J Int Entrep (2017) 15:390–415
DOI 10.1007/s10843-017-0205-4

The impact of FDI on the performance and entrepreneurship of domestic firms

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Published online: 12 June 2017
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Abstract This paper examines how foreign direct investments influence the performance and entrepreneurship of domestic firms, a crucial question for economies driven by incursion of exogenous factors and especially transition economies. The intent is to investigate the way foreign direct investments shape the capabilities of domestic firms; hence, for this purpose, we take Macedonia, a Southeast European economy, as a case study. We find that (i) foreign ownership has helped restructure and enhance the productivity of domestic firms, (ii) FDI has positive influence in reinforcing the creation of new firms, and (iii) in line with the established literature, a foreign investment is likely to influence the job seeker to get employed rather to start their own business. Overall, the results confirm the influence of foreign firms in assisting entrepreneurial activity. The impact of foreign investment is, in general, positive and tends to influence the restructuring process of domestic enterprises.

Résumé Cet article examine comment les investissements directs étrangers influencent la performance et l'entrepreneuriat des entreprises nationales, question cruciale pour les économies entraînées par l'incursion de facteurs exogènes et surtout des économies en transition. L'objectif est. d'enquêter comment les investissements étrangers directs façonnent les capacités des entreprises nationales; par conséquent, on prend la Macédoine, une économie de l'Europe du Sud-est, comme étude de cas. Partant, on trouve que: (i) la propriété étrangère a aidé à restructurer et à améliorer la productivité des entreprises nationales; (ii) l'IED a une influence positive sur le renforcement de la création de nouvelles entreprises, et (iii) conformément à la littérature établie, un investissement étranger est. susceptible d'influencer le demandeur d'emploi à s'engager

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plutôt que à créer sa propre entreprise. De bout à l'autre, les résultats confirment l'influence des entreprises étrangères sur l'activité entrepreneuriale. L'impact de l'investissement étranger est. en général positif et a tendance à influencer le processus de restructuration des entreprises nationales.

Keywords Performance · Entrepreneurship · FDI effects · Domestic firms · Southeast Europe · Macedonia

Performance · Entrepreneuriat · Effets de l'IED · Entreprises nationales · Europe du Sud-est · Macédoine

JEL classifications D22 · F21 · G30 · L10 · O10 · P31

Summary Highlights

Contributions: This study adds theoretical and empirical evidence to the research on the determinants of foreign direct investments influence the productivity and entrepreneurship of domestic firms.

Research questions and purpose: The core argument of this work is that foreign ownership promotes performance and entrepreneurship of domestic firms. In order to see the limits of this notion, we have developed two basic hypotheses. The first is on performance, where it is tested the impact of foreign ownership on the performance of domestic firms through a set of variables that are most likely to be affected by the changes in ownership structure. The second one is on entrepreneurship, where we test the impact of foreign direct investment on (a) barriers to entry into the market and creation of new firms and (b) levels of income.

Results/findings: (1) Foreign ownership has helped restructure and enhance the productivity of domestic firms, (2) FDI has positive influence in reinforcing the creation of new firms, and (3) in line with the established literature, a foreign investment is likely to influence the job seeker to get employed rather to start their own business.

Theoretical implications and recommendations: The paper contributes to the literature on productivity of domestic firms and international entrepreneurship by (1) looking at the economic opportunities for creation of future goods and services driven by foreign capital in a host economy, (2) evaluating whether investment decisions of foreign-owned firms can encourage the creation of new firms, in the context of fostering business relationships as suppliers to the foreign principal, and (3) examining entrepreneurial activity in a small, open economy—not considered previously in the international entrepreneurship literature.

Practical implications and recommendations: Overall, this research sheds light on various mechanisms affecting domestic firms' outcomes in an environment of dominant foreign ownership. By using these observations, a set of managerial implications arise when making practical decisions, such as whether to go ahead with a venture tied

to foreign-owned firm, how much to invest, and in what or which distribution system to use. On more general level, our paper provides important policy debate inputs on the benefits from inward foreign direct investment for host country's firms.

Introduction

This study is an analysis of the effects of foreign direct investment on domestic firms in an environment of increased influx of foreign ownership and no past experience of such presence due to historical circumstances. As of the beginning of the transition process, foreign direct investments remain priority, essential pillar that moves forward the society towards developed market economy. Indeed, there are unsettled impressions related to the phenomenon of foreign direct investment related to the transition countries of Southeast Europe. Over the past decade, the Republic of Macedonia, a developing country, is trying to attract inward foreign direct investment (FDI), designing policies and incentives that increasingly facilitate the location of multinational companies in the country.

