Therefore, if the enterprise wants to be resistant to strong pressure from competitors, its managers must be aware of the conditions and impact of the environment. The analysis and the studies on this phenomenon led to determining some specific groups (Freeman 1994) which affect the enterprise as well as the elements of the environment influenced by the company (Freeman 2010).

Macro- and microenvironment of the enterprise significantly affect the fundamental strength of an organization since, among the determining factors, there can be identified the environment of an organization and the inside of the company. These sources specify where the fundamental strength and the factors creating it come from. However, in most cases, the macroenvironment is beyond the control of the enterprise, whereas the company does have real impact on its relationships with microenvironment and creates its own internal potential (Mikołajewicz 2014). The external conditions play an important role in this process. As Džafić (2014) underlines, the SME sector, as the one of the key importance for the global economy, encounters many barriers to development from macroenvironment. They may, among others, refer to legal regulations, including restrictive regulations of labor law, amount of taxes, and limited access to sources of financing. Regulations and activities of the government should lead to supporting the group of small and medium enterprises, at least, on account of the fact that this sector employs a significant part of the total number of employees. Krasniqi (2007) underlines that sometimes, in spite of the fact that the enterprise aims at development, the external environment hinders its growth by the fact that there occur instability of the macroeconomic environment, nontransparency and frequent changes in legal regulations, and unfair competition or corruption, which affect the activity of enterprises.

According to Davis (2007), microenvironment, in which an organization operates, amounts to external groups of customers having an impact on capabilities of successful functioning of an organization, particularly including investors, customers, suppliers, distributors, employers, competitors, opinion leaders, and some media, whereas macroenvironment amounts to political, legal, economic, social, cultural, technical, and environmental surroundings determining broad context of the activity of an organization. On the basis of the literature review, one can make an attempt to identify some areas of the environment of enterprises that influence the development of enterprises and, simultaneously, are recognized by companies as the ones determining the development and growth.

Undeniably, the international environment plays a vital role in the functioning and development of small and medium enterprises (Reško 2006), although it mostly refers to the companies involved in exchange with foreign countries, i.e., exporting

and importing goods. Therefore, it should be underlined that a large group of enterprises of the SME sector do not declare that the international environment affect their activity and development.

The development of innovative potential of the company depends not only on the external conditions of the environment but also, as Fiates et al. (2010) underline, on the perception of the internal environment of an organization in order to break down the barriers and support innovative culture. The convergence and coherence between the four organizational elements, such as organizational structure of the company, its organizational culture, personnel, and access to technology, are important to increase the result of the learning process and market success of the company.

According to Woolley and Rottner (2008), innovation and entrepreneurship must go hand in hand so that the multidimensionality of the development could interact with the environment of the enterprise. Moreover, Ziółkowska (2013) underlines that nowadays the application of ICT often has a decisive influence on the possibility of improving enterprise management and an increase in its value. Innovation is directly related to creating value for an enterprise, which positively affects its functioning (Lee et al. 2012). SMEs possess significantly poorer financial and human resources than large corporations. A narrower range of the application of ICT may result in lower pace of development. In spite of this, an increase in competitive pressure forces small and medium enterprises to fight for new markets, new products, and new distribution channels, whereas the implementation of ICT constitutes the bridge that allows to reach these targets (Nduati et al. 2015). It appears that IT and ICT used by enterprises contribute to a completely different way of storing, processing, distributing, and exchanging information with the environment as well as the flow of information in the framework of an organization itself (Setiowati et al. 2015). The use of ICT by enterprises is one of the key factors affecting the development of enterprises, and the necessity to intensify the activities associated with the use of ICT is essential in the changing conditions of the environment and during the activities of enterprises on the markets with high level of competitiveness. The use of modern technologies influences their survival on the market, level of competition, and use of innovation. Information and communication technologies affect not only the economic efficiency of an enterprise but also relationships and communication on the market (Casalino et al. 2015; Kot et al. 2014). Moreover, as Okręglika (2014) underlines, the use of ICT also allows enterprises of the SME sector to achieve competitive advantage due to rapid response to stimuli from the market and the external environment. However, a major barrier to the implementation of ICT in these enterprises is the low level of knowledge and skills in the area of use (handling) of new technological and communication solutions (Betakova et al. 2014).

Consumers are particularly important in the process of the functioning of enterprises in modern economies since it is difficult to discuss the development or success of an enterprise without its customers determining the choice of the specific company to purchase or be provided with the service (Lemańska-Majdzik et al. 2015). Understanding the behavior of potential customers requires the recognition

of some elements of the environment since the behavior of consumers is determined under the influence of stimuli coming from the outside (Sipa 2013). Enterprises, wishing to function and develop in the competitive environment, must be aware of customers' expectations. Adjusting the range of both products and services becomes, therefore, the operation strategy, particularly important to the SME sector since the discussed flexibility of the companies allows for constant changes and the process of adjustment to the conditions set out by customers of enterprises. Simultaneously, as Kieźel (1999) underlines, consumers, via purchasing, determine the success or failure of an enterprise. Therefore, from the point of view of an enterprise, consumers are the main source of uncertainty.

Summing up, the environment of the enterprise is a set of elements which directly or indirectly influence the functioning of each organization. On the one hand, it is very complex and changeable and highly competitive, which results from a large number of enterprises on the specific market, innovation and technological development, and customers' expectations. On the other hand, the conditions of the functioning of an organization within the environment are the same for all of them. Turbulence of the environment is one of the most typical characteristics of contemporary management conditions, which requires rapid changes and response in the process of enterprise management and enforces the adjustment to the surrounding conditions. In practice, it means that nowadays entrepreneurs are not comfortable to focus on a few carefully selected business aspects leading them to success (Lemańska-Majdzik and Okręglicka 2015). Kruger (2000) underlines that entrepreneurial behavior is influenced not only by the perception of opportunities in the environment but also by the perception of own capabilities by the potential entrepreneur. Their intentions and capabilities, combined with the conditions of the environment, may be significant with reference to entrepreneurial behavior. The sector of small and medium enterprises is particularly heavily exposed to the impact of the external environment, both macroenvironment and microenvironment, which the enterprise may influence. This sensitivity, among others, results from the size of enterprises, the scope of the conducted activity, institutional barriers, faint possibilities of receiving external financing, or low level of knowledge concerning enterprise management.

3 Research Methodology

The conducted own research aimed at identifying macro- and microenvironment influencing the development of enterprises of the SME sector, conducting business in Southern Poland (the Silesian Voivodeship). The selection of the research sample was purposeful. The research was conducted in 2016 on a group of 250 enterprises, classified as SMEs by the size class of employment.

The research tool was the questionnaire, prepared independently by the author, consisting of 24 close-ended questions and semi-open-ended questions and demographics. The questionnaire was addressed to production, trading, and service

companies. The survey was anonymous, which encouraged the respondents to express their opinions on the development of their enterprises.

The research sample was not fully representative; hence, the study must be regarded as a pilot study serving to further exploring the problem in the future by conducting representative research. The size of the research group certainly allows to draw the preliminary conclusions and find regularities that can be verified in the course of proper research. Whereas the main objective of the paper the following hypotheses were formulated:

- H1**—In the process of functioning of enterprises of the SME sector operating on local markets, the international environment has the lowest impact on their activity.
- H2**—The technological environment is the element of macroenvironment decisively influencing the functioning of enterprises of the SME sector on the market.
- H3**—Customers of enterprises directly influence the functioning and development of enterprises on the market.

Statistical analysis of the research results allowed for full or partial verification of the formulated hypotheses.

4 The Characteristics of the Surveyed Group of Enterprises of the SME Sector

In the study, there were identified 164 microenterprises, employing 0–9 people, which amounted to 66% of the surveyed enterprises; 67 small enterprises, employing 10–49 people (27% of the indications); and 19 medium enterprises, employing 50–249 people. It appears that 54% of all the surveyed enterprises are family businesses whose entrepreneurs declared that the company employs at least two family members and at least one of them is on the board of the company or its owner. The majority of the owners of the surveyed companies are males. They amounted to 69% of the respondents. In the study, the most numerous group were the enterprises operating for more than 10 years. In total, they amounted to 57.2% of all the surveyed enterprises. Another group, with respect to the size, was the enterprises conducting their business activity for 5–10 years, which amounted to nearly 20.8% of all the companies. Young companies entering the market and operating for up to 5 years amounted to 22% of the surveyed enterprises.

5 The Results of the Research

The conducted research indicated that, in the opinion of the respondents, in the case of 80% of enterprises of the SME sector, there was development, including, in the case of 50%, significant development, in the last 3 years of the company's activity. This situation was described by the owners of the enterprises or their managers, who stated that development was noticeable and positively affected the competitive position on the market. In the case of 20% of the surveyed companies of the SME sector, there was no such development.

Among the factors conditioning the development of enterprises, there are identified both external and internal determinants. On the basis of the literature review, it can be specified that among external factors, the stimuli coming from macroenvironment and microenvironment of the enterprise need to be identified. The vast majority of the surveyed companies, since as many as 235, stated that the environment exerted impact on the development of enterprises. It should be underlined that, among the surveyed enterprises, 44.8% claimed that the environment of the enterprise had a decisive impact on the development of the company and 49.2% of the respondents indicated that the impact did exist but it was not strong. Only 6% of the surveyed enterprises of the SME sector did not feel the impact of the environment on the development of the company (Fig. 1).

For the purposes of the study, the external environment of enterprises was divided into macroenvironment, including economic (A), demographic (B), legal (C), international (D), social (E), and technological (F), environment and microenvironment of enterprises, including competitors (G), suppliers (H), customers (I), business partners (J), and market regulators, i.e., institutions appointed by the State to supervise the specific market (K). When recording the questions concerning the assessment of the impact of the environment on the functioning of enterprises, the 5-point Likert scale was used, which allowed to obtain more detailed opinion of the respondents.

The results of the survey indicated that nearly all the areas of macroenvironment influenced the functioning of enterprises at the level of more than 3.00; however,

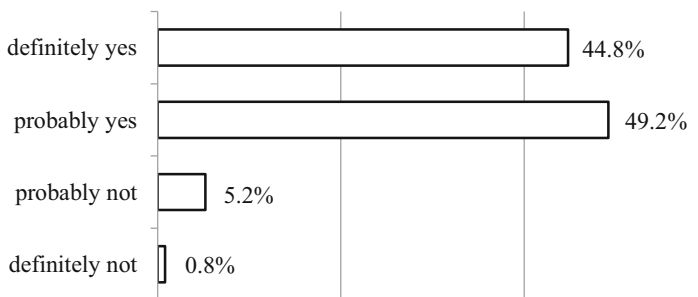


Fig. 1 The perception of the impact of the environment on the development of the company ($n = 250$). Source: Own work based on the survey

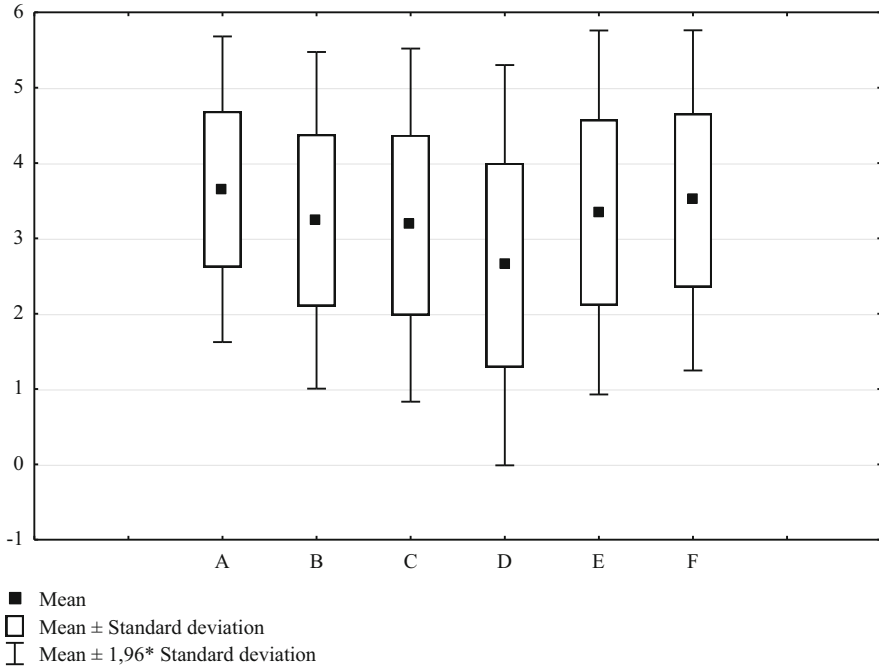


Fig. 2 The impact of macroenvironment on the functioning of enterprises of the SME sector ($n = 250$). Source: Own work based on the survey

the respondents stated that the economic environment, at the level of 3.65, and the technological environment, at the level of 3.50, on the 5-point scale exerted the most significant impact. An example in here can be using information and communication technologies which have a growing impact on the possibilities of improvement in enterprise management and creating competitive advantage. Moreover, ICT exerts impact on the functioning of an organization in its many fields. New information and communication technologies facilitate market expansion and bring about the improvement in the level of market competitiveness and efficiency of management. The respondents indicated the value of the international environment below 3.00. Its impact was determined at the level of 2.64 on the 5-point Likert scale (Fig. 2).

The research also indicated that the impact of individual areas, belonging to microenvironment of enterprises, was differently evaluated by the respondents. Customers have the strongest impact on the activity of small and medium enterprises, at the level of 4.40 on the 5-point scale, and as many as four out of four areas of microenvironment of the enterprises were evaluated at the level of more than 3.00, where customers, competitors, and suppliers, in the opinion of the respondents, were the groups having the greatest impact on the activity and functioning of enterprises. In the opinion of the respondents, business partners, described as strategic allies, had the least impact on the functioning and development of

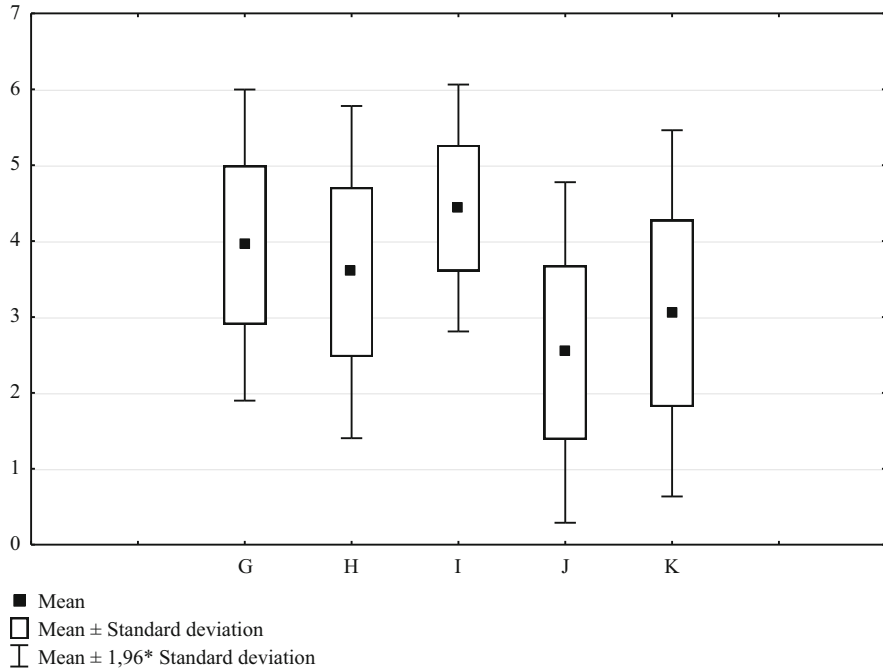


Fig. 3 The impact of microenvironment on the functioning of enterprises of the SME sector ($n = 250$). Source: Own work based on the survey

enterprises (Fig. 3). This may result from the fact that the largest group of the surveyed companies was microenterprises and small enterprises, which often operate independently on the market, while not cooperating with partners on a regular basis or do not conduct the activity in the framework of clusters and collaboration platforms.

The relationships between the variables, *number of employees*, *range of business*, and the responses to the questions, included in the questionnaire on rank (grading) scales, concerning the impact of macro- and microenvironment on the functioning of enterprises were analyzed while estimating tau-Kendall rank correlation coefficients (Szajt 2014). Probability value at the level of $p < 0.05$ has been found statistically significant. During the correlation analysis, the statistical software *Statistica 12.5* was used; therefore, the authors do not provide the procedure of calculating the individual correlations but only present the obtained results along with the interpretation and conclusions drawn.

The conducted research indicated that the impact of macroenvironment on the functioning of enterprises depends on the size of the company and the range of the conducted business (Table 1). In the case of the variable of “number of employees of the company” (size of the company), a positive statistical relationship with the economic environment ($\tau = 0.94$) and the international environment ($\tau = 0.113$) of the company was indicated. Therefore, it appears that, along with an increase in

Table 1 The impact of macroenvironment on the activity of enterprises of the SME sector (*n* = 250)

	Macroenvironment					
	Economic (A)	Demographic (B)	Legal (C)	International (D)	Social (D)	Technological (E)
Number of employees in a company	tau = 0.053	tau = -0.025	tau = 0.094*	tau = 0.113*	tau = 0.025	tau = 0.045
Range of business	tau = 0.197*	tau = 0.131*	tau = 0.075	tau = 0.255*	tau = 0.065	tau = 0.121*

Tau-Kendall rank correlation (tau)

**p*-value < 0,05

Source: Own work based on the survey .

employment in the company, there is an increase in the impact of the economic and international environment on the functioning of the enterprise, which may result in the development of enterprises on the market. It can be concluded that the enterprise is more affected by international conditions since they frequently result from the type of the conducted business activity or the business profile and the fact that larger companies export and import goods more frequently.

In the case of the variable of “range of business,” specified by the respondents as the local, regional, or national range, a positive statistical relationship with the economic environment ($\tau = 0.197$), demographic environment ($\tau = 0.131$), international environment ($\tau = 0.255$), and technological environment ($\tau = 0.121$) of the company was indicated. Therefore, it appears that the wider the range of the conducted activity of the company, the larger the impact of the external environment on conducting a business activity. Along with an increase in the size of the company, there is an increase in the range of business, number of customers, and number of business partners, the result of which may be entering new markets, frequently the foreign ones. Therefore, the economic, technological, and international environments are becoming increasingly important in the process of enterprise management and during its functioning on the market (Table 1).

Examining the correlation between the analyzed areas of microenvironment of the enterprise indicated that the number of employees of the company is statistically significant ($p < 0.05$) and positively correlated with business partners of the enterprise ($\tau = 0.156$), market competitors of the company ($\tau = 0.133$), and market regulators ($\tau = 0.093$). Therefore, it appears that the larger the enterprise, the greater the impact of its business partners and competitors on the activity of the surveyed companies of the SME sector and their development (Table 2). At the same time, a rather small indication concerning the impact of business partners on the functioning and development of companies in total (see Fig. 3) may prove that the respondents (in 66%) are microenterprises which, while conducting the activity on the market, do not indicate constant cooperation with strategic allies, e.g., partners. The situation changes when there is an increase in employment in the company, i.e., when enterprises hire more than ten employees. Small enterprises

Table 2 The impact of microenvironment on the functioning of enterprises of the SME sector ($n = 250$)

	Microenvironment				
	Competitors (F)	Suppliers (G)	Customers (H)	Market regulators (I)	Partners (J)
Number of employees in a company	$\tau = 0.133$	$\tau = 0.059$	$\tau = -0.051$	$\tau = 0.093$	$\tau = 0.156$
Range of business	$\tau = 0.012$	$\tau = -0.013$	$\tau = -0.112$	$\tau = -0.021$	$\tau = 0.173$

Tau-Kendall rank correlation (τ)

* p -value < 0.05

Source: Own work based on the survey

collaborate with partners both at local and often international level, and the collaboration refers both to the cooperating companies and strategic allies.

In the case of the variable of “range of business,” it appears that the positive statistically significant relationship ($p < 0.05$) occurs only in the case business partners of the surveyed companies ($\tau = 0.173$). Therefore, the wider the range of the conducted business, the greater the impact of the cooperators collaborating with the enterprises on the result of the business activity of the surveyed enterprises. On the other hand, the negative statistically significant correlation occurs in the case of the customers of enterprises of the SME sector ($\tau = -0.112$). Therefore, the wider the range of the company’s activity, the lower the impact of the customers on business results (Table 2).

The presented results are only a part of the conducted empirical studies. In the whole study, an attempt was made to analyze the conditions concerning the condition and development of enterprises, their competitiveness, and the use of information and communication technologies by enterprises belonging to the SME sector, including micro-, small- and medium-sized enterprises.

6 Conclusions

The sector of small- and medium-sized enterprises (SMEs) is the main group of enterprises influencing the economic development. High degree of flexibility and ability to adapt to new markets allow small and medium enterprises to develop as a result of their capability of effective use of resources in the economy. The SME sector contributes to the creation of jobs, an increase in the number of enterprises, and the level of entrepreneurship. However, the discussed group of the companies is highly exposed to negative impact of the environment, both macroenvironment and microenvironment.

The research carried out on a group of micro-, small-, and medium-sized enterprises conducting their business activity in the area of Southern Poland is aimed at the identification of the elements of macro- and microenvironment affecting the development of enterprises. The conducted survey indicated that, in the case of 80% of enterprises of the SME sector, there was development, including, in the case of 50%, decisive development, in the last 3 years of the activity of the company. The vast majority, since as much as 94%, stated that the development of the company was affected by micro- and macroenvironment, including 44.8% of the surveyed enterprises claiming that the environment of the company had decisive impact on the development of enterprises. In the case of macroenvironment, as many as five in six areas, in the opinion of the respondents, influenced the functioning of the companies at the level of more than 3.00 on the 5-point scale, however, the economic and technological environment exerted the strongest impact. In the case of microenvironment, the activity of enterprises was mostly affected by customers, followed by competitors and suppliers, who influenced the functioning and development of enterprises.

The conducted research allowed to verify the formulated research hypotheses, and therefore:

- Hypothesis H1 has been supported since it appears that the international environment affected the activity of enterprises of the SME sector at the level of mean = 2.64 on the 5-point scale (standard deviation = 1.35), and, moreover, it appears that along with an increase in the number of employees and an increase in the range of business, there was an increase in the impact of macroenvironment on the activity and development of enterprises in the last 3 years ($\tau = 0.113$ and $\tau = 0.255$; $p < 0.05$).
- Hypothesis H2 has been supported since the impact of the technological environment on the functioning and development of enterprises on the market was determined by the companies of the SME sector at the level of mean = 3.50 (standard deviation = 1.15) on the 5-point scale, and, moreover, it appears that the wider the range of the conducted activity of the company, the greater the impact of the technological environment on conducting a business activity ($\tau = 0.121$; $p < 0.05$).
- Hypothesis H3 has been generally supported since the customers of enterprises were mostly indicated as the elements of microenvironment affecting the functioning and development of enterprises on the market; however, their impact did not increase along with an increase in the range of business.

The conducted research does not allow for the generalization of the results, but they present the view on the impact of macro- and microenvironment on the activity and development of enterprises of the SME sector. According to the authors, the studies ought to be continued in a broader spectrum to find regularities and indicate recommendations for enterprises of the SME sector, which are the driving force of the economy.

References

- Annual Report on European SMEs 2014/2015. SMEs start hiring again.* (2015). Available online: http://ec.europa.eu/growth/smes/business-friendly-environment/performance-review/index_en.htm [01-04-2016].
- Betakova, J., et al. (2014). Social capital and safety perception as aspect of improving regional competitiveness of territory. In Y. Zhang (Ed.) *2nd international conference on management innovation and business innovation (ICMIBI 2014)*, Book Series: Lecture notes in management science, Vol. 44, pp. 68–73.
- Casalino, N., et al. (2015). Performance management and innovative human resource training through flexible production systems aimed at enhancing the competitiveness of SMEs. *Journal of Knowledge Management*, 13(4), 29–42.
- Chi, T. (2009). Measurement of business environment characteristics in the US technical textile industry: An empirical study. *Journal of the Textile Institute*, 100(6), 546–548.
- Davis, A. (2007). *Public relations*. Warszawa: PWE.

- Džafić, Z. (2014). Business environment—The case of Western Balkan countries. *Economic review. Journal of Economics & Business/Ekonomska Revija: Casopis za Ekonomiju i Biznis*, 12(2), 73–89.
- Fiates, G. G., et al. (2010). Innovation environment in small technology-based companies. *Journal of Technology Management & Innovation*, 5(3), 81–95.
- Freeman, E. R. (1994). The politics of stakeholder theory: Some future directions. *Business Ethics Quarterly*, 4(4), 409–421.
- Freeman, E. R. (2010). *Strategic management: A stakeholder approach*. Edinburgh, UK: Cambridge University Press.
- Ivanová, E. (2011). Interconnectivity of factors of competitiveness at the microeconomic and macroeconomic levels in Slovakia. In *Economic policy in the European Union member countries*. Dolní Moravice, Czech Republic, pp. 154–166.
- Kieźel, E. (1999). Konsument jako obiekt badań marketingowych. In E. Kieźel (Ed.), *Rynkowe zachowania konsumentów*. Wydawnictwo Uczelniane Akademii Ekonomicznej im. Karola Adameckiego w Katowicach, Katowice, p. 256.
- Kot, S., et al. (2014). Identification of information systems application in road transport companies in Silesia region. *Communications in Computer and Information Science*, 471, 273–283.
- Krasniqi, B. (2007). Barriers to entrepreneurship and SME growth in transition: The case of Kosova. *Journal of Developmental Entrepreneurship*, 12(1), 71–94.
- Kruger, F. N. (2000). The cognitive infrastructure of opportunities emergence, entrepreneurship. *Theory & Practice*, 24(3), 9–27.
- Lachiewicz, S. (2013). Formy i uwarunkowania sukcesu w małym biznesie. *Zarządzanie i Finanse*, 4(1), 149–161.
- Lee, S. M., et al. (2012). Co-innovation: Convergenomics, collaboration, and co-creation for organizational values. *Management Decision*, 5, 817–831.
- Lemańska-Majdzik, A., & Okręglika, M. (2015). Determinants and areas of an organisation's success—Literature review. In *International academic conference on management, economics and marketing*. Proceedings of IAC-MEM in Vienna, Austria, pp. 32–42.
- Lemańska-Majdzik, A., et al. (2015). The determinants of the client's choices of companies providing services on the real estate market. In *The CD of participants' reviewed papers from 17th international conference MEKON 2015*. Ostrava, Czech Republic, pp. 661–669.
- Matejun, M. (2007). Analiza zewnętrznych prawno-podatkowych barier rozwoju firm sektora MŚP, Zeszyty Naukowe Politechniki Łódzkiej nr 43, Wydawnictwo Politechniki Łódzkiej, Łódź.
- Matejun, M. (2010). Zewnętrzne bariery rozwoju w cyklu życia małych i średnich przedsiębiorstw. *Research Papers of the Wrocław University of Economics/Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 116, 243–254.
- Mikolajewicz, G. (2014). Determinanty siły fundamentalnej przedsiębiorstwa. *Research Papers of the Wrocław University of Economics/Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 365, 173–185.
- Nduati, L. N., et al. (2015). Factors affecting ICT adoption in small and medium enterprises in Thika Town, Kenya. *European Journals of Business Management*, 2(3), 395–414.
- Okręglika, M. (2014). Adoption and use of ICT as a factor of development of small and medium-sized enterprises in Poland. *Przedsiębiorczość i Zarządzanie*, 15(7), 393–405.
- Petkovska, T. (2015). The role and importance of innovation in business of small and medium enterprises. *Economic Development/Ekonomiski Razvoj*, 17(1/2), 55–74.
- Reško, D. (2006). Funkcjonowanie małych i średnich przedsiębiorstw w otoczeniu międzynarodowym. In *Prace Komisji Geografii Przemysłu*, no. 8, Warszawa-Kraków, pp. 115–126.
- Safdar, K., & Siddiqi, M. (2011). Determinants of firm growth: An empirical examination of SMEs in Gujranwala, Gujarat and Sialkot district. *Interdisciplinary Journal of Contemporary Research in Business*, 3(1), 1389–1409.

- Setiowati, R., et al. (2015). The effects of ICT adoption on marketing capabilities and business performance of Indonesian SMEs in the fashion industry. *Journal of Business & Retail Management Research*, 10(1), 100–115.
- Sipa, M. (2013). Preferencje nabywców nieruchomości mieszkaniowych a inwestycje na rynku nieruchomości. In O. Ławińska & M. Sitek (Eds.), *Działalność inwestycyjna na rynku nieruchomości* (pp. 72–84). Częstochowa: Sekcja Wydawnictw Wydziału Zarządzania Politechniki Częstochowskiej.
- Szajt, M. (2014). *Przestrzeń w badaniach ekonomicznych*. Częstochowa: Sekcja Wydawnictw Wydziału Zarządzania Politechniki Częstochowskiej.
- Tomski, P. (2011). Paradygmat hiperdynamiki otoczenia a współdziałanie gospodarcze współczesnych przedsiębiorstw. In *Zeszyty Naukowe Politechniki Częstochowskiej, Zarządzanie* no. 1, pp. 7–18.
- Woolley, J. L., & Rottner, R. M. (2008). Innovation policy and nanotechnology entrepreneurship. *Entrepreneurship Theory and Practice*, 32(5), 791–811.
- Ziółkowska, B. (2013). *Zarządzanie procesami tworzenia wartości w przedsiębiorstwie. Perspektywa wirtualizacji*. Częstochowa: Wydawnictwo Politechniki Częstochowskiej.

The Barriers for the Development of the Social Cooperative Enterprises in Greece



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Abstract This article, briefly, presents the difficulties and the obstacles for the development of the social cooperative enterprises in Greece, from their formation until today, according to the Greek legislative framework for the Social Economy. Specifically, this article analyses and focuses on the barriers for the operation and the growth of the social cooperative enterprises in Greece which are mainly related to the lack of a specific, comprehensive and stable institutional framework for social enterprises; their weak financial position due to lack of investors and non-activation of state funding tools; the lack of evaluation and measurement of their social impact by institutional entities; the high levels of existing administrative bureaucracy of the involved public authorities; the limited information of the public servants and the employees of the private sector for the Social Entrepreneurship; the lack of available training for the staff of social cooperative enterprises that deals with administrative tasks; the low level of sensitisation of the local societies for the Social Economy Sector, etc. The article leads to some conclusions and suggestions for the improvement of the effectiveness of the national legislative framework and also to some prerequisites in order to boost the growth of the social cooperative enterprises in Greece.

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A. Karasavoglou et al. (eds.), *Economy, Finance and Business in Southeastern and Central Europe*, Springer Proceedings in Business and Economics,

https://doi.org/10.1007/978-3-319-70377-0_35

Keywords Social Economy • Social Entrepreneurship • Social Cooperative Enterprises • Greek Legislative Framework • Barriers • Obstacles

1 Introduction

In Greece, the Law 2716/1999 of the Ministry of Health, carrying the title “Development and modernization of the mental health services and other provisions”, and mainly the Law 4019/2011 of the Ministry of Labour, carrying the title “Social Economy, Social Entrepreneurship and other provisions”, envisage the establishment and operation of social enterprises with the legal form of Limited Liability Social Cooperative (Koinonikos Syneterismos Periorismenis Efthisis-KoiSPE) and the legal form of Social Cooperative Enterprise (Koinoniki Syneteristiki Epihirisi-KoinSEp) respectively. These two legal forms are the most recognisable institutional forms of social cooperative enterprises in Greece.

The objectives of these two legal forms of social cooperative enterprises, Limited Liability Social Cooperatives (KoiSPE) and Social Cooperative Enterprises (KoinSEp), are covered by the fundamental principles of the promotion of social benefit, the production of goods and/or services of global and social nature, the prioritising of people and work in contrast to the profit, the use of surpluses for the enhancement of employment and the promotion of sustainable development. The experience of their operation leads to the conclusion that the main reasons to be established are (a) refraining from the obligation to pay insurance taxes for professionals to the respective Social Security Organisations, even though they have to cover any other insurance obligations for the employees where appropriate; (b) the existence of funding instruments; (c) the “mutual vision” shared by the members of the cooperatives; (d) the finding of job for the unemployed, targeted mostly to those belonging to vulnerable groups of people; (e) the lower cost of production of goods and/or providing services, etc. (Kostas et al. 2015a).

The benefits recorded by the operation of these two legal forms of social cooperative enterprises (KoiSPE and KoinSEp) in Greece are (a) the creation of new jobs; (b) the enabling of access to labour market for people facing social exclusion; (c) the providing of services that focus on “locality”; (d) the creation of training opportunities and the development of personal skills; (e) their society oriented activities; (f) the promotion of social solidarity; (g) the balanced local and regional development; and (h) their capacity to contribute to the abolition of social inequalities (Geormas 2013; European Commission 2014a; Kostas et al. 2015b).

2 Institutional Framework for the Social Enterprises in Greece

The main Greek Legal Framework by which Social Entrepreneurship is covered includes the Law 921/1979, the Law 1257/1982, the Law 1541/1985 (Women's Agricultural Cooperatives) and the Law 2169/1993 (and its amendments: Law 2184/1994, Law 2538/1997 and Law 2810/2000) on Agricultural Cooperatives, Agricultural Cooperative Unions; the Law 1667/1986 (and its amendments: Law 2076/1992, Law 2166/1993 and Law 2515/1997) on Civil Cooperatives; the Presidential Decrees (PD) 17/1984, 93/1987, 2/1988, 23/1990 and 448/1991 on Housing Cooperatives; the Law 2072/1996 and the Law 2076/1992 in combination with the Law 1667/1986 on Cooperative Banks, Credit Cooperatives; the Law 2716/1999 (article 12) on Limited Liability Social Cooperatives (KoiSPE); the Council Regulation (EC) 1435/2003 on the Statute for a European Cooperative Society (European Cooperatives in Greece are registered at the General Commercial Register under Law 3419/2005); the Laws 3557/2007, 3455/2006, 3487/2006, 2496/1997, 1569/1985, 400/1970 and 2190/1920 on Insurance Companies, Mutual Insurance Cooperatives; and the Law 4019/2011 that mainly covers the legislative framework on Social Cooperative Enterprises (KoinSEp) in Greece (Nasioulas 2012; Kassavetis 2013).

Below, the executive summaries of the Greek Laws 2716/1999 and 4019/2011 will be presented, as these refer to the specific legal forms of these two types of social cooperative enterprises in Greece, Limited Liability Social Cooperative (KoiSPE) and Social Cooperative Enterprise (KoinSEp).

Limited Liability Social Cooperative (KoiSPE), established by the Law 2716/1999 (Article 12) of the Ministry of Health, is the first important and actual attempt of establishing the institution of social cooperative enterprises in Greece. KoiSPE is an entity designed to promote partnerships between psychiatric hospital workers and individuals with mental disabilities and became an institutional option that regulates the institutional framework of the psychiatric reformation in Greece. KoiSPE is based on a partnership between individuals of the "target group" (people with mental disabilities), psychiatric hospital workers and institutions from the community (including local authorities), and such different stakeholders have to be represented on the board of the organisation. So, members of KoiSPE can be (a) natural persons with mental disorders, (b) adults working in the mental health sector, and (c) municipalities or other natural entities or legal entities of public or private sector, public hospitals, psychiatric hospitals, private organisations having deployed mental health units, etc. KoiSPE is an innovative form of cooperation action for people with psychosocial problems, and at the same time, they are both legal entities with commercial character and mental health units. KoiSPE is legal private entity with limited liability of their members. The monitoring of KoiSPE is under the Directorate of Mental Health of the Ministry of Health. Particularly, the Law 2716/1999 refers to the establishment of a network for providing mental health services to people with psychosocial problems and their families, aiming at (a) the

outpatient care; (b) the post-discharge care; (c) the creation of services of psychosocial recovery; and (d) the social and labour (re)integration (Ministry of Health and Welfare 1999; Sakellaropoulos and Economou 2007; Adam 2012; Kassavetis 2013).

Law 4019/2011 of the Ministry of Labour on Social Economy and Social Entrepreneurship was set to implementation on 30 September 2011. The law consists of 20 articles. Art. 1 § 1 defines Social Economy as “the sum of economic, entrepreneurial, productive and social activities, undertaken by legal entities or associations whose statutory goal is to pursue actions of collective benefit and the service of wider social interests”. Art. 2 § 1 introduced a new legal form of social cooperative, the “Social Cooperative Enterprise (KoinSEp)”. Social Cooperative Enterprise (KoinSEp) is established as an entity of Social Economy, and it is a civil cooperative with social objective possessing commercial capacity by law (Ministry of Labour and Social Insurance 2011).

With the Law 4019/2011, Social Cooperative Enterprise (KoinSEp) is forming an institution. Actually, KoinSEp is a civil cooperative with social objectives, a private legal entity with limited liability of its shareholders which also has a commercial character. Art. 2, § 2 furthermore elaborates on the types of Social Cooperative Enterprises (KoinSEp). According to their special purposes, Social Cooperative Enterprises (KoinSEp) are categorised as (a) KoinSEp for integration, which focus on individuals belonging to vulnerable groups and their integration into the economic and social life; (b) KoinSEp for social care, which focus on production and provision of goods and services of social care character, towards certain population groups such as the elderly, infants, children, disabled and chronically ill; and (c) KoinSEp for collective and productive purposes, which focus on the production of products and the provision of services to meet the needs of social collective in the fields of culture, preservation of traditional activities and crafts, environment, ecology, education, social benefit services, promoting local products, etc. (Ministry of Labour and Social Insurance 2011). Social Cooperative Enterprise (KoinSEp), furthermore, promotes local and collective interest, the development of employment, the enhancement of social cohesion and the strengthening of local or regional development (Kostas 2013).

Social Cooperative Enterprises (KoinSEp) should meet the following prerequisites in order to comply with the regulations of legal operation and appropriate activities (Ministry of Labour and Social Insurance 2011; Kassavetis 2013): (a) it must have at least five (or seven in the case of KoinSEp for integration) members (shareholders); (b) their members should be either natural persons or legal entities (legal entities cannot be more than 1/3 of the total shareholders), while local authorities and their legal entities/municipal enterprises cannot be shareholders, unless the subject of the KoinSEp is KoinSEp for integration; (c) each shareholder has at least one obligatory share and up to five optional shares; (d) all shareholders have the voting right of one vote, independently of the number of shares they have; (e) each member of the management board of KoinSEp has to be a shareholder of the cooperative as well; (f) the membership of a natural person does not provide commercial character to her/him personally and does not set any personal insurance

or tax obligations; (g) a member of a KoinSEp cannot participate as member to another KoinSEp of the same type in the same regional unit of the country; (h) the profits of KoinSEp are not distributed to its shareholders, unless these shareholders are also employees in this KoinSEp.

3 The Obstacles and the Development Problems for Social Cooperative Enterprises in Greece

According to the recent data of the General Registry of Social Economy of the Ministry of Labour, in March 2016 the number of registered Social Cooperative Enterprises (KoinSEp), having a valid membership certificate (thus, having completed a fiscal year and successfully applied for the certificate) or having completed either their temporary or their permanent registration, was 1007, of which the vast majority, 859, were enlisted as KoinSEp for Collective and Productive Purposes, 113 were enlisted as KoinSEp for Social Care and 35 as KoinSEp for Integration. These figures include also 283 KoinSEp of the three categories that were deregistered from the registry, either after their respective application or automatically (i.e. due to non-compliance, failure to meet their obligations with the General Registry of Social Economy, etc.). At the same time, according to the data of the Directorate of Mental Health of the Ministry of Health and the Greek Federation of Limited Liability Social Cooperatives (Panellinia Omospondia Koinonikon Synetairismon Periorismenis Eftinis-POKoiSPE), until the first trimester of 2016, there were twenty-four (24) Limited Liability Social Cooperatives (KoiSPE) in Greece. Thus, the total number of registered entities of these two legal forms of social cooperative enterprises (KoiSPE and KoinSEp), which were in operation in the first trimester of 2016, was 748.

Mapping of the social economy in Greece wouldn't be an easy task and any attempt would confront with many barriers. Social economy is something vague and its impact on economy and society is difficult to be determined. In addition to that, there is no comprehensive and specific legal and stable framework for social enterprises in Greece. According to Sakellaropoulos, Trantas, and Zannis (2005), the lack of a clear and coherent institutional framework was apparent also in cases that funding of social enterprises would have to be considered, as there were no defined and common rules for those legal entrepreneurial forms, neither State subsidy. That argument is valid even today, although the Law 4019/2011 is in force for near five (5) years.

The institutional framework for Social Economy and Social Entrepreneurship (Law 4019/2011) is relatively new in Greece, and as every new institution, it needs entrepreneurial support and monitoring. Such monitoring should refer both to the specific and overall performance of social enterprises and to the social impact of their implemented activities. The enactment of Social Cooperative Enterprises (KoinSEp) in Greece in 2011 coincided with the economic crisis, however that

shouldn't be a reason for the State not to enhance the institution with favourable regulations, in terms of finance and administrative issues. To strengthen the institution of Social Entrepreneurship, the State should plan and implement policies, such as tax exemptions or financial grants to encourage vulnerable population groups and mainly unemployed youth to become active in the Third Sector of the Economy. For the development of a new institution, especially one that is operating in the field of both economic and social development, the support by the State is an unavoidable requirement. The support could include tax advantages, concessional loans, contribution reliefs, various forms of grants, etc. Such measures should be imposed because for certain groups of people being members/shareholders of Enterprises of Social Economy, it is difficult or even impossible to acquire a first, albeit small, capital in order to address first expenses until they manage to fully operate (Triantafyllopoulou and Spiliopoulos 2015). It should be underlined that the option of small grants/investment for operational expenditure of the first period is of utmost importance, and that need has been described by social entrepreneurs (Kostas et al. 2015a).

According to Nasioulas (2012), the Law 4019/2011 on Social Economy and Social Entrepreneurship, provides for the first time the institutional recognition of Social Economy in Greece. By introducing new legal forms of Social Entrepreneurship, such as the Social Cooperative Enterprise (KoinSEp), the available organisational forms for economic self-expression are enriched. Nevertheless, neither Law 4019/2011 nor the Greek administrative system is yet able to address long-standing issues regarding the structuring of Social Economy in Greece, through a comprehensive, operational and inclusive recognition. Furthermore, it could be stated that in Greece, no legislation covering comprehensively Social Economy is in force. The utilisation of the term in Law 4019/2011 is proved to be superfluous and eventually misleading, since the basic subject of this legislative action is to introduce the social cooperative enterprises. A second major deficiency of the Law 4019/2011 is that it envisages the establishment of a registry of other Organisations of Social Economy, which eventually is found not to include any other of the widely accepted institutional forms of Social Economy Organisations.

During the recent period of economic recession, there were no financial facilities in national budgets for granting loans to Social Entrepreneurship activities. Funding Social Economy activities is done by the competent European Union funds. The European initiative "EQUAL" during the years 2000–2008 was the first supporting measure that was implemented for collective social activities aiming to social care, integration of vulnerable population groups in the labour market and development of collective commercial activities. The legal order of many EU member states and recently Greece, has established a special form of legal entities for Social Entrepreneurship, with discrete characteristics and certain administration and operation conditions. The rules for the establishment of Social Cooperative Enterprise (KoinSEp) and their general characteristics resemble either to the action rules of private initiative or those adopted by public enterprise and organisations, while the main differences of social cooperative enterprises compared to the other private legal entities are (a) the goal they serve and the population groups that benefit from

such actions; (b) their operation means; and (c) the favourable regulations stipulated usually for facilitating the establishment of Enterprises of Social Economy (Triantafyllopoulou and Spiliopoulos 2015).

The experience of establishment and operation of social cooperative enterprises (KoiSPE and KoinSEp) in Greece, has recorded many problems which are obstacles for their viable and effective operation. These problems are summarised (CICOPA 2013; European Commission 2013; Kostas et al. 2015a) as their weak financial situation; their incompetence to locate (financial) resources for their development due to the existence of only a small number of funding instruments; the very limited number of social investors in Greece; the absence of programmes for direct funding of their activities; the non-absorption of the funds for Social Entrepreneurship, available through the Greek NSRF; the misguided use of funds for employment through initiatives co-funded by the Greek NSRF 2007–2013 (programmes called *Topika Shedia Apasholisis-TOPSA*, and *Topikes Drasis Koinonikis Entaxis gia Eualotes Koinonikes Omades-TOP/EKO*), which did not achieve the expected results; the delay in activation of the Social Economy Fund which had a specific budget for social cooperative enterprises since 2012; the financial weakness to acquire technical equipment and infrastructure for their appropriate and smooth operations; the lack of sufficient legislation for the institutional and taxation incentives and support of social cooperative enterprises; the limited and impedimental cooperation with other entities, either public or private; the fragmented character of planning of direct strategic interventions for social cooperative enterprises, which should correspond to the current precarious financial conditions; the enhanced bureaucracy and the low rate of specialisation as well as knowledge for the institutions of social cooperative enterprises of the responsible public servants in certain agencies such as tax authorities; the absence of analysis of success factors and the holistic approach of implementation of their development plan; the absence of tools for the evaluation of their operations and measuring of the social impact of their activities; the shortfall of specialised staff for their management and administration; the limited number of volunteers due to the nature of their operation and the low rate of sensitisation of the local societies; the existing mentality that is not in favour of rising creativity; the absence of an environment/conditions for their network with other social economy organisations; their competition with other companies of the private sector; the absence of a comprehensive approach of Social Economy and Social Entrepreneurship at the secondary and tertiary education; the fragmented actions for information, training and counselling in Social Economy and Social Entrepreneurship; the delay in establishment of an institutional observatory and appropriate regional support structures for Social Entrepreneurship; the “hesitation” of the State to create actual conditions for their development; the consequent cancellation of their exemption from taxation, etc.

It is a fact that the Law 4019/2011 brought new hope and good option for employment and creativity (CIRIEC 2012). Unemployed people and many others considered that approach to create through social cooperative enterprises as a solution, especially with the very serious effects of the financial crisis on the society. However, the State did not perform to complete a comprehensive system

for this sector of economy, it did not keep its promises and it caused too many troubles to social entrepreneurs, who suddenly had to deal with the “monster” of bureaucracy, cover tax obligations even when they did not have any income, locate non-state sources of funding, etc. It is worth stating that for years, all forms of entrepreneurship were benefited by several co-funded projects, while social cooperative enterprises of Laws 2716/1999 and 4019/2011 (KoiSPE and KoinSEp) only recently (in late 2015) started having some advantages, and those with limitations, excluding many of them from the respective funding procedures.

4 Conclusion

The analysis above, leads to the conclusion that (a) the sector of Social Entrepreneurship in Greece hasn't been developed sufficiently yet; (b) institutional, taxation and funding issues related to social cooperative enterprises (KoiSPE and KoinSEp) haven't been resolved yet; (c) appropriate structures and mechanisms for the support of the social enterprises at national, regional and local level haven't been deployed yet; (d) the maturity of social entrepreneurs is not adequate; (e) social investments are not available to support ventures of the Third Sector of Economy; and (f) the social impact in most of the cases is limited to the increment of employment.

The main suggestions of this article in relation to the perspectives of development of Social Entrepreneurship in Greece are: (a) the reformation of the legislation for Social Economy and Social Entrepreneurship that should deal with the open legislation issues, incorporating the EU directives for the degree of involvement of Social Economy in the economy and the common societal goals (European Commission 2014b, c), as well as the terms and conditions. Such reformation is of particular importance as it complies with the Europe 2020 strategy, a *strategy for smart, sustainable and inclusive growth* (European Commission 2010), and it would have to be accompanied by a vast campaign of information and publicity, differentiated for each target group such as public servants in local and regional authorities as well as ministries, tax officers, accounting companies, chambers of commerce, the general population and associations of the civil society; (b) the immediate establishment of regional support structures and mechanisms for social cooperative enterprises (KoiSPE and KoinSEp), by institutional, state, and local but also private entities that would inform the citizens about the role and the contribution of Social Entrepreneurship in local development and the enhancement of employment, inform public servants of specific agencies and public organisations for the provisions of the legislation in order to ease the access of social cooperative enterprises to public contracts, support these entities for their networking, provide specialised support services for the establishment, the management, the operations, the funding and their development, network social cooperative enterprises (KoiSPE and KoinSEp) with other organisations of Social Economy, enhance the network of social cooperative enterprises (KoiSPE and KoinSEp) with networks of social

enterprises globally, transmit the good practices of Social Entrepreneurship that have already been developed in Europe, overcome obstacles related to the creation of new job positions in social cooperative enterprises, provide practical mentoring to the people for the preparation of the business plans and also the tax and insurance matters that affect them, provide comprehensive and directed support services to their members and the employees, develop training courses/programmes for Social Economy, promote their products and their services in the local societies; inform regularly their members and the interested citizens about the legislation, the opportunities and potential for the development of Social Economy Sector, etc.

Thus, it is necessary to apply a National and Regional Strategy for (a) the enhancement of the sector of Social Economy in Greece; (b) the institutional support and taxation incentives; (c) the creation and sufficient staffing of support structures and mechanisms of Social Entrepreneurship; (d) the adequate description of the provisions of the public procurement system for awarded contracts and concession contracts to social enterprises, including comprehensible terms and conditions; and (e) the development of appropriate funding tools for social cooperative enterprises, required in the current financial and social circumstances.

References

- Adam, S. (2012). *Social economy, labour integration and social exclusion: The experience of KoiSPE in Greece*. PhD thesis, Democritus University of Thrace, Komotini.
- CICOPA. (2013). *Promoting cooperatives and the social economy in Greece. How to promote the social economy in Greece through social cooperatives, worker cooperatives, and cooperatives of artisans and of SMEs*. International Organisation of Industrial, Artisanal and Service Producers' Cooperatives (CICOPA), Final report to the ILO. Brussels. Accessed March 1, 2016, from http://www.cecop.coop/IMG/pdf/promoting_cooperatives_and_the_social_economy_in_greece.pdf
- CIRIEC. (2012). *The social economy in the European Union*. Summary of the Report drawn up for the European Economic and Social Committee, Brussels. Accessed March 1, 2016, from <http://www.eesc.europa.eu/resources/docs/qe-31-12-784-en-c.pdf>
- European Commission. (2010). *Communication from the commission: Europe 2020: A strategy for smart, sustainable and inclusive growth*. Brussels. Accessed March 2, 2016, from <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20%20Europe%202020%20-%20EN%20version.pdf>
- European Commission. (2013). *Social economy and social entrepreneurship, Social Europe guide* (Vol. 4). Brussels. Accessed March 2, 2016, from <http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7523>
- European Commission. (2014a). *A map of social enterprises and their eco-systems in Europe*. Country report: Greece. Brussels. Accessed March 2, 2016, from <http://ec.europa.eu/social/keyDocuments.jsp?pager.offset=10&langId=en&mode=advancedSubmit&advSearchKey=socentcntryrepts>
- European Commission. (2014b). *Directive 2014/23/EU of the European Parliament and the Council of 26 February 2014 on the award of concession contracts*. Brussels. Accessed March 3, 2016, from <http://eur-lex.europa.eu/legalcontent/EL/TXT/PDF/?uri=CELEX:32014L0023&from=EN>

- European Commission. (2014c). *Directive 2014/24/EU of the European Parliament and the Council of 26 February 2014 on Public Procurement and Repealing Directive 2004/18/EC*. Brussels. Accessed March 3, 2016, from <http://eur-lex.europa.eu/legal-content/EL/TXT/PDF/?uri=CELEX:32014L0024&from=EN>
- Geormas, K. (2013). Social economy in Europe. Definitions, experience and perspectives. In: K. Geormas (Ed.), *Social economy. Theory, experience and perspectives* (pp. 13–44). Athens: Enallaktikes Ekdoseis.
- Kassavetis, D. (2013). Social entrepreneurship in Greece. In: K. Geormas (Ed.), *Social economy. Theory, experience and perspectives* (pp. 45–82). Athens: Enallaktikes Ekdoseis.
- Kostas, A. (2013). Social economy organizations and social enterprises in Greece. In: K. Geormas (Ed.), *Social economy. Theory, experience and perspectives* (pp. 83–100). Athens: Enallaktikes Ekdoseis.
- Kostas, A., Tsoukalidis, I., & Chainas, I. E. (2015a). *Social cooperative enterprises in Greece. Vision, philosophy, practices and obstacles*. In Paper for the 5th Regular Conference of the Hellenic Sociology Association “The Greek society in the cross-road of crisis – six years after”. Athens: Hellenic Sociology Association.
- Kostas, A., Tsoukalidis, I., & Chainas, I. E. (2015b). *The social economy and the social entrepreneurship as an engine for the development of entrepreneurship and the employment integration of vulnerable and disadvantaged groups. Tools and techniques for the development of social entrepreneurship skills and the professional career support*. In Paper for the 5th Regular Conference of the Hellenic Sociology Association “The Greek society in the cross-road of crisis – six years after”. Athens: Hellenic Sociology Association.
- Ministry of Health and Welfare. (1999). *Law 2716/1999 “Development and modernization of the mental health services and other provisions”*. Accessed March 1, 2016, from http://www.psychargos.gov.gr/Documents2/CE%9D.%202716_1999_%CE%A6%CE%95%CE%9A%20%CE%91%2096.pdf
- Ministry of Labour and Social Insurance. (2011). *Law 4019/2011 “Social economy and social entrepreneurship and other provisions”*. Accessed March 1, 2016, from <http://www.ypakp.gr>
- Nasioulas, I. (2012). Social cooperatives in Greece. Introducing new forms of social economy and entrepreneurship. *International Review of Social Research*, 2(2), 141–161.
- Sakellaropoulos, T., & Economou, H. (2007). Aiming studies for development of social entrepreneurship. In *Developmental consortium “Social entrepreneurship”, EU Initiative EQUAL, 2nd round*. Athens: Research Center of Economic and Social Researches, Panteion University.
- Sakellaropoulos, Th., Trantas, N., & Zannis, P. (2005). *NGO’s and local development: The double deficit of the Greek Civil Society*. In Paper for the International Conference of Istanbul Policy Center (IPC) and Sabanci University “The Role of the Third Sector in Local Development”. Istanbul: Istanbul Policy Center (IPC), Sabanci University & The Turkish Third Sector Foundation (TUSEV).
- Triantafyllopoulou, A., & Spiliopoulos, O. (2015). Institution of social economy: Sectors of cooperation in the countries of southern Europe. In: A. G. Karasavvoglou, D. Kyrkilis, & P. Polychronidou (Eds.), *The economies of Balkan and Eastern Europe countries in the changed world. EBEEC 2015. Procedia Economics and Finance*, 33, 181–187.

Tourism and Ecologically Sensitive Areas: The Case the Prefecture of Preveza from Citizens' Point of View



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Abstract The immeasurable value and necessity of protecting and promoting the natural wealth that distinguishes a geographical unit demand the adoption and implementation of a multifaceted strategy, aiming to preserve and manage an ecologically sensitive area systematically and, by extension, to ensure the viable development of tourism. All this must be accepted by the citizens in order for changes to occur without people's complaint and protests. Under this assumption, the objective of this paper is to investigate the attitudes and beliefs of residents regarding ecotourism development in the Preveza prefecture, an area mainly characterized as Natura and Ramsar protected. It also reflects the citizens' beliefs regarding the possibility of developing modern forms of tourism activities near or within the environmentally sensitive area, in the light of a viable-sustainable development in the prefecture. In order for this to be accomplished, field research with the means of a questionnaire, developed especially for this reason, was undertaken. Sample involved 150 permanent residents of the Preveza prefecture from all three municipalities (Zirou, Parga, and Preveza) via mall-intercept personal interview. Thus, residents rated their point of agreement for tourism exploitation of nine nature-related attraction sites and seven modern forms of tourism activities within these nature attractions sites. Residents consider that alternative tourism (92.0%) and not mass tourism is indicated for the area and specifically in the form of ecotourism (94.5%) for sustainable development (86.4%) of the region. Regarding the nature-related point of interests which could be potential tourist attractions, locals consider all sites as potential tourist attractions, but the ones with the highest rate are Acheron river (delta) Alonaki Beach- Nekromanteion (necromancy, 93.9%) and the straits of Acheron river-Trikastro-Skala Tzavelena (91.7%).

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As to modern types of tourism, they rated biking and hiking-trekking as the best for the region (89.5%). Moreover, they consider that the responsible bodies for tourism development of Preveza, which should keep nature protected and unspoiled, are mainly the local authorities and operators (59.4%). The expected benefits of recording citizens' opinions and beliefs aim at rational regional planning and are very important. Results are discussed, and recommendations for implementation are provided.

Keywords Protected area • Tourism • Citizen's opinions • Preveza Prefecture • Marketing

1 Introduction

Climate change and extensive human land and water exploitation have resulted to degradation of ecosystems (UNDP 2012, p. 1), which lead to the development and implementation of frameworks and policies for their conservation, many of which were declared as sensitive protected areas, protecting them from further destruction. The International Union for Conservation of Nature (IUCN 1994) defines a protected area as "Area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means" (IUCN 1994, p. 18) and furthermore classifies protected areas in six categories based on their primary management objectives (IUCN 1994, pp. 28–35).

Additionally and on one hand, rural communities are more and more viewing the tourism sector as a foundation of their economic development (Leistritz 2006), and on the other hand, and on an individual level, traveling and tourism provide escape from everyday routines and problems and "fills the human battery" in order again to return to daily reality. The today's model of uncontrolled mass tourism and the difficulties resulting from this led to other milder tourism approaches, i.e., alternative tourism (Butler 1992). Alternative tourism as defined by Eadington and Smith (1992, p. 3) is "forms of tourism that are consistent with natural, social, and community values and which allow both hosts and guests to enjoy positive and worthwhile interaction and shared experiences." Thus, the structure and operation of new tourism standards are based on principles that respect the natural and structured environment of a region, its social cohesion, and cultural heritage (Crisman 2000). It is in this sense, the need for sustainable tourism emerged, which is the main pillar of the European Union policies (Pridham 1999) and is rooted in the concept of sustainable development (The International Ecotourism Society 2014).

Conservation of a protected area and community support are of high importance since Holmes (2013) found that residents may refuse to support, cooperate, or participate in conservation efforts or plans, so not only their positive attitude is needed but their active participation too (Bockstael et al. 2016; Xu et al. 2006). Consequently, the same applies to sustainable tourism development in protected

areas. Therefore, this research studies tourism development in the Preveza Prefecture, a prefecture with many areas or locations designated as protected areas.

2 Literature Review

Ecological sensitive areas have been studied extensively, with a great body of articles focusing on tourism research. Some of the issues researched are tourists' opinions about deficiencies or weaknesses as regards the protected area as a destination (e.g., Andrea et al. 2013a, 2014; Akhter et al. 2009; Beunen et al. 2008); tourists' willingness to pay for environmental conservation or tourism services in environmentally protected areas (Wong 2014; Wang and Jia 2012; Barnes et al. 1999); tourists' environmental attitudes (Ardoin et al. 2015; Packer et al. 2014); and motives to visit protected areas as tourist destination choice (Gundersen et al. 2015; Cheung and Fok 2014; Eagles 1992). Another body of research focuses on tourism development in protected areas (e.g., Bello 2015; Xu et al. 2009; Stone and Wall 2004; Manning 2002) and locals' attitudes toward tourism and environmental conservation and/or their benefits from protected areas (e.g., Gorner and Cihar 2013; Tomićević et al. 2010; Ezebilo and Mattsson 2010). Lastly, research concentrated on residents' perceptions, attitudes, and behavior on tourism development in protected areas (e.g., Nastran 2015; Jones et al. 2015; Tsantopoulos et al. 2013; Andrea et al. 2013b, c; Jones et al. 2012; Dimitrakopoulos et al. 2010; Pipinos and Fokiali 2009; Pavlikakis and Tsihrintzis 2006; Trakolis 2001; Christopoulou and Tsachalidis 2004). As to Greece and research on local residents and tourism in protected areas, Jones et al. (2015) investigated the social factors (trust in institutions, social trust, and social networks) on 367 citizens' perceptions influencing the level of acceptability for participatory management frameworks in two forest protected areas of Greece (the Tzoumerka-Peristeri-Arachthos Gorge National Park and the Vikos-Aoos National Park), as well as the restriction that citizens perceive from the implementation of such frameworks through field research via a questionnaire. Tsantopoulos et al. (2013) examined the attitude of stakeholders regarding the protection and conservation of nature and the development of the region, on a sample of local people ($n = 239$) of the Prespa Lakes National Park. Andrea et al. (2013b) investigated, among others, 264 local's opinions about the effectiveness of administration and management of the Dadia National Park, in the Evros Prefecture. Andrea et al. (2013c) studied the economic growth of gateway communities in the Amvrakikos Wetlands National Park by examining local people's views concerning the various characteristics of the broader area, their living standards, as well as the sectors they wanted existing and future developments to be based upon. Jones et al. (2012) explored the knowledge and perceptions of different interest groups, among which were local residents, concerning environmental issues in general, awareness of the restrictions imposed by the current management framework, benefits connected with the designation of the protected area, and willingness of individuals to pay for

protection of the National Park of Eastern Macedonia and Thrace. Dimitrakopoulos et al. (2010) explored the perceptions and awareness of 390 citizens in three protected areas of Greece (National Park of Eastern Macedonia and Thrace, the Wetland of Kalloni, and Lake Tavropou) on environmental issues and alternative management scenarios for the conservation of biodiversity, while differences between the three research areas were also explored. Pipinos and Fokiali (2009) studied the extent to which the residents of the region of Northern Karpathos and Saria in the southeast corner of the Aegean (both included in the European Ecological Network Natura 2000) have positive attitudes and perceptions toward ecotourism ventures for sustainable development. Specifically, they investigated the degree of awareness and sensitivity regarding environmental conservation issues in the area, the need for environmental education concerning ecotourism activities, and the attitude toward the implementation of initiatives in the ecotourism field aimed at their empowerment and at promoting sustainable development in the area. Pavlikakis and Tsihrintzis (2006) investigated the opinions of residents in Eastern Macedonia and Thrace National Park in Greece, with focus on their knowledge about the ecosystem area, their activities in the park area, their opinion about the ecosystem assets and services, and their perceived importance for the ecosystem inhabitants, e.g., regarding people's income and landscape aesthetics and ecological value. Also, they researched their willingness to pay an amount of money, once a year, for the protection, restoration, and management of the ecosystem and willingness to be informed about the ecosystem and participate in the decision-making process. Christopoulou and Trizoni (2005) explored the opinions of the local communities in the region of Pelion (Natura 2000), with regard to zoning and planning; scenarios for future planning and zoning and the desirability/undesirability of their outcomes; the problems regarding the implementation of Natura 2000; the desired Natura 2000's outcomes as considered by locals; and their suggestions on how these targets could be achieved as well as how to solve local problems. Christopoulou and Tsachalidis (2004) studied local residents' attitudes regarding the ways of management and exploitation of the wetlands and their sociological features, using the opinion poll method where 1600 questionnaires were distributed in 32 communities neighboring four Ramsar wetlands in Northern Greece. Trakolis (2001) investigated using a systematic sampling of 201 residents' perceptions regarding issues related to planning and management of Prespes Lakes National Park in northwestern Greece, 24 years after designation.

3 The Preveza Prefecture: Aim and Objectives

Tourism for Greece is one of the main pillars of economic growth, especially today being under the surveillance of the Troika. This is more intense for the region of Epirus, which is the most alpine and relatively isolated region in the country, with the population depleted by migration: only 3.1% of the country's population lives in the region (European Parliament 2011). According to Balourdos (2007), in comparison with the rest of the country, poverty and economic inequality, in general, is

significantly higher in the Epirus region. Also, according to the European Parliament (2011), the service sector in Epirus dominates the regional economy and accounts for 69.7% of the regional GDP, with the tourism sector and trade being the most prominent with significant growth potential. Epirus region has four regional unities: the prefectures of Arta, Thesprotia, Ioanninon, and Preveza (Region of Epirus <http://www.php.gov.gr/> 2017). In the greater Epirus region and particularly in the southern part of the Preveza Prefecture, habitats of significant value, such as the Amvrakikos Gulf, the estuaries and straits of Acheron river, and the coastal sea from Parga to Agios Thomas, are identified (Official Gazette 1451/6-10-2003). Tourism development that has taken place in the region is still very low, which is in complete contrast to the tourist demand of the region which has developed in the recent years.

A significant number of areas of the region of Preveza are included in the lists of sensitive and protected territories, having as a main criterion for inclusion its ecological and aesthetic value. Their protection is based on the already existing institutional framework (Greek and European Law, International Contracts), with the prefecture having six categories of sensitive and protected areas:

- Aesthetic forests: In the wider area is the aesthetic forest Nicopolis-Preveza Mytikas, which was established by Presidential Decree 183 of 05/05/1977.
- Natura 2000: Estuary of Acheron (from Glossa to Alonaki) and Acheron straits (4630.16 Ha), coastal marine zone from Parga to cape Agios Thomas (Preveza), Cape Keladio-Agios Thomas (1525.88 ha), Zalogo mountains (2333.00 ha; <http://www.biodiversity.gr/natura.php>), and Amvrakikos bay, delta of Louros, and Araxtheiou (a complex ecosystem consisting of the Louros delta river; lagoon system consisting of three major lagoons, Rodia, Tsoukalio, Logarou, and some smaller ones; and a sea area zone; European Commission 2006, p. 6).
- CORINE protected areas: Zalogo mountains, estuary and straits of Acheron, Thesprotian mountains (Preveza), Lake Ziros and Lourou valley (Filippiada), and Lourou straits, Keresonas Area (<https://filotis.itia.ntua.gr/biotopes>).
- National Parks: Amvrakikos Gulf
- Ramsar areas: Vathi, Pagonitsa, Mazoma, Petras, and Lourou lagoons (wetland complex).
- Specially protected areas based on the Barcelona Convention: aesthetic forest Nicopolis-Preveza Mytikas and the Amvrakikos Gulf (Greek Biotope/Wetland Centre, ekby.gr 2016).

Taking all the above into account and acknowledging the importance of tourism for the region's economy as well as the importance of residents' acceptance of conservation management, this research investigates the potential for sustainable tourism development of the Preveza Prefecture, by recording and analyzing the views of its citizens. Moreover, the specific objectives of this study focused on recording and analyzing citizens' views regarding:

- The type of tourism development that can be applied in the region
- The places of interest or attraction that the Preveza prefecture holds that can be developed for tourism in the context of sustainable tourism development

- The forms of tourism activities in these areas
- Segmentation of residents according to their opinions regarding points of interest for sustainable tourism development and tourism activities in these areas

In order for the above issues to be addressed, the research approach was undertaken.

4 Methodology

A quantitative research approach was utilized. After an extensive literature review and informal discussions with the citizens, the questions incorporated in the survey instrument were chosen. The instrument for gathering data consisted of 12 questions, almost all multi-item ones. It was constructed based on other researchers' studies (e.g., Johan and Joppe 2005; Ross and Iso-Ahola 1991), pilot-tested with 15 respondents, whereas the required modifications were made so it would be understandable and easy to use. Via mall-intercept aided self-administered questionnaire, 150 valid questionnaires were collected. Data were gathered from three municipalities (Zirou, Parga, and Preveza) employing a mall-intercept method, during a 3-month period. Data analysis included frequencies, percentages, means, factor and cluster analysis, and chi-square tests.

5 Results and Discussion

5.1 Sample Profile

The total number of valid questionnaires gathered was 150, from which 75.0% were from the municipality of Preveza, due to proximity and population concentration. Gender was equally represented; participants' mean age was 42.6 years old (Std. = 12.0). Also, the majority was married (65.3%), held a bachelor's degree (46.0%), and was private or federal employees (45.3%) or professionals/business-people (31.3%). Lastly, regarding their monthly net family income, the majority (52.3%) had an income ranging from 600.01 to 1500.00 euros.

5.2 Tourism in the Preveza Prefecture: Potential Development of Tourist Activities

Residents' opinions regarding the type of tourism that could be implemented in the Preveza Prefecture, a prefecture that features noteworthy habitats, were explored. They consider that alternative tourism (92.0%) and not mass tourism is indicated

for the area and specifically in the form of ecotourism (94.5%) for sustainable development (86.4%) of the region.

In connection with the special natural environment of the Preveza Prefecture and the possibility of using them for economic and tourism development of the region, citizens' opinions are presented in Table 1, rated on a 1–5-point Likert Scale, where 1 corresponds to completely disagree and 5 completely agree. The three highest ratings (mean scores, MS) that residents gave are to the delta of Acheron river, Ammoudia-Alonaki-Necromancy (MS = 4.56); the straits of Acheron-Trikastro-Skala Tzavelena (MS = 4.50); and the wetlands of Amvrakikos Gulf, i.e., the lagoons, marshes, rivers, etc. (MS = 4.41).

Table 1 also reflects locals' opinions toward the possibility of developing modern forms of activities near or within the environmentally sensitive areas in the light of a viable/sustainable development in the prefecture. Prominent in their preferences by gathering 89.5% are activities that have to do with biking and hiking (MS = 4.45), followed by activities of diving and fishing with traditional methods (MS = 4.14); canoeing, kayaking, and rafting (MS = 4.11); and finally activities that have to do with bird watching (MS = 4.10).

5.3 Factor Analysis Segmentation

Factor analysis via Principle Component Analysis (PCA) with varimax rotation (Hair et al. 2010) was implemented to the two questions regarding points of interest and potential tourist activities, in order to decrease items and make them manageable for further analysis. As important variables in factor formation were considered those with factor loadings >0.50 (Sharma 1996), and in this manner, no item was discharged. Factor analysis (Eigenvalues > 1.0) produced two factors for both cases (Table 1) accounting for 70.9 and 70.6% of total variance (TV). Moreover, for the two questions, the indices Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) which was >0.7 , the Bartlett's test of sphericity (BTS), as well as significance level ($p=0.000$) showed that factor analysis was suitable.

The four factors (2X2) derived from the two questions were then used for segmenting residents based on their views regarding the protected places that could be sustainably tourist exploited and the activities that can be performed in these places (Table 2).

Continuously, chi-square tests with cross tabulation were performed in order to observe if there were any statistically significant differences between the socioeconomic and demographic characteristics of the residents and the two clusters derived. Analysis showed that only one chi-square test was statistically significantly different: profession ($\chi^2_6=14.664$; $p = 0.014$), indicating that there is a relationship between resident's profession and the two clusters' behavior.

Cluster 1: Tourism orientated-economic motivated representing 55.9% of the total sample. This segment has the highest FCC for all factors with FCC $>$; 4.40. It is the segment that considers that the nature that the prefecture holds should be

Table 1 Derived factors regarding protected places for attraction or points of interest and forms of tourist activities in these places

Factor-item	Factor loading	MS (StD)
Preveza Prefecture protected places considered of attraction or points of interest TV, 70.9%; KMO = 0.798; BTS = 706.943; $df = 28$, and $p = 0.000$		
1st: <i>aesthetic forests and wetlands</i> ; 42.4% of the total variance (TV); $a = 0.879$; mean factor score (MFS) = 4.19 (Std. = 0.72)		
Aesthetic forest Lekatsa	0.836	4.00 (0.98)
Wetlands of Amvrakikos Gulf (lagoons, marshes, rivers, etc.)	0.833	4.41 (0.94)
Aesthetic forest Mytika	0.820	3.95 (0.98)
Amvrakikos Gulf (sea area)	0.777	4.25 (0.88)
Lake Zirou-Pedopolis	0.621	4.27 (0.82)
Coastal marine zone of the county from Parga to the Cape (area Natura 2000)	0.601	4.22 (0.87)
2rd: <i>Acheron river</i> ; 28.5% of TV; $a = 0.840$; MFS = 4.53 (Std. = 0.63)		
Delta of Acheron river, Ammoudia-Alonaki-Necromancy	0.894	4.56 (0.65)
Straits of Acheron-Trikastro-Skala Tzavelena	0.895	4.50 (0.71)
Modern forms of tourist activities in the protected areas of the Preveza Prefecture TV, 70.6%; KMO = 0.841; BTS = 463.801; $df = 21$, and $p = 0.000$		
1st: <i>intense tourist activities</i> ; 42.9% of TV; $a = 0.896$; mean factor score (MFS) = 3.94 (Std. = 0.85)		
Canoeing, rafting, kayaking	0.835	4.11 (0.93)
Mountain climbing	0.814	3.99 (0.97)
Horseback riding	0.861	3.93 (0.94)
Archery	0.846	3.64 (1.05)
2rd: <i>mild tourist activities</i> ; 27.7% of TV; $a = 0.674$; MFS = 4.53 (Std. = 0.63)		
Bicycling and hiking	0.531	4.45 (0.738)
Diving and fishing with traditional ways	0.835	4.14 (0.86)
Bird watching	0.843	4.00 (0.96)

used for nature-based tourism and tourism activities. This cluster is equally represented by men and women and compared to the other cluster has the highest percentage of 26–35- and 66+-year-olds; married and widowed, those with elementary and secondary education, businessman-freelancers and on pension. and the highest income respondents (2000.01 + euros). This segment considers that all protected areas can be exploited for tourism and that all the activities that were rated can be performed in the protected areas. As businessmen, they probably are economic-motivated and care more about tourism penetration than environmental conservation. They seek financial profit from the tourism management of the environment.

Cluster II: Mild tourism orientated-environmental motivated representing 44.1% of the total sample. This segment has the highest FCC for the second factor “Acheron river” (FCC = 3.99) and with no FCC > 4.00. The residents in this group

Table 2 Segmentation based on the factors derived from resident’s views

Factors derived from Preveza’s protected places for attraction and the potential forms of tourist activities	1st cluster (<i>n</i> = 81)	2nd cluster (<i>n</i> = 64)	ANOVA	Statistics (<i>p</i>)
F1: “aesthetic forests and wetlands”	4.43	3.86	26.442	0.000
F2: “Acheron river”	4.83	3.99	76.860	0.000
F1: “intense tourist activities”	4.41	3.29	109.589	0.000
F2: “mild tourist activities”	4.59	3.70	111.405	0.000

agree that Acheron river and the aesthetic forests and wetlands of the Preveza Prefecture can be highlighted for sustainable tourism development and ecotourism, but they seem more skeptical about the tourism activities that will be performed, with a more positive attitude for activities that are considered as mild activities. This cluster is equally represented by men and women and compared to the other clusters has the highest percentage of 36–45-year-olds, single, those with bachelor’s degree, unemployed and laborer, and those with income up to 2000.00 euros (almost equally represented in four categories: up to 650.00 euros, 650.01–1000.00, 1000.01–1500.00, and 1501.01–2000.00 euros). As a highly educated cluster, they seem to be concerned with environmental issues and are supporters of mild tourist penetration in the protected areas which will not destroy the natural environment. They seem to be the environmentally conscious group and probably are members of environmentalist organizations.

6 Conclusions, Limitations, and Guidelines for Further Research

This research had as its basic aim to record residents’ opinions of the Preveza prefecture regarding sustainable tourism development in its protected areas. Its objectives were focused on citizens’ opinions regarding which of the protected areas are considered as main attraction pole and which form of tourism activities can be developed in these areas. The aim and objectives were accomplished through quantitative research on a sample of 150 locals from 3 municipalities. Additional objective was to segment residents based on areas of attraction and potential tourist activities developed in these protected areas. This was accomplished through market segmentation, i.e., cluster analysis. Two clusters derived with similar in-cluster and different between cluster behaviors. This research is important for the region of Preveza since it records people’s views on tourism development while simultaneously preserving the environment. Though, it has some unavoidable limitations which may serve as guidelines for further research. First of all, it was self-funded, and as such, due to major economic constraints, it was limited to the Preveza Prefecture. Therefore, it was difficult to access rural areas which in other matters the researchers could have accessed and collected data from. Also, the

research was addressed only to permanent residents, and in the future, another study can include visitors to the area. There might be other places in Preveza Prefecture that could be tourist developed, but these were the ones that are characterized as protected areas, and thus the items were limited. Lastly, due to economic and time constraints, there was a limited sample of 150 citizens, which in the future with a new research can encompass a larger sample and thus validate these findings.

Nevertheless, this research is considered of importance, since a handful of studies focused on local' residents' views on sustainable tourism development in Epirus (Jones et al. 2015; Andrea et al. 2013c) and moreover none to our knowledge in Preveza Prefecture.

References

- Akhter, S., Rana, M. P., & Sohel, M. S. I. (2009). Protected area an efficacy for ecotourism development: A visitors' valuation from Satchari National Park, Bangladesh. *Tiger Paper*, 36(3), 1–7.
- Andrea, V., Tampakis, S., Tsantopoulos, G., & Skanavis, C. (2013a). "Local peoples'" and "visitors'" views on infrastructure and services in protected areas: A case study from Evros, Greece. *International Journal of Green Economics*, 7(4), 358–373.
- Andrea, V., Tampakis, S., Tsantopoulos, G., & Arabatzis, G. (2013b). Administration and management effectiveness of protected areas: Stakeholders' views of Dadia National Park, Greece. *eco. Mont – Journal on Protected Mountain Areas Research*, 5, 23–34.
- Andrea, V., Tsantopoulos, G., Tampakis, S., & Arabatzis, G. (2013c). Involving local people in sustainable rural development and conservation: A response to the economic crisis. *International Journal of Green Economics*, 7(4), 374–389.
- Andrea, V., Tampakis, S., Tsantopoulos, G., & Manolas, E. (2014). Environmental problems in protected areas: Stakeholders' views with regard to two neighboring National Parks in Greece. *Management of Environmental Quality: An International Journal*, 25(6), 723–737.
- Ardoin, N. M., Wheaton, M., Bowers, A. W., Hunt, C. A., & Durham, W. H. (2015). Nature-based tourism's impact on environmental knowledge, attitudes, and behavior: A review and analysis of the literature and potential future research. *Journal of Sustainable Tourism*, 23(6), 838–858.
- Balourdos, D. (2007). *Economic inequality, poverty and deprivation: Epirus, Western Greece, Peloponnese*. *EpikairaThemata*, 3/2007. EKKE, National Center for Social Research, Institute of Social Policy (INSPO) Laboratory for Monitoring Social Cohesion Policies. http://www.ekke.gr/images/PDF/oikonomiki_anisotita.pdf
- Barnes, J. I., Schier, C., & Van Rooy, G. (1999). Tourists' willingness to pay for wildlife viewing and wildlife conservation in Namibia. *South African Journal of Wildlife Research*, 29(4), 101–111.
- Bello, F. G. (2015). *Local communities and tourism development in protected areas in Malawi: Investigating community involvement*. PhD thesis, University of Otago, New Zealand. Available and accessed January 18, 2016, from <https://ourarchive.otago.ac.nz/handle/10523/6013>
- Beunen, R., Regnerus, H. D., & Jaarsma, C. F. (2008). Gateways as a means of visitor management in national parks and protected areas. *Tourism Management*, 29(1), 138–145.
- Bockstael, E., Bahia, N. C., Seixas, C. S., & Berkes, F. (2016). Participation in protected area management planning in coastal Brazil. *Environmental Science & Policy*, 60, 1–10.
- Butler, R. (1992). *Alternative tourism: The thin edge of the wedge*. In V. L. Smith & W. R. Eadington (Eds.), *Tourism alternatives: Potentials and problems in the development of tourism* (pp. 31–46). Philadelphia: University of Pennsylvania Press.

- Cheung, L. T., & Fok, L. (2014). The motivations and environmental attitudes of nature-based visitors to protected areas in Hong Kong. *International Journal of Sustainable Development & World Ecology*, 21(1), 28–38.
- Christopoulou, O., & Trizoni, E. (2005). Planning of human activities based on views of local communities in protected areas: The case of Mountain Pelion, Greece. *Discuss Paper [Internet]*, 11(9), 141–162. Accessed April 3, 2016, from http://www.prd.uth.gr/uploads/discussion_papers/2005/uth-prd-dp-2005-09_en.pdf
- Christopoulou, O. G., & Tsachalidis, E. (2004). Conservation policies for protected areas (wetlands) in Greece: A survey of local residents' attitude. *Water, Air and Soil Pollution: Focus*, 4(4–5), 445–457.
- Crisman, T. L. (2000). Conservation of Mediterranean coastal saline ecosystems: The private sector role in maintaining ecological function. In N. A. Korovessis & T. D. Lekas (Eds.), *Saltworks: Preserving saline coastal ecosystems* (pp. 39–48). Athens: Global Nest 2000.
- Dimitrakopoulos, P. G., Jones, N., Iosifides, T., Florokapi, I., Lasda, O., Paliouras, F., & Evangelinos, K. I. (2010). Local attitudes on protected areas: Evidence from three Natura 2000 wetland sites in Greece. *Journal of Environmental Management*, 91(9), 1847–1854.
- Eadington, W. R., & Smith, V. L. (1992). *Introduction: The emergence of alternative forms of tourism*. In V. L. Smith & W. R. Eadington (Eds.), *Tourism alternatives: Potentials and problems in the development of tourism* (pp. 47–75). Philadelphia, PA: University of Pennsylvania Press.
- Eagles, P. F. (1992). The travel motivations of Canadian ecotourists. *Journal of Travel Research*, 31(2), 3–7.
- European Commission Fish/2006/09. *Assessment of the status, development and diversification of fisheries-dependent communities Amvrakikos Gulf case study report*. Accessed April 3, 2016, from http://ec.europa.eu/fisheries/documentation/studies/regional_social_economic_impacts/amvrakikos_en.pdf
- European parliament. (2011). *Economic, social and territorial situation of Greece. Directorate general for internal policies, policy department B: Structural and cohesion policies regional development*. Author, Dr. E. Kramer. Accessed April 3, 2016, from [http://www.europarl.europa.eu/RegData/etudes/note/join/2011/460052/IPOL-REGI_NT\(2011\)460052_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/note/join/2011/460052/IPOL-REGI_NT(2011)460052_EN.pdf)
- Ezebilo, E. E., & Mattsson, L. (2010). Socio-economic benefits of protected areas as perceived by local people around Cross River National Park, Nigeria. *Forest Policy and Economics*, 12(3), 189–193.
- Filotis database for Greek nature. (2015). Accessed April 3, 2016, from https://filotis.itia.ntua.gr/biotopes/?category=4&geo_code=2%2C1%2C4
- Gorner, T., & Cihar, M. (2013). Local attitudes on protected areas: Evidence from Sumava National Park and Sumava protected landscape area. *Environment and Pollution*, 2(2), 1–13.
- Greek Biotope/Wetland Centre—EKBY.gr. (2016).
- Gundersen, V., Mehmetoglu, M., Vistad, O. I., & Andersen, O. (2015). Linking visitor motivation with attitude towards management restrictions on use in a national park. *Journal of Outdoor Recreation and Tourism*, 9, 77–86.
- Hair, J., Anderson, R., Tatham, R., & Black, W. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice-Hall.
- Holmes, G. (2013). Exploring the relationship between local support and the success of protected areas. *Conservation and Society*, 11(1), 72–82.
<http://www.biodiversity.gr/natura.php>
- IUCN. (1994). *Guidelines for protected area management categories*. Accessed January, 15, 2016, from <https://portals.iucn.org/library/efiles/documents/1994-007-En.pdf>
- Johan, N., & Joppe, M. (2005). *Cultural-heritage tourism: Review of existing market research*. Federal-Provincial-Territorial Culture Heritage and Tourism Initiative, Building Market-Readiness Capacity Working Group, p. 37 and appendices.
- Jones, N., Iosifides, T., Evangelinos, K. I., Florokapi, I., & Dimitrakopoulos, P. G. (2012). Investigating knowledge and perceptions of citizens of the National Park of Eastern Macedonia

- and Thrace, Greece. *International Journal of Sustainable Development & World Ecology*, 19 (1), 25–33.
- Jones, N., Filos, E., Fates, E., & Dimitrakopoulos, P. G. (2015). Exploring perceptions on participatory management of NATURA 2000 forest sites in Greece. *Forest Policy and Economics*, 56, 1–8.
- Leistriz, F. L. (2006). Nature-based tourism. In D. K. Lampert (Ed.), *Agricultural value added: Prospects for North Dakota* (pp. 21–23). AAE 06008. Department of Agribusiness and Applied Economics Agricultural Experiment Station North Dakota State University. Accessed January 28, 2016, from <http://ageconsearch.umn.edu/bitstream/23652/1/ae060008.pdf#page=27>
- Manning, R. E. (2002). How much is too much? Carrying capacity of national parks and protected areas. In A. Arnberger, C. Brandenburg, & A. Muhar (Eds.), *Monitoring and management of visitor flows in recreational and protected areas Conference proceedings* (pp. 306–313). Available and accessed January 15, 2016, from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.196.5530&rep=rep1&type=pdf>
- Nastran, M. (2015). Why does nobody ask us? Impacts on local perception of a protected area in designation, Slovenia. *Land Use Policy*, 46, 38–49.
- Official Gazette, 1451/6-10-2003. Accessed January 18, 2016, from <http://www.ypeka.gr/LinkClick.aspx?fileticket=8HYO7c1xuaM%3D&tabid=514&language=el-GR>
- Packer, J., Ballantyne, R., & Hughes, K. (2014). Chinese and Australian tourists' attitudes to nature, animals and environmental issues: Implications for the design of nature-based tourism experiences. *Tourism Management*, 44, 101–107.
- Pavlikakis, G. E., & Tsihrintzis, V. A. (2006). Perceptions and preferences of the local population in Eastern Macedonia and Thrace National Park in Greece. *Landscape and Urban Planning*, 77 (1), 1–16.
- Pipinos, G., & Fokiali, P. (2009). An assessment of the attitudes of the inhabitants of Northern Karpathos, Greece: Towards a framework for ecotourism development in environmentally sensitive areas. *Environment, Development and Sustainability*, 11(3), 655–675.
- Presidential Decree 183 of 05/05/1977.
- Pridham, G. (1999). Towards sustainable tourism in the Mediterranean. Policy and practice in Italy, Spain and Greece. *Environmental Politics*, 8(2), 97–116.
- Region of Epirus. (2017). <http://www.php.gov.gr/>
- Ross, E. L. D., & Iso-Ahola, S. E. (1991). Sightseeing tourists' motivation and satisfaction. *Annals of Tourism Research*, 18(2), 226–237.
- Sharma, S. (1996). *Applied multivariate techniques*. New York: Wiley.
- Stone, M., & Wall, G. (2004). Ecotourism and community development: Case studies from Hainan, China. *Environmental Management*, 33(1), 12–24.
- The International Ecotourism Society (TIES). (2014). *How is ecotourism different from nature tourism, sustainable tourism, responsible tourism?* <https://www.ecotourism.org/book/how-eco-tourism-different-nature-tourism-sustainable-tourism-responsible-tourism>
- Tomićević, J., Shannon, M. A., & Milovanović, M. (2010). Socio-economic impacts on the attitudes towards conservation of natural resources: Case study from Serbia. *Forest Policy and Economics*, 12(3), 157–162.
- Trakolis, D. (2001). Local people's perceptions of planning and management issues in Prespes Lakes National Park, Greece. *Journal of Environmental Management*, 61(3), 227–241.
- Tsantopoulos, G., Tampakis, S., Arabatzis, G., & Kousmani, T. (2013). The attitudes of stakeholders on the management of protected areas: Views of the local people and visitors to the Prespa Lakes National Park, Greece. In M. Vrahnakis, A. P. Kyriazopoulos, D. Chouvardas, & G. Fotiadis (Eds.), *Proceedings of 9th European Dry Grassland Meeting (EDGM) Dry Grasslands of Europe: Grazing and ecosystem services* (pp. 331–336). Prespa, Greece, 19–23 May 2012. Hellenic Range and Pasture Society (HERPAS). ISBN:978-960-86416-5-5. Available and accessed February 15, 2016, from http://terreco.univ.kiev.ua/_media/library/rare-plant/pamikoza-dry_grasslands-2012.pdf#page=332

- UNDP-United Nations Development Programme. (2012). *The future we want. Biodiversity and ecosystems—driving sustainable development. Biodiversity and ecosystems global framework 2012-2020*. Accessed January 18, 2016, from <http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/biodiversity/UNDP-Biodiversity-and-Ecosystems-Global-Framework-2012-2020.pdf>
- Wang, P. W., & Jia, J. B. (2012). Tourists' willingness to pay for biodiversity conservation and environment protection, Dalai Lake protected area: Implications for entrance fee and sustainable management. *Ocean & Coastal Management*, 62, 24–33.
- Wong, K. M. (2014). *Understanding the motivations and willingness-to-pay of geo-tourists on geo-tourism services in Hong Kong*. MSc thesis, MSc in Environmental Management program, University of Hong Kong. Available and accessed January 25, 2016, from <http://hub.hku.hk/bitstream/10722/207664/1/FullText.pdf?accept=1>
- Xu, J., Chen, L., Lu, Y., & Fu, B. (2006). Local people's perceptions as decision support for protected area management in Wolong Biosphere Reserve, China. *Journal of Environmental Management*, 78(4), 362–372.
- Xu, J., Lü, Y., Chen, L., & Liu, Y. (2009). Contribution of tourism development to protected area management: Local stakeholder perspectives. *International Journal of Sustainable Development & World Ecology*, 16(1), 30–36.

The Analysis of Tourism and Economic Growth Relationship in Central and Eastern European Countries



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Abstract Contemporary international tourism generates economic flows which have become vital for economic growth, trade, and international economic relations in many countries, especially developing ones. Being based upon sources of receipts and consumption in situ, international tourism is regarded as a nonstandard type of export. For that reason, many governments are paying greater attention to supporting and stimulating tourism as a potential source of economic growth. Central and Eastern European countries (CEECs), developing countries whose economic growth is facing many challenges, have also recognized this potential role of tourism. The aim of this paper is to study the impact of international tourism growth on economic growth in these countries in the 2000–2014 period.

For this purpose, an econometric model derived from a thorough literature review is formed. The estimation of tourism impacts in 19 CEECs is performed using the dynamic panel data model. The data used are collected from World Development Indicators (WDI) for the 15-year period. CEECs record an increase of international tourism in the given period, and the effects of tourism on the economic growth are expected to be positive and statistically significant. Additionally, the model includes other commonly used socioeconomic determinants of economic growth.

The contribution of this paper is in analyzing the effects of international tourism growth on a relatively new (not frequently used) group of countries to provide new insights in this still inconclusive research subject. Furthermore, the study used tourism growth as the independent variable as opposed to tourists' arrivals or tourists' overnights and receipts, frequently used in most of the studies. Limitations of the research are found in the unbalanced data for the time period used and time and cross-sectional restrictions. Besides new scientific insights, the paper provides

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valuable insights for policymakers in the area of economic and tourism development as well as suggestions for further research.

Keywords Economic growth • Tourism growth • Panel data • Arellano and Bond estimator • CEECs

1 Introduction

International tourism has grown substantially over the recent decades as an economic and social phenomenon. Nowadays it accounts for 10% of the world GDP and about 30% of the global exports of services (UNWTO 2015). As a result, tourism development is a popular strategy for economic growth across many developed and developing countries (Andereck et al. 2005; Matarrita-Cascante 2010; Dragouni et al. 2013). Tourism is seen as a revenue earner through export, foreign exchange, and tax revenues. Those earnings are important in offsetting current account deficits and negative balance of payments (Oh 2005) as well as budget deficits (Dwyer et al. 2010). Although tax revenues from tourism are “hidden” in other sectors of economy and are thus not fully perceptible, still they reveal tourism is not merely a revenue stream but also a vital source of employment and entrepreneurial vitality in numerous countries. The economic impact and contribution of tourism in a destination tend to be positive, despite the fact that these advantages come with a number of environmental, social, and cultural costs (Fawaz and Rahnama 2014).

The empirical studies on the subject of tourism growth impact on economic growth can be divided in two methodological/theoretical streams. The first is originating from the economic impact analysis, while the second stems from the theory of endogenous growth. Hence differences in measuring economic impact of tourism and its economic contribution are also evident. The approach that evaluates economic impacts derives from the assumption that tourism demand (expenditures) in a destination brings “shocks” to the tourism system and consequently to the economic system as well. On the other hand, the approach evaluating economic contribution depicts the size and overall significance of tourism industry within an economy.

The economic impact analysis is derived from Keynesian theory of multipliers. According to Keynesian approach, international tourism can be accepted as an exogenous component of aggregate demand that yields direct, indirect, and induced income and employment multiplier effects (Kum et al. 2015; Tugcu 2014; Dwyer et al. 2004). A number of methods were employed to estimate the economic impact of tourism, such as input–output model, general equilibrium model, social accounting matrix model, tourism satellite accounting model, etc. (Ivanov and Webster 2006). A major objective of such analysis has been to inform policymakers about the appropriate allocation of resources both within the tourism sector itself and between tourism and other industry sectors (Hara 2008). However, the main

restriction of this approach is in its static nature that does not allow an inference of the long-term impact of tourism development (Aslan 2013).

The second type of research focuses on investigation of tourism as a determinant of economic growth (Adamou and Clerides 2010). This alternative approach elucidates the potential of endogenous growth theory and the new trade theory adapted to the tourism sector. Thus like the hypothesis of an export-led growth, four hypotheses can be identified based on economic growth relationship theory (Oh 2005). They are economic-driven tourism growth hypothesis (EDTGH), tourism-led growth hypothesis (TLGH), neutrality hypothesis (NoCausal-NCH), and bidirectional hypothesis (BiCausal-BCH) (Bouzahzah and El-Menyari 2013; Kum et al. 2015). For the causality analysis, static and dynamic regression models are both used in tourism literature. However, the dynamic regression should be preferred because of the inherent disadvantages of general static regression such as structural imbalances and spurious regression (Aslan 2008).

The results of existing empirical studies on the subject suggest that there cannot be a priori accepted generally applicable hypothesis (Antonakakis et al. 2013). Namely, they provide contradictory conclusions stemming from a number of factors such as preferred econometric methods or models; consideration of different time periods; distinct economic structures (relative weight of tourism receipts in GDP, travel restrictions, exports, and trade balance deficit); initial conditions (lower national income or population, etc.); sectoral interactions; historical background of a country; political, sociological, environmental, ecological differences; or neglect of exchange rate factors (Aslan 2008; Gunduz and Hatemi 2005; Kim and Chen 2006; Pablo-Romero and Molina 2013; Tugcu 2014; Kum et al. 2015; Pavlić et al. 2015).

This paper tends to examine whether tourism can be one of the leading determinants of economic growth in Central and Eastern European Countries (CEECs) hence following the TLGH. The contribution of this paper is in analyzing the effects of international tourism growth on a relatively new (not frequently used) group of countries. Furthermore, the paper includes tourism growth as the independent variable as opposed to tourists' arrivals or tourists' overnights and receipts, frequently used in most of the studies. Hence, the main object of interest is the effect of tourism growth on economic growth in CEECs, while the negative aspects of tourism growth, such as externalities on the environment and generally on local residents' quality of life, are not addressed in this paper.

The paper is organized as follows: Sect. 2 provides a literature review on tourism and economic growth. In Sect. 3 the empirical framework is explained through specified model and econometric methodology, variables explanation, and data sources. The elaboration of empirical results is given at the end of this section. The last section presents a summary and brief conclusion of the results obtained.

2 Literature Review

International tourism and international trade are two major sources of foreign exchange. International tourism expenditures positively affect destinations' employment, income earnings, and overall economic performances. Countries that specialize in tourism find it very propulsive to stimulate tourism growth and thus boost their economic growth. This is in accordance to the postulate of TLGH (Pablo-Romero and Molina 2013) that tourism is a main determinant of overall economic growth in two ways (Kum et al. 2015). Firstly, the demanded group of tourism products can be seen as export-oriented goods or services producing a rise in exports which otherwise would be hardly reachable. These exported tourism goods and services lead to economic growth in the destination. Secondly, tourism receipts can be used to import capital goods which otherwise couldn't be imported (so-called TCIG sub-hypothesis of TLGH, i.e., Tourism Capital Imports for Growth). In turn, produced goods and services lead to economic growth in the destination (Brida et al. 2014). In conclusion, according to TLGH, international tourism, as a nontraditional export, generates economic growth (Lanza and Pigliaru 2000) on one side, and on the other, economic growth is induced via the increase in volume of inputs achieved by tourism receipts (Nowak et al. 2007). Thus, TLGH recognizes a unidirectional causal relationship from tourism to the whole economy.

In addition to TLGH view, the relationship between tourism and economic growth is also investigated under unidirectional relation from economic growth to tourism growth (economic-driven tourism growth hypothesis, EDTGH). This reversed causality suggests that an expansion in tourism will happen when every effort is made to increase the overall economic growth (Lee and Chang 2008; Kum et al. 2015). Furthermore, according to the hypothesis of bidirectional causality (BC), tourism activity affects economic growth performance, while economic growth in turn affects the tourism sector (Antonakakis et al. 2013). Neutrality hypothesis postulates there is no causality between tourism and economic growth (Oh 2005; Kum et al. 2015).

Brida and Pulina (2010) explored the relationship between tourism activity and economic growth in a comprehensive literature review of 38 econometric empirical studies covering the 2002–2010 period. These studies rely on econometric techniques such as cointegration and error correction models and typically obtain evidence of a strong relationship between economic growth and tourism receipts for the country concerned (Balaguer and Cantavella-Jordá's 2002; Cortéz-Jiménez et al. 2009; Dristakis 2004; Durbarry 2004; Lanza and Pigliaru 2000). The case study approach was dominant for many years because cross-country data were hard to obtain, but nowadays there is a rising trend of cross-sectional analysis (Brau et al. 2003; Fawaz and Rahnama 2014; Fayissa et al. 2008; Tang and Abosedra 2014).

More recently, Pablo-Romero and Molina (2013) have provided a literature review of empirical studies of economic growth and tourism relationship published until 2013 including more than 70 papers. They have shown that the relation between tourism and growth depends on various factors, the main one being

country's degree of specialization in tourism. Furthermore, they have concluded that empirical results are very sensitive to the model specifications and econometric techniques used. Taking this all into consideration, they conclude that it is still unclear if TLGH can be proved for every destination.

However, different results are found in other studies. Balaguer and Cantavella-Jorda (2002) have proved the validity of the TLG hypothesis in Spanish economy. Brau et al. (2003) further discuss the problem observing the correlation between the tourism specialization of a country (the ratio between international tourism receipts and GDP at market prices) and the real per capita GDP growth rate. They found that small tourism countries have grown faster than OECD countries, oil producers, least developed countries, or other small economies during the 1980–1995 period. They conclude that although country size can act as a restriction to its economic growth, it can be overcome if combined with specialization in tourism. Eugenio-Martin et al. (2004) analyze the relationship between tourism and economic growth for Latin-American countries for the 1985–1998 period, applying a panel data approach. They show that the growth in number of tourists per capita produces a positive effect on the economic growth of countries with low and medium levels of income per capita, but not in the group of high-income countries. This finding suggests that the increase in the number of tourists' arrivals in a country offers an opportunity for economic growth while countries are developing, but not when countries are already developed. Ivanov and Webster (2006) show that the hospitality industry is much stronger contributor to economic growth in Greece than in Spain and Cyprus.

The first large-scale cross-sectional study was performed by Brau et al. (2003) which set out to empirically investigate the observations made earlier by Lanza and Pigliaru (2000). Performed on a panel dataset of 143 countries, their analysis indicates that tourism countries grow significantly faster than all the other sub-groups considered in the analysis. On the other hand, Sequeira and Campos (2007) do not find evidence which could link tourism specialization with higher growth rates. Furthermore, Sequeira and Nunes (2008) use panel data methods to study the relationship between tourism and economic growth on a set of countries covering the 1980–2002 period. Their study showed that tourism is a positive determinant of economic growth both in a general sample of countries and in a sample of less developed countries. However, contrary to previous findings, their study did not find tourism to be more relevant in small countries than in a general sample. Cortés-Jiménez (2008) focuses on Spain and Italy and studies tourism expansion at regional and international level. Domestic tourism is found to be a relevant factor for Spanish growth, whereas international tourism is more important for Italian economic growth. Furthermore, Figini and Vici (2010) seek to explain growth in the longer run by looking at the entire 1980–2005 period and also the 1980–1990 and 1991–2005 sub-periods. They find evidence for link between tourism specialization and growth only in the 1980–1990 period. However, they point out that the data for this period is not reliable and therefore conclude that there is no robust evidence linking tourism specialization and growth. Adamou and Clerides (2010) investigate the link between tourism specialization and economic growth on a

sample of 162 countries. They find that tourism specialization is associated with higher rates of economic growth, but once a threshold level of specialization is exceeded, tourism no longer contributes to economic growth. Thus they argue that countries should follow TCIG hypothesis but develop other economic activities as well. According to Wall and Mathieson (2006), tourism can be a dominant source of accumulation of foreign currency in developed countries and not only in developing ones, thus showing that TLG and TCIG hypotheses are closely related (Nowak and Sahli 2008).

Fawaz and Rahnama (2014) examine the causal relationship between international tourism and economic growth analyzing the 1975–2010 time frame for 144 countries in 6 regional classifications and 4 different income levels. Their findings reveal that per capita receipts from the tourism industry significantly contribute both to current level of GDP and economic growth thus supporting the TLG hypothesis. Fayissa et al. (2008) analyze the causal relationship between tourism receipts and economic growth using a panel data of 42 African countries over the 1995–2004 period. Their results show evidence of tourism receipts' positive contribution to the current level of output and economic growth of selected sub-Saharan African countries, i.e., they are in favor of the TLG hypothesis. Tang and Abosedra (2014) have tested the causal relationship for 24 countries in the Middle East, North African Region (MENA) from 2001 to 2009. Results show that energy consumption and tourism significantly contribute to economic growth of countries in the MENA region, supporting the TLG and EDTG hypotheses.

Nevertheless, the role of tourism as a component of economic growth has not escaped scientific criticism. Pulido-Fernández et al. (2014) indicate that the effects are not strong enough to influence economic growth and presume that the positive effects of tourism are overstated for the interest of international organizations. The empirical literature criticizing tourism impacts often links its negative effects to Dutch disease effect (Song et al. 2012) alias Beach disease effect in tourism. However, based on a sample of 134 world countries for a 38 years period, Holzner (2011) showed that the threat of Beach disease effect is impossible in the long run. Nonetheless, he highlights it can be present in short or medium run. Furthermore, his study pointed that tourism has positive effects on economic growth.

The presented empirical results above imply that the investigation of the TLG hypothesis deserves further attention from researchers. Namely, research results for the relationship between international tourism and economic growth are still inconclusive (see also Gunduz and Hatemi 2005; Kum et al. 2015). According to Pablo-Romero and Molina (2013) and Brida and Pulina (2010), empirical results are rather mixed and non-conclusive, yet many studies found evidence to support the TLGH hypothesis (Aslan 2013; Belloumi 2010; Chen and Chiou-Wei 2009; Lee and Chang 2008; Dritsakis and Athanasiadis 2000).

Although these findings are useful, Adamou and Clerides (2010) argue that they cannot be considered definitive. Namely, the models do not include controls for factors that are considered important in the endogenous growth literature, such as investment and human capital (though they do include controls for some other factors, such as openness to trade and initial income levels). At last, the picture of

effects of tourism growth on economic growth is somewhat unclear merely due to different methodologies and specifications (time series, cross-sectional and panel data) rather than data differences in the existing empirical literature (Adamou and Clerides 2010). Therefore this paper contributes to clarifying this issue by adding a different dimension to the problem at hand.

3 Data, Model, and Results

Stimulus for studying the impact of tourism growth on economic growth of CEECs is their classification within the group of emerging tourism markets in the period 2015–2030. World Tourism Organization forecast (UNWTO 2015) estimates that international tourist arrivals in Central and Eastern Europe will grow at the double rate (+4.4% a year) of the one expected in advanced economy destinations (+2.2% a year). Based on UNWTO's predictions, Tuță and Micu (2014) point out that by 2020 CEECs will attract more tourists than their Western European counterparts.

In literature, different sources list the member states of the Central and Eastern Europe region differently. In the paper, the classification of Multilingual Thesaurus of the European Union (EuroVoc 2016) including 20 countries is adopted. For 19¹ countries data were available; thus they were included in the sample (Table 1). Data are covering the 2000–2014 period. Due to lack of some data, the model is unbalanced.

3.1 Variables and Model Specification

Conventionally, the model in this line of research is built as a formula in which economic growth is a function of tourism growth. As limitations of previous studies, a limited inclusion of variables in the study of the relationship between growth and tourism (Pablo-Romero and Molina 2013) or inclusion only of variables such as tourism and output (Cortés-Jiménez and Pulina 2010) are listed. To overcome these limitations, other control variables which affect the economic growth are included into the model.

In our model, the dependent variable is *economic growth* (GDPgr), and the indicator used is GDP growth representing annual percentage growth rate of GDP at market prices based on constant local currency. The main independent variable is *tourism growth* (TOURgr). The indicator for this variable is calculated using the formula:

¹Bosnia and Herzegovina are excluded from the sample due to the lack of data

Table 1 List of countries included in the sample

	Country		Country
1	Albania	11	Moldova
2	Armenia	12	Montenegro
3	Azerbaijan	13	Poland
4	Belarus	14	Romania
5	Bulgaria	15	Russian Federation
6	Croatia	16	Serbia
7	Czech Republic	17	Slovak Republic
8	Georgia	18	Slovenia
9	Hungary	19	Ukraine
10	FYROM		

$$\frac{T_t}{T_{t-1}} * 100 \quad (1)$$

$t = 2000, 2001, \dots 2013, 2014$

where T denotes number of international inbound tourists. It is expected that tourism growth has positive effect on economic growth.

Other (control) variables include government consumption, investment, trade openness, and human capital. For *government consumption* (GOVER), indicator used is total government consumption as a percentage share of GDP. In relation to economic theory, it is possible that government consumption affects economic growth positively and/or negatively (see Mitchell 2005 for more details). Indicator for *investment* (INVEST) is gross capital formation as a percentage share of GDP. Due to its positive impact on production, it is expected that INVEST has positive impact on economic growth. Used indicator for *trade openness* (TRADE) is merchandise trade (% of GDP) representing the sum of merchandise exports and imports divided by the value of GDP. As in the case of government consumption, the economic literature has not reached the agreement on whether its effect on economic growth is positive or negative, although the discussion lasts for many years (see Rodriguez and Rodrik 2001, or Yanikkaya 2003, for deeper insights). Consequently, the expected sign of the TRADE is not specified. *Human capital* (HC) is represented by gross secondary school male enrolment in percentages which is a commonly used indicator of human capital (see Sequeira and Campos 2005; according to Barro and Sala-i-Martin 1995). Its expected impact is positive (see Arabi Abdalla 2013).

Annual data for all variables were obtained from the World Bank's *World Development Indicators* database (WDI 2016).² It covers a 15-year period (from 2000 to 2014) for 19 CEECs. The sum of multivariate framework with detailed description is presented in Table 2.

²Last update (11 Apr 2016).

Table 2 Model specification

Variable	Indicator	Label	Expected sign	Source
Economic growth	GDP growth (annual %)	GDPgr		WDI
Tourist growth	Tourist growth (annual %)	TOURgr	+	WDI
Government consumption	General government final consumption expenditure (% of GDP)	GOVER	+/-	WDI
Investment	Gross capital formation (% of GDP)	INVEST	+	WDI
Trade openness	Sum of merchandise exports and imports (% GDP)	TRADE	+/-	WDI
Human capital	Gross enrolment ratio, secondary, male (%)	HC	+	WDI

Subsequently, the following dynamic panel data model is formed:

$$\begin{aligned} \text{GDPgr}_{it} = & \mu + \gamma \text{GDPgr}_{i,t-1} + \beta_1 \text{TOURgr}_{it} + \beta_2 \text{GOVER}_{it} \\ & + \beta_3 \text{INVEST}_{it} + \beta_4 \text{TRADE}_{it} + \beta_5 \text{HC}_{it} + \alpha_i + \varepsilon_{it} \end{aligned} \quad (2)$$

$i = 1, 2, 3 \dots 18, 19; \quad t = 2000, 2001, \dots 2013, 2014.$

where $i = 1, 2, \dots, N$ counts for each country in the panel; $t = 1, 2, \dots$; and T states the time period. Moreover, μ refers for an intercept, γ is a parameter of lagged dependent variable, and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, and β_6 denote the parameters of exogenous variables. It is assumed that ε_{it} is IID $(0, \sigma_\varepsilon^2)$, while α_i represents the unobservable individual-specific effect that is time invariant, and it accounts for any individuals.

Descriptive statistics of the data is presented in Table 3.