In this regard, we determine the impact of foreign direct investment as basic predicament related to the performance of domestic companies and the possibility entrepreneurship to become key driver of development can be of essence when tuning the economy. Additionally, the extent of this question can be structured within the framework of current literature which takes positive attitude towards foreign direct investments founded on the argument that foreign ownership can be influential to the host economy through spillovers and linkages (Cantwell and Piscitello 2002; Girma et al. 2015a; Lu et al. 2017) and by promoting domestic entrepreneurial activity, even though the immediate impact of import competition may deter entry and stimulate exit of domestic entrepreneurs (De Backer and Sleuwaegen 2003). There is positive structural effect of subsequent presence of foreign-owned firms on increasing performance of domestic firms as well as growth of new firms by growing demand for intermediate inputs, fostering network activities, providing demonstration cases, yielding knowledge, innovation, and financial spillovers (Markusen and Venables 1999; Barrios et al. 2011; Guadalupe et al. 2012; Damijan et al. 2013; Perri and Peruffo 2016). Building on the existing literature related to the potential impact of inward foreign direct investment, the topic under scrutiny here is to analyze whether foreign-owned firms operating in Macedonia had a positive and statistically significant impact on performance of domestic firms and entrepreneurial activity measured by the net creation of new firms. The Macedonian economy provides an interesting context for such an analysis given that over the past decade, Macedonia had become candidate country for the European Union, NATO, and strategic partner to the USA, and the expected positive effects of foreign direct investments on local development were taken as to justify generous financial and fiscal incentive packages for attracting foreign investors. Examples of important foreign direct investments ever made in Macedonia can be found in automotive industry (Van Hool), telecommunications (T-Mobile), banking (Société Générale), hospitality (Marriott), and others in manufacture and services. In cases such as these, there is a belief that foreign direct investment contributes to the development of the local industry by creating new firms that act as suppliers or subsuppliers. The motivations for foreign direct investment in Macedonia

may be distinct from those in other European countries, but nonetheless they may affect productivity spillovers (Bellak et al. 2009; Apostolov 2014; Damijan et al. 2015; Apostolov 2016a; Dollar 2017).

The center argument of this work is that foreign ownership promotes performance and entrepreneurship of domestic firms. Using firm-level data provided by the World Bank Enterprise Surveys for manufacturing and service industries over the period 2002 to 2013, we test the impact of foreign ownership. In order to see the limits of this notion, we have developed two basic hypotheses. The first is on performance, where it is tested the impact of foreign ownership on the performance of domestic firms through a set of variables that are most likely to be affected by changes in ownership structure. The second one is on entrepreneurship, where we test the impact of foreign direct investment on (a) barriers to entry into the market and creation of new firms and (b) levels of income.

Based on pertinent theoretical concepts and existing empirical findings and by applying up-to-date methodological approach, the paper contributes to the literature on performance of domestic firms and international entrepreneurship by (i) looking at the economic opportunities for creation of future goods and services driven by foreign capital in a host economy, (ii) evaluating whether investment decisions of foreign-owned firms can encourage the creation of new firms, in the context of fostering business relationships as suppliers, and (iii) examining entrepreneurial activity in a small, open economy—not considered previously in the international entrepreneurship literature. Therefore, we believe that the paper is a step forward in assessing the role of corporate entrepreneurship that extends across national borders in affecting opportunities to create new goods and services in host economies which are to be internationally tradable. Inward foreign direct investment can explain externalities that assist host economy in achieving higher rates of development. Moreover, the lack of studies evaluating the impact of foreign direct investment on the development and growth of domestic firms emphasizes the relevance of this study both for strategic and policy decisions. Consequently, this paper addresses that limitation aiming to be a factor for understanding the economic value and interest of foreign ownership on regional bases.

This paper is organized as follows. In the next section, we build the theoretical and literature framework and elaborate different methodological approaches. The next few sections are on performance comparisons, efficiency effects from FDI and domestic entrepreneurship. We use separate section giving analytical framework of the study where we explain the data and empirical model. There is a specific section discussion the results and effects where we convey our findings, linking the empirical evidence with the theoretical predictions. The paper ends with a synthesis of the main results and suggestions for future research.

Theoretical and literature framework

The question of foreign direct investment effects is much researched, since there is significant body of literature that covers many aspects related to the ways domestic economy reacts to exogenous inputs. When considering the impact of inward foreign direct investment on host country, there are two broad aspects. The *first* is the direct effect of foreign ownership, as to whether affiliates of foreign firms in a host country are more productive than comparable domestic firms. In this instance, researchers conduct estimates