3.2 Methodology and Results

Pablo-Romero and Molina's (2013) review of studies of tourism effects on the economic growth indicated several advantages of panel data methodology usage in such studies, allowing larger number of explanatory variables, larger sample of countries, longer time periods under analysis, and greater depth in the relationships between variables. Furthermore, Seetaram and Petit (2012) specify that one of the most important advantages is that panel data modeling allows for the control of heterogeneity in the sample. Considering dynamic nature of the economic growth as dependent variable and sample characteristics, model will be estimated using Arellano and Bond (1991) generalized methods of moments (GMM) two-step estimator. Namely, this estimator assumes the error terms to be independent and homoscedastic across countries and over time, while two-step estimator relaxes the assumption of independence and homoscedasticity (Višić and Perić 2011).

Table 3 Descriptive statistics

Variable	Mean	Std. dev.	Min.	Max.	N
GDPgr	4.212969	4.843238	-14.8	34.5	300
TOURgr	9.543549	20.72774	-55.80357	173.3333	265
GOVER	17.82333	3.98325	8.495111	29.9406	298
INVEST	25.47538	6.304677	10.54772	57.99046	300
TRADE	84.66202	30.6	33.26616	170.8436	290
HC	93.32844	7.750321	73.16079	112.3935	229

Table 4 Pair-wise correlations matrix

Variable	GDPgr	TOURgr	GOVER	INVEST	TRADE	HC
GDPgr	1.0000					
TOURgr	0.2447*	1.0000				
GOVER	-0.3374*	-0.1168	1.0000			
INVEST	0.3136*	0.0604	-0.3822*	1.0000		
TRADE	-0.0663	-0.1284*	0.3915*	0.0095	1.0000	
HC	-0.1425*	-0.0285	0.1582*	-0.1222	0.3487*	1.0000

*Statistical significance at 5%

Before model estimation, the multicollinearity among independent variables is checked. As there is no formal test for multicollinearity in panels, following Baltagi's (2008) recommendation, a pair-wise correlation matrix is calculated using Stata13.0 software (Table 4).

Since none of the Pearson's correlation coefficients between independent variables exceed the critical level of 0.8 (Gujarati and Porter 2008), no problem of multicollinearity in the model is found.

Using statistical software Stata 13.0, model of determinants of economic growth is computed (Table 5). However, as the methodology requires before analyzing the model results, diagnostic tests of model validity are performed. For this purpose Sargan test and tests for serial correlation are used. Sargan test p -value is 0.1208 (>0.05), confirming the validity of chosen instruments. Two key tests for serial correlation in dynamic panel data are derived by Arellano and Bond (1991): test for the first-order serial correlation (commonly labeled $m1$) and the test for the second-order serial correlation (labeled $m2$) in differenced residuals. Null hypothesis of both tests posits that there is no serial correlation and no misspecification of the model if there is no second-order serial correlation. Since p -value of $m2$ test is 0.0510, the null hypothesis test is not rejected. Furthermore, the coefficient of lagged dependent variable indicates the use of dynamic panel data analysis is appropriate.

The model estimation shows that, as presumed, tourism growth has a positive and statistically significant (1% level) effect on economic growth in CEECs. Coefficient of tourism growth is 0.04 showing that the tourism growth increase of 1 percentage point would increase the economic growth by 0.04 percentage points.

Table 5 Estimation results (Arellano and Bond GMM system estimator) for model of economic growth

Explanatory variables	Coefficients
L.GDPgr	0.2195814*** (0.0470394)
TOURgr	0.0417552*** (0.0067772)
GOVER	-0.4195495*** (0.0930641)
INVEST	0.7378856*** (0.090681)
TRADE	0.1179087*** (0.0159671)
HC	0.0804666*** (0.0278552)
_cons	-26.65916*** (3.47758)
Number of observations	160
Number of groups	19
Number of instruments	19
Sargan test (<i>p</i> -value)	0.1208
<i>m</i> 1 test (<i>p</i> -value)	0.0778
<i>m</i> 2 test (<i>p</i> -value)	0.0510

Standard errors in parentheses

Notes: ****p* < 0.01

However, applying the formula $\beta/(1 - \gamma)$, it is found that in the long run the effect is somewhat stronger and economic growth would increase for 0.05 percentage points. Thus, the findings of the analysis do confirm the TLGH. As for the other variables/determinants of economic growth included in the model, as derived from the theory and presumed, investments and human capital both have positive and statistically significant impact on economic growth. On the other hand, variable government consumption and trade openness, whose effect is inconclusive in previous studies, show diverse results. Trade openness exerts a positive effect, while government consumption is the only variable exerting a negative and statistically significant effect on countries observed in the given time frame. A possible explanation for this is the low efficiency of this sector in CEECs.

4 Conclusion

Tourism is recognized as one of the largest and fastest growing industries, taken from country-specific or the aggregate global perspective. This paper has sought to contribute to the often raised and still ongoing debate of tourism impact on economic growth. To bring the new insights, a not often analyzed group of countries was chosen for the study. For the purpose of empirical analysis, an econometric model was formed in which economic growth was taken as a function of tourism growth. To overcome limitations often associated with similar studies, other commonly used determinants (control variables) of economic growth were included in the model. The results of model estimations showed that tourism growth

significantly and positively affects economic growth in CEECs and that in the long run, these effects are somewhat stronger than in the short run. As per the control variables in the model (investments, human capital, trade openness), estimations showed they all affect economic growth positively except of government consumption.

The results reveal that the TLG hypothesis is supported in the CEECs context. Besides contributing to the scientific body of literature, these results have implications for public policies and institutions. Firstly, they support the very widespread but also often questioned and criticized reliance on tourism development. Furthermore, they indicate that policymakers should develop measures that contribute to physical and human capital investment and help reach economic stability by supporting the infrastructure for international tourism (Kumar et al. 2014). Such tourism investments can encourage local firm investments since the volume of their output increases because of a greater efficiency generated by the increased competition (Pavlič et al. 2015). Increased competition leads to positive scale economies and enhanced efficiency in the host country and other international tourist destinations (Samimi et al. 2011). Thus, government resources can finally be adequately reallocated to improve the overall economy (Kim and Chen 2006).

Limitations of the research are found in the unbalanced data for the time period used, time and cross-sectional restrictions. Besides performing the analysis on other country groups, future studies on the subject can be extended to analyze the presence and the direction of causality between economic and tourism growth by employing Granger causality test, for CEECs or other country groups. Also, future models could be improved introducing other socioeconomic variables.

References

- Adamou, A., & Clerides, S. (2010). Prospects and limits of tourism-led growth: The international evidence. *Review of Economic Analysis*, 3, 287–303.
- Andereck, K., et al. (2005). Resident's perceptions of community tourism impacts. *Annals of Tourism Research*, 32(4), 1056–1076.
- Antonakakis, N., et al. (2013). Time-varying interdependencies of tourism and economic growth: Evidence from European countries. *MPRA Munich Personal Repec Archive*, 4875, 1–34.
- Arabi, K. A. M., & Abdalla, S. Z. S. (2013). The impact of human capital on economic growth: Empirical evidence from Sudan. *Research in World Economy*, 4(2), 43–53.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277–297.
- Aslan, A. (2008). An econometric analysis on economic growth and tourism in Turkey. *MPRA Munich Personal Repec Archive*, 1–11.
- Aslan, A. (2013). Tourism development and economic growth in the amaediterranean countries: Evidence from panel Grainger causality tests. *Current Issues in Tourism*, 17(4), 363–372.
- Balaguer, J., & Cantavella-Jorda, M. (2002). Tourism as a long-run economic growth factor: The Spanish case. *Applied economics*, 34(7), 877–884.
- Baltagi, B. (2008). *Econometric analysis of panel data* (4th ed.). New York, NY: Wiley.
- Barro, R., & Sala-i-Martin, X. (1995). *Economic growth*. Cambridge: MIT Press.

- Belloumi, M. (2010). The relationship between tourism receipts, real effective exchange rate and economic growth in Tunisia. *International Journal of Tourism Research*, 12(5), 550–560.
- Bouzahzah, M., & El-Menyari, Y. (2013). The relationship between international tourism and economic growth: The case of Morocco and Tunisia. *MPRA Munich Personal Repec Archive*, 1–14.
- Brau, R., Lanza, A., & Pigliaru, F. (2003). How fast are the tourism countries growing? The cross-country evidence. CRENoS Centro Ricerche Economiche Nord Sud, Working Paper No 03-09.
- Brida, J. G. & Pulina, M. (2010). A Literature review on the tourism-led-growth hypothesis. Cagliari, CRENoSCUEC (Working Papers CRENoS, 2010, 17).
- Brida, J. G., et al. (2014). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism*. Available from <https://doi.org/10.1080/13683500.2013.868414>
- Chen, C., & Chiou-Wei, S. Z. (2009). Tourism expansion, tourism uncertainty and economic growth: New evidence from Taiwan and Korea. *Tourism Management*, 30(6), 812–818.
- Cortés-Jiménez, I. (2008). Which type of tourism matters to the regional economic growth? The cases of Spain and Italy. *International Journal of Tourism Research*, 10, 127–139.
- Cortés-Jiménez, I., & Pulina, M. (2010). Inbound tourism and long-run economic growth. *Current Issues in Tourism*, 13(1), 61–74.
- Cortés-Jiménez, I., Pulina, M., Prunera, C., & Artis, M. (2009). Tourism and Exports as a means of Growth. *Research Institute of Applied Economics*, 10, 1–28.
- Demihiran, B. (2016). Tourism-led growth hypothesis in mediterranean countries: Evidence from a panel cointegration and error correction model. *Applied Economics and Finance*, 3(1), 38–53.
- Dragouni, M., et al. (2013). *Time-varying interdependencies of tourism and economic growth: Evidence from European countries* (FIW Working Paper, No. 128).
- Dristakis, N. (2004). Tourism as a long-run economic growth factor: An empirical investigation for Greece using causality analysis. *Tourism Economics*, 10(3), 305–316.
- Dritsakis, N., & Athanasiadis, S. (2000). An econometric model of tourist demand: The case of Greece. *Journal of Hospitality & Leisure Marketing*, 7(2), 39–49.
- Durbarry, R. (2004). Tourism and economic growth: The case of Mauritius. *Tourism Economics*, 10(4), 389–401.
- Dwyer, L., et al. (2004). Evaluating tourism's economic effects: New and old approaches. *Tourism Management*, 25(3), 307–317.
- Dwyer, L., et al. (2010). *Tourism economics and policy*. Bristol: Channel View Publication.
- Eugenio-Martin, J. L., et al. (2004). *Tourism and economic growth in Latin American countries: A panel data approach* (Nota di Lavoro, Fondazione Eni Enrico Mattei, No. 26).
- EuroVoc. (2016). *Multilingual thesaurus of the European Union Interface language*. Srednjaiistočna Europa. Available from <http://eurovoc.europa.eu/914>
- Fawaz, F., & Rahnema, M. (2014). An empirical refinement of the relationship between tourism and economic growth. *Anatolia: An International Journal of Tourism and Hospitality Research*, 25(3), 1–14.
- Fayissa, B., et al. (2008). *The impact of tourism on economic growth and development in Africa* (Working Papers, 200716, pp. 1–22).
- Figini, P., & Vici, L. (2010). Tourism and growth in a cross section of countries. *Tourism Economics*, 16(4), 789–805.
- Gujarati, D. N., & Porter, D. C. (2008). *Basic econometric* (5th ed.). New York, NY: McGraw-Hill/Irwin.
- Gunduz, L., & Hatemi, J. A. (2005). Is the tourism-led growth hypothesis valid for Turkey? *Applied Economics Letters*, 12(8), 499–504.
- Hara, T. (2008). *Quantitative tourism industry analysis: Introduction to input-output, social accounting matrix modelling and tourism satellite accounts*. Oxford: Butterworth-Heinemann.
- Holzner, M. (2011). Tourism and economic development: The beach disease. *Tourism Management*, 32(4), 922–933.

- Ivanov, S., & Webster, C. (2006). Measuring the impact of tourism on economic growth. In *Proceedings of GEOTOUR 2006 Conference*, 7–8 (pp. 21–30). Kosice, Slovakia.
- Katircioglu, S. T. (2009). Revisiting the tourism-led-growth hypothesis for Turkey using the bounds test and Johansen approach for cointegration. *Tourism Management*, 30, 17–20.
- Kim, H. J., & Chen, M. H. (2006). Tourism expansion and economic development: The case of Taiwan. *Tourism Management*, 27(5), 925–933.
- Kum, et al. (2015). Tourism and economic growth: The case of next-11 countries. *International Journal of Economics and Financial Issues*, 5(4), 1075–1081.
- Kumar, R. R., et al. (2014). Nexus between tourism earnings and economic growth: A study of Malaysia. *Quality and Quantity*, 1–20. <https://doi.org/10.1007/s11135-014-0037-4>.
- Lanza, A., & Pigliaru, F. (2000). Why are tourism countries small and fast-growing? In A. Fossati & G. Panella (Eds.), *Tourism and Sustainable Economic Development*. Boston, MA: Springer.
- Lee, C. C., & Chang, C. P. (2008). Tourism development and economic growth: A closer look at panels. *Tourism Management*, 29, 180–192.
- Matarrita-Cascante, D. (2010). Beyond growth: Reaching tourism-led development. *Annals of Tourism Research*, 37(4), 1141–1163.
- Mitchell, D. J. (2005). The impact of government spending on economic growth. *The Heritage Foundation*, 1813, 1–18.
- Nowak, J. J., & Sahli, M. (2008). *Tourism, capital good imports and long-run growth* (Economic Research Forum Working Papers, No. 382).
- Nowak, J. J., et al. (2007). Tourism, capital good imports and economic growth: Theory and evidence for Spain. *Tourism Economics*, 13, 515–536.
- Oh, C. K. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management*, 26, 39–44.
- Ozturk, I., & Acaravcı, A. (2009). On the causality between tourism growth and economic growth: Empirical evidence from Turkey. *The Transylvanian Review of Administrative Sciences*, 25E, 73–81.
- Pablo-Romero, M. P., & Molina, J. A. (2013). Tourism and economic growth: A review of empirical literature. *Tourism Management Perspectives*, 8, 28–41.
- Pavlič, I., et al. (2015). Tourism, real effective exchange rate and economic growth: Empirical evidence for Croatia. *International Journal of Tourism Research*, 17(3), 282–291.
- Proença, S., & Soukiazis, E. (2005). *Tourism as an alternative source of regional growth in Portugal* (Centro de Estudos da União Europeia, Faculdade de Economia da Universidade de Coimbra, Discussion paper No. 34).
- Pulido-Fernández, J. I., et al. (2014). Tourism as a tool for economic development in poor countries. *Turizam: znanstveno-stručni časopis*, 62(3), 309–322.
- Rodríguez, F., & Rodrik, D. (2001). Trade policy and economic growth: A skeptic's guide to the cross-national evidence. *NBER Macroeconomics Annual 2000*, 15, 261–338.
- Samimi, A. J., et al. (2011). Tourism and economic growth in developing countries: P-VAR approach. *Middle-East Journal of Scientific Research*, 10(1), 28–32.
- Schubert, S. F., et al. (2011). The impacts of international tourism demand on economic growth of small economies dependent on tourism. *Tourism Management*, 32, 377–385.
- Seetaram, N., & Petit, S. (2012). Panel data analysis. In L. Dwyer et al. (Eds.), *Handbook of research methods in tourism: Quantitative and qualitative approach*. Cheltenham: Edward Elgar.
- Sequeira, T. N., & Campos, C. (2005). *International tourism and economic growth: A panel data approach* (Nota di Lavoro, Fondazione Eni Enrico Mattei, No. 141).
- Sequeira, T. N., & Campos, C. (2007). International tourism and economic growth: A panel data approach. In A. Matias, P. Nijkamp, & P. Neto (Eds.), *Advances in Modern Tourism Research: Economic perspectives* (pp. 153–163). Heidelberg: Physica-Verlag.
- Sequeira, T. N., & Nunes, P. M. (2008). Does tourism influence economic growth? A dynamic panel data approach. *Applied Economics Taylor & Francis (Routledge), SSH Titles*, 40(18), 2431–2441.

- Song, H., et al. (2012). Tourism economics research: A review and assessment. *Annals of Tourism Research*, 39(3), 1653–1682.
- Tang, C. F., & Abosedra, S. (2014). The impacts of tourism, energy consumption and political instability on economic growth in the MENA countries. *Energy Policy*, 68, 458–464.
- Tang, C. F., & Tan, E. C. (2015). Does tourism effectively stimulate Malaysia's economic growth? *Tourism Management*, 46, 158–163.
- Tugcu, C. T. (2014). Tourism and economic growth nexus revisited: A panel causality analysis for the case of the mediterranean region. *Tourism Management*, 42, 207–212.
- Tuță, L., & Micu, C. (2014). Analysing tourism flow indicators in Central and Eastern Europe. *Agricultural Management/Lucrari Stiintifice Seria I, Management Agricol*, 16(4), 58–64.
- Višić, J., & Perić, Š. B. (2011). The determinants of the value of incoming cross-border mergers & acquisitions in European transition countries. *Communist and Post-Communist Studies*, 44(3), 173–182.
- Wall, G., & Mathieson, A. (2006). *Tourism: Change, impacts and opportunities*. Harlow: Pearson Education.
- WDI—World Bank. (2016). World development indicators. Available from <http://data.worldbank.org/data-catalog/worlddevelopment-indicators>
- World Tourism Organization. (2015). *Tourism highlights 2015*. Madrid: UNWTO.
- Yanikkaya, H. (2003). Trade openness and economic growth: A cross-country empirical investigation. *Journal of Development Economics*, 72(1), 57–89.

Monitoring the Impacts of Corporate Activities on Environment in Tourism and Communicating Through Corporate Reports



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Abstract Tourism, one of the most important economic activities in the world, is deeply interrelated with the environment. It is dependent on it, but it affects it and changes it constantly. Tourism sector must play an important role in addressing climate change by implementing adaptation and mitigation strategies. Sustainable tourism development is the prerequisite of its present and future development. However, if adaptation and mitigation strategies are implemented, the results have to be measured to catch the difference between the set and achieved goals. Only in such a way, improvements may be made.

Communication with stakeholders is important in addressing challenges of climate change and sector's impacts and endeavor in tackling it. Corporate reports are used as one of the most acceptable means of communication with tourism stakeholders. Although, often considered as a synonym for financial reporting, corporate reports emphasize a much wider field. According to PwC (What is corporate reporting? <http://www.pwc.com/gx/en/audit-services/corporate-reporting/frequently-asked-questions/publications/what-is-corporate-reporting.jhtml>, 2016), corporate reporting includes the following reporting areas: integrated reporting, financial reporting, corporate governance, executives' remuneration, corporate responsibility, and narrative reporting. For the purposes of monitoring the impacts of corporate activities on the environment, corporate (social) responsibility reporting, or sustainability reporting, is the most dynamic and acceptable tool. This segment of reporting has been developing very fast in the past years. There are several initiatives (guidelines) for developing reporting on CSR/sustainability. The most important ones are Global Reporting Initiative (GRI), United Nations Global Compact Communication of Progress (COP), and AccountAbility's AA1000.

At this stage, reporting under the banner of CSR/sustainability is still voluntary. Thus, companies decide on their own whether to prepare and publish reports on this issue or not. The decision to use (or not to use) one of the existing guidelines for reporting is also voluntary. In addition, companies may report on social

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responsibility/sustainability issues without using existing guidelines. They can apply their own standards based on mission, vision, and corporate strategies they implement. Very regularly, they align such reports with the abovementioned.

The aim of this paper is to explore the sensitiveness of corporate actions on the environment in travel and tourism sector. In order to identify the level of information disclosure on environmental issues, corporate reports of companies operating in tourism sector will be the subject of content analysis. Further, the implementation of different (global) initiatives for CSR/sustainability reporting will be explored. The sample will be taken out of the tourism companies operating in Croatia.

Based on obtained result, conclusion on further development of reporting on CSR/sustainability issues will be determined, taking into account the specifics of tourism sector companies.

Keywords Corporate reporting • Sustainable tourism development • Croatia

1 Introduction

Tourism, one of the most important economic activities in the world, is deeply interrelated with the environment. It depends on it, but it also affects and changes it constantly. So, it must play an important role in addressing global climate changes and protecting the environment. Sustainable tourism development is the prerequisite for its present and future development. Being responsible toward the planet's natural resources, as one of the most important stakeholders, should be a philosophy that travel and tourism companies need to follow. Travel and tourism companies are responsible for managing their impact on the environment, society, and the economy. Stakeholders should be involved in the process of sustainable tourism development if the process itself would be successful (Byrd 2007). A stakeholder approach emphasizes active management of the business environment, relationships, and the promotion of shared interests (Perić et al. 2014, p. 274). Carroll (1993) defines stakeholders as those individuals or groups that have influence or may be influenced by the activities, decisions, policies, practices, or goals of a company. Freeman (1984, p. 46) defines stakeholders as those groups or individuals who can affect or are affected by the achievement of the company's objective. Travel and tourism industry, being a highly dynamic industry, brings together a variety of different stakeholders such as local, regional, and national government, travel and tourism companies, independent tourism experts and specialists, destination management organizations, suppliers of products and services needed for the development of tourism experience, tourists, local residents, employees in the travel and tourism industry, tourism planners, etc. They can all be classified as primary stakeholders. But, secondary stakeholders are also within the travel and tourism sphere of influence. They can hardly be distinguished for being strongly interconnected with the main tourism product/service/experience offered. The base

for categorizing shareholders is always a main point of observation. If one refers to the travel and tourism sector in general, the distinction of primary and secondary stakeholders would be much different than if observed for one travel and tourism company (i.e., hotel company operating in the destination) separately. Stakeholders work together in the formation of a tourist-friendly destination concept through a combination of space, activities, and products (Anuar et al. 2012, p. 72). Stakeholders' involvement is the building block of contemporary sustainability approach.

A very important part of CSR is communication with stakeholders. For a more related and transparent communication, companies have different communication channels on their disposal, including newspapers, TV spots, media channels, social media, websites, corporate reports, etc. Corporate reports are often used as a synonym for companies' financial reports. However, corporate reports are much wider. Besides including financial data, they consist of information on corporate governance, executives' remuneration, corporate responsibility, and narrative reporting (PwC 2016). Corporate responsibility reporting is the main tool for communicating with wide range of stakeholders. While preparing CSR reports, companies can use different guidelines like the Global Reporting Initiative (GRI), implement principle-based standards of AccountAbility's AA1000, or take part in the United Nations Global Compact platform. Besides those previously mentioned, companies may prepare stand-alone CSR reports based on their independently selected principles and covering variety of social responsibility areas, always depending which areas have companies selected to be more important and more linked to their core business. Sometimes, even the country regulations and efforts in sustainable development area can influence companies. In addition, alongside the financial and nonfinancial information required by the law, annual reports (financial) may contain CSR information as well.

Due to the importance of the environment for travel and tourism companies, the aim of this paper is twofold:

1. To explore the relative sensitivity of companies toward the environment
2. To explore their acceptance of different communication tools while communicating with interested stakeholders.

Using different communications channels (CSR/sustainability reports, annual reports, web pages, etc.), companies may disclose information about their impact on the environment to all interested stakeholders. Aiming to determine the impact of tourism companies' actions on the environment, information and reports on CSR/sustainability issues were subject to content analysis. The sample comprised of 13 companies with headquarters in Croatian region of Istria. The results have revealed that tourism sector companies are not prone to disclose information on CSR/sustainability issue in stand-alone report, neither as a part of their annual report, so it is difficult to determine their impact on the environment. They prefer to use their web pages in communicating with their stakeholders. Due to the characteristics of travel and tourism sector companies, most of disclosed information are intended to clients and employees, followed by natural environment. At the same time, other stakeholders are mostly neglected.

The paper is organized as following. After literature review, indicating the impact of climate change on tourism and the importance of sustainable development/CSR, research methodology is described. Finally, the results of qualitative research are presented. Conclusions and suggestions are given at the end of the paper.

2 Literature Review

2.1 *Tourism and Climate Change*

Tourism is today one of the most important economic activities in the world. It has numerous positive as well as negative impacts on the environment and the social community it operates in.

Tourism is very closely related to climate change due to the fact that climate defines the length and quality of tourism season, it has a big influence on tourist while choosing their destination, it defines quality of destination's environment, etc. Under the definition of climate change, the Intergovernmental Panel on Climate Change (IPCC) refers to "a change in the state of the climate that can be identified (e.g., using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity."

Warming of the climate system is evident from the observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. Changes in the atmospheric concentrations of GHG as a result of human activities are the main drivers of climate change. Global greenhouse gas emissions due to human activities have grown since preindustrial times, with an increase of 70% between 1970 and 2004. The largest growth in GHG emission has come from energy supply, transport and industry, agriculture, and forestry. Tourism contributes to human-induced climate change with 4.95% of global CO₂ emission. Transport generated largest proportion of CO₂ emission from global tourism (UNWTO, UNEP, and WMO 2007, p. 14).

Adaptation and mitigation strategies are to be adopted in order to respond to global climate change. Adaptation is vital and beneficial, and it includes adaptation measures which can reduce the adverse impacts of projected climate change and variability and natural and man-made capital assets, social networks and entitlements, human capital and institutions, technology, etc. There are many adaptation strategies that can be implemented, such as diversification of the tourism offer and attractions, creation of new tourism products for the special interest groups that are becoming stronger on the ever so changing tourism market, etc. Tourism destinations as well as tourism companies tend to use "innovation" and "knowledge" as vehicles for developing new product experiences, targeting niche markets and

upgrading the quality of their services, and improving their competitiveness (Golja et al. 2013, p. 24).

Mitigation strategies include reducing the emission of GHG while improving energy supply and distribution efficiency, using more fuel-efficient vehicles and energy-efficient lighting and more efficient electrical appliances and heating and cooling devices, material recycling and distribution, efficient forest management, implementation of smart hotel rooms system, etc. Energy efficiency and conservation have an important role to play in maintaining a healthy environment, particularly when it comes to air quality and climate issues. All of the tourism stakeholders have to adapt their habits and lifestyles to use the limited resources more wisely.

The above-stated strategies should be an integral part of a strategic approach to tourism development.

2.2 Sustainable Tourism Development and Corporate Social Responsibility

The implementation of the concept of sustainable development in tourism development is vital to the industry's future because it will help ensure thriving, attractive, and welcoming destinations that will draw tourists. Socially and environmentally responsible practice can contribute to maintain a high level of tourist satisfaction and ensure meaningful experience to tourists, raising the awareness about sustainability issues and promoting sustainable tourism practices among them.

The World Tourism Organization defines sustainable tourism as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities" (UNWTO 2015). In line with that, UNWTO strongly encourages the maintenance of cultural integrity, essential ecological processes, biological diversity, and life-support systems. Achieving sustainable tourism includes (UNWTO 2015) offering quality services with optimal use of environmental resources, the protection of biodiversity, and respect of the sociocultural authenticity of host communities. Sustainable tourism should ensure viable, long-term economic and socioeconomic benefits to all stakeholders. Active participation of all tourism stakeholders and a strong governance and ethical leadership are required to meet the long-term sustainability goals at the global level. A good environment requires the collective effort from every sector of an economy.

Sustainable tourism development is a continuous and iterative process that requires constant full monitoring of impacts followed by introduction of all the necessary preventive and/or corrective measures in order to maintain the desired level of beneficial outcomes of tourism development. Considering that, the implementation of the concept of sustainable development into the business practice is a challenge to the whole tourism industry. Here we come to the concept of corporate

social responsibility (or the so-called CSR). CSR is the micro-aspect of sustainable development. In order to be sustainable, every company has to be profitable, but beyond that it has to be morally and ethically responsible toward the employees, environment, society, and the global community. It basically has to be responsible toward the wide spectrum of stakeholders. The European Commission just recently revised its definition of corporate social responsibility stating that CSR is the responsibility of enterprises for their impacts on society that can bring benefits in terms of risk management, cost savings, access to capital, customer relationships, human resource management, and innovation capacity (European Commission Enterprise and Industry 2014).

2.3 Monitoring and Reporting on the Impacts

If wishing to contribute to sustainable tourism development, corporations must be able to measure their impacts on the surrounding environment. Only by measuring their impacts will they be able to efficiently manage their activities, define their corporate strategies, and plan for the future. Social responsibility should be implemented in their core corporate strategies, but above all, they should tend to transform their daily activities into more sustainable ones reaching the goals of placing sustainable tourism products and services on the tourism market. World Business Council for Sustainable Development (2008, pp. 4–5) highlights various benefits arising from measuring impacts on the environment such as (1) improved relationship with the community through transparent communication; (2) improved relationship with governmental bodies to underpin the business license to operate; (3) new opportunities for new partnership with various stakeholders; (4) improved relationship with employees that fosters their satisfaction and loyalty and contributes to greater productivity; (5) protection of market share by building brand, reputation, and consumer loyalty; (6) creation of new business opportunities such as product innovations and similar; and (7) ability to anticipate and adapt to changing societal conditions and needs.

Measuring and subsequent reporting on CSR issues are still developing. The main reasons for that could be identified in the fact that CSR information are mostly nonfinancial, and because of that traditional accounting and reporting system (based on financial information) is not appropriate for collecting and disclosing information on CSR.

However, companies are becoming aware of the importance of CSR and its disclosing. Due to that, an increase in the number of issued stand-alone reports on this issue has been reported (Dhaliwal et al. 2012). These reports can be prepared according to guidelines of some international initiative for reporting on this issue or can be company-specific reports. The most important initiatives for purposes of CSR reporting are the following: Global Reporting Initiative (GRI), United Nations Global Compact Communication of Progress (COP), and AccountAbility's AA1000.

Global Reporting Initiative (GRI) is one of the most popular initiative. According to Tschopp and Nastanski (2014), it represents the most suitable and probable candidate for globally accepted standards for reporting on sustainability and corporate social issues. It represents an organization that promotes sustainable development by defining sustainability reporting framework in a form of guidelines for disclosing (GRI 2016). Until now there have been four versions of GRI guidelines (G1, G2, G3, and G4). Each of the following versions represents the revision of the previous aligned with latest developments in the field. The latest version of GRI guidelines (G4) was released in 2013, with the following aim: “help reporters prepare sustainability reports that matter, contain valuable information about the organization’s most critical sustainability-related issues, and make such sustainability reporting standard practice” (GRI, G4 Sustainability Reporting Guidelines 2013, p. 3). Today, there are more than 18,000 GRI reports all around the world (GRI 2016).

The second initiative for CSR disclose is UN Global Compact. UN Global Compact is “a leadership platform for the development, implementation and disclosure of responsible and sustainable corporate policies and practices” (UN Global Compact 2016). Participants, which could be profit and nonprofit organizations, are required to adapt their operations with ten universally accepted principles in areas of human rights, labor, environment, and anticorruption. It has over 8000 participants from more than 140 countries (UN Global Compact 2016). Annual progress made in implementation of principles should be disclosed in document “Communication on progress” and disclosed on UN Global Compact web page and to stakeholders.

The third initiative for CSR reporting is AccountAbility’s AA1000. AccountAbility’s AA1000 includes a series of standards which represents “the principles-based standards to help organization become more accountable, responsible and sustainable” (AccountAbility 2016). The series of standards include (AccountAbility 2016):

- The AA1000 AccountAbility Principles Standard (a framework for an organization to identify priorities and respond to its sustainability challenges)
- The AA1000 Assurance Standard (a methodology for assurance practitioners to evaluate the nature and extent to which an organization adheres to the principles)
- The AA1000 Stakeholder Engagement Standard (a framework to help organizations ensure stakeholder engagement processes are purpose driven and robust and deliver results).

The AccountAbility’s standards include guidelines to better understand and implement the standards. The concept is based on three principles: inclusivity (people should have a say in the decisions that impact on them), materiality (decision-makers should identify and be clear about the issues that matter), and responsiveness (organizations should be transparent about their actions).

More recently we are witnessing the proliferation of integrated reports. Integrated reports combine financial with CSR reports. The main purpose is to combine reporting on intangible resources with financial reporting.

Despite the existence of available guidelines for reporting on CSR issues, not all companies choose to implement them. They may, and often do, report on CSR issues using their own concept and report information that they consider relevant for company managers and for their stakeholders. The main problem with single company-based reports is the comparison inadequacy.

Sustainability reporting adds value in a number of areas for business companies (GRI 2017a, b): building trust, improving processes and systems, progressing vision and strategy, and reducing compliance costs and competitive advantage.

CSR reporting adds to the company's credibility, enforces its reputation, and keeps employees, clients, and other stakeholders informed of what the company is doing in the field of sustainability. This is of high importance today because people, particularly generation Y and generation Z, like to be informed and like to contribute with purchasing products/services that care for the environment and respect social values.

3 Research Methodology

In an attempt to discover the impacts of corporate activities on the environment in the travel and tourism sector, the research was conducted on a sample that comprised of companies operating in the Croatian region of Istria.

3.1 *Situational Analysis*

With the Croatian accession to the EU (1 July 2013) and more precisely by accepting the EU *acquis*, the process of financial reporting harmonization with the requirement of EU has been completed. It has been a long, challenging, and complex process for the Croatian legislation but also for companies that had to adapt their accounting practices, accordingly.

The process of financial reporting harmonization and standardization has just finished, and there has been no time to deal with the harmonization and standardization of other reporting segments, including CSR reporting. Only one provision of the Croatian Accounting Act can be linked with CSR reporting. Namely, according to provisions of the Croatian Accounting Act, entrepreneurs shall prepare an annual report and a management report containing (among other) nonfinancial information on environmental protection and employees, if this information is important for understanding the development and operating results of the respective entrepreneur and their position (Official Gazette, 109/07, 78/15). Due to multidimensionality of CSR (Carrol 1979), this provision, taking into account only few dimensions of CSR

(environment and employees), cannot be considered complete either aligned with the purpose of CSR reporting.

Additionally, this provision does not obligate companies to disclose on CSR. They still freely decide whether they want to disclose such information or consider it unimportant.

Some European countries like France, Denmark, Sweden, the Netherlands, and Norway require disclosure of CSR reports from certain, mostly listed, companies (Tschopp and Nastanski 2014). These provisions of the law are in line with the European Parliament and the Council directive (2014/95/EU) on disclosure of nonfinancial and diversity information by certain large undertakings and groups. This directive requires certain large companies to disclose in their management report information on policies, risks, and outcomes related to environmental matters, social and employee aspects, respect for human rights, anticorruption and bribery issues, and diversity in their board of directors (EU Parliament and Council 2014). The directive should be implemented into laws, regulations, and administrative provisions by all member states until 6 December 2016. From 1 January 2017, the directive should come into full force. Up to now, Croatia has not implemented provisions of this directive into its own legislation.

The importance of CSR and its disclosure is expected to grow significantly on the global scale. It is expected that the process of harmonization and standardization of CSR reporting will continue in the future even more intensely not only on the global level but in Croatia as well.

The travel and tourism sector is strongly contributing to Croatia's economy. The share of tourism in Croatian GDP is 18%. Being such a strong sector, tourism must accommodate to current circumstances (global environmental trends) and current and future needs of the traveler. Due to the large number of stakeholders, it is also very important to adequately inform all stakeholders about the relevant information on doing business in a tourism destination.

3.2 Research Design

Istria is the most developed tourist destination in Croatia. With its surface area of 2813 km² (5% of total Croatian area) and population of 208,055 in 2011 (4.9% of total Croatian population), the Istria region achieved 21 mil overnights (31.8% of total Croatian overnights) and 3.4 mil arrivals (26.7% of total Croatian arrivals) in 2015 (Ministry of tourism 2016; Croatian Bureau of Statistics 2016). For being the most important Croatian destination, authors found it relevant to investigate the level of reporting and communication with stakeholders on the sample of tourism companies having their headquarters in Istria.

This focus will be on middle and large companies, since they are more likely to engage in CSR activities (Smith 2013) and report on it. From 108 medium-sized

and large Croatian companies,¹ with their main activity in the sector of accommodation and food service activities (Sector I²), 13 of them have headquarters in Istrian region (Biznet 2016). Two companies were excluded from the sample. One makes part of another company already included in the sample, and the second one has no direct connections with tourism. Additionally, travel agencies, tour operators, and other intermediaries (Sector N79³) were included in the sample. Out of 11 Croatian companies operating in sector N79, 2 of them have headquarters in Istria region. The final sample comprised of 13 companies with headquarters in the Istria region (11 from Sector I and 2 from sector N79). The 13 companies, more precisely, their corporate information and reports, were subject to content analysis in order to determine whether they publicly disclose CSR information, in which form they disclose it, and what kind of information they include.

Different CSR/sustainability databases were searched (GRI database, UN Global Compact database), company websites and other sources of corporate reports (Zagreb Stock Exchange 2016, Croatian Financial Agency 2016). Thus, the research was conducted on three stages:

1. Exploration of CSR/sustainability reporting databases
2. Exploration of stand-alone CSR/sustainability reports and company web pages
3. Exploration of company annual reports.

3.3 Research Results

The first stage of research referred to GRI database and UN Global Compact database check. No reports from Croatian companies operating in tourism/leisure sector were found in the GRI database search (GRI 2016). In the UN Global Compact participants search (UN global Compact 2016), four Croatian companies operating in the Travel & Leisure sector were detected (only one from Istria region). Out of them, only two are considered active participants⁴ (companies from Istrian region were not among them). *Based on results of the first stage of*

¹Company classification by size was made according to the provision of the Croatian Accounting Law in the force for the fiscal year 2014. According to its provision, middle companies are the one which exceed at least two of the following conditions: total employee number of 50, total asset value of 32.5 mil kunas (approx. 4.3 mil EUR), and total annual revenues of 65 mil kunas (approx. 8.6 mil EUR). But they do not exceed two of these conditions: total employee number of 250, total asset of 130 mil kunas (approx. 17.3 mil EUR), and total annual revenues of 260 mil kunas (approx. 34.7 mil EUR). Large companies are the ones that exceed at least two of the conditions for middle companies.

²As defined by National Classification of Activities.

³Op cit.

⁴Active participants of UN Global Compact are companies that regularly (once a year) issue a report on Communication on Progress (COP). Inactive participants are the ones that joined the initiative but do not regularly issue COP.

research, it can be concluded that companies operating in travel and tourism sector with headquarters in Istrian region are either not familiar with existing guidelines for CSR reporting or not interested to follow these guidelines. Despite the two active participants in UN Global Compact, the same conclusion applies for all other Croatian companies operating in tourism sector for not being listed in the database and not publishing reports according to the provided guidelines. The GRI guidelines are available at GRI web pages free of charge, and the latest issue of guidelines (G4) is available on English and 14 different languages, including Croatian.

The second stage of research included the search for CSR stand-alone reports issued by Istrian companies operating in travel and tourism sector. For this purpose, company websites were explored. Based on their website search, no company from the targeted sample discloses stand-alone reports on CSR/sustainability. What can be identified from tourism companies' websites is that their clients are the most important stakeholders for them. The online communication with clients is of high importance for this sector, and because of that, the majority of information provided through their website is mostly directed to the clients. In addition, six companies disclose some information on employees' issues and four companies on natural resources (environment). The employees' issues mostly cover benefits that companies provide to their employees (like education, training, and development). However, some companies go beyond this and disclose information on their academy initiative for their employees, collaboration with educational institutions (i.e., trainings), and the scholarship opportunities they offer to students of catering and hospitality schools. The information on natural resources (environment) refers to the environmental policy, ISO standards companies have been certified with, donations for programs of environmental protection, and the implementation of green recycling program (reduce-reuse-recycle program). *Based on results of the second research stage, it can be concluded that travel and tourism companies are fully aware of customers being one of their most important stakeholders. They are only partially aware of the importance of natural environment for their business and tourism product attractiveness. Very modest information on their engagement in environmental protection can be found. Employees are considered important internal stakeholders for analyzed travel and tourism companies in Istria, but not much information on them is disseminated.* No information on other stakeholders was found on the website.

The third stage of research included the exploration of companies' annual reports. Often companies use their annual reports to disclose information beyond the ones required by the law. The law requires presentation of financial statements and audit report (if company reports are subject to audit). The subjects to the content analysis were annual reports for the year 2014. The majority of companies' reports include only information required by the law, and these are dominantly financial information. The information regarding employees is mostly limited to the cost of their salary and accompanying income tax costs. This information is usually supplemented by the number of employees (seasonal and permanent). One company from the sample reported on the policy of permanent seasonal employment,

while one emphasized their focus on importance of continuous improvement of human resources. The information on environmental protection is very poor and limited. It mostly relates to the information on developing and implementing the energy-efficient projects and greater use of renewable energy source and selection of waste materials. However, one company from the sample stands out for disclosing more concrete information on its CSR activities. CSR activities are disclosed in separate section of their annual report. This section contains information on company CSR activities, including providing more than 1000 overnights in their facilities for children without parental care, children with lower income, and children with health problems or with special needs. In addition, this company has been disclosing information on donations for projects aiming at coastal and sea protection and cultural projects. *Based on overall results of this third stage research, it can be concluded that travel and tourism sector companies do not disclose information on CSR issues in their annual reports. It seems they still have not reached a desired level of sustainability awareness. However, there is an exception which should be standard for all others (company that has its own academy for human resources development, provides help to the most needed members of society, actively engaged in protection of the natural environment, supports cultural activities in the society, and publicly discloses on the performed activities).*

The summarized results of all three stages of research are summarized in Table 1.

Table 1 Summarized results of content analysis

Company	CSR databases		Stand-alone CSR report ^a	Web pages	Annual reports
	GRI	UN Global Compact			
1	–	–	–	+	+
2	–	–	–	+	–
3	–	–	–	–/+	–
4	–	–	–	+	–
5	–	–	–	+	–/+
6	–	–	–	–	–
7	–	–	–	–/+	–
8	–	–	–	–	–/+
9	–	–	–	–	–
10	–	–	–	–	–/+
11	–	–	–	–	–
12	–	–	–	–	–/+
13	–	–	–	–	–

Source: Authors' research

^aStand-alone CSR reports not prepared using GRI guidelines or as a result of participating in UN Global Compact platform

Based on Table 1, it can be summarized that companies operating in tourism sector are not aware of benefits that CSR reporting can result with. The most commonly used channels for corporate communication are websites, followed by annual reports.

4 Conclusions

The main purpose of the research was to investigate the companies' sensitiveness toward the environment and their level of communication with various stakeholders. Although aware of the main limitations of the research—sample size—authors conclude that the communication process is still evolving and much of the stakeholders have still not been recognized as important for travel and tourism companies to thrive and develop their business model based on the main sustainability principles. Natural resources, upon which company's products/services and their attractiveness rely on, are very rarely considered important in communication with stakeholders. Companies' initiatives in protection of the natural resources and environment cannot be precisely argued due to the lack of important information on such initiatives. Authors strongly believe that some of the analyzed companies apply certain ecological initiatives in their ordinary business practices, but they hardly mention them while communicating with interested stakeholders. For instance, although the Republic of Croatia has been strongly focusing on supporting projects that value cultural heritage, energy efficiency, development of ecological tourism products for the special interest tourism market, and investments in renewable energy, none of these initiatives are mentioned either online, on their website (most commonly used media for communicating with interested stakeholders), or within reports they publish. This conclusion may have several implications: (1) companies do not foster sustainable environmental development; (2) companies do not strongly believe that investments in ecological efficiency make their products/services more attractive on the ever so challenging tourism market; (3) companies have little intentions to innovate in innovative products/services that will likely be very competitive on the tourism market in the future and most probably much strongly accepted by the new generation of travelers; and (4) companies find such investments expensive and are not willing to put extra profits for environmentally responsible behavior.

Companies miss to communicate their initiatives in the local community, like philanthropic activities (such as volunteering or donations). They are not reporting stories of their ordinary business practices within the local community. Although the global community of sustainable businesses and socially responsible companies is growing and thus it is putting pressure on companies to communicate much frequently on their sustainability issues, Croatian companies are still far behind the global trend. There is much to be improved. They have still not realized the importance of managing stakeholders successfully. Managing stakeholders is the only way of managing successful businesses today. Managing stakeholders requires

transparent and responsive communication. Clients are demanding more. Investors are more focused on environmental, social, and governance performance of a company. The local community is expecting stronger involvement of the companies in their development. Investing in employees is the only way a company can pursue quality and excellence. Future generations of travelers will be looking for higher-quality products and services and will be ready to pay extra for socially responsible products/services in tourism. Only destinations that will effectively manage their stakeholders will be able to compete on the global scale.

Thus, research should be expanded to all Croatian middle and large companies operating in the tourism sector. This would contribute to the generalizability of obtained research.

References

- AccountAbility. (2016). *The AA1000 standards*. Available and accessed March, 28, 2016, <http://www.accountability.org/standards/>
- Accounting act, Official Gazette, No. 109/07, 54/13, 121/14, 78/15, 134/15.
- Anuar, A. N. A., et al. (2012). Understanding the role of stakeholder in the formation of tourist friendly destination concept. *Journal of Management and Sustainability*, 2(2), 69–74.
- Biznet – Register of business entities in Croatia. (2016). Available and accessed March 28, 2016, from <http://www1.biznet.hr/HgkWeb/do/extlogon>
- Byrd, E. T. (2007). Stakeholders in sustainable tourism development and their roles: Applying stakeholder theory to sustainable tourism development. *Tourism Review*, 62(2), 6–13.
- Carrol, A. B. (1979). A three dimensional conceptual model of corporate social performance. *Academy of Management Review*, 4, 497–505.
- Carroll, A. B. (1993). *Business and society: Ethics and stakeholder management*. Cincinnati: Southwestern.
- Croatia Bureau of Statistics. (2016). *Statistical year book of republic of Croatia 2015*. Available and accessed March 28, 2016 http://www.dzs.hr/Hrv_Eng/ljetopis/2015/sljh2015.pdf
- Croatian Financial Agency. (2016). *Financial agency register of financial statements*. Available and accessed April 11, 2016, from <http://rgfi.fina.hr/JavnaObjava-web/jsp/prijavaKorisnika.jsp>
- Dhaliwal, D. S., et al. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review*, 87(3), 723–759.
- European Commission Enterprise and Industry. (2014). *Corporate social responsibility (CSR)*. Available and accessed August 02, 2015, from http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/index_en.htm
- European Parliament and Council. (2014). Directive 2014/95/EU of The European Parliament and of The Council amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups. *Official Journal of the European Union*. Available and accessed June 15, 2015, from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0095&from=EN>
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach* (p. 46). Boston, MA: Pitman. Article source <http://www.stakeholdermap.com/stakeholder-theory.html>
- Global Reporting Initiative. (2013) G4 Sustainability reporting guidelines, Reporting principles and standard disclosures, GRI, Amsterdam, The Netherlands
- Global Reporting Initiative. (2016). *Sustainability disclosure database*. Available and accessed April 11, 2016, from <http://database.globalreporting.org/>

- Global Reporting Initiative. (2017a). *The benefits of sustainability reporting*. Available and accessed April 15, 2016, from <https://www.globalreporting.org/resourcelibrary/The-benefits-of-sustainability-reporting.pdf>
- Global Reporting Initiative. (2017b). Available and accessed April 11, 2016, from <https://www.globalreporting.org/Pages/default.aspx>
- Golja, T., et al. (2013). Managing tourist destination: Expectation and actual state on the case of Labin-Rabac. *International Journal of Multidisciplinary Thought*, 3(2), 23–36.
- Ministry of Tourism of The Republic of Croatia. (2016). *Turistički promet u prosincu 2015. godine*. Available and accessed March 28, 2016, from http://www.mint.hr/UserDocsImages/160219_tpromet015.pdf
- Perić, M., et al. (2014). Importance of stakeholder management in tourism project: Case of The Istria Inspirit Project. In *Tourism and Hospitality Industry 2014, Congress Proceedings* (pp. 273–286). Opatija: Trends in Tourism and Hospitality Industry.
- Pwc. (2016). *What is corporate reporting?* Available and accessed September 06, 2015, from <http://www.pwc.com/gx/en/audit-services/corporate-reporting/frequently-asked-questions/publications/what-is-corporate-reporting.jhtml>
- Smith, N. C. (2013). *When it comes to CSR, size matters?* Forbes. Available and accessed March 23, 2016, from <http://www.forbes.com/sites/insead/2013/08/14/when-it-comes-to-csr-size-matters/#388ee66f1b6f>
- Tschopp, D., & Nastanski, M. (2014). The harmonization and convergence of corporate social responsibility reporting standards. *Journal of Business Ethics*, 125, 147–162.
- UN Global Compact participants and stakeholders. (2016). In UN Global Compact. Available and accessed April 11, 2016, from <https://www.unglobalcompact.org/participants/search>
- UNWTO. (2015). *Sustainable development of tourism*. Available and accessed August 02, 2015, from <http://sdt.unwto.org/content/about-us-5>
- UNWTO, UNEP and WMO. (2007). *Climate change and tourism: Responding to global challenges*. Davos: UNWTO, UNEP and WMO.
- WBCSD. (2008). *Measuring impact: Beyond the bottom line*. Geneva: World Business Council for Sustainable Development.
- Zagreb Stock Exchange. (2016). *Reports on listed shares*. Available and accessed April 11, 2016, from <http://zse.hr/>

Wine Tourism Development in Northern Greece: Evidence From Ktima Gerovassiliou



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Abstract In an effort to expand the wine tourism industry in Greece, wine producers have formed regional associations, such as the “Wine Producers Association of the Northern Greece Vineyard,” established in 1993. Efforts of this, and similar organizations, involve networking with small-scale wineries, travel agencies, hotels, restaurants, and other local merchants to promote regional wineries, as well as establishing wine tourist routes. Significant work has been conducted investigating consumer motivations and market segmentation in wine tourism, locally and internationally. Informed by this work, wineries can modify the programs offered in order to attract certain market segments. However, examinations of the relationships between the three primary stakeholders in wine tourism—consumers, wine producers, and the tourism agents who promote the programs offered by the wineries—remain limited. This paper explores the interconnections between winemakers, individuals and organizations involved in wine tourism, and consumers to better understand how to improve agritourism in small-scale wineries. In particular, we evaluate the alignment of the winery’s tourism programs, the infrastructure and efforts of established local tourist agency networks, and the motivations of potential domestic consumers.

Keywords Wine agritourism • Northern Greece • Small-scale wineries • Consumer motivations

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1 Introduction

Wine tourism is a growing industry around the world. Wine tourism combines the needs and interests of two different economic sectors—the wine and tourism industries. In a review of wine tourism, Carlsen notes that the wine industry is characterized by “being supply-led, price-taking, producing a standardized, homogeneous product, cost-minimizing and reliant on capital growth to create wealth,” while the tourism industry is characterized as “being demand-driven, price-making, heterogeneous product/service, profit maximizing and relying on profits to create wealth” (Carlsen 2004, p. 8). An integration of both sectors is necessary for success. Collaborative efforts between wineries and local businesses in New Zealand and South Africa have resulted in marketing networks that have been beneficial to wineries, the associating businesses, and the region as a whole (Beverland 1998; Bruwer 2003). Networks such as these, including accommodations, restaurants, tourist agencies, and other tourist services, are motivators for travelers (Velissariou et al. 2009).

Greece is continuing to improve and expand as a wine tourist destination. More than 700 wineries operate in Greece. In the Macedonia region, some 80 wineries, primarily small and family owned, concentrate on producing high-quality wines from unique Greek varieties. While Greek wines have gained international recognition, wine producers are increasingly pressured by the economic crisis to find new ways to market and sell their products. Specifically, wine producers are looking to increase direct sales, which will increase profits by limiting distribution costs and competition with the global market (Greek Wine Industry 2008). To accomplish this, investments must be made to expand wine tourism in the country and regionally.

2 Literature Review

Wine tourism is considered the “visitation to wineries and wine regions to experience the unique qualities of...lifestyle associated with enjoyment of wine at its source—including wine and food, landscape and cultural activities”. In this, wine tourism is not confined to wine but rather the contextual experience of wine drinking that includes gastronomy and tourism. Consequently, efforts have been made to understand wine tourism at the regional level (including factors such as regional identity, image and branding, and infrastructure) and national level (including taxation, regulation, policies, and government subsidies) (Carlsen 2004).

Internationally, wine tourism is a means of regional development. In “New World” wine regions including South Africa, Australia, and New Zealand, wine tourism has played a vital role in regional and rural development, employment generation, corporate investment, business growth, and tourism expansion (Bruwer 2003). A survey conducted in Italy in 2012 by the Wine Tourism

Movement showed that for every Euro a tourist spent on wine, five times as much was spent on experiencing the surrounding area including the food, museums, and shops.

Numerous studies conducted in small- and medium-sized wineries in Italy, New Zealand, Australia, France, South Africa, and Spain reveal that wine tourism is enhanced through the coordinated efforts of multiple stakeholders (e.g., wine producers, tourism agencies, governments) (Sparks and Malady 2006; Charters and Menival 2010; Bruwer 2003; López-Guzmán et al. 2011). National associations in France, Italy, and Spain are dedicated to educating wineries and other stakeholders in proper marketing and business strategies (Charters and Menival 2010; López-Guzmán et al. 2011). Such coordinated efforts have driven more tourists to wineries and consequently increased direct sales. A study examining the current state of wine tourism in Italy revealed that wineries had almost doubled their direct sales due to coordinated government efforts to promote regional tourism. Long-term economic sustainability is a concern for the wine industry given the emergence of new competing producing region countries and market shifts. Subsequently, in order for small- and medium-sized wineries to grow and compete in the evolving industry, coordinated and targeted national and regional wine tourism efforts are vital (Elena Batsila, personal communication, March 23, 2016).

While being a significant producer of award-winning wines in Europe (the eighth largest, FAS 2014), Greece has seen an expansion of small, family-owned enterprises cultivating ancient grape varietals that are not commercialized elsewhere. Of the 700 wineries in Greece, about 80 of them are located in the northern region of Macedonia, and 60% of them are family owned specializing in high-quality artisanal wines (Ritchie and Rotsios 2015). Winemakers in this region understand that these “terroir-driven” wines will help them stand apart internationally, creating a “unique niche in the market for their wines” (Enterprise Greece 2011).

In addition to experimenting with new grape varietals, Greek wineries began focusing on developing wine tourism as a way to expand their businesses in the 1980s. The Wine Producers Association of the Northern Greece Vineyard, a non-for-profit, nonstock corporation, is the result of these efforts, aiming to support the Greek tradition of winemaking and provide visitors opportunities to discover vineyards in Northern Greece (Wine Roads of Northern Greece 2016). The association consists of a collaboration of wineries, local authorities and enterprises, hotels, and restaurants. They produce leaflets, DVDs, and documentaries and participate in international exhibitions in Germany and England. Once a year they host an “Open Doors” weekend to expose consumers to multiple wineries in a single centralized location in Thessaloniki (Office of the Mayor of Thessaloniki, personal communication, April 11, 2016).

The Wine Producers Association has also established eight wine routes involving 32 wineries (Pitoska 2008). These routes assist tourists by connecting several wine estates, wineries, and other attractions in an area (Vlachvei et al. 2009). In examining the effectiveness of these wine routes, Pitoska (2008) concluded that the actions of the Wine Roads of Northern Greece have increased sales and exports and

Fig. 1 The integrated overlap of stakeholders involved in wine tourism development increasing direct sales



contributed to regional development through the more efficient use of local resources, the standardization of products, the development of collective action, the creation of new interests, the expansion of the tourist season, and the enhancement of new products.

Small-scale wineries in Northern Greece, either through their involvement with the association or independently, have begun expanding their wine tourism efforts (Alebaki et al. 2012; Yuan et al. 2004; Pitoska 2008). Examining 110 wineries in Northern Greece, Alebaki et al. (2012) found that 60% of wineries are involved in wine tourism, and 59% of these have developed tourism facilities, such as guided tours of the winery and vineyard, tastings, and special events. Despite these efforts, there is room for improvement specifically related to the coordination of efforts among multiple stakeholders. As noted by Carlsen (2004), Northern Greece faces the challenge of integrating wine producers, organizing associations, and tourists (see Fig. 1) to fully develop, package, and deliver a wine tourism experience and promote itself as a wine tourism destination.

3 Methods

This study explored interconnections between winemakers, local tourism networks, and potential tourists to better understand how to improve agritourism in small-scale wineries. Given time and resource constraints, a purposive sampling framework was used to identify individuals with relevant experience, knowledge, and willingness to participate (Bernard 2002). To investigate how small- and medium-scale wineries in Northern Greece might improve their tourism efforts, we conducted an in-depth qualitative assessment of four wineries (Ktima Gerovassiliou, Dalamaras Winery, Thomaidis Distillery, and Chatzivaritis

Winery). Our interviews with winemakers were guided by the following questions (Thomaidis Brothers, personal communication, March 29, 2016):

- How have the wineries marketed their businesses, what have they tried in the past, what obstacles have they faced, and what are their plans for the future?
- What market segments are the wineries aiming to reach? Do their efforts specifically focus on a particular market segment?
- How can wineries alter their tourism efforts in order to increase the number of visitors to their facility and expand their direct sales?

To better understand the institutional arrangements, resource availability, and current state of wine tourism in Northern Greece, semi-structured interviews were conducted with the director of the Wine Producers Association of the Northern Greece Vineyard, staff at two tourist agencies in Thessaloniki, the manager of a 5-star hotel, Electra Palace Hotel (personal communication, April 18, 2016), and officials from the city of Thessaloniki. To identify the motivations and inhibitions of potential wine tourists, we conducted semi-structured interviews with 22 students between the ages of 18 and 24 from Perrotis College of the American Farm School and Aristotle University of Thessaloniki.

Although a semi-structured interview guide was used in each set of interviews, emphasis was placed on the interview as a “conversation with a purpose” (Burgess 1984, p. 104), and participants were encouraged to discuss their experiences freely.

Interviews were transcribed and analyzed using an inductive approach (Marshall and Rossman 1999). Themes and concepts emerged from detailed readings of the interviews, which are consistent with Strauss and Corbin’s (1998) description of grounded theory: “The researcher begins with an area of study and allows the theory to emerge from the data” (p. 12).

4 Results

The Focus on Producing High-Quality Wines from Rediscovered Grape Varieties Is Both a Strength and a Weakness for Small-Scale Wineries in Developing Wine Tourism

The winemakers whom we interviewed are small-scale, family-owned enterprises that have pioneered making wines from little known, traditional grape varieties. This interest in indigenous Greek varieties and promoting terroir-driven wines, that is, wines which express the specificity of place—soil, climate, terrain, other flora, and winemaking traditions—can create the foundation of a vibrant wine tourism industry as can be seen in other wine regions (Beverland 1998). To exploit growing interest in such wines, the winemakers interviewed have opted to deploy the bulk of their resources, not toward increasing wine tourism and direct sales but rather to exploiting new terroirs, to commercializing new varieties, and to developing state-of-the-art technologies to produce high-quality, unique wines. Differentiating Greek wines from bulk wine produced on an industrial scale in other wine regions

may well be a successful long-run strategy for the Greek wine sector, but in the short term, this production orientation with resources devoted to the vineyard can limit the ability of small-scale wine producers to engage in wine tourism development. As one winemaker noted in connection to attracting more tourists to his winery, “It’s hard because the nature of the business is small. I cannot say I will hire somebody just for visits. I need to train somebody that can replace me when I want to leave. That is very important. . . . If I resolve this part of the problem, then we can focus on having more and more people come. But first we need to figure out a way to satisfy them all without losing the quality of what we are producing.” (Dalamaras Estate, personal communication, March 29, 2016).

While Wineries Target Promotional Activities at Older Age Groups that Have Greater Knowledge of Wines and More Disposable Income, they Also Encourage Wine Cellar Visits from the Next Generation of Wine Consumers

The wineries target specific market segments—the wine lovers and the neophytes. The majority of visitors to Dalamaras and Gerovassiliou wineries are an older demographic with knowledge of wines. However, the winemakers expressed an interest in engaging with younger, less-experienced consumers, as a way to promote their efforts in winemaking to a new generation of consumers. The Chatzivaritis estate noted the importance of the younger generation stating, “Currently the younger generation may not have the income to buy wine, but they will 10 years from now” (Chatzivaritis Estate, personal communication, March 31, 2016).

Gerovassiliou, the most established of the wineries included in this study, has made specific efforts to draw a younger demographic to the estate. The estate creates opportunities for all ages describing one activity for consumers of legal drinking age as, “a small game. . . . we call it ‘*krass*’ test. Usually what we do is bring people close to wine and teach them how to taste the wine, . . . and get them to appreciate the wine. We play with some aromas and try to find what kind of aromas it is, is it the fruit? Is it the flower?” (Ktima Gerovassiliou, personal communication, March 22, 2016). The estate reports that 36% of visitors were from schools, thus motivating their aim toward an educational focus on the winemaking process.

In spite of the efforts of wineries to encourage cellar door visits by neophytes, many of the student participants in this study reported that they do not have any experience in formal wine tasting, lack knowledge of the winemaking process, and feel that this inadequacy would be on display if they were to visit a winery. Students interviewed were unaware of the opportunities available for them to visit a winery in Northern Greece where they could obtain the knowledge and experience they feel they are lacking.

Wineries Are Involved in Tourism Activities, But Horizontal Networks Among Wineries and with Other Tourism-Related Businesses Are Limited

As members of the Wine Producers Association of Northern Greece, Gerovassiliou and Chatzivaritis wineries host an Open Doors weekend funded by the association every year. This event is a successful and well-recognized function for the wineries, bringing in consumers of all types. Gerovassiliou representatives estimate that they have about 2000 people in one weekend, with 1500 being adults (Ktima

Gerovassiliou, personal communication, March 22, 2016). Chatzivaritis estate also states that it is a major event of their winery involving cuisine from local businesses and traditional music (Chatzivaritis Estate, personal communication, March 31, 2016). In addition to the regional affiliations such as the Wine Producers Association (WPA), there has been an emergence of smaller, local organizations focused specifically on one area. Much like the efforts of the WPA, these local partnerships focus on the advancement of the local hotels, restaurants, and wineries. Taplin (2010) provides evidence that collaborative relationships among small-scale wineries, particularly those challenged by a lack of marketing expertise and funds to dedicate to marketing their businesses, can help wine producers raise awareness of the quality of their collective product. Equipment and technical know-how is shared, and a collaborative marketing effort directed toward consumers and business buyers can help smaller producers take advantage of branding and cost efficiencies.

The wineries were more interested in developing linkages with other wineries in the region rather than strong ties with tourism enterprises. Three out of the four wineries interviewed do not have a contract with a tourism agency and are reluctant to do so, which suggests a divergence between the interests of wine producers and tourist destination managers (Carlsen 2004). In her study of the attitudes of Northern Greece wine producers toward tourism, Alebaki et al. (2012) found that building relationships with customers and improving the brand recognition of their wines were more important than achieving cellar door sales or increasing profit margins by increasing the number of visitors to the winery cellar door. Mass tourism can overwhelm the capacity of small-scale wineries to handle visitors and compromise what for many wine producers is the reason they want to attract visitors to the winery—to share a well-made wine and to make visitors feel welcome, at ease, and receptive to the nuances of the wine, its cultivation, and the physical and cultural landscape. In our interviews, wine producers described with dismay their experiences of trying to cater to busloads of tired and hungry tourists with little interest in terroir wines or winemaking who visited the winery as one stop on a busy itinerary.

The tourism agencies and hotels we contacted currently have a low level of collaboration with wineries. One wine tourism package in the region included a trip to a winery as part of a larger excursion to a region or historical site. Little effort is being made among these stakeholders to provide packages that promote wine tourism while providing engagement with the rich history and culture of the region (Stefanos Hadjimanolis, personal communication April 5, 2016; Ambotis Air Tours Services, personal communication, April 8, 2016). The Wine Producers Association reports they previously had contracts with the hotels along the established wine routes but no longer do: “The contract was for 3 years. 2007, 2008, and 2009. . . we send them information and we hope they promote in their clients, but we are not sure if they do” (Giannis Albanis, personal communication, April 4, 2016).

Wineries Want to Increase Cellar Door Sales to Visitors

Direct sales present an opportunity for small wineries to increase profits in a manner that not only honors their grapes and winemakers but also supports the business. Selling directly eliminates the use of an intermediary to sell the product in local stores or through exports (Viniflor 2006). The ultimate goal for direct sales is to create a long-term relationship with the consumer through regular and relevant communication. The hope is that they eventually become a repeat buyer or even an advocate for the wine, enhancing word-of-mouth promotion (Gurau and Duquesnois 2008). Common forms of reaching these buyers are through direct marketing via mail, telephone, e-mail, and the Internet.

Direct sales can benefit wineries for many reasons. First, the alternative, increasing exports were not seen as a main priority for the wineries due to the high transaction costs involved, the competitive market, and the lower yields compared to other avenues for sale. With excise tariffs of 23% on exports, Greek wineries prefer to sell wine directly without added costs. This is often done through various avenues of direct marketing. Ktima Gerovassiliou and Chatzivaritis Winery engage in direct sales by allowing consumers to purchase wine from their website, in addition to being able to buy it directly at the cellar door. The level of collaboration the winemakers have with organizations such as the Wine Producers Association of Northern Greece and local agencies such as the Winemakers and Winegrowers Association of Naoussa, tourism agencies, and local as well as regional hotels needs to be developed to increase the number of tourists to the cellar door and in turn increase the level of direct sales.

5 Conclusion

In the face of decreased domestic demand and increased global competition, wine producers in Northern Greece can develop stronger linkages with other businesses in the region, such as hotels, restaurants, museums, and tourism agencies, to increase the market presence of their regional and individual brands (Bruwer 2003). Research suggests that in the wine industry, horizontal networks, characterized less by contractual obligations than by collaboration and reciprocal services, can help small-scale wineries to better understand markets and consumer needs and help a region maintain its reputation for high-quality, terroir-driven wines (Taplin 2010). While such linkages are beginning to form, our research supports the perception that the wineries do not view themselves as tourism-related businesses (Mitchell and Schreiber 2007). Embracing tourism would require key stakeholders to develop a vision for the region and steer between short-term strategies and longer-term goals (Jones et al. 2015).

Wine tourism in Greece is a nascent industry and lacks many of the critical success factors for wine tourism identified by the researchers, such as effective partnerships, collaboration between destination marketing organizations and wine and tourism suppliers, as well as government support for signage, joint marketing

efforts, community involvement, and land protection/development (Jones et al. 2015; Stavrinoudis et al. 2012).

However, the literature suggests that to develop and maintain a wine tourist destination, the quality of the wine and the consumer's overall experience with wine is paramount (Getz and Brown 2006). The wine experience includes the quality of the tasting experience, unique wine and food pairings, and the way the story of the wine conveyed by the wine producer resonates with the customer. Northern Greece is building a reputation for making iconic wines with a focus on reviving local varieties and promoting terroir-driven wine with all of its vagaries and unpredictability. Wine tourism in this context is about creating and sharing rich experiences that include a rich history of grapes, a rich understanding of tastes, an appreciation for differences in feel when paired with foods, and a connection with people. This is what is being sold at these small-scale wineries, not really wine at all. It is this experience with wine that needs to be marketed.

References

- Alebaki, M. C., Iakovidou, O. I., & Menexes, G. C. (2012). *Potential state and current of wine tourism in Northern Greece: Weighing wine-makers' perceptions*. Second Advances-In Hospitality and Tourism Marketing and Management, Corfu, Greece, p. 31.
- Bernard, H. R. (2002). *Research methods in anthropology: Qualitative and quantitative approaches* (3rd ed.). Walnut Creek, CA: Alta Mira Press.
- Beverland, M. (1998). Wine tourism in New Zealand-maybe the industry has got it right. *International Journal of Wine Marketing*, 10(2), 24–33.
- Bruwer, J. (2003). South African wine routes: Some perspectives on the wine tourism industry's structural dimensions and wine tourism product. *Tourism Management*, 24(4), 423–435.
- Burgess, R. G. (1984). *In the field: An introduction to field research*. London: Unwin Hyman.
- Carlsen, P. J. (2004). A review of global wine tourism research. *Journal of Wine Research*, 15(1), 5–13.
- Charters, S., & Menival, D. (2010). Wine tourism in Champagne. *Journal of Hospitality & Tourism Research*. 1096348010384597.
- Enterprise Greece. (2011). *Greek wines of today, an overview*. Retrieved April 25, 2016.
- FAS. (2014). *Wine annual report and statistics*. FAS Europe Offices.
- Getz, D., & Brown, G. (2006). Critical success factors for wine tourism regions: A demand analysis. *Tourism Management*, 27, 146–158.
- Greek Wine Industry. (2008). *Critical publics. Global public rhetoric analysis: Wines from Greece*. Retrieved April 25, 2016.
- Gurau, C., & Duquesnois, F. (2008). Direct marketing channels in the French wine industry. *International Journal of Wine Business Research*, 20(1), 38–52.
- Jones, M., Singh, N., & Hsuing, Y. (2015). Determining the critical success factors of the wine tourism Region of Napa from a supply perspective. *International Journal of Tourism Research*, 7, 261–271.
- López-Guzmán, T., Rodríguez-García, J., Sánchez-Cañizares, S., & José Luján-García, M. (2011). The development of wine tourism in Spain. *International Journal of Wine Business Research*, 23(4), 374–386.
- Marshall, C., & Rossman, G. N. (1999). *Designing qualitative research*. Thousand Oaks, CA: Sage Publications.

- Mitchell, R. D., & Schreiber, C. (2007). Wine tourism networks and clusters: Operation and barriers in New Zealand. In E. Michael (Ed.), *Micro-clusters and networks: The growth of tourism* (pp. 79–106). London: Elsevier.
- Pitoska, E. (2008). *Networking of the wine-tourism small and medium sized enterprises and their contribution to the local development: The case of the 'wine roads' of Northern Greece*. In International Conference on Applied Economics–ICOAE 2008, pp. 15–17.
- Ritchie, C., & Rotsios, K. (2015). Reclaiming a lost heritage at Gerovassiliou Winery (Ktima), Greece.
- Sparks, B., & Malady, J. (2006). Emerging wine tourism regions: Lessons for development. *Global Wine Tourism*, 67–79.
- Stavrinoudis, T. A., Tsartas, P., & Chatzidakis, G. (2012). Study of the major supply factors and business choices affecting the growth rate of wine tourism in Greece. *Current Issues in Tourism*, 15(7), 627–647.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage.
- Taplin, I. M. (2010). From co-operation to competition: Market transformation among elite Napa Valley wine producers. *International Journal of Wine Business Research*, 22(1), 6–26.
- Velissariou, E., Galagala, A., & Karathanos, A. (2009). Wine tourism. And development of planning a wine route network-in the Region of Thessaly-in Greece. *Tourismos: An International Multidisciplinary the Journal of Tourism*, 4(4), 311–330.
- Viniflor. (2006, September). La vente directe. *Viniflor Infos*, 136, 1–18.
- Vlachvei, A., Notta, O., & Ananiadis, I. (2009). Does advertising matter? An application to the Greek wine industry. *British Food Journal*, 111(7), 686–698. <https://doi.org/10.1108/00070700910972378>.
- Wine Roads of Northern Greece: Profile. (2016). *Wine roads of Northern Greece*. Retrieved April 25, 2016, from <http://www.wineroads.gr/eng/>
- Yuan, J., Morrison, A. M., Linton, S., Feng, R., & Jeon, S. M. (2004). Marketing small wineries: An exploratory approach to website evaluation. *Tourism Recreation Research*, 29(3), 15–25.

Selected Aspects of Human Resource Management Supporting and Limiting Organizational Learning



Małgorzata Okręglicka, Iwona Gorzeń-Mitka, and Monika Sipa

Abstract In order to respond to success in a rapidly changeable world, many enterprises were adopting the rules and principles of a learning organization. The issues of learning organizations are wide and multidimensional. Generally, learning organizations focus on “learning” as a crucial component in their visions, goals, values, and all of their functions. There is an opinion that by collective learning, the organization’s members are able to improve the organizations performance and competitive advantages. It is especially important for SMEs, which should be under special attention because of their special influence on economic growth, unemployment reduction, market competitiveness, etc. For learning organization the priority is that the individual learning process needs to have a voluntary rather than compulsory character. The biggest challenge for managers/owners is increasing the willingness to learn and then share new knowledge with other members of the organization. Additionally, members of the learning organization should not only accept orders from their superiors, but they need to have courage and be encouraged to question established norms to explore new avenues of thinking and to make mistakes in order to improve their products/services and production methods. From this perspective, the crucial role for building learning processes in organization is the specifically shaped relationship between superiors and employees and effective human resource management. The main aim of this paper is to identify and analyze the relations supporting and limiting organizational learning. The empirical part of the paper was prepared on the basis of questionnaire survey in 2016 on a group of 250 micro-, small-, and medium-sized enterprises in Poland. During the elaboration of the paper, the generally accepted methods of economic research were used, including statistical analysis (gamma correlation coefficient) and graphical illustration methods.

Keywords Learning organization • Human resource management • SME

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© Springer International Publishing AG, part of Springer Nature 2018
A. Karasavoglou et al. (eds.), *Economy, Finance and Business in Southeastern and Central Europe*, Springer Proceedings in Business and Economics,
https://doi.org/10.1007/978-3-319-70377-0_40

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1 Introduction

Modern companies operate in conditions where changes are the only permanent phenomenon. The acceleration of the technology development, the increase of quality requirements, and the continuing need to fight the competition are visible, for which there are no longer any borders. The speed and intensity of these changes in the organization environment are constantly growing, placing high requirements for businesses.

The knowledge, skills, and experience are intellectual resources that determine the value of the company and its market position to a greater extent than tangible or financial assets. This results in a dynamic increase in labor requirements. Therefore, to build and maintain their competitive advantage, companies increasingly rely on the effective learning processes (Ivanová 2011). The organizational learning is strategically important to successful organizational adaptation, sustainable competitive advantage, and firm survival (Namwong et al. 2015; Zahra 2012).

After the analysis of literature, it is visible that the essential role of learning and knowledge in the management of organizations has become the important research subjects in economic science (Currah and Wrigley 2004). Studying learning organizations can bring new insights for strategy makers, since learning organization is able to meet and shape the demands of its markets (Kuşcu et al. 2015; Sipa et al. 2016). Learning capability can foster enterprises (especially SMEs) an ability to identify and respond to market requirements better than market competitors (Sok et al. 2013; Prieto and Revilla 2006).

From this perspective, the crucial role for building learning processes in organization is the specifically shaped relationship between superiors and employees and effective human resource management. The purpose of this paper is the identification and analyzation of the above relations supporting or limiting organizational learning. The main contribution of the paper is verification the selected correlations in the area in empirical way. The research was conducted among 250 micro-, small-, and medium-sized enterprises in Poland in 2016.

2 Theoretical Background

There is no one common definition of learning organization in literature. Senge (1990) was the precursor in defining this term. He described learning organizations as organizations where people continually expand their capacity to create the results they truly desire. Next definitions were more concrete and very often related to human position in learning process. Garvin (1993) stated that the learning organizations are skilled at creating, acquiring, and transferring knowledge, and based on new knowledge, they are ready to change its own thinking, behavior, and activities.

The present definitions develop the learning organization concept and make it more practical. Learning organization is described as an entity that focuses on

learning as a crucial component in its goals, visions, values, and all of its functions (Kanten et al. 2015). The enterprise can be called a learning organization when it uses learning to continuous transformation (Marsick and Watkins 2003). Organizational learning occurs when knowledge and competence are available at any given time in an entity irrespective of the people involved (Voudouris et al. 2012).

The learning organizations break the boundaries created by the past experiences and look for the new, more effective solutions for the economic entity (Juceviciene and Leonaviciene 2007). Enterprise ability to learn and adaptation skills allow survival and development when it meets threats and opportunities created by complex external environments (Hannah and Lester 2009). Consequently, existing turbulent market environment leads the organizations to basing their actions on regular creations and integration of new knowledge, which allows to adopt the model of learning organization for their daily operation of companies, trying to achieve better organizational performance and sustainable competitiveness (Dekoulou and Trivellas 2015; Fang and Wang 2006). Moreover, they introduce novel patterns and working practices and promote regular staff learning advancement (Garrido and Camarero 2010).

It should be remembered that an organization can learn only through the learning of its individual members. Although the individual learning cannot guarantee the organization's learning, the organizational learning cannot occur without the individual learning. In the organization's learning, the learning is moved from individual to group and from group to organization, and this moves back to individual learning in a repetitive way. Therefore, in an effective individual learning, explicit knowledge is shared for the entire group, and it is also focused on converting the individual's tacit knowledge (Ryu and Song 2015). It is an organization that has developed mechanisms and processes fostering both individual and collective workplace learning (Armstrong and Foley 2003; Lemańska-Majdzik and Okreglicka 2015).

An individual is always in the center of learning process. It is stated that individuals create new knowledge, disseminate that knowledge, appropriate knowledge from others, and ultimately codify it in organizational processes and systems (Nonaka 1994). A structure of learning organization is shaped in a specific form, which is focused on constant self-improvements by making it easier for the staff to learn (Yaşlıoğlu et al. 2014). Alipour et al. (2011) stress that the staff of learning organization has facilitated access to learning, by which it consciously reforms itself and affects its context in order to improve existing systems to acquire and share knowledge for development continuation and competitiveness (Calantone et al. 2002).

The relations between superiors and subordinates are crucial in learning organizations. Smith et al. (2014) argue that members of the learning organization cannot only accept orders from superiors. They should be encouraged to question established norms to explore new paths of thinking and to make mistakes in order to improve the business performance. Yeo (2005) concludes that the idea of learning organization is based on the belief that collective learning creates the opportunities for the organization's members to achieve the planed results and competitive

advantages. Additionally, Abu-Shanab et al. (2014) point that the individual learning process has a usually voluntary rather than compulsory nature, and the biggest challenge is increasing the willingness to learn and then share new knowledge. But just sharing knowledge could be not enough because people need to reflect this knowledge through their actions and behaviors to enhance organizational learning (Ogrea et al. 2009).

Learning orientation significantly increases employees' job satisfaction (Chang and Lee 2007; Mirkamali et al. 2011) and strengthens their involvement to the firm's goals, principles, and values (D'Amato and Herzfeldt 2008). This attitude intensifies internal staff cooperation and reinforces mutual trust among employees. Staff cooperation and also relationships between subordinates and managers become more harmonic and valuable (Kuo 2011; Škerlavaj and Dimovski 2006). Moreover, increased learning ability helps an organization attract highly talented staff, contributes to employee retention, and reduces absenteeism as well as employee turnover (Dimovski and Škerlavaj 2005). This is why one of the main goals of the learning organization is to construct an organizational culture of learning. The development of a learning culture in an organization involves the continuous education of its members (Gagnon et al. 2015).

3 Research Methodology

The issue of human resource management in learning organizations is very wide, so the holistic view on this issue is very difficult. This is why most studies are focused on the selected parts of this phenomenon. The authors of this paper adopted the same assumption. The conducted research had to present and assess the selected aspect of human resources management in learning and non-learning organization.

The main aim of this paper is to identify and analyze the selected relations between superiors and employees and effective human resource management supporting and limiting organizational learning.

The study starts with a literature review in order to highlight the significance of learning process in the organization. Research papers considered for inclusion in this literature review are written in English, from peer-reviewed journals or monographs, and accessible through electronic management databases. Then authors develop the hypothesis:

H1 Learning SMEs in Poland need to improve the human resource management to support organizational learning within enterprise.

This research group consists of 250 micro-, small-, and medium-sized enterprises operating in southern Poland including 164 micro-, 67 small-, and 19 medium-sized enterprises. The survey was conducted at the beginning of 2016.¹ The research group

¹Presented results are a part of a wider market survey conducted by M. Okręglińska and A. Lemańska-Majdzik (Czestochowa University of Technology) in 2016.

selection had an accidental character, and this is why study should be treated as a seed research, identifying correlations/trends, which should be confirmed, based on representative sample. However, the research group size allows certainly drawing initial conclusions and finding some regularities which can be verified in the course of proper study.

The research tool was a self-designed questionnaire consisting of closed and semi-open questions and specifications. The research was directed to the manufacturing, commercial, and service companies. The survey was anonymous, encouraging respondents to express their opinions.

The research process was performed in several consistent stages:

- Preparing the survey questionnaire and realizing the survey
- Preliminary evaluation of research material
- Selecting the group of enterprises, which could be described as learning organization (39.2%) and non-learning (60.8%) from the total population
- Data analyzing for the selected group and preparing presentation of the research result

The enterprise division on learning/non-learning organizations was based on opinions of managers or owners of the enterprises. The 4-range scale was adopted: from 1—definitely not—to 4, definitely yes. The survey was directed to enterprises of different sizes, so it was decided that the definition should be simplified to be understandable for any entrepreneur, even without management knowledge.

Statistical program Statistica 12.5 was used during the correlation analysis, and this is why the authors do not present a procedure for calculating the correlations presenting the results obtained with the interpretation and lessons learned. Statistical analysis of the results allows for the full or partial verification of hypotheses. During the elaboration of the paper, the generally accepted methods of economic research were used, including statistical analysis (answer distribution, gamma correlation) and graphical illustration methods.

4 Research Results and Discussion

The issue of organizational learning is a very wide and multidimensional concept (Tohidi et al. 2012). Without a doubt, the process of learning in organization is the relevant factor of its survival and development in the world of advanced technologies and what crates the need to intensify the learning process. Due to the fact the man is the central subject of learning process (Nonaka 1994), the analysis of human behaviors in the learning area, both employees and managers/owners, seems to be crucial for developing the management methods and tools used for improving organizational learning.

One of the basic features of modern organizations should be the focus on the future. Strategic approach, constant planning, and continuing willingness to make changes are the requirements for an organization that wants to strengthen its position on the contemporary competitive market. Despite the fact that the analysis

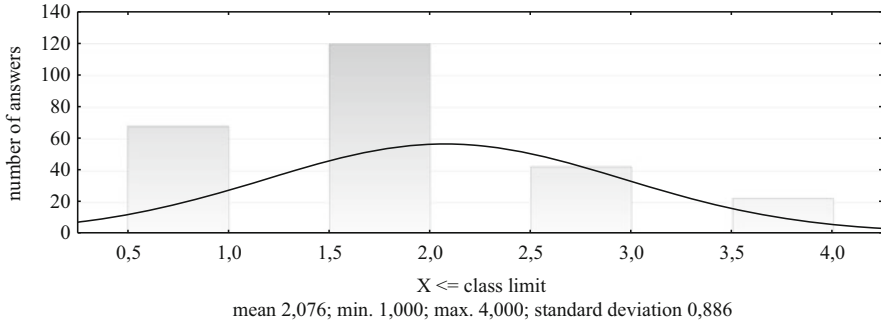


Fig. 1 Distribution of answers: discussion in company often relate past than future. Source: own work based on a survey

of the past situation gives the opportunity to review the actions taken and allows for improvements, it should not constitute the main subject of business considerations in the firm. This fact is confirmed by the research results, which indicate that Polish SMEs are involved in planning the future more often than in analyzing the past. It concerns about 3/4 of the surveyed entities (Fig. 1).

The next step was to identify the distribution of the answers for learning/non-learning organizations. Managers/owners evaluated their business in a 4-point scale, where 1 is definitely a non-learning organization and 4, definitely a learning organization. Then, using gamma correlation coefficient, authors looked for statistically significant correlations between the survey questions and the level of organizational learning of the company.

In relation to the finding that “discussion in a company often relates past than future,” studies showed controversial relationship for learning companies within the Polish SME sector. A positive gamma correlation coefficient means that, paradoxically, learning organizations often discuss about the past than the future. Very strong dependence of this type relates in particular to small enterprises (gamma = 0.611) (Table 1).

For the intensification of learning within the organization, relationships between superiors and subordinates are significant. Managers should motivate employees to undertake unconventional actions, creativity, and spontaneity and continuously search for the opportunities to improve themselves and the organization. This is often in conflict with traditional approach to management when the employee should complete the tasks they were assigned to and nothing more.

The surveyed managers/owners of SMEs were asked if they agree with the statement that employees should focus only on tasks they were assigned to. The distribution of responses clearly demonstrates quite strong identification with this approach. Average rating of 3.312 was achieved in the 4-point scale. Only approx. 10% of respondents said that they do not insist on employees to be strictly focused on their commands (Fig. 2).

Using gamma coefficient, the authors found a statistically significant relationship between the level of organizational learning and the question of whether

Table 1 Gamma correlation between level of organizational learning of the company and the theme of managers-employees discussion about past or future ($n = 250$)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
Discussion in company often relate past than future	0.240*	0.115	0.611*	-0.036

Source: Own work based on a survey

* p -value < 0.05

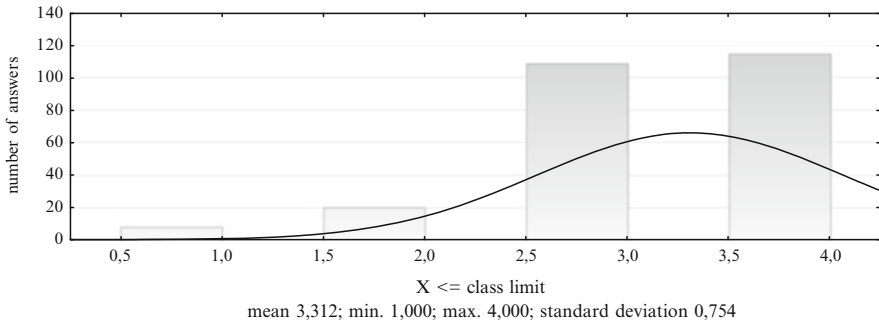


Fig. 2 Distribution of answers: the employees should focus only on tasks they were assigned to. Source: own research

employees should focus only on tasks they were assigned to. As expected, the result had a negative character that means in learning organizations employees do not have to limit themselves to execute the commands, which allows for better use of their potential for the benefit of the company.

By examining the above relationship in individual groups of companies (micro, small and medium sized), the correlation was confirmed and was strengthened in the group of small companies (Table 2).

The authors tried to develop the above results by the question of taking into account the different opinions and points of view that occur during meetings and discussions in the company. Consideration of alternatives, not only in regard to strategic decisions but to everyday operations, gives a chance to improve business effectiveness and reduce the risk of making wrong decisions.

The research results indicate that the majority of managers/owners pay attention to alternative points of view on business solutions, but still 1/3 of the respondents use the authoritarian approach, where the point of view of the owner is the only right approach. It appears that changes in the mentality small business owners are still required in this area (Fig. 3).

The analysis of dependencies enabled to observe the statistical correlation of this question with the level of organizational learning, of a positive nature which in practice means that learning organizations pay more attention to other points of view, realizing the benefits that potential of human resources can bring to the

Table 2 Gamma correlation between level of organizational learning of the company and the employees' focusing only on tasks they were assigned to ($n = 250$)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
The employees should focus only on tasks they were assigned to	-0.136*	-0.074	-0.271*	-0.010

Source: own work based on a survey

* p -value < 0.05

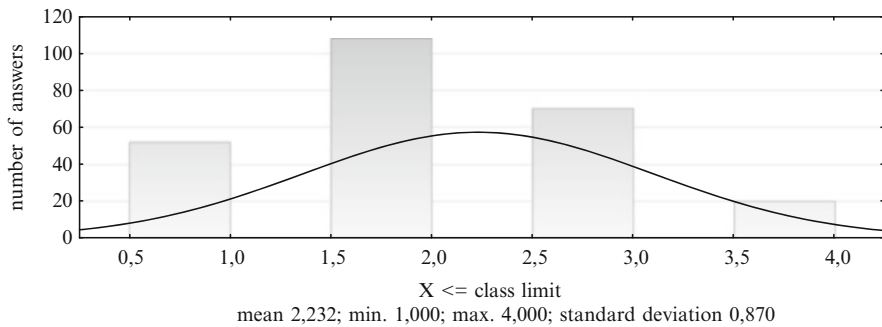


Fig. 3 Distribution of answers: there is no attention paid to the different points of view emerging during the discussions in the company. Source: own work based on a survey

company in the form of better solutions and better options for action. This relationship proved to be statistically significant in the group of small businesses as well, with a greater intensity (Table 3).

As far as the above question concerns the current state, the next question is about opinions for the future. Managers/owners assessed whether they should be open on the alternative ways of task realizations, proposed by employees/co-workers that means, whether this attitude is correct, regardless of the current economic practice. The research shows a significant consensus in this area. Managers/owners are aware of the significance of joint actions, also at the level of the decision-shaping. Learning from the mistakes, improving the existing solutions and the awareness that the individual cannot be infallible are base for further development of the organization (Fig. 4).

When examining whether the willingness to take into account alternative ways of task realization depends on whether the organization is a learning organization or not, the authors obtained again controversial results. A negative gamma value for the so-formulated questions means that the openness to alternative ways of task realization, proposed by employees/co-workers, decreases as the company becomes a learning organization in wider extent. This applies both to the whole group of Polish SMEs and particularly to small businesses as well (Table 4).

Table 3 Gamma correlation between level of organizational learning of the company and the attention paid to the different points of view emerging during the discussions in the company (*n* = 250)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
There is no attention paid to the different points of view emerging during the discussions in the company	0.143*	0.009	0.364*	0.465

Source: own work based on a survey

**p*-value < 0.05

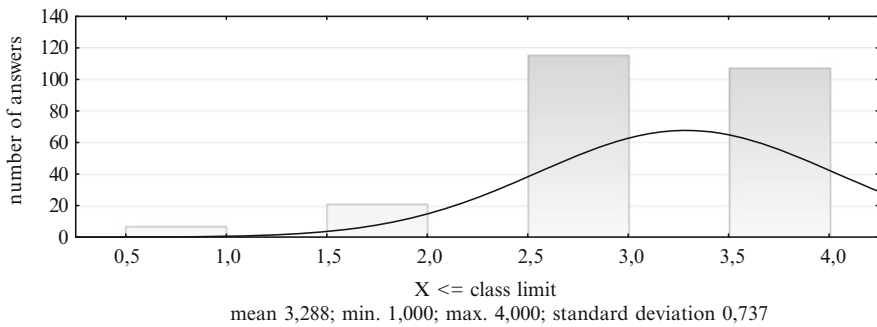


Fig. 4 Distribution of answers: managers/owners should be open on the alternative ways of task realization, proposed by employees/co-workers. Source: own research

Table 4 Gamma correlation between level of organizational learning of the company and openness of managers/owners on the alternative ways of task realization, proposed by employees/co-workers (*n* = 250)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
Managers/owners should be open on the alternative ways of task realization, proposed by employees/co-workers	-0.174*	-0.072	-0.398*	0.300

Source: own work based on a survey

**p*-value < 0.05

To undertake activities beyond the basic duties or take the initiative, the employees must be properly motivated. This applies especially to the learning process that requires considerable effort, which is not willingly taken up, and even the worse the situation is in terms of sharing new knowledge with others in the organization. Empirical studies indicated that the existing systems generally motivate the staff to learn and based on it to make changes. More than half of the respondents assessed the firm’s motivation systems to 3.0 on the scale from

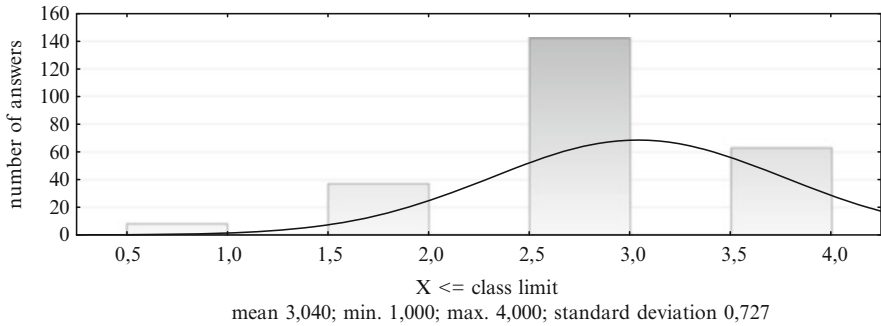


Fig. 5 Distribution of answers: the employees' motivation system fully motivates the learning and the involvement in creation and implementation of changes. Source: own work based on a survey

1 (lowest rating) to 4 (highest rating). It is a very optimistic result; however it was provided by managers, so they assessed their own actions in practice. Nevertheless, the results allow to indirectly deduce where the motivation systems are and how they advance (Fig. 5).

Analyzing in detail the distribution of responses, there have been found a statistical correlation between effective motivation of employees to learn and the subjective assessment of the organizational learning level of the enterprise from the SME sector. However the relationship, paradoxically, is negative with low intensity. That means the more the organization is learning in nature the worse motivation system encouraging to learning it has. Such a relationship was not confirmed in any subgroup of the SME sector, i.e., micro, small or medium sized (Table 5).

Analyzing the selected elements of motivations systems in the area of learning, it may be noted that most of the surveyed companies consider the possibility of financial or tangible reward for employees who show initiative in improving the working methods. Of course, this general statement should be thoroughly examined, but generally the managers/owners of SMEs understand the importance of effective motivation that would encourage employees to additional activity and creativity (Fig. 6).

The analysis of this subject in learning and non-learning SMEs indicates that learning companies do not fully correct policy toward their employees. Learning organizations are less inclined to reward employees for improving the working methods and ways of doing business. This relationship proves to be statistically significant in the general group of SMES and in the group of small businesses as well, with a greater intensity. The results suggest an attitude in which owners believe the commitment to organization improving is the primary responsibility of each employee. It seems, however, such assumption is not very realistic (Table 6).

The constant learning of all members of organization is crucial for improving the level of organizational learning. It should be considered, however, that this kind of learning should be a part of the working day of an employee rather than in the form

Table 5 Gamma correlation between level of organizational learning of the company and the efficacy of employees’ motivation system to learning and the involvement in creation and implementation of changes (*n* = 250)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
The employees’ motivation system fully motivate to learning and the involvement in creation and implementation of changes	-0.138*	-0.143	-0.104	-0.192

Source: own work based on a survey

**p*-value < 0.05

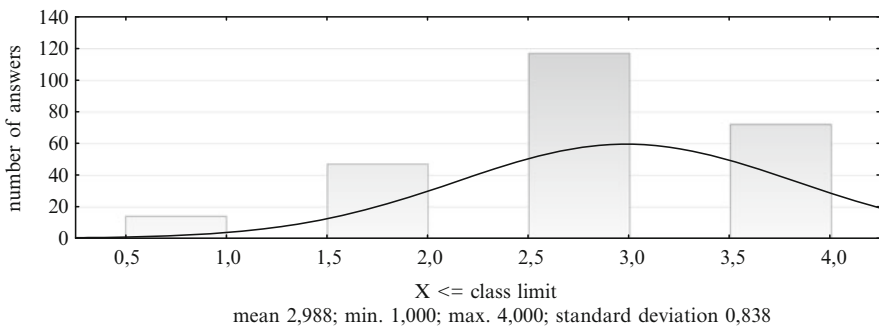


Fig. 6 Distribution of answers: when an employee made a proposal to improve working methods and ways of doing things in the company, he can expect a reward (financial or in-kind). Source: own work based on a survey

Table 6 Gamma correlation between level of organizational learning of the company and rewarding of an employee who made a proposal to improve working methods and ways of doing things in the company (*n* = 250)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
When an employee made a proposal to improve working methods and ways of doing things in the company, he can expect a reward (financial or in-kind)	-0.155*	-0.062	-0.452*	0.111

Source: own work based on a survey

**p*-value < 0.05

of free time spending. The management should include the learning and training of staff members into day-to-day operation.

Generally, it seems to be the proper situation in surveyed companies, because most of them created surrounding conducive to the staff knowledge and skill

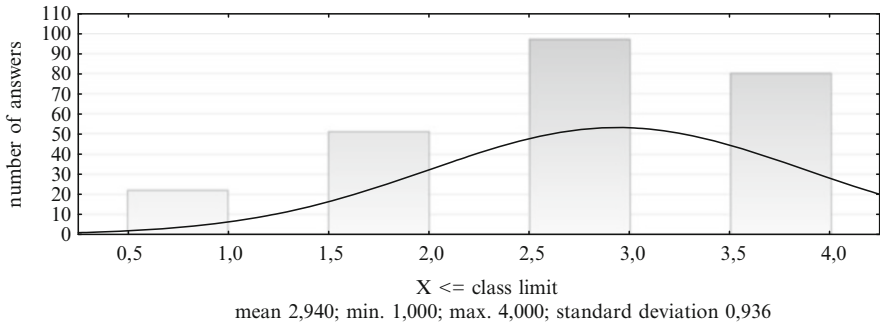


Fig. 7 Distribution of answers: employees learn and are trained and educated within working hours. Source: own work based on a survey

development. The average score for this question amounts 2.94, meaning that positive answers are dominated (Fig. 7).

Again the detailed analysis showed the inappropriate result for learning SMEs, which are less willing to invest in training and learning of the staff during working hours than non-learning enterprises. It should be emphasized that being a learning organization does not mean that all staff members wish to learn independently in their free time. They should be encouraged but also supported by the company (Table 7).

The last analyzed problem concerns the attitude of managers/owners who need to understand their own limitations in terms of knowledge, possessed information, and experience. Someone who is aware of his own deficiencies knows that learning process lasts a lifetime. However, many managers want to be seen as omniscient person. It reflects negatively on the learning atmosphere in the company.

The results of the researches indicate the problem of some managers with limitation disclosure. 1/3 of the surveyed managers/owners state that they don't see any business knowledge limitations, and 1/2 see them partially. Remembering that there are studies in literature presenting that the level of professional business knowledge is rather low in small business, this result seems to be too optimistic (Fig. 8).

There are dependencies between level of organizational learning of the company and the knowledge limitation perception by managers/owners of SMEs. The positive gamma coefficient value indicates that the higher the level of organizational learning of the company is, the more the managers or owners are aware of their lack in knowledge, experience, and information resources. This correlation is visible in the group of micro- and small enterprises as well (Table 8).

The presented results constitute only a small fragment of the issue, which is wide and complex. The authors choose aspects, which appeared in empirical research as statistically significant and therefore could be interesting for the readers.

Table 7 Gamma correlation between level of organizational learning of the company and the situation when employees learn and are trained and education within working hours ($n = 250$)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
Employees learn and are trained and educated within working hours	-0.205*	-0.110	-0.386*	-0.409

Source: own work based on a survey

* p -value < 0.05

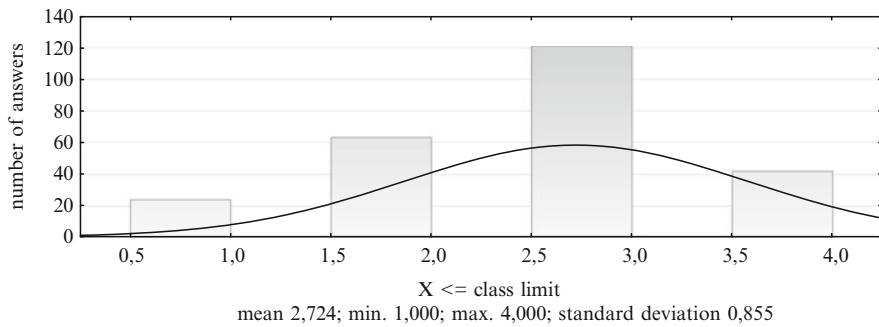


Fig. 8 Distribution of answers: as the owner/manager, I perceive my limitations in terms of knowledge, information, and experience. Source: own work based on a survey

Table 8 Gamma correlation between level of organizational learning of the company and the perception of own limitations in terms of knowledge, information held, and experience by owner/manager ($n = 250$)

	Level of organizational learning of the company			
	Total	Micro	Small	Medium sized
As the owner/manager, I perceive my limitations in terms of knowledge, information, and experience	0.175*	0.191*	0.324*	-0.441

Source: own work based on a survey

* p -value < 0.05

5 Conclusion and Limitations

The learning processes play a growing role in the knowledge-based economy. Enterprises understand increasingly that learning of both managers and employees should not be a voluntary action but has to be organized in consistent and continuous way. Learning organizations, that is, organizations open to the acquisition of knowledge and focused on the continuous development and in flexibly transforming itself to adapt to the changing environment, are entities with the

potential to achieve the competitive market advantage and capable of ensuring the development to themselves.

During the research process, it was possible to confirm the main hypothesis of the paper which stated that learning SMEs in Poland need to improve the human resource management to support organizational learning within enterprise. The analyses clearly indicate that Polish SMEs, which describe themselves as learning organizations, have many problems with the HR management in the areas improving the learning processes. These problems are even bigger than in the general population of SMEs, and this fact leads to the necessity of instant change and what can be recognized as the main advantage of the paper.

The presented research results should be evidently developed in further national or even international researches. They can be applied as a starting point in research scope creation and be very helpful when trying to explore the detailed problems.

This paper is not free of limitations. The strongest limitation of present research is the accidental research group selection, so the challenge for the future is to create and realize the wide and representative research in this area. The second problem was using the clear description of learning organizations, which can be understandable for all managers/owners. The research group consisted of rather small businesses, and authors were afraid of the managerial knowledge level, so they decided on the simplified description of learning organization. However, it can differ slightly from the proper meaning presented in economic literature (Okręglińska et al. 2015; Betakova et al. 2014)

References

- Abu-Shanab, E., et al. (2014). Knowledge sharing practices and the learning organization: A study. *IUP Journal of Knowledge Management*, 12(2), 38–50.
- Alipour, F., et al. (2011). Knowledge creation and transfer: Role of learning organization. *International Journal of Business Administration*, 2(3), 61–67.
- Armstrong, A., & Foley, P. (2003). Foundations for a learning organization: Organization learning mechanisms. *The Learning Organization*, 10(2), 74–82.
- Betakova, J., et al. (2014). *Social capital and safety perception as aspect of improving regional competitiveness of territory*. 2nd International Conference on Management Innovation and Business Innovation (ICMIBI 2014), Bangkok, Thailand, pp. 68–73.
- Calantone, R., et al. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, 31(6), 515–524.
- Chang, S., & Lee, M. (2007). A study on relationship among leadership, organizational culture, the operation of learning organization and employees' job satisfaction. *The Learning Organization*, 14(2), 155–185.
- Currah, A., & Wrigley, N. (2004). Networks of organizational learning and adaptation in retail TNCs. *Global Networks*, 4(1), 1–23.
- D'Amato, A., & Herzfeldt, R. (2008). Learning orientation, organizational commitment and talent retention across generations: A study of European managers. *Journal of Managerial Psychology*, 23(8), 929–953.

- Dekoulou, P., & Trivellas, P. (2015). Measuring the impact of learning organization on job satisfaction and individual performance in Greek advertising sector. *Procedia-Social and Behavioral Sciences*, 175, 367–375.
- Dimovski, V., & Škerlavaj, M. (2005). Performance effects of organisational learning in a transitional economy. *Problems and Perspectives in Management*, 3(4), 56–67.
- Fang, S. C., & Wang, J. F. (2006). Effects of organizational culture and learning on manufacturing strategy selection: An empirical study. *International Journal of Management*, 23, 503–514.
- Gagnon, M. P., et al. (2015). A learning organization in the service of knowledge management among nurses: A case study. *International Journal of Information Management*, 35, 636–642.
- Garrido, M. J., & Camarero, C. (2010). Assessing the impact of organizational learning and innovation on performance in cultural organizations. *International Journal of Nonprofit and Voluntary Sector Marketing*, 15, 215–232.
- Garvin, D. A. (1993). Building a learning organization. *Harvard Business Review*, 71(4), 78–91.
- Hannah, S. T., & Lester, P. B. (2009). A multilevel approach to building and leading learning organizations. *The Leadership Quarterly*, 20, 34–48.
- Ivanová, E. (2011). *The quality of human resources as a factor of competitiveness*. 9th International Conference on Economic Policy in the European Union Member Countries, Ostrava, Czech, pp. 167–181.
- Juceviciene, P., & Leonaviciene, R. (2007). The change of human resource development concepts in the process of becoming a learning organisation. *Economics and Management*, 12, 569–575.
- Kanten, P., et al. (2015). The effects of organizational structures and learning organization on job embeddedness and individual adaptive performance. *Procedia Economics and Finance*, 23, 1358–1366.
- Kuo, T. H. (2011). How to improve organizational performance through learning and knowledge? *International Journal of Manpower*, 32(5/6), 581–603.
- Kuşcu, Z. K., et al. (2015). Learning organization and its cultural manifestations: Evidence from a global white goods manufacturer. *Procedia-Social and Behavioral Sciences*, 210, 154–163.
- Lemańska-Majdzik, A., & Okręglicka, M. (2015). Identification of business processes in an enterprise management. *Procedia Economics and Finance*, 27, 394–403.
- Marsick, V. J., & Watkins, K. E. (2003). Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire. *Advances in Developing Human Resources*, 5(2), 132–151.
- Mirkamali, S. M., et al. (2011). Examining the role of transformational leadership and job satisfaction in the organizational learning of an automotive manufacturing company. *Social and Behavioral Sciences*, 29, 138–148.
- Namwong, K., et al. (2015). Dynamic organizational learning strategy and firm survival: A conceptual model. *Allied Academies International Conference: Proceedings of the Academy of Organizational Culture, Communications & Conflict (AOCCC)*, 20(2), 12–25.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5, 14–37.
- Ogrea, C., et al. (2009). Searching for sustainable competitive advantage – From tangibles to intangibles. *Journal of US-China Public Administration*, 6(4), 1–9.
- Okręglicka, M., et al. (2015). Business process maturity in small and medium sized enterprises. *Polish Journal of Management Studies*, 12(1), 121–131.
- Prieto, I., & Revilla, E. (2006). Assessing the impact of learning capability on business performance: Empirical evidence from Spain. *Management Learning*, 37, 499–522.
- Ryu, Y. H., & Song, K. S. (2015). Effect of individual's learning organization on knowledge management and innovative behavior – Comparative analysis on the employees in service, production, and IT. *Journal of Human Resource Management Research*, 22(3), 193–221.
- Senge, P. M. (1990). *The fifth discipline, the art and practice of the learning organization*. New York, NY: Doubleday/Currency.

- Sipa, M., et al. (2016). Intergenerational cooperation in the organization – View from a gender perspective. In *Proceedings of the 1st International Conference Contemporary Issues in Theory and Practice of Management, CITPM 2016* (pp. 384–389). Częstochowa, Poland.
- Škerlavaj, M., & Dimovski, V. (2006). Influence of organizational learning on organizational performance from the employee perspective: The case of Slovenia. *Management*, 11(1), 75–90.
- Smith, G. E., et al. (2014). A learning approach to the ethical organization. *Learning Organization*, 21(2), 113–125.
- Sok, P., et al. (2013). Achieving superior SME performance: Overarching role of marketing, innovation, and learning capabilities. *Australasian Marketing Journal*, 21, 161–167.
- Tohidi, H., et al. (2012). Organizational learning measurement and the effect on firm innovation. *Journal of Enterprise Information Management*, 25, 219–245.
- Voudouris, I., et al. (2012). Effectiveness of technology investment: impact of internal technological capability, networking and investment's strategic importance. *Technovation*, 32(6), 400–414.
- Yaşlıoğlu, M. M., et al. (2014). An investigation of the characteristics of learning organizations in Turkish companies: scale validation. *Procedia-Social and Behavioral Sciences*, 150, 726–734.
- Yeo, R. K. (2005). Revisiting the roots of learning organization; A synthesis of the learning organization literature. *The Learning Organization*, 12(4), 368–382.
- Zahra, S. A. (2012). Organizational learning and entrepreneurship in family firms: Exploring the moderating effect of ownership and cohesion. *Small Business Economic*, 38, 51–65.

The Agile Revolution in Software Engineering



Logica Banica, Persefoni Polychronidou, and Magdalena Radulescu

Abstract This paper aims to demonstrate, in a theoretical and practical manner, the flexibility and efficiency of using the Agile methodology in software engineering. The study will present the new methodology versus a traditional one (Project Management Body of Knowledge—PMBOK), outlining the advantages and drawbacks of each of them. The case study will focus on using two different methodologies (PMBOK and Agile) for the same project. It is a small, free software-based project that will be designed in the academic environment by two teams of master students (one for each methodology) during their one-semester project management class. In the conclusions part, we will summarize the results and emphasize the way we see the future of software development area, and then we will lay out future work directions.

Keywords Project management software • Agile methodology • PMBOK methodology • Academic environment

1 Introduction

In recent years, Agile became the most frequently used project management methodology for developing software projects.

The purpose of this paper is to demonstrate the flexibility and efficiency of new Agile ways in comparison with the traditional methodology Project Management Body of Knowledge (PMBOK).

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The experimental study will focus on using two different methodologies (PMBOK and Agile) for developing the same project. It is a small, free software-based project that will be designed in the academic environment by two teams of master students (one for each methodology) during their one-semester project management class.

On the information technology (IT) market, a wide range of project management (PM) tools are available, some of them being free software. For software project development, the first team used the Asana application, which is PMBOK compliant, while the second team used VersionOne software, for Agile approach. This work provides some findings about the ability of students to learn and to apply the most appropriate PM methodology for developing a software.

The paper is divided in four sections and a conclusions part. Section 2 presents the two methodologies involved (PMBOK and Agile), summarizing the state of the art. Section 3 introduces several tools and techniques used for managing small and medium software projects. Section 4 contains the experimental study for managing an information system in the academic environment, able to achieve a software for enrolling students in the University of Pitesti. In the conclusions part, we will summarize the results and suggest ways of improving our future research activity in this domain.

2 Project Management Methodologies: State of the Art

The state of the art in project management has evolved based on advances in information technology (IT) and expansion of the Internet services and also on increasing support from the strategic management company.

The concept of project management refers to “the application of processes, methods, knowledge, skills and experience to achieve the project objectives which could be defined in terms of outputs, outcomes or benefits” (Naybour 2014).

Project management can be applied to any type of project and is frequently used to monitoring the software development projects. Thus, in order to achieve a better efficiency in developing a software, the usage of a project management methodology is recommended, which improves product delivery processes and reduces risks.

Today, existing methodologies develop a project by following an integrated life cycle, defined by a sequence of steps, in compliance with the procedures and rules that define the model principles.

In this section, we will briefly review the most known methodologies and will highlight two of them (PMBOK and Agile) and the results of recent studies regarding the percentage of successful projects, depending on the methodological approaches.

2.1 Overview of PM Methodologies

Waterfall is a traditional methodology launched in the early 1970s but still viable, having between 5 and 7 sequential phases, each of them ending with a validation before the next stage begins.

This approach has a major drawback consisting of the difficulty in treating the changes that occur during processing phases but is recommended for large-scale projects where detailed planning and predictability are important (Mishra and Dubey 2013).

PRINCE2 (PROjects IN Controlled Environments), launched in 1989 by the Central Computer and Telecommunications Agency (CCTA), is a process-based PM methodology that creates a management environment for developing a project.

It is organized into seven main processes: directing a project, starting up, initiating, managing stage boundaries, controlling a stage, managing product delivery, and closing a project (the official website PRINCE2, <https://www.prince2.com/uk/prince2-processes>, 2016).

Unlike traditional methodologies, Prince2 is more flexible, having a component that enables changes at runtime and, therefore, allowing continuous improvement throughout the project (Matos & Lopes 2013).

Referring to the weaknesses of the methodology, we mention firstly that PRINCE2 is a complex method which implies special training and secondly doesn't provide the level of flexibility offered by Agile methodologies.

TenStep is another methodological approach, which provides the framework for planning and managing the work in order to successful completion of projects.

According to the TenStep official website (<http://tenstep.com/>, 2016), this methodology allows two views, which differ by organizing and structuring the content: a model based on ten processes and another similar to PMBOK. TenStep has a life cycle consisting of four sequential phases (prepare, plan, execute, and harvest) that encompass the ten steps as follows: define the work, build the schedule and budget, manage the schedule and budget, manage scope, manage changes, manage communication, manage risk, manage human resources, and manage quality and metrics (Banica et al. 2009).

TenStep is not an iterative methodology (e.g., as Agile), but it recommends the breakdown of large projects into a series of smaller ones (<http://www.tensteppm.com/open/A6.2CompareTStoAgile.html>, 2016), which means faster delivery of final product/service and better planning of teamwork.

2.2 PMBOK Methodology

Project Management Body of Knowledge (*PMBOK*) is a methodology published by the Project Management Institute (PMI) in 1987, including a set of knowledge

principles in project management, as well as the project planning and the project deliverables (Project Management Institute 2016).

According to many experts in the field, this methodology is considered to be a comprehensive and well-structured approach to the management of projects that can be applied to any type of project, regardless of scale or domain (Khalili-Damghani and Tavana 2014).

PMBOK focuses on two types of activities, planning and control, meaning that it requires realistic estimations of the activities, resources, and durations and, especially, a rigorous controlling schedule. The project management team collaborates with the customer, from the beginning, to identify and quantify all risks and offers alternatives to solve them, so that a prompt and appropriate decision can be taken at the right time.

During the life cycle, the project passes through five groups of processes, as follows (Martens et al. 2013):

1. Initiation—refers to the formal start of the project; considering the customer requirements, a feasibility study is conducted and the stakeholders decide whether or not to undertake the project.
2. Planning—the team elaborates the project management plan containing scope, cost, time, quality, communication, and resources; the risk management plan is very important and must include risk identification and response actions.
3. Executing—at this stage, the project deliverables are developed and completed; also, many of them are controlled, and the results are shown by metrics and status reports.
4. Controlling—this phase is closely related to the executing process, making a comparison between the real project performance and the project plan; depending on fulfillment of key performance indicators, the project manager can make adjustments to keep the project on track (Pathak 2014).
5. Closing—represents the formal closure of the project; this stage realizes the complete evaluation of the product/service, the final budget, and the team activities; the project manager and the client representative confirm either the success (followed by the transfer of deliverables to the beneficiary) or the failure of the project.

PMBOK was longtime considered as de facto standard in project management, until the Agile methodology emerged. The critics of the methodology identified several drawbacks, many of them related to the application in practice:

- The bureaucratic aspects that hinder the creativity (Karaman and Kurt 2015)
- Inappropriate use for small projects because of its complexity
- Necessity of adapting to the application area, time, and budget and quality constraints (Sayles 2008)

2.3 *The Agile Concept in Project Management*

Considering that traditional methodologies no longer corresponded to the project management requirements, a group of researchers from IT companies developed a new concept, Agile, and defined twelve underlying principles in the Manifesto for Agile Software Development (<http://www.agilemanifesto.org/> 2001).

The Agile approach is recommended for projects that have a certain level of flexibility, even uncertainty and a limited allocation of resources, at the beginning. Agile is open to changing requirements and making fast decisions. This methodology is typically used in software development for small and medium projects that require a limited up-front planning (Gandomani et al. 2013).

Agile promotes an iterative mode to create the product, allowing the team to constantly evaluate project performance and make adjustments.

While PMBOK specifies the project schedule and programs the activities at the beginning of the project, Agile methodology considers the project as being composed of many sub-projects (called iterations or sprints), including all phases of development (requirement definition, analysis, design, development, and testing) (Hass 2007). Each iteration ends with a prototype that is assessed and, if necessary, optimized by the project team, and finally, the version accepted is transferred to the next iteration.

Another new feature introduced by Agile refers to the organization and the roles in the project team. The key difference between an Agile team and a traditional one, in terms of knowledge and skills in the field (Ambler 2010), is that members must cover all the necessary skills (testing, database management, user interface), without resorting to external experts. But the Agile team requires several roles, each of them having well-defined functions, as follows:

- Project manager—has knowledge in project management and is responsible for achieving collaboration within the team and with the customer; also he/she is responsible for providing the resources and for managing the quality and risks.
- Team member—this role refers to the specialists (system developers, subject matter experts, IT architect).
- Stakeholder—is an experienced customer representative that supports the team and has an opinion in evaluating the progress of the project.

Standish Group published the 2015 Chaos Report, which refers to the statistic of software projects successfully completed from 50,000 projects analyzed (Hastie and Wojewoda 2015).

The report also provides the results of the comparison between Agile and traditional Waterfall projects studied (Fig. 1).

The Agile approaches have a success rate of 39%, while the Waterfall projects have only 11%. This report can convince many organizations to choose Agile as the best suitable methodology for the software project development.

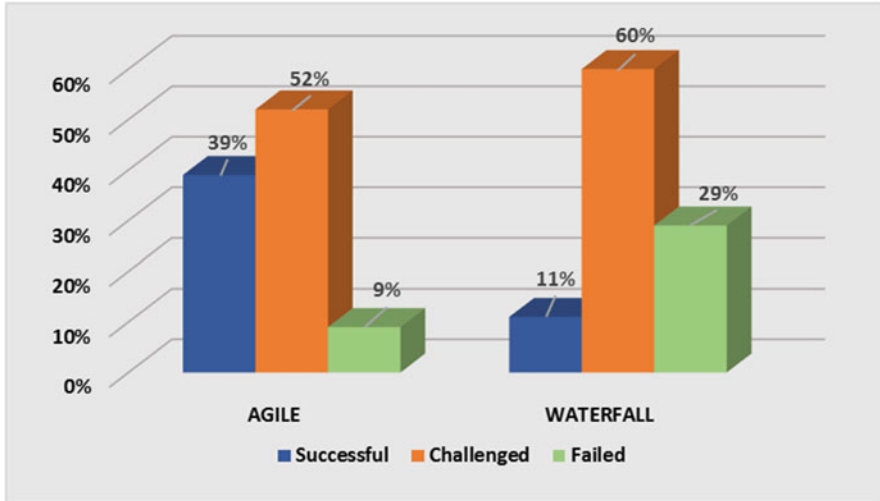


Fig. 1 A comparison between the Agile and traditional Waterfall projects. Source: author's interpretation of statistical data from the 2015 Chaos Report

3 Tools and Techniques Used in Project Management

3.1 Tools and Techniques for the PMBOK

Developing a project using the PMBOK methodology involves passing through several stages, each with defined inputs, tools and techniques, and outputs. In order to achieve the project goal, the team follows a management plan, checks periodically the project progress, and ensures the quality requirements of final product/service. Highly important are the management of project resources and time allocation, which refer to the schedule of activities, their estimated durations and resources, and, also, a team responsible. Each phase ends after the evaluation, which establishes the achievement of specified goal, the compliance with the planned budget, and the agreed deadline. The project manager can take corrective measures if the objectives are not achieved or the allocated time is exceeded or financial resources have been overcome.

Another technique used in PMBOK refers to the project risk management that focuses on predictable risks in order to avoid or control them. The best known tool for completing risk management plan is to establish the rank of the risks, based on the experience and brainstorming the team. So, when a risk becomes a real problem, the team has already the solution to assess and solve it (Sanchez-Cazorla et al. 2016).

The software applications that implement the PMBOK methodology offer a range of tools for each process, such as:

- The *develop project management plan* process includes project management information system.
- The *monitor and control project work* process recommends analytical techniques and project management information system.
- The *perform integrated change control* process includes techniques of meetings and change control.
- The *close project or phase* process uses analytical techniques.

Section 4 will present the Asana software, which contains several of these tools and techniques for implementing PMBOK methodology.

3.2 Agile Tools and Techniques

Agile methodology involves sequencing a project into several iterations, each of them having the purpose to deliver a prototype/solution, allowing designers, as well as users, to have a feedback regarding the product development and to bring improvements.

The biggest advantage of this approach is that the project is no longer accomplished within a rigid planning and does not remain the same from beginning to the closing stage but allows immediate changes during the progress of iterations, as partial results appear and other requirements are identified.

Agile projects can be implemented through different frameworks, which have many similarities resulting from the iterative process, but also specific features arising from the focus on different aspects of the software development life cycle: the software quality (Extreme Programming) or the management (Scrum).

The most known Agile framework is Scrum, an iterative method that helps the project team to find out the tasks for each development iteration and to build a Backlog for pending requirements.

According to the Scrum Guide (Schwaber and Sutherland 2013), this method consists of roles, artifacts, events, and the corresponding rules and procedures.

- (a) There are three roles in Scrum: product owner, Scrum Master, and the team (Malik Hneif and Ow 2009; Sharma et al. 2012).
 - The product owner is the company expert, the individual who knows what the stakeholders want and will define and gather the requirements.
 - The Scrum Master is the project manager, responsible for coordinating the team, ensuring the cooperation with product owner, finding the most performant techniques for Product Backlog management, and monitoring the processes.
- (b) In software development engineering, the term artifact is used to describe the architecture and design of software or the process of development itself: project plans, business cases, and risk assessments.

Scrum uses three artifacts, as follows:

- The *Product Backlog*—defined as a chronological list of items to be achieved by the project team in product development (Waters 2007) as result of the product owner requirements. The product owner is responsible for this Backlog, including its content, availability, and also possible changing.
 - The *Sprint Backlog*—considered a subset of the Product Backlog, containing the task list for implementing the priority product features.
 - The *Burndown Chart*—defined as a chart showing the remaining scheduled work within a Sprint. This chart is daily updated by the Scrum Master and is available for the team and the product owner.
- (c) Scrum events offer a tool to control and modify tasks, in a transparency manner, for project team and the company representative.

Sprint is the set period to achieve a Backlog objective that finishes with the activity evaluation and the acceptance or rejection thereof. Each Sprint is considered a sub-project with four phases: develop, wrap, review, and adjust (Uhlig 2016). Scrum approach recommends 30 days for a sprint and be steady. At the beginning of each sprint, a planning meeting takes place, when the client specifies the requirements (reasonable purpose), and the team determines whether or not they can be completed during the specified period. The requirements must be detailed and written, concept also called “user stories.” During the sprint, the team has brief daily meetings, also called stand-up meetings, where each member involved in that phase reports the progress or discusses about the encountered problems, in order to find a solution.

For Scrum, Gantt charts no longer represent the main tool for tracking the project progress. There are others metrics more important, such as burndown charts. The project team establishes the model, plotting the graph using story points or using task count. A burndown chart, based on counting tasks, is built for each sprint from Sprint Backlog, having estimated time frame and goals to accomplish (Hass 2007). First the linear graph of estimated values is plotted, and then the daily progress is tracked by drawing the line between two points representing the counter tasks that remain to be fulfilled until the end of sprint.

The graph may show an increase, a decrease, or a constant level of the task counter, having the following significance:

- An increase indicates that new features have been added to the Backlog.
- A decrease indicates the progress of the team according to the schedule.
- A constant level means the team didn’t progress and there were no additional requirements.

The Scrum framework has several drawbacks including the difficulty to plan and organize the project without knowing clearly the activities and the resources and also, in terms of frequent changes.

The increasing share of software projects completed through Agile methodology demonstrates its flexibility and power, based on the team experience and the continuous communication within the project.

Next section will present an example of Agile approach used for project management to achieve a software for recording schooling in the University of Pitesti.

4 Projecting a Software System Using Two Different Methodologies

The case study will focus on developing the same management information system using two different methodologies: PMBOK and Agile. The project is accomplished by two teams of master students, coordinated by a teacher, during their one-semester *Software Project Management* class.

We mention that before starting up the project, students already had knowledge about methodologies and the life cycle of a software project.

The *student data management* system aims to provide capabilities for registering students at college admission, to establish the scholarships, to keep the evidence of grants and fees, and to assure a full confidentiality and secure access of each student to its private data.

At the kickoff meeting, the teacher presents the project teams, introduces the roles, and emphasizes the reasons for assigning the respective roles. Each team is constituted from the project manager, an analyst, a designer, and two developers. Also, at this meeting, the basics of the project are defined: objectives, deliverables, and resources. From now on, the PM will be responsible for team coordination, for planning the activities and resources, for evaluating each phase, and finally for achieving the objectives.

Our study is based on typical representative software for these methodologies: Asana for PMBOK and VersionOne for Agile. Both applications have been studied and tested prior to this experiment at the *Software Project Management* class.

Asana is a web-based project management application that includes management of tasks, team communication, and dashboards, all these features enabling project teams to successfully manage projects (Asana Project Management 2016). Also, it allows to create Gantt charts and schedule tasks in a timeline, by the software extension Instagantt (Instagantt-Asana 2016).

The first team established a project plan consisting of two sections, each of them grouping six tasks:

- Section 1—*defining the structure of the scholar register and enrolling new students* (Fig. 2)
- Section 2—*management fees and scholarships*

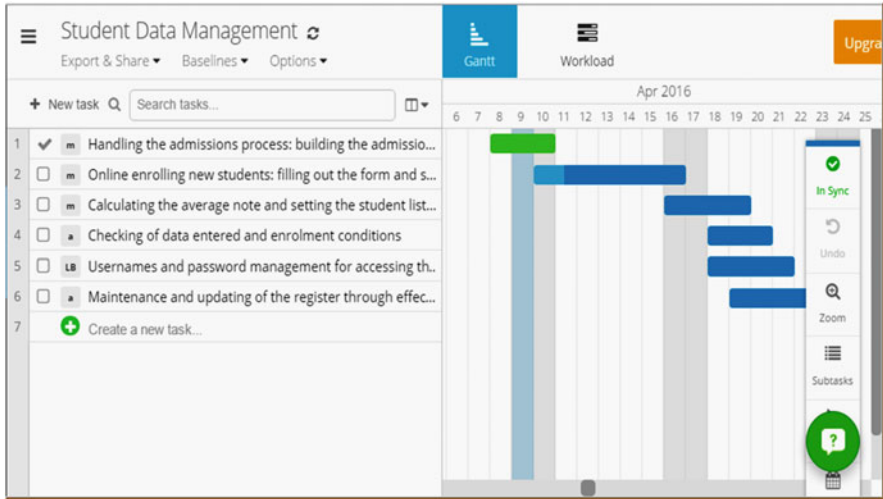


Fig. 2 Gantt chart for first section of the project

Asana software is characterized by its collaborative module, which allows an instant overview of the teammate work and getting automatic updates on due dates, priority levels, or task completions. According to PMBOK methodology, an Asana phase is evaluated at its completion stage, when it could also be changed, if the results do not correspond to the requirements. So, we see unrealistic time frames, and if the PM does not understand the warning signs of failure stage, it is possible for the whole project to fail.

The team had difficulties in achieving the task *usernames and password for accessing the student records management*, which consisted of an ineffective cooperation with University Data Center for obtaining access to the database. This risk was identified in the list of risks and specified to be solved by simulating the database on a local server, but the team failed to complete it.

The second team established a project plan, synthesized in the Sprint Backlog. Thus, students identified 2 iterations in the project, including a total of 11 features (story points), which the team must “burn through.”

In this experiment, the project manager plotted an initial burndown chart of planned, fixed-length iterations (also called sprints), and as the tasks have been delivered, the progress is represented by a real chart, depending on all features remaining in a Sprint Backlog.

In Table 1, the 2 sprints are presented and the 11 initial story points identified by the Agile project team.

The Student Data Management (SDM) project is a software product developed by Agile Scrum methodology and manages the student admission, the scholarships, and the fee payments.

Table 1 The Sprint Backlog of the project

Sprint no.	Sprint description	Story point no.	Story point description
#1	Defining the structure of the scholar register and enrolling new students	1	Handling the admissions process: building the admission forms, accessing the forms from Intranet stations of the university
		2	Online enrolling of new students: filling out the form and sending to the admission database
		3	Checking of data entered and enrollment conditions
		4	Calculating the average note and setting the student list in descending order of the average note
		5	Username and password management for accessing the student records Granting students the credentials of access to their accounts
		6	Maintenance and updating of the register through effective communication between the student and secretariat
#2	Management of fees and scholarships	1	First year of study: establishing the students admitted on budgeted places
		2	Second and third year of study: calculating the average note of evaluation yearly results and setting the student list in descending order of the average note
		3	Tracking fee payments and assuring a private and secure online communication concerning this status with students
		4	Accounting registration and updating of the fees
		5	Accounting registration and updating of the scholarships

In our experimental study, we choose to use VersionOne free trial, because it is one of the most popular tools for project management system supporting Agile development, and it is available as a web-based service (Wilson et al. 2015). The team followed several procedures to coordinate the activities in a project, to obtain deliverables, according to Agile approach and VersionOne facilities (VersionOne community 2016).

At the first step, *initialization of the project*, the project manager introduced the title, the estimate duration, and the team working at this project. The entire team works and cooperates on a web-based platform, password protected, and only the

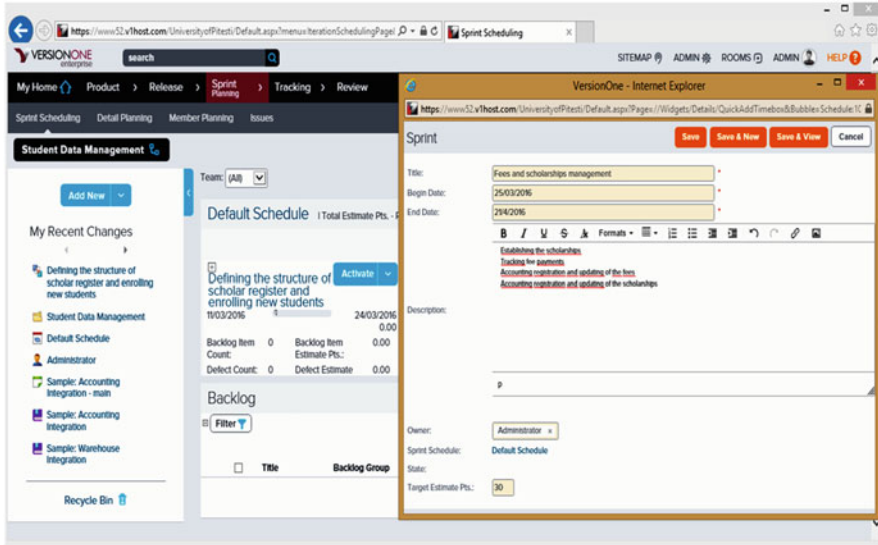


Fig. 3 Building the Backlog of work for the project

project manager can modify the initial information about the schedule and team and also may decide a completion and an acceptance of a sprint, after all tests are passed. The schedule of the project, also called Sprint Backlog, identifies each sprint by the title, duration, and team member responsible of its accomplishment (Fig. 3).

Product planning is the next activity of the team, which refers to the scheduling of tasks within each Sprint: information and responsibilities are more detailed concerning the Items and the Tasks planned (Fig. 4).

By using VersionOne, at the *sprint tracking* phase, the project manager tracks the progress of the project, and furthermore, all team members can inform themselves about the current state of the project and the periodical evaluation of the Tasks, Items, and Sprints. There are many tools to examine the evolution, one of them being is the Storyboard (Fig. 5) that shows the status of Items to a selected Sprint.

The fourth phase is *Sprint Review* that allows the project manager to update the schedule with the current state of work and make changes that improve the performance. So, based on daily reports of the team about related aspects of change that can occur on a project and the acceptance of the completed tasks, items, or sprints, the project manager can change the status (*Future, In Progress, Completed, Accepted*) and finally close the planned unit. If a task is delayed, the project manager must evaluate the resources and options available and get the project back on track, by operating some changes in the previous version of the schedule, including the addition of new tasks or sprints.

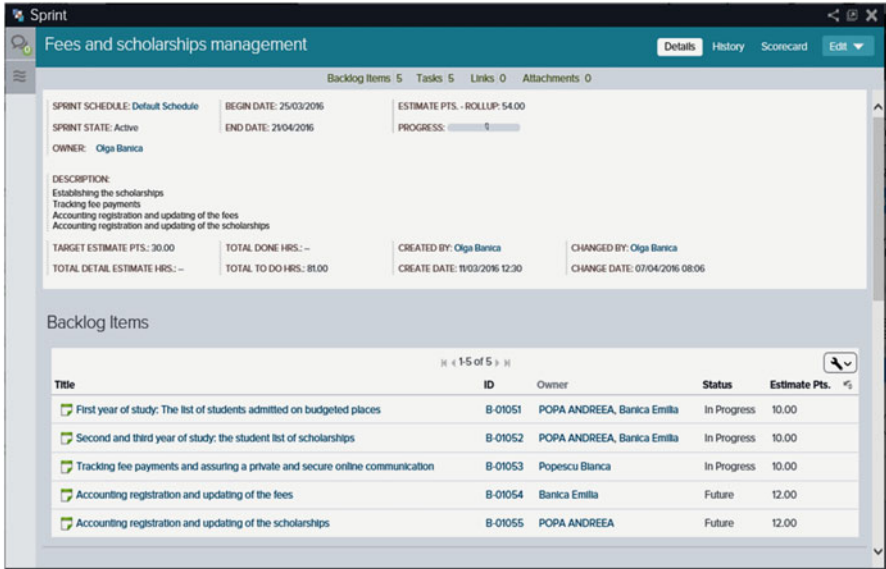


Fig. 4 Sprint scheduling

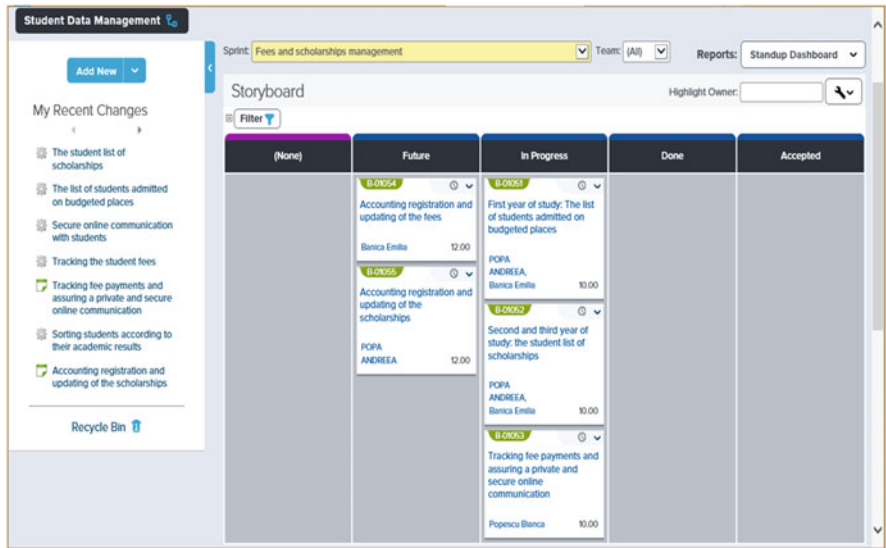


Fig. 5 The Storyboard for tracking the status of Tasks within the Sprint

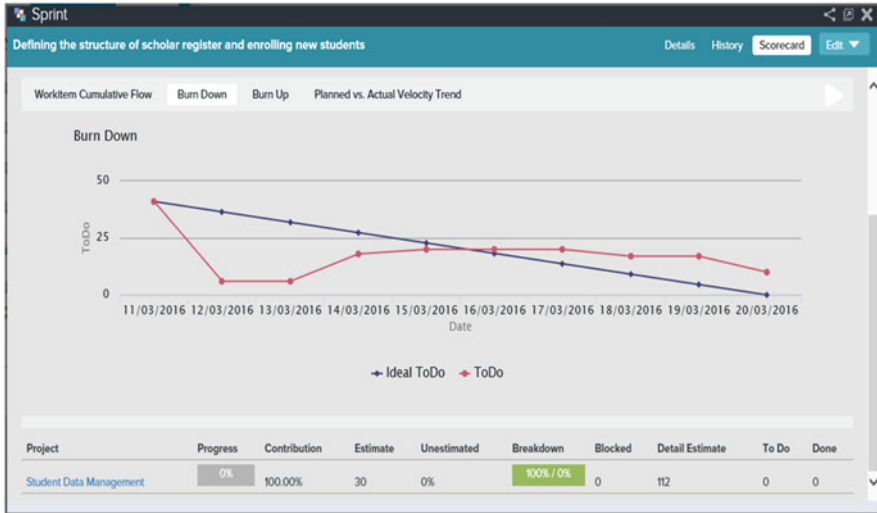


Fig. 6 First Sprint Burndown Report

The fifth step, *quality and metrics*, represents a method of evaluation using metrics to indicate the progress at each iteration and the achievement of deliverables of SDM project. The *project quality* can be assessed objectively by the PM, since VersionOne offers a lot of tools for understanding the progress of the team and for keeping the stakeholders informed of the project’s current status.

In many Agile teams, the burndown charts and dashboards are preferred as metrics of progress, but also there are teams that use Gantt charts.

The *Reports* module of VersionOne is designated for gathering important metrics concerning the entire project using the options Project Dashboard, Project Burndown, and Velocity Trend and also about Sprints using the options Sprint Dashboard, Sprint Burndown and Detail Estimate Trend, Defect Quicklist, and so on.

In Fig. 6 a burndown chart for the first sprint is presented, after 10 days of working. As we observe, the chart provides warning signs, due to inexperienced management team. For example, at the beginning, the burndown line goes sudden down because the PM not introduced all tasks and the team not accomplished its job. After 5 days, the team performed its duties, and PM added the tasks initially ignored, so, the graph line goes up.

In addition to applying the principles taught in the project management course, the students also used their work skills of management, communication, and conflict resolution and ability to take corrective action.

Compared to the PMBOK team, we may conclude that the Agile team of students is much more open to making changes, even if all phases were planned, and these changes affect the product delivery.

5 Conclusions

The development of the experimental system SDM, monitored by two different types of methodologies, VersionOne software, based on Agile methodology rules, and Asana software, compliant with PMBOK methodology, led to the following conclusions:

- There is a lot of interest for the Agile approach in project management especially from software research community as a result of its iterative planning and easily adapting to changing requirements throughout the process.
- PMBOK methodology is more rigorous and less flexible, so projects developed on its basis have a high probability of failure, according to word statistics.
- Both VersionOne and Asana are web-based software tools and have a series of features that offer support to project teams.
- For Agile approach, the project work was conducted by short iterations (Sprints), which were divided in Items and Tasks, allowing the team to continuously update and improve processes and work.
- The teams used relevant metrics in order to estimate the project progress and make important decisions concerning the estimated effort and time and to reduce the risks of project failure. For example, the Asana team used Gantt charts, while the Agile team used daily Sprint burndown charts and Scoreboards to provide information about how the team is performing within each stage.
- Problem-based activities describe a learning process in which students are trained to solve problems by themselves.

Student Data Management (SDM) information system is the first case study conducted in this way, and we intend to continue this experiment with other project teams, learning from mistakes and increasing the teacher–learner interaction.

Concerning the future work, the authors of this paper aim to continue learning experiences by enlarging the field of software projects, emphasizing the Agile tools, and involving more students.

Also, we consider that it is necessary to test and evaluate more applications available on the IT market, in order to make a comparison among their features and choose the optimal software for each type of methodology.

References

- Ambler, S. (2010). *Roles on Agile teams: From small to large teams*. <http://www.ambysoft.com/essays/agileRoles.html>
- Asana Project Management. (2016). <https://asana.com/guide/basics/>
- Banica, L., Rosca, D., & Stefan, C. (2009). A software for project management process. *Proceedings of The Romanian Academy, Series A*, 10(1), 179–188.
- Gandomani, T. J., Zulzalil, H., Ghani, A., Bakar, A., & Nafchi, M. Z. (2013). Obstacles in moving to Agile software development methods; At a glance. *Journal of Computer Science*, 9(5),

- 620–625. https://www.researchgate.net/publication/237077450_Obstacles_in_moving_to_agile_software_development_methods_At_a_Glance
- Hass, K. (2007). Tips & techniques the blending of traditional and Agile Project Management. *PM World Today*, IX(V). http://cs.anu.edu.au/courses/COMP3120/local_docs/readings/the-blending-of-traditional-and-agile-project-management.pdf
- Hastie, S., & Wojewoda, S. (2015). *Standish group 2015 Chaos report – Q&A with Jennifer Lynch*. <http://www.infoq.com/articles/standish-chaos-2015>
- Instagantt-Asana. (2016). <https://asana.com/apps/instagantt>
- Karaman, E., & Kurt, M. (2015). Comparison of project management methodologies: Prince 2 versus PMBOK for IT projects. *Journal of Applied Sciences and Engineering Research*, 4 (4). <https://doi.org/10.6088/ijaser.04059>.
- Khalili-Damghani, K., & Tavana, M. (2014, April/May). A comprehensive framework for sustainable project portfolio selection based on structural equation modeling. *Project Management Journal*, 45(2). <http://www.pmi.org/~media/PDF/Academic/summaries/Comprehensive%20Framework%20for%20Sustainable%20Project.ashx>
- Malik Hneif, M., & Ow, S. H. (2009). Review of Agile methodologies in software development. *International Journal of Research and Reviews in Applied Sciences*, 1(1), 1–8.
- Manifesto for Agile Software Development. (2001). <http://www.agilemanifesto.org/>
- Martens, P., van Riet, M., & Santos, R. M. (2013). *The management of international development projects: Enhancing sustainable outcomes with improved project management education and training*. Maastricht School of Management Research Conference 2013. <http://web2.msm.nl/RePEc/msm/wpaper/MSM-WP2013-20.pdf>
- Matos, S., & Lopes, E. (2013). Prince2 or PMBOK – A question of choice, Elsevier. *Procedia Technology*, 9, 787–794.
- Mishra, A., Dubey, D. (2013), *A Comparative Study of Different Software Development Life Cycle Models in Different Scenarios*, International Journal of Advance Research in Computer Science and Management, volume 1, Issue 5, 2013, pp. 64–69.
- Naybour, P. (2014). *Project management – An introduction*. Association for Project Management-APM. <https://www.apm.org.uk/blog/project-management-an-introduction/>
- Pathak, R. (2014). *Top 5 project management phases*. <http://project-management.com/top-5-project-management-phases/>
- Project Management Institute. (2016). *What is project management?* <http://www.pmi.org/About-Us/About-Us-What-is-Project-Management.aspx>
- Sayles, L. R. (2008). *What is PMBOK*. <http://www.theprojectmanagement.com/project-management/what-is-pmbokr.html>
- Sanchez-Cazorla, A., Alfalla Luque, R., & Irimia Dieguez, A. I. (2016). Risk Identification in Megaprojects as a Crucial Phase of Risk Management: A Literature Review. *Project Management Journal*, 47(6), 75–93. <https://www.pmi.org/learning/library/risk-identification-megaprojects-10350>
- Schwaber, K., & Sutherland, J. (2013). *The definitive guide to Scrum: The rules of the game*. <http://www.scrumguides.org/docs/scrumguide/v1/Scrum-Guide-US.pdf#zoom=100>
- Sharma, S., Sarkar, D., & Gupta, D. (2012). Agile processes and methodologies: A conceptual study. *International Journal on Computer Science and Engineering (IJCSSE)*, 4(05), 892–898. <http://www.enggjournals.com/ijcse/doc/IJCSE12-04-05-186.pdf>
- Uhlig, D. K. (2016). *Advantages and disadvantages of the Scrum project management methodology*. <http://smallbusiness.chron.com/advantages-disadvantages-scrum-project-management-methodology-36099.html>
- VersionOne Help Center. (2016). <https://community.versionone.com/Help-Center>
- Waters, K. (2007). *How to implement Scrum in 10 easy steps*. <http://www.allaboutagile.com/how-to-implement-scrum-in-10-easy-steps-step-2-how-to-estimate-your-product-backlog/>
- Wilson, W., Duggan, J., Murphy, T., Sobejana, M., & Herschmann, J. (2015). *Magic quadrant for application development life cycle management*. <https://www.gartner.com/doc/reprints?id=1-2A61Y68&ct=150218>

Metaeconomic Approaches in Global Management



Antanas Buracas

Abstract The metaeconomic approaches in management (MEM) are directly interconnected with modern multiple criteria assessment techniques and important for managing the sustainable socioeconomic development, evaluating the competitiveness risk and sophisticated neuromethods in finance investing etc. In particular, new MEM approaches to global talent competitiveness permit to apply them productively as criteria for distributing investments in knowledge and competencies with account of synergetic motivation. For this purposes the taxonomical structurization of the MEM was reviewed. The *social criteria* and tasks may be arranged *with account of changing normative (or minimax) functions* detailing admitted *hierarchies of preferences* at various periods of development. Some specific MEM concepts, including utility functions and multicriteria scoring, are widely applied by the WEF, INSEAD and/or international assessments of global competitiveness, global innovations, IT, and global talents and/or indices, also in financial analytics.

The taxonomic ranking of priorities in the multipurpose economic imitation of social preferences presupposes the *weighed comparability* of criteria functions on the qualitatively different levels—determining the alternatives of optimization, also multicriteria dynamic equilibrium, and the preferable managerial strategies. The stochastic network modelling of universal socioecological sustainability for country's economic development by matching development interests, disposable resources' allocation, and/or characteristics of complex adaptive systems can be recommended as a productive approach to intellectual management practice. The MEM becomes esp. significant when formulating the activities' *aim hierarchies* or choosing *the optimization criteria*, the *restrictions*, and *taxonomy of sustainable development preferences*.

Keywords Metaeconomic approach • Innovative management • Multiple criteria methods

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1 Introduction

The paper is dedicated to determination of possibilities of metaeconomic approaches in management and organizations of contemporary development under globalization trends. Main attention is given to global management methods oriented to the ensuring of universal sustainable and competitive economic growth based on intellectual resources and innovative decisions.

Metaeconomics (sometimes written as meta-economics) in global management (MEM) is a system of abstract *regulative principles to be applied* in the universal management theory and practice, such as the *co-measurability* criteria in social economy or *efficiency* of intellectual potential. At the same time, MEM is a criterial system of specified managerial approaches between the dynamics of *real economy* and its *analytical researches* within conventional economics. As a system, MEM underlies the formulation of strategic alternatives for sustainable perspective socio-economic development.

The MEM becomes more important with social tasks to measure such complicated and innovative processes as impact of shadow economies and the efficiency of intellectual potential and to evaluate the perspective demand of rather individualized products (lasers, nanotech products, most of sophisticated science, leisure, health or cosmetic services, etc.) and perspectives of the new approaches like neuromarketing. Substantial impulse to new approaches of the MEM was given by international comparisons of the global intellectual development indices. Their priority is rather full totality of determining and surrounding impact factors, statistically determined solutions of official data integration with expert evaluations, and weighed co-measurability of qualitative and quantitative determinants of main selected significant factors according to their importance and task function. It is also can be used in subject or institutional ranking.

As an empirical basis for the evaluations and conclusions, the World Bank's *knowledge assessment methodology* and also the reports of WEF and INSEAD on knowledge-based economy (Lanvin and Evans 2017; Dutta et al. 2015, 2017; Inclusive. . . 2014; Lanvin and Evans 2014, 2015; Porter et al. 2015; Schwab and Sala-i-Martin 2015) were analyzed. In particular, MEM multiple criteria approaches were applied by teams evaluating the *Global Innovation Index*, *Network Readiness Index*, *Global Information Technology Index*, and *Global Talent Competitiveness Index* (the last one was developed by joint efforts of the World Intellectual Property Organization, Cornell University, and Human Capital Leadership Institute).

Below the metaeconomics (ME) is interpreted as a methodology or as a system of a higher logical order, concerning economics and management (see Buracas; laszlo-zsolnai.net). Such approach and contents are formally identical to such semantic constructs as *metalogic*, *metamathematics*, or *metaethics*.

The contents of ME and its historic definitions changed within the time span after its introduction by Karl Menger (1954) in his neowalrasian approach to the laws of return. In a more narrow and popular approach, ME was determined also as

a study of the (philosophic or moral) foundations of (sustainable) economics; it was prevailing in the publications by many authors (Crosser 1974; Schumacher 1973; Allen et al. 2000; Parkinson 2016; Genkin 2002, etc.) or as a field of synergetic motivation (ecologic, ethical) interests outside of economics based on dichotomy, empathy-altruism, etc. (Lynne 1999, 2003). At the same time, it was rationally summarized by Zsolnai (2013), “monetary economy as subject matter, material hedonism as basic value-commitment and positivism as methodology are erroneous metaeconomic choices for economics.” The sense of applying metasystem approach to organizational decisions was successfully discussed by Kickert and Van Gigch (1979) a. o.

The *purpose* of this publication is to reveal the essence of the MEM as a constructive methodological system and also a variety of contemporary MEM methods which can be used productively when programming the global competitive advantages. The *contribution* of the paper consists in the conceptualization of such approach, first of all the perspectiveness of multiple criteria methods in cases of universal e-sustainable development based on alternative economic management. The *main results* were presented when reviewing the real cases of multiple objective approach to decision making and evaluations concerning intellectual capital (Buračas et al. 2012), also entrepreneurship development in newly EU countries (Buračas et al. 2015), global talent evaluations in compared countries of Baltics and Serbia (Buračas and Navickas 2015), and manufacturing enterprise competitiveness (Buračas et al. 2013).

2 MEM as a System of New Analytic Means

MEM is an instrumentaria adopting new methods and criteria for interpreting the innovative economic management cases like quantitative easing, measuring the effect of creativity (of intellectual capital), global talent competitiveness, impact of negative interest rate on growth, and the efficiency of any organizational activity outside the traditional economics (e.g., religion economics, etc.).

The criteria and principles of the MEM are becoming important under the trends of globalization as the *engines of sustainable economic competitiveness* and social progress digitized evaluations of innovative actions. So, the activity of institutional innovators started to be analyzed and/or evaluated by international teams as optimizers (those improving the efficiency of existing operations or reducing their costs), enablers, (those developing the innovative technologies and infrastructure), and transformers creating new offerings and/or new markets (while eliminating resource dependency).

The economic determinants and managerial factors characterizing every group of those institutions as well as parameters characterizing innovation quality and intellectual creativity are not identical; also innovation *outperformers* and *achievers* can be revealed by their attitudes concerning innovation policy for development (Dutta et al.). The innovation quality is dependent of intellectual

potential or professional competency and creativity plus necessary IT infrastructure, also entrepreneurship advantages, etc. (Lanvin and Evans 2015; Metaeconomics... 2015: 163–183).

How does the MEM work? As a system, it includes:

- The general and specific managerial principles and economic criteria
- The order of their subordination and their distinction from other social sciences
- Interconnections with sociology, psychology, and demography
- Gnoseological and normative conceptualization of constructs, etc.

The theoretical aspects of MEM specify the *interconnections* between economic axiomatic and system of principles and methods to be applied in its substantiation in practical analysis and decision making. That is, MEM conceptualizes the main epistemological and ontological approaches in terms of relation between the economic management and its researches. At the same time, MEM arguments the cases when direct managerial solutions are applied with economic evaluations deviated (or restricted) by higher political or other societal governing aims (financing of researches in knowledge fundamentals, strategic developments with account of territorial safety or under militarization, etc.).

The traditional systemic approach to the MEM includes:

- A theoretical paradigm of economic management fixing its main constituents
- The *managerial principles, postulates, procedures, and methods*, both general and special, and their *subordination, coordination, and interpretation*
- The criteria and principles of the *taxonomical* arrangement of the economic methodology, the *subordination of the management and marketing procedures*, and *subsystemic conceptualization and optimization*
- The criteria of construction, *comparability and reliability* of different management hypotheses and doctrines
- The criteria and principles of *interconnectivity* between researches in management and other fields of economic reality

The *social criteria* and tasks of MEM may be arranged into consecutive *conceptual system* instituting its different levels and *with account of changing normative (or minimax) functions* detailing admitted *hierarchies of those preferences* at various periods of development. The specific problem is *variety of functioning concepts* imitating or depicting the same real economic system: the methodological task then is to find *non-contradicting solution* when interpreting the possible *intersection of multilevel utility criteria* and different hierarchies (of social preferences). Any sustainable socioeconomic development program *integrates* both the rank of criteria based on the *common values* and other ranks *differentiating* these rational criteria according to the national, ethnic, sexual, and/or features, depending on prevailing traditions, achieved level of development, geopolitical factors (climate also), and cultural and/or behavioral stereotypes.

The MEM approaches are especially important when modelling and managing the *e-sustainable* socioeconomic development, evaluating the global competitiveness, and co-leading risk assessment, etc. Such development may not harm nature,

must respect the freedom of future generations, and must serve the well-being of people (Zsolnai 2013).

Some regulative principles and procedures of MEM were revealed after wide generalization of contemporary researches in changes of twentieth-century economic paradigms. As most actual of them, such can be listed (*Metaeconomics Approach*. . . 2012; Buračas 1968, 1985):

- *Internal structurization and complexity*
- *Nonlinearity and amplification*, i.e., dynamic change of interrelations between different parts of the economic system in the process and also change of systemic interactions with ecologic and/or environments and reinforcement of decisive factors (including development of inventions)
- *Multiplicity of values and purposes* determining the characteristics and levels of non-material economic activity and their *fluctuating subordination* according to changing aims and tasks
- *Coherence* (or systemic integration of diverse elements, relationships, values) at all levels of its structural composition, including normativeness and innovation trends
- *Ambivalence* of simultaneous or contradictory managerial attitudes seeking of most effective solutions within uncertain situations
- *Negentropic* (or negative entropy) orientation toward increasing order seeking to achieve effective organizational order and in risk management
- *Equifinality* (predetermined ability to reach a specified final stage from different initial states and by different ways using dynamic regulative mechanisms and achievements)
- *Emergency and positive synergy*, i.e., interactive integrity and resulting multiplicative efficiency, etc.

The *innovative MEM approaches* to managerial and organizational innovations oriented to global competitiveness permit to apply them productively *as a criteria for* designing and implementing the investments in knowledge and/or productive resources difficult to measure, evaluating their efficiency and distributing policy for a future. So, the renewed comparative assessment of national wealth as including human (education and health) and green resources revealed substantial differences from indicators previously used for its (material wealth) evaluations based on the GDP (in PPP, as value of all final goods and services) or material productive resources of the nations (Inclusive. . . 2014). The Adjusted Inclusive Wealth Index (AIWI) becomes the preferable managerial tool and framework for programmed solutions based on more exact and complex evaluations of aggregated national economic performance, intellectual potential, and resulting socioeconomic well-being indicators. In particular, Western Europe still significantly surpasses Eastern Europe by relative contribution of average human capital (70 and 57% adequately) when the part of its natural capital (2 and 15% adequately) and also the impact of produced capital are evaluated as equal for both subregions (28%; op. cit.:18). Of the three capital asset categories, the investment in produced capital provided the lowest rate of return for the majority of 140 countries; besides, existing core

accounts reflect on average only 18% of a country's inclusive wealth (on average, human capital contributed 55% of overall gains in inclusive wealth, while produced capital contributed 32% and natural capital 13%; Inclusive. . . 2014: 24, 28). As a result, suggestions to revise the present System of National Accounts (SNA) of the UN measuring national AIWI in place of GDP, esp. to include the investments into human capital, most productive component (data on present and future demographic trends, education, and wage or income components), into economic policy-making were presented.

As a result of limited technology, manpower, financial and intellectual resources, and regional innovative management have to orient the policy toward their priority distribution to most perspective developments and projects. So, Robert D. Atkinson, Stephen Ezell, and authors of GII-2015 (Information Technology and Innovation Foundation) accent different innovation principles which could be acceptable just for global economies as priority: innovation policy should focus on maximizing innovation in all industries; it should support all types and phases of innovation. At the same time, they also invite to support the creation of key innovation inputs focusing on science, technology, entrepreneurship, engineering, and math (STEEM).

MEM as mentioned before is directly interconnected with modern *multiple criterial assessment techniques* and their contemporary applications in stochastic, game, and neural network analysis in marketing and/or fields of contemporary management (Metaeconomics... 2015). MEM approach was helpful when building the *stochastic model of universal e-sustainability* by matching digital technologies for development interests, disposable resources' allocation, and/or characteristics of complex adaptive systems applying correctly the sophisticated *neuromethods* in finance investing and also solving commercialization of new products of biotech or nanotechnologies, etc. The *universal e-sustainability* project is orienting the governments to develop as priority the intellectual renewables and energy-saving techniques, green computer-managed solutions both within household and social activity, adequately transforming the cultural interests and perspective multitask solutions (Metaeconomics. . . 2015: 37–150).

Some of widely applied progressive MEM techniques of intellectual a/o resources evaluation include such of them as SWOT, Program Evaluation and Review Technique (PERT), PPPB, critical way, neuronal nets (parallel solutions), operational scales of socio-economic measurements based on them a/o, helped to see the interconnected problems and *metaeconomic* aspects more widely and precisely.

The taxonomic ranking of priorities in the multipurpose imitation of economic aspects of social development presupposes the *weighed comparability* of criteria functions on the qualitatively different levels—on the aspects of determining the alternatives of optimization, multicriteria dynamic equilibrium, and the preferable managerial strategies. Some specific methodic instruments and concepts, esp. including utility functions (UTADIS) and multicriteria scoring (simple additive

weighting, multi-group hierarchical discrimination, TOPSIS), are widely applied by the WEF and WB Institute and also in financial analytics.¹ Some of them are *similar to* concepts and principles used in many other fields of *applied sciences* (like *minimax*, *elasticity*, and multiple criteria and synergy evaluations).

Complicated multicriteria decisions are certainly often based on the preference of a *more probable and less risky* socioeconomic alternative to a *more desirable but less probable* (and sometimes more risky one). At the same time, the economic rationalization of the managerial, investment or consumer solutions quite often may lead to *socially unacceptable limitations*. Many of the methods adopted for the evaluation of intellectual capital and its economic effect are *complicated and not reliable within longer period* and, by the realistic recognition, require too many efforts. So, MEM facilitate their applicability, and they can be assessed more reliable by applying, e.g., in *knowledge assessment methodology*, etc.

The MEM research and evaluation technique include many intellectual instruments similar to social sciences in general but more based on multicriteria expert evaluations of *social factor matrixes* and also multistage regressive analysis of surrounding social, psychological, and/or processes of economic activity, helping to take into account the impact of shadow economy, effects of sustainable intellectual development, not measurable side impact of financial bubbles, etc.

3 Some Conclusions on MEM

1. Metaeconomic approaches in management are esp. significant when *formulating the aim hierarchies* or choosing *the optimization criteria* in organizational activity, the *restrictions*, and *taxonomy* of socioeconomic preferences in managing innovative solutions.
2. The development of MEM within global e-sustainable economic programming would be more effective with *integration of multicriteria* approaches and also *more sophisticated statistical evaluations* of intellectual potential (investments in education and their output are still absent from the SNA; they are shown only as expenditures), including expert assessment of shadow economies and so on.
3. The *successful application of MEM approaches* was demonstrated in multiple researches both by individual authors and by analytical WEF and WB reports

¹UTADIS, i.e. criteria aggregation (incl. a set of utility thresholds) with minimizing the classification error rate.

MgHD is programming procedures used to develop the alternatives classification models (with minimization of the misclassifications). TOPSIS—Technique for Order Preference by Similarity to Ideal Solution.

Also ELECTRE—Elimination and Choice Translating Reality Outrank relationship—can be mentioned between them.

dedicated to international evaluations of global competitiveness, global innovations, ICT development, and global talents and/or indices.

4. The creation of modern *knowledge-based economy* and enlargement of its *competitive advantage* by using MEM achievements are the priorities in programming the sustainable economic development process, especially in the states of transitional economies.

References

- Allen, J. C., et al. (2000). *A metaeconomics look at social capital, power, and the decision to stay in a rural community* (Working paper). University of Nebraska, Lincoln, USA.
- Buračas, A. (1968). O štruktúrnosti metodologie a o socialnych funkciach ekonomických teorii (On structure of methodology and social functions of economic theories). *Ekonomický časopis* July; Rev. in: Соревнование двух систем. Актуальные проблемы мировой экономики (1972) 6, Moscow USSR Acad of Sci.
- Buračas, A. (1985). Metatheoretical conceptualization of social preferences. *Science of Science*, 3–4, 265–286.
- Buračas, A., & Navickas, V. (2015). Contents of global talent evaluations: Baltics & Serbia. *TEM Journal-Technology, Education, Management, Informatics*, 4(2), 187–196.
- Buračas, A., Lopes, I. T., & Žvirblis, A. (2012). *Metaeconomics approach & intellectual resources evaluation. Multiple objective methods: Integrating into decision making*. Saarbrücken (Germany): LAMBERT Academic Publishing GmbH & Co.
- Buračas, A., Žvirblis, A., & Ignotas, A. (2013). The competitive edge of a manufacturing enterprise: Multicriteria evaluating. *TEM Journal-Technology, Education, Management, Informatics*, 2(3), 241–246.
- Crosser, P. K. (1974). Prolegomena to all future metaeconomics formation and deformation of economic thought Saint Louis.
- Dutta, S., et al. (Eds.). (2015). *The Global Innovation Index: Effective innovation policies for development*. INSEAD- Johnson Cornell Univ.–WIPO.
- Dutta, S., Lanvin, B., & Wunsch-Vincent, S. (Eds.), (2017). *The Global Innovation Index: Innovation feeding the World*. INSEAD - Cornell Univ. –WIPO [online]. Accessed Oct 12 2017.
- Genkin, B. (2002). Введение в метаэкономику и основания экономических наук. Moscow. Norma-INFRA.
- Inclusive Wealth Report. (2014). *Measuring progress toward sustainability: Summary for decision-makers*. Delhi: UNU-IHDP.
- Kickert, W. J. M., & Van Gigch, J. P. (1979). A metasystems approach to organizational decision making. *Management Science*, 12.
- Lanvin, B., & Evans, P. (Eds.). (2014). *The Global Talent Competitiveness Index, 2014: Growing talent for today and tomorrow*. INSEAD, Adecco, HCLI.
- Lanvin, B., & Evans, P. (Eds.). (2015). *The Global Talent Competitiveness Index, 2015: Talent attraction and international mobility*. INSEAD, Adecco, HCLI.
- Lanvin, B., & Evans, P., (Eds.). (2017). *The Global Talent Competitiveness Index: Talent and technology: Shaping the future of work*. INSEAD.
- Lynne, G. D. (1999). Divided self models of the socioeconomic person: The metaeconomics approach. *Journal of Socio-Economics*, 28(3).
- Lynne, G. D. (2003). Toward a dual motive metaeconomics theory. *The Journal of Socio-Economics*, 35.
- Menger, K. (1954). The logic of laws of return: A study in meta-economics. In: O. Morgenstern (Ed.), *Economic activity analysis*.

- Metaeconomics Approach & Intellectual Resources Evaluation. (2012). In A. Buracas (Ed.), *Multiple objective methods: Integrating into decision making*. Saarbrücken.
- Metaeconomics: Stochastics & Nanotech. (2015). In A. Buracas (Ed.), *New approaches to contemporary reality*. Saarbrücken: Omni Connect.
- Parkinson, F. (2016). *What is metaeconomics?* Accessed May 15, 2016, from <http://www.metaeconomics.co.uk/metaeconomics.html>
- Porter, M. E., et al. (Eds.). (2015). *Social Progress Index*.
- Schumacher, F. (1973). *Small is beautiful: A study of economics as though people mattered*. Blond & Briggs.
- Schwab, K., & Sala-i-Martin, X. (2015). *The global competitiveness report 2015-2016*. WEF.
- Zsolnai, L. (2013). The importance of meta-economics. In H. Opdebeeck (Ed.), *Responsible economics. E.F. Schumacher and his legacy for the 21st century*. Oxford: P Lang Academic Publishers.
- Zvirblis, A., Buračas, A., & Navickas, V. (2015). Complex assessment of essential financial indicators in corporate governance. *European Journal of Economics and Management*, 2(2), 88–107.

Defining Decision-Making Process for Student Learning Support System



Emre Karagöz and Vahap Tecim

Abstract Every student encounters some kind of obstacle in their education life, and they need some tools that help them to take correct decision. They need extra support for selecting specific interests during their university education. This kind of support increases their success.

As known, decision-making tools help managers, from business or academic environment, to take better decision in their professional life. Especially, those tools are necessary to solve semi-structured problems. AHP and TOPSIS are two very popular multi criteria decision-making methods and these methods help users to solve their decision problems via some complex methods or methodologies.

In this study, computer-based decision-making process is designed for students who want to determine which course content is appropriate for them regarding academic expectation (plan). Senior lecturers' experiences are used to choose specific decision points for each chosen contents. A specific course is chosen which helps students to improve their academic knowledge for business or academic life. Every content in the course is expressed as a decision point. Numerical density, verbal density, and reachability of resource compose decision parameters. Variable values of decision parameters are determined by the senior lecturers of the course. The decision points that are chosen by the students are used in the AHP and TOPSIS process as inputs. The system solves the problem with two methods and gives two results as a best choice and worst choice for student. Also, the system recommends to them some information about which educators are interested in the best choice content and some educational materials such as e-book, pdf, or some Internet resource (Wikipedia, YouTube, etc.).

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Keywords AHP process • TOPSIS process • Decision support systems • Digital selection guide • Web-based systems for business

1 Introduction

As known, technological developments bring simplicity to all directions of human life. Especially, computers and mobile technologies are developing rapidly. Nowadays, there are many useful applications which are created by some mobile phones programmers. For example, taking a course or lecturing to students via mobile phones applications while travelling by bus or metro. This mobility brings a lot of benefit for all types of work. The decision-making process is in daily life just as mobile technologies. Every individual in daily life is faced with the difficulty of making decisions whether simple or complex. If there is no information about decision points, decision-makers face complex situations in this process. Some problems are created in this process by unknown decision parameters. For example, students need to determine which subjects or methodologies are significant for them in professional, business, or academic life.

Regarding lack of information about these contents or existence of many decision points, decision-making process may be too hard for many people. Some tools that help to decide easily are created by some basic decision methods. Analytic hierarchy process (AHP) and TOPSIS are widely used by the professionals and academician. These tools may provide a methodological structure for a complex problem to give a better decision. Every decision-maker wants to take accurate decisions; therefore these tools are becoming important to solve especially unstructured problems. To use these tools properly, there are some inputs which have to be used. These inputs are called variables, projects or decision points, and weight of variables. These inputs are common for both of AHP and TOPSIS process. The final result of both methods may be different from each other, because these methods are based on the user perception. These methodologies are not complex but need some algorithms to use them. Integrated mobile technologies and decision tools such as AHP and TOPSIS may help decision-makers.

This study focused to develop a mobile application which is used to decide a more accurate decision for students and other users about some specific subjects (decision points) like fuzzy logic, management information systems, or e-commerce. AHP and TOPSIS methodologies are used as decision-making methods, and PHP, HTML, MYSQL, JavaScript, and Android Studio are used as a web programming tool. Numerical density, verbal density, and reachability of resource are selected as factors (variables). The results based on different levels of weight were compared, and some educational materials such as Google Scholar, YouTube, and Wikipedia were presented to the users.

2 Methods

2.1 Analytic Hierarchy Process

Analytic Hierarchy Process (AHP) is one of the decision-making tools and Thomas L. Saaty developed it. Especially, it is used to analyze and structure complex decision problems (Hanine et al. 2016). AHP is defined as a decision and forecast method giving the percentage distribution of decision points in terms of the factors affecting the decision (Yaralıoğlu 2010). AHP is an effective approach to determine the relative importance of each alternative in terms of each criterion by pairwise comparisons (Triantaphyllou and Mann 1995). Owing to AHP methods based on user perception, weights of the variables are very important to the final accurate result.

AHP methodology is constructed by the four following steps:

1. Define the problem and determine knowledge that is sought.
2. According to main object, sort variables from the lowest number to the highest number.
3. Construct a set of pairwise comparison matrixes. Every matrix is constructed by each variable.
4. Use the priorities obtained from the comparisons to weigh the priorities in the level immediately below.

Scale number of variables for each decision point is very important when making comparison (Saaty 2008). Table 1 shows the fundamental 1–9 scale of absolute numbers.

To use AHP process, the following steps have to be done:

Step 1 Describe all aspects of decision-making problems. In this step, determine decision points and decision variables that effected decision points. If this process is accomplished successfully, it facilitates the whole problem-solving process.

Step 2 Generate the factor comparison matrix. This matrix is square matrix having $n \times n$ dimensions. The values on diagonal become 1. The matrix A is shown below:

Table 1 The fundamental 1–9 scale of absolute numbers

1	Equal importance	Both activities are equal for the objective
3	Moderate importance	Slightly favors one activity over another
5	Strong importance	Strongly favors one activity over another
7	Very strong importance	Very strongly over another
9	Extreme importance	One activity over another is of the highest possible order of affirmation
2,4,6,8	Intermediate values	

$$\mathbf{A} = \begin{bmatrix} a_{11} & a_{12} & \cdot & \cdot & a_{1n} \\ a_{21} & a_{22} & \cdot & \cdot & a_{2n} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ a_{n1} & a_{n2} & \cdot & \cdot & a_{nn} \end{bmatrix} \quad \begin{array}{l} \text{Matrix A is factor comparison matrix} \\ a_{11} = a_{22} = \dots = a_{nn} = 1 \\ \text{Diagonal matrix} \\ n \times n \text{ dimensions} \end{array} \quad (1)$$

While matrix A is being created, the fundamental 1–9 scale of absolute numbers is used (Yaraloğlu and Köksal 2003). For example, if the decision-maker sees the first factor as more important than the third factor, the first row, third column ($i = 1, j = 3$) value of decision matrix (matrix A), will be 3. Otherwise it will be 1/3. If two factors that are compared are of equal importance for decision-maker, so the same value of comparison matrix will be 1. The following formulas show this situation:

$$a_{ij} = \frac{1}{a_{ji}} \quad a_{12} = 3a_{21} = \frac{1}{3} \quad (2)$$

Step 3 At this stage, the percentage significance distributions of the factors are determined. To perform this operation, every element of matrix A is divided by the sum of its columns (Alexander 2012), thus creating the column vector *B*. This vector and formula are shown below:

$$B_i = \begin{bmatrix} b_{11} \\ b_{21} \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ b_{n1} \end{bmatrix} \quad b_{ij} = \frac{a_{ij}}{\sum_{i=1}^n a_{ij}} \quad (3)$$

This operation is applied for all decision factors. The sum of each vector *B* column element value is 1. Matrix C is created by combining these column vectors. With matrix C, percentage significance distributions of all factors can be calculated. The sum of each row element of the matrix C is calculated, and then arithmetic averages are taken. So the column vector *W* is generated (Wu et al. 2016). Values of column vector *W* show superiority degrees of factors. Matrix C, column vector *W*, and formula of column vector *W* are shown below:

$$\mathbf{C} = \begin{bmatrix} c_{11} & c_{12} & \cdot & \cdot & c_{1n} \\ c_{21} & c_{22} & \cdot & \cdot & c_{2n} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ c_{n1} & c_{n2} & \cdot & \cdot & c_{nn} \end{bmatrix} \quad W = \frac{\sum_{j=1}^n c_{ij}}{n} \quad W = \begin{bmatrix} W_1 \\ W_2 \\ \cdot \\ \cdot \\ \cdot \\ W_n \end{bmatrix} \quad (4)$$

Table 2 RI values

N	RI	N	RI
1	0	7	1.32
2	0	8	1.41
3	0.58	9	1.45
4	0.90	10	1.49
5	1.12	11	1.51
6	1.24	12	1.48

Step 4 In this process, find consistency index (CI) and consistency ratio (CR). Table 2 shows RI values.

If CR values is lower than 0.10, it shows that decision-maker made comparison consistently. Otherwise this event shows that there is a problem about calculation.

Step 5 In this process the steps before this apply for all factors. All decision points create rows and columns of comparison matrix. So, these matrices have $m \times m$ dimensions and are repeated until the number of factors. Then vectors S are created by result of all factor matrices. This is shown below:

$$S_i = \begin{bmatrix} S_{11} \\ S_{21} \\ \cdot \\ \cdot \\ \cdot \\ S_{m1} \end{bmatrix} \tag{5}$$

Step 6 S_i vectors are merged and create matrix K that has $m \times n$ dimensions. Then matrix K multiplies with the vector W and creates vector L that has m element. Formulas are shown below:

$$K = \begin{bmatrix} S_{11} & S_{12} & \cdot & \cdot & S_{1n} \\ S_{21} & S_{22} & \cdot & \cdot & S_{2n} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ S_{m1} & S_{m2} & \cdot & \cdot & S_{mn} \end{bmatrix} L = \begin{bmatrix} S_{11} & S_{12} & \cdot & \cdot & S_{1n} \\ S_{21} & S_{22} & \cdot & \cdot & S_{2n} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ S_{m1} & S_{m2} & \cdot & \cdot & S_{mn} \end{bmatrix} \times \begin{bmatrix} W_1 \\ W_2 \\ \cdot \\ \cdot \\ \cdot \\ W_n \end{bmatrix} = \begin{bmatrix} I_1 \\ I_2 \\ \cdot \\ \cdot \\ \cdot \\ l_n \end{bmatrix} \tag{6}$$

2.2 The Technique for Order of Preference by Similarity to Ideal Solution

Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) is one of the multi-criteria decision-making methods. Yoon and Wang developed this method. TOPSIS determines which distance is shortest to the positive solution

and longest to the negative solution (Singaravel and Selvaraj 2015). It is based on the ELECTRA method and widely used by the decision-makers. TOPSIS is often accepted in the soft system methodology (Mancev 2016) which deals with soft operational research (OR) methods instead of hard OR. TOPSIS can be used in different areas and different problems. For instance, select the computer-integrated manufacturing (Singh et al. 2014). TOPSIS solving process accomplish following steps:

Step 1 Create a decision matrix (A). There are factors in columns and decision points in rows of decision matrix (Uygurtürk and Korkmaz 2012).

$$A_{ij} = \begin{bmatrix} a_{11} & a_{12} & \cdot & \cdot & a_{1n} \\ a_{21} & a_{22} & \cdot & \cdot & a_{2n} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ a_{m1} & a_{m2} & \cdot & \cdot & a_{mn} \end{bmatrix} \quad \begin{matrix} m = \text{Decision point number} \\ n = \text{Factor number} \end{matrix} \quad (7)$$

Step 2 Create a standard decision matrix (R). This matrix is created by using matrix A. Matrix R and formula are shown below:

$$R_{ij} = \begin{bmatrix} r_{11} & r_{12} & \cdot & \cdot & r_{1n} \\ r_{21} & r_{22} & \cdot & \cdot & r_{2n} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ r_{m1} & r_{m2} & \cdot & \cdot & r_{mn} \end{bmatrix} \quad y_{ij} = \frac{\frac{1}{a_{ij}}}{\sqrt{\sum_{k=1}^m \frac{1}{a_{kj}^2}}} \quad (8)$$

Step 3 Create weighted standard decision matrix V. Firstly, determine weighted value (W_i) related factors. The sum of W_i value must be 1. Then elements in all columns of matrix R multiply W_i values and with this method create the matrix V (Yaralıoğlu 2010).

$$V_{ij} = \begin{bmatrix} W_1r_{11} & W_2r_{12} & \cdot & \cdot & W_n r_{1n} \\ W_1r_{21} & W_2r_{22} & \cdot & \cdot & W_n r_{2n} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ W_1r_{m1} & W_2r_{m2} & \cdot & \cdot & W_n r_{mn} \end{bmatrix} \quad (9)$$

Step 4 Create ideal (A^*) and negative ideal (A^-) solution. TOPSIS method assumes that every factor has tended to be monotonically increasing or monotonically decreasing. To create ideal solution, select the maximum value of matrix V columns. To negative ideal solution, select the minimum value of matrix V columns.

Step 5 Calculate the separation measures for each alternative (Kabir and Hasin 2012). Due to find deviation from factor value of ideal and negative ideal solution set related each decision point, utilize Euclidean distance approach (Yaralıoğlu 2010). S_i^* and S_i^- are calculated formulas below (Markovic 2010):

Euclidean distance of the i^n alternative from ideal point,

$$S_i^* = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^*)^2} \tag{10}$$

Euclidean distance of the i^n alternative from negative ideal point,

$$S_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2} \tag{11}$$

The number of S_i^* and S_i^- equals number of decision point.

Step 6 Determine the relative similarity of the alternatives from the ideal and negative ideal Euclidean distance. Then choose the best option.

$$C_i^* = \frac{S_i^-}{S_i^- + S_i^*} \tag{12}$$

3 Application

This study focused that a mobile application which helps students to take proper decisions about some specific course contents that related their interest for their future academic or professional life. When developing the application, HTML, PHP, JavaScript, MySQL, and Android Studio were used. This application is web based and compatible with mobile device such as android mobile phone or android pads. AHP and TOPSIS are used in the application as decision-making methods. There are some steps below for AHP section:

Step 1 Determine the decision points. For this issue, select a specific course that has many sub-contents inside it. These sub-contents are our decision points. The names of the decision points are shown below in Table 3.

Step 2 Determine numerical density, verbal density, and reachability of resource as a factor. Then senior academicians identified factor values of each decision

Table 3 The name of decision points

Number	Decision points
1	Management information systems
2	Database management
3	Expert systems
4	Genetic algorithms
5	Fuzzy logic
6	Decision support systems
7	Reengineering
8	Content management systems
9	Artificial neural networks
10	Geographical information systems
11	Optimization techniques
12	E-commerce
13	Data mining
14	Web programming
15	Artificial intelligence applications

points according to their experiences and knowledge and entered these values on MySQL database. Table 4 showed that factor values of each decision point.

Step 3 To determine the values of comparative matrix, superiority method is created. All factor values of decision point are ranges from 1 to 9. To compare decision points according to factors, an algorithm is developed. Table 5 shows the method.

Step 4 Access the application with mobile device using username and password. Then select the number of factors (variables) and number of decision points (projects). And push “Begin” button to appear new area to select decision points and factors. Factors are made by numerical density, verbal density, and reachability of resource. Figure 1 shows this info.

Step 5 Select weights of factors. This area categorized four levels: very important (0.80), important (0.60), less important (0.40), and least important (0.20). This part was made by this method to students using program easily. Then, push the start button and make decision matrix. Each value of decision matrix is made by values of decision point related factor. These values can be altered if user wants. Push the Evaluate button and solve process with AHP. These steps are shown in Fig. 2.

Step 6 After calculate the process, application shows the best choice and worst choice for the user who selected items (factors, decision points, and weight of factor) of all processes. According to best and worst result values, application

Table 4 Factor value of each decision point and academician related contents

Id	Decision point name	Numerical density	Verbal density	Reachability of resource	Academician
1	Management Information Systems	7	5	9	Prof. Dr. Vahap TECİM
2	Database Management	9	3	9	Prof. Dr. Vahap TECİM
3	Expert Systems	7	3	3	Prof. Dr. Vahap TECİM
4	Genetic Algorithms	9	1	3	Prof. Dr. İpek DEVECİ KOCAKOÇ
5	Fuzzy Logic	9	3	5	Prof. Dr. Mustafa GÜNEŞ
6	Decision Support Systems	7	5	7	Prof. Dr. Vahap TECİM
7	Reengineering	7	5	5	Doç. Dr. Yılmaz GÖKŞEN
8	Content Management Systems	5	5	5	Prof. Dr. Vahap TECİM
9	Artificial Neural Networks	9	3	7	Prof. Dr. Mustafa GÜNEŞ
10	Geographical Information Systems	7	5	9	Prof. Dr. Vahap TECİM
11	Optimization Technics	9	5	7	Prof. Dr. Kaan YARALIOĞLU
12	E-Commerce	7	3	7	Prof. Dr. Vahap TECİM
13	Data Mining	9	3	7	Prof. Dr. İpek DEVECİ KOCAKOÇ
14	Web Programming	7	5	9	Yard. Doç Dr. Güven KOÇAK
15	Artificial Intelligence Applications	7	5	7	Prof. Dr. Vahap TECİM

shows which content is best and who works with this content. Also, there are four areas that show Internet resources such as info about instructor, papers and thesis in Google Academics, some videos on YouTube, and Wikipedia info related to best content. Some examples are shown in Fig. 3.

To use TOPSIS method, the following steps have to be made:

Step 1 Select the TOPSIS section. Access the application with username and password. Determine the number of factor and projects. To select factor and project

Table 5 Compare method to find decision matrices values

First decision point	Second decision point	Difference value	Final value
1	1	0	1
1	3	-2	1/3
1	5	-4	1/5
1	7	-6	1/7
1	9	-8	1/9
3	1	2	3
3	3	0	1
3	5	-2	1/3
3	7	-4	1/5
3	9	-6	1/7
5	1	4	5
5	3	2	3
5	5	0	1
5	7	-2	1/3
5	9	-4	1/5
7	1	6	7
7	3	4	5
7	5	2	3
7	7	0	1
7	9	-2	1/3
9	1	8	9
9	3	6	7
9	5	4	5
9	7	2	3
9	9	0	1

names, push the “Select Inputs” button. Appearance of a new screen includes factor and project selecting box. Also weight of factor values are inserted in this area. Figure 4 is showing these steps and interface of application.

Step 2 After selecting projects, factors, and weights, push the “Begin” button. And decision matrix appears in new window. Decision matrix values come from database just like AHP process. To solve the process, push the “Evaluate” button. Final result appears in a short time. These steps are shown in Fig. 5.

Step 3 The application shows the best choice and the worst choice for decision-maker. Also recommend some educational materials just like AHP processes. Some examples are shown in Fig. 6.

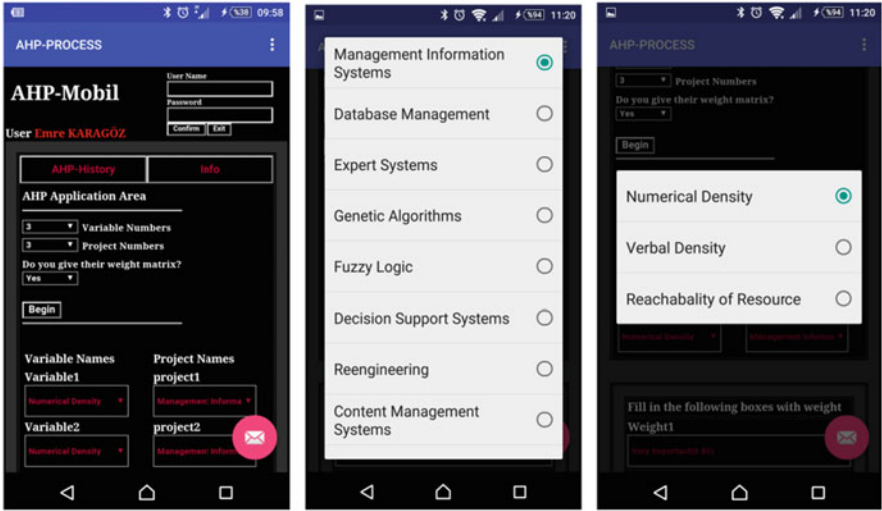


Fig. 1 Enter the system and select decision points and factors

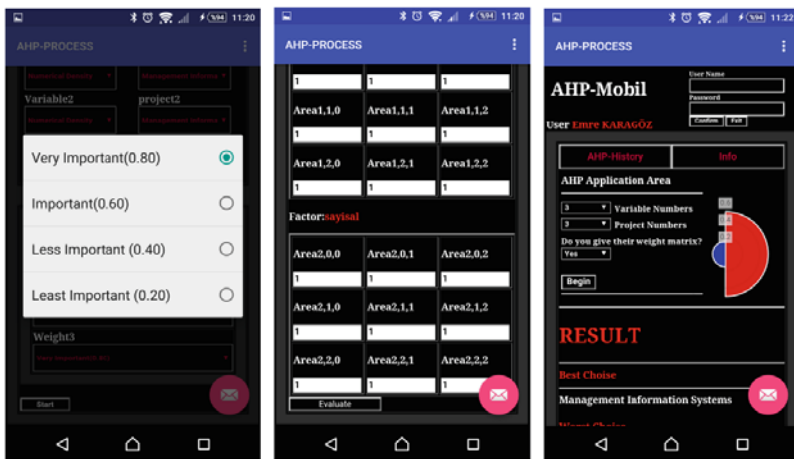


Fig. 2 Determine of weights and make decision matrix to solve problem

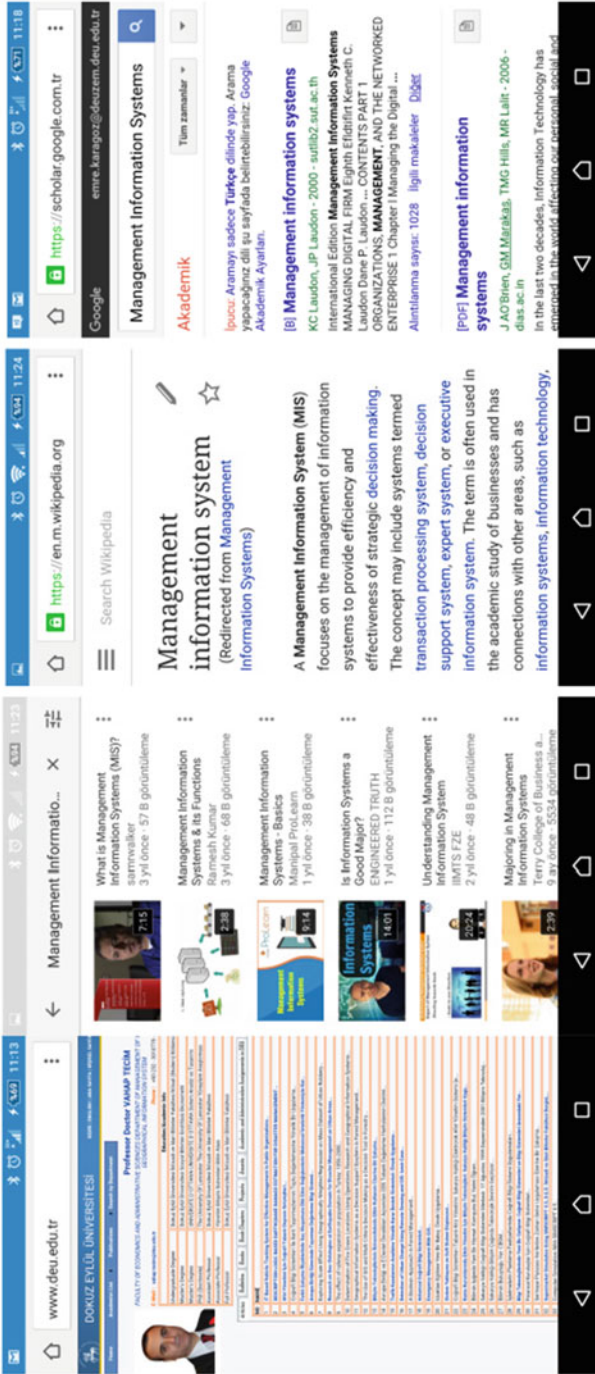


Fig. 3 Results and recommended resource

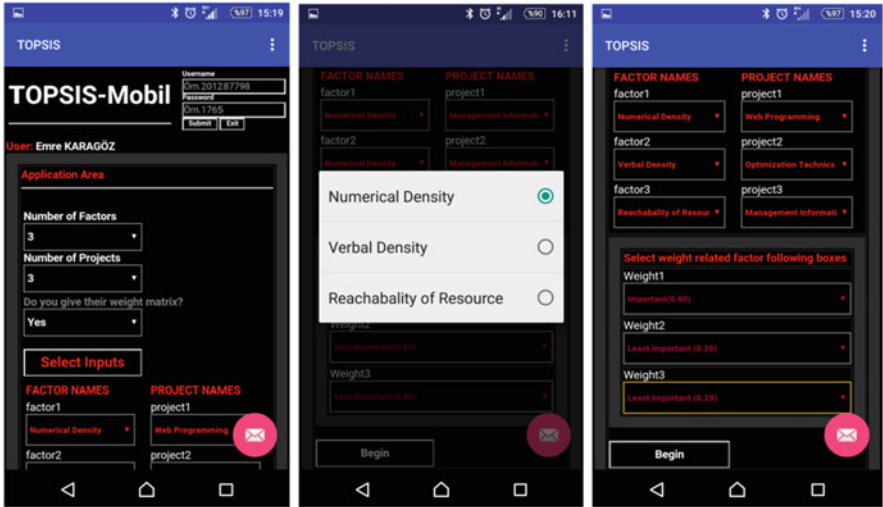


Fig. 4 Interface of TOPSIS application and first steps

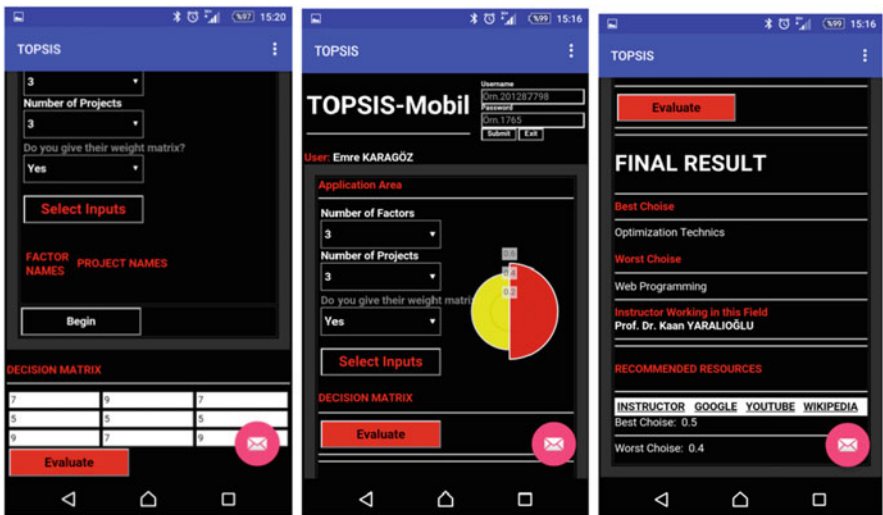


Fig. 5 Make a decision matrix and evaluate process

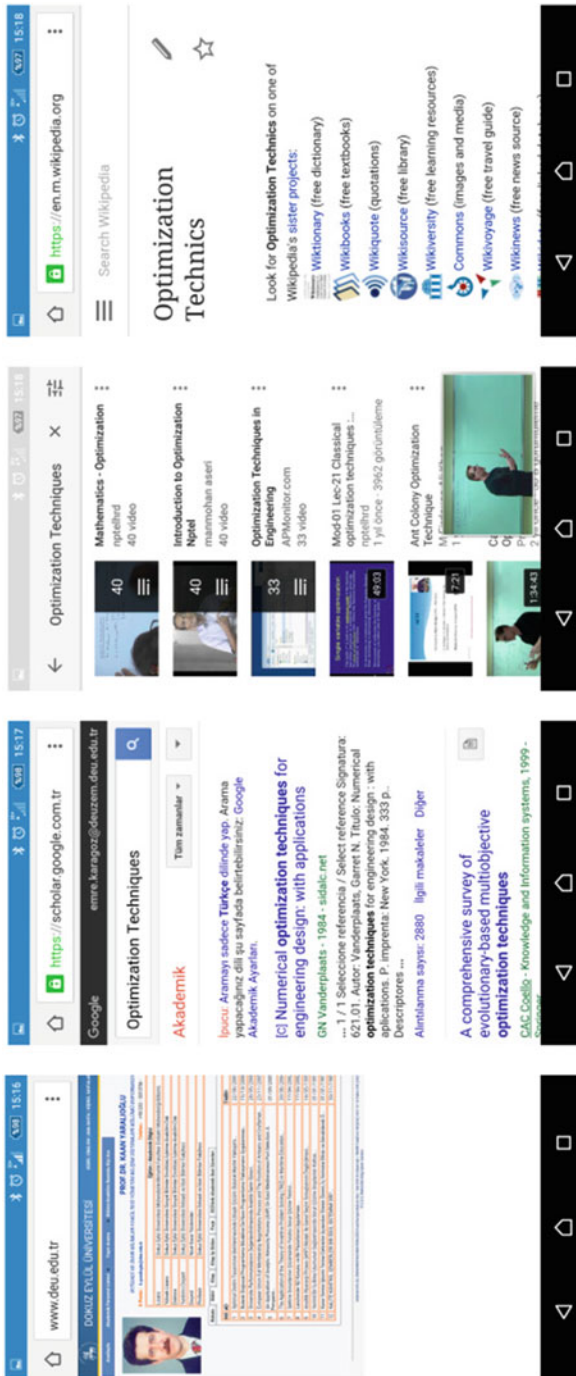


Fig. 6 Results and recommended resource

4 Conclusion

Last 10 years, Internet and mobility concepts are indispensable for human life. And there are many things and matters that must be decided accurately. Integration of multi-criteria decision-making methodologies and web-based mobile technologies brings users to make a better choice. This study focused on two decision-making methods, TOPSIS and AHP, which support user for specific area with mobile technologies. As a mobile application, it brought efficiency and usability for the target users.

It was found that multi-criteria decision-making methods can be easily integrated to mobile technologies to solve many complex problems. Decision-makers prefer to use software on mobile environment. In future work, other decision-making methods such as Vikor, Electre, and Promethee can be made and integrated with mobile systems. The number of factors and projects also can be increased. Results of AHP and TOPSIS process may also be compared with the fuzzy logic methodology. Using different methodologies in some specific area can improve decision-making processes.

References

- Alexander, M. (2012). *Decision-making using the analytic hierarchy process (AHP) and SAS/IML*. Durham, NC: The Proceedings of the South East SAS Users Group.
- Hanine, M., Boutkhoum, O., Tikniouine, A., & Agouti, T. (2016). Application of an integrated multi-criteria decision making AHP-TOPSIS methodology for ETL software selection. *Springer Open, Springer Plus*, 5, 263.
- Kabir, G., & Hasin, M. A. A. (2012). Comparative analysis of topsis and fuzzy topsis for the evaluation of travel website service quality. *International Journal for Quality Research*, 6(3), 169–185.
- Mancev, D. (2016). The application of the TOPSIS method in selecting the best academic library at the University of Nis/L'application de la method TOPSIS en vue d'un choix de la meilleurebibliotheque de l'Universite de. Nis. *Canadian Journal of Information and Library Science*, 40(1), 81–96.
- Markovic, Z. (2010). Modification of TOPSIS method for solving of multicriteria tasks. *Yugoslav Journal of Operations Research*, 20(1), 117–143.
- Saaty, T. (2008). Decision making with the analytic hierarchy process. *International Journal of Services Sciences (IJSSCI)*, 1(1), 83–98.
- Singaravel, B., & Selvaraj, T. (2015). Optimization of machining parameters in turning operation using combined TOPSIS and AHP method. *Technical Gazette*, 22(6), 1475–1480.
- Singh, R., Kumar, H., & Singla, R. K. (2014). TOPSIS based multi-criteria decision making of feature selection techniques for network traffic dataset. *International Journal of Engineering and Technology*, 5(6), 4598–4604.
- Triantaphyllou, E., & Mann, S. H. (1995). Using the analytic hierarchy process for decision making in engineering applications: Some challenges. *International Journal of Industrial Engineering: Applications and Practice*, 2(1), 35–44.

- Uygurtürk, H., & Korkmaz, T. (2012). Finansal performansın TOPSIS Çok Kriterli Karar Verme Yöntemi ile Belirlenmesi: Ana Metal Sanayi Üzerine Bir Uygulama. *Eskişehir Osmangazi Üniversitesi İİBF Dergisi*, 7(2), 95–115.
- Wu, Q., Ren, H., Gao, W., & Ren, J. (2016). Multi-criteria assessment of building combined heat and power systems located in different climate zones: Japan-China comparison. *Energy and Buildings*, 103, 502–512.
- Yaralıoğlu, K. (2010). *Karar Verme Yöntemleri*. Ankara: Detay Yayıncılık.
- Yaralıoğlu, K., & Köksal, H. (2003). Analytic hierarchy process as a managerial decision tool in the evaluation of new product ideas. *Ege Academic Review*, 3(1), 119–137.

Knowledge Transfer and Trust Among Partners: The Case of Greek IJVs



Konstantinos Rotsios, Nikolaos Sklavounos, and Yannis Hajidimitriou

Abstract Knowledge transfer and trust among partners are identified in the literature as key factors for satisfactory IJV performance. This paper examines these two parameters in IJVs operating in South East Europe. A sample of Greek IJVs is examined, and conclusions on the above matters are drawn. The focus is on the perceptions of Greek entrepreneurs and executives in regard to the success of knowledge transfer to IJVs in which their company participates, their overall satisfaction from the transfer process, and its importance for their enterprise. Additionally, based on aspects from the social exchange theory, the perceived level of trust toward their foreign partner is explored in terms of the extent and the quality of communication among them and the managers' willingness to work closely to achieve common goals and their shared vision. The empirical findings are discussed, and their importance for researchers and entrepreneurs is analyzed. Finally, topics for further research are proposed.

Keywords International joint ventures • Knowledge transfer success • Trust • Communication and vision

1 Introduction

International joint ventures (IJVs) are a common form of strategic alliances used by companies to achieve their goals in collaboration with other firms (Ghauri et al. 2013). Due to the technological changes and the strong interest on globalization strategies, IJVs have become popular in a large number of industries (Glaister and Buckley 1994; Li et al. 2013). In an increasingly competitive global environment, knowledge evolved as a key resource that leads to the creation of competitive advantage (Park 2011). As Park et al. (2015, p. 89) suggest, "... it is important for

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the field of international business to improve understanding of the factors that may influence knowledge transfers in joint ventures and their impacts on firm performance.”

Ahammad et al. (2016) state that firms are regarded by researchers as generators and integrators of knowledge (Grant 1996; Kogut and Zander 1992). According to Pak et al. (2015, p. 189), “in the literature, knowledge transfer has been a popular topic because of its potential to enhance IJV performance.” However, the process of knowledge transfer is a rather complicated process and requires commitment and allocation of resources. Park et al. (2013) argues that it involves social relational aspects (trust, common goals, and commitment) and requires investment and time. Previous research has shown that cross-border acquisition of knowledge is a challenging and demanding task, and this process might lead to problems as well as benefits (Junni and Sarala 2011, 2012). According to Zhan and Chen (2013), it is logical to expect that when knowledge transfer is hindered by certain factors, then the integration and utilization of other partner resources will be difficult to be turned into a competitive advantage. Furthermore, the partners’ knowledge transfer capability is crucial for knowledge acquisition by the IJVs (Park 2011). According to Park et al. (2015), although knowledge transfer is only one of the challenges faced by IJVs, many studies have shown that it is crucial for their survival and performance (Lane et al. 2001; Pak et al. 2009). Similarly, Pak et al. (2015) in their study of Korean IJVs found that one of the first priorities following the establishment of IJVs is to transfer knowledge from the partners to their IJVs. Most of the IJVs have based their operations on the knowledge they received from the parent companies. However, the significance of knowledge transfer to the IJVs is not always valued by companies. Idris and Seng Tey (2011), in their study of Malaysian firms’ effort to expand in international markets by forming IJVs, found that they consider knowledge transfer of secondary importance for IJV innovation performance compared to higher profitability and entering new markets.

In recent years, social exchange theory has received a great deal of attention in the study of inter-partner relationships in strategic alliances including IJVs (Inkpen and Currall 1997; Johnson et al. 1997; Madhok 1995; Sarkar et al. 1997; Wu and Cavusgil 2006). It has been recognized that mutual trust and commitment among alliance partners are considered as a central construct of social capital. As an important part of social capital, trust has been defined by various concepts. With mutual trust, partners share critical information and make efforts to understand the opponent’s business (Kumar 1996). Commitment, as another major component of social capital, represents fondness and eagerness to do whatever necessary to retain a long-term relationship among partners (Kwon 2008). Lane and Beamish (1990) noted that, if partners have mutual commitment, the IJV will evolve based on the principle of fair exchange. Trust and commitment, as social capital ingredients, contribute to the prevention of transaction costs caused by opportunistic behaviors and disputes among partners. Moreover, mutual trust and commitment produce cooperation via the blend of the resources and knowledge of each partner (Kwon 2008). However, according to Chen et al. (2014), the relationship between knowledge transfer and trust has received only limited attention by researchers.

Demirbag and Mirza (2000) noticed that both inter-partner conflict and commitment present a key function in IJV performance and therefore in the satisfaction of parent firms in IJVs in Turkey. With regard to strategic alliances, Nielsen (2007) detected that trust among partners notably affects the performance in strategic alliances formed between Danish firms and their partners around the world. Ramaseshan and Loo (1998) also acknowledged that trust, commitment, and communication among partners are all positively associated with the effectiveness of alliances formed among Singaporean firms. Mutual trust and commitment provide autonomy and flexibility to an IJV, which can raise the possibility of IJV success by allowing rapid responses and adjustments to joint business problems and opportunities (Beamish 1985). Consequently, it is hard to expect continuous relationships and long-term benefits without the presence of mutual trust and commitment among partners in inter-firm cooperations, including IJVs (Gundlach et al. 1995; Wu and Cavusgil 2006). An IJV with higher levels of relationship commitment denotes that the partners can cooperate more productively toward the achievement of the goals of the IJV (Ainuddin et al. 2007). Mutual trust and commitment have been proven to exercise a considerable positive effect on IJV effectiveness and strategic benefits (Sarkar et al. 1997). Park and Ungson (1997) found that confidence in trustworthiness among partners is an important determinant of IJV success. It has also been identified in other studies that mutual trust has a positive effect on financial performance in IJVs formed between US and Japanese companies (Inkpen and Currall 1997) and between Danish firms and partners from around the world (Nielsen 2007). Mutual commitment has also been proven as a very important factor for the performance of IJVs formed between Japanese and foreign firms (Cullen et al. 2000). Many researchers have argued that knowledge transfer and commitment are among the most important factors for improved IJV performance (Zaheer et al. 1998; Lane et al. 2001; McEvily and Marcus 2005; Pak et al. 2015). However, other studies have not found a positive relationship between commitment and learning in IJVs. More specifically, the research of Farrell et al. (2011) on Malaysian IJVs suggests that the commitment to IJV goals does not have an impact on learning success by the foreign partner. As the same researchers state, this result contradicts other studies (Lane and Beamish 1990) which have shown that commitment is important in IJVs.

It is interesting to notice at this point that the results of Idris and Seng Tey (2011), concerning knowledge transfer in Malaysian IJVs, and Farrell et al. (2011), concerning the impact of commitment to Malaysian IJVs' goals on learning success by the foreign partner, contradict the findings of other research. The fact that the results from two empirical studies on Malaysian IJVs, carried out at the same time period, are different from mainstream research findings provides support to the argument of Park et al. (2015) that the uniqueness of country characteristics do not allow for generalization of research results because the location-specific conditions and other parameters may be different among countries and time periods.

As a result of cultural barriers, the role of communication in cross-border relationships is of critical importance. Consequently, it is hard to anticipate high IJV effectiveness without the presence of two-way communication between the two

sides (Labahn 1999). According to Ali and Larimo (2016), communication refers to the information exchanged between partners in an IJV relationship and is defined as “formal as well as informal sharing of meaningful and timely information between partners” (Anderson and Narus 1990, p. 44). Kwon (2008), in his analysis of 94 joint ventures formed between Korean firms as a local partner and US, European, and Japanese firms as foreign partners, revealed that flexibility and two-way communication are crucial factors for the trust–commitment partnerships. Moreover, Kwon (2008) deduced that mutual trust and commitment exert a considerable positive influence on IJV effectiveness. Morgan and Hunt (1994) perceived communication and shared values as important antecedents of trust. Furthermore, Johnson and Raven (1996) observed that communication and fairness are determinants of commitment. Sarkar et al. (1997) suggested shared norms, two-way communication, partner fit, and relationship benefits as key determinants of mutual trust and commitment. In addition, they stated that mutual trust and commitment enhance the efficiency and result of the project. Li et al. (2006) argue that efficient partner communication enhances trust. As Lu and Ma (2015) note, there is agreement among researchers that ongoing communication and strong ties between organizations are necessary for successful knowledge transfer (Greve 1999; Ingram and Simons 2002). Ali and Larimo (2016), in their study on Nordic IJVs, found that social mechanisms, including trust and communication, have a negative impact on partner opportunistic behavior.

According to Park and Vertinsky (2016), a shared vision among IJV partners positively affects knowledge transfer and the development of an environment of exchange among partners and the conditions for knowledge transfer. A “shared vision” can be defined as an agreement on the business unit’s vision across all levels, functions, and divisions (Baker and Sinkula 1999). Shared vision constitutes a valuable component in organizations because it provides a focus for learning that brings forth energy, commitment, and purpose among individuals (Day 1994). According to Magnini (2008), a shared vision among partners is a crucial element to successful knowledge sharing in hotel IJVs, and knowledge sharing can be enhanced when companies are committed to learning and innovation and have a shared vision (Magnini 2008). Evangelista and Hau (2009), in their study in IJVs in Vietnam, found that teamwork, which includes shared vision and communication, has a positive impact on the acquisition of know-how. Moreover, IJV management process requires the participation of partners to establish a clearly shared strategic vision in order to dodge opportunistic behavior (Glaister et al. 2003). The absence of shared values denotes the existence of a value gap among partners and may generate opportunistic motives (Huang et al. 2015).

The findings of this research regarding the crucial factors of knowledge transfer and trust for IJV performance in IJVs operating in SE Europe constitute a contribution to the relevant literature, since, to the best of our knowledge, no similar research has been conducted before in this geographical area. According to Park et al. (2015), the distinctive characteristics of every country do not allow for generalization of research results since research carried out in different countries

and time periods takes into consideration data and conditions which are specific to national peculiarities and characteristics.

2 Research Methods

For the purposes of this study, the method of questionnaire survey was selected. The questionnaire that was developed to conduct this research was sent to 400 senior managers of Greek firms with international activities (including IJV participation). Telephone calls were made, and e-mails were sent to their firms in order to ensure the highest possible response rate. Overall, 50 complete questionnaires were collected, with a response rate of 12.5% which is regarded as typical in mail surveys targeted at senior management members (Hambrick et al. 1993). The responses are considered to be accurate and realistic since a large percentage of the respondents contacted the researchers for additional information and clarifications.

3 Results

In this section we present the results arising from the questionnaire survey of Greek companies that participate in IJVs in SE Europe. With the use of descriptive statistics, the responses of Greek entrepreneurs/executives regarding the issues of knowledge transfer, trust, commitment, communication, and shared vision are presented and analyzed, and some interesting and useful conclusions are drawn and presented.

The firms in the sample on average have 385 employees with a great variation ranging from 12 to 2095 employees. The majority of them (65.9%) operate in the manufacturing sector with the remaining 34.1% in the services sector. The results, presented in Fig. 1, show that mainly Greek manufacturing firms were those that expanded their business abroad through participation in IJVs.

The annual turnover for 73% of the responding firms is over 10 million €, for 10.8% of the firms is between 5 and 10 million €, for 10.8% of the firms is between 1 and 5 million € and for 5.4% of them is <1 million €. The annual turnover composition is shown in Fig. 2.

It is interesting that, on average, each firm participates in 3.7 IJVs. However, the number of IJVs, which the companies of the sample participate in, ranges from 1 to 32. Furthermore, the results, presented in Fig. 3, show that the majority of IJVs that the Greek firms participated (59.5%) are capital intensive, while the remainder (40.5%) are knowledge intensive. Capital-intensive firms are considered firms for which capital is the most important input, while for knowledge-intensive firms knowledge has the greatest importance (Starbuck 1992).

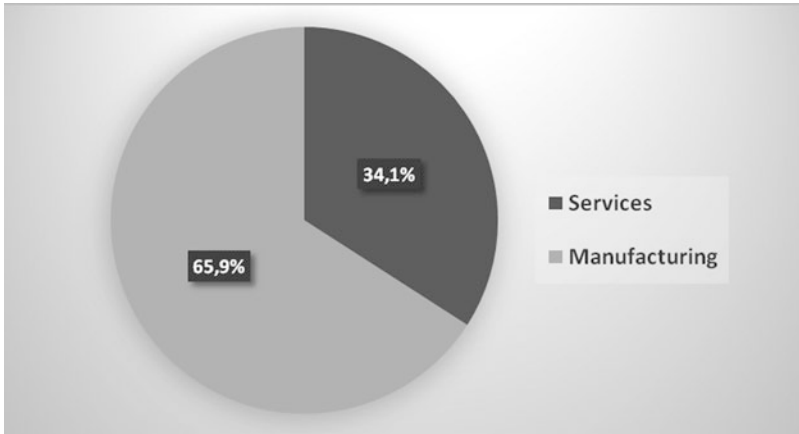


Fig. 1 Sample composition by sector

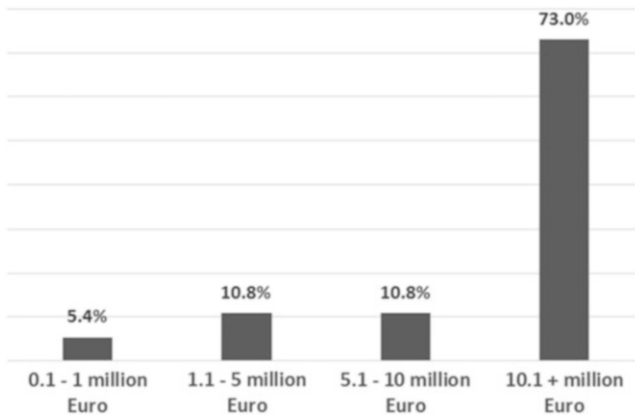


Fig. 2 Sample firms' annual turnover

There is evidence that the transfer of the Greek firm's knowledge to their IJVs is a prerequisite for their successful operation. A case study analysis of Greek IJVs revealed that Greek entrepreneurs consider the transfer of their knowledge to their IJVs to be successful (Rotsios et al. 2014). Our results on the degree of knowledge transfer success from Greek companies to the IJVs show that the largest part of entrepreneurs/executives (48.8%) characterizes knowledge transfer as quite successful and 36.6% as very successful and only 14.6% consider the result of this effort as moderate. These results are notable because knowledge transfer is a very complex process that requires the commitment of senior business executives and presents peculiarities and difficulties. The high percentage of entrepreneurs/executives responding that they are very satisfied or quite satisfied highlights the importance given by Greek enterprises in the value of knowledge and the organized

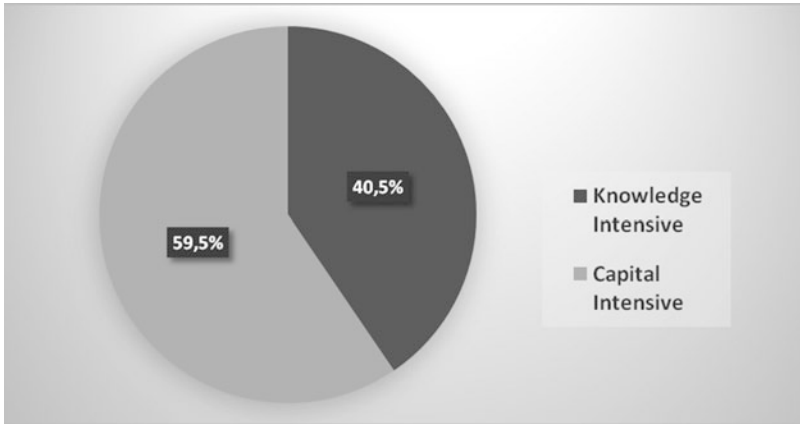


Fig. 3 Type of IJVs

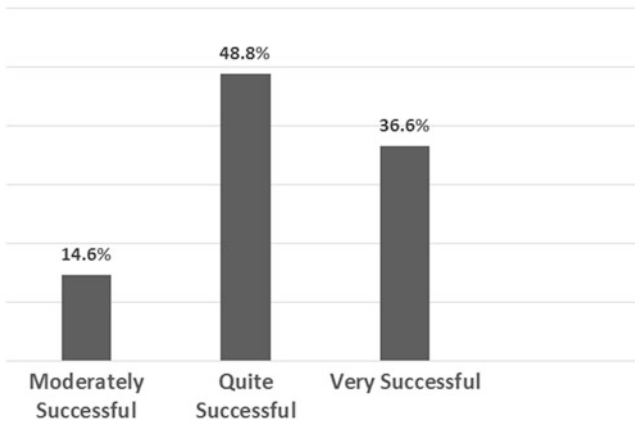


Fig. 4 Percentage of managers satisfied with the level of knowledge transfer success

effort they put on knowledge transfer processes to the IJVs that they participate. The percentage of managers satisfied with the success level of the knowledge transfer to IJVs is illustrated in Fig. 4.

Concerning the importance of knowledge transfer to IJVs, more than half of Greek entrepreneurs/executives (55.0%) believe that the knowledge transfer by their enterprises to the IJVs is very important, 32.5% regard it as quite important, and only 12.5% consider it as moderately important. These results demonstrate the great value of knowledge held by Greek enterprises in order to achieve the strategic objectives and the smooth functioning of the IJVs and the degree of IJVs' dependence on their Greek partners. These findings also highlight the great efforts that were made by Greek companies to transfer their knowledge to the IJVs that they

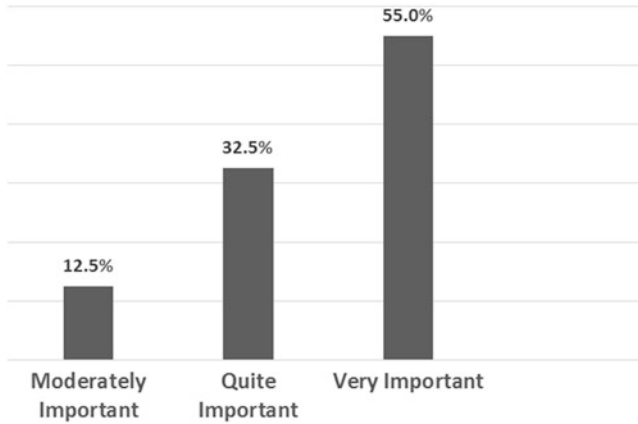


Fig. 5 Percentage of managers that consider knowledge transfer to IJVs as important

participate. Moreover, these results are consistent with the ones of Rotsios et al. (2014) case study analysis, regarding four Greek companies participating in IJVs. According to them, in most cases Greek enterprises are those that possess the expertise and contribute the knowledge (formal or informal) transferred to the IJVs that they get involved. Therefore, Greek entrepreneurs highly value the importance of knowledge transfer to their IJVs, whereas in other cases (e.g., Malaysia), firms do not consider knowledge transfer as an important factor for IJV performance (Idris and Seng Tey 2011). The percentage of managers that consider knowledge transfer as important is shown in Fig. 5.

Regarding the Greek firms' degree of satisfaction from knowledge transfer to the IJVs, 56.4% of entrepreneurs/executives replied as quite satisfied, 28.2% as very satisfied, and 15.4% as moderately satisfied. It is important that none of the entrepreneurs/executives replied as little or not at all satisfied with their company's knowledge transferred to the IJV. As mentioned above, in most cases, Greek partners are the ones who possess the expertise which is transferred to the IJVs. The fact that no one reports as little or not at all satisfied could mean that when entrepreneurs/executives are not satisfied by the transfer of knowledge to the IJVs, either they will try much harder in order to achieve their goals or they will proceed to the dissolution of the IJV. The percentage of managers satisfied from knowledge transfer to the IJVs is depicted in Fig. 6.

Moreover, in order to record the degree of commitment of entrepreneurs/executives to the IJVs, they were asked to indicate their level of agreement or disagreement to the statement that they are committed to their IJVs. According to the responses, the percentage of Greek companies committed to their IJVs is high, since 63.4% of them completely agree and 19.5% partially agree. Greek companies which proceeded to establish IJVs in order to do business in international markets have done so consciously. At the same time, they appear ready to commit to their IJVs, since participation in them, in addition to funds, requires planning,

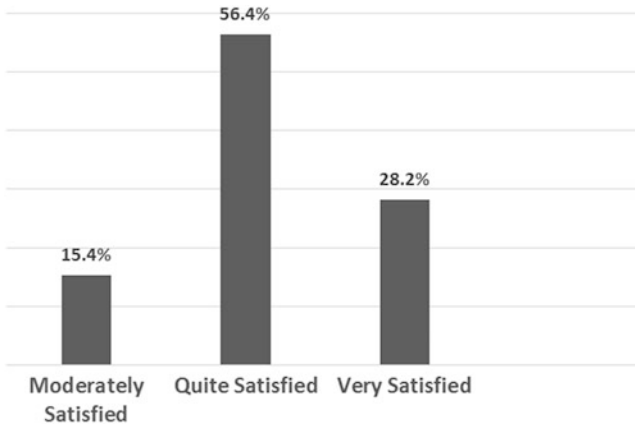


Fig. 6 Percentage of managers satisfied from knowledge transfer to the IJVs

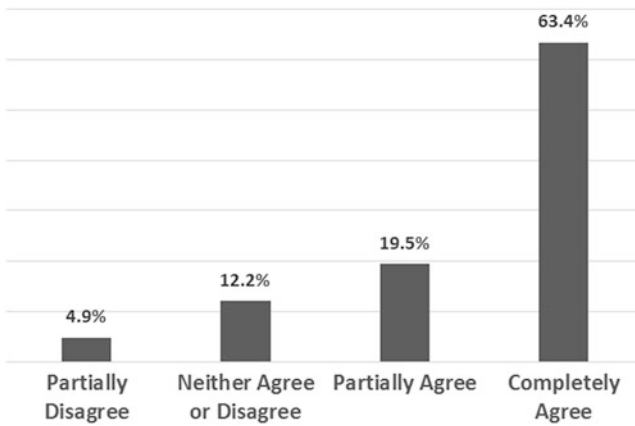


Fig. 7 Percentage of Greek companies committed to their IJVs

organization, commitment, support, and, in some cases, doing so for a long period of time in order to achieve their goals. Furthermore, it is very interesting that only 4.9% of the respondents partially disagree with the statement. The percentage of Greek companies’ responses regarding the above statement are shown in Fig. 7.

Regarding the level of trust among IJV partners, 24.4% of entrepreneurs/executives believe that it is very high, 56.1% regard it as high and 14.6% that it is moderate, and only 4.9% think that it is low. The results indicate that Greek enterprises form IJVs mostly with partners who they consider as trustworthy. These findings are in accordance with the ones from a case study analysis on four Greek IJVs (Rotsios et al. 2014) which shows that Greek entrepreneurs agree that they highly trust their IJV partners, a fact that, in turn, facilitates knowledge transfer

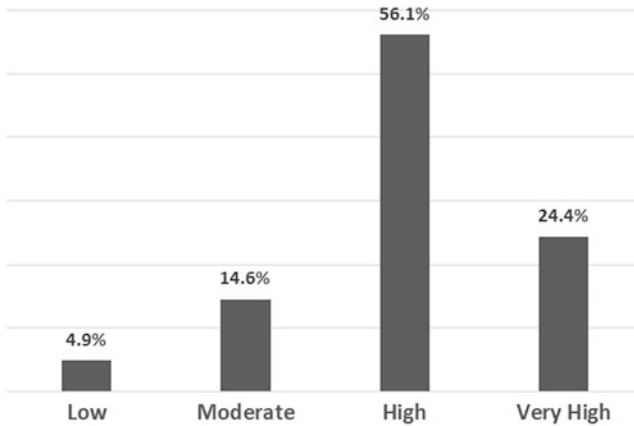


Fig. 8 Percentage of managers trusting their partners

to their IJVs. According to the same study, when disagreements or misunderstandings arise, these are resolved through honest and open discussions among partners based on the feeling of mutual trust. Therefore, we could conclude that management should devote ample time and resources to the development of mutual trust among partners. The percentage of Greek managers who trust their IJV partners is illustrated in Fig. 8.

Communication among partners is considered as one of the key success factors in strategic business partnerships (Kwon 2008). Therefore, we examined the degree of communication among partners in our sample. The data analysis shows that there is a very high degree of communication among IJV partners, as the percentage of entrepreneurs/executives who believe that communication is timely, accurate, and sufficient is over 80.0% for these parameters. It is worth noting that the percentage of respondents who answered that communication between partners is complete is the lowest (68.4%) among the four parameters. A possible explanation could be that some knowledge held by Greek firms is intentionally not communicated to the foreign IJV partners, in order to protect the know-how and to avoid creating potential competitors. This happens because, according to the literature, one of the dangers of participating in IJVs and transferring knowledge and competencies to other partners is the creation of future competitors (Inkpen and Beamish 1997). Similarly, Anderson and Gatignon (1986, p. 11), based on transaction cost theory, analyzed the study of Stopford and Wells (1972) and argued that their findings imply that “. . . firms tend to reserve proprietary knowledge for entry vehicles they control completely.” The percentage of managers who consider that there is high level of communication with IJV partners is shown in Fig. 9.

A very high percentage (79.5%) of entrepreneurs/executives considers that there is a shared vision among partners of the IJVs that they participate. This is particularly important for the IJVs in which Greek companies are participating, since having a common vision is especially valuable for their successful course (Park and

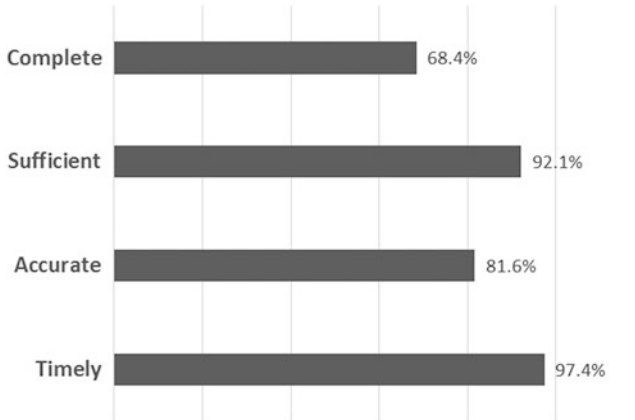


Fig. 9 Percentage of managers who consider that there is high level of communication with IJV partners

Vertinsky 2016). It is expected that when partners have a shared vision, their actions and efforts are harmonized, resulting to a positive environment of mutual understanding and cooperation among them. This finding is particularly important, since in the atypical environment of SE Europe, one could expect no or little convergence of IJVs’ goals and objectives among Greek companies and their foreign partners. A common vision increases the chances of achieving the objectives of the IJVs which are particularly unstable business entities and often end up in unsuccessful results. More specifically, according to Bamford et al. (2004), between 30 and 70% of alliances, including IJVs, fail since they do not achieve the goals of their parent companies or they do not provide the expected operational or strategic benefits. Lunnan and Haugland (2008) also report an alliance failure rate of over 50%. The percentage of managers who believe that there is a shared vision among IJV partners is depicted in Fig. 10.

A vast majority of entrepreneurs/executives (82.9%) agree that their IJVs are important for them. More specifically, 58.5% completely agree with the statement that their IJVs are significant for the Greek parent company, and 24.4% partially agree, while only 9.8% of entrepreneurs/executives partially disagree. It is very interesting that no respondents fully disagreed with the above statement. Overall, 17.1% of entrepreneurs/executives do not attach importance to the IJVs or are presented as indifferent about the IJVs’ importance to their business. This percentage is about the same with the one of the sample entrepreneurs/executives who appear to have a low degree of commitment to their IJVs. In such cases, it could be argued that the reasons for the creation of IJVs are associated with factors less common in the literature, such as short-term benefits from IJV participation. The percentage of managers who believe that IJVs are significant to the parent company is shown in Fig. 11.

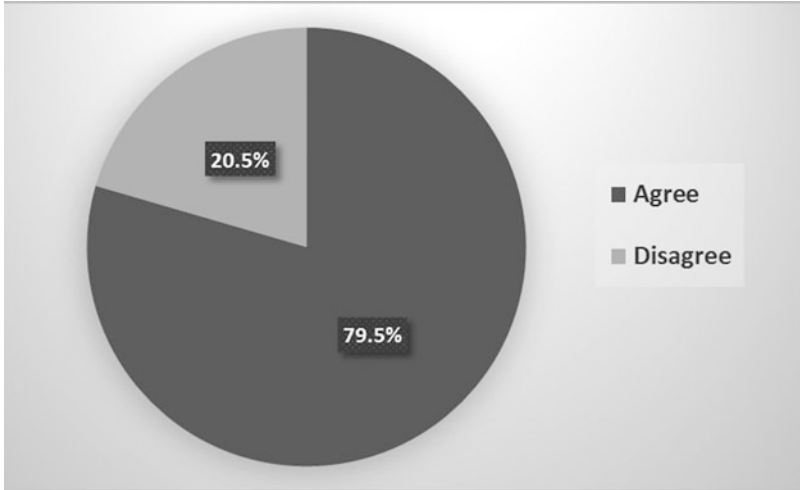


Fig. 10 Percentage of managers who believe that there is a shared vision among IJV partners

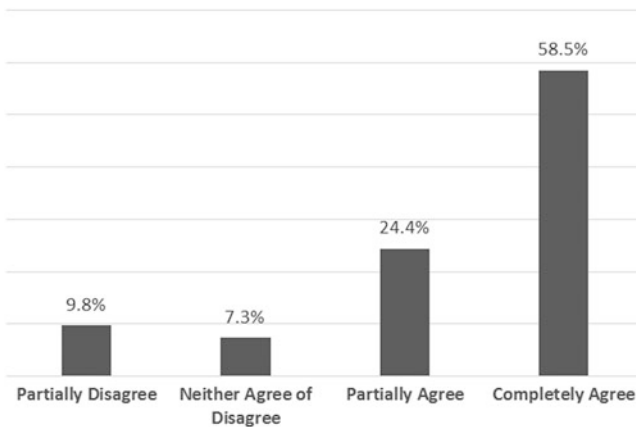


Fig. 11 Percentage of managers who believe that IJVs are significant to the parent company

4 Discussion

Summarizing the results of the analysis of Greek companies with IJV participation, it should be noted that they operate mainly in the manufacturing sector. The annual turnover of most of them is over 10 million €, and, on average, each firm participates in 3.7 IJVs. The majority of them are capital intensive, meaning that capital is their most important input. According to respondents, the transfer of knowledge to the IJVs is considered quite successful. Additionally, most of the entrepreneurs are

quite satisfied with the transfer of knowledge to the IJVs and consider it as very important.

Greek companies show a high degree of commitment to their IJVs since, according to the results, they regard them as essential part of their international activities. Moreover, the level of trust between partners is particularly high as well as the quality of communication among them, except for the completeness of communication, which is perceived to be lower. As mentioned above, Greek companies probably do not communicate all their knowledge or know-how in order to preserve them and to evade creating potential competitors. At the same time, the high level of trust among partners also leads to the creation of a shared vision among them and maximizes the chances for the overall success of the IJVs.

Park et al. (2015) argue that the unique characteristics of each country do not permit for generalization of research results since the location-specific conditions and other parameters may vary between regions and different time periods. Our observation of two different studies (Idris and Seng Tey 2011; Farrell et al. 2011) on Malaysian IJVs further supports the above argument. The results of these studies, which were conducted at the same time period and region, contradict the ones found most often in literature. Thus, the findings of this analysis concerning the key factors of knowledge transfer and trust for satisfactory IJV performance in SE European IJVs represent a contribution to the relevant literature, since, to the best of our knowledge, no similar research has been conducted before in this region.

5 Managerial Implications

The findings of this research provide some important guidelines for managers of Greek companies who seek for international collaborations and for executives of foreign companies who plan to collaborate with Greek partners in the future. Firstly, the transfer of knowledge from the parent companies to the IJVs is crucial and necessary for their successful operations. Secondly, trust and commitment are key factors for the success of knowledge transfer among IJV partners. For this reason managers should certainly devote time and effort to build and sustain close personal relationships and timely, accurate, and sufficient communication with their IJV counterparts, in order to establish mutual trust and commitment. In the same spirit, managers should avoid any actions or initiatives that could be seen as untrustworthy and threatening to the IJV. Finally, executives involved in IJVs should always remember that the presence of a shared vision among partners is particularly important for their success, especially in environments such as the one of SE Europe with so many cultural, historical, political, and economic particularities.

6 Conclusion: Implications for Further Research

The aim of this study is to examine trust and knowledge transfer success in IJVs operating in SE Europe and to reach some conclusions regarding the perceptions of Greek entrepreneurs and executives on these issues. The results show that Greek executives consider the transfer of knowledge to their IJVs vital for their success and they are vigorously committing time, energy, and resources to this process. Greek entrepreneurs seem to be quite cautious to transfer knowledge to their partners. The main reason for this protectiveness is that knowledge and know-how are considered as a foundation of their competitive advantage and are intentionally not fully communicated to the foreign partners and the IJVs, in order to avoid creating potential competitors. The main limitation of this research is that includes only the perceptions of Greek entrepreneurs and executives. Therefore, a similar study on the foreign partners' perspectives should also be conducted in the future. Apart from that, the importance of trust for knowledge transfer success and for satisfactory IJV performance is highlighted in the responses of Greek entrepreneurs/executives. Thus, a more detailed research on the factors that play the most important role in trust development in international strategic alliances should be carried out in the future. Finally, the environment of SE Europe in which this study was conducted has many political, economic, cultural, and historical special features and is dominated by temporal tensions among its nations. For these reasons, a study of the parameter of environmental hostility and its consequences on trust building among alliance partners is also an interesting suggestion for further research.

References

- Ahammad, M. F., et al. (2016). Knowledge transfer and cross-border acquisition performance: The impact of cultural distance and employee retention. *International Business Review*, 25(1), 66–75.
- Ainuddin, R. A., et al. (2007). Resource attributes and firm performance in international joint ventures. *Journal of World Business*, 42, 47–60.
- Ali, T., & Larimo, J. (2016). Managing opportunism in international joint ventures: The role of structural and social mechanisms. *Scandinavian Journal of Management*, 32(2), 86–96.
- Anderson, E., & Gatignon, H. (1986). Modes of foreign entry: A transaction cost analysis and propositions. *Journal of International Business Studies*, 17(3), 1–26.
- Anderson, J. C., & Narus, J. A. (1990). A model of distributor firm and manufacturer firm working partnerships. *Journal of Marketing*, 54(1), 42–58.
- Baker, W., & Sinkula, J. (1999). The synergistic effect of market orientation and learning orientation on organizational performance. *Journal of the Academy of Marketing Science*, 27(4), 411–427.
- Bamford, J., et al. (2004). *Envisioning collaboration: Mastering alliance strategies*. San Francisco: Jossey-Bass.
- Beamish, P. W. (1985). The characteristics of joint ventures in developed and developing countries. *Columbia Journal of World Business*, 20(3), 13–19.

- Chen, C. J., et al. (2014). Transfer mechanisms and knowledge transfer: The cooperative competency perspective. *Journal of Business Research*, 67(12), 2531–2541.
- Cullen, J. B., et al. (2000). Success through commitment and trust: The soft side of strategic alliance management. *Journal of World Business*, 35(3), 223–240.
- Day, G. S. (1994). Continuous learning about markets. *California Management Review*, 36(4), 9–31.
- Demirbag, M., & Mirza, H. (2000). Factors affecting international joint venture success: An empirical analysis of foreign local partner relationships and performance in joint ventures in Turkey. *International Business Review*, 9, 1–35.
- Evangalista, F., & Hau, L. N. (2009). Organizational context and knowledge acquisition in IJVs: An empirical study. *Journal of World Business*, 44(1), 63–73.
- Farrell, M. A., Oczkowski, E., & Kharabsheh, R. (2011). Antecedents and performance consequences of learning success in international joint ventures. *Industrial Marketing Management*, 40(3), 479–488. <http://www.sciencedirect.com/science/article/pii/S0019850109001874>
- Ghauri, P. N., et al. (2013). The impact of foreign parent control mechanisms upon measurements of performance in IJVs in South Korea. *Critical Perspectives on International Business*, 9(3), 251–270.
- Glaister, P. W., & Buckley, P. J. (1994). UK international joint ventures: An analysis of pattern and distribution. *British Journal of Management*, 5, 33–51.
- Glaister, K. W., et al. (2003). Learning to management international joint ventures. *International Business Review*, 12(10), 83–108.
- Grant, R. M. (1996). Prospering in dynamically competitive environments: Organizational capability as knowledge integration. *Organization Science*, 7(4), 375–387.
- Greve, H. R. (1999). Branch systems and nonlocal learning in populations. *Advances in Strategic Management*, 16, 57–80.
- Gundlach, G. T., et al. (1995). The structure of commitment in exchange. *Journal of Marketing*, 59, 78–92.
- Hambrick, D. C., et al. (1993). Top management commitment to the status quo: Some tests of its determinants. *Strategic Management Journal*, 14, 401–418.
- Huang, M. C., et al. (2015). Reexamining the relationship between control mechanisms and international joint venture performance: The mediating roles of perceived value gap and information asymmetry. *Asia Pacific Management Review*, 20(1), 32–43.
- Idris, A., & Seng Tey, L. (2011). Exploring the motives and determinants of innovation performance of Malaysian offshore international joint ventures. *Management Decision*, 49(10), 1623–1641.
- Ingram, P., & Simons, T. (2002). The transfer of experience in groups of organizations: Implications for performance and competition. *Management Science*, 48(12), 1517–1533.
- Inkpen, A. C., & Beamish, P. W. (1997). Knowledge, bargaining power and the instability of international joint ventures. *Academy of Management Review*, 22(1), 177–202.
- Inkpen, A. C., & Currall, S. C. (1997). International joint venture trust: An empirical examination. In P. W. Beamish & J. P. Killing (Eds.), *Cooperative strategies*. San Francisco: The New Lexington.
- Johnson, J. L., & Raven, P. V. (1996). Relationship quality, satisfaction and performance in export marketing channels. *Journal of Marketing Channels*, 5(3/4), 19–48.
- Johnson, J. L., et al. (1997). Setting the stage for trust and strategic integration in Japanese-US cooperative alliances. In P. W. Beamish & J. P. Killing (Eds.), *Cooperative strategies*. San Francisco: The New Lexington.
- Junni, P., & Sarala, R. M. (2011). Causal ambiguity, cultural integration and partner attractiveness as determinants of knowledge transfer: Evidence from Finnish acquisitions. *European Journal of International Management*, 5(4), 346–372.
- Junni, P., & Sarala, R. M. (2012). The role of cultural learning and collective teaching initiatives in M&A knowledge transfer. *European Journal of Cross-Cultural Competence and Management*, 2(3–4), 275–298.

- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*, 3(3), 383–397.
- Kumar, N. (1996). The power of trust in manufacturing retailer relationship. *Harvard Business Review*, 74, 92–106.
- Kwon, Y.-C. (2008). Antecedents and consequences of international joint venture partnerships: A social exchange perspective. *International Business Review*, 17, 559–573.
- Labahn, S. W. (1999). Commitment and trust in cross-national channel relationships: An investigation of US–Mexican trade relationships. *Journal of Marketing Channels*, 7(1/2), 121–156.
- Lane, H. W., & Beamish, P. W. (1990). Cross-cultural cooperative behaviour in joint ventures in LDCs. *Management International Review*, 30(Special Issue), 87–102.
- Lane, P. J., et al. (2001). Absorptive capacity, learning, and performance in international joint ventures. *Strategic Management Journal*, 22(12), 1139–1161.
- Li, J. J., et al. (2006). Active trust development of local senior managers in international subsidiaries. *Journal of Business Research*, 59(1), 73–80.
- Li, P., et al. (2013). The characteristics and dynamics of management controls in IJVs: Evidence from a Sino Japanese case. *Management Accounting Research*, 24(3), 246–260.
- Lu, J. W., & Ma, X. (2015). Partner resource asymmetry and IJV survival. *Asia Pacific Journal of Management*, 32(4), 1039–1064.
- Lunnan, R., & Haugland, S. (2008). Predicting and measuring alliance performance: A multidimensional analysis. *Strategic Management Journal*, 29(5), 545–556.
- Madhok, A. (1995). Revisiting multinational firms' tolerance for joint ventures: A trust-based approach. *Journal of International Business Studies*, 25(1), 117–137.
- Magnini, V. P. (2008). Practicing effective knowledge sharing in international hotel joint ventures. *International Journal of Hospitality Management*, 27(2), 249–258.
- McEvily, B., & Marcus, A. (2005). Embedded ties and the acquisition of competitive capabilities. *Strategic Management Journal*, 26(11), 1033–1055.
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20–38.
- Nielsen, B. B. (2007). Determining international strategic alliance performance: A multidimensional approach. *International Business Review*, 16, 337–361.
- Pak, Y. S., et al. (2009). Understanding IJV performance in a learning and conflict mediated context. *International Business Review*, 18(5), 470–480.
- Pak, Y. S., et al. (2015). An integrated multi-stage model of knowledge management in international joint ventures: Identifying a trigger for knowledge exploration and knowledge harvest. *Journal of World Business*, 50(1), 180–191.
- Park, B. I. (2011). Knowledge transfer capacity of multinational enterprises and technology acquisition in international joint ventures. *International Business Review*, 20(1), 75–87.
- Park, S. H., & Ungson, G. R. (1997). The effects of national culture, organizational complementarity, and economic motivation on joint venture dissolution. *Academy of Management Journal*, 40(2), 297–307.
- Park, C., & Vertinsky, I. (2016). Reverse and conventional knowledge transfers in international joint ventures. *Journal of Business Research*, 69, 2821–2829.
- Park, C., et al. (2013). *The influence of foreign partners' disseminative capacities on knowledge transfers to international joint ventures* (SMG Working Paper No. 2/2013, pp. 1–44). Available at SSRN <http://ssrn.com/abstract=2198885>
- Park, C., et al. (2015). Transfers of tacit vs. explicit knowledge and performance in international joint ventures: The role of age. *International Business Review*, 24(1), 89–101.
- Ramaseshan, B., & Loo, P. C. (1998). Factors affecting a partner's perceived effectiveness of strategic alliance: Some Singaporean evidence. *International Business Review*, 7, 443–458.
- Rotsios, K. P., et al. (2014). Trust, knowledge transfer and control in IJVs: The case of four Greek firms. *Procedia Economics and Finance*, 9, 231–241.

- Sarkar, M., et al. (1997). A commitment-trust mediated framework of international collaborative venture performance. In P. W. Beamish & J. P. Killing (Eds.), *Cooperative strategies*. San Francisco: The New Lexington.
- Starbuck, W. H. (1992). Learning by knowledge-intensive firms. *Journal of Management Studies*, 29, 713–740.
- Stopford, J. M., & Wells, L. T., Jr. (1972). *Managing the multinational enterprise: Organization of the firm and ownership of the subsidiary*. New York: Basic Books.
- Wu, F., & Cavusgil, S. T. (2006). Organizational learning, commitment, and joint venture creation in interfirm relationships. *Journal of Business Research*, 59, 81–89.
- Zaheer, A., et al. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science*, 9(2), 141–159.
- Zhan, W., & Chen, R. R. (2013). Dynamic capability and IJV performance: The effect of exploitation and exploration capabilities. *Asia Pacific Journal of Management*, 30(2), 601–632.

Examination of Two Companies' Liability Management



Péter Földi, Judit Bárczi, and Judit Tóth

Abstract Companies need capital to establish, to start their activities, to continue their processes and to expand. Firms use their money that is available to invest in instruments which are necessary for their activities (intangible assets, tangible assets and non-material assets). We can distinguish fixed and current assets that depend on the invested capital, which can be a shorter or a longer period.

Companies have to make a lot of decisions on how to run their working process regarding financial and innovative questions. We would like to deal with financial decisions from these. It is a well-known fact that the financial decisions always bring major changes in assets and liabilities in long and short term as well.

From these decisions and financial principles, we can determine the enterprises' asset or liability willingness. The company's asset policy can be determined by the help of many indicators which take into account the company's asset structure and debtors and creditors.

Keywords Financial decisions • Company financing • Capital structure • Profitability • Capital investment

1 Introduction

The enterprises are regularly forced to use different inner and external capital elements in their life. Of course, the given companies will use that kind of sources, which they are able to achieve a value-creation progress with, and thereby contribute to the increment of the trade industry sector. The reaction of the industry competitors is very important in this period too, because if the companies do not respond properly to the changes around them, they might be involved easily into

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a liquidation or bankruptcy proceeding, which—let us face it—would be so advantageable neither to the market's companies nor to the customers.

The purpose of this test is to figure out how the two analysed companies can respond to the industry and environmental changes, furthermore, especially what kind of reallocations or structure changes they need to take, because the two small analysed firms are influenced by the customer habits; that is why their excise duty will increase the state's revenue. So, the company's ambition is to bridge the gap between the cost of production and the selling price, so as the gap not to be covered totally by the excise duty of the products.

We have observed—during the adaptation of the specialized literature—the companies' inner and external financing opportunities, strategies, forms and principles and the capital structure of all these mentioned behind. Within this, I will review the type of the debt-to-equity ratio as well. Besides, it will be mentioned also the types of short- and long-term liability. Afterwards, the capital structure theories follow, and then I am going to investigate—with descriptive and financial analysis—the companies' liquidity indicators, which are needed to have for the suitable asset-liability combination.

Due to the financial analysis, we can check upon the companies' activity with more indicators such as liquidity proportion—affecting the proportion of the fixed and current assets, between 2004 and 2014. The short- and long-term liability elements are also going to be analysed, because the enterprises have borrowed these capital elements to keep up their liquidity. Both mentioned companies are in the trade industry, where the economical depression has caused damages, just like in the building industry.

After the general analysis, I will draw conclusions and suggestions, which the enterprises can achieve a more economical and expanding capacity with, or they may consider them. Finally, at the end of the chapter, I will sum up the study.

2 Specialized Literature Overview

Basically, the capital structure determines the profitability too, because it is worth to involve liability into the business until equity's yield is increasing. That is why the financial decision of the companies is such important.

2.1 Financial Decisions of the Companies

The short-term goal of a company is to keep its own liquidity and, on the other hand, to maximalize the income of the owner, to increase the equity and the yield, as well as in long term. The leaders make decisions in order to achieve these goals mentioned above. Generally, these decisions make the asset and liability

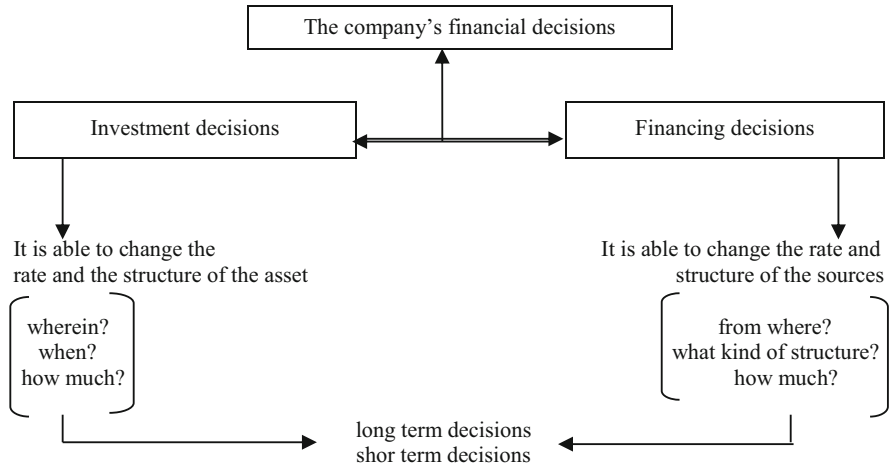


Fig. 1 The types of the financial decisions. Source: Horváth (2010, p. 7) in my own editing

combination and structure change; in this way they have an influence on the company's financial situation (Horváth 2010).

The financial decisions are those decisions which can make changes in the assets and liabilities in short and long term too (illustrated by Fig. 1).

2.2 The Types of Business Financing

The business financing is such a **conscious** activity, which helps to bring up and apply the financial sources. Due to financing, companies have enough financial resources for assets and for the proper business running (Bárczi 2010).

The two types are:

- Internal (own) financing
- External financing (financing from money—or capital market)

Table 1 shows the elements of the inner and external financing in detail.

The Inner Financing Elements

- The type of financings from write-off is called amortization. This type of financing makes money for the smaller expansion and modernization at the most of enterprises. The profit of the functioning company belongs here too (Tóth 2008, p. 10).
- When the owners do not take out the dividend, rather they reinvest them into the business, we call it: financing from retained profit. The own savings, the initial capital and the previous, annual profit also belong to here (Bélyácz 1997).
- We are talking about financing from asset redistribution, when the company keeps its own capital in redundant assets. The source of the investments is the

already recovered cash and cash equivalents, so then they can be again invested, e.g. sale of properties, reduction of active capital (less inventory aggregation), costs of operation (opening hours, reduction of manpower) and the sale of the redundant assets (Horváth 2010).

The Advantages of the Inner Financing

- The enterprise cuts oneself adrift from the capital market and thus needs to negotiate with nobody in the case of financing and further does not depend on the lender's conditions.
- The amount of the amortization can be used to finance the investments, when it is not included into the debt service.
- The reinvested earnings do not depend on any external factors; also its size does not depend on external will but is rather determined by the owner's decisions.
- The reinvested profit is immediately available for the company (Horváth 2010).

The Elements of the External Financing

- Shareholder's equity from external financing: The company can get equity from external source with additional capital raising. The company can even reach the result—mentioned above—if the previous owners pay in the amount of the capital increase. Besides, it can be also another way to involve new owners. New shares are offered in a case of a company limited by shares. Afterwards, the new owners have the right to have a say into the company's decisions; besides, they get the share of the profit and the loss too. The recipient business' capital and share capital are getting higher in this kind of financing form.
- Raising venture capital: It is a unique way to get shareholder's equity. The company can take this kind of capital from investment companies founded for this specific purpose: those who give this capital to the company provide a financial support but, first of all, investigate the company's activity and its financial economy. The investor receives shares in the business in exchange of the investment. Like this, the lender of the financial support takes part into the management, the leading of the business and—above these—focusing to reach the capital profit (Csubák 2003).
- Acquirement of loan capital from the capital and money market: The loan capital rises from the bond issuance. The transmitter does not care about the way the company uses up this cash and cash equivalents of this transaction. He is only interested in getting back the loan capital with the interests together, until the contractual deadline. According to Table 1, companies can take debts to finance their investments, but it depends mainly on the costs of risk capital and the flexibility of the loan procedure (Illés 2002).
- Grant of subsidies: The conception of the government grant is determined by the EK contract, law section 87, paragraph 1. According to this, we need to regard as state grant all the money, which comes from state sources (e.g. trust funds, central budget, local governments) or from European Union's fund (through credit institution or business association), and we do the same in the case of the lost profit of the state finances (e.g. tax benefits) too (Horváth 2010).

Table 1 The elements of the inner and external financing

Inner financing	External financing
(“Public”) <i>self-financing</i> (Increase of equity through profit’s back ploughing)	Self-financing (Increase of equity with current owners)
Amortization (“Secret self-financing”, no show in the balance sheet)	Share financing (Increase of equity with new owners) • Extern increase of stock (e.g. increase of capital through public shares offering) • Venture capital (private equity) acquire
Profit share (dividend) (Equity)	Shareholder’s loan (with current owners) (External liabilities, lender’s law)
Capital release (asset rearrangement) (Fix or current asset mobilization, sale or letting)	External financing • Bank loan • External liabilities as a form of bonds
	Hybrid financing (Combination of debt and equity rights) • Convertible and option bond

Source: Katits (2002, p. 25)

2.3 Financing Strategies

The equity—which belongs to the lasting sources—serves the production process permanently, and the long-term loans do the same during many years. We need to highlight an important financial principle; according to this, the maturity of the assets’ return and the financial sources must be in line with each other. This is called the principle of fitting (Sóvágó 2010).

The long-term financing strategies have three different types:

The principle of fitting is showed up in the case of solid strategy, which you can see on Fig. 2. This goes hand in hand with average risk and financing cost. The point is the business uses basically the long-term liabilities to finance the long-term assets and the temporary sources to finance those assets, which are getting wasted within 1 year (Borszéki 2001).

Figure 3 indicates the conservative or cautious financing strategy which is also called as careful strategy. The point is that the business uses the long-term liabilities to finance the short-term assets too, not only the long-term ones; however, this strategy is quite expensive, because if reduction happens in the wasted assets, we need to have the costs on us as well, but the advantage is the safety (Borszéki 2001).

The aggressive strategy has an opposite face, which means the business uses the temporary sources to finance the 1-year wasted assets and a part of the long-term assets too. However, this strategy is quite risky and cheaper than the conservative one, though the cost-efficiency is an advantage which you can show on Fig. 4 (Borszéki 2001).

After the presentation of the different financing forms, I would like to continue with the two companies’ evaluation.

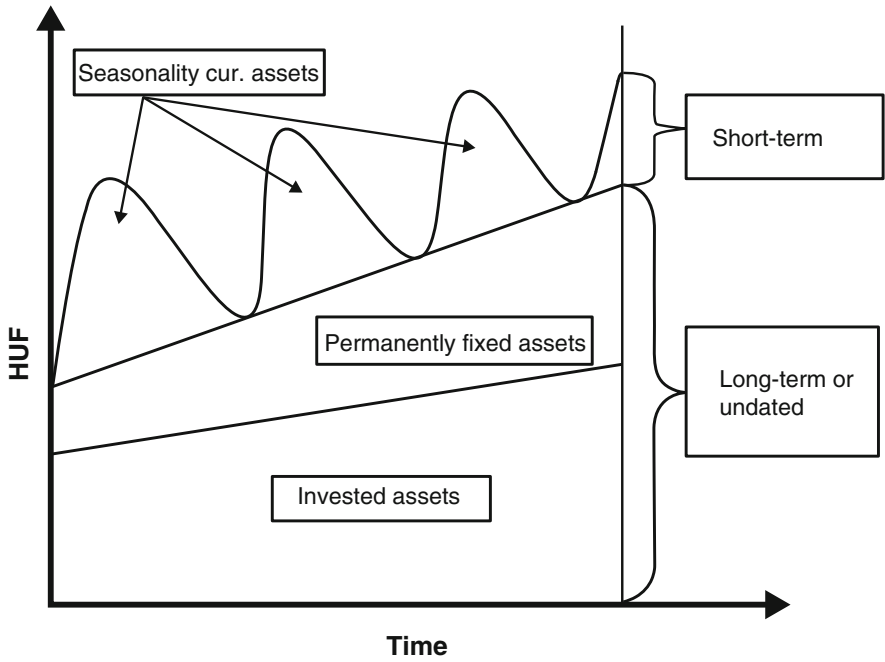


Fig. 2 The solid financing strategy. Source: Illés (2009, p. 219)

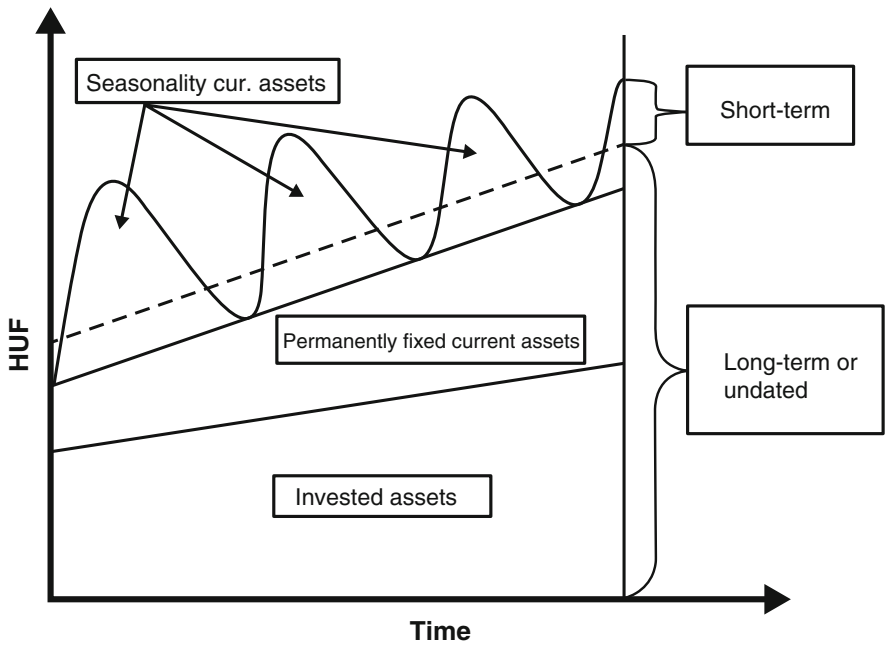


Fig. 3 The conservative financing strategy. Source: Illés (2009, p. 220)

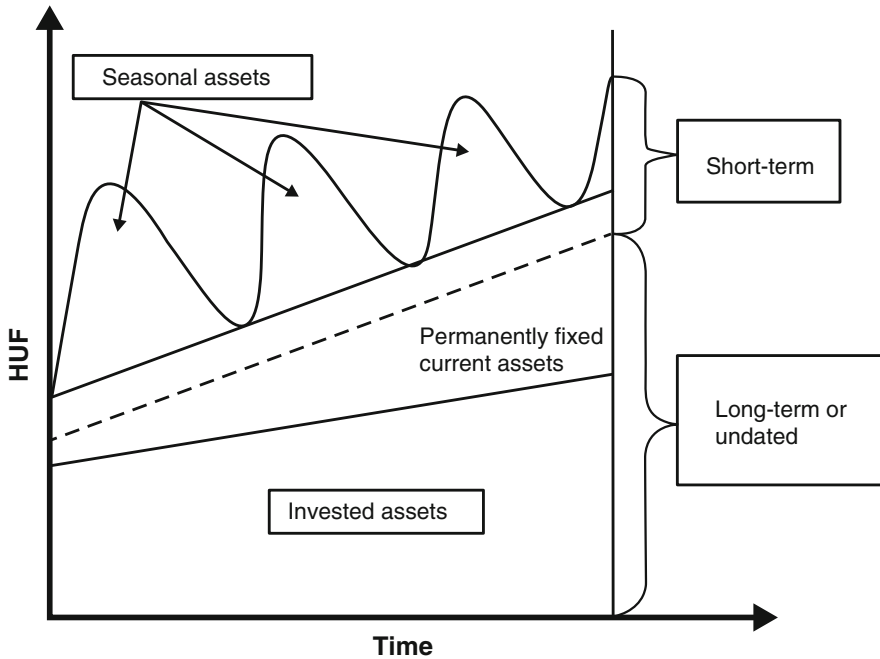


Fig. 4 The aggressive financing strategy. Source: Illés (2009, p. 221)

2.4 The Evaluation of the Companies with Index Numbers

To analyse the asset structure, we are going to use the fixed assets, the proportion of current asset and the turnover rate index numbers. The proportion of fixed assets shows what percentage the long-term fixed assets take from the total company's assets.

$$\text{Invested assets rate} = \frac{\text{Invested assets}}{\text{All assets}} \times 100$$

As it seems on Fig. 5, the Notórius Lp. has obtained tangible and intangible assets, but new fixed assets have not been purchased since 2004. The assets are charged with linear depreciation, thus there is no change in the fixed assets, but because of the amortization, their proportion is reduced in contrast with the current assets.

The Konzolidált Ltd. has dealt with purchasing of assets in 2004, 2007, 2010, 2012, 2013 and 2014, and it should be highlighted that the company has taken the biggest part of the fixed assets in 2004. Due to the amortization, the index numbers are reduced in the other years. In point of depreciation charge, the Konzolidált Ltd. follows the same way as what the Notórius Lp. has done previously.

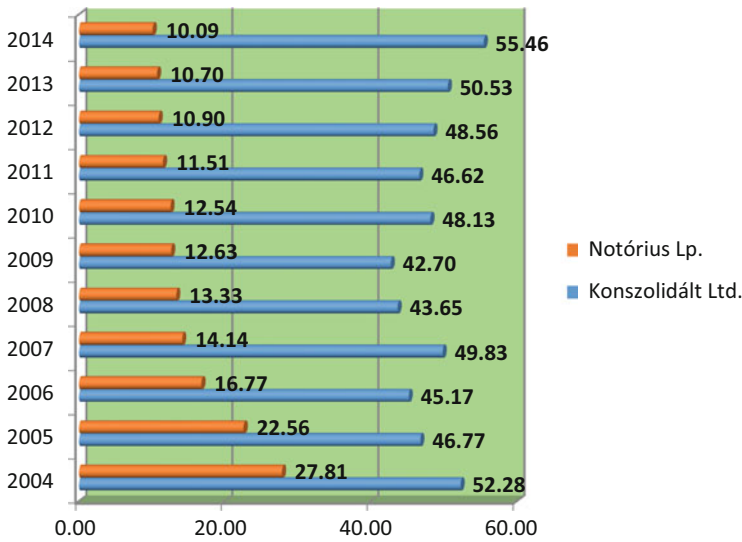


Fig. 5 Proportion of the fixed assets of the two firms audited 2004–2014. Source: Internally edited on the basis of reports

We can find out from the ratio of the fixed assets the ratio of the current assets too—explaining right now. There is no need for pictures, because we can see from the previous picture the current assets’ change too.

The company’s current asset value is affected by the inventories stocked in storage, customer receivables and the cash and cash equivalents. The stock turnover ratio can show us how much of current assets to be sold and how much to be stayed in storage.

The turnover rate of the inventories is one of the most significant index for the leaders and the most descriptive index due to the inventory management. The value shows how many times could be sold from the average inventories under the referred period. If the index has a high value, it means that the company is really efficient. However, it is an option that this index has high value because of the less current assets, which is unfavourable from the market’s view. In case a company is not able to serve its customers immediately according their expectations, it can easily cause market loss.

$$\text{Stock turnover ratio} = \frac{\text{Net income}}{\text{The average stock value}} \times 100$$

As you can see on Fig. 6 the Konzolidált Ltd. sells more products according to its size; however, it concentrates on one product line only. The extreme values have been worked out because of the income of 770,000,000 and 830,000,000 HUF in 2009 and 2010 (300 HUF is approximately 1 €).

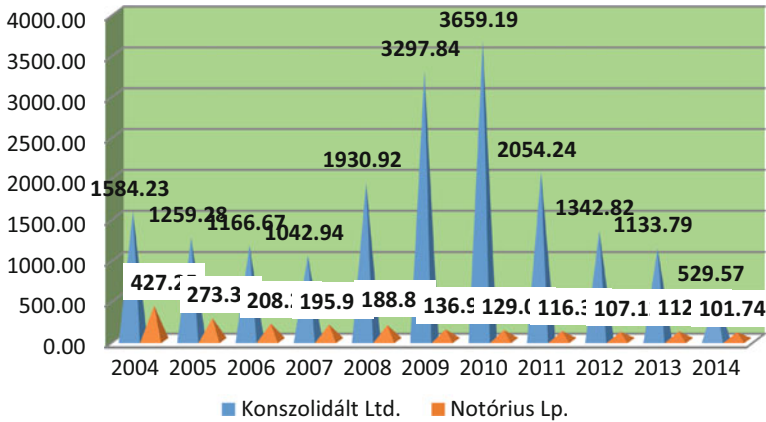


Fig. 6 The turnover rate of the two firms audited 2004–2014. Source: Internally edited on the basis of reports

Notórius Lp. suppose to sell more because it makes more kinds of products produced, but we can see that the Ltd. – with its bigger capacity utilization, focusing on one product line only – has gained more profit and keeps more clients through its wholesaling partners.

The Lp. has the same size of inventory and income: in average between 55,000,000 and 80,000,000 HUF.

To analyse the capital structure, we will use the proportion of the equity and the index of the indebtedness.

The equity ratio shows the proportion of the equity among all of the sources. It is worth to analyse the structure of the equity too, in order to define the index, or we can ask also: What percentage of the equity finances the assets?

$$\text{Equity ratio} = \frac{\text{Equity}}{\text{All sources}} \times 100$$

We can see on Fig. 7 the stagnancy at the Notórius Lp. under the mentioned period and thus follows that the company does not have obligation of a long-term, debt character, institutional financing form. Since the establishment until 2005, the company stayed alive owing to the suppliers' loans and the long-term pay deadline. The Lp. covers the equity sources from the shareholder's loan from 2006, and it counts 16 million HUF.

Because of the size of the Konzolidált Ltd., they have more loans, which are just getting higher and higher year by year. They had a bank loan of 26 million HUF in 2004, which costs 128 million HUF at the present; the reason is the volume changing in 2003. Besides, they have 105 million shareholder's loan with 15 million HUF annual, financial cost.

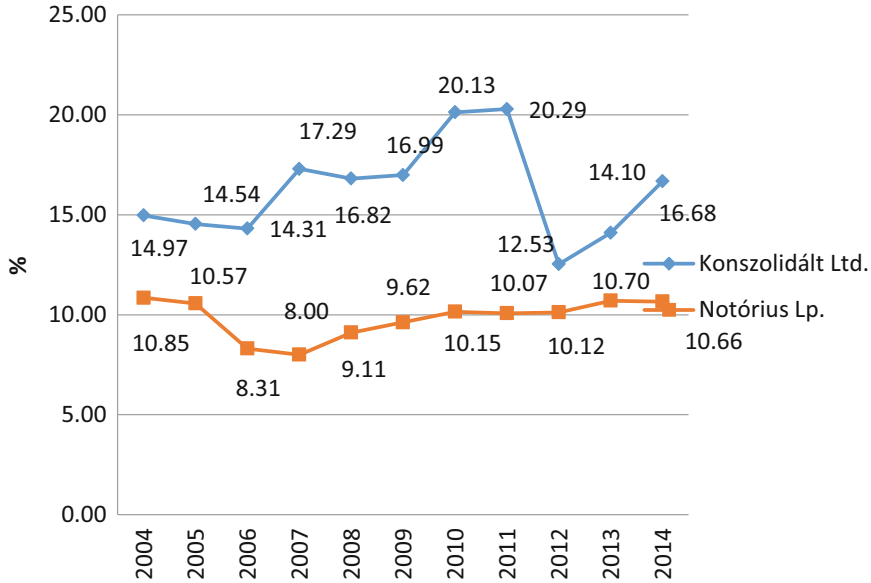


Fig. 7 The proportion of the equity of the two firms audited 2004–2014. Source: Internally edited on the basis of reports

The Analysis of the Leverage

Hereunder, we can see the indebted case of the company. Within the liabilities, we can find long-term and short-term liabilities’ elements, where the second one is the more dominant.

$$\text{Indepthedness} = \frac{\text{Foreign capital}}{\text{Equity}} \times 100$$

Indebtedness may subsequently be influenced by the short-term and long-term foreign capital absorbed by the company.

As for Notórius Lp., a long-term debt can be perceived following the years of 2004, 2006, 2013 and 2014, represented by the shareholder’s loan reported in the year of 2006. As we pointed out on Fig. 8 in the remaining years, short-term liabilities influenced the firm’s ratio.

There are more considerable distortions in the case of Konzolidált Ltd., as the size of credit and the financial means invested as capital by owners differs to a great extent from that of its partner’s. According to Borszéki’s (2008) definition, the value of indebtedness carries a risk if exceeding 70% and may result in difficulties in payment.

The indicator shows beyond-average values in the audited period; however neither company has any payment or solvency issues.

Analysis of short-term indebtedness, net current assets and long-term debt:

$$\text{Short term debt} = \frac{\text{Short term foreign capital}}{\text{Foreign capital} + \text{Equity}} \times 100$$

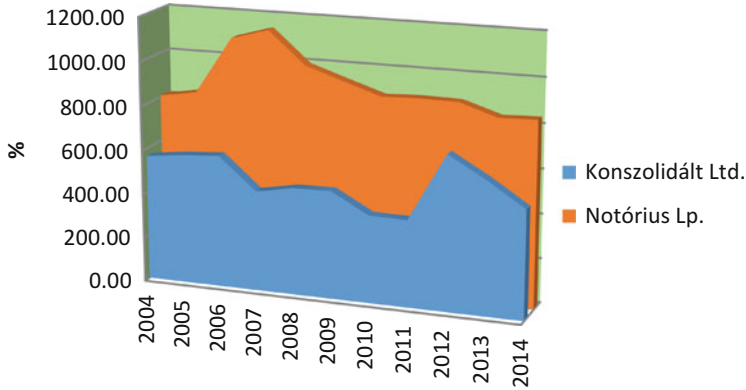
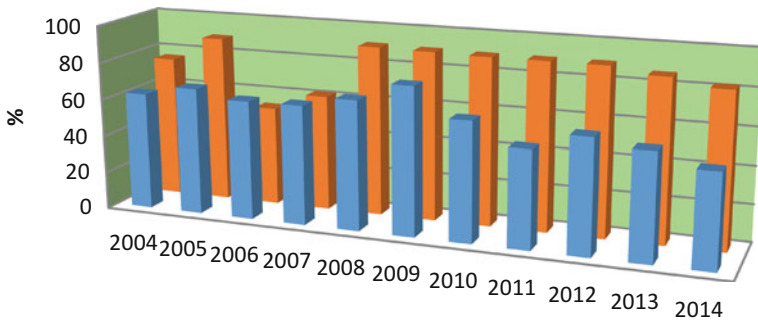


Fig. 8 Analysis of indebtedness of the two firms audited, 2004–2014. Source: Internally edited on the basis of reports



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
■ Konzolidált Ltd.	63	68	64	64	69	79	64	52	61	57	50
■ Notórius Lp.	76	89	53	62	91	90	90	90	90	86	82

Fig. 9 Short-term debt of the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

Figure 9 also indicates the short-term debts of firms are described in terms of the 11 years by the prevailing status of customer advances, accounts payable and contribution payment obligations.

Net working capital can be calculated as the difference of net current assets and current liabilities, and it expresses the value of current assets financed by long-term liabilities. The actual status of the net current assets demonstrates the conservative strategy the company is engaged in; according to which, a part of current assets is financed from long-term liability.

$$\text{Net current assets} = \text{Value of current assets} - \text{Short term liabilities}$$

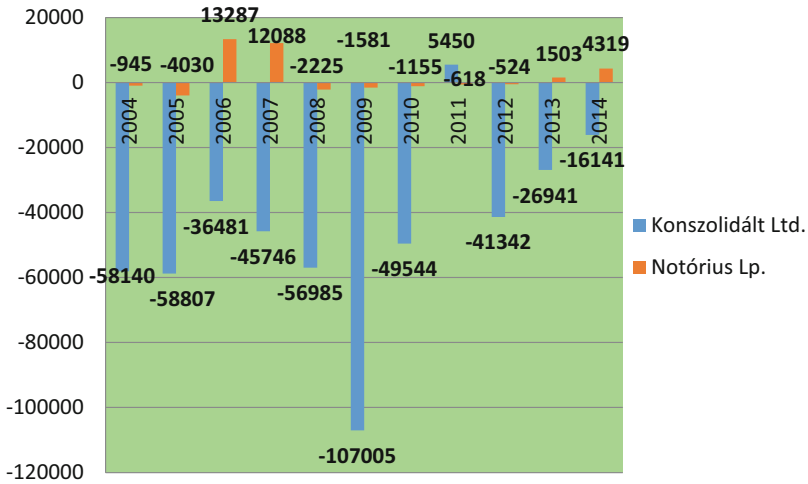


Fig. 10 Net current assets of the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

In the case of Notórius Lp., we can speak about long-term debt as of 2014 only, as the outstanding value of 2006 resulted from the regrouping of shareholder’s loan. The main features of the long-term loan drawn in 2014 are requested capital resource of HUF 2,000,000 with a maturity of 5 years, with annual interest of 9% interest rate and monthly disbursements of HUF 48,333. This loan is an annuity disbursement arrangement, in which the composition of instalments varies during the payback period with respect to the interest and capital.

According to its current data which Fig. 10 shows, Konzolidált Ltd. pays an interest amounting to almost HUF 1,250,000 on its bank loan of HUF 100,000,000, with an annual interest rate of 15%. Typical of this kind of loan is that when the source is received on the bank account, the capital used is settled and, respectively, the value of the interest payable depends on the amount of the funds used monthly. If less source is used, less interest is deducted, while if it is more, the corresponding value will be deducted. Also, what is typical of this kind of credit is that the company has to declare each month whether it still requires the credit line or whether it preferred to reduce or increase the credit line available.

As Fig. 11 suggests, long-term liabilities of Notórius Lp. have been caused by the reallocation of capital elements as it drew a long-term loan in 2014 in order to retain its solvency. The long-term indebtedness of Konzolidált Ltd. is influenced by the credit line having existed and incessantly increased since 2004. It is important to mention that the company was granted in 2003 an investment loan it had to pay off by 2009, and, as well visible in the diagram, the same resulted in a drop in indebtedness.

$$\text{Long term debt} = \frac{\text{Long term foreign capital}}{\text{Foreign capital} + \text{Equity}} \times 100$$

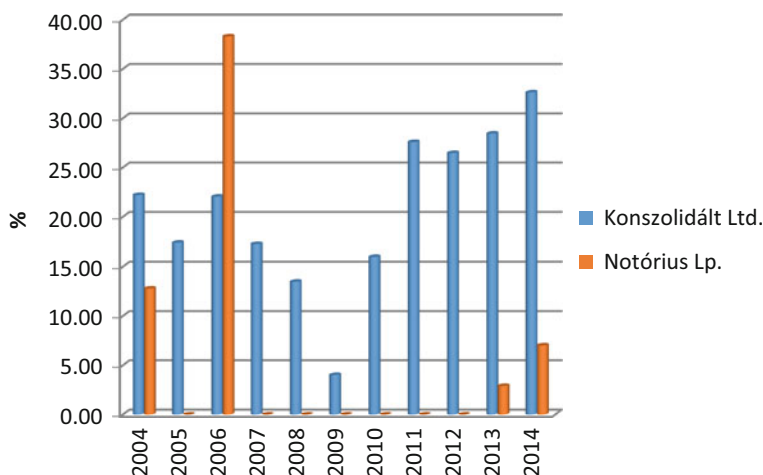


Fig. 11 Long-term indebtedness at the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

The coverage II ratio expresses the extent to which equity and long-term financing resource finance long-term invested assets (tangible assets, intangible assets and invested financial assets), which refers to the financing strategy applied and its influences.

$$\text{Coverage II} = \frac{\text{Equity} + \text{Long term foreign capital}}{\text{Invested assets}} \times 100$$

Figure 12 indicates the outstanding value of Notórius Lp. in 2006 emerged due to the shareholder's loan, and no other factor influenced it.

The value of the ratio at Konzolidált Ltd. varies between 49 and 103% in the period audited. The low value of 49% emerged due to the early repayment of the investment loan. The increase of the ratio is not necessary due to the increase in the long-term liability; it may result from the impact of the loss and, respectively, profit realized during the years, which may successively cause a drop or rise in equity. The firms finance their invested assets from long-term resources in each year, from which one may conclude the use of a safe conservative strategy.

We are going to use the current acid test ratio and the quick ratio. The current acid test ratio is typical in general of the company's solvency but is not suitable for the assessment of the company's momentary solvency situation. According to scientific literature, value around two seems to be fair, but if stocks are high, its distorting effect prevails as the marketability of stocks may be limited; therefore, we cannot merely rely only on the current acid test ratio in assessing solvency.

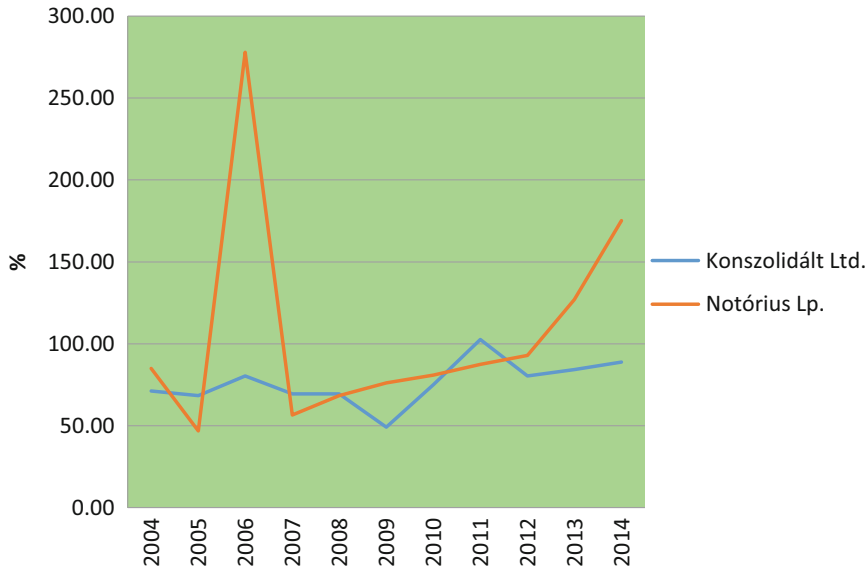


Fig. 12 The coverage II ratio at the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

$$\text{Current acid test ratio} = \frac{\text{Current assets}}{\text{Short term foreign capital}}$$

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Stocks}}{\text{Short term foreign capital}}$$

Considering the years of 2004–2014, the values underperform the value of two as suggested by scientific literature (Borszéki 2008, p. 39). Neither companies ever had problems with their solvency, and the value of stocks has a distorting effect on the value of the ratio as you can see on Fig. 13.

When examining the quick ratio, I cleared the company's assets (purchased or internally manufactured) from stocks, but current assets and accounts receivable still remained. The safe value of the ratio is around 1–3 according to scientific literature. The ratio fails to reach this value in the period audited at the two firms; still no solvency issues emerged.

The accounts receivable (customers) indicator in duration, i.e. days show the number of days in sales revenue corresponding to the average accounts receivable and the sales revenue of how many days is engaged, as we illustrate on Fig. 14. An increase in the length of the duration of accounts receivable is unfavourable, as it has to be financed by the involvement of some sort of foreign resource.

$$\text{Receivables} = \frac{\text{Average receivables} \times 365}{\text{Net sales revenue}}$$

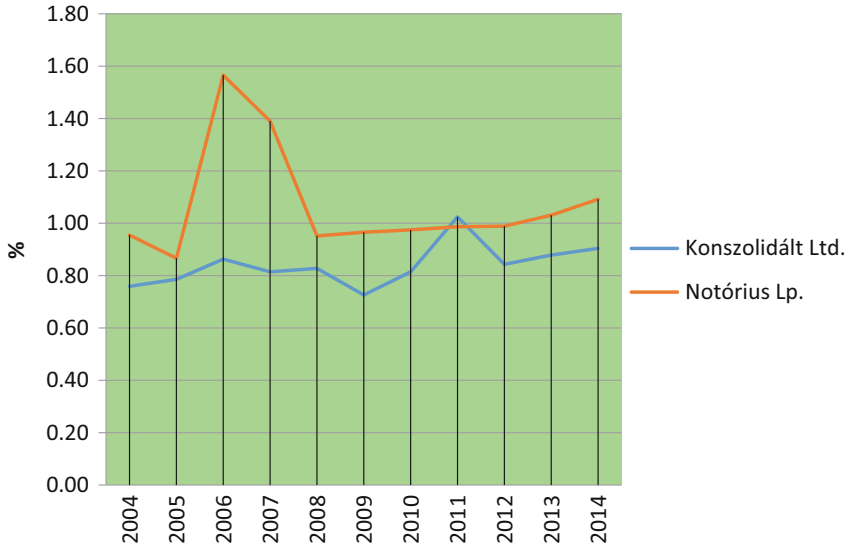


Fig. 13 Current acid test ratio at the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

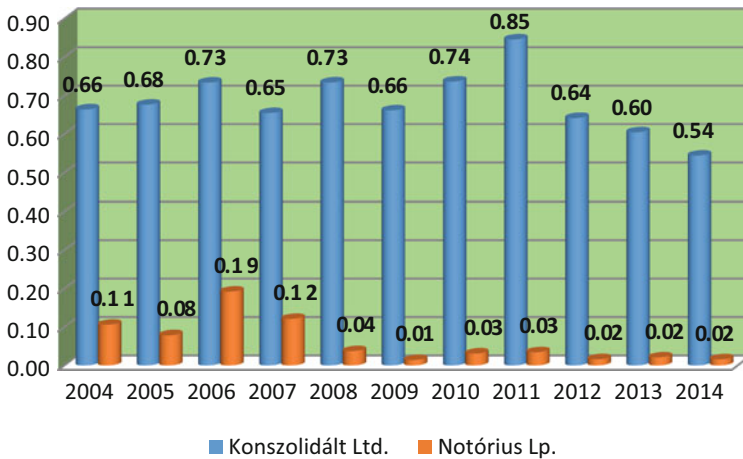


Fig. 14 Quick ratio at the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

Figure 15 also indicates clearly that given the different scopes of activities of the two companies, their customers differ. Notórius Lp. has a receivables portfolio of 10–27 days in the audited period, which is unfavourable in terms of maintaining the solvency of the business.

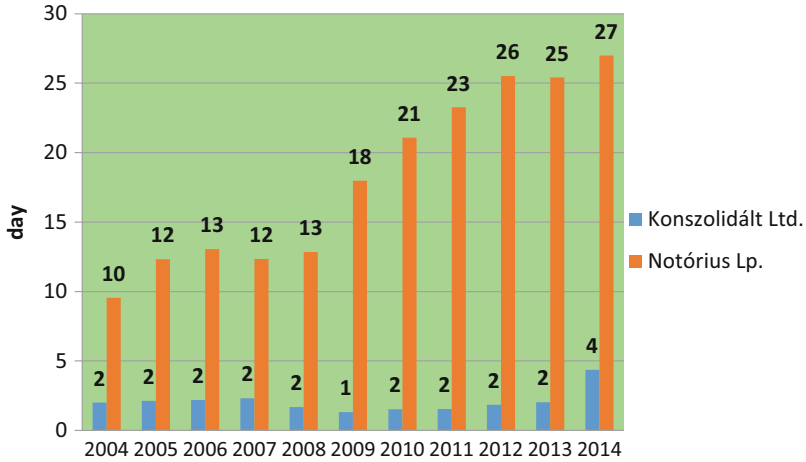


Fig. 15 Receivables at the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

Konzolidált Ltd. is paid with a minimum waiting time in the period from 2004 to 2014, which enables it to pay its suppliers in time. There can be different scenarios of course, but generally the above is typical of the business.

Following the analysis of the maturity of accounts receivable, let us examine the duration of accounts payable, which is not influenced by the cash contributions paid by customers. Disbursement of accounts payable is limited only by the firms’ daily cash flow regulation, which we are going to describe below.

The average duration of accounts payable shows that the average supplier portfolio can be accounted for how many days of material expenditure (material used, goods sold, material-type services and subcontractor performances). Accounts payable are covered from the cost of material accounted for as costs of sale, the cost of material-type services and the value of goods sold, i.e. the accounts payable portfolio can be confronted with the costs of sales and not with the sales revenue.

$$\text{Accounts payable} = \frac{\text{Average accounts payable portfolio} \times 365}{\text{Material-type expenditures}} \times 100$$

From the amount the two firms audited, only Notórius Lp. may have difficulties as of 2009, as the desired ratio jumped to 18 days there, which is not at par with the confronting 2, so it uses the uncommitted part of the shareholder’s loan for the period concerned, or it extends the customary 8 or 15 days’ payment period in agreement with the supplier to avoid issues in solvency, which is illustrated on Fig. 16.

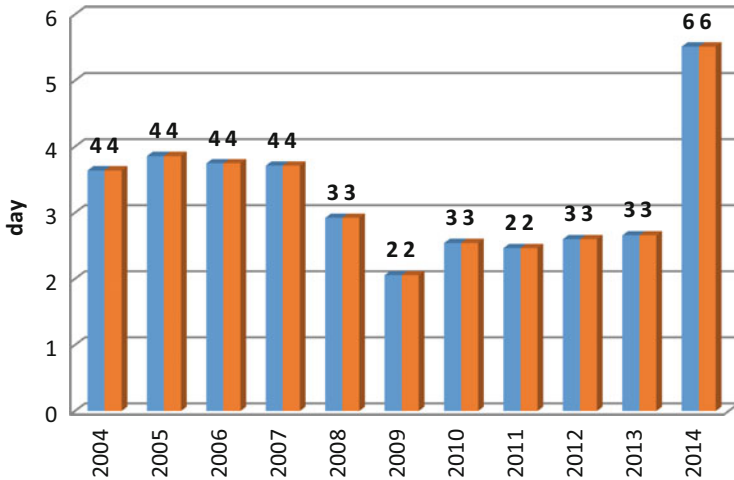


Fig. 16 Accounts payable at the two firms audited, 2004–2014. Source: Internally edited on the basis of reports

3 Conclusions

The companies we audited managed to accomplish the strategy or achieve the goal set forth by them more or less successfully in the interval of 11 years, but beyond that they could improve in becoming better in their market segment.

In order to maintain itself, Konzolidált Ltd. drew long-term loan in addition to short-term liabilities, which serve financing not only material assets but are also used to maintain current solvency. While short-term liabilities tend to take the upper hand in the case of Notórius Lp., as the business drew a long-term loan as of 2014 to finance its assets and prevailing solvency, until that time it had made up for missing capital through shareholder’s loan and the extension of the payment of accounts payable. The businesses audited are situated in the trade and service sectors, which has been influenced by the crisis to a perceivable, even if not a great extent.

Konzolidált Ltd. can be seen successful in collecting its accounts receivable, as it receives its outstanding finances within an average of 2 days, while in the case of Notórius Lp., the same is from 10 to 27 days, which cannot be said to be so favourable.

Due to the above, Konzolidált Ltd. can always use its liquid assets in the case of accounts payable, as the same is placed only for a short time at its permanent partners. At the same time, Notórius Lp. endeavours to extend the deadline of the accounts payable to ward off the situation, which we also commonly call vendor credit. This indicator can of course distort and, thus, deviate from reality, which is a day-to-day experience for businesses in their everyday business!

The composition of own capital and foreign capital of the audited companies is characterized by the fact that both availed of some long-term resource as well as shareholder's loan, which took the following turn subsequently. Notórius Lp. finances its operation mainly from vendor credits, and, of course, it seems to be wise to note that the firm performed a capital injection in 2006 amounting to HUF 16 million in the form of shareholder's loan, which it has been exploiting since then within its capabilities. We can mention a long-term loan only as of 2014. At the same time, Konzolidált Ltd. has a more significant credit portfolio, having evolved as follows: it drew a loan of HUF 26 million in 2004, which by today has grown to HUF 128 million through financing several machine lines, a larger site and more employees. In addition the firm also has a shareholder's loan portfolio of HUF 105 million.

As regards invested assets and current assets, Notórius Lp. and Konzolidált Ltd. tend to abound rather more in their current assets, which it can immediately sell at whatever hardship. As for Notórius Lp., the same can be between 10 and 30%, while at Konzolidált Ltd., it is between 42 and 56%.

The capital composition of companies is as follows: Notórius Lp.'s own capital ratio was between 8 and 11% in the audited period, i.e. its overwhelmingly foreign capital amounts to 89% and 92%, respectively, which is mainly composed of vendor credits, but, in addition, it also has a portfolio of shareholder's loan, the current value of which is HUF 16 million. Respectively, it also has a long-term loan as of 2014. In the case of Konzolidált Ltd., the same is between 14 and 21% regarding their own capital, whereas foreign capital elements amount to 79% and 86%, respectively, so they have been rather similar in the case of the two firms. Their composition is as follows in the case of the latter company: HUF 128 million bank account credit due to the change in volumes in 2003 and due to purchasing a larger site. In addition it also has a shareholder's loan of HUF 105 million, the annual financial expenditure of which exceeds HUF 15 million. Profitability of the two firms has already been explained in the earlier parts of the analysis partly through a comparative analysis.

In the indebtedness of the firm according to the ratios analysed in the case of Notórius Lp., the long-term debt can be perceived in regard the years of 2004, 2006, 2013 and 2014, which represented the leveraging of the shareholder's loan in the year of 2006. In the remaining years, short-term liabilities influenced the firm's ratio. In the case of Konzolidált Ltd., there have been major distortions, as the prevailing credit portfolio and the size of the invested financial assets as capital greatly deviate from those of its smaller partner. The current solvency and quick ratios of the businesses therefore do not correspond as due to their size the businesses audited need to maintain stocks given their diversified activity portfolio.

Considering the stock turnover ratio and given its size, Konzolidált Ltd. sells more products in a year although they focus on only one particular group of products. In the audited period, the company realized a net sales revenue of HUF 365,000,000 and 827,000,000. Taking into consideration that Notórius Lp. manufactures various different products, one may conclude that they sell more; in the meantime the Ltd. exploiting its capacities to a greater extent and

specializing on one group of products reaped a larger income and attracts a greater number of customers through its wholesale partners. The size of stocks of the Lp. as well as its revenue is the same, which varies between HUF 53,000,000 and HUF 80,000,000 on average.

Notórius Lp. voted dividends twice, whereas Konszolidált Ltd. has not even once, instead they decided to recapitalize it in the income, as did the other company in the other 9 years.

As for exploitation, as mentioned earlier, none of the firms voted dividend payment due to the high tax ratio (15% personal income tax and 14% health contribution).

It might be more advisable for Konszolidált Ltd. to replace its current revolving bank account credit with a more favourably rated long-term loan arrangement, the effects of which the company would experience among its financial expenditures. Nótórius Lp. would rather need a capital increase to promote growth. For promoting capital increase, a great number of current asset and investment loans are available in the interbank market tailored to the SMB conditions, the size of interests of which encourage the implementation of the companies' planned investments. In addition, subject to the conditions mentioned earlier, both firms could embark upon a long-term investment, as it would be profitable to everybody.

Both companies would be well advised to acquire more customer and vendor partners in the future, to thus increase their incomes achieved so far, so that their balance can be retained irrespective of any issue that may emerge in the life of the business.

Both companies have their permanent as well as variable pool of common customers. The success of their managing to remain in the market depends on their ability to retain their current customer pool. If they continue to be able to retain the customary level of their services, their market position can be considered assured in the face of their competitors.

Lector's Opinion

For the study titled

Examination of two Hungarian companies' liability management

The study provides short, brief inside view of the financing elements and forms that establish the financial decisions of the enterprises, it outlines the possible forms of financing strategy in order to the enterprises' evaluation in relation to the value measuring indices be plain and well-grounded. In the completed analyses the authors present the most important indices that help the enterprises' managers to judge their stock of means and resources through two enterprises but embracing 11 years. The completed comparative analysis presents the different ways of financing of the two enterprises very well, from which the conclusions concerning the connections revealed by the authors can be drawn. The case examples highlight

the possible uses of the equity capital in the financial decisions as a result of the outlined system of aspects. In the life of the small- and medium-sized enterprises periodical reconciliation of the supplier's and customer's stock is very important in order to be able to balance the cash-flow stably. This correlation is definitely a determinant in the competitiveness of the enterprises, since the series of the financing and other financial decisions and the priority of the decisions can increase the enterprise's effectiveness and possibilities of value creation to a great extent.

Gödöllő, 9th June 2016.

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References

- Bárczi, J. (2010). *Alkalmazott vállalatértékelés* [Business valuation]. Gödöllő, Hungary: Szent István Egyetemi Kiadó.
- Bélyácz, I. (1997). *Tőkeberuházási és finanszírozási döntések* [Capital investment and financing decisions]. Pécs, Hungary: Pécsi Tudományegyetem Kiadó.
- Borszéki, É. (2001). *Pénzügytan jegyzet* [Basics of finance coursebook]. Gödöllő, Hungary: Szent István Egyetemi Kiadó.
- Borszéki, É.. (2008). *Vállalati pénzügyek jegyzet* [Corporate finances coursebook]. Gödöllő, Hungary: Szent István Egyetemi Kiadó.
- Csubák, T. K. (2003). *Kis- és középvállalkozások finanszírozása Magyarországon* [Small and medium enterprises financing in Hungary]. PhD értekezés, Budapest, Hungary.
- Horváth, Z. S. (2010). *Pénzügy II. Vállalkozásfinanszírozás* [Finance II. Corporate financing]. Budapest, Hungary: Nemzeti Tankönyvkiadó.
- Illés, I. (2002). *Társaságok pénzügyei* [Companies' finance]. Budapest, Hungary: Saldo Kiadó.
- Illés, I. (2009). *Vállalkozások pénzügyi alapjai* [Basics of finances of businesses]. Budapest, Hungary: Saldo Kiadó.
- Sóvágó, L. (2010). *Vállalati pénzügyek alapjai* [Basics of corporate finances]. Gödöllő, Hungary: Szent István Egyetemi Kiadó.
- Tóth, M. Z. S. (2008). *Kis- és középvállalatok hitelezése* [Lending to small and medium sized companies]. Budapest, Hungary: Szakdolgozat.

Marketing Expansion Strategies in Multinational Marketing: The Role of e-Business



Yilmaz Gökşen and Selcan Karabacak

Abstract This paper explores a framework for planning and evaluation of multinational marketing strategies as entering new markets and allocation of efforts on existing markets by the help of information technologies such as e-business application, focusing on value and efficient consumption of resources. If we accept that the companies are expecting sustainable and profitable long-lasting lives for themselves and the market conditions are changed as above-mentioned, we can simply understand why they may welcome the help of information technologies such as e-business applications like we do in our paper.

Keywords Market expansion strategies • e-Business • ICTs • SMEs

1 Introduction

Increasing conditions of competition and easy-to-reach and user-friendly technological backgrounds made the markets closer to each other; thus, international trade finds a centred place to itself in companies' marketing strategies easily. In the 1990s, growing Internet usage has been followed by the information community in the early 2000s as expected. This new ability that companies gained drew them a new path which will help them to consume the resources and to choose marketing strategies more successfully. To be integrated with this new life for companies, first they had to learn to deal with the new description of "time" and "value" in this sense. Innovation has become a usual result to reach the goals. The transition from "economies of

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scale” to “economies of scope” steered the companies to become more market oriented. This approach attracted attention on SMEs (small- and medium-sized enterprises) more. Because they are so important for the economies, the European Union (EU) calls them “backbones”. For economic growth, there is mounting pressure for small- and medium-sized enterprises (SMEs) to more fully embrace information and communication technologies (ICTs) and e-business techniques because, entirely, they are big buyers, big sellers, big innovators and, most importantly, politically, big employers.

The company we researched in our project has been working on the international marketing business of natural stone products of Turkey for 10 years. We have experienced e-business application for operational cost-efficiency, and using it for selecting and running expands marketing strategies by the help of innovative efforts through the final goal of incremental value and competitive advantage. SMEs are not a homogeneous set of businesses. “One-size-fits-all” standard does not match them. They vary significantly in size, age, sector, motivation, mode of organization, cultural background, location, knowledge base, power and control of resources, innovative capacity and so on. And all these characteristics have direct effect on their need and opportunity to engage with e-business. “This engagement is seen as the path to sustainable economic growth. In Europe, SME engagement with e-business technologies is described as ‘critical’ if the EU is collectively to become a dynamic and competitive knowledge-based economy”. That is because there are 23.894 million SMEs in the EU (Annual Report European Union SMEs 2016/2017).

2 Literature Review

2.1 *Market Expansion Strategies*

When Igal Ayal and Jehiel Zif shared their research in 1979, they deeply pointed out that market expansion strategies have limited attention in literature. In the late 1970s, Jan Johanson mentioned the internationalization process. In his papers with Jan-Erik Vahlne and Finn Wiedersheim-Paul, they basically assumed that firms first develop in the domestic markets and the internationalization process is the consequence of a series of incremental decisions (Johanson and Vahlne 1977). To start focusing on market conditions and be aware of global markets, researchers started to think about “where to go” and “when to go”. The common focus of those researches points to the lack of, and difficulty of, obtaining market knowledge in international operations (Johanson and Vahlne 1977). The location of the firm in the domestic market is an important explanatory factor, but a more environment important relation is to information flows (Wiedersheim-Paul et al. 1978). Those days before a company starts to do business in different markets were described as involvement stages based on two factors: first is being aware about the resources, and second is the amount of information you already have (Johanson and Wiedersheim-Paul 1975). If we accept that the basic challenge for companies is competitive advantage, the main factor will

Table 1 Market expansion strategies for international marketing

		Market	
		Concentration	Diversification
Country	Concentration	First: limited focusing	Second: focus on country
	Diversification	Third: country diversification	Fourth: global diversification

This table was summarized from the article of Ayal and Zif (1979)

be the information. Ikujiro Nonaka helped popularize the notion of “tacit” knowledge in his article with Takeuchi in 1991 as valuable and highly subjective insights and intuitions that are difficult to capture and share because people carry them in their heads (Nonaka and Takeuchi 1995).

Market expansion strategies for international marketing were described for the companies that will attempt to enter a new market or that want to get more share in the current market (Ayal and Zif 1979). The main focus of the market expansion strategies is described as “One can conceive of two major and opposing strategies for making these decisions: market diversification and market concentration” (Ayal and Zif 1979). This research shows four different strategies as summarized in Table 1.

- The first strategy requires concentration on country and market as in lower number of countries with limited customers. This is generally a starting point of multinational view. Companies can go through and look for opportunities abroad proper to their investment availabilities.
- The second strategy requires concentration to country and diversification on market, few countries and a couple of markets. This strategy is a good way for European countries, which are very easy to control and have enough knowledge about the market of other European Union countries.
- The third strategy requires diversification of country and concentration on market, researching global market for specific product. That is a classical global marketing strategy. That strategy mostly works for competitive advantage because companies focus on the needs of all global market consumers with better costs and higher value.
- The fourth strategy requires diversification both on country and market. It is a choice for global and big companies. The company works in many different countries and markets, as being aware of the global market in its local market. Success in international markets can increase the growth of the company while decreasing the costs.

While Ayal and Zif are making classifications, there were some other researchers talking about information. Nowadays, we are talking about knowledge as walking through the path they had shown.

2.2 Value Creation Through e-Business Model and Tools of e-Business

We accept that businesses are living creatures and that they need a reason to achieve. Accept the ones which do not seek profit; the rest are expecting sustainable and profitable long-lasting lives. For these, the master guide is the business strategies as a captain. As J Magretta said during the early 2000s, “‘business model’ and ‘strategy’ are among the most sloppily used terms in business; they are often stretched to mean everything and end up meaning nothing” (Magretta 2002). The business model starts with creating value from the point of customers, and this value creates a chain of value for the stakeholders. On the other hand, Chesbrough and Rosenbloom (2002) designated the differences between business model and business strategy as:

- There is some attention in capturing a portion of the value created, but the emphasis upon value capture and sustainability is much stronger in the realm of strategy.
- The second difference lies in the creation of value for the business versus creation of value for the shareholder.
- The final difference lies in the assumptions made about the state of knowledge held by the firm, its customers and third parties. The business model conducted consciously assumes that this knowledge is cognitively limited and biased by the earlier success of the firm. Strategy generally requires careful analytic calculation and choice, which assumes that there is a great deal of reliable information available.

Drucker summarized those in a couple of questions as what is your mission, what is your plan, what results do you seek, who is your customer and what does your customer value? (Drucker 1988). In the last decade, we are all talking more about value and innovation, and we all know the value is in direct relation with the business model, marketing model, industrial model, product, etc. and how creative business by itself is or how difficult to replicate it. It is defined as innovators by Rogers’ innovation theory in 1962 (Rogers 1995): how to gain more value and how to keep that value more in time by product life cycle (Klepper 1996). Instead of our sight to be parallel to value chain framework (Porter and Millar 1985), this case finds a balanced place in literature as Schumpeter’s theory of creative destruction (Schumpeter 1942). The resource-based view of the firm (Barney 1991) had been built on Schumpeter’s theory of creative destruction, transaction cost economics (Williamson 1989), strategic network theory (Dyer and Singh 1998) and e-business transactions (Brandenburger and Stuart 1996).

There are some expectations from business models. According to Chesbrough and Rosenbloom (2002), describing the functions of a business model is to:

- Articulate the *value proposition*, i.e. the value created for users by the offering based on technology.

- Identify a *market segment*, the users to whom the technology is useful and for what purpose, and specify the revenue generation mechanism(s) for the firm.
- Define the structure of *the value chain* within the firm required to create and distribute the offering and determine the complementary assets needed to support firm's position in this chain.
- Estimate *cost structure* and *profit potential* of producing the offering, given the value proposition and value chain structure chosen.
- Describe the position of the firm within the *value network* linking suppliers and customers, including identification of potential complementary assets and competitors.
- Formulate the *competitive strategy* by which the innovative firm will gain and hold advantage over rivals.

2.3 *The Flow of ICTs and Transition to e-Business*

Lumpkin and Dess (2004) defined several ways that firms are using in the Internet to add value and the highlighted four value-adding activities; search, evaluation, problem-solving and transaction.

The concept of e-business strategy points the matter of how the Internet can reshape companies and ensure competitive advantage (Cagliano et al. 2003). Skjøtt-Larsen et al. (2003) classified it according to their use like buy side, sell side and strategic/internal and operations/other. Basic e-business tools are schematic conclusion specified in the article of Levenburg (2005). Jambekar and Pelc mentioned that in their article, the information revolution favours small business because their size allows flexibility and agility in competing with larger firms. "They can begin with virtual Office space, electronic mail, 'boundary less culture' and electronically bring into play all necessary value chains to deliver innovative products or services" (Jambekar and Pelc 2002).

e-Business tools are shown in the Fig. 1 as below, transferred from N.M. Levenburg 2005. They are configured in three different subjects as supply chain and strategic internal operations to enhance company image/brand.

2.4 *ICT-Engaged SMEs' View of e-Business*

2.4.1 Enterprise

An enterprise is considered to be any entity engaged in an economic activity, irrespective of its legal form. This includes, in particular, self-employed persons and family businesses engaged in craft or other activities and partnerships or associations regularly engaged in an economic activity. Staff headcount and financial ceilings determine enterprise categories as follows (SMEs are defined in the EU

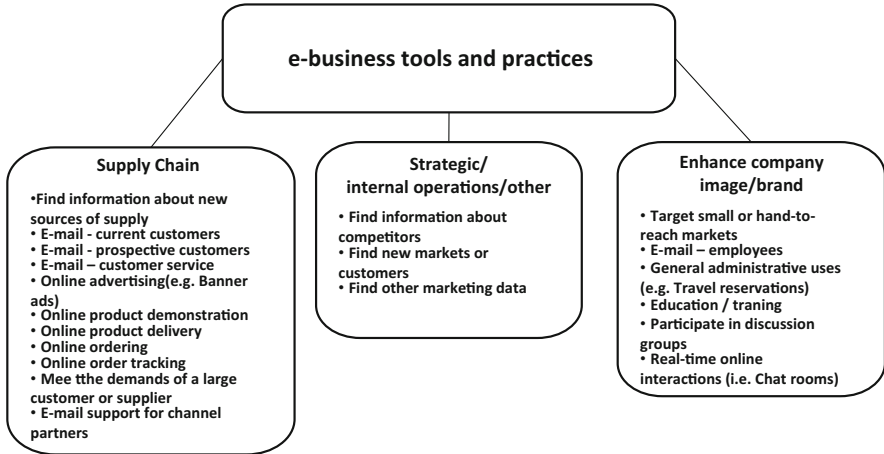


Fig. 1 Diagram of e-business tools and practices

recommendation 2003/361. Source: link: <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32003H0361&from=EN>);

1. The category of micro-, small- and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million and/or an annual balance sheet total not exceeding EUR 43 million.
2. Within the SME category, a small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million.
3. Within the SME category, a microenterprise is defined as an enterprise which employs fewer than 10 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million.

There has been significant managerial interest in the opportunities available to use e-business solutions to create competitive advantage. As said by Swaminathan and Tayur (2003) in their article, e-business can be defined as a business process that uses the Internet or other electronic media as a conduit to fulfil business transactions. However, a critical assumption is that e-business encompasses e-commerce and goes far beyond e-commerce to include the application of information technologies for internal business processes as well as for the activities in which a company engages in commercial activity with suppliers and customers (Phillips 2003). It is very similar for academic literature too. There is a gap in the researches; drawing a straight line seems to be difficult between e-business and e-commerce.

Organizations are increasingly facing the challenge of e-business, that is, the use of the Internet tools to support their business processes (Cagliano et al. 2003). Strategic business units find that their ability to respond to unpredicted changes in the market is becoming a key factor in survival (Phillips and Wright 2009).

According to Taylor and Murphy, basically, e-business is a kind of innovation in the type of the business structure, which assumes to serve new and changing markets in a better way and to catch the opportunities with transaction costs lower than they used to be. e-Business transforms the exchange of goods, services, information and knowledge through the use of ICTs (Taylor and Murphy 2004). With e-business, companies seek to reshape the way they go through the markets and the manner in which customers buy products and services. e-Business also aims at supporting adopters to reach new customers more efficiently and effectively. Pollard and Hayne (1998) suggest that “there is no reason to believe this concept applies any less to small enterprises than to the largest multinational”. On the other hand, SMEs are generally not utilizing ICT fully, so as to gain competitive advantage. In some cases, they are lacking the resources and skills to do so (Phillips and Wright 2009).

The findings of Drew’s research (2003) suggest that SMEs are placing e-business at the centre of their technology policy. Drew reported the adoption of e-business as the driving force for the opportunities for growth and need to keep up with competition. Hodgkinson and McPhee (2002) conclude that international networking by SMEs brought knowledge to the region that facilitates intra-firm learning. Their study suggests that adoption of the Internet by SMEs is higher (68.8%) than large firms (66.7%).

In line with this content, SMEs are seen engaging with the knowledge economy through:

- Their linking to the Internet
- Their use of brochure web pages
- Their establishment and use of transaction-capable

websites and the transformation of their business organization and operations through the full integration of their websites and their back-office computing (Taylor and Murphy 2004).

The first question to ask concerns the extent to which SMEs are engaged with ICT and e-business techniques. If we need to measure “where we are now?”, we need some classification/measurement rates. The country’s measurement rates are differing. EU uses the “rates of adoption of new technologies” to measure SME engagement with e-business, and the USA uses technological investment per employee. Most e-business statistics focus primarily on e-commerce, ignoring the power of ICT to transform business organization and operation while remaining transfixed by the technology.

2.4.2 European Union Support Programmes for SMEs

Being aware that 99% of companies are in SME standards and SMEs are employing two in every three employees, producing 58 cents in every euros of value added (European SMEs info graphic 2014–2015; source: http://ec.europa.eu/cip/index_en.htm), they attracted the governments/unions’ attention. Thus, EU has different types of supports for SMEs. They are subjected based on the programme:

Competitiveness and Innovation Framework Programme (CIP)

Each programme has its specific objectives, aimed at contributing to the competitiveness of enterprises and their innovative capacity in their own areas, such as ICT or sustainable energy:

(EU support programme, source: http://ec.europa.eu/cip/index_en.htm)

- The Entrepreneurship and Innovation Programme (EIP)
- The Information Communication Technologies Policy Support Programme (ICT-PSP)
- The Intelligent Energy Europe Programme (IEE)

2.5 Expected Benefits SMEs Can Gain by Foreign Market Entry Through e-Business

Companies can choose among several modes of foreign market entry, including exporting, contractual agreements (e.g. licencing), joint venturing, acquiring an existing company and establishing a wholly owned greenfield investment from scratch (Pan and Tse 2000).

SMEs can avoid from transaction cost, can find new markets, start to do export, make distribution agreements and establish joint ventures. More opportunities will be defined in the following part in the case study.

3 Case Study

The modern economic views stand out that the master ability of certain firms to sustain innovation and, as a result, create new knowledge leads to the development of organizational capabilities, consisting of critical competences and embedded routines (Knight and Cavusgil 2004). “Born globals” or “international new ventures” were investigated as early adopters of internationalization (Rennie 1993). In the last two decades, there are more researches which are investigating that “born globals” than newly established firms with significant export involvement occurred. Some of them are Knight and Cavusgil (2004), Rennie (1993), Madsen and Servais (1997) and Cavusgil and Knight (2015). Bazaar Consulting Industry Trading (from now on it will be called as “the company”) is the name of the company we researched in our project that has been working on international marketing business of natural stone products of Turkey for 10 years. The company is a SME according to the account and annual turnover and/or annual balance sheet. We have tested e-business application for gaining operational cost-efficiency and use it for selecting and running to expand marketing strategies by the help of innovative efforts through the final goal of incremental value and competitive advantage. For this purpose we use primarily “export” from marketing entry modes, and the company’s structure can

be called as “born global” or “international new venture”, because its main purpose is to export activity and the main market is the global market starting from the beginning.

According to EU’s measurement rates of ICT engagement, the company has link to the Internet and has a web page for the company and a web page for registered mark for marketing applications. Also the company is trying to transform its business organization and operations through the full integration of its web pages and its back-office computing.

The company followed up a schedule through system approach. Business processes were redesigned as to be suitable within network-based format in the first step. For that information management is used as main component. The company is working as in a central point of value chain. That is why transformation to e-business changed its relationship type with goods and services it gets and with customers and suppliers customers it has.

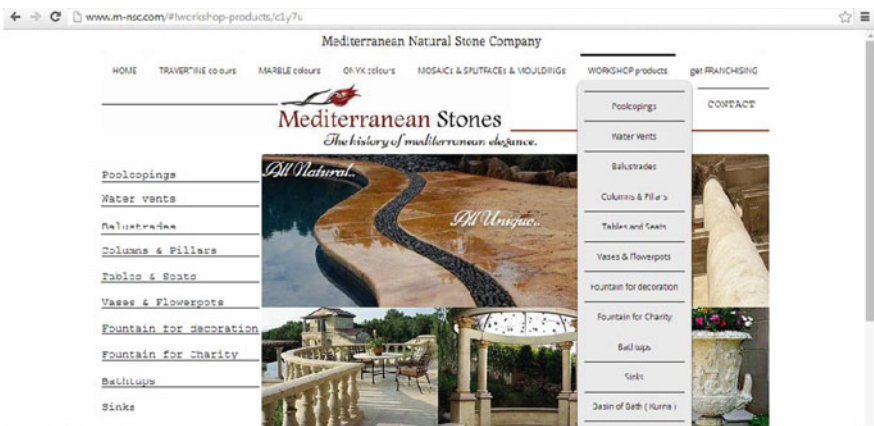
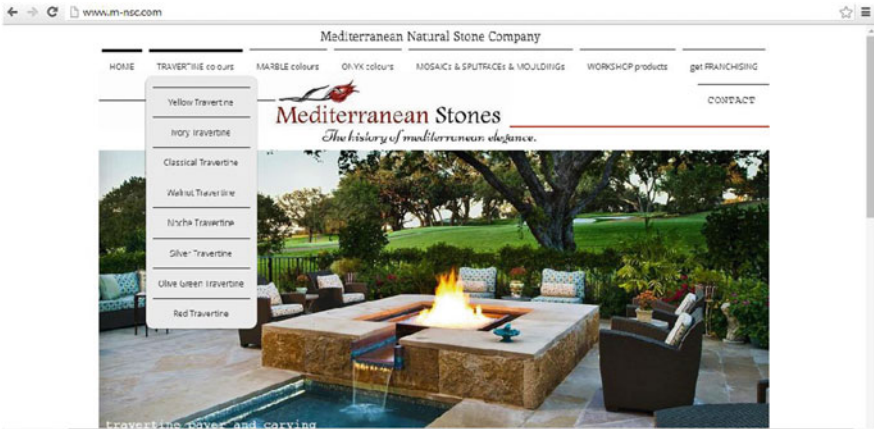
Bazaar Marble’s web page (www.bazaar.gen.tr) is designed basically for legal purposes and giving information to the third parties about the company. e-Business application is working on registered mark web page (www.m-nsc.com) under the trademark name as Mediterranean Natural Stone Company. All two have separated domains, hostings, which are registered directly to company for avoiding possible harms such as cannot register same domains for further years, loss of data in hosting account, etc. e-Business application designs for a customer, located anywhere in the world, can go through the web page and can select the type of the natural stone then/ or colour of the natural stone, industrial product type of natural stone (size and shape), finishing of product and at last packing of the product. Also that works as a detailed and step-by-step online catalogue. With an application at the web page, customer tracks his goods and at the same time checks inventory availability for probable next orders.

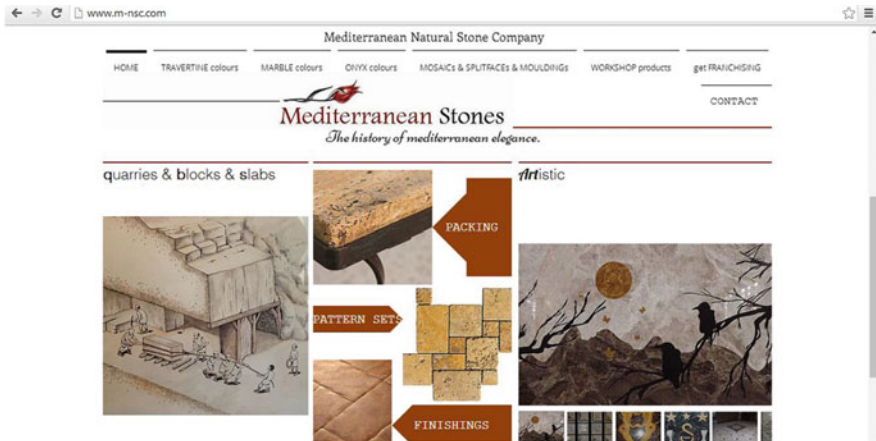
There are some marketing applications too, for example, there is a blog section at the web page which company efforts to get the value of content marketing on that. With that the company tried to pay attention to make the visitor be part of the business. And there is a section called “get franchising” that company seeks local partner for itself. Using ICTs and back-office computing, as e-business tools; the company can make data collection and market researches cost-effectively those all also reduce the transaction cost and make easy to collect and transfer the information of the company.

3.1 Market Expansion Strategies via e-Business Application

The market expansion strategies the company used on e-business application can be shown through SWOT analyses easily. By the help of e-business, “opportunities” of the company in SWOT analyses increased as mentioned in the following section. But primarily we can conclude that as such a small company in such a big industrial market could not gain such a good competitive advantage without ICTs and

e-business. As we take a look to market expansion strategies from literature, we can honestly say that the company can follow up the fourth strategy which requires diversification both on the country and the market. It is usually a choice for global and big companies, while the company we researched is located in that section by the advantages of the e-business. The company works in many different countries and markets as being aware of the global market is its local market.





3.1.1 SWOT Analyses of e-Business Applications on Market Expansion Strategies

Strengths

- Having enough technical availability and support
- Supporting vision on e-transformation to e-business
- Company owner's support
- The competitive advantage of transforming e-business as early adapters
- Using e-business as a resource for competitive advantage

Weaknesses

- Problems on adaptation of business process to e-business process
- Probable resistance of the customers and the suppliers to the e-transformation
- Technical weaknesses of company, customer and country-based structures
- Because of the structure of the goods, being an industrial market and the structure of the export activity not having availability to follow the e-business process with e-commerce process
- Difficulties on always being stable and upwards in social markets because of tough competition

Opportunities

- Success in international markets can increase the growth.
- Success in international markets can decrease the costs.
- Can reach new markets.
- May find niche markets.
- May manage better the marketing of the innovative products.
- Can use the Internet as an active marketing channel.

- Can use the Internet as an appliance of marketing researches.
- Can get detailed information about competitors.
- Can get the opportunity of better placing for competitive advantage.
- Can make better brand managing.
- Made all those marketing activities mentioned above in cost-effective way.

Threats

- Not being on time while starting e-business transformation
- Not being ready of other shareholders in value chain for e-business transformation
- The high cost of ICTs
- Uncertainty of the financial revenues
- Security problems in ICTs
- Being kept tabs on by competitors

4 Discussions and Further Studies

Information is still a rising star and also a very important appliance for reaching the business strategies of the firms. We researched how these tools were used and how much they can support to companies in market expansion strategies. About literature we can honestly say, there is a gap for differing points of goals and processes of e-business and e-commerce. Also do all companies making e-business transformation have to finalize their processes with e-commerce effort is another question. We have tried to research that question in our case study too, which we find a result as “no, they do not have to. They also may get enough advantage to make investment to e-business structure”.

References

- Annual Report European Union SMEs 2016/2017. Source: <https://ec.europa.eu/docsroom/documents/26563/attachments/1/translations/en/renditions/native>
- Ayal, I., & Zif, J. (1979). Market expansion strategies in multinational marketing. *The Journal of Marketing*, 43, 84–94.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17 (1), 99–120.
- Brandenburger, A. M., & Stuart, H. W. (1996). Value-based business strategy. *Journal of Economics & Management Strategy*, 5(1), 5–24.
- Cagliano, R., Caniato, F., & Spina, G. (2003). E-business strategy: How companies are shaping their supply chain through the internet. *International Journal of Operations and Production Management*, 23(10), 1142–1162.

- Cavusgil, S. T., & Knight, G. (2015). The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization. *Journal of International Business Studies*, 46(1), 3–16.
- Chesbrough, H., & Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: Evidence from Xerox Corporation's technology spin-off companies. *Industrial and Corporate Change*, 11(3), 529–555.
- Drew, S. (2003). Strategic uses of e-commerce by SMEs in the east of England. *European Management Journal*, 21(1), 79–88.
- Drucker, P. F. (1988). *The coming of the new organization*. Boston, MA: Harvard Business Review.
- Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660–679.
- EU Recommendation (2003/361). Source: <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32003H0361&from=EN>
- European Union Support Programmes. Source: http://ec.europa.eu/cip/index_en.htm
- Hodgkinson, A., & McPhee, P. (2002). *SME information sourcing for innovation and export market development: From local or external networks?* (Faculty of Commerce-Economics Working Papers 54).
- Jambekar, A. B., & Pelc, K. I. (2002). Managing a manufacturing company in a wired world. *International Journal of Information Technology and Management*, 1(1), 131–141.
- Johanson, J., & Vahlne, J. E. (1977). The internationalization process of the firm—a model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1), 23–32.
- Johanson, J., & Wiedersheim-Paul, F. (1975). The internationalization of the firm—four Swedish cases. *Journal of Management Studies*, 12(3), 305–323.
- Klepper, S. (1996). Entry, exit, growth, and innovation over the product life cycle. *The American Economic Review*, 86, 562–583.
- Knight, G. A., & Cavusgil, S. T. (2004). Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, 35(2), 124–141.
- Levenburg, N. M. (2005). Does size matter? Small firms' use of e-business tools in the supply chain. *Electronic Markets*, 15(2), 94–105.
- Lumpkin, G. T., & Dess, G. G. (2004). E-business strategies and internet business models: How the internet adds value. *Organizational Dynamics*, 33(2), 161–173.
- Madsen, T. K., & Servais, P. (1997). The internationalization of born globals: An evolutionary process? *International Business Review*, 6(6), 561–583.
- Magretta, J. (2002). *Why business models matter* (pp. 86–92). Boston, MA: Harvard Business School.
- Nonaka, I. (1991). *Models of knowledge management in the West and Japan*.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- Pan, Y., & Tse, D. K. (2000). The hierarchical model of market entry modes. *Journal of International Business Studies*, 31, 535–554.
- Phillips, P. A. (2003). *E-business strategy: Text and cases*. Maidenhead: McGraw-Hill.
- Phillips, P. A., & Wright, C. (2009). E-business's impact on organizational flexibility. *Journal of Business Research*, 62(11), 1071–1080.
- Pollard, C. E., & Hayne, S. C. (1998). The changing face of information system issues in small firms. *International Small Business Journal*, 16(3), 70–87.
- Porter, M. E., & Millar, V. E. (1985). *How information gives you competitive advantage*.
- Rennie, M. W. (1993). Born global. *The McKinsey Quarterly*, 4, 45–53.
- Rogers, E. M. (1995). *Diffusion of innovations* (p. 12). New York: Free Press.
- Schumpeter, J. (1942). Creative destruction. In *Capitalism socialism and democracy* (p. 825).
- Skjøtt-Larsen, T., Kotzab, H., & Grieger, M. (2003). Electronic marketplaces and supply chain relationships. *Industrial Marketing Management*, 32(3), 199–210.

- Swaminathan, J. M., & Tayur, S. R. (2003). Models for supply chains in e-business. *Management Science*, 49(10), 1387–1406.
- Taylor, M., & Murphy, A. (2004). SMEs and e-business. *Journal of Small Business and Enterprise Development*, 11(3), 280–289.
- Wiedersheim-Paul, F., Olson, H. C., & Welch, L. S. (1978). Pre-export activity: The first step in internationalization. *Journal of International Business Studies*, 9, 47–58.
- Williamson, O. E. (1989). Transaction cost economics. In *Handbook of industrial organization* (Vol. 1, pp. 135–182).

Is Marketing Research Still Necessary in the Digital World?



Marek Prymon

Abstract Traditional methodology of marketing research evolved in the first part of the twentieth century. It was perfectly adjusted to current market conditions and to market information systems. Later on, an era of computer technology meant big support for market researchers. However, there were no still reasons to change general research logic in the light of evolving data-gathering opportunities. Evolving at the end of the twentieth century and the beginning of the twenty-first century, new digital media have solved a lot of problems that market research methodology used to solve before. First of all, the link between a company and its consumers started to be shorter and more direct. It started to seem that decision-making can be supported by data available within easy reach. However, the use of new decision-supporting software has led to take-it-easy approach to consumers' problems in the market.

The purpose of an article is to show to what extent new media objectively necessitate changes in marketing research logic and what risk can be associated with total use of new digital information.

First part of an article shows the nature of traditional data-gathering methodology. In the next part, directions of an influence of digital media on marketing research methodology are identified.

The article is a conceptual framework supported by long-run research experience of the author.

Keywords Marketing research • Data gathering • Communication methods • Observation methods • Digital media

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1 Introduction

Marketing research as a special academic discipline and professional function of a company evolved at the beginning of the twentieth century. It was a response to changing conditions in the market. Through most of the century, they developed well-founded marketing research methodology. New information technologies, available in the market during the second part of the century, have created new realities in the market, including new relations between companies and customers. So it seems essential to check an influence of new realities on marketing research scope and procedures.

2 Traditional Marketing Research Realities

Immediate result of the big industrial revolution was the growth of scale of production and the growth of size of companies. Companies started to deal with more customers and bigger geographical markets. Finally, traditional, direct links between companies and their customers were cut. In the past a company used to have some knowledge about customers, knowledge coming from direct contacts with customers and from spontaneous observation. In new realities, because of growing uncertainty of market decisions, there appeared the need to get a lot of market information. New task required companies to use professional support from outside research agencies.

Growing complexity of market realities required not only to get more data but also to develop well-founded research process to get data. The most universal research process offered by Churchill (1987), Dodge et al. (1982), Kotler et al. (2009) and many others is shown at Fig. 1.

It should be noted that other proposals concerned with the above overall process are proposals to include surveys and sampling as obligatory steps in any research plan (Dillon et al. 1987).

Characteristic of the research process is, first of all, its problem-solving orientation. The logic of stages of the process is that, at the beginning, it is not known what data can be necessary. To identify desired data, researcher needs to identify potential research problem, arrange for some exploratory research, propose hypotheses and precisely plan research project.

From the very beginning of marketing research development, the most needed information about unknown customers was demand and other specific demand-related data like preferences, opinions, etc. Such data were expected to come from qualitative methods, basically interviews. The focus of research methodology was on improvements of interviews and techniques of sampling.

Later, what was supportive for marketing research were new opportunities of adopting quantitative techniques: mathematics, statistics and econometrics. Evolving new methods helped to conduct more precise research, to relate different data about customers and to develop market forecasting, as a special field of research. Whole group of quantitative methods was based on quantitative data—mostly secondary data.

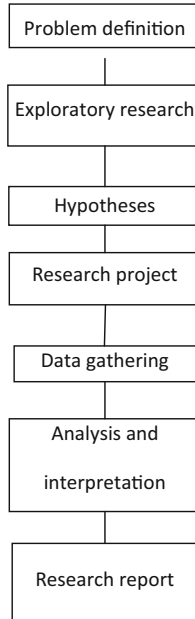


Fig. 1 Market research process. Source: Based on Dodge et al. (1982). *Marketing Research*. Bell & Howell. Co. Columbus. Churchill (1987). *Marketing Research. Methodological Foundations*. The Dryden Press. Chicago. p. 25, Kotler et al. (2009). *Marketing Management*. Pearson. Harlow. p. 191

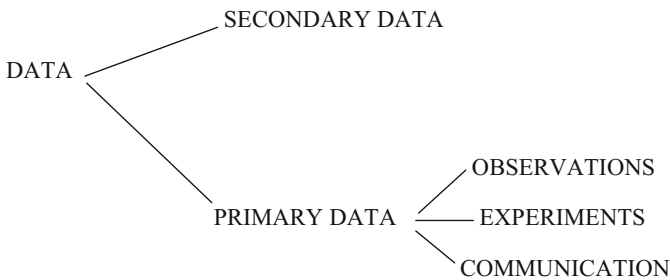


Fig. 2 Structure of data-gathering methods. Source: Churchill (1987). *Marketing Research. Methodological Foundations*. The Dryden Press. Chicago. p. 224

The development of quantitative methods was challenged by growing influence of behavioural marketing. What was demanded for were new kinds of data—primary data. Alongside with quantitative, there evolved group of methods coming from psychology and sociology: observations and experiments.

Finally, in marketing research discipline, there appeared clear structure of methods of data gathering (see Fig. 2).

3 Influence of Computer Technology

Historically taking, computer technology made revolution concerned with new possibilities of data gathering and data processing. For marketing research, it meant new potential. It was primarily potentially concerned with secondary data: collecting, processing and using mass data. More interesting, however, was the appearing new opportunity to generate brand-new sources of data. The most remarkable was an influence of introducing Universal Product Codes (UPC) on retailing and logistic operations. It suddenly occurred possible to gain real-time control over sales and stocks in many places. Before scanning of codes was possible, research companies, like A.C. Nielsen, had to survey thousands of outlets to have some insights into changes in sales and to calculate market shares. New wave of data created good ground for many kinds of research concerned with market situation and market trends. New possibilities concerned with data on consumer inspired to form what is called database marketing—the process of building, maintaining and using customer databases and other databases for the purpose of contacting, transacting and building customer relationships (Kotler et al. 2009, p. 863). Computer technology was helpful in solving problems with secondary data but also was supportive for the use of primary data. It is especially new observation techniques that should be mentioned. They, to the extent, replaced very simple observations used by research companies, observations like counting the stock of products on the shelf or informal observing of people in pubs (Hague et al. 2005). Borowiecki identifies following methods of technically supported observations (Borowiecki 2011, p. 87):

- fMRI—Functional magnetic resonance imaging
- ECG—Electrocardiography
- fNIR—Functional near-infrared spectroscopy
- MEG—Magnetoencephalography
- EEG—Electroencephalography
- VPA—Voice-pitch analysis
- GSR—Galvanic skin response
- TARA—Time antagonistic response alethiometer
- fEMG—Facial electromyography
- Eye tracking
- IAT—Implicit association test

In addition to new opportunities for observations, there appeared new opportunities concerned with experiments and communication methods.

Experiments started to be easier. For instance, experiments conducted in researcher's premises can be substituted by new forms of field experiments. Reactions of Internet users to pictures on a monitor can be traced using camera built in desktops (fEMG). New research opportunities encourage new field called neuromarketing.

Finally, traditional communication methods that are used to be time-, cost- and labour-consuming started to be more available thanks to computers and other digital devices. Compared with all kinds of interviews, Internet interview represents distinct advantages. Apart from providing savings on time, labour and costs, Internet interview offers versatility and more honest answers (Kotler et al. 2009, p. 206).

4 Consequences of New Media for Marketing Research

Probably the most visible changes to be seen on contemporary markets are stronger links between companies and clients, even on global clients. So combining data on consumers and various marketing decisions within the framework of relationship management is an answer to turbulence in an environment. In part, data from individual clients can directly serve as base for production or distribution decisions. It would mean reducing some traditional market research jobs. It may seem that part of research activities is not necessary any longer. Simply in the past, on mass markets, it was not possible to get data on consumer needs asking them directly about their needs. So they developed indirect ways to identify consumer needs. It was popular research logic to identify factors influencing consumer demand (for instance, age, income, etc.) and then to try to evaluate an impact of such factors on consumers' demand. Now, when consumers can be reached directly, it may be useless to use indirect ways of getting knowledge about needs. It may be, however, only partly true. In many situations, even short distance to consumers is not enough to know their needs. What barrier can appear here? First of all, consumers may have little knowledge about what marketers can really offer. Next, to high extent, it is already offer that has an impact on people's needs. Also what matters is that consumer demand is resultant of many factors other than concrete consumer's problems. Finally, marketers and especially producers are not perfectly elastic, so what will be demanded for by consumers have to be anticipated well ahead. It can be accepted that data coming from direct touch with consumers is more helpful for daily decisions rather than for long-range strategies.

New technologies, to an extent, not only reduce the role of traditional marketing research activities but also the very role of marketers. Systems like EDI (Electronic Data Interchange) or ECR (Efficient Customer Response), to high extent, are substitutions for simple sales analysis as a researcher's job. Even if consumer data require some processing, it is possible to standardize processing procedure and matching customers' demand through automated processes. Another problem is if strategic decisions can be deducted from simple actual or historical data. So probably, database marketing can serve mainly daily and short-term decisions. It is observed on global markets that companies focused on daily operations are very likely to go bankrupt. Good examples are traditional worldly airlines.

Use of database marketing and any automated information systems may bring essential risks concerned with overall research process. Primary risk concerns

ignoring hypotheses building. Next risk is concerned with adoption of ready-to-use data sources and processing procedures. Finally there is a risk that problems of interpretation of research results are ignored.

Growing popularity of Internet interviews, as research tools, is concerned with standardization of questionnaire plans. What the risk here is the “take-it-easy” approach to questionnaires. Traditionally, planning the survey was a creative process preceded by exploratory research, hypotheses building based on modelling of researched phenomenon. Automatic surveys can lead to deeply biased results. Easy access to questionnaires may prevent users from some basic considerations. As Kotler says, because online research is relatively new, many market researchers have not got survey design rights, and others overuse technology, concentrating on bells, whistles and graphics while ignoring basic survey design guidelines (Kotler et al. 2009, p. 206).

Questions that are likely to be ignored are if the topic of interview qualifies for open standardized communication, if respondent will be capable of precise answering, etc. Another thing is that new opportunities to reach many respondents with one Internet interview may lead to ignoring the problem of reliable sampling.

It seems that, after all, both data-based marketing and Internet interview reduce, to an extent, the need for traditional marketing research. New technologies help to advance marketing research, and they change the general approach to data.

One of the consequences of adopting new technologies is possibility to replace costly primary data by secondary data. The use of primary data is necessitated by the fact that some subjects are not covered by secondary data, as an example could be opinions and consumer attitudes. Today it is becoming easy to get information about consumers opinions not using primary but secondary data. Furthermore, it may occur that research based on secondary data are more reliable than individual direct research. For instance, traditionally the research problem was concerned with consumers’ attitudes. To get data on attitudes, they conducted research on opinions (in the hope of getting the knowledge about attitudes). Now, on the ground of mass secondary data, it is possible to get the description of consumers’ attitudes (Prymon 2015).

The value of communication methods was in the past heavily dependent on intellectual or emotional characteristic of respondents. For instance, reliability of respondents’ answers was dependent on people’s willingness to articulate frank answers or on their memory needed to recall some facts. Today, methods of tracking behaviour of consumers in the Internet provide a lot of precise data. So it may be predicted that, in part at least, risky communication methods will be substituted by digital observations.

5 Conclusion

This paper is a conceptual framework. Its practical use is to provide some inspiration for managers responsible for the flow of marketing data. Conclusions can be formulated in two points:

- No doubt that new technologies reduce a lot of traditional marketing research job. Creativity of researchers can, to high extent, be replaced by automated or at least standardized marketing information systems. It is common tendency that any marketing research activity sooner or later subjects to routine. However, the main role of standardized systems is and probably will be to serve daily managerial needs of marketers. Changing market environment and the need to plan effective marketing strategies should leave enough room for creative marketing research.
- If the general role of marketing research should remain important, a lot of change can be expected within the framework of marketing research processes. Probably the bigger role will play secondary sources. Secondary sources can partly substitute primary research. As for primary research, what can be expected, on one side, are the partial replacement traditional reviews by digital reviews. On the other side, it can be the partial replacement of communication methods by digital observations and experiments.

References

- Borowiecki, M. (2011). Communication and biometric methods-perspectives and controversies (In Polish). In B. Pilarczyk (Ed.), *Market communication. Strategies and instruments, conference proceedings*. Poznan: University of Economics.
- Churchill, G. A. (1987). *Marketing research. Methodological foundations* (p. 224). Chicago: The Dryden Press.
- Dillon, W. R., Madsen, T. J., & Firtle, N. H. (1987). *Marketing research in marketing environment*. St.Louis: Times Mirror.
- Dodge, H. R., Fullerton, S. D., & Rink, D. R. (1982). *Marketing research*. Columbus: Bell & Howell. Co.
- Hague, P., Hague, N., & Morgan, C. A. (2005). *Market research in practice* (p. 14). Gliwice: Helion.
- Kotler, P., Keller, K. L., Brady, M., Goodman, M., & Hansen, T. (2009). *Marketing management*. Harlow: Pearson.
- Prymon, M. (2015). *E-marketing research – Evolving new potential for knowing consumers better, proceeding of conference, marketing identity*, Trnava, Slovakia.

Conspicuous Consumption in Relation to Self-Esteem, Self-Image and Social Status: An Empirical Study



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Abstract The term conspicuous consumption has been used to explain the anticipation of expressing one's status and/or identity, via symbolic and visible consumption beyond economical or physical benefits of goods. Social function of consumption is generally associated with status, wealth and group affiliation, while psychological approach links consumption to construction of the "self". Consumption, in this sense, is means of both extinguishing one's self and relating himself with entities. Though conspicuous consumption studies have a substantial background, it is not adequately explored in the context of self and status interaction. The purpose of this study is to explain conspicuous consumption in relation to self-esteem, self-image congruity and social status display concerning the mediating effects of factors.

The sample consists of 463 students from different units of Çanakkale Onsekiz Mart University. Research data is gathered using 5-point Likert questionnaire with convenience sampling method, and structural equation modelling is used to test the hypothesis. Results support that self-esteem is negatively related to conspicuous consumption, by causing more of the mediators, self-image congruity and social status display. Also self-image congruity is related to social status display and they are both positively related to conspicuous consumption. Social status display partially mediates the relationship between self-image congruity and conspicuous consumption. This supports the understanding that consuming symbols is related to construction of the self, or the need for, and social contexts play a significant role concurrently.

Keywords Conspicuous consumption • Social status display • Self-image congruity • Self-esteem • Young consumers

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1 Introduction

In today's world, where technology and hi-tech products create a brand-new culture, cultural communities of remarkable brands, such as iPhone, are easily realized (Arruda-Filho et al. 2010). Considering these products and consumer groups, possession is strongly related to identity, culture, values and worldviews. Thus consumption leads to constructing the "self" of consumers (Belk 1988). As labelled by many scholars, consumer "irrationality" has been examined for many years to make sense of noneconomic, or even "faulty", consumer behaviours (Featherstone 2005, pp. 37–38). In this regard, related to the use value versus exchange value dichotomy, the concept of "commodity fetishism," as Marx (2003, p. 76) named market masking of goods and services, has drawn considerable interest in consumption and demand studies. In many cases, selecting one from many products is a result of consumer's relating self with the symbolic meanings attached to the product. Most of the time, having a car has similar reasoning, but there are many brands, and all brands have humane and emotional references to differentiate itself and its consumer from others. Marketing efforts are more than communicating physical benefits of the products, for emotional communication is vitally important (Danziger 2002, p. 201). The question of how a car brand carries emotional qualities has been studied by many scholars in this sense (Featherstone 2005).

In consumer research, the relationship between consumption and social status is mostly explained by referring Thorstein Veblen (Leibenstein 1950; de Fraja 2009; Chaudhuri and Majumdar 2010; Ordabayeva and Chandon 2011; Souiden et al. 2011; Winkelman 2012). Veblen's *The Theory of The Leisure Class* is an examination of capitalism, which focuses on consumption of the new-rich class, the *nouveau riche*, of the Second Industrial Revolution. The book criticizes conspicuous consumption, repeatedly associating with waste, envy and materialism from a conservative perspective. Whether followed by similar critical purposes or not, Veblen's work has been the basis of conspicuous consumption research.

The notion conspicuous consumption has been used to explain the expectations beyond economical or physical benefits of goods arising from commodity fetishism and Veblenian status effect. Regardless of how it is obtained, meta is functionalized as a source of reputation, sign of wealth, mean of trust and status, Veblen (1995, p. 72) states. Individuals reflect signals of their group memberships, or their will to membership, and life style demonstrations via consumption behaviours (Erdogan and Ekici 2013). In other words, consumers knowingly or unknowingly use the ability of goods to communicate symbolic messages with others (O'Casey and McEwen 2004).

The purpose of this study is to investigate the relationships between self-based and social aspects of consumption and conspicuous consumption attitudes. The main concern of the study is to uncover how self-esteem affects consumer identity process and how this effect appears. Therefore conspicuous consumption is related

to self-esteem, self-image congruity and social status display concerning the interrelation of these factors.

2 Conceptual Framework

Exposition of status, wealth and identity and self-constructive functions are among the psychological aspects of consumer behaviour. Marcoux et al. (1997) found materialistic hedonism, group identity, status, congruity and ostentation factors affecting conspicuous consumer attitudes. In a frame where human capital refers to individual competences and economic capital to wealth, social capital as an intangible form of capital becomes prominent (Knack and Keefer 1997). The term *habitus*, by Pierre Bourdieu (1984), proclaiming the dialectic construction of the individual by the texture of society and vice versa, explains economic behaviour of man as being framed by economic capital and formed by social and cultural (Paterson 2006, p. 43).

Bourdieu's cultural capital was taken as reference by Chaudhuri et al. (2011) for conspicuous consumption scale. Souiden et al. (2011) distinguished conspicuous consumption to individual, social and cultural factor groups and used the terms self-image congruity and self-esteem for individual, social status display for social effects. Therefore relationships between these factors shed light on the process of self-constructing function of the consumption.

2.1 *Conspicuous Consumption*

Belk (1988) monitors self-building process with distinction from environment and other people, identity building and relating to past, which can be tracked via meta possession. Individuals, on purpose or not, feel possessions as part of themselves which Belk suggests as a part of foundation of consumption; thus it is said that "we are what we have." Chaudhuri et al. (2011) define conspicuous consumption as "deliberate engagement in symbolic and visible purchase, possession and usage of products and services." Distinct trait of conspicuous consumption is status function. Consumption is utilized to express one's wealth in society (Eastman et al. 1999), whereas Winkelman (2012) suggests that conspicuous consumption is a result of envy. This case named as positional externality by Frank (1991, p. 25–26) is explained by Friedman and Ostrov (2008) with an envy-pride Nash equilibrium resulting economic and ethical consumption problems.

Leibenstein (1950) classifies three external "nonfunctional" consumption effects: bandwagon, snob and Veblen effects. Bandwagon effect, as following the crowd, is an urge to purchase popular products, whereas snob effect is the urge to avoid the popular and render a unique self by doing so. The relationship between close communities and consumption as Simmel (1950) exhibited shows parallelism

with Leibenstein's (1950) bandwagon and Veblen effects. Wong and Ahuvia (1998) discuss consumption as a means of group membership; that is to say, consumers choose a product to show their membership to or alienate themselves from the group, relating with bandwagon and snob effects together. Aaker (1999), on the other hand, adds self-congruity, consumers' tendency to choose products branded associated with self-concept of their own, relating snob and Veblen effect together to form a personality trait-based understanding of consumer behaviours. Being conceptually interrelated with three of the effects, conspicuous consumption is considerably important in consumption theories (McCracken 1987). Despite it is rich in theory, there is a gap in empirical evidence (Winkelman 2012; Perez-Truglia 2013). To provide measurement tools, Marcoux et al. (1997); Eastman et al. (1999); Chung and Fischer (2001) and Chaudhuri et al. (2011) have offered different scales to examine consumer tendencies, yet it is still not rich concerning alternative data gathering methods. Economics school on the other hand uses demand-supply models and tests macro-economic influences on and effects of conspicuous consumption (Corneo and Jeanne 1997; Amaldos and Jain 2005; Friedman and Ostrov 2008; Nunes et al. 2011; Kuksov and Xie 2012).

Conspicuous consumption is bound to being visible to function as a status and image tool (Perez-Truglia 2013). The perception of the symbolism of the product occurs when the possession is visible. This is why conspicuous consumption is described in regard to eye-catching, prominent products (Chaudhuri and Majumdar 2010) and brand perception (Ferraro et al. 2013).

Belk (1988) identifies two competing needs of consumers in relation to self-constructing as uniqueness and compensatory similarity. Therefore identity is built starting from the childhood via possession of things. The process of gaining an improved set of things regarded as one's own forms a basis of self-creation and identity and thus gaining self-esteem of the growing infant throughout adulthood. Conspicuous consumption in this sense is the way that identity process bounds to self-congruity and social context, whereas individual aims to improve his self-esteem which is a vital need of the individual to construct the self.

2.2 Self-Esteem and Self-Image Congruity

As one of the oldest and basic themes in social sciences, self-esteem is strongly related to individuals' behavioural decisions, beyond being mentioned in clinical psychology literature in regard to mental disorders. It has been investigated from various perspectives more than a decade, yet definition is still a difficult and contradictive issue. Common components of definitions lead to cognitive and affective aspects of the notion; thus Rosenberg's approach, which introduces self-esteem as type of attitude about one's own worth, is the most popular approach in self-esteem studies, especially in empirical research (Mruk 2006). The cognitive elements of self-esteem refer to accepting one's own perception of the self or

confidence. This brings the question of judgement, individuals' positive or negative reactions to the self.

In his article examining the construction of the self, Belk (1988) describes the role of the possession on self-esteem from the childhood to adolescence as reflection. Namely, the change in the set of possessions obtained is strictly related to the change of self-esteem of the growing individual. The "self" is a constitution of body, conscience and perceptions, possessions and productivity and ideas and relationships with the external environments. Adolescents face the need to cope with sexual development, independence, social roles and economic choices which characterizes the self, the adult human being (Patterson and McCubbin 1987). Self-esteem, on the other hand, develops during this period, and young adulthood, in conjunction with the construction of the self (Erol and Orth 2011). For young people, therefore, obtaining objects which is an important part of composing the self is also related with the evaluation of the self.

As a means of constructing the self, consumer behaviour is a way of expressing the self-image and personal qualities reflected (Coleman 1983). Souiden et al. (2011) found negative relationship between self-esteem and conspicuous consumption. This supports the understanding that consumers with lower self-esteem functionalize products as status elevation tools and thus more eager to consume symbols as a defence mechanism; hence stressing the identity becomes more important for consumers with lower self-esteem. These consumers tend to display more of their self-image via conspicuous consumption to construct the self and gain a better status, better evaluation of the self. In this sense self-image congruity is related to consumer tendencies, mainly investigated in relation to brand preferences (Onkvisit and Shaw 1987; Aaker 1999; Jamal and Goode 2001; Kressmann et al. 2006). Thus to make explicit of self-image, consumers with high self-image congruity are expected to have higher conspicuous consumption tendencies. In sum, it is expected that consumers with lower self-esteem tend to seek stronger self-image and status indicators. Therefore it is expected to find a negative relationship between self-esteem and conspicuous consumption, which occurs via self-image congruity and social status display.

H1a: Self-esteem is negatively related to self-image congruity.

H1b: Self-esteem is negatively related to social status display.

H1c: Self-esteem is negatively related to conspicuous consumption.

H2a: Self-image congruity is positively related to social status display.

H2b: Self-image congruity is positively related to conspicuous consumption.

2.3 Social Status Display

Income, profession and educational background are used in consumer research to address social classes which are formed with status indicators such as wealth, power and prestige (Schiffman and Kanuk 1994, pp. 377–378). With these indicators, it is

possible to dissolve social classes and determine behavioural patterns related to them, since status and wealth indicators are carried within products (Eastman et al. 1999; Chandon et al. 2000; Chaudhuri et al. 2011) and perform the function of displaying status and group memberships (Coleman 1983; Belk 1988; Wong and Ahuvia 1998). Thus individuals communicate their wealth and social class via demonstration of consumption behaviours.

Research shows evidence of status function of conspicuous consumption (Marcoux et al. 1997). Coleman (1983) states that social classes are not significantly related to income, economic capital, but how it is perceived by others. This perception arises with consumer choices, namely, higher status display leads to higher conspicuous consumption (Corneo and Jeanne 1997). This function is unbound to any social classes and any levels in society, for “every class level has the desire to consume for social status” (O’Cass and McEwen 2004). Consumers want to make good impressions on others to gain appreciation and may change their preferences to consort the reference groups they have (O’Shaughnessy and O’Shaughnessy 2002).

Even though it is bound to the importance of the perception of status in the society (O’Cass and Frost 2002), both low status levels and higher status levels have the tendency to demonstrate more of prestige with product choices (Corneo and Jeanne 1997; Ordabayeva and Chandon 2011). Symbols communicated by products are used to identify consumers’ social status and wealth (Chandon et al. 2000), and consumers who expect social status display using a product are eager to conspicuous consumption. There is limited number of studies investigating grounds of status-based consumption (Bronfenbrenner 1989); Bourdieu (1984), on the other hand, points three types of capital, economic, cultural and social capital, to form a status understanding, and therefore status consumption is not only related to consumers physical possessions. When considered from this point of view, social status display, as put forward by Souiden et al. (2011), is stimulated by self-image congruity and self-esteem to trigger conspicuous consumption tendencies of consumers. Therefore, social status display is thought to have also a mediating effect between self-image congruity, self-esteem and conspicuous consumption.

H3a: Social status display is positively related to conspicuous consumption.

3 Method

3.1 Research Model

Research model is constituted as shown in Fig. 1, and structural equation modelling is preferred to investigate the relationships between the factors indicated as it enables complex phenomenon to be tested and modelled statistically with better recognition to validity and reliability (Schumacker and Lomax 2010, p. 7).

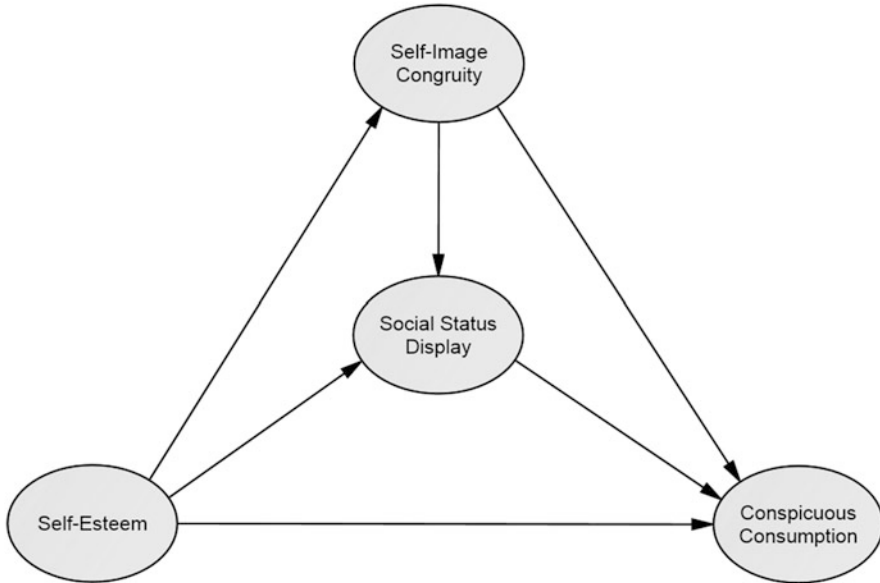


Fig. 1 Research model

3.2 Measures

In order to obtain data, self-esteem, self-image congruity, social status display and conspicuous consumption scales are adopted from previous studies in which reliability and validity criteria were conformed. The 10-item Rosenberg self-esteem scale is obtained from Çuhadaroğlu (1986), 5-item self-image congruity from Sigry et al. (1997), 8-item social status display from Souiden et al. (2011) and 12-item conspicuous consumption from Chaudhuri et al. (2011). The items in scales were translated and pre-tested to hinder translation errors. Demographic questions were kept in top and the items of scales were mixed before print.

3.3 Sample

Consumption, as related to the construction of self, plays an important role for the youth, as propounded by Belk (1988). Conspicuous consumption, therefore, is more concretely observable from childhood to young adulthood. Related consumer research designating the young as data source confirms this perspective (Rose et al. 1998; O’Cass and Frost 2002; Koziel et al. 2010); thus sample is selected among Çanakkale Onsekiz Mart University students in this research. A thousand copies of the final 5-point Likert questionnaire is directed to the undergraduate students from different units of the university using convenience sampling method

Table 1 Gender, units and monthly income

<i>Gender</i>		
Female	265	57.2
Male	198	42.8
<i>Unit</i>		
Biga faculty of economics and administrative sciences	121	% 26.1
Faculty of arts and sciences	125	% 27
Faculty of education	106	% 22.9
Faculty of fine arts	65	% 14
Çanakkale vocational school of social sciences	46	% 9.9
<i>Monthly income</i>		
500 TL and below	191	% 41.3
501–750 TL	127	% 27.4
751–1000 TL	54	% 11.7
1001–1250 TL	51	% 11
1251 TL and above	40	% 8.6

and answered voluntarily. Two graduate students were trained to distribute and collect the forms. Unfinished questionnaires were subtracted, and the rest of the forms were transferred to computer for analysis. Table 1 shows the demographic data of the 463 useable forms obtained.

3.4 Analyses

Demographics were found to be effective on conspicuous consumption in several studies (Sundie et al. 2011; Çelik 2013; Segal and Podoshen 2013). However homogeneity tests applied on data did not reveal any significant effect ($P = 0.8$); therefore demographic data does not require further investigation in this research.

Table 2 presents mean values, standard deviations and correlations of the constructs. Alpha values are calculated as 0.82 for self-esteem, $\alpha = 0.82$; for self-image congruity, $\alpha = 0.78$; and for social status display, $\alpha = 0.87$. All scales have α values over 0.7, indicating that scales are variable. During factor analysis, four items constituting conspicuous consumption and two items constituting self-esteem are subtracted since factor loadings of these items were less than 0.5. Confirmatory factor analysis model fit values shown in Table 3 are met.

To test the hypothesis, confirmed model is executed and relationships between the factors are examined. The results are shown in Table 4. Squared multiple correlations, indicating how well the given variable can be predicted, are 0.36 for self-image congruity; 0.28 for social status display; and 0.47 for conspicuous consumption. The results show that self-esteem is negatively related to self-image congruity (-0.388). The relationship between these factors is significant at 0.001 level; therefore hypothesis **H1a** is supported. Results indicate that self-image congruity has a significant effect on social status display (0.400; $P < 0.001$).

Table 2 Descriptive statistics and correlation coefficients

	Mean	SD	α	1	2	3	4
Conspicuous consumption	2.42	0.74	0.82	1			
Self-esteem	3.69	0.84	0.82	-0.188**	1		
Self-image congruity	2.75	0.79	0.78	0.414**	-0.313**	1	
Social status display	2.63	0.85	0.87	0.435**	-0.185**	0.336**	1

** $P < 0.01$

Table 3 Model fit summary

	CMIN/DF	NFI delta1	IFI delta2	CFI	RMSEA
Self-esteem	4.074	0.941	0.961	0.961	0.082
Self-image congruity	2.585	0.977	0.986	0.986	0.059
Social status display	2.050	0.981	0.990	0.990	0.048
Conspicuous consumption	2.809	0.967	0.978	0.978	0.063
Model path	1.905	0.878	0.938	0.937	0.044

Table 4 Regression weights

			Estimate	P	
Self-image congruity	<--	Self-esteem	-0.388	***	H1a
Social status display	<--	Self-image congruity	0.400	***	H2a
Conspicuous consumption	<--	Social status display	0.369	***	H3a
Social status display	<--	Self-esteem	-0.048	0.441	H1b
Conspicuous consumption	<--	Self-image congruity	0.344	***	H2b
Conspicuous consumption	<--	Self-esteem	-0.011	0.801	H1c

*** $P < 0.001$

Likewise social status display is found to have significant effect on conspicuous consumption (0.369; $P < 0.001$). Therefore relationships asserted in **H2a** and **H3a** are supported. Likewise, self-image congruity has significant positive effect on conspicuous consumption (0.344; $P < 0.001$). **H2b** is supported.

It is presented in Table 4 that estimates between self-esteem and social status display and self-esteem and conspicuous consumption are not significant. For further examination on the relationships, it is required to check the total effects. The estimated total effects are presented in Table 4. Direct effect of self-esteem on social status display is not significant, but as it is shown in Table 5, self-esteem has a significant total effect on social status display (-0.203; $P < 0.01$), which is due to self-esteem's indirect effect over self-image congruity. Therefore, self-image congruity mediates the relationship between self-esteem and social status display completely.

Self-image congruity and social status display also mediate the relationship between self-esteem and conspicuous consumption completely, thus total effect of self-esteem on conspicuous consumption is significant (-0.197; $P < 0.01$). Self-esteem indirectly affects conspicuous consumption via self-image congruity and

Table 5 Standardized total effects

	Self-esteem	Self-image congruity	Social status display
Self-image congruity	-0.388**		
Social status display	-0.203**	0.400**	
Conspicuous consumption	-0.197**	0.492**	0.369**

** $P < 0.01$

social status display, whereas direct effect is not significant. Moreover, total effect of self-image congruity on conspicuous consumption is calculated higher (0.492; $P < 0.01$) than its direct effect (0.344), meaning that social status display mediates this relationship partially.

4 Conclusion

This study aims to improve the understanding of conspicuous consumption in consideration of the previous studies. There are several constructs and approaches offered to investigate this phenomenon, yet there are more to do. Young consumers as the dynamic target group of many firms have the tendency to aggregate their identity with their possessions more clearly and to understand consuming behaviours of the youth is bound to understand the psychological conditions related to consumption.

The first implication of the study is that self-esteem is negatively related to conspicuous consumption, yet the relationship is not as strong as expected. It is although revealed that self-esteem is significantly related to self-image congruity and social status display, which ultimately leads to conspicuous consumption. This is consistent with the theoretical background; lower self-esteem causes stronger self-image congruity and social status display, stronger will for identification of the self and demonstrating a better status and higher indirect effect on conspicuous consumption tendencies. This supports the understanding that consuming symbols are related to construction of the self or the need for. Also self-image congruity mediates the effect of self-esteem on social status display, which mediates the effect of self-esteem on conspicuous consumption. This supports the argument that lower self-esteem motivates demonstration of the self-image towards social attachments and wealth to lead to conspicuous consumption.

Self-image congruity and social status display, as mediators of self-esteem, are interrelated, and social status display also mediates self-image congruity on conspicuous consumption. The partial mediating role of social status display on self-image congruity reveals that substantial change caused by self-image congruity on conspicuous consumption occurs via social status display. Finally, social status display has a positive effect on conspicuous consumption; therefore social contexts play a significant role concurrently.

As supported in this study, it is asserted in the literature that symbolism takes an important place in consumer studies (Featherstone 2005, p. 39; Langlois 2011, p. 852), while social implications of consumer behaviour gains importance. Even though gender difference is not found to be significant in this research, using different product groups is thought to emerge consumer group differences farther. Furthermore, the effect of culture on individuals' perception of self and importance of social status may lead to more thorough implications. Taking cultural contexts into account and limitations to product categories in further research may achieve clearer implications and reveal more information on psychometric effects.

References

Book

- Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Cambridge: Harvard University Press.
- Bronfenbrenner, U. (1989). Ecological systems theory. In R. Vasta (Ed.), *Annals of child development* (Vol. 6, pp. 187–249). Greenwich: JAI Press.
- Danziger, P. N. (2002). *Why people buy things they don't need*. Ithaca: Paramount Market.
- Featherstone, M. (2005). *Postmodernizm ve Tüketim Kültürü* (M. Küçük, Trans.). Istanbul: Ayrıntı.
- Frank, R. H. (1991). Positional externalities. In R. J. Zekhauser (Ed.), *Strategy and choice* (pp. 25–47). Cambridge: MIT Press.
- Langlois, S. (2011). Tüketim. In Borlandi et al. (Eds.), *Sosyolojik Düşünce Sözlüğü* (B. Arıbaş, Trans.). Istanbul: İletişim Yayınları.
- Marx, K. (2003). *Kapital 1.Cilt* (A. Bilgi, Trans.). Istanbul: Eriş Yayınları.
- Mruk, C. J. (2006). *Self-esteem research, theory and practice*. New York: Springer.
- Paterson, M. (2006). *Consumption and everyday life*. New York: Routledge.
- Schiffman, L. G., & Kanuk, L. L. (1994). *Consumer behavior*. Eaglewood Cliffs: Prentice Hall.
- Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modelling*. New York: Routledge.
- Simmel, G. (1950). The metropolis and the mental life. In K. H. Wolff (Ed.), *The sociology of Georg Simmel* (pp. 409–425). Glencoe: Free Press.
- Veblen, T. (1995). *Aylâk Sınıf* (I. User, Trans.). Istanbul: Marmara Üniversitesi Yayınları.

Journal

- Aaker, J. L. (1999). The malleable self: The role of self-expression in persuasion. *Journal of Marketing Research*, XXXVH, 43–57.
- Amaldoss, W., & Jain, S. (2005). Conspicuous consumption and sophisticated thinking. *Management Science*, 51(10), 1449–1466.
- Arruda-Filho, E. J. M., et al. (2010). Social behavior and brand devotion among iPhone innovators. *International Journal of Information Management*, 30(6), 475–480.
- Belk, R. W. (1988). Possessions and the extended self. *Journal of Consumer Research*, 15, 139–168.

- Çelik, N. (2013). Thorstein Veblen'in Gösterişçi Tüketim Yaklaşımı: Niğde Üniversitesi İdari Personeli Örneği. *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 34, 171–203.
- Chandon, P., et al. (2000). A benefit congruency framework of sales promotion effectiveness. *Journal of Marketing*, 64, 65–81.
- Chaudhuri, H. R., & Majumdar, S. (2010). Conspicuous consumption: Is that all bad? Investigating the alternative paradigm. *Vikalpa*, 35(4), 53–59.
- Chaudhuri, H. R., et al. (2011). Conspicuous consumption orientation: Conceptualisation, scale development and validation. *Journal of Consumer Behaviour*, 10, 216–224.
- Chung, E., & Fischer, E. (2001). When conspicuous consumption becomes inconspicuous: The case of the migrant Hong Kong consumers. *The Journal of Consumer Marketing*, 18(6), 474–487.
- Coleman, R. P. (1983). Continuing significance of social class to marketing. *Journal of Consumer Research*, 10, 265–280.
- Corneo, G., & Jeanne, O. (1997). Conspicuous consumption, snobbism and conformism. *Journal of Public Economics*, 66, 55–71.
- de Fraja, G. (2009). The origin of utility: Sexual selection and conspicuous consumption. *Journal of Economic Behavior & Organization*, 72, 51–69.
- Eastman, J. K., et al. (1999). Status consumption in consumer behavior: Scale development and validation. *Journal of Marketing Theory and Practice*, 7(3), 41–51.
- Erdoğan, B. Z., & Ekici, N. (2013). Sosyoloji Biliminin Pazarlamaya Katkıları Üzerine Bir Deneme. *Tüketim ve Tüketim Araştırmaları Dergisi*, 5(2), 1–22.
- Erol, R. Y., & Orth, U. (2011). Self-esteem development from age 14 to 30 years: A longitudinal study. *Journal of Personality and Social Psychology*, 101, 607–619.
- Ferraro, R., et al. (2013). Look at Me! Look at Me! Conspicuous brand usage, self-brand connection, and dilution. *Journal of Marketing Research*, L, 477–488.
- Friedman, D., & Ostrov, D. N. (2008). Conspicuous consumption dynamics. *Games and Economic Behavior*, 64, 121–145.
- Jamal, A., & Goode, M. M. H. (2001). Consumers and brands: A study of the impact of self-image congruence on brand preference and satisfaction. *Marketing Intelligence & Planning*, 19(7), 482–492.
- Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. *The Quarterly Journal of Economics*, 112(4), 1251–1288.
- Koziel, S., et al. (2010). Tattoo and piercing as signals of biological quality. *Evolution and Human Behavior*, 31, 187–192.
- Kressmann, F., et al. (2006). Direct and indirect effects of self-image congruence on brand loyalty. *Journal of Business Research*, 59(9), 955–964.
- Kuksov, D., & Xie, Y. (2012). Competition in a status goods market. *Journal of Marketing Research*, XLIX, 609–623.
- Leibenstein, H. (1950). Bandwagon, snob, and veblen effects in the theory of consumers' demand. *The Quarterly Journal of Economics*, 64(2), 183–207.
- Marcoux, J. S., et al. (1997). The attitudes underlying preferences of youth urban educated polish consumers towards products made in western countries. *Journal of International Consumer Marketing*, 9(4), 5–29.
- McCracken, G. (1987). The history of consumption: A literature review and consumer guide. *Journal of Consumer Policy*, 10, 139–166.
- Nunes, J. C., et al. (2011). Conspicuous consumption in a recession: Toning it down or turning it up? *Journal of Consumer Psychology*, 21, 199–205.
- O'Cass, A., & Frost, H. (2002). Status brands: Examining the effects of non-product-related brand associations on status and conspicuous consumption. *Journal of Product & Brand Management*, 11(2), 67–88.
- O'Cass, A., & McEwen, H. (2004). Exploring consumer status and conspicuous consumption. *Journal of Consumer Behaviour*, 4(1), 25–39.

- O'Shaughnessy, J., & O'Shaughnessy, N. J. (2002). Marketing, the consumer society and hedonism. *European Journal of Marketing*, 36(5–6), 524–547.
- Onkvisit, S., & Shaw, J. (1987). Self-concept and image congruence: Some research and managerial implications. *Journal of Consumer Marketing*, 4(1), 13–23.
- Ordabayeva, N., & Chandon, P. (2011). When equality increases conspicuous consumption among bottom-tier consumers. *Journal of Consumer Research*, 38(1), 27–41.
- Patterson, J. M., & McCubbin, H. I. (1987). Adolescent coping style and behaviors: Conceptualizing and measurement. *Journal of Adolescence*, 10, 163–186.
- Perez-Truglia, R. (2013). A test of the conspicuous–consumption model using subjective well-being data. *The Journal of Socio-Economics*, 45, 146–154.
- Rose, G. M., et al. (1998). Self-esteem, susceptibility to interpersonal influence, and fashion attribute preference in early adolescents. *European Advances in Consumer Research*, 3, 197–203.
- Segal, B., & Podoshen, J. S. (2013). An examination of materialism, conspicuous consumption and gender differences. *International Journal of Consumer Studies*, 37, 189–198.
- Sigry, M. J., et al. (1997). Assessing the predictive validity of two methods of measuring self image congruity. *Journal of the Academic Marketing Science*, 25(3), 229–241.
- Souiden, N., et al. (2011). A cross-cultural analysis of consumers' conspicuous consumption of branded fashion accessories. *Journal of International Consumer Marketing*, 23, 329–343.
- Sundie, J. M., et al. (2011). Peacocks, porsches, and thorstein veblen: Conspicuous consumption as a sexual signaling system. *Journal of Personality and Social Psychology*, 100(4), 664–680.
- Winkelman, R. (2012). Conspicuous consumption and satisfaction. *Journal of Economic Psychology*, 33, 183–191.
- Wong, N. Y., & Ahuvia, A. C. (1998). Personal taste and family face: Luxury consumption in Confucian and Western societies. *Psychology & Marketing*, 15(5), 423–444.

Thesis

- Çuhadaroğlu, F. (1986). *Adolesanlarda Benlik Saygısı*, Hacettepe Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı, Ankara.

Measuring Citizens Satisfaction From Public Sector Organizations in Greece: The Case of the Regional District of Xanthi



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Abstract This study aims to explore citizens' attitudes towards public sector and more particular towards services of Regional District of Xanthi in Greece. A primary survey was conducted in January–March 2016 to 268 citizens of Xanthi prefectures who were clients of the services of Regional District of Xanthi. Principal component analysis (PCA) was conducted to identify the main attitudes of the citizens towards public sector in Greece. Cluster analysis is performed to classify citizens into groups with similar attitudes, whilst discriminant analysis is conducted to check cluster predictability. Friedman test is performed to identify the importance of the main problems each group of citizens face when they visit the public sector services. Finally chi-square analysis took place in order to profile each identified group according to their demographic characteristics. PCA identifies that citizens of the Regional District of Xanthi mainly believe that services of Regional District of Xanthi (a) indicate high professionalism and interest in people's cases and (b) are characterized by consistency. Citizens (clients) who were served by those public agencies are classified into two groups: (a) those who believe that public sector services indicate high professionalism and interest in people's cases and (b) those who believe that public sector services are characterized by consistency. Friedman test indicated that people think that the main problem public sectors face in Greece is the lack of personnel.

Keywords Public sector marketing • Citizens satisfaction from public sector • Citizens' attitudes towards public organizations

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1 Introduction

Citizens' expectations and attitudes towards public goods and services have long been discussed, but recently there has been a growth of interest in citizens' expectations about public services (James 2011). Citizens' expectations of public performance have an impact on their satisfaction with services, their choice of services, voting for those in charge of services and lobbying for improvement (Roch and Poister 2006; Van Ryzin 2004, 2006; James and John 2007; Dowding and John 2008; Boyne et al. 2009; James 2009, 2011; Poister and Thomas 2011).

Services quality management is considered more difficult than quality control of goods (Walsh 1991). In particular services are characterized by the facts that are intangible; citizens in most cases are actively involved in services production; they are consumed at the same time when they are provided; people are not the owner of the services; services are activities or procedures that citizens cannot taste prior to their production (Bowen and Schneider 1988; Chelladurai and Chang 2000; Tsitskari et al. 2006). Moreover service quality depends on factors including infrastructures, reliability, employees' willingness to service people, knowledge and skills of those who provide services to people, politeness, the safety citizens' feel regarding the service they receive, the attention employees pay to citizens' requirements, easy access of people to public organizations and good and effective communication between citizens and civil servants (Bowen and Schneider 1988; Chelladurai and Chang 2000; Tsitskari et al. 2006; Papanagioutou 2012). Hence, methods and means, employees' behaviour and their knowledge and skills affect services' performance, whilst the bureaucratic procedures, lack of information, high time of servicing citizens, non-friendly dealing and opacity are the main reasons of low-quality services (Zalvanos 2006).

Normative expectations of citizens embody a preference for a particular state of affairs either in an ideal world or in another specific background context. In the literature on private sector services, the benchmark is often that of what an "excellent" company should do (Parasuraman et al. 1985, 1988), whilst normative and positive expectations have different roles in models of how expectations influence satisfaction with public services. Satisfaction is increasingly used as a measure of service performance to supplement managerial measures (James 2009, 2011; Van de Walle and Van Ryzin 2011). Positive and normative expectations don't just influence attitudes but also citizens' behaviour towards services (James 2011). If citizens' satisfaction can be improved by managing normative expectations, it is less likely that they will vote against those in charge of public services (James and John 2007; Dowding and John 2008; Boyne et al. 2009; James 2011). Rational expectations suggest that citizens have a model of how a public service operates and use this model to forecast current and future performance (James 2011). However, expectations have been found not to operate in this way in many contexts similar to those relating to public services including for future income, life expectancy and returns to schooling (James 2011).

Traditionally in the Greek public sector, the political leaders determined the kind of the services the public agencies should provide, under which circumstances and to whom. Nowadays, the evaluation of the services the public sector provides consists of a critical issue for the Greek State and the regional-local authorities and the citizen himself who is actively engaged in this process. Hence, public sector agencies and organizations are re-engineered in order to provide better and faster their services.

Quality, quantity, speed, adaptability, ability to find solutions for citizens' problems, trust, transparency and democratic choices are the main issues people demand from public agencies.

Moreover a range of factors including ethnicity, age, educational level and household income of citizens have been also identified that affect their expectations and satisfaction towards public services (James 2011).

Hence, the current study aims: (a) to identify citizens' attitudes towards public sector and towards agencies of Regional District of Xanthi in Greece, (b) to classify citizens with similar attitudes into groups and (c) to profile each group of citizens according to their demographic characteristics and the main problems they face when they visit the agencies of Regional District of Xanthi in Greece.

2 Methodology

The null research hypotheses this study aimed to reject were:

- **Ho1:** Citizens cannot be classified into groups according to their attitudes towards the services of the Regional District of Xanthi in Greece.
- **Ho2:** The importance of the problems citizens face when they visit agencies of the Regional District of Xanthi is not significantly related to citizens' attitudes towards the services of the Regional District of Xanthi in Greece.
- **Ho3:** The importance of the problems citizens face when they visit public sector organizations in general is not significantly related to citizens' attitudes towards the services of the Regional District of Xanthi in Greece.
- **Ho4:** Consumers' demographic characteristics are not significantly related to a particular citizens' attitude.

A telephonic survey throughout the Regional District of Xanthi was undertaken to gather the necessary information. A random selection sampling method is used to form the sample, whilst the white pages consisted of the sampling framework. A total productive sample of 268 citizens came up from the adopted survey methodology. The sample is reasonable representative according to Siardos (1997) methodology ($z = 1.96$ and $d = 5\%$).

The questionnaire designed to meet the research objectives was piloted in November 2015 to 30 citizens. They were asked to answer questions regarding the factors that would affect their attitudes towards the services of the Regional District of Xanthi in Greece and towards the Greek public sector in general, as well

as the importance of the problems they face in public agencies on the Likert scale from one to five. The pilot survey indicated that it needed no modification, and therefore, the main survey was conducted in January–March 2016.

Multivariate analysis techniques were applied in three stages to the responses of the 268 citizens to reveal the key information these contained. Principal component analysis (PCA) was used to identify the variables that accounted for the maximum amount of variance within the data in terms of the smallest number of uncorrelated variables (components). The anti-image correlation matrix, as well as the Bartlett's test of sphericity and the measure of sampling adequacy (MSA) were used, in order to check the appropriateness of the data for subsequent factor analysis. The variables with a high proportion of large absolute values of anti-image correlations and $MSA < 0.5$ were removed before analysis. An orthogonal rotation (varimax method) was conducted, and the standard criteria of eigenvalue = 1; scree test and percentage of variance were used in order to determine the factors in the first rotation (Hair et al. 1998). Different trial rotations followed, where factor interpretability was used to compare the reduced through PCA 10 variables related to citizens' main attitudes towards the services of the Regional District of Xanthi to a smaller set of underlying factors. These PCA scores were then subjected to cluster analysis to group citizens with similar patterns of scores into similar clusters regarding their attitudes towards the services of the Regional District of Xanthi. Both hierarchical and non-hierarchical methods were used (Hair et al. 1998) in order to develop a typology of the citizens attitudes towards those Regional public agencies. Quadratic discriminant analysis was performed to assess how accurately the key factors identified through factor analysis could predict and discriminate cluster membership. Furthermore, the Friedman one-way test was performed to identify the importance of the main problems each group of citizens face when they visit the public sector services. Finally, chi-square analysis was conducted in order to profile each identified group according to their demographic characteristics.

3 Results–Discussion

The variables and the two main key factors affecting citizens' attitudes towards the agencies of the Regional District of Xanthi along with their eigenvalues, the scree plot test and the percentage of variance results from PCA and factor analysis are portrayed in Tables 1 and 2.

Hierarchical and non-hierarchical clustering methods (Hair et al. 1998) were used to develop a typology of the citizens' attitudes towards the services of the Regional District of Xanthi in Greece. Cluster analysis was conducted on all 268 observations, as there were no outliers.

Citizens appeared to fall in two groups according to their attitudes towards the above mentioned public agencies (Table 3): (a) those who believe that public sector services indicate high professionalism and interest in people's cases and (b) those who believe that public sector services are characterized by consistency.

Table 1 Variables affecting the key attitudes of citizens towards the services of the Regional District of Xanthi

Component	Eigenvalues	% of variance	Cumulative % of variance	Variables	Communalities
1	4.162	46.242	46.242	V1	0.490
2	1.495	16.613	62.855	V2	0.472
3	0.827	9.188	72.043	V3	0.608
4	0.607	6.740	78.783	V4	0.608
5	0.496	5.515	84.298	V5	0.793
6	0.412	4.573	88.871	V6	0.760
7	0.378	4.204	93.075	V7	0.616
8	0.327	3.629	96.703	V8	0.613
10	0.297	3.297	100.00	V9	0.696

Table 2 Key Factors affecting citizens' attitudes towards the services of the Regional District of Xanthi

	Key attitude dimensions	Factor loading
<i>The agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases</i>		
V9	Citizens are very satisfied by the services the agencies of the Regional District of Xanthi provide	0.834
V7	When a citizen faces a problem, the personnel of the agencies of the Regional District of Xanthi show a great interest for its solution	0.785
V4	The personnel of the agencies of the Regional District of Xanthi are very polite with citizens	0.779
V8	The personnel of the agencies of the Regional District of Xanthi pay special attention to each citizen	0.774
V3	The personnel of the agencies of the Regional District of Xanthi inspire trust to citizens	0.770
V1	There is willingness for help to citizens by the personnel of the agencies of the Regional District of Xanthi	0.699
V2	Citizens' transactions with the personnel of the agencies of the Regional District of Xanthi are safe	0.656
<i>The agencies of the Regional District of Xanthi are characterized by good organization and consistency</i>		
V5	The agencies of the Regional District of Xanthi are well organized	0.890
V6	There is consistency by the personnel of the agencies of the Regional District of Xanthi	0.851

KMO MSA = 0.835, Bartlett's test of sphericity = 988.483, $P < 0.001$

Citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases comprise 56% of the sample. They mainly believe that the civil servants who work in those agencies try to solve citizens problems are very polite, pay attention to citizens' cases, inspire trust and are willing to help citizens.

Table 3 Classification of citizens regarding their attitudes of citizens towards the services of the Regional District of Xanthi

Main attitudes	Groups of citizens		P
	Citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases	Citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency	
The agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases	0.12132	-0.15658	0.024
The agencies of the Regional District of Xanthi are characterized by good organization and consistency	-0.77160	0.99583	0.001
Cases in each cluster (N = 268)	151	117	

Citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency comprise 44% of the sample. They mainly believe that the agencies of the Regional District of Xanthi are very well organized, and the personnel of those agencies indicate consistency.

Discriminant analysis was performed to evaluate the prediction performance of group membership with the predictors derived from the factor analysis. Initially, the normality of the key strategic dimensions was checked. A summary of the cross validation classification derived through quadratic discriminant analysis is presented in Table 4.

It is evident that the two attitude dimensions could accurately predict and discriminate citizens' group membership.

Therefore, the hypothesis *H01: Citizens that cannot be classified into groups according to their attitudes towards the services of the Regional District of Xanthi in Greece* could be rejected.

The Friedman non-parametric test was employed to investigate which are the main problems that people face when they visit the agencies of the Regional District of Xanthi (Table 5) and public sector organizations in general (Table 6).

Table 5 indicates that most of the citizens believe that the main problem they face when they visit the agencies of the Regional District of Xanthi is the lack of personnel mainly because there was almost 30% personnel reduction due to retirement for the last 5 years, whilst the second major problem according to them is the lack of special knowledge by the civil servants as much as it concerned citizens' cases.

Table 4 Summary of classification with cross validation

Actual classification	Predicted classification	
	Citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases	Citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency
Citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases	150	6
Citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency	1	111
Total <i>N</i>	151	117
<i>N</i> correct	150	111
Proportion	99.3%	95%
<i>N</i> = 268	<i>N</i> correct = 261	Proportion Correct = 97.4%

Table 5 The main problems that people face when they visit the agencies of the Regional District of Xanthi

Main problems	Citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases ($\chi^2 = 249.477$, $df = 5$, $P < 0.001$)	Citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency ($\chi^2 = 148.804$, $df = 5$, $P < 0.001$)
Lack of personnel	5.15	4.60
Racism	3.23	3.13
Long time of waiting	3.15	3.45
Rudeness	3.20	3.14
Lack of special knowledge	3.23	3.51
Encounter	3.04	3.16

Hence, the hypothesis, **H02**: *The importance of the problems citizens face when they visit agencies of the Regional District of Xanthi is not significantly related to citizens' attitudes towards the services of the Regional District of Xanthi in Greece*, could be rejected.

On the other hand, the same citizens believe that the main problems they face when they visit public organizations in general are also the lack of personnel as well as civil servants' rudeness and racism.

Table 6 The main problems that people face when they visit public sector organizations in general

Main problems	Citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases ($\chi^2 = 21.721$, $df = 6$, $P < 0.001$)	Citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency ($\chi^2 = 42.808$, $df = 6$, $P < 0.001$)
Lack of personnel	4.18	4.56
Racism	4.16	4.24
Long time of waiting	3.83	3.50
Rudeness	4.29	4.42
Lack of special knowledge	4.01	3.64
Encounter	4.06	3.63

Table 7 Citizens' profile regarding their demographic characteristics

Demographic characteristics		Citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases (%)	Citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency (%)
<i>Age</i> $\chi^2 = 84.908$ $df = 3$ $P < 0.001$	20–39 years old	41.7	7.7
	30–44 years old	49.7	35.0
	45–64 years old	8.6	50.4
	65+ years old	0.0	6.8
<i>Education</i> $\chi^2 = 28.791$ $df = 4$ $P < 0.001$	Primary	19.9	23.9
	Secondary	42.4	19.7
	High school	30.5	29.9
	University degree	6.6	26.5
<i>Occupation</i> $\chi^2 = 80.218$ $df = 6$ $P < 0.001$	Postgraduate	0.7	0.0
	Civil servant	21.9	7.7
	Private employee	37.1	13.7
	Student	4.6	0.9
	Free licenced/businessmen	29.1	23.1
	Retiree	2.0	10.3
	Unemployment	4.0	3.4
	Farmers	2.2	41.0

Hence, the hypothesis, **Ho3**: *The importance of the problems citizens face when they visit public sector organizations in general is not significantly related to citizens' attitudes towards the services of the Regional District of Xanthi in Greece*, could be rejected.

Furthermore, chi-square analysis is conducted to profile each group of citizens regarding their demographic characteristics (Table 7).

In particular most of citizens who believe that the agencies of the Regional District of Xanthi indicate high professionalism and interest in peoples' cases are mainly between 30 and 44 years old, private employees and finished high school. On the other hand, most of the citizens who believe that the agencies of the Regional District of Xanthi are characterized by good organization and consistency are older (between 45 and 64 years old), mainly farmers and finished high school.

Hence, hypothesis **Ho4**: *Consumers' demographic characteristics are not significantly related to particular citizens' attitude* could be rejected.

4 Conclusions

Citizens who visit the agencies of the Regional District of Xanthi for their cases mainly believe that those agencies: (a) indicate high professionalism and interest in people's cases and (b) are characterized by good organization and consistency. In particular this study supports the findings of other studies that employees' willingness to service people and find solutions for citizens' problems, trust, transparency, democratic choices reliability, knowledge and skills of those who provide services to people, politeness, the safety citizens' feel regarding the service they receive, the attention employees pay to citizens' requirements, easy access of people to public organizations and good and effective communication between citizens and civil servants are the main issues people demand from public agencies.

Moreover people are also classified into two groups according to their attitudes towards the services the Regional District of Xanthi provides: (1) those who believe that those agencies indicate high professionalism and interest in people's cases and (2) those who believe that those agencies are characterized by good organization and consistency.

Both groups of citizens consider that the main problem they face when they visit those agencies is the lack of personnel. On the other hand, they mainly consider as their mainly problems when they visit they public sector agencies in general the followings: (1) rudeness, (2) lack of personnel and (3) racism.

This study also indicated that citizens' age, educational level and occupation affect their attitudes towards the services of Greek public sector and more particularly towards the agencies of Regional District of Xanthi and therefore supports the argument of James (2011) that a range of factors including age and educational level affect their expectations and satisfaction towards public services.

The difference between the attitudes of people towards the agencies of the Regional District of Xanthi and the public sector in general can be explained by the following facts:

1. Almost 30% of older personnel of the Regional District of Xanthi have been pensioned for the last 5 years which means that the civil servants who work now in those agencies are quite young.
2. The head of departments and directors are also young and very well educated, and they improved the culture within the directorates and the departments.
3. The organizational culture is different in comparison with the other public sector agencies due to the above two causes and the managerial attitudes of the political supervisors (regional governors, vice governors, etc.).

Besides, the adoption of modern management techniques, including MBO, balanced scorecard, marketing techniques, project management and HRM issues, will contribute significantly to the improvement of the services the public sector will provide to citizens.

References

- Bowen, D. E., & Schneider, B. (1988). Services marketing and management: Implications for organisational behaviour. *Research in Organisational Behaviour*, 11(6), 389–401.
- Boyne, G., James, O., John, P., & Petrovsky, N. (2009). Democracy and government performance: Holding incumbents accountable in English Local Governments. *Journal of Politics*, 71(4), 1273–1284.
- Chelladurai, P., & Chang, K. (2000). Targets and standards of quality in sport services. *Sport Management Review*, 3, 1–22.
- Dowding, K. M., & John, P. J. (2008). The three exit, three voice and loyalty framework: A test with survey data on local services. *Political Studies*, 56(2), 288–311.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis*. New Jersey: Prentice Hall.
- James, O. (2009). Evaluating the expectations disconfirmation and expectations anchoring approaches to citizen satisfaction with local public services. *Journal of Public Administration Research and Theory*, 19(1), 107–123.
- James, O. (2011). Managing citizens' expectations of public service performance: Evidence from observation and experimentation in Local Government. *Public Administration*, 89(4), 1419–1435.
- James, O., & John, P. (2007). Public management at the ballot box: Performance information and electoral support for incumbent English Local Governments. *Journal of Public Administration Research and Theory*, 17(4), 567–580.
- Papanagioutou, D. (2012). Quality management in public sector – Measuring satisfaction through SERVQUAL in Organisation of Labour Houses. MSc Thesis, University of Macedonia, Thessaloniki.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for further research. *Journal of Marketing*, 48(1), 41–50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple – Item scale for measuring consumer perceptions of service. *Journal of Retailing*, 64(1), 12–40.

- Poister, T., & Thomas, J. C. (2011). The effect of expectations and expectancy confirmation/disconfirmation on motorists' satisfaction with state highways. *Journal of Public Administration Research and Theory, 21*(4), 601–617.
- Roch, C. H., & Poister, T. H. (2006). Citizens accountability, and service satisfaction. *Urban Affairs Review, 41*(3), 292–308.
- Siardos, G. (1997). *Methodology of agricultural sociological research*. Thessaloniki: Ziti.
- Tsitskari, E., Tsiotras, D., & Tsiotras, G. (2006). Measuring service quality in sport services. *TQM, 17*(5), 623–631.
- Van de Walle, S., & Van Ryzin, G. G. (2011). The order of questions in a survey on citizens satisfaction with public services lessons from a split-ballot experiment. *Public Administration, 89*(4), 1436–1450.
- Van Ryzin, G. G. (2004). Expectations, performance, and citizen satisfaction with urban services. *Journal of Policy Analysis and Management, 23*(3), 433–448.
- Van Ryzin, G. G. (2006). Testing the expectancy disconfirmation model of citizen satisfaction with Local Government. *Journal of Public Administration Research and Theory, 16*(4), 599–611.
- Walsh, K. (1991). Quality and public sector. *Public Administration, 69*, 503–514.
- Zalvanos, S. (2006). *Quality in provisional services and products*. Athens: Stamoulis.

Social Marketing in the Public Sector - The Case of a Municipality in Croatia



Josipa Bašić and Zoran Mihanović

Abstract Social marketing involves activities undertaken by individuals and organizations in order to achieve specific goals and can be used in non-profit and public organizations. Social marketing is the use of adapted standard marketing principles in order to change attitudes and behaviours of individuals and groups, to help minimize social problems and enhance the general welfare of society. The main objective of social marketing is to encourage positive social behaviour. The holders of social marketing can be institutions of public sector. Achieving better performance in public sector (in this case performance of municipalities in Croatia) on one hand and societal benefits on the other will be easier if the integrated approach of social marketing is used, applying marketing principles and techniques to influence the target audience. Taking into account a detailed theoretical analysis of specifics of social marketing, the main goal of this research is to determine to what extent the Municipality of Pakoštane applies the concept of social marketing in their work and to their key stakeholders and how much of the local population, as the most important stakeholder, is satisfied with the functioning of their local municipality. The final goal is to make recommendations and practical guidelines for improving the application of social marketing for municipalities and to highlight the existence of a clear link between the needs of citizens and improving public performances. Research results showed that the Municipality of Pakoštane isn't familiar with the concept of social marketing and does not apply the concept of social marketing in their work. It is recommended to apply a given concept in dealing with psychosocial problems of the local population (addiction, delinquency and vandalism), by changing the behaviour of individuals. The cooperation of the Municipality with other stakeholders, such as schools, religious communities and the police, would be helpful in solving this problem. The Municipality of Pakoštane doesn't successfully balance the relationships with their key stakeholders. Although the Municipality recognizes the relevant stakeholders, and each stakeholder is formed according to the special relations strategy, the research shows that the

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municipality isn't successful in their actions. In this case, the recognized problem is the lack of interest and lack of information of the local population which is necessary to be changed because only informed citizens can participate in the decision-making process. When stakeholder engagement strategies are developed, the municipality should be guided by certain principles influencing the stakeholder engagement strategy and the characteristics of the stakeholders. The importance of theoretical and practical side of this chapter is also reflected in the possibilities of implementing the concept of social marketing to the other municipalities in Croatia, with the aim of improving public performance and better meeting the needs of citizens.

Keywords Social marketing • Stakeholder management • Public sector
• Municipality of Pakoštane—Croatia

1 Introduction

Most people identify the concept of marketing with advertising and sales, and it is generally considered as applicable only in the profit sector. It is precisely this research that is in part trying to point out that marketing is a lot more than just advertising and sales and that it can be applicable in the public sector as well. A special emphasis will be put on the analysis and the application of the concept of social marketing in local self-governments. Marketing is applicable both in the non-profit and the public sector. The period of non-profit marketing began with the publication of the article “Broadening the Concept of Marketing” by Kotler and Levy (1969), in which the authors recognized that marketing can be applied outside the economic sphere as well. It is believed that the application of marketing in non-profit organizations has a positive effect on their overall activity, which leads to their improved addressing of social problems and to a better functioning of the society as a whole. *Social marketing* is used in the context of non-profit and public organizations. Andreasen (1994) defines social marketing as an adjustment of the technologies of commercial marketing, designed to influence the voluntary behaviour of target audiences, with the aim of improving their own well-being, as well as the well-being of the society they belong to. On the other hand, social marketing also refers to the development of the programmes designed to influence the acceptability of social ideas. Considering that one of the main objectives of social marketing is meeting public needs, the public sector can emerge as the main carrier of changes and of fulfilling citizens' needs (Kotler and Lee 2007). Although the authority of local self-government is clearly defined by the constitution, it often occurs in practice that local authorities feel nearly no responsibility for the existential questions of their citizens and do not view their needs and problems as priority but are primarily oriented towards their own interests and the interests of political parties (Janković 2010). For example, an analysis of the situation on the Polish political scene conducted by Biernacka-Ligieza (2010) created an

impression that all of the limits of positive marketing have been exceeded and that the actions of the politicians there are reminiscent of a brutal campaign for power, rather than of a fair competition between the ideas on how to solve the current problems of the citizens. Two-way communication between local authorities and local population is essential if it is desired to ensure a balance between the two sides. Martinović (2010) believes that the public relations within the units of local self-government and multiple stakeholders are an important part in the activities of the units of local self-government and that they represent that without which they will not be able to function properly in the future.

The Republic of Croatia is divided into 428 municipalities, one of which is the Municipality of Pakoštane. Accordingly, the aim of this research is to determine the extent to which the Municipality of Pakoštane applies the fundamental principles and techniques of social marketing in achieving the objectives and activities that contribute to the common good. By studying the available literature and the previously defined problematics of the research, this paper sets out the following three main research objectives:

1. To determine the *extent* to which the Municipality *recognizes* the concept of *social marketing* and the extent to which it applies in its activities
2. To determine the forms of *stakeholders' engagement* (*communication, consultation* and *co-production*) and *extent* to which the Municipality recognizes its *stakeholders* and, in balancing the relations with its key stakeholders, effectively applies the concept of *social marketing*
3. To determine the *extent* to which the local citizens are pleased with the *functioning* of the Municipality and with its success in meeting the needs which are under the jurisdiction of the Municipality itself

2 Fundamental Presumptions of Social Marketing

As a discipline, social marketing emerged in 1970 when Philip Kotler and Gerald Zaltman realized that it is possible to apply the marketing principles used in the profit sector to sell products on selling ideas and on changing attitudes and behaviours (Kotler and Zaltman 1971). Although the term social marketing is relatively new, Donovan and Henley (2010) identified the application of social marketing way back in the time of ancient Greece and Rome. The simplest definition encompassing all the important elements of social marketing is given in French et al. (2010), according to which “social marketing is a *systematic application of marketing* and other techniques and concepts, aiming at specific *behavioural changes* that lead to *common good*”. For a programme to be considered a social marketing, it is necessary that it encompasses applying commercial marketing technologies, influencing the voluntary behaviour of individuals and acting exclusively for the purpose of social well-being rather than for the own benefit or for the benefit of the respective company (Andreasen 1994). It is considered that the concept of social marketing relies on the basic

marketing concept—customer satisfaction and profitability—along with a third element called long-term benefit of consumers (Crane and Desmond 2002). Stremtan (2010) set out the main differences between commercial and social marketing: (1) the purpose of the existence of companies is profit, while organizations involved in social marketing have promoted social well-being as the purpose of their existence; (2) in social marketing, idea is much more important than standard products and services; (3) organizations that practice social marketing do not intend to increase the demand for their products in target groups, as companies do; and (4) social marketing does not apply only to products and services but also to people, places and ideas, where exchange is usually not of a financial nature. Grigore (2013) states that the success of social marketing, as opposed to commercial marketing, cannot be expressed in financial terms, but it is rather measured by the number of people who manage to change their behaviour, for example, the number of people who recycle, the number of people who use bicycles instead of cars, etc. Also, the success can be measured by the number of generated positive social changes: decrease in discrimination, pollution reduction, etc. The modern view of social marketing outlines its domain around the process of exchange and voluntary behaviour change (Domegan 2008).

In addition to strong positive features of social marketing, the characteristics of bad social marketing programmes are vaguely defining the subject of a social product, using slogans and messages related to social marketing in one's campaigns, using social marketing programmes in promoting one particular group while ignoring another group, hidden efforts in sales under the disguise of social marketing, racial or religious discrimination in one's programmes, excessive costs of one's campaigns, the potential of creating anxiety and fear among consumers and disclosing false information and/or hiding information (Akdogan et al. 2012). It is important that those responsible for social marketing behave ethically and do not abuse the law by putting pressure on their target groups, because it is a fine line between personal and general objectives that should be clearly defined when planning a social marketing campaign while taking into account the respect for equality and right to choose (Ognjanov et al. 2012).

Social marketing programmes that promote social well-being in reality often fail because they require individuals to give up on their pleasures and aesthetics, learn new skills, change their routines and spend more time and money (Kotler and Lee 2007). In their study, McKenzie-Mohr (2000) found that environmental campaigns based on media advertisements and brochures demonstrate a distinct level of failure in changing behaviour. Perez-Mujica et al. (2014) found that media campaigns can be successful in creating public awareness, but are limited when it comes to behavioural changes. Demšar Pečak and Ovsenik (2012) tried to apply social marketing in Slovenia in solving the problems encountered by heterosexual partners, and the results showed that social marketing can play an important role in solving the problems of mutual relations. In their work, Peattie et al. (2011) developed a project, the objective of which was to reduce pyromania in Portugal by applying the mechanisms of social marketing. For example, in Romania, a social marketing programme developed by the cosmetics company

AVON demonstrated positive social changes through the campaign that launched a fight against breast cancer and for early diagnosis of the disease (Stremtan 2010).

3 Distinctive Features of Marketing in the Public Sector

The public sector in Croatia is divided into general government and public enterprises. *General government* includes all the institutions directly or indirectly financed by the state budget and/or regional and local government units and extra-budgetary users. Thus, general government includes the central government, regional authorities and local governments. *Public enterprises* in Croatia perform different state affairs and carry out financial transactions at the request of different government units and are divided into financial and non-financial public enterprises (Bejaković et al. 2011). In the early 1990s, the public sectors in many European countries began observing customers as buyers and applying marketing tools and techniques with the aim of selling policies to their citizens (Proctor 2007). Today, marketing finds its purpose in the public sector, both in creating loyal buyers and attracting new ones, and in entering new markets (Barbu 2011). Barbu (2011) points out that the application of marketing in the public sector can lead to a greater satisfaction of citizens and employees, as well as to a clearer understanding of the risk assumed. A new approach has been noted as well, where public services put the consumer in the first place. However, allowing this attitude to actually come to life in all the departments will require a lot of effort and time (Walt 2004). In order to increase the citizens' satisfaction, it is necessary to directly involve them in the process of planning and decision-making in the public sector. In so doing, it should be borne in mind that only an informed and organized population can express their needs and be actively involved in the decision-making process in the community (Caric 2003).

Comparing the marketing mix in the non-profit and the public sector, numerous differences can be discerned. In the public sector, *product* represents everything that serves to meet the needs of its users and society, including *material goods* (containers provided by the public utility), *services* (public transport), *programmes* (free foreign language courses), *experiences* (Nature Park tours), *events* (manifestations organized by the local tourist board), *people* (the mayor), *places* (parks), *organizations* (hospital), *information* (websites) and *ideas* (protection of cultural heritage) (Kotler and Lee 2007). New products can be developed without demand or even despite objections from society (Kaplan and Haenlein 2009). When *determining prices in the public sector*, the first step is to determine the purpose of a price, the market demand which varies depending on the price change and then the expenditure of the product (Kotler and Lee 2007). Barbu (2011) in turn cites two criteria on which the typology of pricing in the public sector is based: (1) *payment method*, a public service compensation may be paid directly by the customer when

the relevant service is provided or indirectly through the taxes directed to the state; (2) *payment moment*, payment can be made before or after the relevant public service is provided. The *distribution* policy in the public sector refers to the decisions on where, how and when customers can access an offer and when, where or how the offer can be delivered to them (Barbu 2011). Distribution or place in social marketing represents channels that promote desired behaviour and channels that encourage and support behaviour change to be achieved from the target audience (Gordon 2012). The specificity of marketing in the public sector with regard to *promotion* refers to the fact that public sector organizations do not invest a lot of financial means in promotion (Bean and Hussey 2011). *Employees* represent the most effective communication means of a public enterprise as they, through their skills, courtesy and professionalism, contribute to the positive image of the organization (Barbu 2011).

Butigan and Mahinić (2011) point out that the development of deep and lasting relationships with all the interested parties, be it of economic, technical or social nature, is increasingly becoming the aim of marketing, both in the profit and the non-profit sector. Stakeholders can be perceived as all the interested parties in the activities of an organization which have the ability to affect the operation and performance of the organization (Friedman and Miles 2006). Boviard and Loffler (2009) distinguish between the three forms of stakeholders' engagement: *communication*, *consultation* and *co-production*. According to these authors, each category makes for an important component in designing an organization's strategy for establishing relationships with its target stakeholders. Thus, *communication* stands for a one-way flow of information from the organization towards the public, *consultation* indicates a two-way dialogue between the organization and the public, but *co-production* refers to joint action and active public participation in the decision-making process (Fig. 1). For example, involving stakeholders in the activities and operations of non-profit organizations, by developing different participation strategies for different groups of stakeholders through communication, consultation and co-production with those groups, has a positive impact on and is important for the development of sustainable marketing strategies and practices of non-profit organizations (Mihanović and Rosan 2014). Bežovan (2009) points out that, within the system, government and public administration observe non-profit organizations and other stakeholders as their partners and cooperate with them in the process of preparing and making decisions and implementing programmes. The stakeholder participation strategy should be developed bearing in mind the characteristics of the organization's stakeholders (Mihanović and Rosan 2014). Cooperation between the public and the private sector must in particular come to the foreground when contemplating the politics of local and regional development (Marković and Dunković 2009).

Local self-government is a part of the public sector, and the previously described principles can be applied in this area as well. The activities of a local self-government have to lead to meeting the needs of the citizens and be social in their essence; hence it arises the necessity of applying *social marketing*. According to Meler (2003), *marketing management in a local self-government unit*

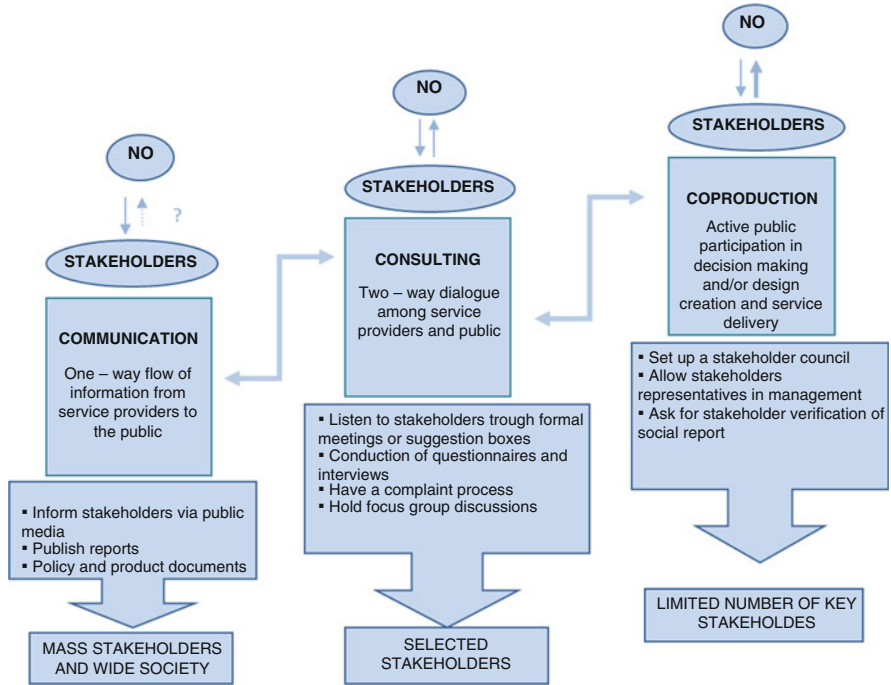


Fig. 1 Conceptual framework: public participation spectrum. Source: Mihanović and Rosan (2014); Adopted according Boviard and Löffler (2009)

encompasses: (1) defining the mission and goals of the local self-government; (2) analysing its micro- and macroenvironment (SWOT analysis); (3) analysing its portfolio and planning new businesses; (4) researching the needs of target groups, examining public opinion, collecting data and analysing data; (5) defining the strategy and marketing mix; and (6) organizing, applying and controlling marketing programmes. Local authorities are faced with various changes in the economic structure, rising unemployment and social needs, higher deficits in local budgets and the consequent reduced level of competitiveness, which is why cities apply various measures and activities. These activities are related to the introduction of new management approaches, such as new public management, place marketing and an increasing application of the concept of marketing in the cities' market (Širola and Zrilić 2013). The competitiveness of cities, and even of local self-governments, which takes place at the regional, national, European and global level, is necessary to attract new investments, domestic and foreign enterprises, entrepreneurs and tourists and thus create the conditions for the economic development of a city (Fočo and Paliaga 2011). Citizens form opinion of their municipality depending on how much they know about it and how much information they have on its activities. Considering the design and maintenance of an enterprise's image, Proctor (2007) states that designing and maintaining a strong brand identity

is one of the most important components of marketing management. A strong brand image should make a significant difference for the public sector. The image of a municipality/city is achieved through certain elements. The first element of a municipality/city image is contained in its identifiable visual constants, and the second element of its image is represented by the municipality employees and their communication style. Each city and municipality is made of its inhabitants. Employees should learn to communicate with their target segments. The more frequent the communication between the target segments, the more effective and more interactive it will be. The more the local population is involved in solving municipality/city problems, the more motivated they will be to participate in the creation of a positive image of their municipality/city (Martinović 2010). Organizations should use direct communication or interaction in an open dialogue with its stakeholders (Preble 2005).

4 Research Results

4.1 General Information on the Municipality of Pakoštane and SWOT Analysis

The Municipality of Pakoštane is a legal entity and a local self-government unit, established in 1996 and headquartered in Pakoštane. The municipality consists of the following settlements: Pakoštane, Drage, Vrana, Vrgada and the western part of Ceranje Donje. According to the 2011 population census, the Municipality of Pakoštane has 4200 inhabitants. The relevant stakeholders of the Municipality of Pakoštane are *its population, employees, Tourist Board Pakoštane, private companies, public institutions and civil society organizations operating within the area of the Municipality.*

The objective of the *SWOT analysis of the Municipality of Pakoštane* is to determine the strengths and weaknesses of the Municipality itself, as well as the opportunities and threats that arise from the environment, in order to potentiate the possible opportunities and strengths and to minimize the weaknesses and threats (Table 1).

4.2 In-Depth Interview with the Representatives of the Municipality of Pakoštane

As a part of the primary research, an in-depth interview was conducted with some of the relevant people in charge of managing the Municipality of Pakoštane in order to determine whether the Municipality recognizes the concept of social marketing

Table 1 SWOT analysis of the Municipality of Pakoštane

Strengths	Opportunities
<ul style="list-style-type: none"> • The position of the Municipality Pakoštane—between the sea and the Vrana's lake 	<ul style="list-style-type: none"> • The exchange of experiences, ideas and expert advice from successful municipalities
<ul style="list-style-type: none"> • Natural attractions—beaches, green areas, clean sea and air 	<ul style="list-style-type: none"> • Improved communication and cooperation with other municipalities and non-governmental organizations
<ul style="list-style-type: none"> • Traffic connection 	<ul style="list-style-type: none"> • Strategic partnership
<ul style="list-style-type: none"> • Communal infrastructure 	<ul style="list-style-type: none"> • An increasing number of young qualified staff on the territory of the municipality
<ul style="list-style-type: none"> • Strengthening of the Municipality as touristic destination 	
<ul style="list-style-type: none"> • The rich cultural heritage 	<ul style="list-style-type: none"> • Withdrawal of resources from the EU funds and state subsidies
<ul style="list-style-type: none"> • Withdraw assets from EU-preaccession funds 	
<ul style="list-style-type: none"> • A large number of registered enterprises and trades; revenue assurance from property leases, rents, concessions, taxes and local taxes 	<ul style="list-style-type: none"> • The development of local agriculture and greater cooperation with tourism
	<ul style="list-style-type: none"> • Strengthening of the tourism sector
<ul style="list-style-type: none"> • Subsidizing civil and sports associations 	
<ul style="list-style-type: none"> • Organization of events and traditional festivities 	
<ul style="list-style-type: none"> • The possibility of professional training the young, educated personnel 	
<ul style="list-style-type: none"> • Recreation facilities in the newly built sports hall 	
<ul style="list-style-type: none"> • Three newly installed playgrounds for children in Pakoštane 	
Weakness	Threats
<ul style="list-style-type: none"> • Orientation of the inhabitants exclusively on tourism 	<ul style="list-style-type: none"> • The bad economic situation in the world and in Croatia
<ul style="list-style-type: none"> • Inhabitants who destroy public property and passivity of the municipality in solving this problem 	<ul style="list-style-type: none"> • The appearance of new destinations
	<ul style="list-style-type: none"> • Bad image of the inhabitants can adversely affect the number of arrivals
<ul style="list-style-type: none"> • Non-functioning of local committees 	
<ul style="list-style-type: none"> • Low utilized of the fact that municipality is located near the Nature park and 5 National parks 	<ul style="list-style-type: none"> • The decline of the guests consumption
	<ul style="list-style-type: none"> • More demanding consumers
<ul style="list-style-type: none"> • Low utilized of the fact that was found many historical remains in the area of Municipality 	
<ul style="list-style-type: none"> • Disproportionately investment in certain places 	
<ul style="list-style-type: none"> • Lack of partnership and cooperation with other governmental and non-governmental organizations and private companies 	
<ul style="list-style-type: none"> • Lack of large donations 	
<ul style="list-style-type: none"> • Lack of marketing orientation of Municipality Pakoštane 	

and whether it applies the said concept in its work and with regard to its key stakeholders. Strategic goals and plans are very important for the operation of a local self-government because they indicate in which direction the Municipality is moving. The problem with most local self-governments, as well as regional and national governments, is that emphasis is placed on tactical thinking and acting in order to see short-term results, hence ignoring the long-term well-being of the population. The interview showed that the Municipality of Pakoštane has clearly defined strategic goals that it should systematically adhere to with the objective of achieving a long-term well-being of the local people. The mission of the Municipality clearly indicates what the tasks of the local authority are, who the users are, what values it provides to the users and exactly what should be the task of the local authority in the future. In accordance with the aforementioned, it is concluded that the mission of the Municipality is defined in the right way, but the drawback is that the mission of the Municipality is not apparent in the official gazettes, primarily on the official website; hence everyone involved in the work of the Municipality is not familiar with it. The interview showed that the local self-government is not familiar with the concept of social marketing or marketing whatsoever. The local self-government identifies the concept of social marketing with marketing and marketing only with advertising. The local self-government ignores the said problems of the population and shifts responsibility to other institutions. The local population is certainly one of the most important stakeholders in the local self-government. Through public calls, the local self-government directly invites the residents to express their opinions and recommendations regarding the essential items in the activities of the Municipality. However, the problem is the small turnout at such events, due in part to the lack of information and in part to the lack of interest. The local self-government is in a *co-production* relationship with the Tourist Board and sees it as one of the most important stakeholders. Therefore, they jointly work on solving the problems of the citizens and on raising the overall satisfaction. It is clear that the Municipality recognizes its relevant stakeholders and applies the concept of social marketing towards them, but in an unsystematic way.

4.3 Research on the Local Population

The basic set of research is the population of the Municipality of Pakoštane with permanent residence in the area. This survey included a total of 103 respondents, of which 48.5% respondents are male and 51.5% respondents are female. Of the total number surveyed, most of them are under the age of 16–25 years, 54% of them. 11.7% of respondents aged 36–45 years, and the same percentage of respondents is in the age of 46–55 years. 8.7% of respondents aged 16–25 years and 56–65 years. 3.9% of respondents aged 66 and older. According to the residence, most respondents are from Pakoštane (71.8%), which is not surprising considering that Pakoštane has the highest population in the Municipality.

4.3.1 Search Results on the Satisfaction of the Local Population

The first objective of this research was to determine the extent to which the local residents are satisfied with the functioning of the Municipality and with its success in meeting the needs which are under the jurisdiction of the Municipality itself. The survey showed that the residents are *extremely dissatisfied* with the success of the Municipality in meeting the needs under the jurisdiction of the local self-government (Tables 2 and 3), particularly related to the following areas: sewerage system, social welfare, child care, Municipality support for education, road maintenance and paving, traffic signs, parking spaces, cultural manifestations and events, sports events, organization of settlements and housing, physical and urban planning, consumer protection and the protection and improvement of natural environment. The respondents have an unbiased attitude when it comes to meeting the needs that are under the jurisdiction of the Municipality in the following areas: funeral services, primary health care, kindergarten, sports infrastructure and fire and civil protection. The respondents have expressed *satisfaction* only with water supply and basic education.

Based on the survey conducted, the *average score of the respondents' satisfaction with the Municipality's success in meeting the needs* under the jurisdiction of the local self-government was calculated for the given sample of respondents. Table 4 shows the average rating of the sample respondents' satisfaction with fulfilling the needs which are the responsibility of the Municipality itself. The interval estimation of arithmetic mean of the basic set using the given sample, with the level of evaluation reliability of 95%, is $Pr \{2.5346 < x < 3.0131\}$. Based on the survey conducted, for the given sample of respondents, we tested the

Table 2 Descriptives

			Statistic	Std. error
Satisfaction rating scales	Mean		2.7738	0.11470
	95% Confidence interval for	Lower bound	2.5346	
	Mean	Upper bound	3.0131	
	5% Trimmed mean		2.7771	
	Median		2.8400	
	Variance		0.276	
	Std. deviation		0.52562	
	Minimum		1.83	
	Maximum		3.65	
	Range		1.82	
	Interquartile range		0.96	
	Skewness		-0.041	0.501
	Kurtosis		-1.180	0.972

Table 3 One-sample test

	Test value = 2.77					
	<i>t</i>	<i>df</i>	Sig. (2-tailed)	Mean difference	95% confidence interval of the difference	
					Lower	Upper
Satisfaction rating scales	0.033	20	0.974	0.00381	-0.2354	0.2431

Table 4 Satisfaction rating scales by the place of residence

	Mean rank
Satisfaction rating scales Drage	3.24
Satisfaction rating scales Pakoštane	3.24
Satisfaction rating scales Vrgada	1.48
Satisfaction rating scales Vrana	2.05

Table 5 Test statistics^a

<i>N</i>	21
Chi-square	29.798
<i>df</i>	3
Asymp. Sig.	0

^aFriedman test

hypothesis on the average value of one basic set. According to the results shown in Table 5, it is true that the significance of the sample for this bi-directional testing is $>5\%$ ($\alpha^* = 0.974 > 0.05$), which means it is accepted that *the average score of the respondents' satisfaction with the fulfilment of the needs that are under the jurisdiction of the Municipality itself amounts to 2.77*, and it is concluded that the respondents are *dissatisfied with the fulfilment of the needs that are under the jurisdiction of the Municipality of Pakoštane itself*, with the average grade of satisfaction of 2.77.

On the basis of the survey conducted, by using the Friedman test, we examined the hypothesis that, depending on their place of residence, there is no difference in the average rating of the respondents' satisfaction with the fulfilment of the needs which are the responsibility of the local self-government, with the test marginal significance of 5%. For example, the average rating of the satisfaction of the respondents living in Drage was 3.24, just like in Pakoštane; the residents of Vrgada showed the lowest average rating of their satisfaction with fulfilling the needs under the jurisdiction of the local self-government, and it amounted to 1.48. The average rating of the satisfaction of the respondents from Vrana was 2.05. Based on the research, it was found that the empirical significance is $\alpha^* = 0.00 \Rightarrow \alpha^* < 5\%$, so it can be concluded that there is a *statistically significant difference in the satisfaction of the respondents living in particular settlements*.

4.3.2 Attitudes of the Respondents Towards the Functioning of the Municipality

The survey showed that the respondents generally agree that the Municipality of Pakoštane has a *negative public image* and that the local self-government is not taking any concrete steps or working on solving the *problems of young people's delinquent behaviour* and on *addressing the problem of addiction*. The research showed that the respondents have a negative attitude towards the activities of the Municipality and that they believe the local self-government does not act primarily for the benefit of the local people and does not treat their needs as priority, but is instead driven only by its own interests. Moreover, it was found that the respondents believe that the Municipality does not *take into account the advice given by the local population* and that *the local population does not participate actively in the activities of the Municipality*. They believe that other settlements of the Municipality are being ignored. The respondents also have a negative attitude towards the *employees* of the Municipality, and they believe that the management and the employees perform their tasks unprofessionally and poorly. In addition, the respondents were also asked to state their objections or complaints related to the functioning of the local self-government. The respondents recommended the local self-government to invest a more significant amount of money into the landscaping and visual appearance of the settlements within the Municipality. Also, they expressed their belief that the Municipality should invest more effort into environmental protection programmes, because there are true natural beauties hidden within the Municipality that need to be protected. The respondents also criticized the slow pace of the bureaucracy and the Municipality's failure to allocate funds for the school library, to give scholarships to its students and pupils, to solve the problem of delinquency, its inattention for young people, etc.

4.3.3 Attitudes of the Respondents Towards the Functioning of the Tourist Board

The respondents have a clear attitude towards *residence fees*. The highest percentages of them have a neutral attitude towards the height of residence fees. The research showed that most respondents fail to notice the *advertising* carried out by the Tourist Board, such as advertising in newspapers, TV advertising, brochures and the like. The respondents do not have a clear attitude towards the website of the Tourist Board either. Most respondents do not agree that the *manifestations* organized by the Tourist Board are interesting and successful and have a negative attitude towards the existing manifestations. The respondents generally prefer *personal communication*, as opposed to communication via e-mail. The research showed that the respondents are not satisfied with the activities of the Tourist Board related to promoting the destination. Most respondents believe that the Tourist Board does not act primarily for the *benefit of the local population* nor puts their

needs and desires at the centre of its efforts. The research also showed that the respondents have no positive attitude towards the *employees* of the Tourist Board, that they find them incompetent and that they believe their tasks are not performed in a quality manner. In view of the above stated, it can be observed that the respondents are *dissatisfied with the functioning of the Tourist Board and with its performance of the activities under its jurisdiction*. Finally, it can be concluded that the local people are *not satisfied with the functioning of the Municipality and with the fulfilment of the needs under the jurisdiction of the Municipality itself*.

5 Conclusion

Local self-government, as a part of the public sector, could apply social marketing in solving numerous problems. This too applies to the researched sample of the Municipality of Pakoštane and its problems related to the addiction, delinquency and vandalism of the local population. Through the application of social marketing, the local population is required to renounce old habits, which usually causes negative sentiments in individuals, but in order for social marketing to truly come to life, behavioural changes that are beneficial to the entire society are necessary. In addressing the said issues, it would help to establish a cooperation between the local self-government and the local school, religious community, police and other relevant stakeholders. When formulating its strategy, the mission should be the main “guiding principle” of an organization, i.e. of a local self-government. Systematic application of social marketing leads to a quality realization of the mission, i.e. to a quality realization of the goals of an organization. When stakeholder engagement strategies are developed, as in non-profit organizations (Mihanović and Rosan 2014), organizations should be guided by certain principles influencing the stakeholder engagement strategy and the characteristics of the stakeholders.

Based on the results of the in-depth interview with the heads of the Municipality, it was found that there exists a relationship of *co-production* with the local population, while the research conducted among the local population showed that the population does not recognize the activities that the Municipality proclaims to perform, and that they even express their dissatisfaction with it, believing that the Municipality does not include them actively in its work. In addition, they believe that the local self-government is driven by its own interests, thus ignoring the common good. Although the interview showed that, to a certain extent, the Municipality applies the concept of social marketing in relation to its stakeholders, the research conducted among the local residents showed that it is still not successful in its operations. Therefore, it can be concluded that the Municipality recognizes its stakeholders, but does not effectively apply the concept of social marketing in balancing the relations with its key stakeholders. Private enterprises could be an important stakeholder in solving the problems of the Municipality and in the development of the Municipality by subsidizing civil and sports associations or subsidizing and encouraging programmes of social marketing. The Municipality

should also put more effort into internal marketing and training its employees. The stakeholders, whether from the public or the private sector, could provide a number of benefits for the local self-government in the form of *cooperation* in the decision-making process and in programme implementation.

The population of the Municipality believes that the local population does not participate actively in the work of the Municipality, although the local self-government claims the exact opposite. Public calls are issued whenever important decisions are about to be made, but the problem that occurs is the small turnout, partly due to the lack of interest and partly due to the lack of information of the local population. To minimize the problem of indifference and the lack of knowledge of the local population, it is recommended to employ, i.e. a concrete public relations strategy (Martinović 2010). As a prerequisite, it is necessary to ensure an adequate Human Resources Department. The Municipality should improve its relations with the media through maintaining regular contacts and organizing press conferences whenever presenting new projects. The Municipality could hold public hearings and public forums when making decisions in order to increase the involvement of the local population. Promotional materials could be used to invite all the interested parties to participate. Transparency of work, as well as a greater interest of the local stakeholders, could be ensured through establishing the Doors Open Day by the Municipality. Thus, through the implementation of public relations, the Municipality could ensure greater transparency and increase the awareness, interest and involvement of the local population, with the aim of raising the citizens' life quality. The research also showed that the respondents are dissatisfied with the work of the Tourist Board, especially in the field of organizing manifestations and promoting the destination. Although the Tourist Board is investing considerable means in promotion, the local people simply do not recognize these activities. Promotional activities should emphasize the proximity of the aforementioned National Parks and Nature Parks, as well as the cultural and historical sites in the Municipality's neighbourhood, which are ideal for sightseeing and outings in the mentioned periods. The development of rural tourism should be encouraged in many settlements under this local self-government as a special blend of local culture and agriculture in order to provide tourists a unique experience and to ensure a better life in these areas.

The importance of the theoretical and the practical part of this work is reflected in the possibility of implementing the *concept of social marketing and stakeholders' engagement strategies (communication, consultation and co-production)* in other local self-governments as parts of the public sector in the Republic of Croatia, with the aim of improving public performance and ensuring a better fulfilment of the needs of the citizens. A systematic application of social marketing can lead to improving the users' satisfaction, and in order to fulfil the stated, it is need to continuously monitor the satisfaction of the local population through surveys, conducted either personally or via the web. It is precisely the local self-government that should be the main driver of a community's development and that should accept the responsibility and, in cooperation with other institutions, work systematically on solving the problems faced by the local population. All of this

should lead to reducing the negative image that the Municipality has in the public eye and to strengthening the Municipality as a destination, which will ultimately lead to achieving the goals of the local private and public companies and to strengthening the general satisfaction of its residents.

References

- Akdogan, S., et al. (2012). Ethical perceptions of social marketing campaigns: An empirical study on Turkish consumers. *European Scientific Journal*, 8(25), 146–160.
- Andreasen, A. R. (1994). Social marketing: Its definition and domain. *Journal of Public Policy & Marketing*, 13(1, Spring), 108–114.
- Barbu, A. M. (2011). Public sector marketing: Importance and characteristics. *International Journal of Economic Practices and Theories*, 1(2), 58–64.
- Bean, J., & Hussey, L. (2011). *Marketing public sector services*. London: HB.
- Bejaković, P., et al. (2011). Veličina javnog sektora u Hrvatskoj. *Hrvatska i komparativna javna uprava*, 11(1), 99–125.
- Bežovan, G. (2009). Civilno društvo i javna uprava kao dionici razvoja kombinirane socijalne politike u Hrvatskoj. *Hrvatska javna uprava*, 9(2), 355–391.
- Biernacka-Ligieja, I. (2010). Before and after the local election-new media in the process of shaping civil society (the case of Poland). *Medianali*, 4(8), 109–133.
- Boviard, T., & Löffler, E. (2009). *Public management and governance*. New York: Routledge.
- Butigan, R., & Mahinić, I. (2011). Uloga marketinga odnosa u velikim i malim poduzećima. *Tržište*, XXIII(1), 89–104.
- Caric, H. (2003). *Smjernice održivog razvoja općine Jelsa*. Zagreb: ODRAZ.
- Crane, A., & Desmond, J. (2002). Societal marketing and morality. *European Journal of Marketing*, 36(5/6), 548–569.
- Demšar Pečak, N., & Ovsenik, M. (2012). The role of social marketing in a communicative partner relationship. *Informatol*, 45(3), 194–207.
- Domegan, C. T. (2008). Social marketing: Implications for contemporary marketing practices classification scheme. *Journal of Business & Industrial Marketing*, 23(2), 135–141.
- Donovan, R. J., & Henley, N. (2010). *Principles and practice of social marketing an international perspective*. New York: Cambridge University press.
- Fočo, A., & Paliaga, M. (2011). Projekt primjene koncepta urbanog marketinga u funkciji ekonomskog razvoja grada Sarajeva, *Visoka škola za poslovanje i upravljanje, s pravom javnosti, "B.A.Krčelić"*, 13–14.
- French, J., et al. (2010). *Social marketing and public health: Theory and practice*. UK: Oxford University Press.
- Friedman, A. L., & Miles, S. (2006). *Stakeholders: Theory and practice*. New York: Oxford University Press.
- Gordon, R. (2012). Re-thinking and re-tooling the social marketing mix. *Australasian Marketing Journal*, 20(2), 122–126.
- Grigore, A. A. (2013). Social economy marketing: A new age in marketing field. *Network Intelligence Studies*, 1(2), 90–96.
- Janković, A. (2010). *Lokalna samouprava za kvalitet života građana-Percepcija građana o kvalitetu života u gradovima Bosne i Hercegovine*. Izvještaj: Centri civilnih inicijativa.
- Kaplan, A., & Haenlein, M. (2009). The increasing importance of public marketing: Explanations, applications and limits of marketing within public administration. *European Management Journal*, 27(3), 197–212.
- Kotler, P., & Lee, N. (2007). *Marketing u javnom sektoru: Put do bolje izvedbe*. Zagreb: Mate d.o.o.

- Kotler, P., & Levy, S. J. (1969). Broadening the concept of marketing. *Journal of Marketing*, 33, 10–16.
- Kotler, P., & Zaltman, G. (1971). Social marketing: An approach to planned social change. *Journal of Marketing*, 35(3), 3–12.
- Marković, B., & Dunković, B. (2009). Zaduživanje i financiranje lokalnog razvoja. *Ekonomski vjesnik*, 12(2), 354–363.
- Martinović, D. (2010). *Komuniciranje jedinica lokalne samouprave s javnošću*. Široki Brijeg: Media Plan.
- McKenzie-Mohr, D. (2000). New ways to promote proenvironmental behavior: Promoting sustainable behavior: An introduction to community-based social marketing. *Journal of Social Issues*, 56(3), 543–554.
- Meler, M. (2003). *Neprofitni marketing*. Osijek: Ekonomski fakultet u Osijeku.
- Mihanović, Z., & Rosan, S. (2014). Developing a strategy of relations and cooperation of non-profit organisations with local community. *European Scientific Journal*, 2, 181–192.
- Ognjanov, G., et al. (2012). Društveni marketing u poslovanju neprofitnih organizacija. *Themes Journal for Social Research*, 36(03), 1215–1240.
- Peattie, S., et al. (2011). *Social marketing to extinguish fire-setting behaviour*. In Presented at 10th International Congress of the International Association on Public and Nonprofit Marketing, Porto, Portugal.
- Perez-Mujica, L., et al. (2014). Using agent-based models to design social marketing campaign. *Australasian Marketing Journal*, 22, 36–44.
- Preble, J. F. (2005). Toward a comprehensive model of stakeholder management. *Business and Society Review*, 110(4), 407–431.
- Proctor, T. (2007). *Public sector marketing*. Harlow: Pearson Education.
- Širola, D., & Zrilić, N. (2013). Konkurentnost gradova u Hrvatskoj – stvarnost ili utopija? *Zbornik Veleučilišta u Rijeci*, 1(1), 53–73.
- Stremtan, F. (2010). Considerations on social marketing in Romania. *Annals of University of Craiova-Economic Sciences Series*, 3(38), 10.
- Walt, G. (2004). *Managing performance in the public sector*. Lansdowne: Juta and Co.

Decision Support System for Marketing Metrics



Sanja Bijakšić, Brano Markić, and Arnela Bevanda

Abstract The taxonomy of information systems oriented to decision-making and management describes decision support systems as one of the most complex. It provides support in making the right decisions for poorly structured and unstructured problems but can also be built for simple, routine tasks. The objectives of its building are “simplicity” of use and flexibility, “identification” and “description” of various business positions, and also proposal of an appropriate decision. The marketing metrics is a system of indicators about marketing mix elements: price, product, promotion, and distribution. Each indicator of marketing metrics “reveals” one of the components of the market and competitive position of the organizational system.

The building of the decision support system that enables “fast” identify market position of organizational system is an essential element of a successful marketing strategy and efficiency of decisions at the tactical and operational management level. For example, the price, as element of the marketing mix, determines the position of the organizational system in primary distribution and ultimately the speed of its development and profitability. Decision support system provides assistance for accurate positioning of the price level and has a direct impact on customer decisions about buying products or services and ultimately to competitiveness and market position of organizational systems.

The paper is based on the hypothesis that the theoretical and applicable knowledge about marketing metrics can be transferred in the form of decision support systems to help identify market position of organization system and the timely response to the “threat” from its environment but also the opportunities with final goal to increase the profitability and improve market positioning.

In the building of decision support systems except data stored in databases, data warehouses or data marts an appropriate data set has to be extracted that will be used to calculate the indicators of the elements of the marketing mix. Data set contains data or variables needed to calculate the benchmarks. The experimental

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results show only the segment of the decision support system that helps in calculating the benchmarks for prices (elasticity of sales regarding the price changes) and products (cannibalization rate). The paper uses Visual Studio 2012 development environment and the R programming language for the application of the model for calculating the benchmarks of marketing metrics.

Keywords Marketing metrics • Data warehouse • Price elasticity on demand • R language • Cannibalization rate

1 Introduction

The evolution of information systems, from transactional and management information systems, has led to the creation of decision support systems (DSS). Transaction systems handle transactions which are based on transactional data and these data serve to create reports. Applications are, in principle, accounting and financial in nature, with a large number of data which are repeated in different files. Data integrity may be significantly violated because the time of updating these files is different.

Marketing and information systems are directly connected. Marketing is a business philosophy that puts the customer in the center, satisfying their wants and needs, providing products and services at affordable prices, informing the customer, and distributing the products to the customer directly by available channels. The information system records information about the products, its price, promotion, and place of delivery.

Information system becomes part of organizational management system aimed to meet the needs of the customer. The customers and their needs are the primary task of marketing business functions. Therefore, effective management is not possible without an appropriate information system which “follows” the state of the process and calculates the required indicators.

Decision support system that supports indicators of marketing metrics has to calculate and display the main indicators (Grbac and Meler 2010) about the product (e.g., gain on sale of new products, gain on sale of product categories, the market share of the brand, the trend of sales of a certain product in the last 6 months), promotion (profit from promotion, advertising effects on the website, the return on investment in direct mail, consumer reaction to advertising), price (pricing based on cost of production, the price determined on the basis of the average cost, price elasticity of demand, price discounts), and the indicators of sales and distribution channels (methods of sales prediction, time-series analysis, target sales volume, segment share of sales, the profitability of the market segment, return on sales, the share of product returns for realized sales, the average value of the transaction, the share of transactions per customer, the rate of customers transformation, the number of transactions per hour, the average number of individual products per transaction, norms of sales staff).

This paper presents a decision support system that uses the data in a relational database and illustrates the process of building two indicators of marketing metrics of price and product: price elasticity in relation to the sale and the rate of cannibalization.

2 Decision Support Systems

Permanent development of the technology of data processing and modeling in the context of operational research resulted in the creation of the concept of decision support systems (DSS). In addition to these disciplines, the design of decision support systems is affected by organizational science, psychology, decision theory, management science, and so on. In the early 1970s, Scott Morton defined DSS as “interactive computer system that helps decision-makers use the data and models to solve unstructured problems” (Scott Morton 1971). Sprague and Carlson have identified three key components of DSS: the systems for database management, systems for models management, and systems for managing and generating dialogue. Power analyzes the four major components of DSS: user interface, database, tools for analysis and models, and DSS architecture and network (Power 2002).

In the early 1990s of the twentieth century, the theoretical approaches to decision-making and their practical verification in the organization are integrated. The above concept is associated with the concept of management information systems. It is a highly developed design of new concepts of information systems. Decision-makers support the collaborative decision-making (group decision support systems—GDSS). GDSS uses information technology to support the group to be efficient and effective in a wide range of problem-solving.

Decision support systems are information systems that generate information using data and models. The DSS output must be visualized, and thus the user, as simply as possible, displays information in a concise and flexible way (Markić 2014).

DSS can be developed only by integrating knowledge in the field of operations research, mathematical methods, algorithms, data mining, and information technology. Such integration is presented in Fig. 1.

Decision support systems are generally oriented to the use of decision-making model for solving the problem (although there are data-oriented decision support systems). DSS includes the following components: database, models, knowledge base, graphical user interface, and user. The components of DSS are shown in Fig. 2.

Fig. 1 DSS as a result of the integration of information technology and data mining

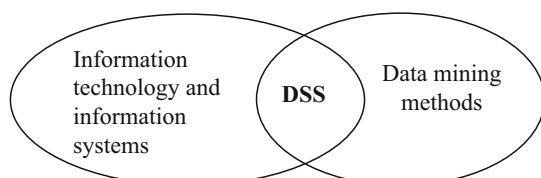
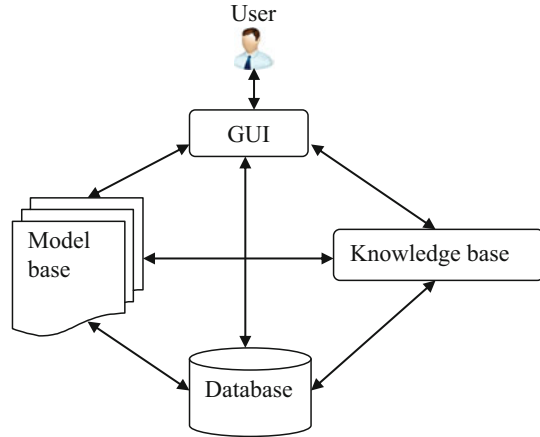


Fig. 2 Components of decision support system



The data are located in the operational databases, in data warehouses, or on social networks. The data must be previously prepared and translated in form used by a decision support system.

The possibilities of integrating various analytical tools (methods and models of operational research, statistical packages, forecasting methods, simulation algorithms, etc.), different forms of output reports, and visual display (single or multidimensional displays), along with the data and data management (system databases, data warehouses, and systems knowledge base), are the main advantages of the decision support system to transactional and management information systems.

Decision-making models provide analytical skills to decision support system. The model base is a collection of different models that can be implemented on the data. Some models are based on the use of optimizing algorithms to minimize or maximize the objective function on the basis of constraints (models of linear programming). DSS often uses models for forecasting, classifying, and clustering. Models for forecasting attempt to predict the value of variables in the future (trend model and others that use time series, autocorrelation, ARMA and ARIMA, etc.). Decision support system uses heuristics. The space of possible states of the real world is searched using heuristic functions.

The knowledge base is not a necessary component of the DSS. Knowledge is often presented in the form of a set of so-called production rules as “if <condition> then <action>.” These rules can then be applied to the data in the database to generate new knowledge from data in the database.

The user interface is used to input data into the database or worksheet, as well as the visualization of the results. DSS is trying to visualize all outputs, displaying it as an image or a graph. In a business environment, this kind of presentation of results of the analysis is very acceptable because the decision-maker provides insight into the movement of certain economic activities.

2.1 Data as Component of Decision Support Systems

Development of appropriate database is an important step in designing an application to keep records regarding the products, prices, and promotion and distribution channels. Each organization that purchases and sells its work results on the market in the form of product, service, or information possesses these data. Marketing metrics data emerge from sales and distribution process, and they keep all important attribute values (numerical and nonnumerical) that describe those processes. Development of database can be broken down into the following five steps:

1. Clear defining of database's main goal.
2. Conceptual database model—defining tables necessary for relation base (normalized tables up to the third normal form).
3. Logical database model—attaching attributes to their tables (relations) in database.
4. Physical database model—attaching data types to attributes in some system for databases management. Primary (attribute or set of attributes which values are different in every row of a table) and external keys are determined.
5. Analysis and identification of copying (type of link) between tables in a database.

Database development and physical data memorizing are based on three levels of data modeling: conceptual, logical, and physical. Defining tables necessary in the application and types of mapping among entities belongs to conceptual database modeling. Such operational database can be used to develop data marts and data warehouses. Data marts and data warehouses enable the calculation of marketing metrics indicators for product, sales, promotion, price, and place.

However, operational database is detailed, and measures require high level of detailed quality, which can be used to calculate marketing mix measures. Therefore, measures are firstly calculated from tables and attributes of operational (transactional) database. It is also necessary to keep a principle of vertical data normalization by analysis of data in bill document in invoicing application. A principle of vertical data normalization includes implicitly that one item of information is input only once and can be used in an unlimited number of times. In applying this principle, we come up with the following necessary tables to develop an application:

1. Suppliers
2. Product Group
3. Customers
4. Products
5. Bills
6. Bill Details

Conceptual data model identifies relationships between entities at the highest level of abstraction. In a given example of a bill, the following entities can be

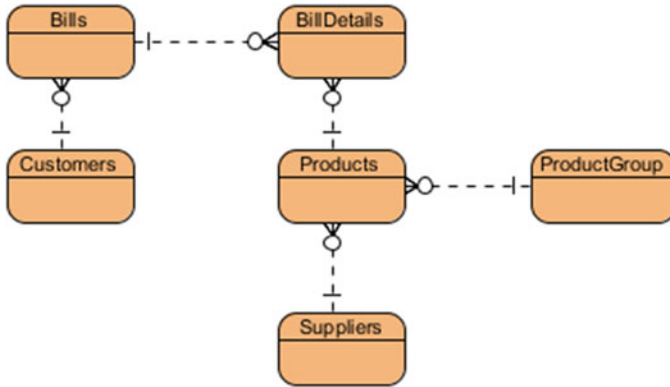


Fig. 3 Conceptual data model

observed: product, customer, seller, bill details, and bill. Attributes are not associated to their entities at a conceptual level. Conceptual model offers only information about entities and maps between entities. Features of conceptual data model include:

1. Important entities and the relationships among them.
2. No attribute is defined.
3. No primary key is defined.

An example of conceptual data model is presented in Fig. 3.

The figure above shows visible maps between entities Customers and Bills. Mapping type is N:1. Entity at side one (Customers) is mapped on more entities at N side (Bills), and entity at N side is mapped at only one entity at side one. Maps between entities Bills: Bill Details, Products: Bill Details, Product Group: Products and Suppliers: Products are also of map type N:1. A conceptual data model identifies the highest-level relationships between the different entities.

2.2 Logical and Physical Data Model

The principle of database decomposition into tables is implemented in logical database design procedure. That principle allows neither repetition of the same data in different tables nor a possibility that two rows can contain the same data. Therefore tables in table calculators (type of application software, e.g., Excel) are different from tables in relation databases. Relation tables have to be carried through special procedure known as data normalization.

Normalization is a procedure that eliminates necessity for multiple recording of the same data in a database. The aim is to design a database in which one information is recorded only once. *Vertical normalization* consists of relation

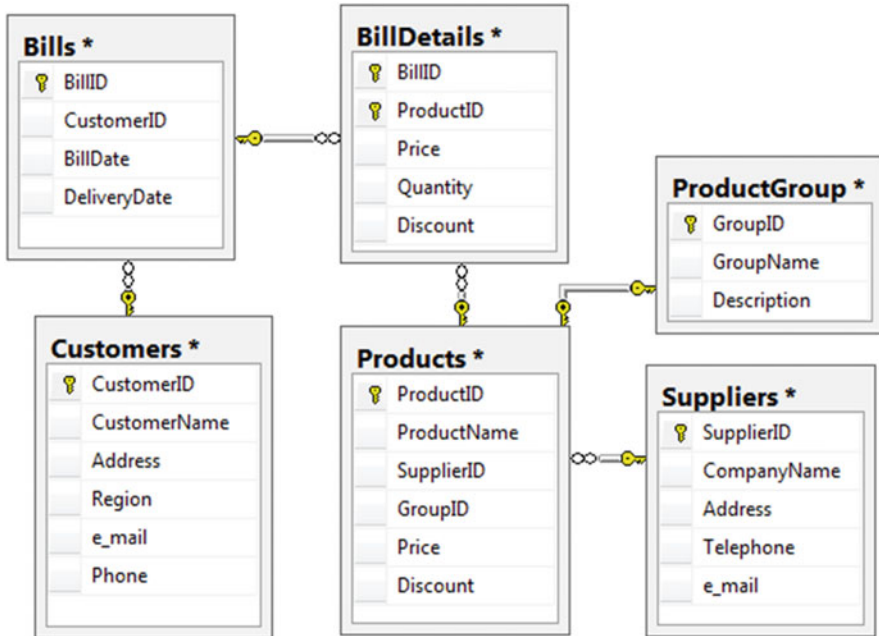


Fig. 4 Logical data model of decision support system for marketing metrics

scheme decomposition (set of attributes) on smaller relation schemes (relation scheme with lower number of attributes). It is not allowed to lose information. Generally, it can be said that “decomposition is accomplished without losing any information” if operation of natural joining of new relations on a common attribute (attribute that is in the intersection of relation schemes) produces initial relation.

Apart from entities and their relations, logical data model contains primary keys and attributes that belong to the entities. There are five steps for designing the logical data model, and the result is shown in Fig. 4:

1. Specify primary keys for all tables (relations).
2. Define the relationships between tables (relations).
3. Define all attributes for each tables (relations).
4. Resolve many-to-many relationships.
5. Normalization.

The following image shows logical data model for represented conceptual model.

Every table contains data about one type of entity. Therefore, it is possible to maintain data about every type of entity independently on other types of entities. As an example, data about customers' addresses are stored separately from the bills that are issued to a customer. So anomaly of deleting does not appear. Data in the bill for a customer can be deleted, but data about that customer should not be deleted (Markić et al. 2015).

A physical database model includes all table structures, including column name, column data type, column constraints, primary key, foreign key, and relationships between tables (relation). Accurate attribute (in database attribute is named as a field) term is defined for any entity characteristic. The type of data field is defined (character, text, number, etc.) as well as the length of each field. As an example table Products is a set of products that one company produces or supplies. Every row of relation Products represents one specific product. Columns of Products relation contain attribute names and their values. Each individual data value (instance) is joined to some individual entity (different product). Attribute name (e.g., Product Name) is a unique label of one entity class characteristic. The set of permitted attribute values is called domain. Comparison of values that belong to different domains is not important for relation model.

The term domain appears in terms of the same type of value set. For example product code and product Price can have the same data type, but it is a numerical data type, and they indicate different domains. Code field indicates product code domain, while Price indicates product Price domain. Although they have the same data type, they indicate different domains. It is necessary to determine field, data type, and other important components for physical database design in SQL Server in order to use invoicing application. For example, the physical data model for tables Suppliers and Products is presented in Fig. 5.

Certain query languages enable data access in database. That language can be learned fast, and it can be easily understood by the majority of potential users. Query languages have similar commands as sentences in English language. Those facts are followed by easiness and broadness of their use. A user communicates with database using system for database management. Generally a user is not familiar with the manner of data storage. Internal database level is the lowest level that system for database management can “see.” Below database management system, there is an operational system of file manager. Components that are “above” database management system are called database environment. Those are different communication interfaces and backup programs. Database management is based on an idea of separating database structure from its contents. Database structure is a set of attributes that demonstrate static description of entity type and relations between the entities. Individual entity content is shown in



Table Suppliers				Table Products		
	Column Name	Data Type	Allow Nulls	Column Name	Data Type	Allow Nulls
	SupplierID	int	<input type="checkbox"/>		ProductID	<input type="checkbox"/>
	CompanyName	nvarchar(50)	<input checked="" type="checkbox"/>		ProductName	<input checked="" type="checkbox"/>
	Address	nvarchar(50)	<input checked="" type="checkbox"/>		SupplierID	<input checked="" type="checkbox"/>
	Telephone	nvarchar(50)	<input checked="" type="checkbox"/>		GroupID	<input checked="" type="checkbox"/>
	e_mail	nvarchar(50)	<input checked="" type="checkbox"/>		Price	<input checked="" type="checkbox"/>
					Discount	<input checked="" type="checkbox"/>

Fig. 5 Defining fields, data types, and primary keys in tables suppliers and products

appropriate attributes' values. Database structure is also called scheme (sometimes also as meta-structure since it describes object structure).

3 Data-Driven Decision Support Based on Marketing Metrics

Business processes are sequences of operations that transform inputs into outputs. They can be more or less formal, having them documented together with their activities and operations. Naturally, bigger organizational systems have more detailed approach to all processes. Their approach to processes is structured, but this does not mean that processes are optimized (they do not have inefficient operations). Business processes are tools that enable labor division in organizational system, linking tasks between persons in an organization whose individual operations contribute to total organizational tasks. There are three types of business processes:

1. Managing processes. Those are processes that manage all organizational system's operations. They are given to corporate management (organizational system), i.e., to its top leadership.
2. Operational processes. Those are processes that make basic activity of organizational system. The commonest operational systems are production, marketing, sales, and procurement.
3. Supporting processes. Those are processes that give support to basic activity of organizational system. Some supporting processes are technical support, accounting, and employment (Markić et al. 2015).

Decision support system, marketing metrics, managing actions, and coordinating decisions are part of management system, and its logic is illustrated in Fig. 6.

It is also possible to observe elements of marketing mix using process logic. Products, pricing, their distribution, and promotion are different processes. The aim of each process analysis is to improve operations within a process and finally improve its total result. In other words, its ultimate goal is to organize process of pricing, product distribution within appropriate channels, and types of communication with the market (customers), which give expected results (target values).

Process results (operational organizational level) are recorded as data in databases or data warehouse and measured by appropriate indicators, and they are a part of marketing mix metrics. It is possible to manage organizational system and direct their functioning toward before defined goals if one is familiar with processes, their operations, and results. It is necessary to structure data, implement appropriate models and metrics that will enable analysis, and undertake appropriate and timely managed coordination actions. Such order made of data → information → decision is of information nature and is the essence of business intelligence concept.

Based on indicators of marketing metrics for products sales and price, it is possible to respond immediately into operational organizational level. Therefore

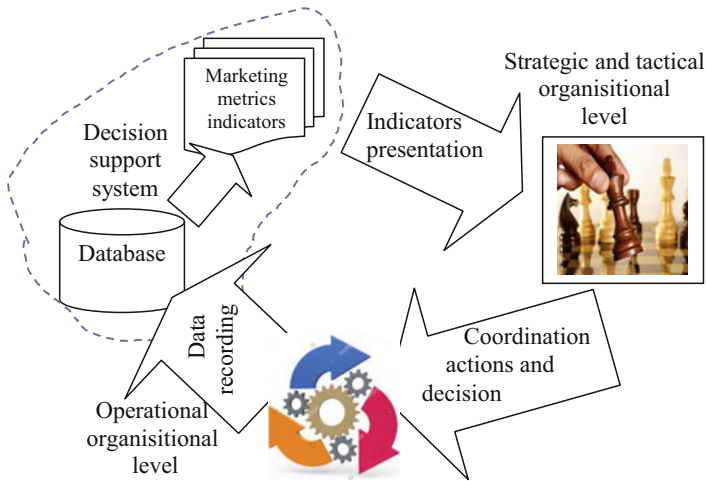


Fig. 6 Decision support system, marketing metrics, and managing actions

it is important to record all necessary data in a structured form of a database, data warehouse, or data marts. Therefore prerequisite for successful implementation of marketing metrics is an appropriate data model that emerges from business processes (Markić et al. 2015).

Data stored in the form of transaction database are detailed and show the values of attributes or properties of the entity. Calculation of the most number of benchmarks marketing metrics are based on the detailed data. Therefore, marketing metrics and thus decision support systems based on marketing metrics cannot be separated from the transactional information systems. Such system is data-driven decision support system.

3.1 Building Decision Support System Based on Price Elasticity of Demand as Indicator of Marketing Metrics

Price elasticity of demand calculates the relationship between price and quantity demanded. In other words, cross-elasticity of demand measures the sensitivity of quantity demanded of a product in relation to changes in the price of another product. The elasticity of sales of products in relation to prices is a measure that indicates the percentage change in the quantity of sales demand divided by the corresponding percentage change in price (increase of discount). More specifically, decision support system based on marketing metrics provides knowledge about customer behavior and helps the firm forecast its sales and set its price (Markić 2014).

The firm can forecast the impact of a change in price on its sales volume and sales revenue.

For example, if cross-elasticity of demand for a product is +2, a 10% rise in price (from 50 to 55) will lead to a 20% reduction in sales (from 1000 to 800). In this case, revenue will drop down from 50,000 to 44,000.

Price elasticity of demand is calculated by dividing the proportionate change in quantity demanded by the proportionate change in price:

$$E_{D,P} = \frac{P}{D} \times \frac{dD}{dP} \tag{1}$$

where is:

- $E_{D,P}$ Price elasticity of demand
- P Product price at time t_0
- D Product sold quantity (demand) at time t_0
- dP Price change in time interval $[t_0, t_1]$
- dD Change of sold quantity in time interval $[t_0, t_1]$.

Price elasticity of demand is in most cases negative because the economic logic supposes that the sold quantity is increasing if product price is decreasing. Data needed for calculating price elasticity of demand are recorded in our database Sale.mdf in table Bill Details. In this table are stored sold quantities of any products at the price or the price of the product.

The selling price calculates as multiplication of the price stored in table Products and discounts in table Bill Details: $qrBDs.Cijena * (1 - qrPrice.Discount)$.

Data frame qrBDs in R language is the result of SQL query (statement Select) to data in database Sale.mdf:

```
>qrProduct<-sqlQuery(connectionString, "Select * FROM Products")
```

Therefore is necessary to create a data frame from Bill Details with attributes: sold quantities, price, and product name. The bus model is a very useful graphical representation of tables (rows) and attributes (columns) for this select statement as presented in Fig. 7.

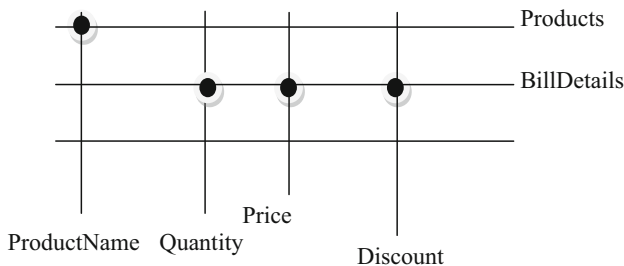


Fig. 7 Bus structure for select statement (Bijakšić et al. 2014)

The following corresponding tables are chosen after downloading necessary packages and connecting with transactional database Selling.mdf.

```
>library(RODBC)
>connectionString<- odbcConnect("BSA")1
>library(sqldf)
>library(tcltk)
>qrBDs<-sqlQuery(connectionString, "Select * FROM BillDetails")
>qrProduct<-sqlQuery(connectionString, "Select * FROM Products")
SqlElasticity<- `SELECT qrProduct.ProductsD, qrProduct. ProductName,
qrBDs.Cijena*(1-qrPrice.Discount) AS Price, sum( qrBDs.Quantity) AS
Quantity
FROM qrProduct INNER JOIN qrBDs ON qrProduct.ProductsD = qrBDs.
ProductsD
WHERE qrProduct.ProductName="Pen Pilot model Acroball WASPs-15"
OR qrProduct.ProductName="Erdal shoe polish"
GROUP BY qrProduct. ProductName, qrBDs.Price*(1-qrPrice.Discount) `
>PriceElasticitySQL<-sqldf(SqlElasticity)
```

	ProductsID	ProductName	Price	Quantity
1	19	Pen Pilot model Acroball WASPs-15	5.5	234
2	19	Pen Pilot model Acroball WASPs-15	6.6	212
3	15	Erdal shoe polish	5.5	121
4	15	Erdal shoe polish	7.0	114

Price elasticity of Pen Pilot model Acroball WASPs-15 demand is calculated by implementing expression for changes of sold quantity to price change:

$$E_{DP} = \frac{\frac{D_1 - D_0}{D_0}}{\frac{P_1 - P_0}{P_0}} = \frac{P_0}{D_0} \times \frac{D_1 - D_0}{P_1 - P_0} \quad (2)$$

If the command (2) “translates” into the commands of R language and using the data frame (rectangular scheme) PriceElasticitySQL[,], then the price elasticity of demand for Pen Pilot model Acroball Wasps-15 product can be easily calculated by applying the following commands:

¹Connection string of R language with SQL server database requires adaptation user DSN data source that indicates to SQL server ODBC. R language calls data source implementig the RODBC.

First, open *Control Panel->System Security->Administrative Tools* and “ODBC Data Sources (32 bit)”. After this first step is relatively easy make the next steps. Finally, after choosing the database Sale.mdf the R language may be connected with database by statement *mycon <- odbcConnect("BSA")*, a BSA is the data source name.

```

> post_c=((PriceElasticitySQL [1,3]-PriceElasticitySQL[2,3])/PriceElasticity
SQL[1,3])
> post_p=((PriceElasticitySQL [1,4]-PriceElasticitySQL[2,4])/PriceElasticity
SQL[1,4])
> EDP=post_p/post_c
> EDP

```

[1] - 0.47009

Price elasticity of demand is $E_{DP} = -0.47009$. If the price increases by 1% then the Sale octopus minimized by approximately 29.2%. In a similar way, one can calculate the coefficient of elasticity of sales volumes compared to the price for any other product.

3.2 Extending the Decision Support System for Marketing Metrics

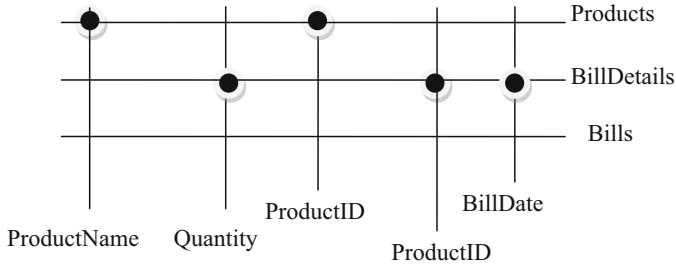
Using the same database and R language for the calculation of indicators of marketing metrics is possible to extend the system of decision support for marketing metrics. For example, the rate of cannibalization is a new indicator of marketing metrics. It shows changes in the quantity of sales of the product P_j in two time intervals t and $t - 1$ in relation to the sale of the product P_i in the interval t . Products P_j and P_i belonging to the same group of products are similar and meet the same consumer need.

The following table shows all the attributes necessary to calculate the rate of cannibalization and the method of its calculation.

Attributes	Indicator name	Calculation expression for cannibalization rate
ProductID	Cannibalization rate of product P_j	SQL query and implementation of aggregate functions
BillDate		$\frac{\sum_t \text{Quantity}_{\text{ProdD}=j} - \sum_{t-1} \text{Quantity}_{\text{ProdD}=j}}{\sum_t \text{Quantity}_{\text{ProdD}=i}}$
Quantity		

Data on sale volume are in the table Bill Details that keeps data about the product sale time (day, month, year, and even the hour, minute, and second).

Bus structure perfectly visualizes the attributes and tables of Sales.mdf relational database necessary to calculate the rate of cannibalization. Bus structure perfectly visualizes the attributes and tables of a relational database Sale.mdf necessary to calculate the rate of cannibalization.



Increasing the number of indicators of marketing metrics often requires expansion or consolidation of databases. The logic of consolidation is shown in Table 1. Transaction database is constantly being extended with new tables.

The reasons for the spread of the database with new tables are the new requirements of business process and decision-making. The rows of matrix are the tables of database, and the columns are the indicators of marketing metrics. The plus sign (+) denotes which tables (attributes in the table) are used by any indicator of marketing metrics. For example, indicator “market segment profitability” uses the attributes in tables Products, Bill Details, Customers, and Calculation Details.

The requirements of management are constantly rising, and the process of computerization is never possible to fully complete. Decision support system based on marketing metrics indicators is open to new extension of database as well as adding new indicators.

Table 1 The consolidation of database

Table	Indicator of marketing metrics			
	Price elasticity of demand	Cannibalization rate	Profits from products	Market segment profitability
Products	+	+	+	+
Bills	+			
Bill details	+		+	+
Suppliers	+	+		
Customers	+			+
Calculation		+		
Calculation details		+	+	+
Product group	+			

4 Conclusion

The purpose of this article is to clarify the basic concepts of data-driven decision support systems that are based on marketing metrics indicators and to stimulate further research and innovation related to this type of computerized support to decision-making. The purpose of data-driven decision support system is helping managers to monitor operational performance. Complex organizational structures in distributed organizations generate data in many operational activities, and an integrated decision support data are the only way to gain a “single version” of the information to managers. Medium- and small-sized firms can also benefit from data-driven decision support systems. Much of the historical data in databases is of poor quality for decision support, and source systems often need to be consolidated and improved. In the paper, agile methodology for building decision support systems that help marketing expert to understand the elements of marketing mix and measure the quality of implemented marketing strategy by calculating the indicators of marketing metrics is presented. This data-driven decision support system is open to new extension regarding the indicators and new data collection systems that often need to be designed and implemented prior to implementation of a data-driven decision support system.

References

- Bijakšić, S., Bevanda, A., & Markić, B. (2014). *Marketing i metrika, marketinški splet, podaci i mjerila*. Mostar: Napredak Glavna podružnica Mostar.
- Grbac, B., & Meler, M. (2010). *Metrika marketinga*. Rijeka: Ekonomski fakultet Rijeka.
- Markić, B. (2014). *Sustavi potpore odlučivanju, podaci, modeli i algoritmi*. Mostar: Napredak Glavna podružnica Mostar.
- Markić, B., Bijakšić, S., & Bevanda, A. (2015). Marketing metrics in data driven culture. *Journal of Business Management and Economics*, 5(11). <http://innovativejournal.in/jbme/index.php/jbme>.
- Power, D. J. (2002). *Decision support systems: Concept and resources for managers*. Westport, CT: Greenwood/Quorum Books.
- Scott Morton, M. S. (1971). *Management decision systems: Computer-based support of decision making*. Cambridge, MA: Harvard University Press.

Designing an Intelligent Digital Signage System for Business Marketing



Cem Yıldız and Vahap Tecim

Abstract This study explores how to define popular contents using interactive screenshots. Each screenshot provides valuable data for contents. Analyzing data with intelligent software, popular contents will be chosen automatically for people using screenshot data. Then, each intelligent digital platform publishes popular content gathering interactive data through an autonomous environment. For this purpose, digital signage displays that have glass call equipment positioned at the strategic points of airports, metro stations, training reading rooms, canteens, bus stations, and gyms are used. Face recognition software (image process) is used to evaluate interest levels of the audience. System collects data (age, gender, ethnics, dwell time) from each digital point to find out how long they spend time in front of the specific contents. An intelligent system finds out which content is important for each group using collected data (age, gender, ethnics, dwell time) for each point. The content of this information is published at a specified point in the specified time period. Statistical reports are published using a variety of graphs for the managers to inform the digital signage platforms' performances.

Keywords Digital signage • Intelligent system • Autonomous content • Business marketing

1 Introduction

Due to continuously falling display price, digital displays have started to be installed in many public spaces. Public displays inherently attract attention and therefore people will look at them. As a consequence, everyday more organizations and institutions are using digital channels to create a stimulating modern environment that makes working and learning exciting. Digital signage is an exciting new

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technology that is revolutionizing the way businesses, managers, and faculty members interact with customers, students, and visitors. The Digital Signage Association defines digital signage as “the use of electronic displays or screens (such as LCD, LED, plasma or projection) to deliver entertainment, information and/or advertising in public or private spaces, outside of home” (Meadows 2014). People have learned the visual language of movies and television standards of interaction with the internet and mobile devices, and those habits can transfer to digital screens (Kelsen 2013). The combination of affordable digital screens, high-definition video, and increasing interactivity is making digital signage an effective way for businesses and advertisers to reach customers. Digital signage displays have the advantage over static signs because they can display the multimedia content such as images, animations, video, and audio. The content can be adapted in real time to a different context and audience, making it attractive for use at airports, universities, retail stores, and public spaces (Ravnik and Solina 2013). While the possibilities of digital signage are exciting, they have not yet been fully exploited, as the displayed content is most often generic and uninteresting for the observer, causing the “display blindness” effect (Müller et al. 2009).

According to the researches of Huang et al. (2008), paying attention to public displays depends on several criteria such as the positioning of the display, display size, content format, and content. Audience’s measurement has always been an integral part of advertising and digital signage platforms mainly because “if you cannot measure, you cannot improve” (Müller et al. 2011). The novelty of seeing high-definition screens in specific places like the educational reading room, canteen, bus stations, and gyms will wear off quickly if media operators do not take the time to create a valid content management strategy. To make digital signage more effective, display content should be more informative, dynamic, and attractive.

This paper focuses to measure interest levels of target group with the contents which are used in digital signage platforms and forwarded to displays autonomously. For this purpose, digital signage displays that have glass call equipment positioned at the strategic points of airports, metro stations, training reading rooms, canteens, bus stations, and gyms are used. The face recognition software which is structured above the cameras measures the interest levels of people about the contents. The software provides data about time spent in front of display (dwell time), attention time, age group, and gender info collected in database. Additionally, it provides correct contents shown at the right time autonomously. The operation of the display can be in vertical and horizontal positions according to the aspect of content to be shown. The used hardware and software provides guidance as autonomous of display.

2 Methods

2.1 Digital Signage

The description of modern digital signage contains a handful of key ingredients. Most, who follow the industry, agree that this generally include at least:

Digital hardware displays on a thin, multidimensional display, presenting continuously changing and refreshed content that is often displayed in many areas of a single screen. They are especially interesting and beneficial to consumers targeting the audience outside the house, which is often carried from one place to another through the Internet, from the service or PC, on the other side, or near the world, but are often “kept” by a particular situation, event, or environment (Schaeffler 2008) (Fig. 1).

While printing will always be a factor in marketing and advertising, digital displays are gradually eliminating traditional print displays by facilitating content distribution instantly to remote media locations. While printing requires design, print, and physical distribution, digital signage takes advantage of the Internet for lightning fast distribution. Below there are a few of the leading benefits for implementing digital signage systems in a business:

- To update content from anywhere via an internet connection
- To increase and promote special items with strategic integration
- To deliver content on time
- To increase the visibility
- To schedule in daypart to display different contents according to day or day of week

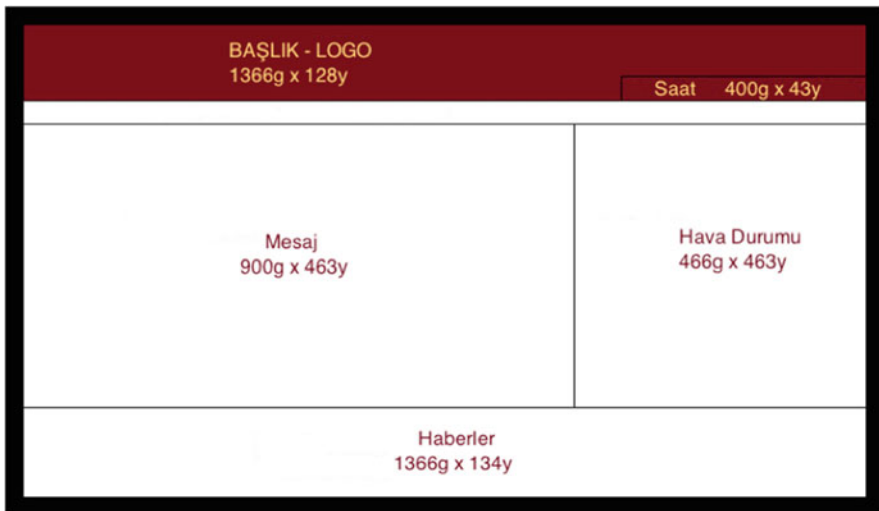


Fig. 1 Digital signage screen

- To display emergency messaging
- Green friendly, energy efficient
- To eliminate recurring costs associated with printing and shipping of static materials

2.2 Audience Measurement

The retail and advertisement industries are becoming more pervasive, with the need for measuring engagement of viewers/shoppers with newly launched campaigns. The trend is exponentially increasing, and brands, network aggregators, and media planners' needs are moving toward understanding the level of engagement of viewers in order to measure their reaction to new products. Traditional audience measurement techniques for digital signage usually involve teams of people who physically count the numbers of passersby. Although such techniques are still prevalent, the scope of the information they can generate is somewhat limited (Slawsky 2010).

Video analytics may help in understanding the effectiveness of the branded message by studying and measuring public opinion and polling and geographical concentration of conversation of viewers. To this aim, computer vision and pattern recognition technologies will play an important improvement in audience measurement for its capability to understand visual cues (Distante et al. 2014) (Fig. 2).

Automatic face detection and audience measurement system has been available since 2006–2007. The software is based on algorithm that allows the detection of face/glance and the estimation of gender and age groups (Testori 2014). The face recognition software-based technology provides data about the following items:

- *Distance*: The last measured distance from camera
- *Dwell time*: The duration between the first detection and escape from the scenery
- *Numbers of viewers*: The number of people that have actually looked at the media
- *Attention time*: The part of dwell time during which the viewer actually looked at the media
- *Glances*: The number of looks during a viewing session
- *Gender*: Male or female
- *Age group*: Child, young, or adult

Audience measurement for the media manager and advertiser has better control than their media planning and content optimizing techniques. The benefits are:

- *Real-time counting*: The behavior of the users is measured in real time.
- *No human interface*: Interviewers (trained people who interview and observe the customers) conduct traditional marketing research. This methodology has several problems, such as small samples, personalism, and people behavior like lying.
- Real-time detection.

Fig. 2 Video analytics and recognition



The audience detection systems are also used to observe in outlets, campuses, malls, and markets. In this sense, they are more usable, flexible, and cheaper than other systems. They do not require a complicated infrastructure and can be easily installed anywhere (Testori 2014).

2.3 Components

Software components of digital signage systems are already mentioned at Sects. 2.1 and 2.2. There are two main hardware components of digital signage:

USB Relay Controller The general purpose of USB relay controller is to control the connection to a PC's USB port using VCP (Virtual COM port). USB Relay controller allows a PC to control external devices using simple RS232 commands and fully powered from the USB bus (see Fig. 3).

Gear Reducer Motor A gear reducer, also called a speed reducer or gearbox, consists of a set of gears, shafts, and bearings that are factory mounted in an

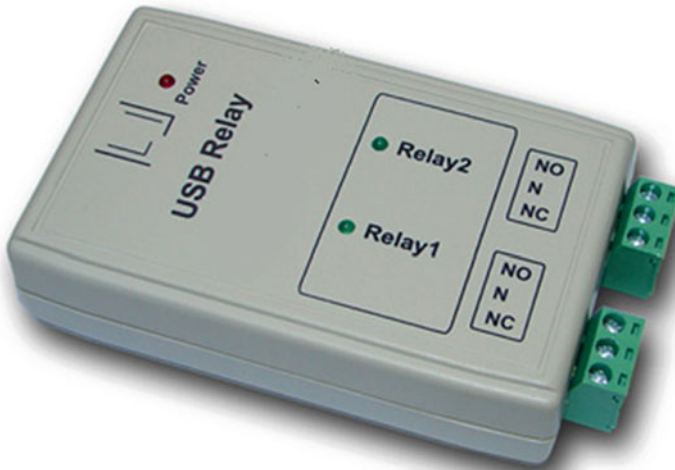


Fig. 3 USB relay controller



Fig. 4 Gear reducer motor

enclosed, lubricated housing. Gear reducers are available in a broad range of sizes, capacities, and speed ratios. Their job is to convert the input provided by a “prime mover” into output of lower RPM and correspondingly higher torque (see Fig. 4).

3 Application

This paper focuses to measure interest levels of target group with the contents which are used in digital signage platforms and are forwarded to displays autonomously. Below application steps are explained:

Step 1. 2.40 Ghz 4 core processor, 40 GB SAS hard disk, 10/100/1000 Mbps NIC, and 4 GB RAM memory virtual machine are used as a content management server. On the client side, 32" high-definition displays enhanced with Logitech Webcam Pro 9000 camera were used. Client side is especially designed in mobile platform because of frequently changing place (see Fig. 5). The content



Fig. 5 Mobile digital signage systems

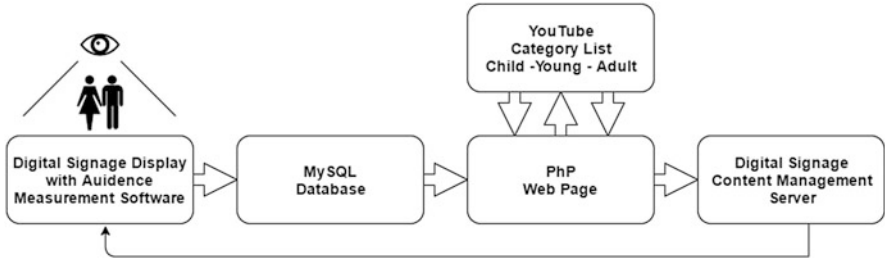


Fig. 6 Flow diagram

Id	Time	Gender	Age	Dwell	Attention	Appearances	Glances	Glasses	Beard	Weather
1	1459837390000	MALE	27	319	119	3	13	0	0	Clouds
2	1459837830000	MALE	21	18	18	2	2	0	0	Clouds
3	1459838683000	MALE	16	1143	167	19	23	0	0	Clouds
4	1459838793000	MALE	30	7	7	1	1	0	0	Clouds
5	1459838921000	MALE	15	20	13	1	3	0	0	Clouds
6	1459839573000	MALE	19	7	7	1	1	0	0	Clouds
7	1459847252000	MALE	39	71	55	3	7	0	0	Clouds
8	1459850068000	MALE	12	513	20	1	3	0	0	Clouds
9	1459855987000	MALE	42	341	109	4	41	0	0	Not Available
10	1459856204000	MALE	18	23	15	1	2	0	0	Not Available
11	1459856630000	MALE	13	28	5	1	2	0	0	Not Available
12	1459856835000	MALE	45	319	44	5	13	0	0	Not Available
13	1459856895000	MALE	17	18	6	1	2	0	0	Not Available
14	1459857104000	MALE	39	6	5	1	2	0	0	Not Available
15	1459858298000	MALE	21	435	106	3	22	0	0	Not Available
16	1459858583000	MALE	16	9	8	1	1	0	0	Not Available
17	1459858658000	FEMALE	35	52	16	1	6	0	0	Not Available
18	1459858658000	MALE	38	52	13	1	4	0	0	Not Available
19	1459858669000	FEMALE	18	7	7	1	1	0	0	Not Available
20	1459858716000	FEMALE	44	86	37	3	9	0	0	Not Available
21	1459859044000	MALE	23	102	45	2	6	0	0	Not Available
22	1459859468000	MALE	17	87	5	1	3	0	0	Not Available
23	1459859552000	MALE	34	16	9	1	4	0	0	Not Available
24	1459859972000	MALE	22	197	83	4	11	0	0	Not Available
25	1460019515000	MALE	34	179	33	1	10	0	0	Not Available

Fig. 7 Part of MySQL database

management has an open-source license in order to interfere in software database. The digital signage display was positioned in the campus area of Dokuz Eylul University.

Step 2. The data obtained from audience measurement software are locally stored, and at the same time, the administrator can reach data on the IP addresses

(Fig. 7). That stored data are automatically transferred to the MySQL database on the web server, and the process was performed at 6 h' time periods. The data interpreted by the PHP-based web page is sent to the content management software as an input (content) (see Fig. 6).

This study focuses on gender and age group criteria. The demographic metric of age and gender is determined within three age groups: 1–16, 17–35, and over 35, all both female and male. Three content categories are created on the YouTube website such as child, young, and adult. According to the obtained data by image analysis software, the result showed that requirement of contents in positioning screen be delivered to the specific age group (see Fig. 8).

Step 3. According to the contents in the screen placement, vertical or horizontal position was made by a relay card that is controlled with USB port. It was controlled by the output relay according to the contents of received commands, achieved to stand display in desired position with the motor edges which have 12V 5 Rpm reducer (Fig. 9).

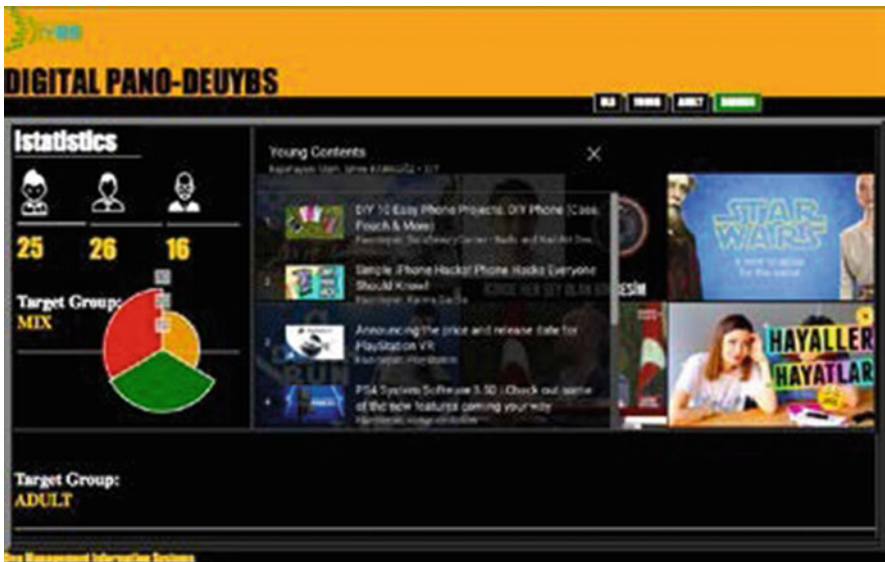


Fig. 8 Autonomous of content

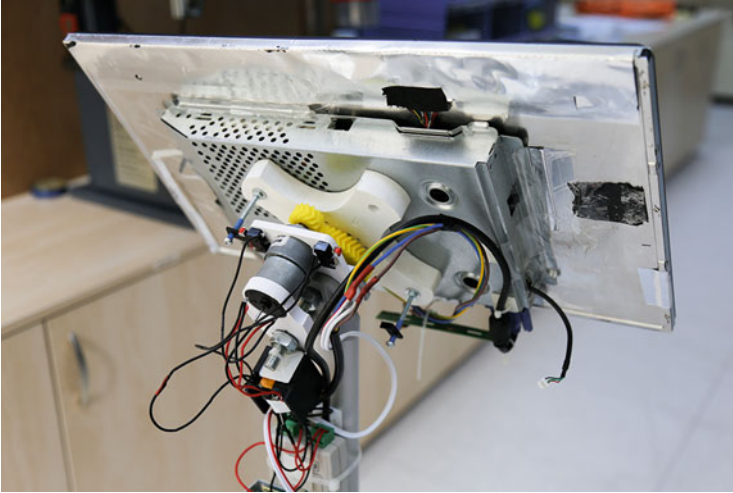


Fig. 9 Autonomous of display

4 Conclusion

Digital signage platform has been one of the tools that have optimum cost and efficient communication for today's technical environment. Nevertheless, success of digital signage depends on the delivering of contents which is current and exciting for the target group just in time. Thus, digital platforms, which are empowered by audience measurement software, will occur as a new communication opportunity among business, institutions, and other target groups.

This study showed that content planning according to student interests has increased monitoring rates of digital signage platforms by 85%. These tools can be accoutered as a new information-sharing platform.

References

- Distante, C., et al. (2014). *Video analytics for audience measurement*. Stockholm, Sweden: Springer.
- Huang, E. M., et al. (2008). *Overcoming assumptions and uncovering practices: When does the public really look at public displays?* Berlin: Springer.
- Kelsen, K. (2013). *Unleashing the power of digital signage: Content strategies for the 5th screen*. UK: Focal Press.
- Meadows, J. H. (2014). *Digital signage: Communication technology update and fundamentals* (14th ed.). UK: Focal Press.
- Müller, H. J. et al. (2009). *Display blindness: The effect of expectations on attention towards digital signage* (pp. 1–8). Berlin, Deutschland.
- Müller, H. J., et al. (2011). *Pervasive advertising*. London, UK: Springer.

- Ravnik, R., & Solina, F. (2013). *Audience measurement of digital signage: Quantitative study in real-world environment using computer vision* (p. 1). Ljubljana: ePrints.FRI.
- Schaeffler, J. (2008). *Digital signage software, network, advertising, and displays: A primer for understanding the business*. UK: Focal Press.
- Slawsky, R. (2010). *Audience measurement with anonymous video analytics*. Accessed April 12, 2016, from <http://www.digitalsignagetoday.com/whitepapers/audience-measurement-with-anonymous-video-analytics/>
- Testori, M. (2014). The applications of video analytics in media planning, trade and shopper marketing. In *Video analytics for audience measurement* (pp. 3–20). Stockholm: Springer.

Assessing the Cost Information Usage at Higher Education Institutions - Case Study in Croatia and Bosnia and Herzegovina



Ivana Dražić Lutilsky and Jelena Ćorić

Abstract In order to improve the planning process, calculation, allocation, and cost control at higher education institutions, it is necessary to keep track of costs, not only by the nature and places of costs but also by different programs and types of services. Since the information and data are the most important resources in the process of managing, the deployment of an adequate financial information system is the assumption in assurance of better governing with higher education institutions. Assuming that the appropriate accounting information system infrastructure is a support of the successful management, its content and structure should be seen as a function of increasing efficiency of financial management and evaluation of management in higher education institutions, not only during the execution of the objectives of the budget. The purpose of this paper is to show the current usage of cost information at higher education institutions in Croatia and Bosnia and Herzegovina through empirical research and to investigate the opinions of accountants and financial officers regarding the possible implementation of cost accounting methodology at higher education institutions. The paper is analyzing the accounting system in Croatia and Bosnia and Herzegovina at higher education systems, providing the information about the negative sides of the current accounting system for the recording and allocation of costs. A theoretical background about the usage of accrual accounting basis and cost accounting methodologies at higher education systems of different European countries is showing better governance and financial sustainability of higher education institutions that have already introduced cost accounting methodology. The empirical research is pointing out the difference in the observed two countries. The difference is visible through accounting systems, usage of cost information, and usage of cost allocation methods for calculating costs per student.

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Keywords Accrual accounting basis • Cost • Cost accounting system • High education institutions • Statistical analysis

1 Introduction

Higher education institutions (hereinafter HEIs) are part of the public sector, and in the recent period of times they are involved in numerous reforms. Different demands are in front of the public sector due to better management and effectiveness. Higher education institutions have a key role for social and economic development of every country. Related to this, they are included in a full range of different financial and institutional reforms to achieve financial sustainability, institutional autonomy strengthening, and quality measurement (Kyvik 2004; Sursock and Smidt 2010). All the aforementioned can be achieved through appropriate accounting system. The primary goal of accounting is to ensure financial information related and necessary for business and economic activity. Thereby, accounting includes measuring, entering, and monitoring financial information that management uses for proper planning and controlling of business activities. An important precondition for the mentioned is a developed accounting information system that can be defined as a service activity in which its goal is to ensure accounting information about business activities to the related parties. According to AICPA (1970), the accounting information system has a function to ensure quality information, primarily of a financial nature, necessary for decision-making and management process. A quality information accounting system should ensure the following (Ministry of Finance of Republic of Croatia 2012, pp. 3):

1. External reporting through general financial reports made in accordance with generally accepted accounting standards and policies
2. Internal reporting to management for planning and controlling of business activities and evaluation of business activities performance
3. Internal reporting to management about activities related to strategical and operational decision-making as issues related to general business policy and long-term business activities (relating to higher education institutions including new programs, projects, development activities, investments, and similar).

The accounting system that ensures information for measurements of costs and performance and controlling of activities is cost accounting. According to Peršić (2009) information basis has to be ensured for successful financial management, and a methodological framework of cost coverage should be followed. All here mentioned need to be done as costs could be calculated for places of costs, cost objects, elements, price structure, activities, periods, goals, and similar. Accounting basis is the backbone for information accounting system because it represents criteria for recognition of business activities in the financial reports. More important, it determines quality and coverage of information given by the system itself (IFAC 1991, 1993).

In this paper, the authors are assessing the usage of cost information in HEIs of Croatia and Bosnia and Herzegovina (hereinafter BiH). The purpose of this paper is

to show a current usage of cost information at HEIs in Croatia and BiH through empirical research and moreover to investigate opinions of accountants and financial officers regarding possible implementation of cost accounting methodology in HEIs. It is interesting to observe the differences and similarities between those two countries because of their historical linkage. Therefore, the authors stated research questions in order to investigate usage of cost information in Croatian and BiH HEIs. The research questions of this paper are:

RQ1: Is there a calculation of costs per student or per provided service?

RQ2: At what extent are HEIs using cost accounting methodology?

RQ3: Are the accountants and financial officers in HEIs ready for the implementation of full cost approach for calculation of costs in order to track costs per cost objects?

The paper is structured as follows. After introduction, the authors provide literature background, followed by accounting systems for HEIs in Croatia and BiH. In the fourth part of the paper, authors are explaining research objective and methodology, as well as research results and recommendations for introduction of cost accounting. At the fifth part of the paper, there are conclusion remarks. The limitation of this research is in different sample for Croatia and BiH and because of that, it was not possible to provide any inferential statistical analysis.

2 Literature Background

The role of HEIs is especially emphasized in terms of crises when they are seen as initiators of the economic growth (Dragija and Žmuk 2015). All new public sector reforms that impact the HEIs can be seen through making a new concept of New Public Management in the new economic and social reality. According to Borins (1995), the mentioned reforms refer to: the too big and too expensive public sector, need to use information technology properly and to increase effectiveness, demands for quality public service, general collapse of centralized planned economic systems that resulted in poor performances of public services. Roje (2006) brings up that reform processes of New Public Management are related to the following:

1. Introduction of accrual accounting principle
2. Redefining of the New Public Management role mostly through encouraging its more direct responsibility for resolving the basic functions of the country and responsibility for the results
3. Transparency of the procedures and responsibility of the public management
4. Management based on effectiveness
5. Achievement of the most possible economy and effectiveness of all subjects in the public sector as well as all sectors through the encouraging of market competitiveness, outsourcing, and often cost-benefit analysis

HEIs are not just social institutions anymore, but also according to their role in economy and society, they are seen as “companies where well-known managerial rules and procedures, as effectiveness, responsibility and efficiency, can be applicable” (Sordo et al. 2012). Modern HEIs are in effect multiproduct companies and face a problem of a proliferation of services and difficulties in rising costs and accurate tracing of costs (Simmons et al. 2006, pp. 31). Because of that, the mentioned usage of cost information is even more important. It is recommended for HEIs to introduce accounting methods and techniques of private sector through accounting information system (Mitchell 1996). It can be seen that increasing emphasis is on managerial and cost methods. That is possible with the implementation of accrual accounting principle in public HEIs. The accrual accounting basis is crucial to understand value of asset and costs (Agasisti et al. 2015) and to increase accountability, financial transparency, and efficiency of public HEIs (Christiaens and Rommel 2008).

Financing of HEIs is referred to financing curricular activities, research costs, and student support cost system (scholarships, subventions and grants) as well as capital investment in infrastructure (Dragija and Letica 2014). The last financial crisis has affected the public sector in the sense of smaller funds necessary for proper functioning of the institutions. Because of that, it can be noticed that educational service providers are in need to understand costs. Therefore, the imperative of their existence is the effectiveness of the cost management. The European University Association promotes usage of activity-based costing method (hereinafter ABC) or full costing method as the basis in the cost calculation in the approach to European projects, and the same method is considered by the European Union as standard in the public financing (Peer 2013). In this can be seen the importance of cost calculations and monitoring as well as their usage. Different authors investigate the implementation of ABC method in public HEIs and present different benefits (Crooper and Cok 2000; Goodard and Ooi 1998; Cinquini et al. 2000; Simmons et al. 2006; Dražić Lutilsky and Dragija 2012), but the main point is that it provides cost per service or per student based on the activities undertaken by the teaching staff and administration which improve decision-making, better efficiency and effectiveness of HEIs, cost reduction, and better understanding of internal processes.

3 Accounting System in Croatia and in Bosnia and Herzegovina

Institutions in the Republic of Croatia and in Bosnia and Herzegovina can be divided on public and private higher education institutions. This kind of organization has a big influence on the accounting and reporting system. This paper is observing only the public HEIs in Croatia and Bosnia and Herzegovina. Since, private higher education institutions in Republic of Croatia are divided as profit or

nonprofit. If they are nonprofit, then they use accounting for nonprofit organizations. Profit education institutions are regulated as companies. The situation is similar in Bosnia and Herzegovina regarding the private higher education institutions. Public HEIs are budgetary users in the Republic of Croatia because they fulfill preconditions set by the book of rules on establishing budgetary users in the Republic of Croatia. They are primarily financed from state budget (50% and more) and less from tuitions and third party's donations. The current model of public financing in the Republic of Croatia is based on entry criteria, and the amounts allocated are determined on the historical cost method, which follows the allocated funds from previous years, with adjustments up or down depending on changes in GDP (Hunjak 2000). Input criteria takes the number of regular students studying at the expense of the state, the number of employees and other operating expenses into calculation. For most of the Croatian HEIs, salaries have the biggest share in the cost of higher education institutions. With regard to the allocation of resources, the Law on Science and Higher Education 2003 defined the overall funding (Eng. Lump sum), which is still not fully implemented in practice. Such financing implies that the Ministry of Education pays to HEIs funding as a complete sum, and universities are then fully autonomous in the internal distribution of these funds for its constituents according to clearly defined criteria, having regard to the financial situation but also the cost structure of individual components (Dragija 2015). This would establish a direct link between the university and the state treasury, while the HEIs are funded by the university and not through the Ministry. In accordance with today's model, the Ministry has a supervisory and control function, while the university took over the control function. In addition, according to this model, HEIs are responsible to University and University is responsible to the Ministry. Model complete financing has not to date fully been implemented and the reform of the financing system of higher education is still in progress.

The institutional picture of the educational sector in Bosnia and Herzegovina is a reflection of constitutional order defined by the Constitution of BiH, entities constitutions and cantons constitutions, and District Brčko statute. According to the mentioned full and nondivided jurisdiction in the education, have Republic of Srpska (RS), ten cantons in the Federation of Bosnia and Herzegovina (FBiH) and Brčko District. The Federal Ministry for Education and Science has jurisdiction for the organization of the educational sector in FBiH, while in RS that jurisdiction is on the Ministry of Education and culture of RS (Branković 2012). Public higher education institutions in FBiH are established in accordance with the Framework Law on Higher Education and Cantonal Law on Higher Education depending on where the higher education institution is established (Table 1). Regulations of higher education in FBiH are on cantonal level (Duraković 2014). It is important to emphasize that cantons in BiH have jurisdiction to define budget and resources for education, but they are not legally obliged to allocate budget funds for higher education which brings huge difficulties in the financing process of these institutions. One more thing important for higher education institutions in FBiH is that if

Table 1 Normative framework for HEIs

Croatia	FBiH	RS
1. Law on budget (Official Gazette, No.87/2008, 136/2012, 15/2015) 2. Guidelines about budget and non-budget users of state budget, budget and non-budget users of the local governments budget and regional government and about keeping Registry of budget and non-budget users (Official Gazette, No.128/2009, 142/2014) 3. Guidelines on budgetary accounting and financial plan (Official Gazette, No.114/2010, 31/2011, 124/2014, 115/2015) 4. Book of rules on financial reporting in budgetary accounting (Official Gazette, No. 32/2011, 3/2015, 93/2015) 5. Guidelines on budgetary classifications (Official Gazette, No.26/2010, 120/2013)	1. Law on budgets of FBiH (Official Gazette of FBiH, No.19/06, 76/08, 32/09, 51/09, 9/10, 36/10, 45/10) 2. Directive on accounting of the budget of FBiH (Official Gazette of FBiH, No.87/10) 3. Guidelines on financial reporting and annual FBiH budget calculation (Official Gazette of FBiH, No.27/12, 67/14) 4. Guidelines on accounting of FBiH budget (Official Gazette of FBiH, No.1/11) 5. Law on treasury (Official Gazette of FBiH, No.19/03, 79/07)	1. Law on budget system (Official Gazette of RS, No.121/12, 52/14) 2. Book of rules on criteria for gaining status of budget beneficiary (Official Gazette of RS, No.116/13) 3. Guidelines on budget classification, account content, and application of chart of accounts framework for the users of the Republic, municipality, cities, and funds budget (Official Gazette of RS, No.90/10) 4. Guidelines on financial reporting for the budget users of the Republic, municipality, cities, and funds budget (Official Gazette of RS, No.16/11, 126/11) 5. Guidelines on accounting, accounting policies and accounting estimations for budget users in RS (Official Gazette of RS, No.127/11) 6. Law on treasury (Official Gazette of RS, No.28/13)

Source: Authors

they are integrated university or not.¹ At fully integrated universities, faculties are organizational units or university members, and the university is a legal entity. The university is then the beneficiary of budget funds, which then are allocated among the members. Those universities are in the system of treasury – activities are organized by main book of treasury and unique treasury account. At non-integrated universities, every single member (faculty) is a legal entity and has possibility for non-treasury activities and spending of its own revenues.

In RS all the higher education institutions are established in accordance with Law on Higher Education. They are established as nonprofit institutions and do their activities as public service. The profit they get is used for higher education activity improvement (RS Law on Higher Education, Article 11). Starting basis for both categories is Law on Accounting and Audit.

¹There are three integrated public universities in FBiH and three non-integrated or partially integrated universities. In Croatia there are three integrated and four are not integrated universities.

3.1 Accounting System in the HEIs in the Republic of Croatia and Bosnia and Herzegovina

In the Republic of Croatia, public higher education institutions are using budgetary accounting, since faculties are budgetary users. According to all mentioned laws, rules and regulation accounting system of public institutions is based on principle of modified accrual accounting and historical costs in the measurement of balance positions. The mentioned basis means recognition of revenues on monetary basis in the reporting period when the revenues become disposable providing possibility of their measurement. Expenses are recognized on the accrual accounting basis and in the reporting period they refer to. For the other important categories of chart of accounts, it is important to emphasize the following. Costs of acquisition of nonfinancial fixed assets are not capitalized but totally recognized as expenses of the period in which the acquisition occurs (Vašiček 2007). Consequently, HEIs are not accounted for depreciation of the asset as well as the systematic allocation of the cost over the useful life of its usage, which directly undermines the possibility of monitoring the efficiency of activities. Liabilities are recognized based on accrual accounting principle, i.e., in the cases when it is likely that due to current liabilities payments, there would be the outflow of resources. Liabilities are stopped to be recognized when settled or expired, or the creditor has renounced his rights. (Broz Tomić 2015) Recognition of revenues and expenses based on different basis disables confrontation of recognized expenses with related revenues that have direct influence on the financial result. Usage of this basis has also an influence on the financial position of the HEIs since in the focus are liabilities and financial assets, while nonfinancial asset is tracked just for additional information about data (Vašiček 2007). A comprehensive and quality system of cost accounting can be developed just on the full accrual accounting basis since only then data from financial accounting and cost accounting can be compatible and comparable without any replacements and reclassifications.

In the FBiH Law on Accounting and Audit provides usage of IPSAS (International Public Sector Accounting Standards) and exclusively modified accrual basis for budgetary users. According to the Law, modified accrual accounting basis is the one where the revenues are recognized in the period when they are disposable and measurable, and expenses are recognized as incurred obligations (Law on budgets of FBiH, Article 2, Point 12). Since 2006 Republika Srpska public sector is using IPSAS. Since 2013, budget users are obliged to apply full accrual accounting basis when evidencing transactions and for general financial reports preparations. For financial reports of the single budgetary users, it is necessary to use modified accrual basis (expenses on the full accrual basis and revenues when received).

As for both FBiH and RS, the following is valid. Assets are initially valued by purchase value. Liabilities are initially recognized based on nominal amount. Valuation of liabilities on the balance day is based on the nominal amount or discounted amount of expected resource outflow. In BiH usage of accrual accounting basis has enabled comprehensive and more realistic approach to the financial,

property, and revenue state. Also, the transparency of the accounting information is increased and precise usage of performance ratios is enabled.

Therefore, within the research scope of the accounting basis, it is visible that only RS has preconditions for the implementation of cost accounting and ABC method in HEIs because they are using full accrual accounting basis in accounting systems.

4 Research Objectives and Methodology

In order to investigate to what extent is cost information used in Croatian and BiH HEIs and if the accounting and finance officers are ready for the implementation of accrual accounting basis and full cost approach for calculation of costs in order to track costs per student or service, the authors have studied the following research questions. The research questions of this paper are:

RQ1: Is there a calculation of costs per student or per provided service?

RQ2: At what extent do HEIs use cost accounting methodology?

RQ3: Are the accountants and financial officers in HEIs ready for the implementation of full cost approach for calculation of costs in order to track costs per cost objects?

The principal area of research is to present the current perception of accountants and financial officers in Croatian and BiH HEIs about research questions. To determine all of the above, an empirical survey using questionnaires was done in January and February 2016 in all Croatian and BiH HEIs in order to gather the necessary data. This part of the survey was conducted as a broader research for the project 8509 “Accounting and financial reporting reform as a means for strengthening the development of efficient public sector financial management in Croatia” financed by the Croatian Science Foundation. Most of the questions included in the questionnaire are multiple choice, yes or no answers, or answers on a five-point Likert scale, with 1 indicating full disagreement and 5 indicating full agreement or in some cases 1 corresponding to the lowest degree and 5 to the highest.

The questionnaires were sent by e-mail in online form and by post to accountant and financial officers in 104 public Croatian HEIs and in 20 public HEIs in BiH. Out of 104 public HEIs in Croatia, 36 of them responded to the questionnaire, and 7 of them responded in BiH (for FBiH 5 of them and for RS 2 of them). The response rate in Croatia is 34.6% and in BiH the response rate is 35%. Figure 1 shows the main source of funding of HEIs in Croatia and in BiH.

From Fig. 1, it is visible that the main sources of funding in Croatia and in BiH are different. In Croatia, most of the responded HEIs are financed from public funds (budget), while in BiH most of them are financed from tuition fees. In Croatia, the students are not paying tuition fees, while in BiH the students are paying tuition fees to the HEIs.

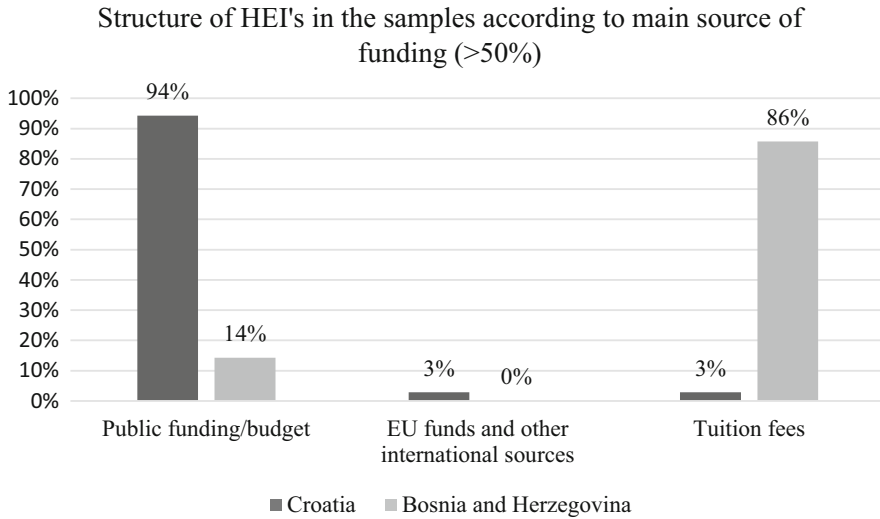


Fig. 1 Main source of funding HEIs. Source: Empirical research

4.1 Research Results

To answer the first research question, accountants and financial officers in HEIs were asked to state how they track costs and if they allocate indirect costs on cost objects (e.g., students or services). Figure 2 shows how accountants and financial officers track costs (the question provided more than one answer). It is visible that most of the responded accountants and financial officers in Croatia track costs by

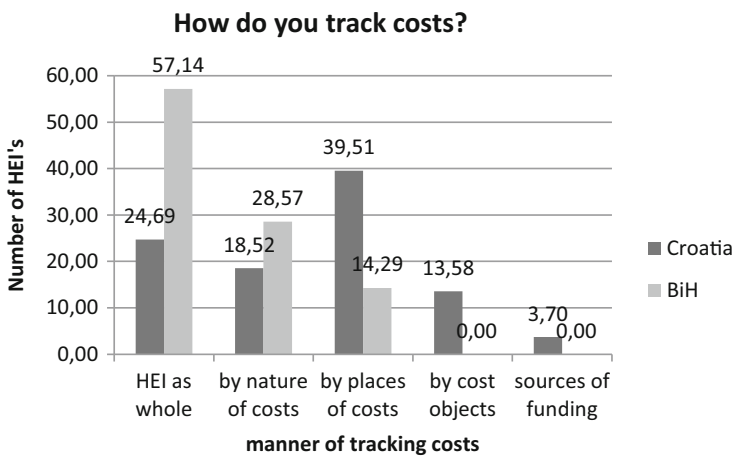


Fig. 2 Manner of tracking costs. Source: Empirical research

the places of costs. Then for the HEIs as institution in whole, then by nature of costs and even 13% of respondents track costs by cost objects.

Responses from accountants and financial officers in Bosnia and Herzegovina are differing. Out of the responded accountants and financial officers, most of them track costs for the HEIs as institution in whole, then by nature of costs, and then by places of cost. None of the responded HEI track costs by cost objects or by sources of funding.

By *cost object*, as the most important level from the cost accounting point of view, is not used in HEIs in BiH, while in Croatia even 13% of HEIs is tracking costs. That leads to the conclusion about poor usage of cost accounting methodology in BiH in HEIs, while the situation in Croatian HEIs is more satisfactory.

Figure 3 shows that 61% of Croatian HEIs are allocating indirect costs on cost object, which can be a service, student, or some program. The only problem is that under modified accrual basis, they are not recording depreciation and some inventory-like costs. Therefore, it can be concluded that most of them are allocating indirect costs but not all occurred costs, only those that are recognized under modified accrual costs. Figure 3 shows that only 28% of HEIs in Bosnia and Herzegovina are allocating indirect costs on cost objects, and 71% of them is not. It can be connected with previous answer because none of the responded HEIs in Bosnia and Herzegovina track cost by cost object.

The answer on the first research question, if there is a calculation of costs per student or per provided service, can be summarized that HEIs in Bosnia and Herzegovina are not calculating costs per student or per provided service since they are not tracking cost by cost object and because 71% of them are not allocating indirect costs on cost object. The situation in Croatia is a little bit better since 13% of responded HEIs are tracking cost per cost object, and 61% of them are allocating indirect costs on cost object. The reason for that could be because of the

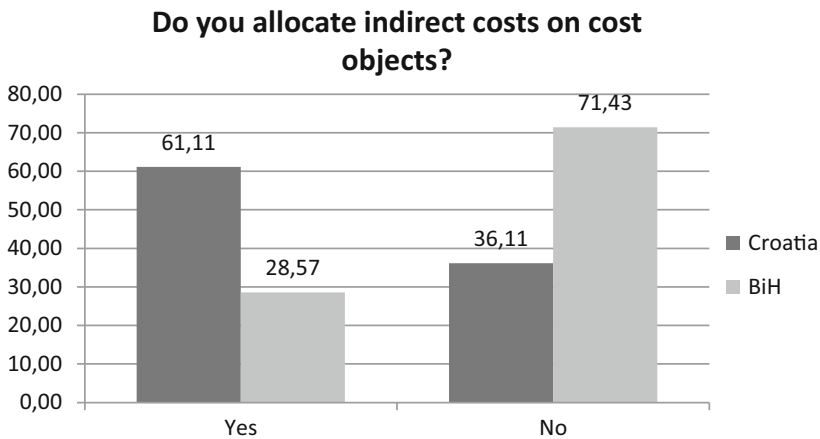


Fig. 3 Indirect cost allocation. Source: Empirical research

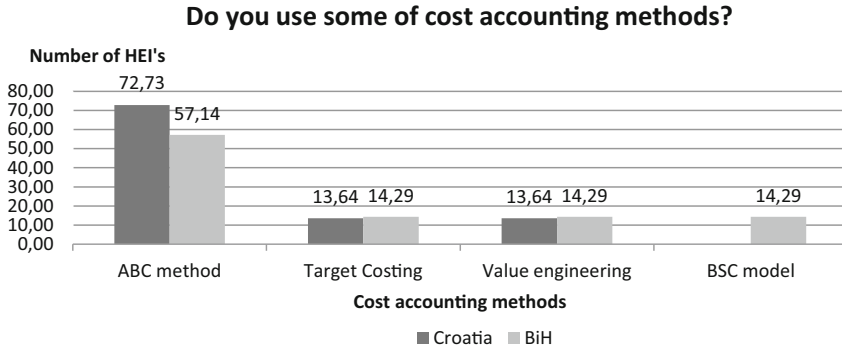


Fig. 4 Cost accounting methods used. Source: Empirical research

membership in European Union and involvement in FP7 funding when indirect costs were refundable if they were allocated under some accounting method.

In order to answer the second research question at what extent do HEIs use cost accounting methodology, accountants and financial officers were asked if they use some accounting methods for cost management. Multiple answers were allowed.

Figure 4 shows that 44% of responded HEIs in Croatia are using ABC method for calculation of costs per cost object. Around 8% are using target costing and around 8% are using value engineering. Around 36% of HEIs in sample did not answer on this question. Based on those results we can conclude that Croatian HEIs are familiar with the European trends and that they understand the benefits provided by ABC method. Target costing method can be used when introducing new service on the market like some educations or modules for lifelong learning. Value engineering is commonly used in the combination with target costing when trying to reduce value on new service in accordance with customer perception with the goal to reduce costs.

In Fig. 4 it is visible that 20% of HEIs in Bosnia and Herzegovina are using ABC method. That is in collision with previous question results since HEIs in BiH are not tracking costs by cost object and only 28% of them are allocating indirect costs on cost objects. It is questionable what they use ABC method for if not to calculate cost per cost object. Five percent of HEIs use balanced scorecard model as a performance measurement model, 5% uses target costing, and 5% use value engineering.

The answer on the second research question is that HEIs in Croatia are using cost accounting methodology, and most of them are using ABC method as a method for cost calculation by cost objects. In Bosnia and Herzegovina, the answer is ambiguous, because they are not tracking costs per cost object, but 20% of them are using ABC method.

In order to answer the third research question, the accountants and financial officers were asked about their perception on implementation of full costing method which will allow allocation direct and indirect costs on cost object. The idea is that full costing is developed based on full accrual with recognition of all occurred costs like depreciation and some small inventory.

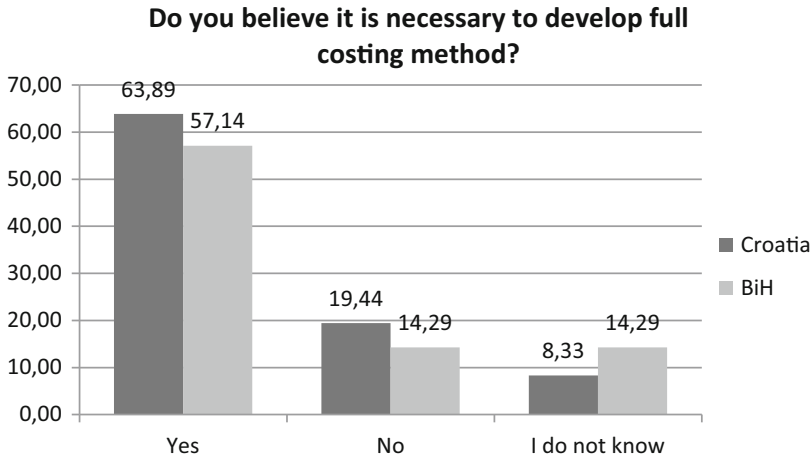


Fig. 5 Perception about full costing method development. Source: Empirical research

Figure 5 shows the opinion of accountants and financial officers in Croatian HEIs about the development of full costing method for cost allocation per cost objects. From the results, it is visible that 70% of them believe that it is necessary to develop, while 21% of them think that it should not be developed, and 9% of them do not know. Therefore, it can be concluded that most of the accountants and financial officers in HEIs believe that development of full costing method would improve understanding of all occurred direct and indirect costs.

The situation in Bosnia and Herzegovina is similar to what Fig. 5 shows because 60% of accountants and financial officers believe that it is necessary to develop full costing method for allocation of direct and indirect costs on cost objects. Twenty percent of them think that it should not be developed, and 20% of them do not know. Therefore, it can be concluded that most of the accountants and financial officers in HEIs believe that development of full costing method would improve understanding of all occurred direct and indirect costs.

From the conducted research, the conclusion is that even though Croatia and BiH started at the same position after independence, the situation is different. They have different accounting basis for recording and different is the usage about cost information. RS has the best starting point with full accrual, but they are not using cost accounting methodology. FBiH is not using it also, but considering that they have modified accrual basis, the answers were not surprising.

4.2 *Recommendations for Introduction of Cost Accounting in HEIs*

Before any implementation of the cost accounting system, it is necessary to define the objective and purpose and the necessary resources for implementation (human resources, additional education, additional material resources, additional records, IT support, etc.). Accordingly, define the feasibility and monitoring of all direct and indirect costs for each student or service provided and method of cost allocation. The cost accounting system should be designed internally. In such a way, the results of the analysis are available, not only to the management of the HEIs but also to managers of organizational unit. Managers of organizational units are important because their work has a direct impact on the structure of costs and revenue, and internal reports based on costs should be mainly adjusted to them. Also, with the introduction of internal reports, it is necessary to define the responsibilities of employees, but also to motivate them and at the end reward them. The whole system should be redesigned, because formal introduction of additional records and monitoring alone will not provide the necessary effect. ABC method as full costing method is most frequently mentioned as a method that should be used as the cost allocation method in HEIs in foreign but also in the domestic literature. The most prominent advantage of the ABC method is that its results, the determination and allocation of costs, provide more realistic cost estimations. This is achieved mainly in a way that the total costs are allocated to student or to services according to factors with which they are most closely associated, i.e., causality principle. Despite all the problems and demanding process of introduction of cost accounting, the effort is definitely worth it. Implementation of full costing has a number of management functions such as budgeting, control and decrease of costs, pricing and reimbursement, measurement (assessment) of activities, evaluation of the program, and the possibility of making the economic choice, instead of observing it only through the historic role in determining the value of inventories or other assets in the financial accounting. In addition, the introduction of cost accounting is a necessity and a precondition of the effectiveness and efficiency in HEIs, which will be carried out only after the application of a number of techniques and full costing method tailored for each HEI.

5 Conclusion Remarks

The purpose of this paper was to show a current usage of cost information at HEIs in Croatia and Bosnia and Herzegovina through empirical research and to investigate opinions of accountants and financial officers regarding the possible implementation of cost accounting methodology in HEIs. The authors observe the differences and similarities between those two countries because of their historical linkage. Conducted empirical research based on the sample of 36 HEIs in Croatia and 7 in

Bosnia and Herzegovina was aimed to answer three research questions. It can be concluded that the research questions are answered through descriptive statistical analysis of the answers of the respondents in HEIs by accountants and financial officers in Croatia and Bosnia and Herzegovina. Answer on the first research question if there is a calculation of costs per student or per provided service can be summarized that HEIs in BiH are not calculating costs per student or per provided service since they are not tracking cost by cost object. Since 71% of them are not allocating indirect costs on cost object. The situation in Croatia is a little bit better since 13% of responded HEIs are tracking cost per cost object, and 61% of them are allocating indirect costs on cost object. The answer on the second research question is that HEIs in Croatia are using cost accounting methodology, and most of them are using ABC method as a method for cost calculation by cost objects. In Bosnia and Herzegovina, the answer is ambiguous, because they are not tracking costs per cost object, but 20% of them are using ABC method. Therefore, the question is what they use the ABC method for. The third research question was whether the accountants and financial officers in HEIs are ready for the implementation of full cost approach for calculation of costs in order to track costs per cost objects. The research results show that most of the accountants and financial officers in both countries believe that full costing method for cost allocation of all direct and indirect costs should be developed.

Improvement for efficient governance with HEIs, accountants and financial officers see through implementation of full costing approach for calculation of all costs in order to track costs per student or per provided service. Full costing approach is a precondition for development of internal reports about costs that should be produced not only for the top management but also for the managers of organizational units. From the research results, it can be concluded that accountants and financial officers are ready for the change in the accounting system by introducing full accrual accounting basis as a precondition for the implementation of full costing method.

Acknowledgment This paper is a result of Croatian Science Foundation's funding of the project 8509 "Accounting and financial reporting reform" as a means for strengthening the development of efficient public sector financial management in Croatia. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the Croatian Science Foundation.

References

- Agasisti, T., Catalano, G., Di Carlo, F., & Erbacci, A. (2015). Accrual accounting in Italian Universities: A technical perspective. *International Journal of Public Sector Management*, 28(6), 494–508.
- AICPA. (1970). *Basic concepts and accounting principles underlying financial statements of business enterprises* (Statement of Accounting Principles Board, No. 4). New York.

- Borins, S. (1995). The new public management is here to stay. *Canadian Public Administration*, 38(1), 122–132.
- Branković, N. (2012). *Sistem financiranja visokog obrazovanja u Bosni i Hercegovini* (pp. 13–41). Broz Tominac, S. (2015). *Harmonizacija proračunskog računovodstva u Republici Hrvatskoj s Međunarodnim računovodstvenim standardima za javni sektor*. Zagreb: Tim4Pin.
- Christiaens, J., & Rommel, J. (2008). Accrual accounting reforms: Only for businesslike (parts of) governments. *Financial Accountability & Management*, 24(2), 59–75.
- Cinquini, L., Marelli, A., & Vitali, P. M. (2000). Cost accounting practices in Italian universities: A survey. *23rd Annual Congress of the European Accounting Association*, Munich.
- Crooper, P., & Cok, R. (2000). Activity-based costing in universities – five years on. *Public Money and Management*, 20(2), 61–80.
- Dragija, M. (2015). Komparativna analiza temeljnih odrednica sustava visokog obrazovanja u izabranim zemljama Europske unije. *Journal of Economy and Business*, XXI(2015), 57–79.
- Dragija, M., & Letica, M. (2014). ABC method and its sustainability to the reform of the higher education financing system. *Journal of Faculty of Economics, University of Zagreb*, 12(1), 79–97.
- Dragija, M., & Žmuk, B. (2015). Importance of management reports in the decision-making process in the higher education system. In D. Barković, B. Runzheimer (Eds.), *Proceeding interdisciplinary management research XI* (pp. 537–548) Opatija, Hrvatska, May 15–17, 2015, Osijek: Sveučilište Josipa Jurja Strossmayera u Osijeku, Ekonomski fakultet u Osijeku.
- Dražić Lutilsky, I., & Dragija, M. (2012). Activity based costing as a means to full costing – Possibilities and constraints for European universities. *Management – Journal of Contemporary Management Issues*, 17(1), 33–57.
- Duraković, A. (2014). Financiranje visokog obrazovanja kao pretpostavka autonomije sveučilišta. *Zbornik radova sa međunarodnih okruglih stolova i konferencija o implementaciji Bolonjskog procesa u FBiH, Year 3, No.3*, Mostar.
- Goodard, A., & Ooi, K. (1998). Activity – based costing and central overhead cost allocation in universities: A case study. *Public Money and Management*, 18(3), 31–38.
- Hunjak, T. (2000). Financiranje visokih učilišta. In A. Bajo (Ed.), *Financiranje visokih učilišta: Troškovi studija i skolarine na hrvatskim visokim učilištima* (pp. 91–104). Zagreb: Institut za javne financije.
- IFAC. (1991). *Study 1: Financial reporting by national governments*. New York: Public Sector Committee. Available March 6, 2016, from <http://web.ifac.org/publications/international-public-sector-accounting-standards-board/studies-and-research-reports>
- IFAC. (1993). *Study 2: Elements of the financial statements of national governments*. New York: Public Sector Committee. Available March 6, 2016, from <http://web.ifac.org/publications/international-public-sector-accounting-standards-board/studies-and-research-reports>
- Kyvik, S. (2004). Structural changes in higher education system in Western Europe. *Higher Education in Europe*, 29(3), 393–409.
- Law on budgets of FBiH. *Official Gazette of FBiH, No.19/06, 76/08, 32/09, 51/09, 9/10, 36/10, 45/10*
- Ministry of Finance of Republic of Croatia. (2012). *Guidelines for cost and managerial accounting, Zagreb*. Available March 10, 2015, from <http://www.mfin.hr/>
- Mitchell, M. (1996). Activity based costing in UK Universities. *Public Money and Management*, 16(1), 51–57.
- Peer, A. (2013). *Full costing progress report, Sarajevo* (pp. 1–14).
- Peršić, M. (2009). Interni obračun i upravljanje troškovima u javnom sektoru. *Zbornik referata III. Konferencije, Opatija, Hrvatski javni sektor – u aktualnim gospodarskim uvjetima* (pp. 253–273). Zagreb: Hrvatska zajednica računovođa i financijskih djelatnika.
- Roje, G. (2006). *Utjecaj primjene računovodstvenih koncepata na financijsko upravljanje u javnom sektoru*. magistarski rad, Ekonomski fakultet, Zagreb.
- Simmons, C., Wright, M., & Jones, V. (2006). Full costing of business programs: Benefits and caveats. *International Journal of Educational Management*, 20(1), 29–42.

- Sordo, C., Orelli, R. L., & Padovani, E. (2012). Accounting practices in Italian higher education system. *Economic Research*, 25(3), 825–845.
- Sursock, A., & Smidt, H. (2010). Trends 2010: A decade of change in European Higher Education, EUA. Available March 15, 2016, from <http://www.eua.be/Libraries/publications-homepage-list/Trends2010>
- Vašiček, D. (2007). *Državno računovodstvo u funkciji odlučivanja javnog menadžmenta*. Doctoral thesis, Faculty of Economics in Rijeka.

Research Areas in Big Data Analytics Studies



Luka Tomat

Abstract Among the areas, which drive the economies of the modern world, big data analytics plays a significant part. Numerous scientific papers have been published in that field in the past 10 years, but only a few have investigated the research areas of big data analytics studies at the global level. To clarify the current state of the research and knowledge structure, this study carries out a co-occurrence analysis aiming to identify the clusters of main terms that co-occur in the examined papers and provide graphical visualization of relationships between those terms. Publications used in this study were determined on the basis of bibliometric analysis of the big data analytics papers published between 2000 and 2015 in all journals indexed by the Web of Science database. Presented study delivers an overview of the recent bibliometric research in the field and explains the used methodology. The implementation of the co-occurrence analysis is described deeply in the presented paper. The terms (sequences of nouns and adjectives ending with a noun) were extracted from the titles and the abstracts of the selected papers, and special software for visualizing bibliometric networks (VOSviewer) was used to create the term map, where the distances between terms signify the amount of their co-occurrences in the analyzed papers. Two clusters of significant size were indicated, each of them representing a major area of the research studies on the big data analytics. At the end the interpretation of the results, the discussion, and the avenues of further research are given. The proposed study supports the researchers in the area with the insights that allow them better understanding of the current state and the trends in the big data analytics research.

Keywords Big data • Big data analytics • Bibliometrics • Co-occurrence analysis • Text mining • Visualization

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1 Introduction

The field of big data is considered to play a significant role both in business and academic environment. It has been developing rapidly in the last 15 years, and the amount of published papers in that field increased substantially (Chen et al. 2012). The survey conducted by the IBM Tech Trends Report Deep Dive (2011), which took into account more than 4000 professionals from the area of information technology (IT) from more than 93 countries and 25 industries, identified the big data as one of the four major trends in information technology. One of the important subparts of the big data field regards to big data analytics. Many definitions of big data analytics can be found in the literature that widely refer to technologies of business intelligence and business analytics that are based on the data mining techniques and statistical analysis, i.e., relational DBMS, data warehousing, ETL, OLAP, and BPM (Chaudhuri et al. 2011). In this manner big data analytics can be seen as the process of supporting both operative and strategic decisions and recommendations that should be implemented into business processes (Sharda et al. 2013). One of the most commonly accepted definitions was proposed by the Institute for Operations Research and Management Science (INFORMS), which defined the analytics as the combination of computer technology, management science techniques, and statistics to resolve real problems.

The area of big data analytics has been drastically evolving since the late 1980s, when researchers within database communities begun to develop artificial intelligence (AI) algorithms (Chen et al. 2012). From then on many different approaches and methods were introduced within the area. A comprehensive and detailed overview of the developed algorithms was published by Wu et al. (2008), who revealed ten most influential data mining algorithms on the basis of citation counts, expert references, and a structured survey within community. According to the study, the most important data mining algorithms to tackle clustering, classification, regression, and network and association analysis are C4.5, k-means, support vector machine (SVM), Apriori, expectation maximization (EM), PageRank, AdaBoost, k-nearest neighbors (kNN), Naive Bayes, and Classification and Regression Tree (CART). Findings of presented study were acknowledged by Witten et al. (2011), who conducted research on algorithm implementations in industry and find out that the majority of algorithms identified by Wu et al. have been integrated into commercial and open source data mining information systems. In addition Chen et al. (2012) have pointed out some recent algorithms that have contributed to the success of data mining in various applications. Those algorithms are neural networks for classification/prediction and clustering and genetic algorithms for optimization. More algorithms, techniques, and methods with respect to data mining can be found in the literature. The majority of these methods are data driven, while the rest of them are process-driven to allow for determination of how the data can be accessed and used (Gelfand 2012). Applications of big data analytics have been also widely used for industrial purposes. A study conducted by Sharda et al. (2013) identified clusters or sectors with respect to the scope that companies use the big

data analytics in the everyday business. Those clusters are data infrastructure, data warehouse middleware, data aggregation, analytics software development, analytics application development, analytics users' organizations, academic providers/certification agencies, and analysts and influencers. A study carried out by Manyika et al. (2011) showed that big data analytics not only is but also will become a fundamental source of competition, supporting productivity growth, innovation, and consumer surplus. Chen et al. (2012) explored the analytics approaches that are thought in business schools and found out that methods can be divided into two groups. The first one regards to multivariate statistical analysis that is based on the statistical theories and models and consists of regression, factor analysis, and clustering and discriminant analysis. These methods have been successfully employed for business applications. Another group regards to the use of optimization techniques and heuristic search in order to allow for database feature selection and web crawling (spidering).

In order to provide comprehensive overview of the big data analytics, the classification of big data analytics into descriptive, predictive, and prescriptive analytics should be briefly explained. Descriptive analytics represents the biggest portion of all business analytics and is used to understand the past and current business performance in order to support the informed decision-making process. Thus the descriptive analytics analyze the data and transform them into valuable and useful information to allow for better understanding of business operations within the companies. Analysis of the business performance can be taken to the higher level by implementing predictive analytics that predicts the future behavior of the model of a system, which is built upon historical data and time series on how the system has transformed inputs into outputs. Predictive analytics is based on appliance of different methods, i.e., multilayer perception (MLP), regression trees, neural networks, radial basis functions, etc. Descriptive analytics and predictive analytics are included in prescriptive analytics and represent the inputs for its performance. Given the known parameters, prescriptive analytics is used to determine the best potential solution or output between many possibilities. It is also used to support the decision-making process by suggesting the advantageous option among various scenarios of future system behavior. To improve the accuracy of predictions, prescriptive analytics is based on the automatic processing of the new data (Tucci 2012). Descriptive, predictive, and prescriptive analytics are important for companies since they can lead to organizational changes on different levels. A lot of focus has been put into prescriptive analytics research to support the business processes on the operational level, and various solutions have been introduced (i.e., workflow management systems, business process management system, and process aware systems) (Stoitsev 2009). Over the past decade, new research fields have emerged to introduce the organizational change in companies, such as composition of semi-structured and unstructured processes (Dumas et al. 2005), knowledge management approaches (Holz et al. 2005), interactive process models (Lieberman et al. 2006), and process mining (Aalst and Weijters 2004). Process mining attracts a lot of research interests since it can be used in many industries, e.g., e-commerce, healthcare, supply chain, agriculture, etc. Even though the field of big data analytics

has been deeply researched, it continues to be an active area of research, and several mathematical models and prevailing algorithms (e.g., Bayesian networks and hidden Markov models) have been used for data, text, and web analytics applications. Other new techniques include sequential and temporal mining, spatial mining, data mining for high-speed data streams, and sensor data (Chen et al. 2012).

Applications of big data analytics can be found in various industries. That is, in healthcare big data analytics is used within clinical decision support systems, applications of patient profile personalized medicine, performance-based pricing for personnel, analysis of disease patterns, and public health improvements. In public sector it is used for creating transparency by accessible data, performance improvement, customization of actions for appropriate products and services, risk diminishment, and innovating new services and products. In retail big data analytics is used for conducting in-store behavior analysis, price optimization, product placement design, logistics optimization, web-based marketing, and distribution. In manufacturing it is used to improve forecasting of the demand, for planning the supply chain, support sales, and develop production operations (Sagiroglu and Sinanc 2013). Many efforts have been put into development of big data analytics to support personal data localization, especially in the terms of smart routing, geo-targeting advertising or emergency response, urban planning, and development of new business processes (Manyika et al. 2011).

In order to gain an insight into the current state of the research and to determine the prevailing research areas in big data analytics studies, an in-depth analysis should be conducted. To advance a particular line of research, a qualitative or quantitative approach could be used (Schmidt 2008). Alternatively, science mapping can be implemented. It is conducted on the basis of the quantitative approach of bibliometrics and has been oftenly used lately to map the structure and development of scientific disciplines (Zupic and Čater 2015). Many determinations of science mapping can be found in the literature. For this study science mapping can be defined as an approach that uses bibliometric methods to identify the relationships among the discipline fields, specialties, and individual papers and to provide a graphical representation of identified findings (Calero-Medina and van Leeuwen 2012). Science mapping aims to reveal the research area's structure by partitioning key bibliometric elements (e.g., documents, authors, journals, etc.) into different but related groups. In general bibliometric methods use a quantitative approach and describe, evaluate, and monitor the published research. Such studies are important, especially for improving the quality of reviews since they enable the review process to be systematic, transparent, and reproducible. Contrary to narrative literature reviews, the bibliometric methods are not exposed to subjective bias of the researchers (Tranfield et al. 2003; Zupic and Čater 2015). The use of bibliometric methods has recently increased. The reason is in the increased access to online databases with bibliometric data and the emergence of powerful and easy-to-use software solutions for implementation of the bibliometric analysis. Thereby the bibliometric methods have been used for mapping many scientific fields (Landström et al. 2012).

By their use the bibliometric methods can be divided into two groups: performance analysis and science mapping (Cobo et al. 2011). The first regards to evaluation of the publication performance of institutions and individuals. The second aims to uncover the structure and dynamics of studied area. Five main bibliometric methods are (Zupic and Čater 2015):

- Citation analysis: citation analysis evaluates the influence of documents, authors, or journals through citation rates. It is generally used for quick determination of the important papers in the field. This method favors older publications since new papers need some time to be cited.
- Co-citation analysis: co-citation analysis link documents, authors, or journals in dependence on their appearances in the reference lists. It is a reliable method used to identify the most important works in the field. In general the co-citation method performs better when dealing with papers that have many citations since many of them are needed to map the articles.
- Bibliographic coupling: bibliographic coupling links documents, authors, or journals based on the amount of shared references. It is used to make analysis on the new publications, which do not have many citations yet. It is limited to a 5-year timeframe.
- Coauthor analysis: coauthor analysis link together authors who coauthor the paper. In general it is used to provide the insight into social structure of the tackled scientific area.
- Co-word analysis: co-word analysis links keywords or search strings, which appear together in the titles, abstracts, or keyword lists of the publications. Contrary to other bibliometric methods that are based on the publication metadata, the co-word analysis is used to analyze the actual content of the publications.

Not many papers that would consider the scientific mapping of the body of knowledge in the field of big data analytics can be found in the literature. Many papers include the critical literature review and deliver descriptive data about the published papers, but they lack of bibliometric analysis and provision of the deepen insight into the area. Chen et al. (2014) provided a thorough review and identified the state of the art in the field of big data. However, the study focused on a wider area of big data applications (cloud computing, Internet of things, data centers, social networks, collective intelligence, smart grid, enterprise management, and Hadoop) with emphasis on four phases of big data value chain (data generation, data acquisition, data storage, and data analysis) and was not particularly dedicated to big data analytics. Similarly a study presented by Hashem et al. (2015) did not focus on big data analytics research but provided insights of big data on cloud computing. Nevertheless, the most comprehensive and detailed bibliometric analysis of academic and industry publications in the field was presented by Chen et al. (2012). Authors analyzed relevant literature in the field of business intelligence and business analytics with regard to big data. From various databases, they collected relevant works published between years 2000 and 2011 and identified major scholars, disciplines, publications, and key research topics.

Literature review of conducted bibliometric analysis in the field of big data analytics studies showed that bibliometric information in the tackled field has been under investigated. Hence the need for a new and more narrowly focused science mapping in the examined area emerged. This paper clarifies the current state of the research on big data analytics studies by implementing a co-occurrence analysis by which identifies the clusters of main terms that co-occur in the examined papers. A graphical visualization of the links between identified terms is also presented.

The introduction part of presented paper is followed by a methodology explanation, description of implemented bibliometric analysis, and provision of results. The discussion that includes the limitations and the guidelines for further researcher is provided at the end of the paper.

2 Methodology

This section presents used methodology to extract the relevant data from the publication databases and explains implemented bibliometric analysis.

2.1 *The Data Retrieval*

Publications relevant for the presented study were collected from the online publication databases within the Web of Science (WoS) platform since it has been acknowledged as the most appropriate for such bibliometric analysis as presented in this paper (Boyack et al. 2005). The WoS is a research platform for finding, analyzing, and sharing information in terms of sciences, social sciences, arts, and humanities. Via its search engine, it enables access to quality scientific literature (WoS 2016). The WoS contains the following databases: Science Citation Index Expanded (SCI-E), the Social Sciences Citation Index (SSCI), the Arts and Humanities Citation Index (A&HCI), Conference Proceedings Citation Index (CPCI-S), Conference Proceedings Citation Index-Social Sciences and Humanities (CPCI-SSH), Book Citation Index-Science (BKCI-S), Book Citation Index-Social Sciences and Humanities (BKCI-SSH), Emerging Sources Citation Index (ESCI), Current Chemical Reactions (CCR-Expanded), and Index Copernicus International Journals list (IC).

The search strings used to identify the relevant publications were set to “big data” or “big data analytics” contained in the title or topic of the individual publication. Furthermore the document type of publications was reset to articles only. The analyzed period was from the beginning of 2000 to the end of 2015. Taking into account these criteria, 2605 publications were extracted from the WoS and examined by co-occurrence analysis.

2.2 Implemented Bibliometric Analysis

To illuminate the current state and knowledge structure in the field of big data analytics, this study carried out a co-occurrence analysis to determine the clusters of main phrases that co-occur in the examined publications.

Co-occurrence analysis can be considered as a special form of co-word analysis in which the co-occurrence of specific words is analyzed. It is a commonly used method to identify major themes in various research areas (Glanzel and Thijs 2011). The words in documents are used to form links among them and build a conceptual structure of the examined area. Concepts are closely related if specific words in the analyzed publications often co-occur. Contrary to other bibliometric methods, which use metadata for the analysis, a co-occurrence analysis examines the actual content of the documents. Thus the network of themes and concepts and their links is created to represent the conceptual space of the studied area (Börner et al. 2003).

Co-occurrence analysis in presented research was applied to document titles and abstracts. The minimum number of occurrences of a term was set to 40, and hence the first 279 noun phrases were included in the analysis. Sixty percent of the most relevant terms were selected resulting in 167 identified noun phrases. Additionally noun phrases, which were not identified as relevant and are commonly used within publications, were excluded from the analysis: age, background, purpose, million, paper, conclusion, and review. Thus 160 phrases were taken into account for the analysis.

2.3 The Selection of Computer Software

For implementing bibliometric analysis, various software solutions are available. In general their purpose is to export the raw bibliographic data and execute some bibliometric calculations on selected ones. The most commonly used bibliometric tools are BibExcel, Sitkis, and SciMat (Zupic and Čater 2015). Lately the use of VOSviewer has also been increased.

VOSviewer was selected to implement the presented bibliometric analysis since it has capabilities for constructing and visualizing bibliometric networks and offers text mining analytics for conducting co-occurrence analysis of important terms and phrases extracted from a body of scientific literature (van Eck and Waltman 2009).

3 Results

Given the explanation in the previous section on the implemented bibliometric analysis with regard to data retrieval, occurrences threshold setting, and qualitative evaluation and selection of noun phrases, the co-occurrence analysis identified

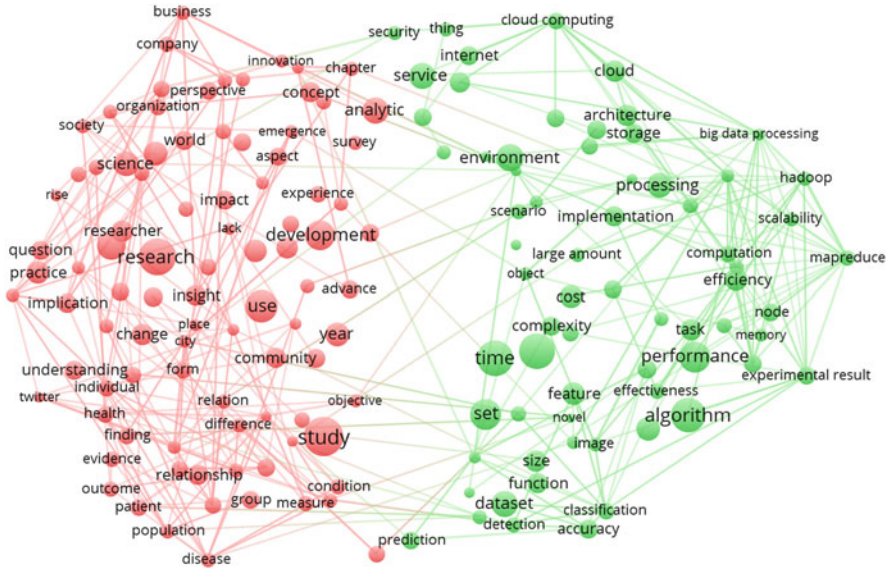


Fig. 1 Co-occurrence network of title and abstract phrases within scientific papers in the area of big data analytics (own analysis)

160 noun phrases, which have been divided into two clusters of significant size. Both clusters are shown in Fig. 1.

The first cluster (red) is presented on the left side of the co-occurrence network visualization and consists of the noun phrases that are typically represented in the academia research. The second cluster (green) is presented on the right side of the co-occurrence network and consists of noun phrases that are typically represented in the industry-related research.

The red cluster is dominated by the terms *research*, *study*, and *researcher* and consists of phrases that consider the implications of big data analytics research for academic purposes (i.e., expanding the body of knowledge). Some general research themes were also identified, such as *society*, *finding*, *measure*, *perspective*, *analytics*, *understanding*, and *evidence*. On the left bottom side of the co-occurrence network visualization, there are some health-related terms (*patient*, *population*, and *disease*) signifying that a lot of effort has been put into academia research of big data analytics in the fields of health and medicine. On the top side, the prevailing terms are science and concept. Taking terms in the red cluster into consideration, it is possible to conclude that the first cluster could be labeled as the theoretical big data analytics studies.

The green cluster is dominated by the terms *algorithm*, *problem*, *time*, and *performance* and consists of phrases that consider the implication of big data analytics research in the industry (i.e., development of the big data analytics algorithms). On the upper part of the green cluster, the terms *cloud computing*, *Internet*, *thing*, *service*, and *cloud* reflect the emerging fields in big data analytics,

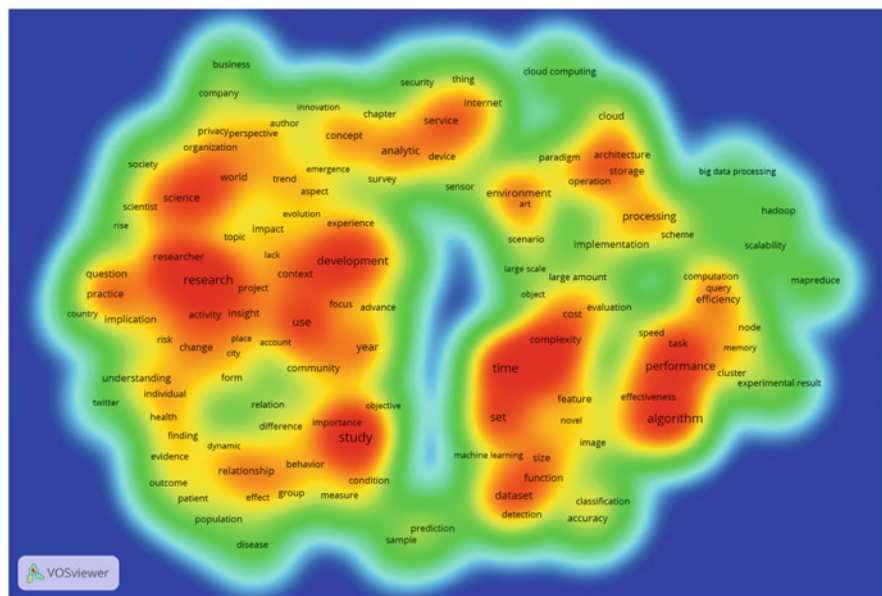


Fig. 2 Co-occurrence density map of title and abstract phrases within scientific papers in the area of big data analytics (own analysis)

namely, cloud computing and Internet of things. The bottom part of the green cluster applies to big data analytics methods (*prediction*, *dataset*, and *accuracy*), which emphasize recognized important elements of these methods. Taking terms in the green cluster into consideration, it is possible to conclude that the second cluster could be labeled as the practical implications of big data analytics studies in the industry.

As it can be seen from Fig. 2, the density visualization reveals three subclusters within the green cluster.

On the right side of co-occurrence density map, it is possible to recognize three subcluster within the first cluster (green) from Fig. 1. The most significant sub-cluster contains terms that are related to the applications of big data analytics: *dataset*, *detection*, *function*, *size*, *machine learning*, *time*, *complexity*, and *cost*. The second subcluster consists of terms that indicate the importance of how the methods should perform within the companies: *performance*, *speed*, *task*, *effectiveness*, *algorithm*, *efficiency*, and *computation*. The terms in the third subcluster are related to the perception of how big data analytics is perceived in companies: *environment*, *paradigm*, *operation*, *architecture*, *storage*, *cloud*, *scenario*, and *processing*.

The left side of co-occurrence density map points out the terms that are related to theoretical studies of big data analytics: *importance*, *study*, *research*, and *science*.

Presented co-occurrence analysis pointed out two major areas in the big data analytics research: theoretical big data analytics studies and practical implications of big data analytics studies in the industry. Some of the terms or phrases related to

the theoretical studies can be also identified in the cluster of industrial research, such as *experimental result* and *paradigm*, while on the other hand, it is possible to find some terms or phrases within the theoretical studies, which apply for industrial research, such as *development*, *practice*, and *innovation*.

4 Conclusion

The aim of this research was to identify major research areas in big data analytics studies and thus support the researchers in the field to better understand the current state and the trends of research. The co-occurrence analysis revealed two major clusters, namely, theoretical big data analytics studies and practical implications of big data analytics studies in the industry. However, the added value of implemented analysis lies in further investigation of identified clusters, especially within the industry-related research. Three subclusters were identified and explained. The presented study offers new findings on the current development of the area and provides researchers with a thorough perspective of the research areas in big data analytics studies.

The presented analysis has some limitations that should be addressed in future bibliometric research in the area. Implemented study was based on the publications databases within the WoS, which should be expanded in the future by inclusion of some other relevant publications. Also some search strings should be added in order to extract more publications that would comprehensively cover the studied field.

It would also be interesting to use some other bibliometric tools and compare the results. In addition to co-occurrence analysis, other bibliometric methods should be applied, such as bibliographic coupling and co-citation and coauthor analysis. With regard to further investigation of the industry-related studies cluster, conference proceeding should also be considered since many companies present their findings there and do not publish them in the scientific publications.

References

- Aalst, W. M. P., & Weijters, A. (2004). Process mining: A research agenda. *Computers in Industry*, 53(3), 231–244.
- Börner, K., et al. (2003). Visualizing knowledge domains. *Annual Review of Information Science and Technology*, 37(1), 179–255.
- Boyack, K. W., et al. (2005). Mapping the backbone of science. *Scientometrics*, 64(3), 351–374.
- Calero-Medina, C., & van Leeuwen, T. (2012). Seed journal citation network maps: A method based on network theory. *Journal of the American Society for Information Science and Technology*, 63(6), 1226–1234.
- Chaudhuri, S., et al. (2011). An overview of business intelligence technology. *Communications of the ACM*, 54(8), 88–98.

- Chen, H., et al. (2012). Business intelligence and analytics: From big data to big impact. *MIS Quarterly*, 36(4), 1165–1188.
- Chen, M., et al. (2014). Big data: A survey. *Mobile Networks and Applications*, 19(2), 171–209.
- Cobo, M. J., et al. (2011). An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the fuzzy sets theory field. *Journal of Informetrics*, 5(1), 146–166.
- Dumas, M., et al. (2005). Process-aware information systems. In M. Dumas et al. (Eds.), *Bridging people and software through process technology*. New Jersey: Wiley.
- Gelfand, A. (2012). Privacy and biomedical research: Building a trust infrastructure: An exploration of data-driven and process-driven approaches to data privacy. *Biomedical Computation Review*, 23–28.
- Glanzel, W., & Thijs, B. (2011). Using “core documents” for the representation of clusters and topics. *Scientometrics*, 88(1), 297–309.
- Hashem, I. A. T., et al. (2015). The rise of “big data” on cloud computing: Review and open research issues. *Information Systems*, 47, 98–115.
- Holz, H., et al. (2005). From lightweight, proactive information delivery to business process-oriented knowledge management. *Journal of Universal Knowledge Management*, 2, 101–127.
- IBM Tech Trend Report Deep Dive. (2011). *The 2011 IBM tech trends report deep dive*. Retrieved February 23, 2016, from https://www.ibm.com/developerworks/mydeveloperworks/blogs/ff67b471-79df-4bef-9593-4802def4013d/entry/2011_ibm_tech_trends_report_deep_dive21?lang=en
- Landström, H., et al. (2012). Entrepreneurship: Exploring the knowledge base. *Research Policy*, 41(7), 1154–1181.
- Lieberman, H., et al. (2006). *End-user development: An emerging paradigm*. Amsterdam: Springer.
- Manyika, et al. (2011). Big data: The next frontier for innovation, competition, and productivity. *McKinsey Global Institute*. Retrieved March 3, 2016, from <http://www.mckinsey.com/business-functions/business-technology/our-insights/big-data-the-next-frontier-for-innovation>
- Sagiroglu, S., & Sinanc, D. (2013). *Big data: A review* (pp. 42–47). International Conference on Collaboration Technologies and Systems (CTS), San Diego, California, USA.
- Schmidt, F. (2008). Meta-analysis: A constantly evolving research integration tool. *Organizational Research Methods*, 11(1), 96–113.
- Sharda, R., et al. (2013). Business analytics: Research and teaching perspectives. *Proceedings of the ITI 2013 35th International Conference on Information Technology Interfaces (ITI)*, Cavtat, Croatia, pp. 19–27.
- Stoitsev, T. (2009). *End-user driven business process composition: End-user development for business process management*. Saarbrücken: Suedwestdeutscher Verlag fuer Hochschulschriften.
- Tranfield, D., et al. (2003). Towards a methodology for developing evidence – informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222.
- Tucci, L. (2012). Big data exploration and analytics for CIOs: Oh, the places you'll go. *TechTarget*. Retrieved March 2, 2016, from <http://searchcio.techtarget.com/essentialguide/Big-data-exploration-and-analytics-for-CIOs-Oh-the-places-youll-go>
- van Eck, N., & Waltman, L. (2009). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538.
- Witten, I. H., et al. (2011). *Data mining: Practical machine learning tools and techniques* (3rd ed.). San Francisco: Morgan Kaufmann.
- WoS. (2016). *Web of science*. Retrieved April 4, 2016, from http://wokinfo.com/training_support/training/web-of-knowledge/
- Wu, X., et al. (2008). Top 10 algorithms in data mining. *Knowledge and Information Systems*, 14(1), 1–37.
- Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429–472.

Students' Perceptions on Quality and Satisfaction in Higher Education



Elvira Tabaku

Abstract Purpose: The purpose of this paper is to report the data found from an empirical study conducted in the service sector. It aims to assess the service quality and student satisfaction in higher private education university in Albania.

Methodology: The study is based on data gathered from the students of the faculty of Economics and Information Technology. The instrument used to assess service quality and student satisfaction is was self-administered questionnaire. A modified SERVPERF version was used to measure service quality. The SPSS and factorial analysis were used to measure the effect of each dimension of service quality on the quality perceived by the students. These analyses were also used to show the impact of service quality on student satisfaction.

Findings: The data show the effect of each dimension of service quality in quality assessment by the students. The statistical analysis demonstrates also the impact of each of them on student satisfaction.

Contribution: By offering an empirical assessment of significant variables of students' perceptions, this study contributes to the existing literature on measuring important variables of students' perception in higher education. The findings will help these institutions to understand how students consider different aspects of their activities and on improving the service they offer.

Keywords Service quality • Satisfaction • Higher education • Albania
• SERVPERF

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1 Introduction

Globalization has made it possible for companies to operate in different regions/countries, and this has brought many challenges to organizations operating in new markets. It became obligatory for them to evaluate opportunities and threats of this expanded market. As a result of this global marketplace, competition has grown faster, and companies are continuously searching for new ways of differentiating themselves toward customers. They are trying to find strategies to deal with the stronger competition and differentiate themselves. Offering high quality and increasing customers' satisfaction are considered significant elements for creating and maintaining the competitive advantage.

The constructs of quality and satisfaction have gained great attention from academics and practitioners in the last decades. Organizations throughout the world are trying to offer constantly high-quality products and services and satisfy customers in order to grasp their value. On the other hand, researchers have conducted different studies on assessing and evaluating quality and satisfaction, and they have attempted to develop different classification schemes for evaluating and measuring these variables. The aim was to offer a better understanding of these factors so it could be easier for practitioners to deliver high quality and to have satisfied customers. Many of the studies on quality have been focused in the study of service quality as the amount of services has increased a lot during the last decades and the service industry has expanded worldwide.

In the current social and economical context, the service sector has become increasingly more important, showing the need to know and study the particularities of its operations and to establish specific management methodologies that fit its context and features. Services have grown faster and becoming a key element of every economy. Researchers have suggested that service quality may be an important tool of differentiation (Zeithaml et al. 1996). It can be very significant in creating the competitive advantage, and the advantage acquired in this way is more long lasting as it is difficult to be imitated from the competitors (Zeithaml et al. 1996). Services are economic activities that can create value and provide benefits to the customers as a result of the desired exchange in service receiver (Lovelock 2001). In service management it is of vital importance the understanding of how customers assess the quality of the service provided. This is significant in every kind of service and in the academic sector as well.

Education services, as other services, are often intangible and difficult to measure. Their outcome is reflected in the transformation of individuals in their knowledge, characteristics, and behavior. The core activity in higher education is the service offered to students. Competition in higher education has escalated faster. There are now global education markets and institutions of higher education competing not only within a country but in a global basis. Universities have understood that their continuity depends on what they offer and how good they are at competing to each other. So, the quality of the education they offer may distinguish them from the rest (Aly and Akpovi 2001). The thorough products that

they offer concern not only the opinion of the accreditation institutions and the society but also the perceptions of the students about their experience with the university.

The quality offered from higher education institutions has attracted the attention of many researchers in the last years. Higher education institutions are continuously searching for improvements in teaching quality, that will lead to satisfied students and a good image in the higher education market. As in other types of organizations, in higher education institutions, offering high service quality is a key for success. Experts and researchers agree that offering high service quality is the most powerful competitive trend shaping marketing and business strategy, and the higher education sector should recognize the significance of service improvements in establishing a competitive advantage. Researchers think that students' experience in high education institutions should be a key issue addressing the performance indicators. Said this, it becomes very important to identify and understand the perceptions of service quality and satisfaction from the students' standpoint. Education is fundamental to a country's development because universities are the ones that prepare the professionals who will work in companies, manage public and private resources, and will educate the new generations.

2 Literature Review

2.1 *Service Quality*

The key role of quality in the service industry has attracted many researchers to empirically examine service quality within a wide array of service settings such as banking, hotels, and healthcare (Caruana 2002; Dagger and Sweeny 2007; Ladhari et al. 2011; Loureiro et al. 2011). Despite the fact that service quality is considered more difficult to be measured than goods quality (Parasuraman et al. 1985), several studies and different instruments have been developed and validated for measuring it. According to Christou and Sigala (2002), exist numerous approaches that explain the nature of service quality. According to Zeithaml et al. (2009), service quality is a focused evaluation that reflects customers' perceptions of reliability, assurance, responsiveness, empathy, and tangibles.

The services in the higher education are almost intangible and heterogeneous, are inseparable as they are produced and consumed at the same time, and are perishable as presume the students' participation in the delivery process (Henning-Thurau et al. 2001). Services in education sector are often intangible and difficult to measure as their outcome is reflected in the transformation of the individuals, on their knowledge and behavior. Therefore, there is not a commonly accepted definition of quality that applies specifically to the higher education sector. Different studies have tried to explore service quality and satisfaction in the higher education (e.g., Firdaus 2006; Tsinidou et al. 2010). Higher education institutions are increasingly showing more attention to service quality mainly due to

the fact that there is a general and social requirement for quality evaluation in education. In many countries and in Albania as well, this requirement is expressed directly through the establishment of independent quality assurance bodies, which place emphasis on students' experience as one of the assessment criteria. The experience of the students with the university should be a key issue that performance indicators need to address. Therefore, it becomes important to identify the key factors that affect students' perceptions of the quality of service that they receive. Research in the area of student perception on overall service quality in universities may be limited, and that is why, it is very important to assess empirically service quality in the higher education context.

According to Parasuraman et al. (1985), regardless of the type of service, consumers basically use the same criteria to assess quality. Service quality is a general opinion that customers form regarding the service delivery and is the result of a series of successful or unsuccessful experiences. Parasuraman et al. (1988, p. 15) defined service quality as "the global judgment or attitude relating to the overall excellence or superiority of the service," and they conceptualized a customer's evaluation of overall service quality by applying Oliver's (1980) disconfirmation model. This model is based on the gap between expectations and perceptions (gap model) of service performance levels. They proposed that overall service quality performance could be determined by the measurement scale called SERVQUAL that uses five generic dimensions named tangibles, responsiveness, reliability, assurance, and empathy and measures on the same scale both the expectations and the perceptions.

Cronin and Taylor (1992) suggested that perceptions only may generate good evaluations of service quality by questioning whether or not customers routinely assess service quality in terms of expectations and perceptions. Accordingly, they developed an instrument of service performance called SERVPERF. This instrument is composed of the same dimensions and items used from SERVQUAL scale, and it seems to produce better results than SERVQUAL. It has also been argued that a performance-only measurement of service quality explains more of the variance in the overall measure of service quality than the use of both expectations and performance (Cronin and Taylor 1994). Different studies suggest that SERVPERF is a better measure of quality assessment in the service sector (Johns et al. 2004; Olorunniwo and Hsu 2006). These findings are consistent with other researches that have compared these models in the service context, thus confirming that SERVPERF (performance-only) results in more reliable estimations, greater convergent and discriminant validity, and greater explained variance (Cronin and Taylor 1992). This research builds on these conclusions and uses the SERVPERF model with modifications that adapt to the context of the study.

In service quality literature, there has been no consensus on a generally applicable instrument to all service industries. Several authors have tried to assess service quality in the higher education and establish appropriate measurement instruments of it. In the study of Firdaus (2006), the author proposed HEDPERF

(Higher Education PERFORMANCE-only) measure of quality assessment. It is a new and comprehensive performance-based measurement scale that attempts to capture the authentic determinants of service quality in the higher education sector. This instrument composed of 41 items has been empirically tested for unidimensionality, reliability, and validity using both exploratory and confirmatory factor analysis. Brown and Mazzarol (2009) used a combination of the SERVQUAL and the ECSI model to measure the relative weight of each quality factor named academic staff, administration services, library services, curriculum structure, location, infrastructure, and career prospects. Nevertheless, literature suggests the need of other studies in service quality measurement.

2.2 Customer Satisfaction

The considerations of quality are closely linked to satisfaction, and sometimes, these terms are used interchangeably. Many of the well-known definitions of quality emphasize the relationship between quality and customer satisfaction. In these times of intense competition, achieving high levels of customer satisfaction has become an imperative for many organizations. Garbarino and Johnson (1999) stated that customer satisfaction derives from the quality of the product and service experience in comparison to the previously held expectations. It can be defined as the attitude or feeling of a customer toward a product or service following the usage of it. Customer satisfaction is considered as the outcome of customer's perception of the value received from the transaction or relationship, where value equals perceived service quality, compared to the value expected from transactions or relationships with competing vendors (Zeithaml et al. 1990). So, it is important not only to understand customer needs but also to anticipate them in order to satisfy them suitably. It becomes even more important as the studies show that satisfied customers tend to stay more with the company and also they cost the company less to serve compared to new ones (Reichheld and Sasser 1990), while other studies show that the long-term benefits of customer satisfaction are loyalty and organization profitability (Anderson et al. 1997). Providing and sustaining customer satisfaction have become an important challenge. Satisfied customers are more predisposed to long-term relationships with the organization leading to customer loyalty, while unsatisfied customers are a danger to any organization as they may switch to another one but also may contribute to negative word of mouth about the organization and its products and services. So, it becomes fundamental for higher education institutions to analyze and evaluate student's satisfaction as these institutions could greatly benefit from being able to establish lasting relationships with their students. A relationship with students that lasts in time can provide the higher education institution with a competitive advantage, particularly with positive word of mouth to potential, present and future students, as well as through frequent of

other study programs (master level) and possible collaboration with the institution, especially after graduation, contributing to the (work) placement of recent graduates (Alves and Raposo 2006). On the contrary, dissatisfied ones can harm the image of the institution by communicating negative words of mouth and damage future applications.

Different studies have assessed satisfaction formation and its dimensions, antecedents, and consequences and its way of measurement (Homburg et al. 2006; Martinez and DelBosque 2013). Kotler and Armstrong (2011) stated that customer satisfaction is a key element in developing customer relationships. Different theories have tried to explore customer satisfaction, norm theory (Latour and Peat 1979), perceived actual performance (Tse and Wilton 1988), and theory of expectancy disconfirmation (Oliver 1980). It has been conceptualized as cognitive, affective, and overall satisfaction. Despite the long-term interest in understanding and assessing consumer satisfaction, its relationship with service quality and the consumers' overall attitude within service companies is still unclear (Ekinici et al. 2008).

Service quality and customer satisfaction are considered as critical factors for the success of any business (Parasuraman et al. 1988). Different researchers have argued that service quality is a precursor of customer satisfaction (Douglas et al. 2008). Their assessment in the higher education context becomes important in the light of the increased interest and competition in this sector as, increasingly, these institutions are realizing that higher education could be regarded as a businesslike service industry and they are beginning to focus more on meeting or even exceeding the needs of their students. The objective of this study is to assess the effect of the dimensions of service quality in higher education overall quality and to assess their impact on students' satisfaction.

3 Methodology

The target group used for this study was compound by students studying at the European University of Tirana, Albania. Data collection took place over a period of 1 week during the month of December 2015. A total of 250 questionnaires were distributed to students from all the three academic bachelor years of the faculty of Economics and Information Technology. The survey instrument was a self-explanatory questionnaire that respondents could complete by themselves. The students have been asked to state their personal perceptions about the degree of importance of the services offered by the university. Student's participation was voluntary and completely anonymous. Out of these, 223 completed questionnaires were returned completed, representing a response rate of 89.2%. The questionnaire contained 26 items at all; 23 of them represented service quality through its five dimensions and overall service quality, while three items represented students' satisfaction. The service quality items measured perceived service quality and were adapted from the study of Parasuraman et al. (1991). The questionnaire was

Table 1 Items used to measure service quality and customer satisfaction

Variable/ dimension	Item
Tangibles	TAN1: The appearance of the physical facilities of the university is attractive TAN2: The university has modern and latest equipment TAN3: Staff (professors and administrative) are well dressed and neat in appearance TAN4: Materials and equipment used are attractive
Reliability	REL1: When something is promised by a certain time, it always is provided by the university REL2: When students have problems, staff are courteous in helping to resolve them REL3: Courses are taught by highly knowledgeable professors REL4: The university offers the service in the time it has promised to do it REL5: The staff (professors and administrative) insist in accurate service
Responsiveness	RES1: Students are informed of schedules and changes in schedules in advance RES2: The university has appropriate service hours for all students RES3: Administrative staff are never too busy to respond to student requests promptly RES4: The university staff are always willing to help students
Assurance	ASS1: The staff (professors and administrative) offer fast service to students. ASS2: Staff (professors and administrative) behavior instills confidence in students ASS3: University staff are friendly and polite ASS4: University staff (professors and students) have the necessary knowledge to answer students
Empathy	EMP1: University staff (professor and administrative) provide personal attention to every student EMP2: The university has students' best interest as a major objective EMP3: The staff (professor and administrative) understand the specific needs of students
Overall service quality	SQ1: Faculty provides excellent overall service SQ2: Faculty provides superior service in every way SQ3: The quality of service in this faculty is very high
Customer satisfaction	CS1: Overall, I am satisfied with the services offered from the university CS2: I'm satisfied with my decision to study in this university CS3: Overall, the services offered from the university fulfill my expectations

prepared using the back-translation method. A pilot test study was conducted with a sample of 30 students. After that, minor changes of rewording were applied to the instrument for measuring perceived service quality and satisfaction in the higher education. A five-point Likert scale was used for data collection—with “1” representing “strongly disagree” and “5” representing “strongly agree.” The items used to assess service quality and customer satisfaction are shown in Table 1.

The first step in data analysis was scale purification. So, the data set was checked for missing values, normality, and outliers. The missing values were replaced using multiple imputation method in SPSS 20.0, while very few outliers were present. The data resulted linear, and the values of skewness and kurtosis were within the acceptable range. Then, in order to assess the dimensionality of the scales used in the study, factor analysis was conducted. Exploratory factor analysis (EFA) is an interdependency technique which aims to determine the underlying structure between variables in a statistical analysis (Hair et al. 2009). After conducting EFA, the overall factor solutions resulted in good loading patterns and explain 66.81% of the variation; also the factor structure complied with the proposed instrument.

The next step in data analysis process was conducting confirmatory factor analysis (CFA). The intention was to further evaluate the dimensionality, reliability, and validity of the generated structure of factors. CFA aims to determine if the number of factors and respective loadings of measured variables is in concordance with what is expected from the literature (Brown 2006). Reliability was evaluated through the standardized Cronbach's alpha (Cronbach 1951). Nunnally (1978) suggests that a scale with alpha greater than 0.7 is considered to be reliable. After examining every dimension, the Cronbach's alpha was calculated for every distinct construct generated from factorial analysis. The final Cronbach's alpha of all items varied from 0.723 to 0.885, suggesting good internal consistency between items of every construct and construct reliability. Also, the combined scale reliability for the 26 items is 0.847, indicating that both reliability and convergent validity are guaranteed (Hair et al. 2009). Factor structure was also considered as stable. Overall, the proposed model had very good reliability, validity (both convergent and discriminant) indicators.

4 Data Analysis

4.1 *Service Quality Dimensions and Service Quality*

After confirming the factor structure, dimensionality, reliability, and validity of the six constructs, a standard multiple regression was performed in order to uncover the relative impact of service quality dimensions on higher education service quality. Overall service quality served as dependent variable, while tangibles, reliability, responsiveness, assurance, and empathy were independent variables. The analysis was performed using IBM SPSS software, and a summary of results is presented in Table 2.

As it can be seen from the results, there is a significant relationship between the five dimensions of service quality and overall higher education service quality ($F = 17.32$, significance of $F < 0.001$). Furthermore, these five dimen-

Table 2 Regression analysis results

Element	Beta coefficient	Standard error	T-value	Significance	VIF
Constant	0.014	0.004	0.487	0.001	1.115
Tangibles	0.389	0.007	0.654	0.000	1.362
Reliability	0.214	0.052	0.259	0.005	1.581
Responsiveness	0.143	0.066	0.941	0.004	1.415
Assurance	0.228	0.009	1.448	0.000	1.155
Empathy	0.154	0.028	2.948	0.001	1.089
R^2	0.664		F-statistics	17.32	
Adjusted R^2	0.607		Significance (F-statistics)	0.000	

sions explain a considerable proportion of the variance in HE service quality, 66.4%, as indicated by R^2 value and adjusted R^2 of 60.7%. All five dimensions were found as significant predictor of overall service quality in the higher education. Tangibles were the most influential determinant ($\beta = 0.389$, $p = 0.007$), followed by assurance ($\beta = 0.228$, $p = 0.009$) and reliability ($\beta = 0.214$, $p = 0.052$). Empathy was the fourth important contributor to regression ($\beta = 0.154$, $p = 0.028$), while responsiveness was found to be $\beta = 0.143$, $p = 0.028$. Table 2 also presents the VIF (variance inflation factor) values for the regression analysis conducted. VIF is a good indicator useful for multicollinearity check in statistical analysis (Hair et al. 2009). Multicollinearity is the degree at which a construct can be explained by other constructs in the analysis (Hair et al. 2009), i.e., it refers to the situation where independent/predictor variables are highly related to each other and could lead to drawing wrong conclusions and making type II errors (paths do not result significant when in fact they are). VIF shows the ration between the total standardized variance and unique variance. If the first one is ten times larger than the second, i.e., if construct VIF is greater than 10, then the multicollinearity between independent variables is present (Hair et al. 2009). As Table 2 shows, the VIF values vary from 1.089 to 1.581, much lower than the threshold of 10, indicating the lack of multicollinearity among regression constructs.

4.2 Service Quality and Customer Satisfaction

The results of the analyses for these relationships are presented in Tables 3 and 4.

The results of the convergent validity and hypothesis testing are presented in Tables 5 and 6.

Table 3 The results of EFA analysis

Construct	Service quality	Customer satisfaction
SQ1	0.547	
SQ2	0.647	
SQ3	0.697	
SQ4	0.678	
SQ5	0.568	
SQ6	0.694	
SQ7	0.578	
SQ8	0.684	
SQ9	0.676	
SQ10	0.738	
SQ11	0.618	
SQ12	0.647	
SQ13	0.759	
SQ14	0.664	
SQ15	0.564	
SQ16	0.784	
SQ17	0.647	
SQ18	0.563	
SQ19	0.597	
SQ20	0.655	
SQ21	0.814	
SQ22	0.784	
SQ23	0.841	
CS1		0.741
CS2		0.598
CS3		0.588

Table 4 Standardized regression weights

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality	Satisfaction
SQ	0.401						
SQ		0.284					
SQ			0.356				
SQ				0.312			
SQ					0.418		
SQ							0.512
SQ1	0.692						
SQ2	0.587						
SQ3	0.395						
SQ4	0.680						
SQ5		0.636					
SQ6		0.746					
SQ7		0.509					
SQ8		0.536					
SQ9		0.549					

(continued)

Table 4 (continued)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality	Satisfaction
SQ10			0.367				
SQ11			0.311				
SQ12			0.739				
SQ13			0.724				
SQ14				0.892			
SQ15				0.599			
SQ16				0.393			
SQ17				0.262			
SQ18					0.777		
SQ19					0.526		
SQ20					0.604		
SQ21						0.897	
SQ22						0.641	
SQ23						0.518	
SAT1							0.324
SAT2							0.411
SAT3							0.456

Table 5 The indicators of dimensionality, reliability, and convergent validity

The construct	No. of items	GFI indicator of unidimensionality	Cronbach alpha	Bentler-Bonnet Δ
Service quality	23	0.902	0.736	0.911
Customer satisfaction	3	0.981	0.754	0.947

Table 6 Estimated results of the structural model and hypothesis test

Path	Standardized coefficient	<i>p</i> -value	Hypothesis testing
H1: TAN→SQ	0.401	0.000	Supported
H2: REL→SQ	0.284	0.001	Supported
H3: RES→SQ	0.356	0.000	Supported
H4: ASS→SQ	0.312	0.000	Supported
H5: EMP→SQ	0.418	0.002	Supported
H6: SQ→CS	0.512	0.002	Supported

5 Conclusion

This study aimed to assess the applicability of the perceived service quality measurement scale to students in higher education and to determine the student satisfaction level in higher education. The five dimensions of service quality of Parasuraman et al. (1985) scale were found to be applicable in the higher education settings. The findings of this study reveal that the SERVPERF scale successfully maintains its dimensionality, reliability, and validity. Hence, students' evaluation of perceived service quality in higher education consists of five dimensions: tangibles, reliability, responsiveness, assurance, and empathy.

The results of this study have some practical implications for the higher education sector. As the institutions of higher education realize the competitive setting where they are operating, attracting more students and creating their satisfaction become a key element of delivering high service quality and student satisfaction. The findings of this study are important for higher education institutions which should understand that students continuously increase their demands about quality and satisfaction. First, the results show that both tangible and intangible elements are good predictors of overall service quality. The university sector in Albania has continuously suffered from poor building and equipments in the last two decades. So, the authorities should pay attention to this element as it showed to be of high importance in overall quality perception. Students want universities to have modern-looking equipment and appealing materials associated with the service they offer. In this way they can perceive high service quality and create and maintain satisfaction. Second, the results show that employees play a vital role in quality perception as assurance and reliability seem to be the most important dimensions of quality to impact overall service quality after tangibles. The confidence instilled by the professors and administrative employees and their professionalism, kindness, and politeness proved to be very significant in overall quality perception. The professionalism and high knowledge of the employees and services offered in the proper/promised time were found to be important indicators of service quality. So, institutions of higher education ought to ensure that employees are well trained, understand and deliver high level of service to students. Employees should enable themselves in offering accurate, timely and high quality services as the only way to create and reinforce students' satisfaction. In this way they can

benefit from positive outcomes of student satisfaction as positive marketing generated from positive word of mouth and intentions to frequent other education levels in the same university.

The study provides higher education service quality researchers with useful guidelines for future research that would result in more rigorous theoretical and methodological processes. It reassured SERVPERF scale, as an important measure of service quality in higher education. Thus, the use of SERVPERF provides useful information to higher education authorities for developing quality improvement strategies.

The higher education institutions should be more aware of the significance of continually assessing the service they offer. They should periodically conduct empirical researches to assess the perceptions of the students about different aspects of their academic life and use these data as an important basis to improve themselves. In this way they can deliver better services and can be competitive in the higher education market.

References

- Alves, H., & Raposo, M. (2006). Conceptual model of student satisfaction in higher education. *Total Quality Management*, *17*(9), 1261–1278.
- Aly, N., & Akpovi, J. (2001). Total quality management in California public higher education. *Quality Assurance in Education*, *9*(3), 127–131.
- Anderson, E. W., et al. (1997). Customer satisfaction, productivity and profitability: Differences between goods and services. *Marketing Science*, *16*(2), 129–145.
- Brown, R. M., & Mazzarol, T. W. (2009). The importance of institutional image to student satisfaction and loyalty within higher education. *Higher Education*, *58*, 81–95. <https://doi.org/10.1007/s10734-008-9183-8>.
- Brown, T. A. (2006). *Confirmatory factor analysis and applied research*. New York: The Guilford Press.
- Caruana, A. (2002). Service loyalty: The effects of service quality and the mediating role of customer satisfaction. *European Journal of Marketing*, *36*(7/8), 811–828.
- Christou, E., & Sigala, M. (2002). Conceptualizing the measurement of service quality and TQM performance for hotels: The HOSTQUAL model. *Acta Touristica*, *14*(2), 140–169.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*, 297–334.
- Cronin, J. J., Jr., & Taylor, S. A. (1994). SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations measurement of service quality. *Journal of Marketing*, *58*(1), 125–131.
- Cronin, J. J. J., & Taylor, S. A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing*, *56*, 55–68.
- Dagger, T. S., & Sweeny, J. C. (2007). Service quality attributes weights: How do novices and longer-term customers construct service quality perceptions? *Journal of Service Research*, *10*(1), 22–42.
- Douglas, J., et al. (2008). The development of a conceptual model of student satisfaction with their experience in higher education. *Quality Assurance in Education*, *16*(1), 19–35. <https://doi.org/10.1108/09684880810848396>.
- Ekinci, Y., et al. (2008). An extended model of the antecedents and consequences of consumer satisfaction for hospitality services. *European Journal of Marketing*, *42*(1/2), 35–68.

- Firdaus, A. (2006). The development of HEDPERF: A new measuring instrument of service quality for higher education. *International Journal of Consumer Studies*, 30(6), 569–581.
- Garbarino, E., & Johnson, M. S. (1999). The differential roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing*, 63, 70–87.
- Hair, J. E., Jr., et al. (2009). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.
- Henning-Thurau, T., et al. (2001). Modeling and managing student loyalty: An approach based on the concept of relationship quality. *Journal of Service Research*, 3(1), 331–344.
- Homburg, C., et al. (2006). The role of cognition and affect in the formation of customer satisfaction: A dynamic perspective. *Journal of Marketing*, 70(3), 21–31.
- Johns, N., et al. (2004). Measuring service quality of travel agents: Evidence from Northern Cyprus. *The Service Industries Journal*, 24(3), 82–100.
- Kotler, P., & Armstrong, G. (2011). *Principles of marketing* (14th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Ladhari, R., et al. (2011). Determinants of loyalty and recommendation: The role of perceived service quality, emotional satisfaction and image. *Journal of Financial Services Marketing*, 16(2), 111–124. <https://doi.org/10.1057/fsm.2011.10>.
- LaTour, S. A., & Peat, N. C. (1979). Conceptual and methodological issues in consumer satisfaction research. In L. W. William (Ed.), *Advances in consumer research* (6th ed., pp. 431–440). Ann Arbor, MI: Association for Consumer Research.
- Loureiro, S. M. C., et al. (2011). Corporate reputation, satisfaction, delight, and loyalty towards rural lodging units in Portugal. *International Journal of Hospitality Management*, 30, 575–583.
- Lovelock, C. (2001). *Services marketing*. Upper Saddle River, NJ: Prentice Hall.
- Martinez, P., & DelBosque, I. R. (2013). CSR and customer loyalty: The roles of trust, customer identification with the company and satisfaction. *International Journal of Hospitality Management*, 35, 89–99.
- Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.
- Oliver, R. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17, 460–469.
- Olurunniwo, F., & Hsu, M. K. (2006). A typology analysis of service quality, customer satisfaction and behavioral intentions in mass services. *Managing Service Quality: An International Journal*, 16(2), 106–123.
- Parasuraman, A., et al. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49, 41–50.
- Parasuraman, A., et al. (1988). SERVQUAL a multiple item scale for measuring customer perceptions of service quality. *Journal of Retailing*, 64, 12–40.
- Parasuraman, A., et al. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 67(4), 420–450.
- Reichheld, F., & Sasser, W. E. (1990). Zero defections: Quality comes to services. *Harvard Business Review*, 68, 105–111.
- Tse, D. K., & Wilton, P. C. (1988). Models of consumer satisfaction formation: An extension. *Journal of Marketing Research*, 25(2), 204–212.
- Tsinidou, M., et al. (2010). Evaluation of the factors that determine quality in higher education: An empirical study. *Quality Assurance in Education*, 18(3), 227–244. <https://doi.org/10.1108/09684881011058669>.
- Zeithaml, V., et al. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(2), 31–46.
- Zeithaml, V. A., et al. (1990). *Delivering quality service. Balancing customer perceptions and expectations*. New York: Free Press.
- Zeithaml, V. A., et al. (2009). *Service marketing, integrating customer focus across the firm* (5th ed.). New Delhi: McGraw-Hill.

Greek Tertiary Education System Evaluation in Respect of Quality Assurance Dimensions According to Malcolm Baldrige Performance Excellence Model



Sofia D. Anastasiadou

Abstract The current study evaluates Greek students' attitudes toward Quality Assurance Dimensions in Tertiary Education System with Malcolm Baldrige Performance Excellence Model. Using a sample of 225 students describing Quality Assurance Dimensions in Tertiary Education, results of structural equation modeling and path analysis show that all of the hypothesized causal relationships in Malcolm Baldrige Performance Excellence Model (MBNQA) are statistically significant.

Keywords Path • SEM • Analysis • Quality • Tertiary education • Malcolm Baldrige Performance Excellence Model • MBNQA

1 Framework

Quality Awards and Quality Models are strongly connected with the philosophy of TQM and in particular on the principles of continuous improvement. Businesses and educational organizations' expectation is to improve their processes, their products or services, and their performance after obtaining a Quality Award (Eriksson and Hansson 2003). The Malcolm Baldrige National Quality Award (MBNQA) is one of the most known assessment models in the world. "The MBNQA has evolved from a means of recognizing and promoting exemplary quality Management practices to a comprehensive framework for world-class Performance, widely used as a model for improvement" (Badri et al. 2006: 1119).

MBNQA's framework is based on seven independent quality criteria: "Leadership"; "Strategic Planning"; "Customer/Student Focus"; "Process Management"; "Human Resource/Staff Focus"; "Measurement, Analysis, and Knowledge Management"; and "Organizational Performance Results."

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Criterion 1 “Leadership” The first criterion examines the top management’s ability to promote quality values and customer focus among the staff and capacity to set clear goal and policies (Pannirselvam et al. 1998). The leader has an essential role to develop and to promote the mission, the vision, and the values of the organization to its entire educational staff.

Criterion 2 “Strategic Planning” Evaluates the strategic plans and how the schools import the philosophy of the quality in their short- and long-term plans and their effectiveness. For education, Strategic Planning shows the manner in which the schools set strategic goals and action plans (Badri et al. 2006).

Criterion 3 “Customer/Student Focus” The Baldrige model for education tries to estimate the needs (present and future) of students and stakeholders and to understand the needs of the labor market. Crosby (1979) emphasizes the value of customer satisfaction.

Criterion 4 “Measurement, Analysis, and Knowledge Management” Criterion 4 evaluates the organization’s information management and performance measurement systems and how the school organization analyzes performance data and information in the process of quality improvement (Steiakakis and Kofidis 2010). Badri et al. (2006) argued that “in education, the Measurement, Analysis, and Knowledge Management dimension is the main point within the criteria for all key information about effectively measuring and analyzing Performance and managing Organizational Knowledge to drive improvement in Student and operational outcomes.”

Criterion 5 “Faculty and Staff Focus” This criterion considers the management of human resources and the ways that the personnel can be allowed, educated, and rewarded. This criterion lays emphasis on the substance of effective communication among educators. Also, Badri et al. (2006) claimed that Faculty and Staff Focus criterion gives emphasis to the need for human resource plans, support, and help to meet the organization’s goals.

Criterion 6 “Process Management” Process Management criterion evaluates the way that the new educational services are designed to meet the students and stakeholders’ needs. In addition, this criterion focuses on learning-centered processes that instill value to all participants. The aim is to plan and design an effective education aligned on student learning. Badri et al. (2006) mentioned that Process Management is a key point. More specifically “built into the category are the central requirements for efficient and effective Process Management: effective education design and delivery; a Focus on Student learning; linkage to Students, Stakeholders, suppliers, and partners and a Focus on learning-centered Processes that create value for all key Stakeholders; and evaluation, continuous improvement, and Organizational learning” (Badri et al. 2006: 1126).

Criterion 7 “Organizational Performance Results” The criterion “Organizational Performance Results” stands for the results of student learning, students and educators’ satisfaction, educational outcomes, and organizational effectiveness.

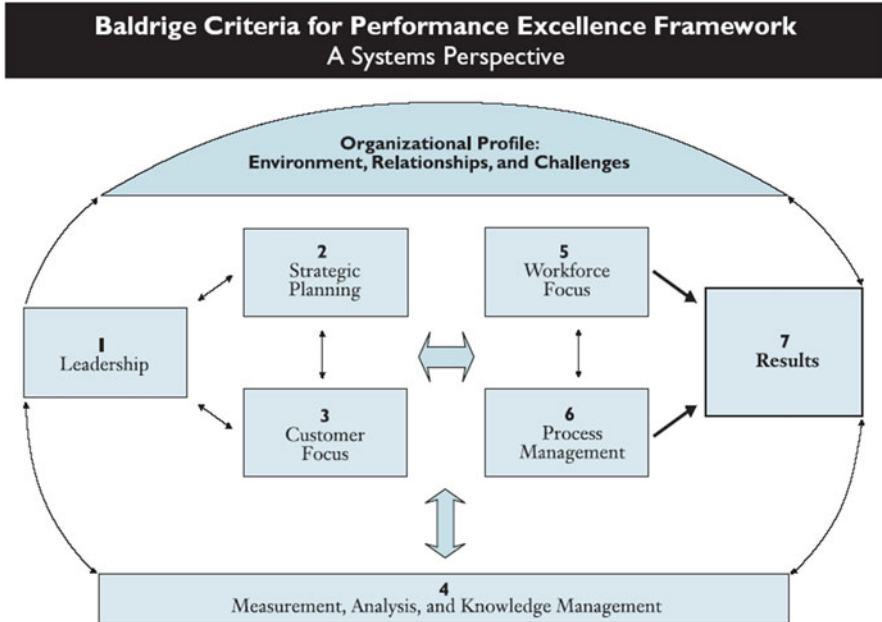


Fig. 1 MBNQA: Malcolm Baldrige National Quality Model

According to Badri et al. (2006), the main aim of this criterion is to provide information and results of the learning progress in order to improve the educational programs, the services, and the overall policy and strategy of the educational system (Fig. 1).

2 Sample

Our research sample consisted of 225 Greek students from the Department of Social and Educational Policy of Macedonia University, who were asked to answer the Malcolm Baldrige Performance Excellence Model scale during the academic year 2015–2016. In fact, 225 valid questionnaires were collected. Of 225 students, 30 (13.3%) were males and 195 (86.7%) females. 88 out of 225 students were first-year students (39.1%), 68 (30.2%) second-year students, 45 (20%) third-year students, and 24 (10.7%) fourth-year students.

3 Methodology

Reliability Testing Reliability refers to what extent an instrument gives constant results from the measurements, and every deviation, which is presented between two different measurements, is due to measurement's error (Nunnally 1978).

The evaluation of a model (includes) counts in the reliability assessment, which measures the internal consistency of factors. Internal consistency can be calculated with the use of the Cronbach's α coefficient (Croanbach 1984) with acceptable values over 0.7 and with the composite reliability of Fornell and Larcker (1981), which is a measure of internal consistency of the structure indexes. These represent the level of the latent structure, and they are based on the correlations between the variables that compose the factor. Values of the Cronbach's α coefficient over 0.7 are considered as satisfactory (Spector 1992; Nunnally 1978). The composite reliability should be over 0.7 in order to be satisfactory (Fornell and Larcker 1981). The extracted variance is another measure of reliability that represents the total amount of structure's variance which is due to the variance of the determining variables.

Validity Testing The term validity refers to how well the instrument (questionnaire) measures what is intended to measure (Cohen et al. 1988). The semantic structure of the instrument refers to (a) the number and (b) the context of its dimensions.

The Structural Validity The structural validity refers to the level of the correspondence between themes and factors that are recognized under the test of factorial structure or have been proposed from the theoretical base of the examining model as well as to the evaluation of the adequacy of the factorial structure of the examining model (Bagozzi and Kimmel 1995). The evaluation of the *structural validity* is consisted in the use of confirmatory factor analysis (CFA), which is considered to be as the most composite, developed, and effective method for the particular aim (Theodorakis and Xatzigeorgiadis 2004; Kline 1994). Convergent and discriminant validity are both considered subcategories and subtypes of construct validity.

Test of Convergent Validity Convergent validity is related to the level at which many different methods of variable measurements lead to the same results (Spector 1992; Churchill 1979). Chin (1998) suggests that the convergent validity should be controlled by the evaluation of the composite reliability with the cutoff of 0.7 and the variance extracted with the cutoff of 0.5 (Fornell and Larcker 1981).

Test of Discriminant Validity Discriminant validity refers to the hypothesis that dissimilar structures should be different (Burns and Bush 1995). Bagozzi and Kimmel (1995) describes the as the level where the factors of a scale evaluate different issues. The evaluation of the discriminant validity takes place under the examination of the correlations of the latent factors through confirmatory factor analysis (CFA) that has the advantage that the examining factors are free from the measurement's error.

The discriminant validity can be checked with the examination of the correlations between factors that should be lesser than the root of the mean extracted variance (Kim et al. 2008). An indication of the discriminant validity exists when the coefficient of the correlation between the factors is lesser than the Cronbach's α coefficient of each factor (Churchill 1979). The discriminant validity can be also checked by examining whether the correlations between the variables are lesser than the root of the mean extracted variance (Kim et al. 2008). Fornell and Larcker (1981) propose the discriminant validity to be evaluated with the examination of the correlation between the variable. Indeed, discriminant validity exists when one variable is correlated to the rest of the variables of the same structure (construct) at a higher extent than to any other variable of a different structure (construct) (Chin 1998).

Confirmatory Factor Analysis To investigate the structure of the factors measured with the questionnaire, a confirmatory factor analysis (CFA) was released in order to develop a model indicating the relationship between the various factors which was attempted and in particular the relationship between the observed variable and the factors. The aim of this confirmatory analysis is to reveal if the questionnaire is valid and suitable for the measurement of the variables it investigates. It is noted that an instrument of evaluation is valid if the existence of variation is justified in its statements (Anastasiadou 2006). In order to test the model, the goodness of fit of the research model is estimated.

It is noted that the criteria for acceptance of a model are the comparative fit index (CFI) which is not dependent on the size of the sample and takes values from 0 to 1 (Bentler 1993; Joreskog and Sordom 1996) and it must, by agreement, be CFI0.9, the index χ^2/df ($\chi^2/df =$ chi-square to its degrees of freedom ratio) and it must be $\chi^2/df < 2$. Since the index χ^2/df depends on the size of the sample, the ratio NNFI (non-normed fit index) is used, which is independent of the size of the sample (Bentler 1993), and it must (by agreement) be NNFI > 0.95. When GFI (goodness of fit) is used, it must be GFI > 0.80; when AGFI (adjusted goodness-of-fit index) is used, it must be AGFI > 0.8; and when NFI (normed fit index) is used, it must be NFI > 0.9. Also, the indexes RMSR (root mean square residuals) and RMSEA (root mean square error of approximation) are used and they must (by agreement) be RMSR < 0.06 and RMSEA < 0.06.

For the purposes of data analysis, adaptation to the regular distributions of all the variables that participated in the analysis (multivariate normality) was checked, and it was shown that all the univariate distributions are normal distributions, all the joint distributions of all combinations of variables are also normal, and all the bi-variable scatter plots are linear and homoscedastic, and finally there were no outliers. Moreover, the data were evaluated for their linearity, and the examination of variance charts for each variable shows that there was not any problem of linearity.

4 The Instrument

Malcolm Baldrige Performance Excellence Model (MBNQA) scale, which is intended to measure students' attitudes in relation to the significance to excellence in relation to Malcolm Baldrige Performance Excellence Model (MBNQA) based on Badri et al. work (2006). This tool consists of 276 items referring to seven different attitude subscales, as follows:

- (a) Leadership: Attitudes toward organizational leadership (e.g., senior leaders create strategic directions; senior leaders communicate a clear vision), organizational leadership (organizational governance) (e.g., governance systems ensure accountability of staff and faculty members; governance system ensures monitoring the performance of senior leaders), organizational leadership (organizational performance review) (e.g., senior leaders continuously review our organizational performance; senior leaders continuously review our organizational capabilities), social responsibility (responsibilities to the public) (e.g., leaders address the impact of our programs and offerings on society; leaders establish key measures for achieving international accreditation requirements), social responsibility (ethical behavior) (e.g., leadership ensures ethical behavior; leadership ensures ethical behavior in all our faculty and staff), and social responsibility (support of key communities) (e.g., our faculty is actively engaged in support of our key communities; our senior leaders are actively engaged in support of our key communities).
- (b) Strategic Planning: Attitudes toward strategy development (strategy development process) (e.g., the organization follows a formal/informal process of strategy development; the organization utilizes various types of forecasts, projections, options, and scenarios in decision-making about our future), strategy development (strategic objectives) (e.g., the organization specifies timetables for accomplishing our strategic objectives; the organization's objectives directly address the challenges outlined in our organizational profile), strategy deployment (action plan development and deployment) (e.g., the organization's strategic objectives into short- and long-term action plans to accomplish the objectives; strategic plans are translated into specific requirements for each work unit or department), and strategy deployment (performance projection) (e.g., the organization uses key established measures or indicators to performance projection; short- and long-term decisions and actions are aligned with organization's strategic plans).
- (c) Student, Stakeholders, and Market Focus: Attitudes toward student knowledge (e.g., organization has well-established mechanism for determining student needs and expectations; organization has created a climate conducive to learning), student, stakeholders, and market knowledge (stakeholders and market knowledge) (e.g., organization programs are relevant to community needs; organization conducts regular visits to high schools to promote our university and program), student and stakeholder relationship and satisfaction (student and stakeholder relationships) (e.g., organization continuously build active

relationships with students and stakeholders; organization has developed partnerships and alliances with students and stakeholder), and student and stakeholder relationship and satisfaction (student and stakeholder satisfaction determination) (e.g., organization has established effective mechanism for determining student/stakeholder satisfaction/dissatisfaction; organization uses student/stakeholder satisfaction/dissatisfaction information to improve programs/services).

- (d) Measurement, Analysis, and Knowledge Management: Attitudes toward measurement and analysis of organizational performance (performance measurement) (e.g., organization collects and integrates information on evidence of student learning; organization collects and integrates information for tracking daily operations), measurement and analysis of organizational performance (performance analysis) (e.g., organization's performance analysis includes examining trends; organization performance analysis includes organizational and academic community projections), information and knowledge management (data and information availability) (e.g., organization ensures the availability of high-quality information for key users; organization ensures the availability of timely data and information for key users), and information and knowledge management (organizational knowledge) (e.g., organization ensures that its people keep up with changing educational needs and directions; organization constantly develops innovative solutions that add value for our students).
- (e) Faculty and Staff Focus: Attitudes toward work systems (organization and management of work) (e.g., organization has effective ways to organize and manage work and jobs to promote empowerment and innovation; organization ensures that the skills and experiences of our staff and faculty are equitably distributed), work systems (faculty and staff performance management system) (e.g., organization compensation, recognition, and related reward and incentive practices reinforce high performance work; organization compensation and recognition system is tied to efforts in community and university service), work systems (hiring and career progression) (e.g., organization has an effective mechanism to identify skills needed by potential staff and faculty; organization has an effective way of recruiting and hiring faculty and staff), faculty and staff learning and motivation (faculty and staff education, training, and development) (e.g., organization faculty and staff education and training contribute to the achievement of its action plans; organization utilizes faculty and staff education and training delivery programs both inside and outside organization), faculty and staff learning and motivation (motivation and career development) (e.g., organization has effective ways in motivating faculty and staff to develop and utilize its full potential; organization uses formal/informal mechanisms to help faculty and staff attain job- and career-related development and learning objectives), faculty and staff well-being and satisfaction (work environment) (e.g., organization work environment supports the well-being and development of all employees; organization continuously works to improve workplace health, safety, security, and ergonomics), and faculty and staff

well-being and satisfaction (faculty and staff support and satisfaction) (e.g., organization has established key factors that affect faculty and staff well-being, satisfaction, and motivation; organization key factors are segmented for its diverse workforce).

- (f) Process Management: Attitudes toward learning-centered processes (LCPs) (e.g., organization has effective ways in determining and ensuring its LCP; organization uses effective key LCPs that deliver our educational programs and offering) and support processes (SPs) (e.g., organization has effective ways in determining and ensuring our key SPs; organization uses effective key SPs for supporting our LCPs).
- (g) Organizational Performance Results: Attitudes toward student learning results (e.g., overall measures or indicators of student learning results; the effectiveness of organization programs segmented by majors and disciplines); student- and stakeholder-focused results (e.g., relevant data that determine and predict our performance as reviewed by students; current levels and trends in key measures or indicators of student satisfaction); budgetary, financial, and market results (e.g., trend data on instructional and general administration expenditure per student; trend data on cost per academic credit); faculty and staff results (e.g., creating and maintaining a positive and productive environment for faculty and staff; creating and maintaining a learning-centered environment for faculty and staff), organizational effectiveness results (e.g., experiencing annual increases in overall productivity of scientific research measures; experiencing improvements in timeliness in all key areas of educational and student support areas), governance and social responsibility results (e.g., showing upward scores of stakeholders' trust in the organization; maintaining current accreditation of programs while working toward seeking accreditation of other programs).

Each item of the instrument used a 7-point Likert scale that ranged from 1 (strongly disagree) to 7 (strongly agree). The value of the Cronbach's α coefficient for this instrument in this study's sample was 0.933.

5 Research Hypotheses

Twenty-one research hypotheses were formulated to test directional relationships of the seven dimensions of Malcolm Baldrige Performance Excellence Model.

- H1. Leadership Factor has a positive effect on Process Management Factor.
- H2. Leadership Factor has a positive effect on Faculty and Staff Focus Factor.
- H3. Leadership Factor has a positive effect on Strategic Planning Factor.
- H4. Leadership Factor has a positive effect on Measurement, Analysis, and Knowledge Management Factor.
- H5. Leadership Factor has a positive effect on Student, Stakeholder, and Market Focus Factor.

- H6. Leadership Factor has a positive effect on Organizational Performance Results Factor.
- H7. Process Management Factor has a positive effect on Student, Stakeholder, and Market Focus Factor.
- H8. Process Management Factor has a positive effect on Organizational Performance Results Factor.
- H9. Faculty and Staff Focus Factor has a positive effect on Student, Stakeholder, and Market Focus Factor.
- H10. Faculty and Staff Focus Factor has a positive effect on Organizational Performance Results Factor.
- H11. Strategic Planning Factor has a positive effect on Student, Stakeholder, and Market Focus Factor.
- H12. Strategic Planning Factor has a positive effect on Organizational Performance Results Factor.
- H13. Measurement, Analysis, and Knowledge Management Factor has a positive effect on Student, Stakeholder, and Market Focus Factor.
- H14. Measurement, Analysis, and Knowledge Management Factor has a positive effect on Organizational Performance Results Factor.
- H15. Measurement, Analysis, and Knowledge Management Factor has a positive effect on Strategic Planning Factor.
- H16. Measurement, Analysis, and Knowledge Management Factor has a positive effect on Faculty and Staff Focus Factor.
- H17. Measurement, Analysis, and Knowledge Management Factor has a positive effect on Process Management Factor.
- H18. Strategic Planning Factor has a positive effect on Process Management Factor.
- H19. Strategic Planning Factor has a positive effect on Faculty and Staff Focus Factor.
- H20. Faculty and Staff Focus Factor has a positive effect on Process Management Factor.
- H21. Organizational Performance Results Factor has a positive effect on Student, Stakeholder, and Market Focus Factor.

6 Results

Results of Confirmatory Factor Analysis for Reliability and Validity Testing At this point we should add that as all items loaded more heavily on their corresponding constructs rather than on other constructs, discriminant validity was satisfied. In addition, the square roots of all AVEs were larger than correlations among constructs, thereby satisfying discriminant validity (Table 1). All the inter-construct correlations are below the cutoff point of 0.9, which suggests distinctness in discriminant validity.

Also, the average extracted variances are all above the recommended 0.50 level (Hair et al. 1995) that implies convergent validity.

Table 1 Inter-construct correlations

	Criterion 1 "Leadership" Factor	Criterion 2 "Strategic Planning" Factor	Criterion 3 "Customer/ Student Focus" Factor	Criterion 4 "Measurement, Analysis, and Knowledge Management" Factor	Criterion 5 "Faculty and Staff Focus" Factor	Criterion 6 "Process Management" Factor
Criterion 2 "Strategic Plan- ning" Factor	0.15					
Criterion 3 "Customer/Stu- dent Focus" Factor	0.11	0.16				
Criterion 4 "Measurement, Analysis, and Knowledge Management" Factor	0.16	0.18	0.19			
Criterion 5 "Faculty and Staff Focus" Factor	0.11	0.17	0.18	0.17		
Criterion 6 "Process Man- agement" Factor	0.13	0.14	0.16	0.15	0.21	
Criterion 7 "Organizational Performance Results" Factor	0.17	0.16	0.13	0.17	0.16	0.17

Table 2 Composite reliability (CR) and average variance extracted (AVE)

	Composite reliability (CR > 0.7)	Average variance extracted (AVE > 0.5)
Criterion 1 “Leadership” Factor	0.968	0.723
Criterion 2 “Strategic Planning” Factor	0.971	0.715
Criterion 3 “Customer/Student Focus” Factor	0.978	0.719
Criterion 4 “Measurement, Analysis, and Knowledge Management” Factor	0.975	0.728
Criterion 5 “Faculty and Staff Focus” Factor	0.981	0.702
Criterion 6 “Process Management” Factor	0.963	0.743
Criterion 7 “Organizational Performance Results” Factor	0.942	0.751

Compared to Cronbach’s alpha equal to 0.963, 0.952, 0.976, 0.944, 0.962, 0.936, and 0.928 for the 1st, 2nd, 3rd, 4th, 5th, 6th, and 7th factorial axis, respectively, which assumes equal weights of all the items of a construct and is influenced by the number of items, composite reliability relies on actual loadings to compute the factor scores and thus provides a better indicator for measuring internal consistency. As shown in Table 2, composite reliabilities are above the threshold of 0.7. In conclusion, the measures in this study are reliable and valid.

Results of Confirmatory Factor Analysis for the Model Testing The hypotheses are tested through structural equation modeling (SEM) technique by LISREL 8.8 software. Model estimation was done using the maximum likelihood estimation, with the item covariance matrix used as input. The indicators were identified by their loadings. These indicators are associated to their respective latent or unobserved variables to calculate the estimate. The values of SEM appear in Table 3.

The overall analysis of the model indicates that the model is a very good fit (Table 4) (CFI = 0.94, χ^2/df = 1.8, GFI = 0.83, AGFI = 0.82, NFI = 0.94, NNFI = 0.97, RMSR = 0.07, RMSEA = 0.05).

The path significance of each hypothesized association in the research model and variance explained (R^2) by each path is also examined. The standardized path coefficients and explained variances of the structure model are shown in Table 4.

Hypothesis H1 is supported since the effect of Leadership Factor on Process Management Factor is significant (β = 0.64) and R^2 = 0.32 which means that the Leadership Factor explains Process Management Factor to a great extent.

Table 3 Structural equation modeling

Values	CFI	χ^2/df	GFI	AGFI	NFI	NNFI	RMSR	RMSEA
Good fit indexes	0.94	1.8	0.83	0.82	0.94	0.97	0.05	0.05

Table 4 Research hypotheses

Hypotheses	Path	β_o	R^2
H1	Leadership Factor → Process Management Factor	0.64	0.32
H2	Leadership Factor → Faculty and Staff Focus Factor	0.46	0.26
H3	Leadership Factor → Strategic Planning Factor	0.73	0.48
H4	Leadership Factor → Measurement, Analysis, and Knowledge Management Factor	0.45	0.24
H5	Leadership Factor → Student, Stakeholder, and Market Focus	0.39	0.21
H6	Leadership Factor → Organizational Performance Results Factor	0.41	0.37
H7	Process Management Factor → Student, Stakeholder, and Market Focus Factor	0.74	0.51
H8	Process Management Factor → Organizational Performance Results Factor	0.22	0.17
H9	Faculty and Staff Focus Factor → Student, Stakeholder, and Market Focus Factor	0.43	0.27
H10	Faculty and Staff Focus Factor → Organizational Performance Results Factor	0.21	0.19
H11	Strategic Planning Factor → Student, Stakeholder, and Market Focus Factor	0.39	0.25
H12	Strategic Planning Factor → Organizational Performance Results Factor	0.26	0.14
H13	Measurement, Analysis, and Knowledge Management Factor → Student, Stakeholder, and Market Focus Factor	0.42	0.35
H14	Measurement, Analysis, and Knowledge Management Factor → Organizational Performance Results Factor	0.73	0.56
H15	Measurement, Analysis, and Knowledge Management Factor → Strategic Planning Factor	0.45	0.29
H16	Measurement, Analysis, and Knowledge Management Factor → Faculty and Staff Focus Factor	0.41	0.22
H17	Measurement, Analysis, and Knowledge Management Factor → Process Management Factor	0.38	0.26
H18	Strategic Planning Factor → Process Management Factor	0.29	0.17
H19	Strategic Planning Factor → Faculty and Staff Focus Factor	0.31	0.22
H20	Faculty and Staff Focus Factor → Process Management Factor	0.21	0.13
H21	Organizational Performance Results Factor → Student, Stakeholder, and Market Focus Factor	0.62	0.43

Hypothesis H2 is supported since the effect of Leadership Factor on Faculty and Staff Focus Factor is significant ($\beta = 0.46$). The Leadership Factor explains 26% ($R^2 = 0.26$) of Faculty and Staff Focus Factor.

Hypothesis H3 is supported since the effect of Leadership Factor on Strategic Planning Factor is significant ($\beta = 0.73$) to a great extent. The Leadership Factor explains 53% ($R^2 = 0.53$) of the Strategic Planning Factor.

Hypothesis H4 is supported since the effect of Leadership on Measurement, Analysis, and Knowledge Management Factor is significant ($\beta = 0.45$). The Leadership Factor explains 24% ($R^2 = 0.24$) of Strategic Planning Factor.

Hypothesis H5 is supported since the effect of Leadership on Student, Stakeholder, and Market Focus Factor is significant ($\beta = 0.39$). The Leadership Factor explains 21% ($R^2 = 0.21$) of Student, Stakeholder, and Market Focus Factor.

Hypothesis H6 is supported since the effect of Leadership on Organizational Performance Results Factor is significant ($\beta = 0.41$). The Leadership Factor explains 21% ($R^2 = 0.37$) of the Organizational Performance Results Factor.

Hypothesis H7 is supported since the effect of Process Management Factor on Student, Stakeholder, and Market Focus Factor is significant ($\beta = 0.74$). The Process Management Factor explains 21% ($R^2 = 0.51$) of Student, Stakeholder, and Market Focus Factor.

Hypothesis H8 is supported since the effect of Process Management Factor on Organizational Performance Results Factor is significant ($\beta = 0.22$). The Process Management Factor explains 17% ($R^2 = 0.17$) of Organizational Performance Results Factor.

Hypothesis H9 is supported since the effect of Faculty and Staff Focus to Student, Stakeholder, and Market Focus Factor is significant ($\beta = 0.43$). Faculty and Staff Focus Factor explains 27% ($R^2 = 0.27$) of Student, Stakeholder, and Market Focus Factor.

Hypothesis H10 is supported since the effect of Faculty and Staff Focus on Organizational Performance Results Factor is significant ($\beta = 0.21$). Twenty-seven percent ($R^2 = 0.19$) of Organizational Performance Results Factor is explained by Faculty and Staff Focus Factor.

Hypothesis H11 is supported since the effect of Strategic Planning on Student, Stakeholder, and Market Focus Factor is significant ($\beta = 0.39$). Faculty and Strategic Planning Factor explains 25% ($R^2 = 0.25$) of Student, Stakeholder, and Market Focus Factor.

Hypothesis H12 is supported since the effect of Strategic Planning on Organizational Performance Results Factor is significant ($\beta = 0.26$) to a moderate degree. Fourteen percent ($R^2 = 0.14$) of Organizational Performance Results Factor is explained by Faculty and Strategic Planning Factor.

Hypothesis H13 is supported since the effect of Measurement, Analysis, and Knowledge Management to Student, Stakeholder, and Market Focus Factor is significant ($\beta = 0.42$). Thirty-five percent ($R^2 = 0.35$) of Student, Stakeholder, and Market Focus Factor is explained by Measurement, Analysis, and Knowledge Management Factor.

Hypothesis H14 is supported since the effect of Measurement, Analysis, and Knowledge Management Factor on Organizational Performance Results Factor is very significant ($\beta = 0.73$). Measurement, Analysis, and Knowledge Management Factor explains 56% ($R^2 = 0.56$) of Student, Stakeholder, and Market Focus Factor.

Hypothesis H15 is supported since the effect of Measurement, Analysis, and Knowledge Management on Strategic Planning Factor is particularly significant ($\beta = 0.45$). Twenty-nine percent ($R^2 = 0.29$) of Strategic Planning Factor is explained by Measurement, Analysis, and Knowledge Management Factor.

Hypothesis H16 is supported since the effect of Measurement, Analysis, and Knowledge Management Factor on Faculty and Staff Focus Factor is very

significant ($\beta = 0.41$). Twenty-two percent ($R^2 = 0.22$) of Faculty and Staff Focus Factor is explained by Measurement, Analysis, and Knowledge Management Factor.

Hypothesis H17 is supported since the effect of Measurement, Analysis, and Knowledge Management Factor to Process Management Factor is quite significant ($\beta = 0.38$). Twenty-six percent ($R^2 = 0.26$) of the Process Management Factor is explained by Measurement, Analysis, and Knowledge Management Factor.

Hypothesis H18 is supported since the effect of Strategic Planning Factor to Process Management Factor is significant ($\beta = 0.29$). The Strategic Planning Factor explains 17% ($R^2 = 0.17$) of the Process Management Factor.

Hypothesis H19 is supported since the effect of Strategic Planning Factor on Faculty and Staff Focus Factor is significant ($\beta = 0.31$). Strategic Planning Factor explains 22% ($R^2 = 0.22$) of Faculty and Staff Focus Factor.

Hypothesis H20 is supported since the effect of Strategic Planning Factor on Faculty and Staff Focus Factor is moderately significant ($\beta = 0.21$). Thirteen percent ($R^2 = 0.13$) of Process Management Factor is explained by Faculty and Staff Focus Factor.

Hypothesis H21 is supported since the effect of Organizational Performance Results Factor on Student, Stakeholder, and Market Focus Factor is significant ($\beta = 0.62$) to a large extent. Forty-three percent ($R^2 = 0.43$) of Process Management Factor is explained by Faculty and Staff Focus Factor.

7 Conclusions

This study aimed at exploring the nature of educational quality in Greek Tertiary Education System by applying Badri et al.'s scale (Badri et al. 2006) based on Malcolm Baldrige Performance Excellence Model criteria (Leadership; Strategic Planning; Customer/Student Focus; Measurement, Analysis, and Knowledge Management; Faculty and Staff Focus; Process Management; Organizational Performance Results).

The results of the present research reveal that Malcolm Baldrige Performance Excellence Model (MBNQA) criteria indicate that the model is a very good fit. In addition, the research findings reveal that Leadership is the most significant factor that drives the organization and influences all the others to a great extent. This finding is in a line with the research of Belohlav et al. (2004) and Badri et al. (2006).

The research findings also showed evidence of some critical causal relationships from Process Management to Student, Stakeholder, and Market Focus; from Measurement, Analysis, and Knowledge Management to Organizational Performance Results; and from Organizational Performance Results to Student, Stakeholder, and Market Focus. All these findings can provide evidence about quality in Greek Tertiary Education System, but still educators have to focus on Leadership that has the most significant role in creating a culture of excellence and improving the programs' quality and organization services and internal and external customer satisfaction.

References

- Anastasiadou, S. (2006). Factorial validity evaluation of a measurement through principal components analysis and implicative statistical analysis. In D.X. Xatzidimou, K. Mpikos, P.A. Stravakou, & K.D. Xatzidimou (eds), *5th Hellenic conference of Pedagogy Company, Thessaloniki* (pp. 341–348).
- Bagozzi, R. P., & Kimmel, S. K. (1995). A comparison of leading theories for the prediction of directed behaviors. *British Journal of Social Psychology*, *34*, 437–461.
- Badri, M. A., Selim, H., Alshare, K., Grandon, E. E., Younis, H., & Abdulla, M. (2006). The Baldrige education criteria for performance excellence framework: Empirical test and validation. *International Journal of Quality & Reliability Management*, *23*(9), 1118–1157.
- Belohlav, J., Cook, L., & Heiser, D. (2004). Using the Malcolm Baldrige National Quality Award in teaching: one criteria, several prospective. *Decision Science Journal of Innovation Education*, *2*(2), 153–176.
- Bentler, P. M. (1993). *EQS: Structural equations program manual*. Los Angeles, CA: BMDP Statistical Software.
- Burns, A. C., & Bush, R. F. (1995). *Marketing Research*. Englewood Cliffs, NJ: PrenticeHall.
- Cohen, R. T., Monlaque, P., Nathason, L. S., & Swerdlik, M. E. (1988). *Psychological testing: An introduction to tests of measurement*. Mountain View, CA: Mayfield.
- Chin, W. W. (1998). Issues and opinion on structural equation modeling. *MIS Quarterly*, *22*(1), 7–16.
- Churchill, G. A. (1979). A paradigm for developing better measures for marketing constructs. *Journal of Marketing Research*, *16*, 64–73.
- Croanbach, L. J. (1984). *Essentials of psychological testing* (4th ed.). New York: Harper & Row.
- Crosby, P. B. (1979). *Quality is free*. New York: McGraw-Hill.
- Eriksson, H., & Hansson, J. (2003). The impact of TQM on financial performance. *Measuring Business Excellence*, *7*(1), 36–50.
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*, 39–50.
- Hair, J., Anderson, R., Tatham, R. and Black, W. (1995). *Multivariate Data Analysis With Raedings*, p.373. USA: Prentice-Hall International, Inc.
- Joreskog, K. G., & Sordom, D. (1996). *Lisrel 8: User's reference guide*. Chicago, IL: Scientific Software.
- Kline, P. (1994). *An easy guide to factor analysis*. London: Routledge.
- Kim, D. J., Ferrin, D. L., & Raghav Rao, H. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, *44*(2), 544–564.
- Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw Hill.
- Pannirselvam, G., Siferd, S., & Ruch, W. (1998). Validation of the Arizona Governor's Quality Award criteria: a test of the Baldrige criteria. *Original Research Article Journal of Operations Management*, *16*(5), 529–550.
- Spector P.E (1992). Summated rating scale construction: An introduction. Sage University paper series on quantitative application in the social sciences. Newbury Park, CA.
- Steiakakis, E. & Kofidis, N. (2010). *Management and Quality Control*. Tziola Eds. Thessaloniki, Greece.
- Theodorakis, G., & Xatzi Georgiadis, A. (2004). Development and psychometric in evaluation of quantitative research instruments. Scientific volume of philological company North Greece: Ellinika Grammata.

Learning Styles and Preferences for Different Types of Courses and Teaching of Croatian Students of Business



Bulog Ivana and Matic Ivan

Abstract An important element of individuals' learning process is his or her learning style (LS). The fact is that each of us has a different kind of intelligence and learns and prefers to be taught differently. An individual's personality determines a preferred approach to perceiving, acquiring, and processing new information. These approaches in the literature are called LSs. LSs affect the learning outcomes of students and influence their educational development as well as their academic achievements. The knowledge about students' LS can help them to maximize their learning outcomes. The way students learn is important not just for them and their success in education but also for teachers and the faculty providing the education. The way tasks and instructional strategies are designed can facilitate and enhance students' learning which in turn may result in the improvement of the quality of education overall. To achieve mutual effectiveness for students and teachers, it is necessary to gain deeper insights into students' preferred LSs.

This research aims at identifying the LS preferences of Croatian students of business as well as their preferences for different types of courses and teaching (CTPs). It examines the potential relationship between these two elements of learning process. To our knowledge, there has been no research that has investigated this connection. The literature has overlooked the topic of preferences for the teaching and course types according to student's LS preferences. Linking these two variables and analyzing their compatibility is the first step in gathering information which can help to answer the frequently asked question: how to improve the quality of learning and teaching in higher education? In order to accomplish stated purpose of the research, two inventory instruments were used: the VARK instrument to examine LS preferences and the third part (Part C) of the ASSIST questionnaire to examine students' CTPs. VARK is a questionnaire that provides users with their LS preferences based on their perceptual modality preferences which refer to the way they extract information from their environments through the senses. It has often been employed in previous research for assessing LSs of students of business. It is

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simple, quick, and easy for students to understand and complete, and it is regarded by relevant literature as a reliable and quality instrument. ASSIST has also been proven to be a valuable, valid, and appropriate instrument for measuring students' approaches to learning.

The results of the survey are interesting and somewhat puzzling. They indicate the dominant LS preferences as well as dominant CTPs according to age, gender, year of study, and course of study. Some student percentages indicate that they can use more than one LS. The relationship between LS preferences and CTPs was not determined. Based on the overall findings, the research offers foundation for future research in this area. The implications of the findings are discussed in terms of learning and teaching.

Keywords Learning style • Teaching types • Students • Effective learning • Effective teaching

1 Introduction

Due to rapid and increasingly frequent technological changes and breakthroughs, free movement of students inside and outside the borders of their homeland, and modernization of study programs and their increasing implementation in English, students' diversity in higher education is at the highest level ever. Consequently, educational institutions all over the world are facing students with different learning performances. LS preferences are just one of the multitudes of factors that affect individual learning performance. Nowadays, the LS concept is widely used in many educational associations worldwide (Yassin and Almasri 2015, p. 26). There is growing interest among researchers in knowing and comprehending students' LS preferences. What is the reason for this? The answer is simple—LS preferences contribute to more effective individual learning and increase the overall quality of the educational process.

Each individual has a different kind of intelligence and learns and prefers to be taught differently. Students have always displayed diverse modes of learning with different abilities (Kumar et al. 2012). They differ in the way they perceive, acquire, and process new information. LS is not unique among individuals. The knowledge about students LS can help them to maximize their learning outcomes. The way students learn influences their educational development as well as their academic achievements. However, this is a two-way street. This knowledge is also important for teachers and the institution providing the education. Namely, understanding the differences in students' LSs can help teachers to implement the best strategies into their daily activities, curriculum, and assessments. It can also help them to adapt to students' LSs by choosing suitable teaching styles, task design, course organization, and instructional strategies through which students' learning can be enhanced and which in turn may result in the improvement of the quality of education overall. To achieve mutual effectiveness for students and teachers, it is necessary to gain

deeper insights into students' preferred LSs. For example, Claxton and Murrell (1987, p. 52) found that students who were taught in ways that matched their LS obtained higher scores and viewed their educational experience more positively. Zapalska and Dabb (2002) concluded that comprehension of the way students learn improves the selection of teaching strategies best suited to student learning, which in turn produces effective learning.

If we take a look at studies that concern the topic of individual's LS in the last 40–50 years, it is evident that it is not just a question about students and their LS that has occupied the interest of researchers. Researchers are also analyzing how employers and employees are learning in order to improve their individual and consequently organizational performances.

Research into learning and teaching in higher education over the last 25 years revealed the relationship among students' approaches to studying, their conceptions of learning, and their perceptions of their academic context (Richardson 2005, p. 673). Most of the studies in this research area focus on the relationships between LSs and specific student achievement outcomes: dropout rate, completion rate, attitudes about learning, and predictors of high risk (Diaz and Carnal 1999, p. 2). Although there is a plenty of empirical research that has analyzed students' LSs and their relationship with academic success (e.g., Bonwell and Eison 1991; Dunn 2000; Cano-Garcia and Hughes 2000; Romanelli et al. 2009), to our knowledge, the literature has overlooked the topic of preferences for the teaching and course types according to students' LS preferences. The detailed analysis of LSs and CTPs is the first step in gathering information which can help to answer the frequently asked question: how to improve the quality of learning and teaching in higher education? Students learn most easily when they are taught in ways that complement their preferred LSs (Bromley 2013, p. 819). So, this research aims at identifying the LS preferences of Croatian students of business as well as their CTPs. It also examines the potential relationship between these two elements of learning process.

2 Learning Styles

Every student has unique personal characteristics: attitudes, interests, level of responsibility, motivation, and ambitions which all result in different ways of absorbing, processing, comprehending, and retaining of new information heard or read during education process. Simply put, every student learns differently. Students, teachers, and those who care for students' education (e.g., parents) should realize that it does matter how they learn—because the way they learn is of great importance for their educational success. If an appropriate preferred method for learning is followed, an individual learning potential could be increased. One of many factors that make differences in the way a student learns is his or her approach to learning—their LS.

Very often we can hear how teachers complain about students—“they can memorize the facts easily but they do not know how to learn with the

understanding”; “they do not know how to think”; and “they do not know how to analyze, synthesize, connect facts, etc.” One way to solve this issue and improve students’ thinking and learning is through enhancement of teaching quality—by designing their instructional methods that best meet students’ learning needs. Everyone has their own way for better learning—everyone is different. Some people learn better following verbal instructions on how to do the task, some following written instructions, some performing a task themselves, and some watching someone else doing the required task. Teachers also differ. They have different methods of lecturing—some focus on knowledge application, some on facts, some give more emphasis to memory, some to understanding, etc.

The notion of individualized LSs has gained prevalent recognition in education in the last 25 years. Many researchers have been interested in LSs of students (e.g., Dunn 1983; Moran 1991; Hunt et al. 1976). According to Dunn (1999) and Tulbure (2011), most students cannot internalize new and difficult academic information without relying on their LSs (Yassin and Almasri 2015, p. 28). This interest resulted with literature containing a large number of definitions of LSs. After an extensive review of literature with the aim of providing unambiguous understanding about the LS concept, Yassin and Almasri (2015, p. 26) summarized that the “concept of LS is used to describe the idea of individuals having different learning preferences that aid them with the preferred methods needed to achieve effective and meaningful learning.” Further, they clarify that LS is the way in which somebody approaches the acquisition of knowledge (Yassin and Almasri 2015, p. 28).

Some of the various definitions which could be found in the literature see LS as being:

- *Preferences or predispositions of an individual to perceive and process information in a particular way or combination of ways* (Sarasin 1999, p.3)
- *Internally based characteristics that are used by learners to understand new information and discover how to learn the best* (Red 1998, in: Yassin and Almasri 2015, p. 27)
- *The way in which each person absorbs and retains information and skill* (Dunn 1984)
- *The way in which each person begins to concentrate on, process, internalize, and retain new academic information* (Burke and Dunn 2003)
- *The way in which individuals process information and analyze it* (Jahiel 2008)
- *Variations among learners in using one or more senses to understand, organize, and retain experience* (Reid 1987)
- *Various approaches or ways of learning that involve educating methods, which are presumed to allow that individual to learn best* (Kara 2009, p. 77)

Individuals observe, process, and analyze information by using more than one LS, while some rely only on one primary LS in order to have a complete comprehension process (Jahiel 2008; Yassin and Almasri 2015). There is a wide variety of LSs—learners. Coffield et al. (2004) came across 50–71 different LS models during their project. There have been also many measures of LSs (instruments) described in the literature; however, only several of them have been applied in the research

among students in the educational literature. The most employed in assessing student LS performance in previous research are *Kolb's Experimental Learning Model* (Kolb 1984) which recognizes diverger, assimilator, converger, and accommodator LS models; the *Myers-Briggs Type Indicator (MBTI)* which classifies individuals' LS on four scales (extraverts/introverts, sensors/intuitors, thinkers/feelers, and judgers/perceivers); the *Index of LSs (ILS)* which classifies learners into four dimensions (active/reflective, sensing/intuitive, visual/verbal, and sequential/global); *Gregorc's Mind Styles Model* which identifies concrete-sequential, abstract-sequential, abstract-random, and concrete-random learners; and the *VARK model* (Fleming 2011) which classifies learners into visual, aural, read/write, and kinesthetic. Each LS instrument has its benefits as they inform students and teachers about LS which can enhance the effectiveness and quality of learning.

3 Preferences for Different Types of Courses and Teaching

The environment in which higher education takes place, i.e., the variety of teaching and course features, plays a crucial role in students' learning and the outcomes of that learning. However, this claim cannot be understood easily and in a classical/old school way. Namely, contemporary business environment's demands and trends and students' perception of themselves and their place in the world around them require a completely different approach to the role of teacher and learner in teaching/learning interaction. On the one hand, students are very concerned about the quality of the lectures they increasingly pay for, while on the other hand, due to the "culture of higher education," which has become "increasingly market oriented" (Green 1993), external demands for the quality of teaching have increased (Henard and Leprince-Ringuet 2008, p. 10–11). According to the same authors (p. 10–11), expectations of students regarding teaching have changed considerably in the last couple of decades, together with students' body structure and higher education context (increased number of students and social diversity among students, changed funding concerns, Internet, globalized marketplace, institutions competing for best students, internationalization of higher education, new generation of teachers, etc.), leading to modified teaching/pedagogical methods. Decades of research have proven the shift of importance in teaching/learning interaction from teacher to learning and learner, i.e., what the learner does has become more important for student learning than what the teacher does (Lublin 2003, p. 2). It is therefore only natural to expect that the concurrence or better said adjustment of designed types of teaching and courses with (new) students' preferences for learning environments will result in better learning outcomes. This adjustment in course design and teaching methods needs to be guided by students' perceptions of the learning environment, which is influenced by the fact that students have different levels of motivation, different attitudes about teaching and learning, and different responses to specific classroom environments and instructional practices (Felder and Brent 2005, p. 57).

Table 1 Defining features of surface and deep approach to learning

Surface approach: reproducing	Deep approach: transforming
Intention simply to reproduce parts of the content	Intention to understand material for oneself
Accepting ideas and information passively	Interacting vigorously and critically with content
Concentrating only on assignment requirements	Relating ideas to previous knowledge and experience
Not reflecting on purpose or strategies of learning	Using organizing principles to integrate ideas
Memorizing facts and procedures routinely	Relating evidence to conclusions
Failing to recognize guiding principles or patterns	Examining the logic of the argument

When analyzing students' experience of the learning environment, authors generally differentiate two main approaches to learning by the students: surface and deep approach. According to Lublin (2003, p. 3–4), students who take the *surface approach* tend not to have the primary intention of becoming interested in and of understanding the subject, but rather their motivation tends to be that of jumping through the necessary hoops in order to acquire the mark, or the grade, or the qualification, while students who take a *deep approach* have the intention of understanding, engaging with, operating in, and valuing the subject. In this respect, Entwistle and Tait (1993, p. 2) emphasize the defining features of the two mentioned approaches (Table 1). Often authors, aware of the importance of assessment for students' learning, tend to include additional approach to learning, a *strategic or achieving approach*. In this approach, the students strive to achieve the highest possible grade by using well-organized and conscientious study methods and effective time management (Struyven et al. 2002, p. 6).

In providing answers to “new expectations” of students from teaching and to new demands from higher education in terms of the contemporary business market, teachers need to choose the “right” teaching approach(es) and adjust it (them) to achieve desirable learning outcomes from their students. Bearing in mind that students' approaches to study are influenced by the students' conception of learning and that students' beliefs about the structure of knowledge in a discipline are influenced by their lecturers' theories of teaching and by the students' perception of the learning environment (Van Rossum and Schenk 1984; Sheppard and Gilbert 1991 in Henard and Leprince-Ringuet 2008, p. 16), teachers design their teaching approaches accordingly. In designing their teaching approaches, teachers are influenced by a multitude of factors, from contextual factors, teachers' personal factors, and their perceptions of the mentioned context and of teaching to final teaching strategies, which position them as teachers somewhere in the continuum of two main teaching approaches: *conceptual change/student-focused approach* (changing of student ways of seeing through teaching strategy which is focused on the student) and *information transmission/teacher-focused approach* (transmitting information using teacher-focused strategy) (Stes et al. 2014, p. 22, 29).

4 Methodology

In order to accomplish research aims and to analyze two main categories of diversity of Croatian students of business, LSs, and CTPs, VARK and ASSIST instruments were employed. The VARK instrument is recommended as a good one by the literature (Drago and Wagner 2004), and it was employed in assessing students of business in previous research. It is a perceptual mode that focuses on different ways in which individuals take in and give out information in order to provide them with a profile of their instructional preferences (Yassin and Almasri 2015, p. 29). It provides users with a profile of their learning preferences (Fleming and Mills 1992, p. 140–141).

VARK stands for visual (V), auditive (A), textual (R), and kinesthetic (K) learners. *Visual learners* prefer the use of diagrams and symbolic devices such as graphs, flow charts, hierarchies, models, and arrows that teachers use to present what could have been presented in words (Murphy et al. 2004, p. 860; Fleming 1998, p. 1). They may explain a concept to others by drawing a diagram or picture (Murphy et al. 2004, p. 860). *Textual learners* prefer printed words and texts as a means of information intake (Fleming 1998, p. 2). They prefer lists, glossaries, textbooks, lecture notes, or handouts. These learners prefer to arrange classroom notes and lecture notes into outlines, paraphrase classroom notes, and study old multiple choice exams (Murphy et al. 2004, p. 860). *Auditive learners* prefer to listen rather than take notes and therefore concentrate on what lecturers say. They learn best from traditional lectures, group discussions about presented topics with their classmates, tutorials, and seminars in which they have a chance to talk and communicate with other students (Fleming 1998, p. 1). To assist their studying, auditive learners may talk out their answers or listen to taped discussions about exam topics (Murphy et al. 2004, p. 860). *Kinesthetic learners* have to feel or live the experience in order to learn it. Kinesthetic preference refers to learning achieved through the use of experience and practice (Murphy et al. 2004, p. 860). The key in this modality is that students will be connected to reality (Yassin and Almasri 2015, p. 29).

The VARK instrument is quick and easy for students to use and understand, and survey results may help create a sense of self-awareness for the students as to how he or she learns best and the motivation to seek out the best methods to improve learning performances (Murphy et al. 2004, p. 860). The latest paper version of VARK questionnaire (16 questions) was applied in this research. To investigate CTPs, part of ASSIST (*Approaches and Study Skills Inventory for Students*) questionnaire (short version), related to these preferences, was applied. In doing so we added an additional 8 questions to the overall questionnaire, which in the end, together with demographic characteristics, made up a total of 34 questions. The mentioned eight questions were aimed at differentiating the students' CTPs in two main groups—the surface approach group and deep approach group. ASSIST can be used as a valuable instrument to access students' preferences for different kinds of learning environments (Abedin et al. 2013).

A total of 680 students of business from various Croatian higher institutions participated in the research and filled out the questionnaire in the required manner.

They were informed about VARK and ASSIST scopes and benefits these instruments will produce for them and for their teachers. Once they had their scores related to VARK, we gave those individuals explanations and recommendations on how to study more effectively. The vast majority of them were very interested in the explanations and recommendations related to LS. In order to perform descriptive and bivariate statistical analyses, primary data obtained from the students were collated and processed using the SPSS 23.0 and Microsoft Excel software, accompanied by Microsoft Visio, aimed for results' presentation. In this sense, the demographic characteristics of the research sample are shown in Fig. 1.

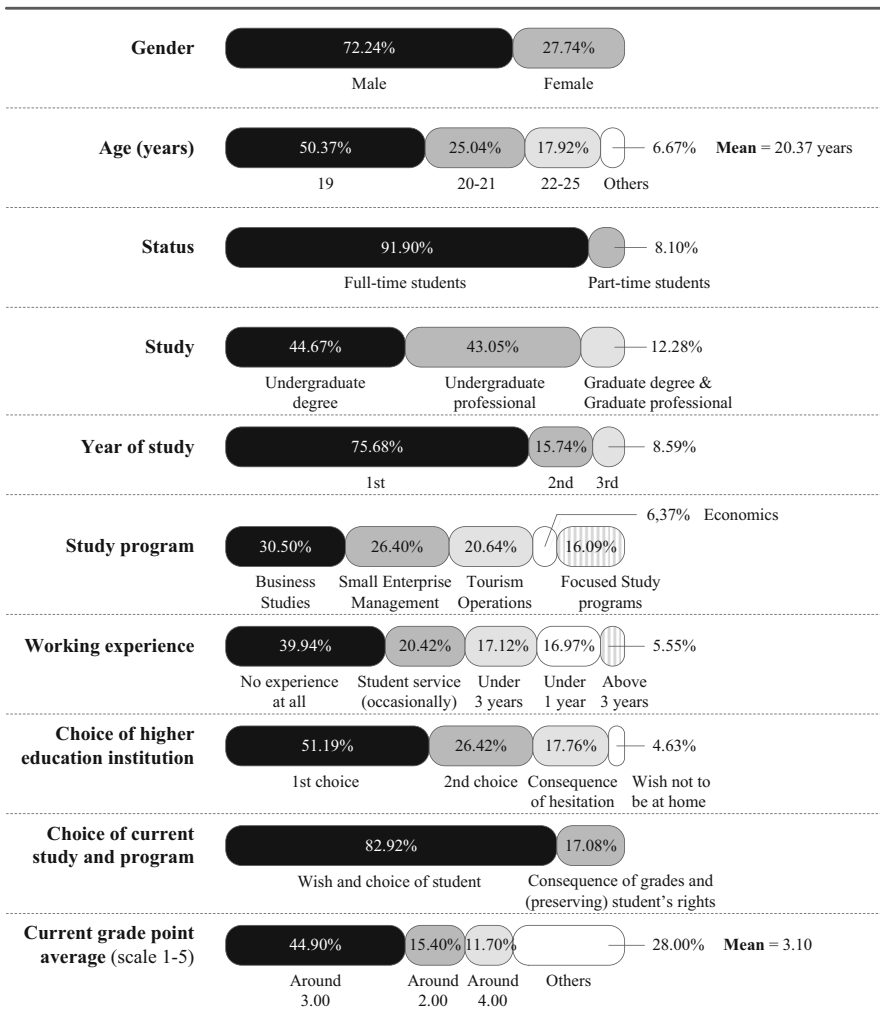


Fig. 1 Demographic characteristics of the students from the research sample. Source: Research ($N = 680$)

As presented in Fig. 1, the research sample is dominated by male students (72.24%) as opposed to female students (27.74%), which is very interesting, keeping in mind that female students are at least equally represented in Croatian higher institutions' business studies programs. The mean value of students' age from the sample is 20.37 years, which is in accordance with the average student age structure. Half of the research sample is comprised of 19-year-old students (50.37%), followed by students aged between 20 and 21 years (25.04%), and those aged between 22 and 25 years (17.92%). The vast majority of the students are full-time students (91.90%) as shown in Fig. 1.

This is the reflection of higher institutions' policies of focusing almost entirely on full-time students. The research sample is fairly divided between two separate student progression verticals—undergraduate/graduate degree and undergraduate/graduate professional, where professional studies make up a slightly smaller proportion of the research sample. Three quarters of the sample (75.68%) are 1st year students, which is a large proportion, but somewhat expected due to the high dropout rate of Croatian students of business after the 1st year of study. As far as study programs are concerned, the sample covers students from eight different study programs: business studies (30.50%), small enterprise management (26.40%), tourism operations (20.64%), economics (6.37%), and focused study programs—management, marketing, finance and accounting, and project management (16.09%).

Student research participants are predominantly unexperienced (no experience, 39.94%; occasional work via student employment, 20.42%) or have little experience (under 1 year, 16.97%). The data which is symptomatic is that only half of the students of business are studying what they prefer in terms of higher education institution and overall occupation (51.19%). The rest of them are at current institutions because they did not succeed to enroll into their preferred choice of higher education institution or are at the current institution because they do not know what they want to study or just want to be students, regardless of the higher education institution. The vast majority of students (82.92%) enroll into institutions of their preferred choice. Only a small percentage of them (17.08%) are enrolled in a current study program as a consequence of lower grades or because of their wish to maintain students' rights. Finally, the students' current grade point average (GPA) suggests that the student population is underperforming and "weak," bearing in mind that lower grade levels dominate the research sample (GPA around 2.00 or 3.00—60.30%).

Presented characteristics of the research sample are predominantly in accordance with "usual" students of business population at higher education institutions in Croatia. Unfortunately, relatively low grades/modest success at study, lack of interest in chosen study/program, high dropout rate, and progressing to graduate level of study, as a consequence of not wanting to enter the labor market/practice, are some of the main characteristics of current Croatian students of business. This makes the research sample highly representative.

5 Findings

The obtained data, after conducting statistical analyses, offered interesting results and insights. In the following text, only the most important results are presented, primarily oriented to LSs and learning CTPs. In this sense, Fig. 2 shows LS distribution according to chosen study and study program.

It is obvious that Croatian students of business prefer auditive LS, which is followed by kinesthetic LS in undergraduate study programs, while in graduate study programs, the second preferred LS is textual. This suggests that students of business at undergraduate level generally prefer to learn through listening and experiencing and at graduate level through listening and reading. The reason for this can be in the courses' contents, difficulties, and the manner in which the lectures and obligations are being organized on them. Namely, at undergraduate level there are more practice-oriented courses' contents and teaching, while at graduate level these contents and teaching are more academically oriented. Related to this, students at higher levels of study strive to acquire a higher-level knowledge, where in-depth reading and analyses are very welcomed and often obligatory. The domination of auditive LS, followed mainly by kinesthetic LS, can be best seen when analyzed across study programs, where only economics, project management, and to some extent finance and accounting study program interfere with this domination. In these three courses, there is a greater inclusion of textual LS. These results suggest that students who are enrolled in the three listed study programs recognized these programs as being more practice or reading oriented. A combination of LSs and especially visual LS, according to the presented results, is

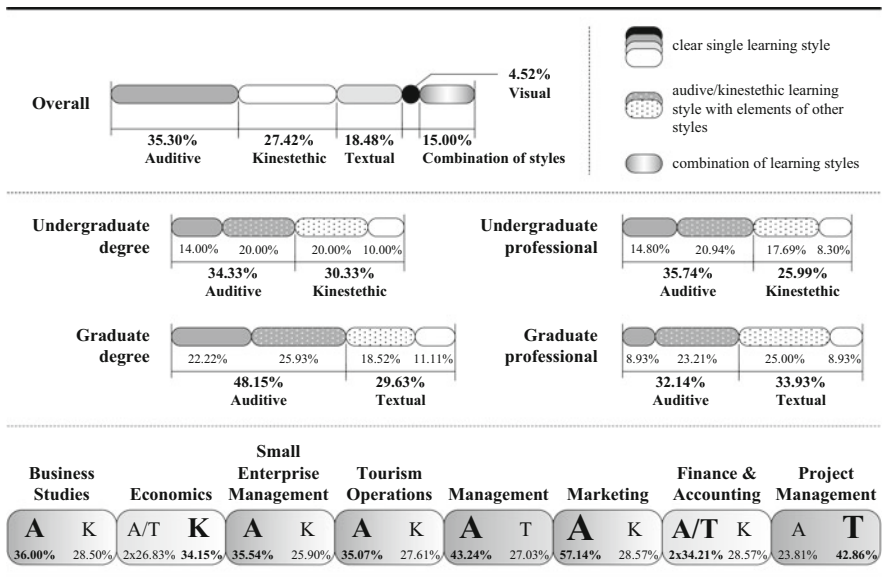


Fig. 2 LS distribution according to study and study programs. Source: Research (N = 644–680)

Table 2 Relationships between students' LSs and their demographic characteristics (difference tests)

Differences in students' LSs in relation to their demographic characteristics (chi-square)	Asymptotic significance (two-sided)	Differences in students' demographic characteristic in relation to their LSs (One way ANOVA)	Sig.
Gender	.206		
Age	.078		
Status	<u>.072</u>	Status	<u>.072</u>
Study	<u>.017</u>	Study	<u>.014</u>
Year of study	.303		
Study program	.145	Study program	<u>.007</u>
Working experience	.362		
Choice of higher education institution	<u>.015</u>	Choice of higher education institution	.289
Choice of current study program	.976	Choice of current study program	.976
Current grade point average	.136	Current grade point average	.546

Note: Statistically significant differences were determined on the confidence level of 95% (bold underlined values) and 90% (underlined values)

Source: Research ($N = 579-663$)

found only in a relatively small proportion of students, no matter which study or study program is being considered.

Analysis of the relationships of all students' demographic characteristics with their LSs produced various and interesting results (Table 2). Generally, it can be said that students' LSs do not vary depending on the variation in their demographic characteristics. Only two demographic characteristics are statistically significant (confidence level—95%) for preferred LS: study direction/level and choice of higher education institution. In other words, students whose first choice was a business study program in general differ in LSs than those who are enrolled on these programs as a consequence of certain circumstances (second choice, hesitation, not being at home). Also, students who are enrolled in degree or professional programs compared to those enrolled in undergraduate or graduate have different LSs, details of which are already discussed in the previous text (Fig. 2). Together with a lower level of confidence (90%), age and status also emerge as important demographic characteristics for students' LS.

When considering aforementioned relationships in opposite directions, LSs are a factor in students' choice of study (degree and professional) and also in choice of concrete study program. With lower confidence status (90%), LSs also play an important role in choosing student status. Other results from Table 2 suggest that, e.g., students' LSs do not vary according to concrete study program, working experience, and current grade point average, or students' current grade point averages do not vary according to their preferred LSs.

Descriptive analysis of students' learning CTPs (Figs. 3 and 4) suggests that in general Croatian students of business prefer a learning environment which is characterized with the balance of surface and deep approach, slightly more keen

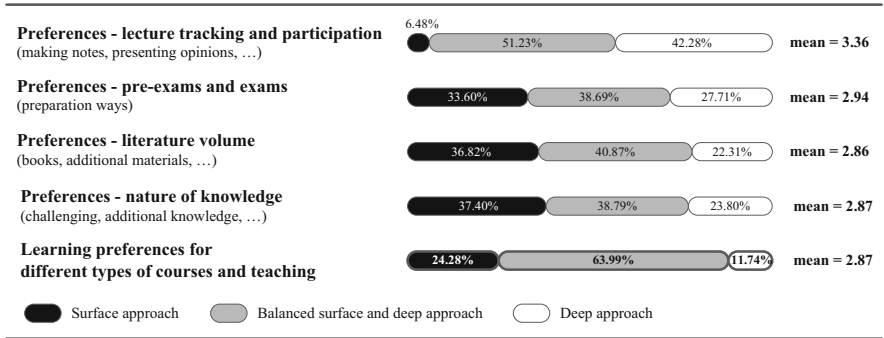


Fig. 3 Mean values of students' learning CTPs (dimensions and overall). Source: Research (*N* = 628–648)

onto surface approach (mean = 2.87). On the continuum from clear surface approach (1) to clear deep approach (5), almost two thirds (63.99%) of students prefer mentioned balanced learning environment, while one quarter of them prefers clear surface approach (24.28%), and only about one tenth (11.74%) prefer clear deep approach. The abovementioned results offer a mediocre to pessimistic picture of Croatian students of business, where ambition and incentive for gaining more knowledge and skills are to be found almost only in traces. Students' preferences related to specific dimensions of learning environment suggest that students are closer to the deep approach when it comes to participation in lectures, making up their own mind, presenting own opinions, and being able to hear lecturer's opinions. In other dimensions, especially preferences related to literature volume and knowledge nature, students prefer reading just the necessary and a narrow body of knowledge, which is easily learned.

When considering various students' demographic characteristics, difference tests revealed that only gender (confidence level—95%), age, and current grade point average (confidence level—90%) are a statistically significant factor for preferred learning environment. In this sense, female students prefer the deep approach to a greater extent than males, whereas younger students preferred the surface approach to a greater extent than older groups of students. The most interesting insights from these relationship results are that more successful students (4.00) are significantly more into the deep approach as opposed to mediocre (3.00) and students that are barely passing exams (2.00) prefer the surface approach. Although not statistically significant, the preference for learning environment among students who enrolled into management and marketing study programs stands out, compared to other study programs. The same can be said for reasons for choosing current higher education institution, where students who did not know which profession to choose (hesitation) like the deep approach the least (or like the surface approach the most), when compared to all student groups shown in Fig. 4. Additionally, an investigation into these relationships in the opposite direction suggests that students' preference for learning environment is a factor in choosing the higher education institution and, more importantly, for achieving success

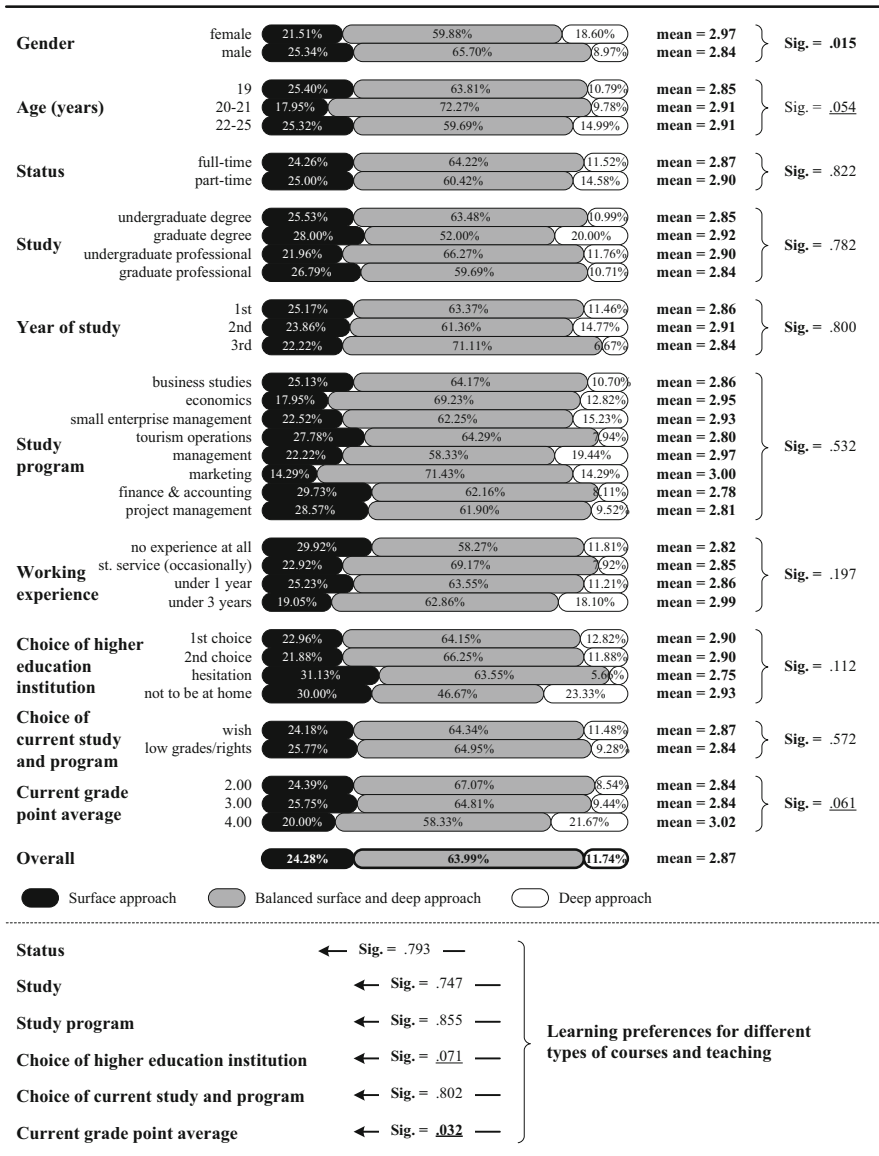


Fig. 4 Relationships between students' learning CTPs and their demographic characteristics (distribution, mean values, various difference tests). Source: Research ($N = 572-663$)

measured through course grades. In the last case, the students who prefer the deep approach can be expected to achieve better success during their study, as opposed to those students preferring the surface approach.

Finally, in order to provide thorough analysis of the Croatian students of business LSs and CTPs, insights about the relationship between these two constructs also need to be included in the analysis. The results presented in Fig. 5 are

	Visual	Auditive	Textual	Kinesthetic	Combination	Sig. (preference according to style and vice versa)						
Lecture tracking and participation	Surface	7.3%	12.5%	26.8%	4.9%	12.2%	4.2%	26.8%	11.7%	100%	.566 .250	
	Balanced	3.0%	41.7%	33.8%	49.3%	20.1%	55.5%	29.3%	54.9%	100%		
	Deep	4.1%	45.8%	38.4%	45.8%	17.9%	40.3%	25.4%	38.9%	100%		
			100%	100%	100%	100%	100%	100%	100%	100%		
Pre-exams and exams	Surface	2.9%	25.0%	36.4%	34.5%	21.5%	38.8%	24.4%	30.4%	14.8%	34.1%	100%
	Balanced	5.0%	50.0%	31.5%	34.1%	18.5%	37.9%	29.0%	41.1%	16.0%	41.8%	100%
	Deep	3.5%	25.0%	40.6%	31.4%	15.9%	23.3%	28.2%	28.6%	11.8%	24.1%	100%
			100%	100%	100%	100%	100%	100%	100%	100%	100%	.584 .546
Literature volume	Surface	3.0%	29.2%	33.6%	35.3%	19.4%	38.5%	28.9%	38.3%	15.1%	37.6%	100%
	Balanced	3.5%	37.5%	36.0%	42.1%	18.6%	41.0%	27.9%	41.1%	14.0%	38.7%	100%
	Deep	5.8%	33.3%	36.2%	22.6%	17.4%	20.5%	24.6%	20.6%	15.9%	23.7%	100%
			100%	100%	100%	100%	100%	100%	100%	100%	100%	.725 .947
Nature of knowledge	Surface	4.2%	41.7%	34.2%	36.2%	18.6%	37.0%	29.5%	40.0%	13.5%	34.0%	100%
	Balanced	3.2%	33.3%	40.5%	44.6%	19.4%	40.3%	24.3%	34.3%	12.6%	33.0%	100%
	Deep	4.0%	25.0%	28.5%	19.2%	17.2%	22.7%	29.8%	25.7%	20.5%	33.0%	100%
			100%	100%	100%	100%	100%	100%	100%	100%	100%	.627 .237
Preferences Overall	Surface	4.7%	29.2%	34.2%	23.6%	18.8%	24.3%	28.2%	25.0%	14.1%	23.3%	100%
	Balanced	3.3%	54.2%	35.2%	63.9%	19.4%	66.1%	27.3%	63.7%	14.8%	64.4%	100%
	Deep	5.6%	16.7%	37.5%	12.5%	15.3%	9.6%	26.4%	11.3%	15.3%	12.2%	100%
			100%	100%	100%	100%	100%	100%	100%	100%	100%	.984 .984

Fig. 5 Relationships between students' LSs and CTPs (distribution, various difference tests). Source: Research (N = 572-663)

unanimous. The relationship between these two constructs does not exist. Significance tests and detailed data from Fig. 5 show that there are no significant variances in either construct in relation to the variances of the other construct. This suggests that for Croatian students, their personal LS and their preferences for learning environment (types of courses and teaching) are not related. This means that there is no statistically significant group of students who prefer one learning environment because they apply some LS and vice versa. So, students' LS preferences do not indicate which type of instruction he/she is most comfortable with. These insights are puzzling to say the least and as such form the basis for other research and analysis in this area, in order to shed light on these surprising results.

6 Discussion and Conclusions

Research results presented in the paper confirm researchers' expectations—the fact that diversity among Croatian students of business exists. Namely, students have multiple LSs and CTPs, representing the diversity of today's student population in higher education. Student differences in these two categories have significant implications for students and their learning as well as for teachers and their way of teaching and, therefore, should be appreciated and understood.

As in previous research, this research also shows that today's students are multimodal and diverse and that they can benefit from the additional introspection that knowing and understanding about LSs can bring. LSs are considered to be effective, important, sensitive, and serious factors in preparing students for the academic and professional practices in class (Yassin and Almasri 2015, p. 32). Namely, students who know their LS preferences can be aware of their own strengths and weaknesses concerning the preferred method they follow when learning. This can help them to increase their learning potential, enabling them to access a higher mode of acquiring and processing information. On the other hand, studies also have shown that when teachers' approach matches students' LSs, greater learning may occur. Therefore, teachers must recognize different styles of learning among students and be prepared to meet their diverse learning needs. Teachers who follow learning-style teaching methods are able to help their students to achieve a higher comprehension level. Considering prevalent auditive LS preferences among student of business in this research, teachers could be advised to make an effort to engage the student in conversation about the subject matter, reading material aloud, asking them to do oral summaries of material, etc. They might use these teaching techniques: verbal direction, group discussions, verbal reinforcement, group activities, etc.

Students' CTPs depend on many factors: their personal motivation to learn, teachers' motivation to provide knowledge, content of the course/program, teachers' expectations, types of assessment methods, and so on. Although findings show that students' CTPs among Croatian students of business do not indicate which type of instruction he/she is most comfortable with, these results are also

symptomatic. This does not imply that current findings lack relevance for the educational field of research. The main reason for such results can be an educational system where students are too burdened with so many courses through their higher education. Too many courses are being taught, and often it is the case that the main focus of courses is to “fill” students with theoretical concepts while the practical aspect is largely ignored. It might be that for these reasons students adopt their learning environment preferences to the requirements of a particular course and not to their LSs.

In general, the concept of LSs and CTPs needs to be analyzed in depth, in order to improve the higher education experience for all interested (students, teachers, practice, etc.). There is no doubt that these research results produce new questions. More research work needs to be done to resolve them, but we have the foundations. Now we can upgrade this and similar research into several directions in order to get a more detailed and complete picture about the education process in Croatia and in other countries. To conclude, it is important to underline the essentiality of being aware of different LS preferences among students and their different preferences related to learning environments, because it is the first step toward a vital understanding of our students and improvements to the quality of learning and teaching in higher education.

References

- Abedin, N. F. Z., et al. (2013). The validity of ASSIST as a measurement of learning approach among MDAB students. *Procedia—Social and Behavioral Sciences*, 90, 549–557.
- Bonwell, C., & Eison, J. (1991). *Active learning: Creating excitement in the classroom*. Washington, DC: ASHE-ERIC Higher Education Report 1. (Online at: <http://files.eric.ed.gov/fulltext/ED336049.pdf>).
- Bromley, P. (2013). Active learning strategies for diverse learning styles: Simulations are only one method. *Political Science and Politics*, 46(4), 818–822.
- Burke, K., & Dunn, R. (2003). Learning style based teaching to raise minority student test scores. *The Social Studies*, 94(4), 167–170.
- Claxton, C. S., & Murrell, P. H. (1987). Learning styles: Implications for improving educational practices. *Ashe-Eric Higher Education Report*, 4, 1–116.
- Coffield, F., et al. (2004). *Learning styles and pedagogy in post-16 learning: A systematic and critical review*. London: Learning and Skills Network. (Online at: <http://skills.nl/lerenlerenu/bronnen/Learning%20styles%20by%20Coffield%20e.a..pdf>).
- Diaz, D. P., & Cartnal, R. B. (1999). Students’ learning styles in two classes: Online distance learning and equivalent on-campus. *College Teaching*, 47(4), 130–135.
- Drago, W. A., & Wagner, R. J. (2004). Vark preferred learning styles and online education. *Management Research News*, 27(7), 1–13.
- Dunn, R. (1984). Learning style: State of the science. *Theory into Practice*, 23(1), 10–19.
- Dunn, R. (2000). Learning styles: Theory, research, and practice. *National Forum of Applied Educational Research Journal*, 13(1), 3–22.
- Entwistle, N., & Tait, H. (1993). *Approaches to studying and preferences for teaching in higher education: Implications for student ratings*. Paper presented at the annual meeting of the American Educational Research Association, Atlanta, GA (online at: <http://files.eric.ed.gov/fulltext/ED359206.pdf>)

- Felder, R. M., & Brent, R. (2005). Understanding student differences. *Journal of Engineering Education*, 94(1), 57–72.
- Fleming, N. (2011). VARK: A guide to learning styles (online: http://www.vark-learn.com/english/page.asp?p_questionnaire)
- Fleming, N. D., & Mills, C. (1992). Not another inventory, rather a catalyst for reflection. *To Improve the Academy*, 11, 140–141.
- Henard, F., & Leprince-Ringuet, S. (2008) The path to quality teaching in higher education (online at: <https://www1.oecd.org/edu/imhe/44150246.pdf>)
- Jahiel, J. (2008). What's your learning styles? *Practical Horseman*, 36(3), 32–37.
- Kara, S. (2009). Learning styles and teaching styles: A case study in foreign language classroom. *Conference of the International Journal of Arts and Sciences*, 1(20), 77–82.
- Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Kumar, A. A., et al. (2012). An analysis of gender differences in learning style preferences among medical students. *Indian Journal of Forensic Medicine and Pathology*, 5(1), 9–16.
- Lublin, J. (2003). Deep, surface and strategic approaches to learning, Good Practice in Teaching and Learning, Centre for Teaching and Learning (online at: http://www2.warwick.ac.uk/services/ldc/development/pga/introtandl/resources/2a_deep_surfacestrategic_approaches_to_learning.pdf)
- Moran, A. (1991). What can learning styles research learn from cognitive psychology? *Educational Psychology*, 11(3/4), 239–245.
- Murphy, R. J., et al. (2004). Student learning preferences and teaching implications. *Journal of Dental Education*, 68(8), 859–866.
- Richardson, J. T. E. (2005). Students' approaches to learning and teachers' approaches to teaching in higher education. *Educational Psychology*, 25(6), 673–680.
- Romanelli, F., et al. (2009). Learning styles: A review of theory, application, and best practices. *American Journal of Pharmaceutical Education*, 73(1), 1–5.
- Sarasin, C. L. (1999). *Learning style perspectives: Impact in the classroom*. Madison, WI: Atwood.
- Stes, A., et al. (2014). Understanding differences in teaching approaches in higher education: An evidence-based perspective. *Reflecting Education*, 9(1), 21–35.
- Struyven, K., et al. (2002). *Students perceptions about assessment in higher education: A review*. Paper presented at the Joint Northumbria/Earli SIG assessment and evaluation conference: Learning communities and assessment cultures, University of Northumbria at Newcastle, Longhirst Campus (online at: <http://www.google.hr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKewjQidullpjMAhWC3SwKHTggC4kQFggZMAA&url=http%3A%2F%2Fwww.leeds.ac.uk%2Feducol%2Fdocuments%2F00002255.doc&usg=AFQjCNFyx2MGmkXTzOGXIE8nQQ9TFNXbXQ&sig2=jGMMNHfD5vOSEBZ3pKU4og&bvm=bv.119745492,d.bGg>).
- Yassin, B. M., & Almasri, M. A. (2015). How to accommodate different learning styles in the same classroom: Analysis of theories and methods of learning styles. *Canadian Social Science*, 11(3), 26–33.
- Zapalska, A., & Dabb, H. (2002). Learning styles. *Journal of Teaching in International Business*, 13(3/4), 77–97.

Comparative Analysis of Internal Reporting at Higher Education Institutions of Croatia and Bosnia and Herzegovina



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Abstract Efficient management is one of the key challenges for every higher education institution. That is especially highlighted in conditions of increased demands on the one side and decreased or limited financial resources on the other side. One of the most important preconditions for the aforementioned issue is the quality accounting information system at higher education institutions. Financial reports that are obligatory by the normative framework are not sufficient for quality decision-making process. Therefore, it is inevitable to develop internal reporting systems that would fit the specifics of higher education system and internal users' requirements, primarily management. Developed higher education institutions have already developed instruments of cost and managerial accounting from which they prepare different internal reports. In that context, this paper aims to present level of usage of internal reports at higher education institutions of developing countries, more precisely Croatia and Bosnia and Herzegovina. Authors have conducted the empirical research based on questionnaires in the year 2016. The questionnaires were sent to all public higher education institutions in Croatia and Bosnia and Herzegovina. Through conducted research, authors have provided answers on several research questions primarily focused on main reasons for preparing internal reports, time period for preparing internal reports and usage of internal reports. The results of this paper might be very useful for further development of internal reporting systems of observed countries. But also it can be very helpful for all countries that are in the similar situation and are facing the problem of development of quality accounting information system that will be a base for more efficient and effective management at higher education institutions.

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Keywords Internal reports • Higher education institutions • Management • Croatia • Bosnia and Herzegovina

1 Introduction

In terms of increasing competitiveness and limited resources, internal reporting is gaining more and more importance. Although internal reporting is not legally required, the need to develop internal report comes as an initiative by management who needs reports which contain exactly certain information about expenses, revenues, assets and liabilities. It is important to emphasize that the benefits of a developed system of internal reporting are multiple, not only in the private sector but also in the public sector.

In this paper authors will be focused on internal reporting in the public sector, i.e. public higher education institutions (hereinafter HEIs). In that context, this paper aims to present level of usage of internal reports at HEIs of developing countries, more precisely Croatia and Bosnia and Herzegovina.

The public HEIs in observed countries, as well as in other developing countries, are faced with limited financial funds and increasing competitive pressure created by the private HEIs. In that circumstance, efficient management is one of the key challenges for every HEIs. One of the most important preconditions for the aforementioned issue is high-quality accounting information system at higher education institutions. For efficient management, information from external reports is not enough, where assets and liabilities are classified on the long term and short term and expenditures and revenues are classified by taking into account their nature (salary and related costs, commission, amortization, depreciation, etc.). For better decision-making process, it is necessary to have information on factors that affect each important accounting position. Moreover, it is important to have information regarding the classification of revenues and expenditures by activities and about the effects they have on the long-term sustainability of the programme, project, opportunity costs, etc.

Earlier research about financial reporting of HEIs in Croatia (Dragija 2014) shows that internal reporting in Croatia is not developed enough, and generally internal reports are prepared from time to time as “ad hoc” reports and are not part of the systematic and developed internal reporting. In addition, information requirements of public management are focused primarily on information about revenues/inflows and expenditures/outflows, without significantly using the data about expenses per activity, cost units or cost points. Similarities and differences in the level of development of financial reporting system in HEIs with neighbouring countries, especially with Bosnia and Herzegovina, are presented in the paper “Comparison of accounting and financial reporting framework of HEIs in the Republic of Croatia and Bosnia and Herzegovina” (Dragija et al. 2015). By comparing external reporting practice between observed countries, significant differences are noticed regarding the application of different accounting bases in financial reporting, the structure of

financial statements and the method of accounting system organizing. The differences are mainly due to the different ways of establishing HEIs. However, research has shown that in both countries, the internal reporting in public HEI is in function of preparing and monitoring mandatory financial reporting and usually connected to the quality of teaching process system monitoring.

The importance of internal reporting is very rarely taken into account for cost management. This fact has paved the way for further studies. Therefore, the authors of this paper will research the following issues of internal reporting:

- The level of internal reporting development at the public HEIs
- The reasons and the intensity of internal reports preparation
- The importance and degree of internal reports used in the decision-making process

The data for research were collected through a questionnaire intended for accountants in all public HEIs in Croatia and Bosnia and Herzegovina, and the research is based on the application of qualitative scientific research methods, including a case study because the research was done in the area and the current conditions of certain two countries.

The authors start from the next research questions for observed countries:

- (Q1) Do public higher education institutions prepare internal reports, and, if they do, what are the main reasons thereof and at what time intervals they are preparing them?
- (Q2) What are the main purposes of internal reports at public higher education institutions?
- (Q3) Is it necessary to improve existing internal reporting system at public higher education institutions in order to manage more effectively?
- (Q4) Are there significant differences in internal report systems at public higher education institutions of Croatia and Bosnia and Herzegovina?

After the introduction, a review of external and internal reporting systems at HEIs will be shown, and then the following part will be about methodology and research objectives, as well as analysis and presentation of the results. At the end, authors will make concluding observations.

2 Reporting Systems at Higher Education Institutions: Theoretical Background

The accounting system is a part of a more comprehensive information system of each entity. The accounting system can be defined as the process of collecting, recording, formatting and presenting information about existing changes in the reporting entity. The generated data in the accounting system is an input of the system, while the statements, which represent processed information, are the output of the system, in

conjunction with previous operations and as reports, which represent projections of future trends. A well-organized accounting system provides good information basis and starting point of the decision-making process.

In the public sector institutions, as well as in the public HEIs, the decisions may have a significant influence on the social and economic development of each country. The higher education institutions are involved in a whole range of financial and institutional reforms. These reforms are primarily aimed to achieve financial sustainability and also to increase the institutional autonomy and to ensure the high level of quality (Kyvik 2004; Sursock and Smidt 2015). A good accounting system appears as a precondition for the successful implementation of above-mentioned reforms.

Accounting information that emanates from the accounting system is normally presented in two basic types of reports (Vašiček 2007):

1. External financial statements are prescribed and standardized to meet the needs of different users in an environment reporting entities.
2. Internal financial reports are not standardized and not prescribed by law and are mainly created at the request of one of the users within the reporting entity.

Further, in the paper, authors will present characteristics and importance of external and internal reporting at HEIs addressing the country in which the research was done, and the results of the research will be presented later in the paper (Sect. 3).

2.1 External Reporting

A number of legal acts regulate external reporting in HEIs. The content of external financial reports is standardized within a certain geographical territory and should allow satisfying the information needs of a wider range of report users. However, looking at the global level, these financial statements can significantly vary in different countries. It is mainly a consequence of the application of different accounting bases in the public sector accounting.

The accounting basis of an organization's budget and financial statements depends on when these transactions are recognized; which revenues, expenditures, assets and liabilities are recognized; and what measurement and valuation basis are then applied to all of the amounts so recognized (Jones 2010). Basis ranged from full cash to full accrual basis, and in between there are several variants that represent a combination of these two models, mostly named as modified accrual and modified cash basis.

In addition to the adopted accounting basics, external financial reports at HEIs will depend on the mode of institutions' organization (centralization/integration and decentralization/nonintegration) and position in the treasury system, too. The public HEIs could be established as non-profit legal entities. However, higher education institutions can be organized so that the university is established as a legal entity, while the faculties do not have the legal entity status or autonomy. The treasury

system in the financial reporting process of HEIs has an important role. Among other things, the role reflects in the fact that payments and disbursements of budget users conducted through the single treasury account in order to ensure the control of public financial management (Čegar 2016). The position in the treasury system will affect whether HEIs may have their own bank accounts and a greater degree of autonomy in the cash flow management or their position will be such they do not have their own account, so in that case all payments and disbursements will be made through the treasury account.

In Croatia, public HEIs apply the rules defined for budgetary users, which are characterized by a high degree of normative defined through a number of legal acts. The public universities, as well as other budgetary users, applied a modified accrual basis since 2002.

The modified accrual basis presents a deviation from the consistent application of the full accrual basis. Compared to the full accrual basis, modified accrual basis often means different treatment in terms of revenue recognition and same treatment for expenses. Specifically, under the modified accrual basis, revenues are recognized in the accounting period in which they become available and measurable—in other words, when they can be spent for ongoing operations—while under the accrual basis, revenues are recognized when earned, usually when the earning process is complete (Douglas 1995).

Recognition of expenditures and income on a different accounting basis prevents their mutual confrontation. Moreover, it has direct impact on the consideration of the real financial results in the observed period. For example, at the public universities, it would mean a mismatch of expenses for employees with revenues allocated from the state budget (Dragija et al. 2015). Although the effects of revenues and expenses recognition levelled in the end, this kind of mismatch prevents consideration of the actual performance of a particular institution. The HEIs in Croatia are mostly characterized by nonintegration and the existence of legal personality for each faculty because only three smaller universities are integrated, out of eight public universities. At the same time, higher education institutions, although predominantly financed from the budget, have their own bank accounts. According to the financial reporting regulation, the main financial statements for the higher education institutions are (Official Gazette 2015, Art. 7, para. 2) balance sheet, statement of revenues and expenditure, inflows and outflows, statement of changes in the value of assets and liabilities and notes to the financial statements. In addition to these annual financial statements, there are prepared reports on a monthly basis (statement of obligations), on a quarterly basis (report on revenues and expenditures, inflows and outflows) and on a semi-annual basis (notes). As for the cash flow statement, it is not stipulated in the legal framework and is drawn up on an optional basis.

In Bosnia and Herzegovina, the scope and content of external financial statements for HEIs vary by the entity. In the Republic of Srpska, budgetary users have used the full accrual basis since 2013. The full accrual basis (accrual basis) recognizes transactions when they happened, regardless of whether it is at the moment of an inflow or outflow of money, and it is based on the strict application of accrual accounting principles. Accordingly, revenues and expenses are recognized on the same basis, at

Table 1 External financial statements of public higher education institutions

Croatia (modified accrual basis)	Balance sheet The report on revenues and expenditures, inflows and outflows Statement of changes in value and the extent of assets and liabilities Notes to financial statements
Republic of Srpska (full accrual basis)	Overview of revenues, inflows, expenditures and outflows, the fund 01 Overview of revenues, inflows, expenditures and outflows, the fund 01–05 The functional classification of expenditures and net expenditures for nonfinancial assets Overview of assets, liabilities and sources reported in treasury book A report on the number and structure of employees Explanations to the financial statements
Federation of Bosnia and Herzegovina (modified accrual basis)	Income and expenditure account Balance sheet Cash flow statement The report on capital expenditures and financing Specific information on wages and number of employees The annual report on budget execution Annual report on investments The report on calculated and paid compensation for the protection against natural and other disasters

Source: Authors' illustration based on legislation

the moment of creation. The faculties do not have the status of a legal entity they have already integrated, and only universities and independent higher schools have the legal entity status. All organizational units of public universities in the Republic of Srpska are located entirely within the treasury system, and they do not present financial statements in the form of a common set of financial statements. The public HEIs in the Republic of Srpska present some prescribed forms, which can provide a lot of information provided by the aforementioned set of financial statements. These patterns are called financial statements of individual budgetary users (ordinance on financial reporting for budget of the republic, municipalities and cities).

In the Federation of Bosnia and Herzegovina, the situation is quite different from the Republic of Srpska. The public HEIs applied a modified accrual basis, characterized by the same rules in the recognition of revenues and expense that are mentioned in the part about Croatia. The scope and the content of external financial reports are defined by the regulations on financial reporting and annual accounts of the Federation of Bosnia and Herzegovina budget, mentioned in Table 1 (Official Gazette 2012, 2014). Also, they prepare and present some other interim reports as overview revenues, receipts and funding by economic categories, expenditure and outflow by economic categories, specific information on wages and number of employees, specific data on current and capital transfers, etc. In the Federation of

Bosnia and Herzegovina, there are two types of public university organizations: integrated and nonintegrated. On the one side, integrated universities are part of the treasury system, and their business is carried out through a single treasury account, they do not have their own account, and all earned revenues through scholarships, projects, etc. belong to the treasury. On the other side, the nonintegrated universities are out of the treasury and have a certain degree of freedom in managing their own income, as well as an ability to use a grant from the budget.

The review on basic, annual external financial reports of higher education institutions in Croatia and Bosnia and Herzegovina is shown in Table 1.

2.2 *Internal Reporting*

The internal financial reporting is not mandatory, but in today's global, competitive and changing market, we can say that it is necessary. The regulations do not require internal reporting. There is no obligation regarding the number, content and frequency of reporting. However, internal reporting is increasingly gaining importance and implies process of preparing the reports for internal users based on their specific requests. It is the fact that nonstandardization and non-obligation give more flexibility and more adaptability to the different requirements. However, at the same time, it requires additional efforts and expertise, which are representing all the advantages and disadvantages of internal reporting. It is important to note that the internal reporting is significant in non-profit institutions as in the profit-oriented institutions. Although HEIs are not profit-oriented, they have limited resources, and they implement projects whose success should not be measured only by realized profits but also by other nonfinancial indicators.

Internal reporting at HEIs enables effective cost management, not only by nature of the costs but also by certain units and groups. On that way, it is much easier to precisely calculate the cost price or tuition fees per student (full time, part time, according to the cycles, etc.). But the quality of cost information is directly connected with the accounting basis and of course that full accrual is the most appropriate. Timely information about the cost management can contribute (PSC Study 12 2005):

- Costs comparison with the potential benefits of the programmes and activities for which it will be possible to establish useful and useless activities. Based on it management can make a decision to reduce or cancel some activities and programmes that are not cost-effective.
- Cost comparison over the period, identifying patterns of behaviour costs and taking various steps in order to improve efficiency.
- Identification and reduction of unnecessary capacity costs.
- Costs comparison within similar activities, to find the causes and differences in costs and improve processes.

In HEIs internal reports can include in more detail:

- Costs of teachers and associates, experts and another staff
- Costs of teaching and non-teaching activities
- Costs and revenues per cycles
- Costs and revenues per student status
- Earnings based on realized projects
- Other relevant costs to the requirements of individual budgetary users
- Nonfinancial information (information about the quality of study programmes, information on the quality of teaching, the students' exams, etc.)

Financial industry experts from KPMG et al. (2010) recommend the following key components to be included in internal financial reports for higher education:

- Discussion and analysis of liquidity, capital needs, financial condition and results of operations
- Use of metrics instead of detailed financial reports
- Segregating sources of funds between revenues and support (philanthropy and return on philanthropy)
- Reporting expenses by object type based on how institutions budget expenses
- Articulating the basis of budgeting
- Providing financial reports with the proper content and frequency
- Preparing and interpreting cash flow and liquidity information

In 2004, the National Association of College and University Business Officers, membership organization representing more than 2500 colleges, universities and higher education service providers around the world, has conducted a survey of 377 private and 285 public HEIs on internal reporting practices. The NACUBO survey regarding management reporting indicates that about 83% of private institutions and 79% of public surveyed institutions were preparing management reports on ongoing basis. While in the developed countries, many institutions are intensively working on the development of internal reporting and thus create conditions for achieving competitive advantages, in the developing countries, the benefits of internal reporting are still not fully disclosed, and internal reporting is like a certain extension of external reporting. For example, the objective of the existing accounting system of Croatia is primarily the satisfaction of the legal provisions regarding the external reporting, not in providing quality information to internal users to effectively management (Budimir 2010).

Previous experiences on the internal reports used at higher education institutions in Croatia have shown the need to improve the existing system of internal reporting with the objective of more efficient management (Dragija 2014). In Croatia for now, with the existing system of budget accounting, it is difficult to expect the full development of internal reporting, because it would require dual record-generated transactions (Dražić-Lutitsky 2011). The development of internal reporting in the public sector requires an integrated accounting system and the application of full accrual accounting basis, while budget users in Croatia apply a modified accrual basis. In the Federation of Bosnia and Herzegovina, the situation is almost identical,

while in the Republic of Srpska, budgetary users apply full accrual basis and on that way achieve the conditions for the full development of internal reporting.

3 Empirical Research

In order to answer the research questions about the internal reporting systems at the HEIs in Croatia and Bosnia and Herzegovina, authors have conducted empirical research in the aforementioned countries. Research objectives and methodology as well as analysis and results of empirical research are presented further in the paper.

3.1 Research Objectives and Methodology

In close connection with the research questions, authors have set four research objectives:

1. First research objective was to identify whether public HEIs are preparing internal reports and, if they are, how often (time interval for preparation) and main reasons for preparation.
2. Second research question was connected with usage of internal reports; therefore, main aim was to investigate the most important purposes for preparation of internal reports.
3. Third research objective was to see whether it is, according to opinions of accountants, necessary to improve existing system of internal reports.
4. The last research objective was to highlight main differences of internal reporting systems at HEIs in Croatia and Bosnia and Herzegovina.

In order to fulfil the aforementioned research objectives, authors have conducted empirical research from October 2015 to March 2016, and selected population were Heads of Accounting in public HEIs. The research was conducted as a part of project 8509 “Accounting and financial reporting reform as a means for strengthening the development of efficient public sector financial management in Croatia” financed by the Croatian Science Foundation. Since the target population was not too large in both countries, research included all public higher education institutions which are active in Croatia and Bosnia and Herzegovina. The questionnaires were sent by e-mail in online form and by post. A response rate for questionnaire in Croatia was 34.61% (36 out of total 104 public HEIs), and response rate for questionnaire in Bosnia and Herzegovina was 31.25% for the Federation of Bosnia and Herzegovina (5 out of 16 public HEIs) and 50% for the Republic of Srpska (2 out of 4 public HEIs).

The main instrument of this research was a questionnaire for accountants consisting mostly of closed questions. Likert scale was used in order to assess the usage of internal reports for certain purpose (0 = does not use, 1 = not important,

2 = slightly important, 3 = moderately important, 4 = important, 5 = very important). Only for a few questions, there was the possibility of bringing their own opinions through open-type questions.

The questionnaire for accountants was intended for the evaluation of accounting information systems at public HEIs and has been divided into the following parts:

- A. General information about the higher education institution
- B. Assessment of usefulness and quality of external financial reporting
- C. The development of internal accounting and internal reporting

3.2 *Analysis and Results of Empirical Research*

For the purpose of this paper, authors will analyse, above-mentioned, part A and part C of the conducted empirical research by using appropriate statistical methods, precisely methods of descriptive statistics.

3.2.1 *Analysis of Samples*

Analysis of part A, *General information about the higher education institution*, provides basic information about samples in Croatia and Bosnia and Herzegovina. In Sect. 2, we have highlighted differences in reporting systems of entities in Bosnia and Herzegovina, and therefore further in the paper the results of empirical research will be presented through entities or in other words separately for the Federation of Bosnia and Herzegovina and the Republic of Srpska.

Firstly, we have compared higher education institutions in the samples according to the number of teaching staff. From Fig. 1, it can be seen for Croatia that there is a diversification in the sample according to the number of teaching staff because in every group, there is a certain percentage. First group (0–50) and second group (51–100) are represented by respondents in the Federation of Bosnia and Herzegovina. In the sample of the Republic of Srpska, 50% of respondents answered that the number of teaching staff goes from 51 to 100, and the same percentage answered that the number of teaching staff is above 150.

The structure of non-teaching staff at HEIs is presented in Fig. 2. It is obvious that for Croatia and the Federation of Bosnia and Herzegovina, most of respondents answered that the number of non-teaching staff is between 0 and 50. On the other hand, for the Republic of Srpska, 50% of respondents marked that the number of non-teaching staff is above 150.

The structure of HEIs according to student's number is presented in Fig. 3. It is evident that in the sample of Croatia, almost all groups are proportionally represented. In the Federation of Bosnia and Herzegovina, most of respondents (60%) answered that the number of students is in the group 2001–5000 students. In the Republic of Srpska, 50% of respondents are in the second group (501–1000 students), and 50% of respondents are in the last group (more than 5000 students).

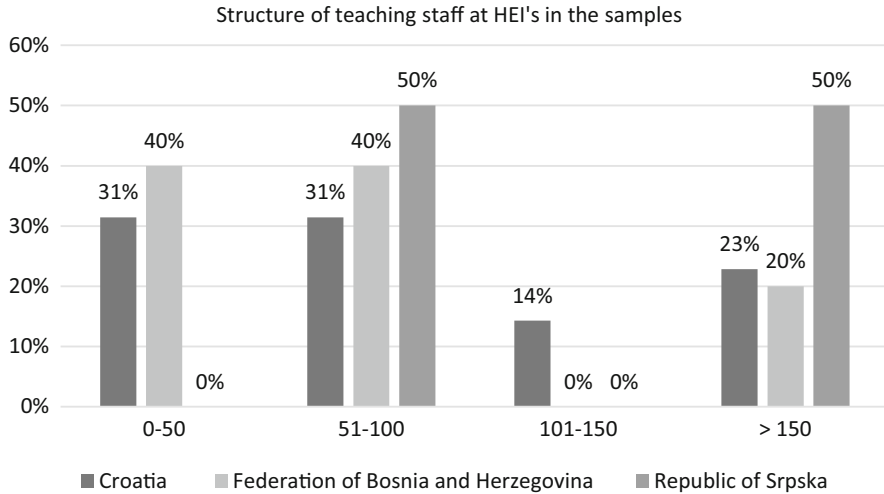


Fig. 1 Structure of teaching staff at HEIs in the samples. Source: Empirical research

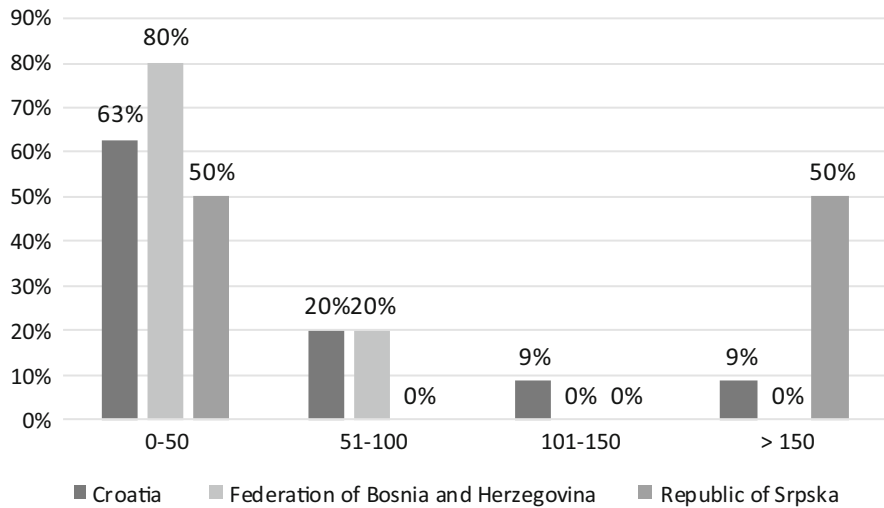


Fig. 2 Structure of non-teaching staff at HEIs in the samples. Source: Empirical research

It is very interesting to analyse results regarding main sources (>50%) of funding at HEIs because we can see that there are significant differences in observed countries. On the one side, we have Croatia where 94% of respondents answered that the main source of funding is public funding through state budget, and on the other side, we have the Federation of Bosnia and Herzegovina where all respondents answered that public HEIs are financed from tuition fees. The Republic of Srpska is using a combination of both, public funding and tuition fees (Fig. 4).

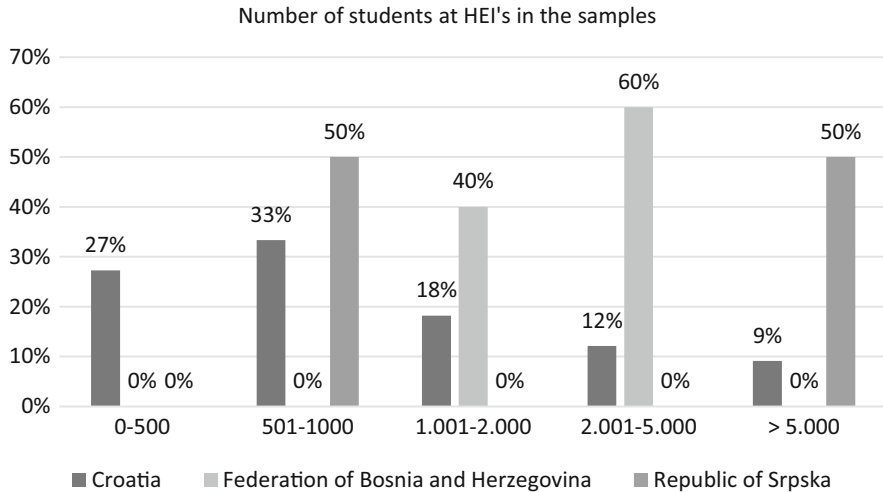


Fig. 3 Structure of students at HEIs in the samples. Source: Empirical research

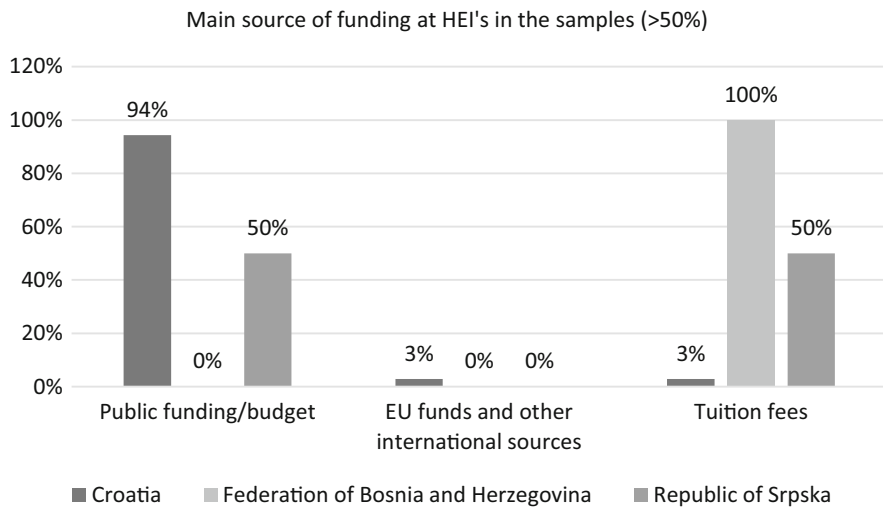


Fig. 4 Main sources of funding at HEIs in the samples. Source: Empirical research

Respondents were also asked to mark other sources of funding, except the main source, and they could circle more than one answer. For Croatia the most important other source of funding is tuition fee and for the Federation of Bosnia and Herzegovina is public funding, and finally respondents from the Republic of Srpska gave the same percentage (50%) to public funding and tuition fees (Fig. 5).

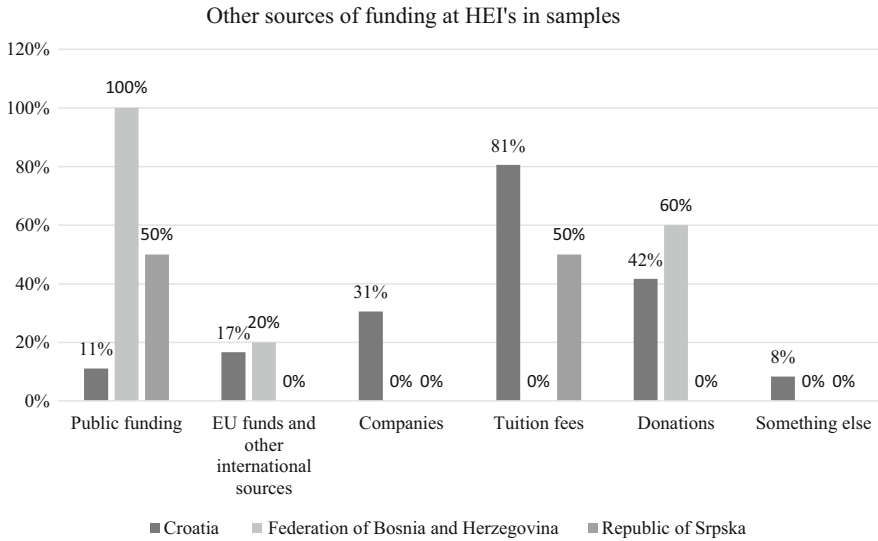


Fig. 5 Other sources of funding at HEIs. Source: Empirical research

3.2.2 Main Results of Empirical Research

The first research objective of this paper was to identify the preparation of internal reports at public HEIs in observed countries. Moreover, authors investigate the time interval for internal report preparation as well as main motivation for their use. Even though internal reporting is not mandatory, most of respondents answered that they are preparing internal reports. The results are presented in Fig. 6, and it is evident that only in the Republic of Srpska, all respondents in the sample answered that they are preparing internal reports. In Croatia 86% of respondents have answered that they are preparing internal reports. The lowest percentage is in the Federation of Bosnia and Herzegovina, more precisely 60%.

Time interval for preparation of internal reports in Croatia is diversified, but in most cases, respondents answered that they prepare mentioned reports monthly or yearly. In the Federation of Bosnia and Herzegovina, internal reports are mostly prepared by quarters, while in the Republic of Srpska, the same percentage (50%) answered monthly and quarterly preparations (Fig. 7).

It was highlighted in the paper that internal reports are prepared to meet specific purposes on internal users' request; hence, it was interesting to research main reasons for preparing internal reports (Fig. 8). In the Federation of Bosnia and Herzegovina and Republic of Srpska, all respondents answered that the main reason for preparing internal reports is management requirements. In Croatia 28% of respondents answered that internal reports are prepared upon external users' requirements while 78% based on management requirements.

One of the very important objectives of this paper was to research purposes of internal report usage by managers. Respondents have assessed different purposes

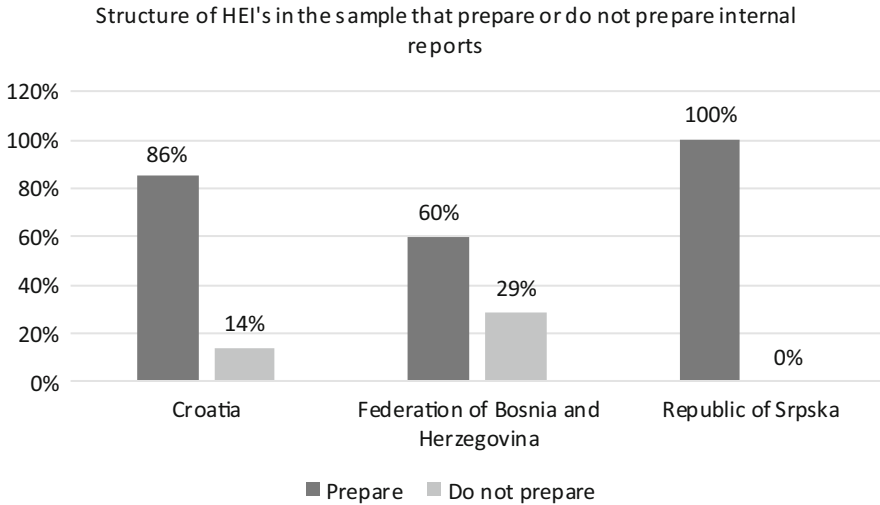


Fig. 6 Preparation of internal reports at HEIs in the samples. Source: Empirical research

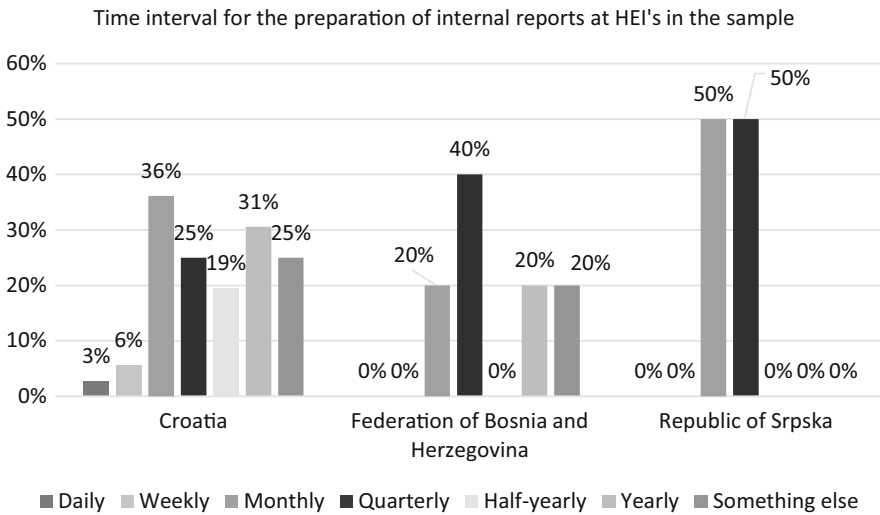


Fig. 7 Time interval for preparation of internal reports. Source: Empirical research

with grades on Likert scale from 0 (does not use) to 1 (not important) to 5 (very important). From Fig. 9, it is obvious that in Croatia, average importance grades are between 3 and 4, and the highest average grades are for the following purposes: for decision-making process and management, for monitoring the execution of financial plan and for external and internal audit and control. Similar situation regarding average grades (3–4) is in Federation of Bosnia and Herzegovina while the highest average grades are for decision making process and management and for compliance

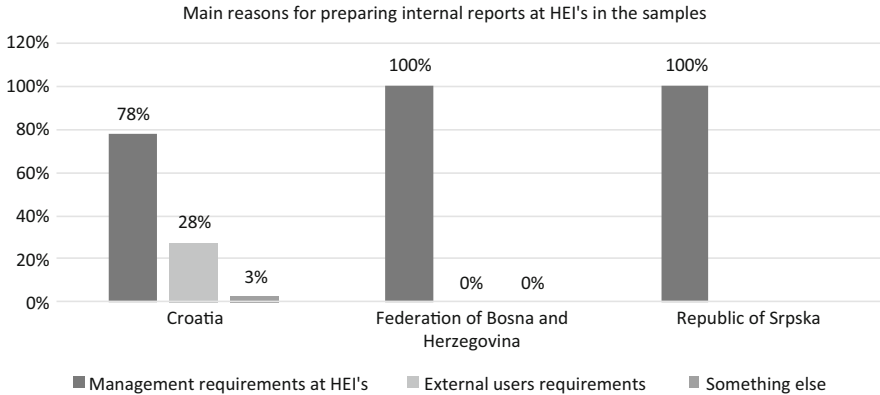


Fig. 8 Main reasons for preparing internal reports. Source: Empirical research

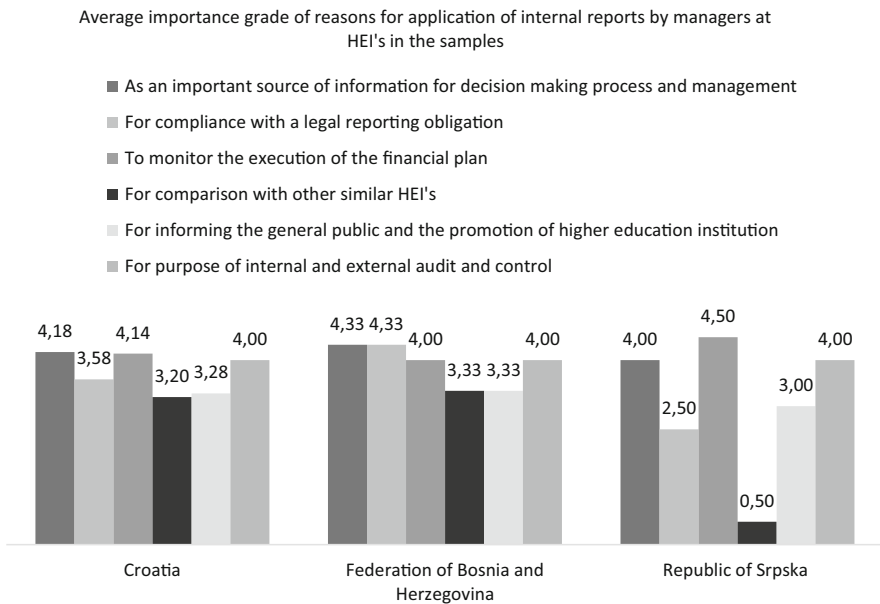


Fig. 9 Purpose of internal reports at HEIs in the samples. Source: Empirical research

with legal reporting obligations. The biggest differences in average grades are in the Republic of Srpska where the most important purpose is to monitor the execution of financial plan (average grade 4.50), while the lowest average grade is for comparison with other similar HEIs (average grade 0.50).

From Fig. 10, it can be seen that only in the Republic of Srpska, all respondents answered that it is necessary to improve existing internal system, while in the Federation of Bosnia and Herzegovina, 67% answered positively on this question. In Croatia, this percentage is the lowest. More precisely, 58% of respondents

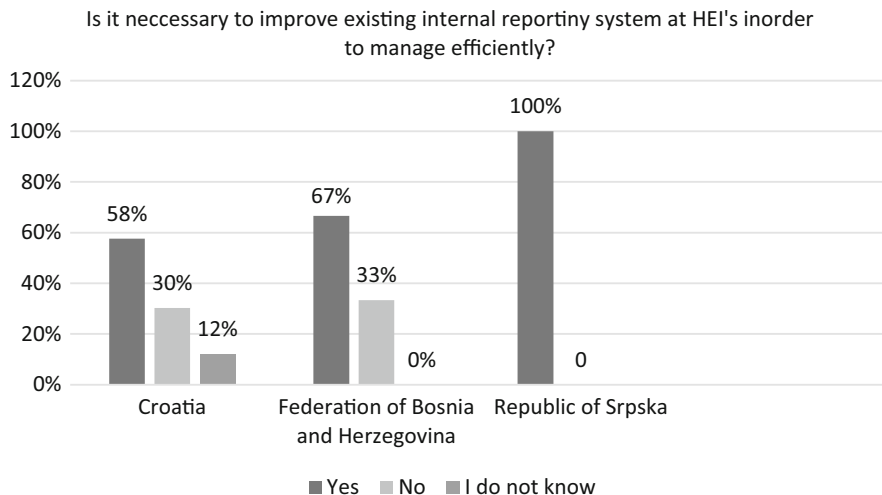


Fig. 10 Necessity for improvement of existing internal reporting system. Source: Empirical research

answered that it is necessary to improve existing internal reporting system. Nevertheless, it is obvious that in all observed countries, majority of respondents answered affirmatively.

From the presented comparative analysis, we can draw some interesting conclusions. Firstly, it is evident that there are noticeable differences in the financing of higher education institutions in the selected countries. Public financing dominates at Croatian HEIs while in Bosnia and Herzegovina are tuition fees. As far as internal reports, it is evident that the surveyed universities compile internal reports, but only in the Serbian Republic, all respondents answered positively. Time interval regarding internal report preparation is diversified between monthly and yearly. It is important also to highlight that in Bosnia and Herzegovina, the main reason for preparing internal reports is management requirement, while in Croatia 28% of respondents answered that internal reports are prepared based on the external users' requirement, and 78% answered on management requirements. Moreover, in Croatia and the Federation of Bosnia and Herzegovina, the most important reason for application of internal reports by managers is for decision-making process and management, while in the Republic of Srpska, the main reason is for monitoring the execution of financial plan. Finally, all respondents in the Republic of Srpska think that it is necessary to improve existing internal reporting system, while in Croatia 58% of respondents think the same and in the Federation of Bosnia and Herzegovina 67%.

4 Conclusion

Higher education institutions face increased financial constraints as a result of declining or limited financial resources for education, while on the other side, we have increased demands for higher education. As a result of financial limitations, combined with demands for improved efficiency, higher education institutions have been forced to reduce expenditure, seek new sources of funding and improve the utilization of existing resources. At the same time, there have been changes in teaching and research methods at HEIs followed by diversification in public and especially private HEIs. Many of these changes have also led to changes in management at HEIs, and therefore it is necessary to improve decision-making process by using relevant information not just from external financial reports that are prescribed but also from internal reports. That is especially highlighted in developing countries. However, one of the very important issues regarding internal reporting is the lack of understanding of internal reports by key stakeholders. Appropriate internal financial reporting can have a significant impact on improving the transparency and efficiency in higher education system.

Empirical research was conducted in Croatia and Bosnia and Herzegovina in order to research level of internal report usage at HEIs in developing countries. Authors have answered all research questions in the paper. It is important to mention that the main limitation of our empirical research was sample sizes because there was a significant difference in the sample size of Croatia and Bosnia and Herzegovina, and due to that, we were unable to use inferential statistics.

From the conducted research, it is evident that internal reports are mainly used at HEIs in observed countries, and their usage is mostly rated with high average grades from 3 to 4, but still there is diversification in purposes. In Croatia internal reports are prepared as an important source of information for decision-making process and management and for internal and external audit and control purposes. In the Federation of Bosnia and Herzegovina, the emphasis is put on compliance with legal reporting obligations and decision-making process and management. In the Republic of Srpska, the highest average grade for the purpose of internal reports is given to monitoring the execution of the financial plan. From the presented result, we as authors can conclude that HEIs in observed countries prepare both sets of reports, external and internal. Nevertheless, the question that arises is the quality of information presented in internal reports. Almost all respondents answered that it is necessary to improve existing internal reporting system. Therefore, obviously, they are not satisfied with the content of current internal reports. However, the real challenge is to present information in internal reports at the right level and in the right quantity to communicate the correct information and prepare appropriate input from efficient management of board members at HEIs. In that context, our future research will be focused on types of internal reports and their elements in order to assess their quality for efficient management at HEIs.

Acknowledgement This paper is a result of the Croatian Science Foundation's funding of the project 8509 "Accounting and financial reporting reform as a means for strengthening the development of efficient public sector financial management in Croatia". Any opinions, findings and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the Croatian Science Foundation.

References

- Budimir, V. (2010). Mjerenje uspješnosti poslovanja proračunskih korisnika. *Riznica, dodatak uz Računovodstvo i finansije*, 5(7), 14–21.
- Čegar, B. (2016). *Uticaj trezorskog sistema na finansijske izvještaje u javnom sektoru*. *Acta Economica* (Vol. 24). Banja Luka: Faculty of Economics.
- Douglas, P. (1995). *Governmental and nonprofit accounting. Theory and practise* (2nd ed.). Fort Worth: The Dryden Press/Harcourt Brace College Publishers.
- Dragija, M. (2014). *Interno izvještavanje u funkciji upravljanja visokim učilištima*. PhD thesis, Faculty of Economics, Zagreb.
- Dragija, M., Letica, M., & Čegar, B. (2015). *Comparison of accounting and financial reporting framework of higher education institutions in Republic of Croatia and Bosnia and Herzegovina*. *Journal of Economy and Business* (pp. 108–132). Mostar: Faculty of Economics.
- Dražić-Lutlisky, I. (2011). Use of information on costs in higher education institutions in Croatia. *Zbornik Ekonomskog fakulteta Zagreb*, 9(2), 209–228.
- Jones, R. P. (2010). *Public sector accounting* (6th ed.). Harlow: Prentice Hall, Financial Times.
- KPMG, Prager, Sealy and Co., LLC, & Attain. (2010). *Strategic financial analysis for higher education: Identifying, measuring & reporting financial risks* (p. 43). Retrieved March 20, 2016, from http://policies.medschool.ucsf.edu/sites/policies.medschool.ucsf.edu/files/documents/NSS_Handbook.pdf
- Kyvik, S. (2004). Structural changes in higher education system in Western Europe. *Higher Education in Europe*, 29(3), 393–409.
- NACUBO. (2004). *Internal financial reporting survey*, Retrieved March 20, 2016, from <http://www.nacubo.org/>
- Official Gazette. (2012). *Regulation of financial reporting and yearly budget calculation of Federation of Bosnia and Herzegovina*. Number 27/2012.
- Official Gazette. (2014). *Regulation of financial reporting and yearly budget calculation of Federation of Bosnia and Herzegovina*. Number 67/2014.
- Official Gazette. (2015). *Regulation on financial reporting in budgetary accounting, Zagreb*. Number 3/2015, 93/2015, 135/2015.
- Public Sector Committee. (2005). *Perspectives on cost accounting for government*. Geneva: IFAC.
- Sursock, A., & Smidt, H. (2015). *Trends 2010: A decade of change in European higher education*. Brussels: European University Association.
- Vašiček, D. (2007). *Državno računovodstvo u funkciji odlučivanja javnog menadžmenta* (p. 74). PhD thesis. Ekonomski fakultet Rijeka.

M&A in ICT Sector: Methodology of Parameters Analysis



Kateryna Kononova and Vadym Hadetskyi

Abstract Investigation of mergers and acquisitions in ICT sector becomes more and more important with the development of the information economy. Nowadays a vast number of new technologies are created in the information sector. The start-up creation and its profitable sale encourage more and more entrepreneurs to develop new information technologies. In such circumstances the giant companies are trying to get the best technology as early and as cheap as possible. These processes have particular importance for the Eastern European region (especially for Ukraine), where the creation and dissemination of new technologies go relatively slow.

The paper presents the methodology of mergers and acquisitions parameters analysis. It includes (1) forming the list of factors that affect the project perspectives, (2) finding the patterns of deals using visualization methodology, (3) identifying the clusters of deals using Kohonen maps, and (4) predicting project perspectives using fuzzy logic.

The methodology could help Ukrainian entrepreneurs to find its own niche in the ICT market and contribute to the creation and dissemination of new technologies in developing countries.

Keywords Mergers and acquisitions • ICT • Visualization • Clustering • Fuzzy logic

1 Introduction

Scientific rhetoric concerning the formation of the information economy grew in recent decades. Many integral indexes were proposed for its statistical analysis; the study (Kononova 2015) has allowed proofing the use of ICT Development Index (IDI) for information economy monitoring. IDI consists of 11 indicators grouped

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Table 1 Dynamics of IDI

Rank, 2015	Country/IDI	2002	2007	2010	2015
1	Korea (Rep.)	5.83	7.26	8.64	8.93
2	Denmark	5.78	7.22	8.18	8.88
39	Greece	3.94	5.25	6.2	7.09
45	Russia	2.71	3.83	5.57	6.91
59	Romania	2.48	4.16	4.99	6.11
69	Turkey	2.41	3.49	4.56	5.58
79	Ukraine	2.5	3.8	4.41	5.23
167	Chad	0.6	0.73	0.88	1.17

Source: Own calculations based on data provided by Global ICT Development Index

into three subindexes: ICT access, ICT use, and ICT skills. IDI ranges from 0 to 10 and in 2015 reached the maximum (8.93) in Korea while the minimum (1.17) in Chad (Table 1).

Almost two-thirds of the 30 leading in terms of IDI countries are from Western Europe, where the clear regulatory framework and the set of priorities stimulated the dissemination of new information technologies. At the same time in Eastern Europe and the CIS, despite the stated objectives, information economy develops relatively slow. The main problems here, according to experts, are:

1. Significant dependence on foreign high-tech products and lack of domestic patent law
2. The inefficiency of the venture business due to lack of government support and high profitability of traditional industries (while high-tech business requires a large investment with long gestation periods and large risks)
3. Low prestige of technical education, brain drain, and outsourcing
4. Huge transaction costs due to the high level of bureaucracy and an underdeveloped logistics

These problems are complex; dealing with them requires significant resources and long-term planning on governmental level. At the same time, analyzing IDI dynamics by subindexes, it is evident that Eastern Europe countries and the CIS have ICT skills above the average. It opens alternative opportunities for innovative development, such as creation of start-ups based on intellectual capital (for internal development or for resale). Considering the processes of information economy formation, mergers and acquisitions (M&A) analysis in ICT sector is becoming increasingly important.

The history of M&A investigation as a business structure originated in the late nineteenth century in the USA. However, its study as a holistic phenomenon has begun about 50 years ago and, unfortunately, has not provided a complete understanding of why the deals did not bring the anticipated results and often fail (Cartwright and Schoenberg 2006). Despite several methods of M&A, data collection and processing were proposed (Corbin and Strauss 1998; Straub 2007); the design of complex methodology for analysis of mergers and acquisitions remains relevant.

Therefore, the aim of the paper is the development of methodology of M&A parameters analysis (MAPA). It includes:

1. Forming the list of factors that affect the project perspectives.
2. Finding the patterns of deals using visualization methodology.
3. Identifying the clusters of deals using Kohonen maps.
4. Predicting the project perspectives using fuzzy logic.

2 Methodology of M&A Parameters Analysis

2.1 Forming the List of Factors that Affect the Project Perspectives

MAPA methodology is based on dataset of 151 M&A deals conducted by Google during the period from February 2001 to December 2014 (Table 2). Each deal is characterized by the following parameters: date, country of origin, company name, field of its activity, price (if it was declared or its experts' assessment), Google's motives for the acquisition, results of acquisition, and project prospects after the acquisition.

First half of the listed characteristics are based on the actual data published in the official reports; the second one was obtained basing on expert estimates given in the reviews (TechCrunch; list of mergers and acquisitions by Google).

Columns Reason, Field, and Price were selected as factors affecting the project prospects after acquisition (the Result column). Based on expert evaluation of the sample, all string variables were given quantitative assessment (Table 3). This practice is very common in M&A, where due to limited information and excessive price, experts' opinions constitute the majority of all data.

In such way we have got a well-structured dataset (Table 4).

2.2 Finding the Patterns of Deals Using Visualization Methodology

On the second stage of MAPA methodology, we have used visualization of the formed sample to investigate if there were certain structures in data and to identify some details and patterns.

A bubble chart of Google's acquisitions is showed in Fig. 1.

The analysis of this chart has shown that:

1. The most technologically advanced projects have a high price.
2. Most transactions were conducted in the least technological fields (such as Search and Mobile apps).

Table 2 Data of Google deals (fragment)

Date	Country	Company	Field	Price, million \$	Exp. price	Reason	Result	Comments
09.03.06	USA	Upstartle	Text editor		45	Competition with Microsoft	Independent	The base for Google Docs
01.06.06	USA	2Web Technologies	Online electronic tables		35	New technology	Part	One of the first functions in Google Docs
09.10.06	USA	YouTube	Video hosting	1650		Integration	Independent	The biggest media resource in Web
18.12.06	Switzerland	Endoxon	Mapping	28		Integration	Independent	Introduction of Europe countries' maps in Google Maps

Source: Own calculations based on data provided by TechCrunch

Table 3 Factors coding

Qualitative code	Quantitative code
<i>Field</i>	
Search	2
Chrome&Apps	4
Social	6
Mobile	8
YouTube	10
ADS	15
GeoCommerce	20
Google X	25
<i>Result</i>	
Closed	0
Comp	2
IP	4
<i>Reason</i>	
Yahoo	1
Mic	2
Apple	3
FB	4
Amazon	5
EC	8
FIN	10
NT	14
Int	16
Inn	20

Source: Own calculations

Table 4 Encoded deals of Google (fragment)

Date	Company	Field	Price	Reason	Result
09.03.06	Upstartle	4	45,000,000	2	4
01.06.06	2Web Technologies	4	35,000,000	14	2
09.10.06	YouTube	10	1,650,000,000	16	4
18.12.06	Endoxon	20	28,000,000	16	4

Source: Own calculations

Let us look separately at the projects, which have stayed independent after acquisitions (Fig. 2).

The analysis of Fig. 2 showed that:

1. Regardless of the price, the project can retain its autonomy after the acquisition.
2. A major part of independent projects belongs to the area of “Mobile applications.”

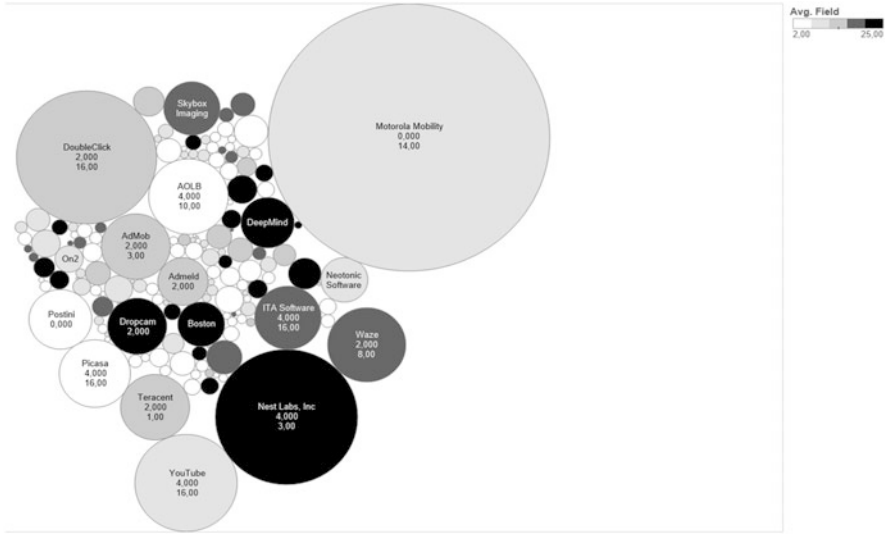


Fig. 1 The scope and scale of Google’s M&A (bubble size reflects the Price; its color shows the Field: white color stays for the least technological projects, while the black is for the most technological advanced) (Source: Own calculations)

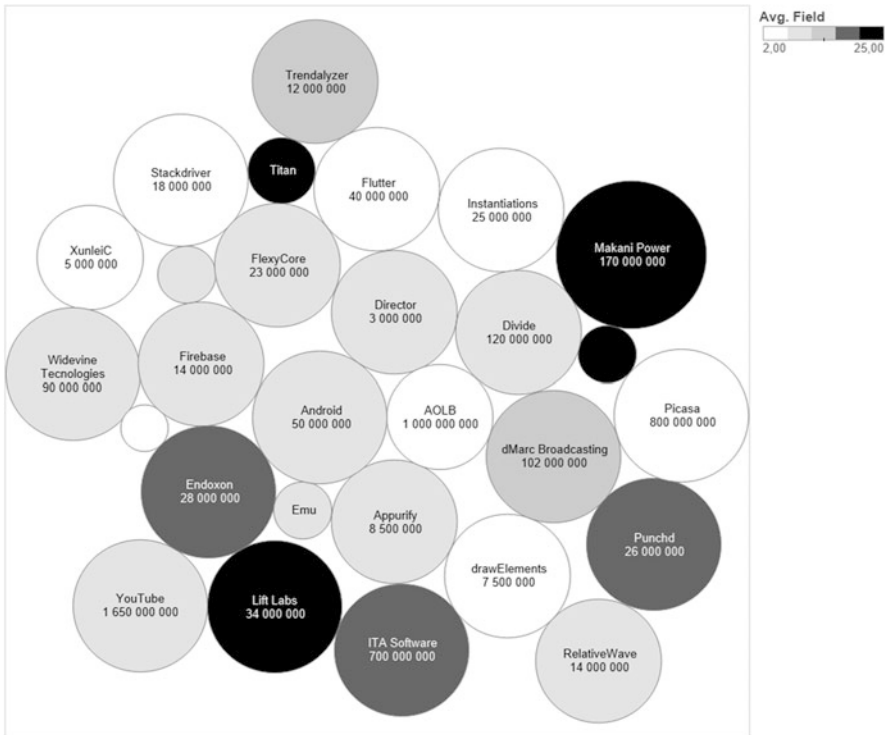


Fig. 2 Independent projects in different Fields (Source: Own calculations)

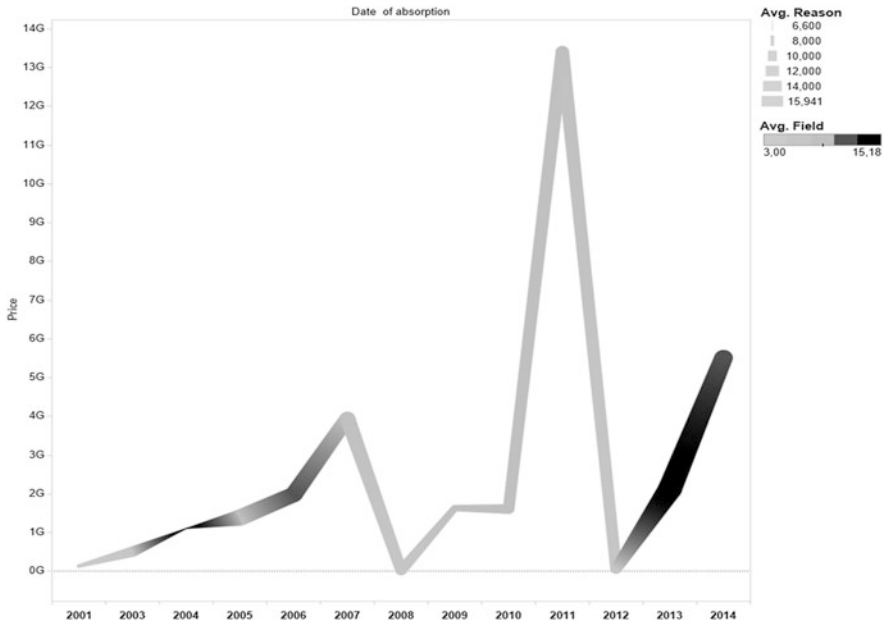


Fig. 3 Dynamics of total spends on M&A (Source: Own calculations)

The study of M&A dynamics (Fig. 3) allowed to identify some changes in company’s policy and showed that values of the parameters Reason and Field increase with the average Price.

Data visualization allowed us to ensure that the collected set has certain dependencies, which may be explained.

2.3 Identifying the Clusters of Deals Using Kohonen Maps

The third stage of MAPA methodology allows finding patterns in row data. Using clustering methods (Kohonen 2001), we built neural network (Fig. 4) and identified four clusters (Fig. 5).

The cores of the clusters and their significance are given in Table 5.

Analysis of the cluster cores allowed making their formal description and proposing a specific name for each of them:

1. Experiment cluster consists of deals, which relate to the stage of formation of Google as a supercorporation.
2. Hi-tech cluster includes the acquisitions of high-tech projects.
3. Competition cluster includes transactions made to avoid buying the project by other companies.
4. Idea cluster consists of deals, which represented a new technology or a promising idea.

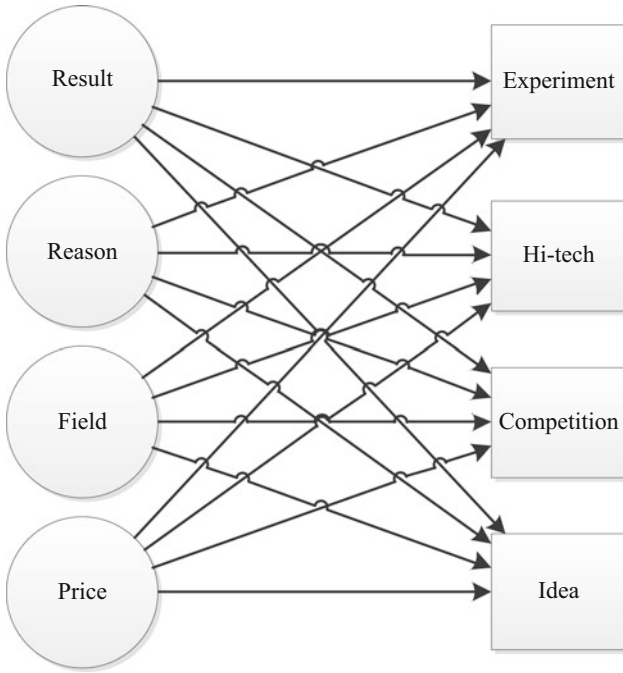


Fig. 4 Kohonen neural network (Source: Own calculations)

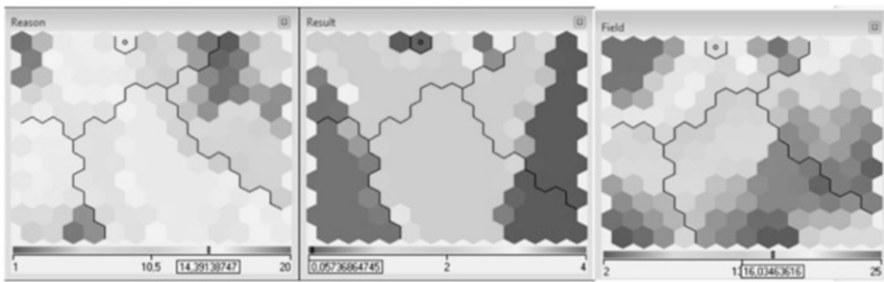


Fig. 5 Kohonen maps (Source: Own calculations)

Experiment cluster is the largest one. It contains 58 deals, most of which relate to such fields as Social, Mobile, and YouTube. The most significant clustering factors are Reason and Field of activity (Table 5). The cluster includes only deals with Reasons of New technology (70%) and Integration (30%).

Table 5 Characteristics of cluster cores

	Number of deals	%	Result		Reason		Field		Price	
			Stat. signif. (%)	Value	Stat. signif. (%)	Value	Stat. signif. (%)	Value	Stat. signif. (%)	Value
Experiment	58	38	93	1.66	100	14.62	100	5.81	7	232,484
Hi-tech	39	26	86	2.21	100	15.36	100	21.28	41	298,141
Competition	33	22	100	0.73	100	5.55	96	8.09	75	111,863
Idea	21	14	100	4.00	2	12.57	93	7.43	10	192,476

Source: Own calculations

Table 6 Projects from developing countries

Date	Company	Country	Field	Price	Reason	Result
17.11.2005	Akwan Information Technologies	Brazil	Search	4,000,000	Integration	Part
10.01.2010	BlindType	Greece	Mobile	12,000,000	New technology	Part
10.01.2012	Viewdle	Ukraine	Social	45,000,000	New technology	Part

Source: Own calculations based on data provided by TechCrunch

The Price was the least significant clustering factor, i.e., absorbing some companies; Google is not guided by the price.¹ As analysis shows, Google often accepts the risks financing projects from countries with moderate level of ICT development. Indeed, the most projects of Experiment cluster are not from the USA. Despite the fact that Country parameter was not used in the clustering, we can conclude that in searching new technologies and integrating possibilities, Google focused on conceptually or geographically new markets.

Analyzing Experiment cluster, it is important to mention those deals, which originated from countries with a moderate level of ICT development (Table 6). These deals relate to different periods, but all had relatively low price, and today operate as part of the Google's bigger projects.

Let us briefly consider the characteristics of these projects:

- Akwan Information Technologies was a local search engine in Brazil; now it is a part of Google Brazil. The deal was one of the steps of Google international expansion. It has opened the most popular search engine for users, advertisers, and partners in Latin America.
- BlindType is an impressive and ambitious technology from Greek developers that allows typing on touch screens without looking at it. Google bosses were very impressed with the presentation of BlindType and offered its team to join Android.
- Viewdle is the latest of three acquisitions. This Ukrainian company has developed the technology of person and object recognition in video and pictures. After the acquisition the possibility to search through images was added to Google; the technology is also used in Google+. It is interesting, 2 years ago, Google acquired two similar technologies: American company PittPatt and German one Neven Vision. They were estimated at 38 and 45 million, quite similarly to Viewdle.

¹Let us consider two identical projects: one is from the USA and the other is from any less technologically developed country, which both have the same team size and same technology; however, the maintaining of the first will require more funding.

2.4 Predicting the Project Perspectives Using Fuzzy Logic

The fourth stage of MAPA methodology is forecasting of project perspectives depending on M&A deal parameters. However, the classical methods are limited and have low accuracy for prediction data, which is based on expert evaluations; therefore, we use the fuzzy logic to solve the task. Parameters Reason, Field, and Price were chosen as exogenous variables to predict the value of the endogenous variable Result.

To design the model, fuzzyfication of linguistic variables using triangular numbers has been done. The parameters of the membership functions are shown in Table 7; the membership function of the endogenous variable Result is shown in Fig. 6.

To predict the project prospects, fuzzy model of Mamdani type (Fig. 7) was designed.

After a series of experiments, the set of 24 rules was generated. Using it one may accurately describe the studied issue. Here are few examples:

1. If (Reason is Yahoo), then (Result is Closed).
2. If (Reason is FB) and (Price is Low), then (Result is Part).
3. If (Reason is NT) and (Field is Search), then (Result is Dependent).
4. If (Reason is NT) and (Field is Chrome&Apps), then (Result is Part).
5. If (Reason is NT) and (Field is Social), then (Result is Dependent).
6. If (Reason is NT) and (Field is Mobile), then (Result is Dependent).
7. If (Reason is NT) and (Field is YouTube), then (Result is Part).

The fuzzy model demonstrated high quality of prediction during testing; for example, inserting the data of YouTube acquisition (Reason = Integration; Field = YouTube; Price = 1.65 billion), we obtained the value for Result = 3.63,

Table 7 Values of linguistic variables

<i>Result</i>	<i>Price</i>
Closed = {0; 0; 1}	Low = {0; 0,1; 0,2}
Dependent = {1;2;3}	Average = {0,1; 0,3; 0,5}
Partially dependent = {2,5; 3; 3,5}	High = {0,4; 0,7; 1}
Independent = {3; 4; 4}	Giant = {1; 7; 13}
<i>Field of activities</i>	<i>Reason</i>
Search = {0; 2; 4}	Yahoo = {0; 1; 2}
Chrome&Apps = {3; 4; 5}	Mic = {1; 2; 3}
Social = {4; 6; 8}	Apple = {2; 3; 4}
Mobile = {7; 8; 9}	FB = {3; 4; 5}
YouTube = {8; 10; 12}	Amazon = {4; 5; 6}
ADS = {10; 15; 20}	EC = {6; 8; 10}
GeoCommerce = {17; 20; 23}	Fin = {8; 10; 12}
X = {24; 25; 26}	NT = {12; 14; 16}
	Int = {14; 16; 18}
	Inn = {18; 20; 22}

Source: Own calculations

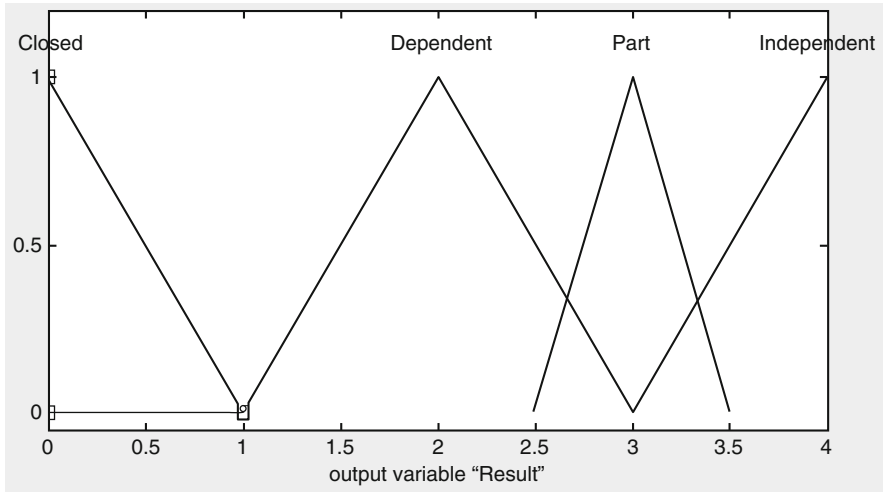


Fig. 6 Membership function of variable “Result” (Source: Own calculations)

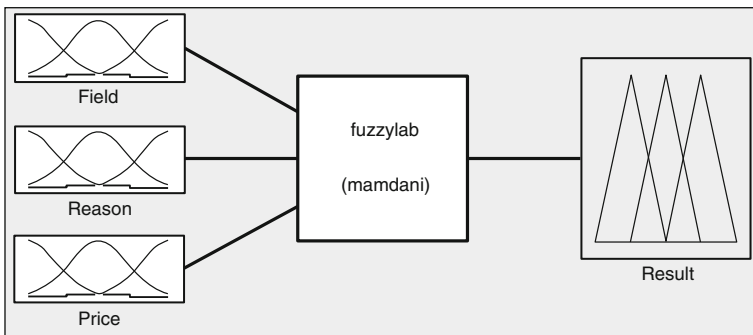


Fig. 7 Fuzzy model of project prospects predicting (Source: Own calculations)

which corresponded to independent projects. This result is relevant—YouTube is an independent project, which operates under Google.

At the same time, it should be mentioned that the system gives a bit lower forecast, having 3.7 as a maximum of predicted value (Fig. 8).

Using the proposed model, it is crucial to interpret the result properly. Having a predicted value of 3.3, it can be argued that the project has a pretty good chance to maintain its independence, but it may either become a part of another project. Such analysis gives the opportunity to get a fuzzy result, to clarify which it is necessary to have additional information.

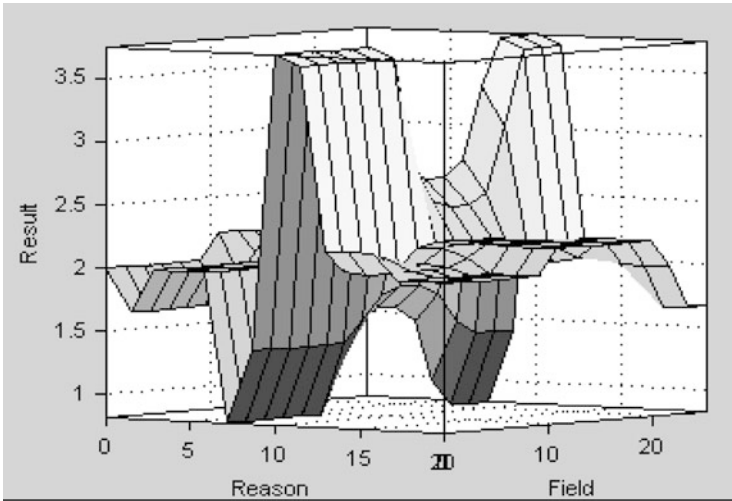


Fig. 8 Rules' surface (Source: Own calculations)

3 Conclusion

The paper presented a four-step methodology for the analysis of M&A parameters in the case of IT sector. It includes next key steps: (1) forming the list of factors that affect project perspectives, (2) finding the patterns of deals using visualization methodology, (3) identifying the clusters of deals using Kohonen maps, and (4) predicting project perspectives using fuzzy logic.

Visualization of the row data allowed identifying the primary patterns. Using Kohonen maps, four clusters of deals, named Experiment, Hi-tech, Competition, and Idea, were found.

To predict the project perspectives after acquisition, the methods of fuzzy logic were used: the membership functions and the set of quite detailed rules were designed based on the parameters of 151 deals of mergers and acquisitions of Google. The fuzzy model demonstrated high quality of prediction.

The proposed technique is aimed at entrepreneurs from countries that are characterized by moderate development of the information economy as a tool for analysis of available opportunities for start-ups in ICT and forecasting of their prospects.

References

- Cartwright, S., & Schoenberg, R. (2006). Years of mergers and acquisitions research: Recent advances and future opportunities. *British Journal of Management*, 17(S1), 51–55.
- Corbin, J., Strauss, A. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed., p. 312). Thousand Oaks, CA: Sage Publications.
- Global ICT Development Index. (2015). Retrieved from <http://www.itu.int/net4/ITU-D/idi/2015/>
- Kohonen, T. (2001). *Self-organizing maps* (501 p.). New York: Springer.
- Kononova, K. (2015). Some aspects of ict measurement: Comparative analysis of e-indexes. In Z. Andreopoulou & D. Bochtis (Eds.), *Proceedings of the 7th International Conference on Information and Communication Technologies in Agriculture, Food and Environment* (Vol. 1498, pp. 938–946). Greece. Retrieved from <http://ceur-ws.org/Vol-1498/>. [urn:nbn:de:0074-1498-7]
- List of mergers and acquisitions by Google. Retrieved from <https://www.crunchbase.com/organization/google/acquisitions>
- Matlab fuzzy logic toolbox. Retrieved from <http://www.mathworks.com/products/fuzzy-logic/>
- Straub, T. (2007). *Reasons for frequent failure in mergers and acquisitions: A comprehensive analysis* (p. 227). Wiesbaden: Deutscher Universitätsverlag.
- TechCrunch – Tech news reporter. Retrieved from <http://techcrunch.com/>

Web-Based IT Firm Evaluation: Which One Is the Right Solution?



Cigdem Tarhan, Can Aydin, and Mert Bozdag

Abstract In recent years, organizations' information technology (IT) spending increases 20% compared to the previous years. Besides that IT budgets are indeed continuing to make a nice recovery. Organizations need better strategy for making IT expenditures more effectively. However, the managers of the companies that use information technology effectively are not always having enough information about obtaining IT services. In this context, the aim of this study is to provide a web-based solution for organizations using multi-criteria decision-making (MCDM) methods found in literature without the need for professional software support. In this scope dogrufirma.com web application was developed, and MCDM techniques have been presented to users. In the scope of this study, a web-based application using MCDM techniques has been developed for organizations searching for the optimal IT company. The application has been developed in regard to organizations to gain easy access, because neither public institutions nor small-scale firms have the sufficient funds or expert staff for a subject that requires expertise like MCDM techniques. The most important challenge of the study is using the MCDM techniques within a web-based application to produce more accurate results for the end user. To achieve this, the MCDM models' cross tabulation, evaluation based on rank, and weighted criteria were used and the results were compared.

Keywords Information and communication technologies • Multi-criteria decision-making • Web-based application • Management information systems

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© Springer International Publishing AG, part of Springer Nature 2018
A. Karasavoglou et al. (eds.), *Economy, Finance and Business in Southeastern and Central Europe*, Springer Proceedings in Business and Economics,
https://doi.org/10.1007/978-3-319-70377-0_60

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1 Introduction

Nowadays, information technology has become one of the most important factors affecting human life, economic relationships, and the welfare of society. Information technology that plays an active role in work and daily life can be defined as the collecting, processing, storing, and transmitting of data whenever need be or enabling access to this information using techniques such as electronics, optics, etc. (Bilişim Teknolojileri Nedir? 2016; Milli Eğitim Bakanlığı 2016). Organizations use information technology in various fields such as lowering costs, increasing performance, and enhancing traditional production systems (Beşkese and Tanyaş 2006). In today's cutthroat competitive market, organizations want to be able to take advantage of features providing competitive advantages such as presenting distinctive products and the fast and flexible usage of information technology in order to compete in markets where competition is at the highest level and differentiation.

Information technology projects are projects that aim to finish continued work of establishments and businesses more quickly, effectively, and efficiently by using the opportunities provided by information technology. An organization designing a new Web page, renewing their IS infrastructure, purchasing new hardware equipment, or developing new enterprise resource software are all examples of information technology projects. Like other projects, information technology projects also need to be managed using professional methods and techniques (Gürpınar 2012).

Management information systems (MIS) are computer-integrated systems that re-shape organizations' processes and procedures and change the work methods of employees which are among the most important issues in today's customer-oriented world. Administrators may not have enough information regarding rapidly involving information systems, or they may not be able to transfer the needs of the business to the MIS selection process. In such a case, the trends and behavior of other companies regarding MIS in the same sector can be referenced.

The figures in Turkey suggest that the information market has grown at a high rate of 223% in the last 10 years. The total IT market size is around 7–7.5 billion dollars (İzmir Ticaret Odası 2016). According to the 2011 Turkish Information Industrialists Association reports and the data of the development agency, there are 5206 IT companies in Turkey with 51.116 employees who are employed at these companies, 46% of them are located in Istanbul, 20% in Ankara, and the remaining 34% in other cities (Bilisim Sanayicileri Dernegi 2016).

In this context, the aim of this study is to provide a web-based solution for persons or establishments starting information projects using multi-criteria decision-making methods found in literature without the need for professional software support. In this scope the website dogrufirma.com was developed, and multi-criteria decision-making techniques have been presented to users.

In the scope of this study, a web-based application using multi-criteria decision-making techniques has been developed for organizations searching for the optimal IT company. The application has been developed in regard to organizations to gain

easy access, because neither public institutions nor small-scale firms have the sufficient funds or expert staff for a subject that requires expertise like multi-criteria decision-making techniques. The most important challenge of the study is using the multi-criteria decision-making techniques within a web-based application to produce more accurate results for the end user. To achieve this, the multi-criteria decision-making models' cross tabulation, evaluation based on rank, and weighted criteria were used and the results were compared.

In the literature, there are various methods such as scoring, sorting, mathematical optimization, and multi-criteria decision analysis for choosing information technology. Lucas and Moore's scoring method (Lucas and Moore 1976) while intuitive is quite simple in terms of reflecting the views of the decision-maker. Buss proposed a sorting method for software projects (Buss 1983), but it failed to show the desired performance. In the choice of software, mathematical optimization methods such as goal programming, nonlinear programming has also found an area of application for resource optimization. Santhanam and Kyparisis (1995) have developed a nonlinear model in this regard, and they have compared software based on the relationship between criteria. Lee and Kim (2000) have created an integrated model by combining the analytic network process and 0–1 goal programming. However, these methods have always been applied with quantitative values and have given unexpected results when the decision-makers could not evaluate some criteria correctly. The Analytic Hierarchy Process developed by (Saaty (1990, 2008) makes relational (comparative) evolutions between criteria for managers. Decision-makers' wrong interpretation of any relation matrix has a very small effect on the result of the AHP method (Wollmann et al. 2013). Wei et al. (2005) have developed a model that helps choose an ERP according to a business's needs on the basis of the AHP method. They have observed that the method is quite understandable for managers and gives productive results (YildizTeknik Universitesi 2016).

2 Methodology and the Application

In the scope of this study, a web-based application using MCDM techniques has been developed for organizations for finding an appropriate IT firm (see Fig. 1). To achieve this, the multi-criteria decision-making models' cross tabulation, evaluation based on rank, and weighted criteria were used and the results were compared. In a traditional web application, one criterion is queried via SQL language within certain conditions, and the results are shown to the end user in ascending or descending order. In addition, again using SQL a query can be made using multiple criteria and the results shown to the end user.

Ten IT companies have been set as samples with price, time, location, and points being constraints. These criteria were used in this study as they are the most used in literature. In addition, the IT services each company gives have been examined and listed in specific categories. Each category has been evaluated within itself. The



Fig. 1 www.dogrufirma.com home page

Tablo	Eylem	Satır	Türü	Karşılaştırma	Boyut	Ek Yük
cross tabulation	Gözet Yapı Ara Ekle Boşalt Kaldır	-10	InnoDB	utf8_turkish_ci	16 KİB	-
customers	Gözet Yapı Ara Ekle Boşalt Kaldır	-10	InnoDB	utf8_turkish_ci	16 KİB	-
evalbasedrank	Gözet Yapı Ara Ekle Boşalt Kaldır	-10	InnoDB	utf8_turkish_ci	16 KİB	-
newscorerange	Gözet Yapı Ara Ekle Boşalt Kaldır	-10	InnoDB	utf8_turkish_ci	16 KİB	-
rank	Gözet Yapı Ara Ekle Boşalt Kaldır	-10	InnoDB	utf8_turkish_ci	16 KİB	-
weightedcriteria	Gözet Yapı Ara Ekle Boşalt Kaldır	-1	InnoDB	utf8_turkish_ci	16 KİB	-
weightedscores	Gözet Yapı Ara Ekle Boşalt Kaldır	-2	InnoDB	utf8_turkish_ci	16 KİB	-
7 tablo	Toplam	53	InnoDB	utf8_turkish_ci	112 KİB	0 B

Fig. 2 The database of IT firms

Table 1 Cross-tabulation model results

	Price	Time	Location	Points	Sum	NS %
Piramit	1000	7	3	8.5	1018.5	10.75774
Nilvera	1200	12	2	8	1222	12.90718
Pia	800	15	4	7.5	826.5	8.729773
Info	750	10	1	9	770	8.133001
Süper	1100	5	5	8.5	1118.5	11.81398
7 Tepe	500	14	3	8	525	5.545228
3C	600	15	3	7	625	6.601462
Acar	1500	10	4	8.6	1522.6	16.08222
Başar	950	7	4	9.1	970.1	10.24652
AVC	850	7	5	7.4	869.4	9.182897
Range	0–1500	1–15	1–5	0–10	9467.6	

choice scenario of an organization searching for the appropriate IT company for itself was carried out for a small-scaled business website design. In this context, price, estimated duration, company locations, and scores that customers have given the companies were obtained by meeting with each company and entered into the database (see Fig. 2).

After the field research a website named dogrufirma.com was designed as an interface for end users. Then the necessary forms and report interfaces were designed. This whole process was carried out in the scope of the web-based application cycle. Firstly, in the system analysis phase, customer requests were examined and the general framework of the website was created. Subsequently, the database design was made and the visual interface was designed in a graphical environment. After this stage, the website was designed using web-based programming languages. Lastly the website was tested by certain users in the testing stage and was put online as a result of the feedback (software development life cycle). In the database design, the second phase of system development, the following tables were designed for the models to be tested and compared and the results shown to the end user.

After designing the database, we developed a web application using traditional methods. We used multi-criteria decision-making techniques in the above for choosing the most appropriate IT firm. In this context, firstly cross tabulation method is used for each firm and obtain normalized scores shown in Formula (1). Acar IT firm gets the highest normalized score using this model (see Table 1 and Fig. 3).

Most Appropriate IT Firm				
Firm Name	Price	Time(Day)	Location	Customer Points
Acar	1500	10	4	8.6
Nilvera	1200	12	2	8
SÜPER	1100	5	5	8.5
Piramit	1000TL	7	3	8.5
Başar	950	7	4	9.1
AVC	850	7	5	7.4
PiA	800	15	4	7.5
INFO	750	10	1	9
3C	600	15	3	7
7 Tepe	500	14	3	8

Fig. 3 End-user cross-tabulation model

$$\text{Normalized score} = \frac{\text{Sum}}{\text{Total sum}} \tag{1}$$

However, it is noticed that the range of value for each factors is not the same. It is quite unfair to sum all the values of multiple criteria and compare the result. Clearly Acar IT firm is dominant because the range has higher value. For that reason there are two different solutions for this purpose:

1. Instead of using arbitrary values for each factor, ranking the choice for each factor, smaller rank value is more preferable than higher rank.
2. We transform the score value of each factor according to the range value such that each factor will have the same range. In this context data is normalized using 1–3 range and using cross-tabulation model values. Formula (2) is used for obtaining normalized score. The results are shown in Table 2 and Fig. 4.

$$\text{Normalized score} = 12(1 - \text{Sumtotal sum}) \tag{2}$$

When the results are analyzed in this model, Acar company with a large percentage difference above it was still first. Differences between evaluation based on rank and cross-tabulation models are percentage distinction between competitors. Though in the first model there is a huge difference between competitors, the second model distinction is not high. If the score value of each factor was transformed in such a way, all factors have the same range value. Say, we choose all

Table 2 Evaluation based on rank

	Price	Time	Location	Points	Sum	NS
Piramit	3	1	2	1	7	45.45455
Nilvera	3	3	2	2	10	43.50649
Pia	1	3	2	3	9	44.15584
Info	1	2	3	1	7	45.45455
Süper	3	1	2	1	7	45.45455
7 Tepe	1	3	2	2	8	44.80519
3C	1	3	2	2	8	44.80519
Acar	3	1	1	1	6	46.1039
Başar	2	2	2	1	7	45.45455
AVC	2	2	1	3	8	44.80519
					77	

Most Appropriate IT Firm				
Firm Name	Price	Time(Day)	Location	Customer Points
Acar	1500	10	4	8.6
Başar	950	7	4	9.1
SÜPER	1100	5	5	8.5
INFO	750	10	1	9
Piramit	1000TL	7	3	8.5
AVC	850	7	5	7.4
3C	600	15	3	7
7 Tepe	500	14	3	8
PiA	800	15	4	7.5
Nilvera	1200	12	2	8

Fig. 4 Evaluation based on rank model

factors to have range to be 0–1. To convert linearly the score of each factor from cross-tabulation table into new score based on range table, we use Formula (3) which is based on simple geometric of a line segment. The geometry of the linear transformation (see Fig. 5) is shown in the figure below. Acar IT firm gets the highest normalized score when reducing ranges into 0–1 range with linear transformation model (see Table 3 and Fig. 6).

Fig. 5 The geometry of the linear transformation

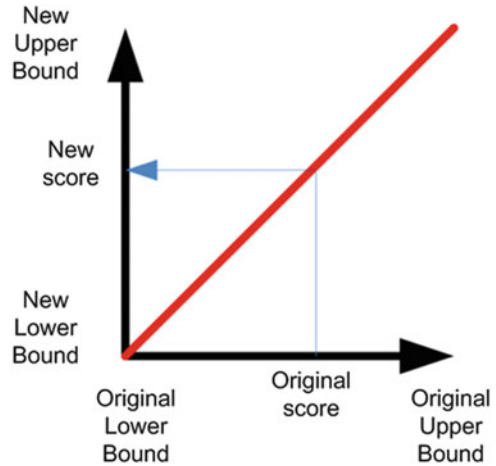


Table 3 New scores based on range

	Price	Time	Location	Points	Sum	NS
Piramit	0.67	0.43	0.50	0.85	2.45	9.09
Nilvera	0.80	0.79	0.25	0.80	2.64	9.80
Pia	0.53	1.00	0.75	0.75	3.03	11.28
Info	0.50	0.64	0.00	0.90	2.04	7.59
Süper	0.73	0.29	1.00	0.85	2.87	10.67
7 Tepe	0.33	0.93	0.50	0.80	2.56	9.52
3C	0.40	1.00	0.50	0.70	2.60	9.67
Acar	1.00	0.64	0.75	0.86	3.25	12.09
Başar	0.63	0.43	0.75	0.91	2.72	10.12
AVC	0.57	0.43	1.00	0.74	2.74	10.17
					26.90	

$$\text{New score} = \frac{\text{nub} - \text{nlb}}{\text{oub} - \text{olb}} (\text{Original score} - \text{olb}) + \text{nlb} \tag{3}$$

Finally weighted criteria model was used in case users want to make a selection using priority of criteria. In this context four criteria are weighted: 6 for price, 2 for time, 1 for location, and finally 3 for points. According to this model, data are weighted using values in the weighted criteria table. Thus Acar IT firm gets the highest point again same with the other models (Tables 4, 5 and Fig. 7).

Most Appropriate IT Firm				
Firm Name	Price	Time(Day)	Location	Customer Points
Acar	1500	10	4	8.6
PiA	800	15	4	7.5
SÜPER	1100	5	5	8.5
AVC	850	7	5	7.4
Başar	950	7	4	9.1
Nilvera	1200	12	2	8
3C	600	15	3	7
7 Tepe	500	14	3	8
Piramit	1000TL	7	3	8.5
INFO	750	10	1	9

Fig. 6 Score-based model

Table 4 Weighted criteria

	Price	Time	Location	Points	Sum
Level	6	2	1	3	12
Weighted	50	16.66666667	8.333333333	25	100

Table 5 Weighted scores

	Price	Time	Location	Points	Sum	NS
Weight	50	16	8	26	100	
Piramit	0.3333	0.0686	0.0400	0.2210	0.6629	9.8407
Nilvera	0.4000	0.1257	0.0200	0.2080	0.7537	11.1887
Pia	0.2667	0.1600	0.0600	0.1950	0.6817	10.1192
Info	0.2500	0.1029	0.0000	0.2340	0.5869	8.7118
Süper	0.3667	0.0457	0.0800	0.2210	0.7134	10.5900
7 Tepe	0.1667	0.1486	0.0400	0.2080	0.5632	8.3612
3C	0.2000	0.1600	0.0400	0.1820	0.5820	8.6397
Acar	0.5000	0.1029	0.0600	0.2236	0.8865	13.1593
Başar	0.3167	0.0686	0.0600	0.2366	0.6818	10.1218
AVC	0.2833	0.0686	0.0800	0.1924	0.6243	9.2677
					6.736362	

Most Appropriate IT Firm				
Firm Name	Price	Time(Day)	Location	Customer Points
Acar	1500	10	4	8.6
Nilvera	1200	12	2	8
Başar	950	7	4	9.1
PiA	800	15	4	7.5
Piramit	1000TL	7	3	8.5
AVC	850	7	5	7.4
SÜPER	1100	5	5	8.5
INFO	750	10	1	9
3C	600	15	3	7
7 Tepe	500	14	3	8

Fig. 7 Weighted criteria model

3 Results and Discussion

We developed dogrufirma.com web application for use in IT firm selection. This web application is designed on IT firm selection scenario to solve multi-criteria decision-making (MCDM) problem. In this study we choose four different models for MCDM selection. Acar IT firm gets the highest normalized score by a long way using cross-tabulation model. Although Acar IT firm gets the highest normalized score again using the second model, score differences between firms are reduced with this model. Our third model is obtained from the second model in which we transform the score value of each factor in such a way such that all factors have the same range value. In this model Acar IT firm gets the highest normalized score again. Finally the last model which is the weighted criteria model is a recalculation of criteria by giving weight according to end users. As a result Acar IT firm gets the highest normalized score with close results between each other. This shows us that all models give very close results. If the user does not specify the order of precedence among the criteria, the first three models can be used. But user specifies priority between the criteria, can be present the latest models that can use the weighted model. However Analytical Hierarchy Process (AHP) can be used rather than these MCDM models in future studies. Because we have found any study on using AHP method with web application. This method can be used and tested with this data set.

References

- Beşkese, M. B., & Tanyaş, M. (2006). Bilişim Teknolojisi yatırımlarının değerlendirilmesine yönelik uygun yöntemin seçilmesi modeli – ERP yazılımı seçimi uygulaması. *İtüdergisi/d mühendislik*, 5(1–2), 217–227.
- Bilisim Sanayicileri Derneği. Retrieved April 10, 2016, from <http://www.tubisad.org.tr>
- Bilişim Teknolojileri Nedir?. Retrieved April 10, 2016, from <http://bilisimteknolojileri.nedir.com>
- Buss, M. D. J. (1983). How to rank computer projects. *Harvard Business Review*, 61(1), 118–125.
- Gürpınar, H. (2012). Bilişim Teknolojilerinde Proje Yönetimi. Radyo Televizyon Üst Kurulu. <http://www.rtuk.org.tr/upload/UT/29.pdf>
- İzmir Ticaret Odası. Retrieved April 10, 2016, from <http://www.izto.org.tr>
- Lee, J. W., & Kim, S. H. (2000). Using analytic network process and goal programming for interdependent information system project selection. *Computers & Operations Research*, 27(4), 367–382.
- Lucas, H. C., & Moore, J. R., Jr. (1976). A multiple-criterion scoring approach to information system project selection. *Information*, 14(1), 1–12.
- Milli Eğitim Bakanlığı. Retrieved April 10, 2016, from http://mebk12.meb.gov.tr/meb_iys_dosyalar/14/15/703095/dosyalar/2014_10/30030827_25123423_1dnbt.pdf
- Saaty, T. L. (1990). How to make a decision: The analytic hierarchy process. *European Journal of Operational Research*, 48, 9–26.
- Saaty, T. L. (2008). Decision making with the analytic hierarchy process. *International Journal of Services Sciences*, 1(1), 83–98.
- Santhanam, R., & Kyparisis, G. J. (1995). A multiple criteria decision model for information system project selection. *Computers & Operations Research*, 22(8), 807–818.
- Wei, C. C., Chien, C. F., & Wang, M. J. (2005). An AHP-based approach to ERP system selection. *International Journal of Production Economics*, 96(1), 47–62.
- Wollmann, D., Steiner, M. T. A., Vieira, G. E., & Steiner, P. A. (2013). Details of the analytic hierarchy process technique for the evaluation of health insurance companies. *Production*, 24(3). <https://doi.org/10.1590/S0103-65132013005000070>.
- YıldızTeknik Üniversitesi. Retrieved April 10, 2016, from <http://www.sigma.yildiz.edu.tr/2005-4-11-tam.pdf>

Digital Divide in Greece - A Quantitative Examination of Internet Nonuse



Elias Gounopoulos, George Kokkonis, Stavros Valsamidis,
and Sotirios Kontogiannis

Abstract During the last decade, the Internet take-up rate in Greece among individuals is much lower compared with the EU average. This paper investigates issues of the digital divide in Greece, by analyzing micro-data from the Eurostat ICT survey on household and individuals in 2012.

It aims to quantify and explain the influence of socio-economic and demographic factors (employment status, gender, age, household income, geographic location, country of citizenship, family status, and educational attainment), in the decision to have Internet access at home and use the Internet.

This paper shows that educational attainment, age, income, employment status, family status, country of citizenship and type of locality are the most important factors determining Internet access and Internet use.

The most important reason for not having Internet access at home is the lack of skills, while lower educated people face many different barriers to engage with the Internet. Greek non-users are a large and socio-economically disadvantaged heterogeneous group. In order to adopt effective policy interventions, there should be more focused research to understand which subgroups of people, and for which reasons do not access and use the Internet.

Keywords Digital divide • Digital exclusion • Internet non-use • Greece

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1 Introductions

According to Castells and Cardoso (2006), a new form of society is being formed (network society) with an organizational structure where various nodes (persons, companies, computers) are connected via multiple links. Its component parts (nodes, links, flows between the nodes) may be centralized or distributed, hierarchical or horizontal, accessible or not, and interactive or non-interactive (Barney 2004). Within these networks new opportunities are created (Castells 2000). Those who have a dominant position increase their force, funds, and resources (Van Dijk 2005). Survival becomes difficult outside these networks, and may lead to social exclusion (Van Dijk 2005).

The concept of the network society developed by Castells is closely related to the Internet. Newer technological advances of the Internet seem to further enhance Castells theory. Access to the Internet is wireless or wired via optical fiber with even higher speeds. The interconnected nodes are multiplied, and they may correspond to persons or to objects such as cars, lights, appliances, etc. (i.e. the Internet of Things).

Internet spread is different in every country, since various social, economic, political, and technological factors are shaping complex processes (Michailidis et al. 2011).

Although access is almost universal in most countries, many people do not exploit the advantages of Internet use and prefer to stay unconnected. These digitally excluded people are also socially excluded and disadvantaged (Van Dijk 2005; Witte and Mannon 2010).

Helsper (2012) proposed a theoretical model, where the exclusion of individuals from the Internet use benefits at: economic, social, cultural and personal level, is associated with the respective factors of social exclusion. Key factors that may affect the “digital” exclusion of a person are access to the Internet, digital skills, and attitude toward the Internet use.

Digital exclusion or digital divide is a multifaceted phenomenon, which cannot be explained by a single factor.

According to Eynon and Geniets (2012), digital exclusion for young people is related to the following factors or resources:

- Psychological (attitudes, motivations, and agency toward the Internet and everyday life)
- Cognitive (operational skills, critical skills, literacy, and awareness of opportunity)
- Physical (quality of Internet access, access to and use of other technologies)
- Sociocultural (family, friends, peers, school, work, community)
- Material (occupation, income, education)

Education, occupational status, and household income are the most significant determinants of Internet adoption in the UK and Sweden, while many non-users

share skeptical attitudes about the Internet and feel uncomfortable using them (Reisdorf 2011).

According to Porter and Donthu (2006), attitudes toward the Internet are associated with socioeconomic factors, such as age, income, education, and race. Helsper and Reisdorf (2013) found that ex- and non-Internet users in the UK have negative attitudes toward technologies. They mention many reasons for not using the Internet, something which shows disadvantages at several levels. According to their survey, the strongest predictors for not using the Internet were socio-demographic factors.

Helsper and Reisdorf (2016) compared Internet non-users in the UK and Sweden between 2005 and 2013. They found that non-user populations have become more concentrated on socio-economically disadvantaged groups (disabled, low income, older, less educated, socially isolated). The most important reasons for being offline in 2013 for both British and Swedish non-users, was the lack of interest and the lack of skills.

Greece is one of the countries with the lowest Internet usage rate in the EU (Table 1), similar with Bulgaria, Cyprus, and Romania (European Commission 2013). According to the nationwide survey on the use of Information and Communication Technologies for 2013 (Hellenic Statistical Authority 2013a), about 46.7% (average EU28 = 61.7%) of the Greek households with at least one member aged 16–74 have used the Internet at least once a week.

Despite the fact that 99% of Greek households were covered by fixed broadband, merely 55% subscribe to it (Hellenic Statistical Authority 2013a). Next-generation access to high-speed Internet is available to only 27% of homes (EU average = 76%) (Hellenic Statistical Authority 2013a).

Table 1 Internet use indicators in Greece (2013)

Indicator	Breakdown	Unit	2011 (%)	2012 (%)	2013 (%)	EU28 value 2013 (%)	Rank
Individuals who have never used the Internet	All individuals	% of individuals	44.77	41.92	36.30	20.49	3
Frequent Internet users	All individuals	% of individuals	37.20	40.64	46.69	61.73	26
Internet used in the last 3 months	All individuals	% of individuals	51.65	55.07	59.87	75.33	25
Households with access to the Internet at home	All households	% of households	50.17	53.58	56.31	79	27
Nomadic use of laptop/tablet to access the Internet	All individuals	% of individuals	7.58	15.38	12.58	24	26

Source: European Commission (2013)

However, access is not the most important parameter for Internet use, as many non-users may reside in Internet-connected households (Tsatsou 2011).

Research data show that Internet use in Greece is highly correlated with socio-economic factors (age, educational background, income, geographical location, employment status) (Trousos et al. 2012), language, attitudes and social culture (Tsatsou 2012).

As in most European countries, young people aged 16–24 are the most intensive Internet users (89.1%), while only 8.56% of people aged 65–74 use the Internet at least once a week (Hellenic Statistical Authority 2013a).

Education is one of the most important explanatory factors, as only 8.9% of individuals with low formal education (primary school) use the Internet frequently, compared to 86.8% of individuals with a higher education degree (B.Sc.) (Hellenic Statistical Authority 2013a).

Annual income is also related to Internet usage. In 2013, 81.4% of individuals living in households with monthly income over 3650 € use the Internet frequently.

The majority of the Greek Internet users live in Attica (frequent internet use % = 68.9%), while in regions with low population density (Central Greece), frequent Internet use is much lower (41%) (Hellenic Statistical Authority 2013a). This diversification is partly due to the varying quality of the telecommunications infrastructure in the country (Tsakanikas et al. 2014).

About 60.4% of employed and self-employed individuals use the Internet frequently compared to only 15.1% of retired or inactive people (i.e. permanently disabled/in compulsory military or community service/fulfilling domestic tasks).

Language is still a barrier for the wider use of the Internet in Greece. While most older people speak only Greek, young people are not comfortable using a foreign language (Tsakanikas et al. 2014).

Social culture, and in particular past or future orientation in life and the degree of Greek people's openness to difference and novelty in life, is an important factor in the decision to use the Internet (Tsatsou 2012). Greeks believe that Internet use might disrupt established customs and patterns of life. On the contrary, Greeks who trust other people, and those who are positive to novelty and creativity, are more likely to be Internet users (Tsatsou 2012).

Greek people's attitude toward Internet use is negative. Internet integration in Greek people's life is limited (Tsatsou 2011), since compared to other European countries there is limited availability of high-quality online services such as e-government, e-business, and e-learning (Georgopoulou 2011; Tsakanikas et al. 2014). Greeks express negative feedback about the role of the Internet in social values and traditions (Tsatsou 2011).

Low Internet demand could be also attributed to the lack of digital skills in the general population and broadband subscription costs (Tsakanikas et al. 2014). Greek Internet users show low levels of digital skills and trust. Only 44% of Greeks possess basic levels of digital skills (Tsakanikas et al. 2014), while only 27% of Internet users shop online (Hellenic Statistical Authority 2013a).

Digital divide research in Greece and the relationship between social inequality and ICTs have not gained significance as a socio-political and economic issue

(Georgopoulou 2011). Official studies outline the problem statistically (Tsatsou 2012), focusing on demographic terms. They assume that the provision of broadband connections to every household will diminish digital divide (Tsatsou 2011; Georgopoulou 2011), something which is not true, since in 2013 almost 99% of the Greek households were covered by fixed broadband (Hellenic Statistical Authority 2013a). Research focuses on the technical and quantitative aspects of the problem, overlooking the social implications of information inequality.

2 Methodology

It is, therefore, crucial to examine and understand which subgroups of non-users and for which reasons do not access and use the Internet in Greece. This paper attempts to discover the heterogeneity of the Greek non-users, by answering the following research questions:

- H1.a. Which socio-economic and demographic factors are associated with the most important reasons for not having Internet access in the household?
- H1.b. Which factors influence the decision not to have Internet access in the household?
- H2. Which socio-economic and demographic factors are related to Internet non-use?

Since many people with Internet access decide not to use the Internet:

- H3. What are the socio-economic and demographic characteristics of Internet non-users with access at home?

The socio-economic and demographic factors used in the survey are age, education, employment status, gender, household income and composition (married/single, living alone/with other people, living with/without children), citizenship, geographical location, and area density.

In order to estimate the influence of each factor, the study uses logistic regression models. This method helps us to understand the single effect for every factor, since the effects of all the other variables are controlled. The dependent variables are dichotomous (no Internet access at their household, not using the Internet during the last 3 months, non-Internet users with access at their household), while the independent variables of the model are categorical (age, education, employment status, household income, geographical location, and area density) or dichotomous (gender, household (married/single, living alone/with other people, living with/without children), citizenship).

This study uses micro-data from the survey on the use of Information and Communication Technologies from the Greek households, for 2012. The survey is based on an annual Commission Regulation from Eurostat that determines the subjects, their characteristics, and the reference periods of the statistical data collection (Montagnier and Wirthmann 2011). This annual survey is conducted

by the Hellenic Statistical Authority. All private households with individuals aged 16–74 years old participate in the survey.

The multistage stratified area sampling involves two levels of area stratification (Hellenic Statistical Authority 2013b). A person aged 16–74 years old was randomly selected from the sampling households. The initial number of households/individuals from the sampling frame was 6500, while the number of households/individuals who responded to the survey was 4108 (unit response rate = 63.53%) (Hellenic Statistical Authority 2013b).

3 Results

3.1 Reasons for Not Having Internet Access at Home

As stated by the majority (58.06%) of the people who participated in the survey, the most important reason for not having Internet access at home was the lack of skills (Table 2). Many people (36%) also declared that they did not need the Internet, while 17% considered equipment costs too high and 14.7% considered access costs too high. However, almost one out of seven people have other reasons, which are not stated in the survey questionnaire.

In order to analyze which factors influence the decision not to have Internet access in the household, we have run logistic regressions for each one of the first four most important reasons (Table 3).

Older people (65–74 years) are five times more likely to express lack of skills as a reason not to have Internet access at home, compared to young people aged 16–24 years. People with no formal education are 4.8 times more likely not to have Internet access at home due to lack of skills, compared to people with first-stage tertiary education. Households without children are 1.7 times more likely to express lack of skills, compared to households with children. Employed people are 1.7

Table 2 Reasons for not having Internet access at home (%)

Reasons	%
Lack of skills	58.06
Do not need internet (because not useful, not interesting, etc.)	36.00
Equipment costs too high	17.00
Access costs too high (telephone, DSL subscription, etc.)	14.70
None of the above, but other	14.39
Have access to Internet elsewhere	5.94
Physical or sensorial disability	3.58
Broadband Internet is not available in our area	1.69
Privacy or security concerns	1.59

Source: Hellenic Statistical Authority, survey on the use of Information and Communication Technologies (ICTs) from the Greek households 2012. Base: Households with no Internet access at home ($N = 1953$)

Table 3 Logistic regression estimates for reasons for not having Internet access at home

Explanatory factors	Lack of skills		Do not need Internet		Equipment costs too high		Access costs too high	
	<i>b</i>	Exp(<i>B</i>)	<i>b</i>	Exp(<i>B</i>)	<i>b</i>	Exp(<i>B</i>)	<i>b</i>	Exp(<i>B</i>)
Constant	0.04	1.04	-1.09	0.34	-4.82	0.01***	-4.34	0.01***
<i>Type of locality (reference: Thinly populated area)</i>								
Densely populated area	-0.08	0.92	-0.15	0.86	0.25	1.28	0.27	1.31
Intermediate area	-0.51	0.60**	-0.18	0.83	0.07	1.07	0.20	1.22
<i>Region of residence (reference: Aegean Islands and Crete)</i>								
North Greece	0.68	1.97***	-0.34	0.71*	0.13	1.14	-0.31	0.74
Central Greece	0.33	1.40	-0.71	0.49***	0.10	1.11	0.06	1.06
Attica	0.23	1.26	-0.34	0.71	-0.01	0.99	-0.32	0.72
<i>Age (reference: 65-74)</i>								
16-24	-1.59	0.20**	-2.87	0.06**	1.62	5.04***	2.05	7.76***
25-34	-0.76	0.47**	-0.53	0.59	1.34	3.81***	1.67	5.32***
35-44	-0.88	0.41***	-0.56	0.57*	1.37	3.95***	1.67	5.33***
45-54	-0.66	0.52***	-0.31	0.73	0.95	2.59***	1.35	3.85***
55-64	-0.22	0.80	-0.05	0.95	0.55	1.73**	0.65	1.92**
<i>Gender (reference: Woman)</i>								
Male	-0.01	0.99	-0.01	0.99	0.08	1.08	-0.07	0.93
<i>Country of citizenship (reference: Non-national)</i>								
National	0.02	1.02	-0.23	0.80	-0.04	0.96	-0.04	0.97
<i>Education level (reference: No formal education)</i>								
Primary education	-0.28	0.75	0.39	1.48	1.37	3.93**	0.98	2.67
Lower secondary education	-0.21	0.81	0.40	1.49	0.93	2.54	0.71	2.03
Upper secondary education	-1.00	0.37***	0.61	1.84	1.37	3.29*	0.88	2.42
Post-secondary education but not tertiary	-0.61	0.54	-0.42	0.66	1.22	3.38	1.14	3.11
Tertiary education, first stage	-1.58	0.21***	0.46	1.58	0.88	2.40	0.90	2.46

(continued)

Table 3 (continued)

Explanatory factors	Lack of skills		Do not need Internet		Equipment costs too high		Access costs too high	
	<i>b</i>	Exp(<i>B</i>)	<i>b</i>	Exp(<i>B</i>)	<i>b</i>	Exp(<i>B</i>)	<i>b</i>	Exp(<i>B</i>)
Tertiary education, second stage	-21.88	0.00	-0.20	0.82	-18.45	0.00	-18.51	0.00
<i>Employment status (reference: Employee or self-employed)</i>								
Unemployed	-0.51	0.60*	-0.33	0.72	0.54	1.71**	0.90	2.46***
Student	-20.24	0.00	0.00	1.00	0.10	1.11	0.19	1.20
Not in labor force	-0.02	1.02	0.15	1.17	-0.44	0.65***	-0.18	0.83
<i>Marital status (reference: Married)</i>								
Single	-0.11	0.90	0.07	1.07	-0.27	0.77	-0.25	0.78
<i>Household composition (reference: Household with at least one child)</i>								
Household without children	0.56	1.74**	0.27	1.30	-0.27	0.76	-0.23	0.80
<i>Number of household members (reference: One member (i.e., living alone))</i>								
Household with more than one members	-0.14	0.87	0.20	1.22	0.00	1.00	0.02	1.02
<i>Household income (reference: Over 3651 €)</i>								
≤762 €	0.61	1.83	0.55	1.73	1.66	5.24	1.28	3.59
763–1650 €	0.49	1.64	0.68	1.98	1.18	3.25	0.86	2.36
1651–3650 €	0.59	1.81	0.60	1.83	0.56	1.74	0.82	2.28
Nagelkerke <i>R</i> ²	0.23		0.08		0.17		0.19	
Chi-square	10.18		3.55		15.70*		14.43	

Source: Authors calculation based on Hellenic statistical authority survey, on the use of information and communication technologies (ICTs) from the Greek households, 2012. Base: Households with no internet access at home (*N* = 1953)

*Significant at the 5% level, **significant at the 1% level, ***significant at the 0.1% level

times more likely not to have Internet access at home due to lack of skills, compared to unemployed people.

Area of residence and age are the most important factors for people who stated that they do not need Internet access at home, because it is not useful, interesting, etc. People living on the Aegean Islands and Crete are almost two times more likely to state that they do not need the Internet, compared to people who live in Central Greece.

The lower the age, the higher the probability of people to consider equipment costs and Internet access costs too high. Unemployed people also find it difficult to have Internet access at home, because of the high equipment and access costs.

3.2 Analysis for Not Having Internet Access at Home and Not Using Internet During the Last 3 Months

Table 4 shows that education and age are by far the most important indicators. The lower the educational level and the higher the age, the lower the probability of not having Internet access at home and not using the Internet. The possibilities that a person with no formal education does not use the Internet are 33 times higher, compared to those with a university degree. The possibilities that old people between 65 and 74 years old do not use the Internet over the last 3 months are 50 times higher, compared to young people aged 16–24 years old.

Income is also an important barrier; households with very low monthly income (lower than 763 €) have about 400% higher probability not to use the Internet, compared to households with high monthly income (over 3651 €).

People with non-Greek nationality and people living in rural areas, have almost double probability not to use the Internet, compared to people with Greek nationality and to people who live in densely populated areas.

Single people not living with children have lower probabilities to access the Internet at home, compared to married people who live with children.

Internet access in the household will not automatically lead to frequent use. In this survey, there is a significant percentage (26.3%) of people with Internet access who do not use it. In order to understand which factors influence their decision not to use the Internet, we have run a logistic regression.

As Table 5 shows, the higher the age, the higher the probability not to use the Internet, even if there is access in the household.

People with no formal education are 20 times more likely not to use the Internet compared to people with upper secondary education.

Men and people living in densely populated areas have more probabilities to use the Internet in their household, compared to women and people living in thinly populated areas.

To live in a household with other people increases significantly the possibilities not to use the available Internet connection.

Table 4 Logistic regression estimates for not having Internet access at home and not using the Internet during the last 3 months

Explanatory factors	Internet non-access		Internet non-use	
	<i>b</i>	Exp(<i>B</i>)	<i>B</i>	Exp(<i>B</i>)
Constant	1.45	4.25**	3.11	22.49***
<i>Type of locality (reference: Thinly populated area)</i>				
Densely populated area	-0.36	0.70***	-0.52	0.59***
Intermediate area	-0.42	0.66**	-0.50	0.60**
<i>Region of residence (reference: Aegean Islands and Crete)</i>				
North Greece	-0.31	0.73*	0.02	1.02
Central Greece	-0.03	0.97	0.22	1.25
Attica	-0.41	0.66*	-0.10	0.90***
<i>Age (reference: 65–74)</i>				
16–24	-2.01	0.13***	-4.13	0.02***
25–34	-2.03	0.13***	-3.31	0.04***
35–44	-1.92	0.15***	-2.69	0.07***
45–54	-1.56	0.21***	-1.84	0.16***
55–64	-1.01	0.36***	-0.94	0.39***
<i>Gender (reference: Woman)</i>				
Male	-0.08	0.93	-0.08	0.92
<i>Country of citizenship (reference: Nonnational)</i>				
National	-0.23	0.80	-0.63	0.53**
<i>Education level (reference: No formal education)</i>				
Primary education	-0.18	0.84	0.03	1.03
Lower secondary education	-0.36	0.70	-0.99	0.37
Upper secondary education	-1.01	0.36***	-2.09	0.12**
Post-secondary education but not tertiary	-1.59	0.20***	-2.93	0.05***
Tertiary education, first stage	-1.72	0.18***	-3.43	0.03***
Tertiary education, second stage	-2.84	0.06***	-5.60	0.004***
<i>Employment status (reference: Employed)</i>				
Unemployed	-0.30	0.74	-0.65	0.52***
Student	-2.07	0.13***	-3.07	0.05***
<i>Marital status (reference: Married)</i>				
Single	0.57	1.77***	0.18	1.19**
<i>Household composition (reference: Household with at least one child)</i>				
Household without children	0.44	1.55*	0.21	1.23
<i>Number of household members (reference: One member (i.e., living alone))</i>				
Household with more than one member	-0.15	0.86	0.53	1.70
<i>Household income (reference: Over 3651 euros)</i>				
≤762 €	1.63	5.09**	1.40	4.06***
763–1650 €	0.82	2.28**	0.98	2.66**
1651–3650 €	-0.19	0.83	0.28	1.33
Nagelkerke <i>R</i> ²	0.51		0.70	
Chi-square	6.37		8.08	

Source: Authors calculation based on Hellenic Statistical Authority survey, on the use of Information and Communication Technologies (ICTs) from the Greek households, 2012. Base: Households with no Internet access at home (*N* = 1953)

*Significant at the 5% level, **significant at the 1% level, ***significant at the 0.1% level

Table 5 Logistic regression estimates for having Internet access at home and not using the Internet during the last 3 months

Explanatory factors	<i>B</i>	Exp(<i>B</i>)
Constant	0.36	1.43
<i>Type of locality (reference: Thinly populated area)</i>		
Densely populated area	-0.43	0.65*
Intermediate area	-0.44	0.65
<i>Region of residence (reference: Aegean Islands and Crete)</i>		
North Greece	-0.04	0.96
Central Greece	0.35	1.42
Attica	-0.06	0.94
<i>Age (reference: 65-74)</i>		
16-24	-3.31	0.04***
25-34	-2.95	0.005***
35-44	-1.92	0.15***
45-54	-0.97	0.38***
55-64	-0.23	0.79
<i>Gender (reference: Woman)</i>		
Male	-0.37	0.69*
<i>Country of citizenship (reference: Nonnational)</i>		
National	-0.42	0.65
<i>Education level (reference: No formal education)</i>		
Primary education	-0.01	0.99
Lower secondary education	-0.97	0.38
Upper secondary education	-1.93	0.14
Post-secondary education but not tertiary	-2.99	0.05**
Tertiary education, first stage	-3.36	0.03**
Tertiary education, second stage	-21.48	0.00
<i>Employment status (reference: Employed)</i>		
Unemployed	-0.45	0.64
Student	-18.82	0.00
<i>Marital status (reference: Married)</i>		
Single	-0.31	0.73
<i>Household composition (reference: Household with at least one child)</i>		
Household without children	0.12	1.13
<i>Number of household members (reference: One member (i.e., living alone))</i>		
Household with more than one member	2.01	7.49***
<i>Household income (reference: Over 3651 euros)</i>		
≤762 €	0.12	1.13
763-1650 €	0.54	1.71
1651-3650 €	0.16	1.18
Nagelkerke R^2	0.59	
Chi-square	2.96	

Note: Authors calculation based on Hellenic Statistical Authority survey, on the use of Information and Communication Technologies (ICTs) from the Greek households, 2012. Base: Households with Internet access at home ($N = 2113$)

*Significant at the 5% level, **significant at the 1% level, ***significant at the 0.1% level

4 Discussion

In countries with high Internet use statistics, such as the UK and Sweden, the most important reason for not using the Internet in 2011 was by far the lack of interest (50%), while lack of skills was mentioned by only 10% (Helsper and Reisdorf 2013). Internet non-use in these countries seems to be a choice for some people, while for the most is a result of social and economic exclusion (Helsper and Reisdorf 2013).

On the contrary, almost 60% of the Greeks consider lack of skills as the most important factor for not having Internet access to the household. Older people and lower educated people in Greece face difficulties, while people living without children have more time to acquire new skills and cope with the Internet.

The use of traditional media (television, radio) does not require any special skills, while using an interactive medium such as the Internet requires a variety of skills in order to be able to navigate, explore, and evaluate a very large volume of information provided (Bonfadelli 2002).

As in many other countries, a significant percentage of Greek non-users (36%) state that they do not need the Internet. This reason provides no evident explanation and should be examined carefully, because it might include negative attitudes and lack of motives (Reisdorf et al. 2012).

According to Tsatsou (2012), the majority of Greeks (70.3%) consider the Internet a risk for the user's security, while 52% believe that it might jeopardize moral values and traditions. Most Greek Internet non-users (52%) think that they do not miss much being offline, while 43.4% of the Internet users consider that not using the Internet will not affect their lives significantly (Tsatsou 2012). Helsper and Reisdorf's (2013) analysis reveals that those who have never been online are most likely to cite lack of need as the reason for staying offline.

According to Reisdorf (2011), the "I don't need the Internet" statement contradicts with the fact that there is a correlation of Internet non-use with socio-economic factors. She assumes that this is based on poor information and knowledge about Internet benefits.

Education and age are significant factors for the Greeks, since many non-educated and older people consider Internet use not useful or interesting. People living in areas that are partly geographically isolated such as the Aegean islands and Crete, are not motivated to explore and exploit the advantages of Internet use in their daily life.

Equipment and access costs are barriers to Internet access for younger and low educated persons. As it is obvious, unemployed people face difficulties in obtaining the necessary equipment and pay the access costs. However, they seem to be more skilled, even compared to people who are working.

The results show that age, education, and employment status are associated with the most important reasons for staying offline (Research Question: H1.a).

However, apart from age and education there are more socio-economic and demographic factors which influence the decision not to have Internet access in

the household. These are region of residence and type of locality, country of citizenship, income, and family status (Research Questions: H1.b–H2).

Contrary to other countries' statistics (Montagnier and Wirthmann 2011), employed people have almost double possibilities not to use the Internet, compared to unemployed people. Due to the prolonged financial crisis and the high unemployment rate in Greece (24.6% in 2015) (Hellenic Statistical Authority 2015), many people who have digital skills and are educated cannot find a job.

People who can afford Internet access but prefer not to use it are perhaps more conscious for their decision. This subgroup is differentiated from the non-users, since according to the survey results these people are more likely to be elderly, with no formal education, women, and living in a household with more than one member (Research Question: H3).

According to a recent study (Troulos et al. 2012), reasons for the low supply and demand of the Internet in Greece are social factors, trust and transaction security, intellectual property rights and privacy issues, user familiarity with technological systems, and low number of reliable and high-quality online services. According to the study (Troulos et al. 2012), social factors include i) insufficient knowledge of foreign languages and especially English, ii) negative attitude toward electronic transactions, iii) deficiency of the Greek state to provide sufficient e-skills tuition and promote and inform about the Internet, and iv) the conscious unwillingness by some people to use the Internet.

In order to adopt effective policy interventions, we need to consider factors that influence Internet non-use, changing non-user characteristics and personal experience with the Internet (Helsper and Reisdorf 2016).

Greek policy-makers should focus on subgroups of non-users and especially on those who are also socially and economically excluded, such as the unemployed people who don't seem to lack skills. These digitally excluded groups should be provided with financial initiatives and educational programs.

Education is by far the most important factor affecting the decision to access and use the Internet. Policy measures should focus on the tuition of Internet skills, not only to older people, who are the most vulnerable group, but also to students and working people (Troulos et al. 2012). Policy initiatives should also be evaluated and adopted, taking into account not only socio-demographic factors but also attitudes and skills.

According to the results, Internet non-access and non-use in Greece are explained efficiently by the socio-demographic factors (Nagelkerke $R^2=51\%$ and 70% respectively). However this research has a few limitations since it does not include non-user attitudes and motives toward technologies and the Internet, which seem to be important in explaining Internet adoption, especially in the Greek context (Tsatsou 2012).

It would also be interesting to investigate how socio-demographic factors influence these attitudes. An additional qualitative survey of non-users could also validate and compare the results of our quantitative survey. Finally, a longitudinal quantitative research would help us understand how the most important factors of Internet use influence the changing population of the Internet non-users.

5 Conclusion

While Greece is still facing a long-term financial crisis, digital divide should be considered and faced efficiently. Since there is low supply and low demand of the Internet in Greece (Troulos et al. 2012) and Greeks adopt a rather negative attitude toward the use of the Internet (Tsatsou 2012), the Greek State should plan and implement a strategic policy framework.

Greek non-users are more likely to be old, less educated, with low income, and living in rural areas. With the exemption of unemployed people, the most important factors for both Internet access and use are the ones which are associated with the socio-economic status (education, income, employment status) and age. Internet non-use results to a new form of exclusion for the socio-economically disadvantaged Greeks. Digital divide seems to be an important barrier to the social and economic development of Greece.

References

- Barney, D. (2004). *The network society*. Cambridge: Polity Press.
- Bonfadelli, H. (2002). The internet and knowledge gaps a theoretical and empirical investigation. *European Journal of Communication*, 17(1), 65–84.
- Castells, M. (2000). Materials for an exploratory theory of the network society1. *The British Journal of Sociology*, 51(1), 5–24.
- Castells, M., & Cardoso, G. (Eds.). (2006). *The network society: From knowledge to policy* (pp. 3–23). Washington, DC: Center for Transatlantic Relations.
- European Commission. (2013). *Digital Scoreboard Key Indicators* [online]. Accessed April 7, 2016, from https://digital-agenda-data.eu/datasets/digital_agenda_scoreboard_key_indicators/visualizations
- Eynon, R., & Geniets, A. (2012, August 16). *On the periphery? Understanding low and discontinued internet use amongst young people in Britain*. Report for the Nominet Trust.
- Georgopoulou, P. (2011). The digital divide profile of Greece: One step further. *The Greek Review of Social Research*, 136. Accessed April 16, 2016, from <https://ejournals.e-publishing.ekt.gr/index.php/ekke/article/view/6736>
- Hellenic Statistical Authority. (2013a). *Regional information society statistics* [online]. Accessed April 7, 2016, from <http://www.statistics.gr/el/statistics/-/publication/SFA20/2013>
- Hellenic Statistical Authority. (2013b). Survey on ICT usage in households and by individuals 2012, quality report. Athens, Greece.
- Hellenic Statistical Authority. (2015, August). *Labour Force Survey* [online]. Accessed April 7, 2016, from <http://www.statistics.gr/documents/20181/42a81f31-ef87-4014-825c-bcc6021a7032>
- Helsper, E. J. (2012). A corresponding fields model for the links between social and digital exclusion. *Communication Theory*, 22(4), 403–426.
- Helsper, E. J., & Reisdorf, B. C. (2013). A quantitative examination of explanations for reasons for internet nonuse. *Cyberpsychology, Behavior, and Social Networking*, 16(2), 94–99.
- Helsper, E. J., & Reisdorf, B. C. (2016). *The emergence of a “digital underclass” in Great Britain and Sweden: Changing reasons for digital exclusion*. New Media & Society.

- Michailidis, A., Partalidou, M., Nastis, S. A., Papadaki-Klavdianou, A., & Charatsari, C. (2011). Who goes online? Evidence of internet use patterns from rural Greece. *Telecommunications Policy*, 35(4), 333–343.
- Montagnier, P., & Wirthmann, A. (2011). *Digital divide: From computer access to online activities—a micro data analysis*. Paris: OECD Publishing.
- Porter, C. E., & Donthu, N. (2006). Using the technology acceptance model to explain how attitudes determine internet usage: The role of perceived access barriers and demographics. *Journal of Business Research*, 59(9), 999–1007.
- Reisdorf, B. C. (2011). Non-adoption of the internet in Great Britain and Sweden: A cross-national comparison. *Information, Communication & Society*, 14(3), 400–420.
- Reisdorf, B. C., Axelsson, A. S., & Maurin, H. (2012). Living offline—a qualitative study of internet non-use in Great Britain and Sweden. *AoIR Selected Papers of Internet Research*, 2.
- Troulos, C., Demian, E., & Tsakanikas, A. (2012). *Making the internet thrive in Greece: Social and economic barriers*. Athens: Foundation for Economic and Industrial Research (IOBE).
- Tsakanikas, A., Danchev, S., Giotopoulos, I., Korra, E., & Pavlou, G. (2014). *ICT adoption and digital growth in Greece*. Athens: Foundation for Economic and Industrial Research (IOBE).
- Tsatsou, P. (2011). Why internet use? A quantitative examination of the role of everyday life and internet policy and regulation. *Technology in Society*, 33(1), 73–83.
- Tsatsou, P. (2012). The role of social culture in internet adoption in Greece: Unpacking “I Don’t want to use the internet” and frequency of use. *The Information Society*, 28(3), 174–188.
- Van Dijk, J. A. (2005). *The deepening divide: Inequality in the information society*. Thousand Oaks: Sage Publications.
- Witte, J. C., & Mannon, S. E. (2010). *The internet and social inequalities*. New York: Routledge.