on the "treatment" or direct effects that foreign have on domestic firms using microeconometric evaluation (Harris and Robinson 2002; Girma and Görg 2007; Arnold and Javorcik 2009; Damijan et al. 2015). The basic assumption is that foreign-owned companies have firm specific assets, a framework based on the knowledge capital model (Markusen 2004) or more recent models of heterogeneous firms (Helpman et al. 2004), which translate into a productivity advantage indirectly transferred to domestic companies. Generally negative, horizontal outcomes usually conditioned on several intra-industry factors in different parts of the world (Konings 2001; Blomström and Sjöholm 1999; Gorodnichenko et al. 2014). The *second* aspect relates to the indirect effect or spillovers, i.e., whether there is any effect from the presence of foreign firms on the productivity of domestic or other foreign-owned firms. The theoretical foundation is that domestic firms can learn from the presence of foreign-owned firms, e.g., technology transfer (Blalock and Gertler 2008), supply chains linkage (Hatani 2009), qualified labor that moves from a foreign firm to a domestic competitor thus transferring knowledge, etc. (Fosfuri et al. 2001). Nevertheless, there are positive, vertical outcomes noticed in many studies which deal more specifically and consider factors in depth, such as region of origin and export orientation (Monastiriotis and Alegria 2011), distinctiveness of beneficiary economy and related FDIs (Acemoglu et al. 2010), and firm and sector characteristics (Halpern and Muraközy 2007; Keller and Yeaple 2009; Girma et al. 2015a; Dreger et al. 2017).

Reputed international companies are investing great deal in their research and indeed they are at the edge of applied science. Thus, it is expected that most of research and development originates from firms operating in more than one country giving higher rates of innovation overall (Criscuolo et al. 2010; Boermans and Roelfsema 2015). Therefore, it is anticipated that such companies hold intangible, value-added knowledge assets, which in turn contribute to their market superiority and expansion (Ciabuschi et al. 2017). Spillovers can occur in couple of ways. First, domestic companies can improve by applying processes purchased from foreign cooperant or acquiring such knowledge by reverse engineering. Second, employing management and workers that have already been part of international companies and hold assets crucial to firm's technology processes. And, thirdly, direct competition will eventually force domestic firms to adapt to the business environment and employ all necessary practices in order to stay afloat (Glass and Saggi 2002).

Entrepreneurship is closely tied to foreign direct investment in a host country as there are effects that foreign entrants generate, both positive and negative. Certainly, there are major policy implications related to the way foreign-owned companies impose on domestic market and whether they help entrepreneurship in job creation, innovation (Markusen and Venables 1999), and growth (Koellinger and Roy Thurik 2011). The market structure is improved with new entrants because they increase competitive pressures depending on exogenous alterations in technology and demand. It is important mechanism which enables benefits from foreign investment through diversifying the market structure, facilitating technology, and improving managerial skills and human capital (Arrow 1974; Fama and Jensen 1983; Guadalupe et al. 2012). In a transition or developing economy, foreign-owned companies usually pay efficiency wages in order to attract domestic resources and skilled labor. Also, potential entrepreneurs are eager to enter supply chains of international companies because it would mean stable business and opportunity to expand. On the other hand, there can be

negative effects of foreign entry through increased domestic competition and higher entry barriers into the market.

There are distinct types of entry and exit into the market noted in the literature, i.e., domestic entry/exit (domestic entrepreneurs) and foreign entry/exit (international firms). When these two basic types of entry/ exit are combined, we have the effects of foreign capital on entrepreneurs and vice versa. There is large body of research that analyzes domestic and foreign entry/exit (Gorecki 1976; Khemani and Shapiro 1986; Akerlof 1970; Baysinger and Butler 1985; De Backer and Sleuwaegen 2003; Feliciano and Lipsey 2015). The effects of foreign ownership on entrepreneurship have been examined through empirical studies where has been estimated the positive structural impact on entry, complementary entanglement between foreign and domestic firms (Daines and Jon 1992; Markusen and Venables 1999; Santarelli and Vivarelli 2007; Moons and van Bergeijk 2017). Additionally, the basic hypothesis is that effects, networking, and demonstration of foreign capital usually generate simulative upshot for domestic entrepreneurship.

Methodological approaches

Methodological approaches used for analysis of performance and effects of foreign-owned companies on domestic-owned firms can be classified in four major groups of comparisons (Bernard and Jones 1996). Further, the mode of comparison should give answers to the analyzed problem and can be presented in the following way:

1. Foreign-owned affiliate in host country versus domestic-owned firms
2. Foreign-owned affiliate in host country versus parent company
3. Domestic-owned firms which are multinationals in home country versus the rest of domestic-owned firms
4. Foreign-owned firms as parent company versus foreign-owned affiliate in home country

Performance comparisons

The literature related to foreign direct investments and their impact on domestic firms, in terms of performance, identifies three general strands:

Spillovers from foreign-owned to domestic-owned firms Superior effects can be noticed in the case where foreign-owned firms have some sort of "superior asset" and thus leverage over domestic-owned firms (Girma et al. 2015a). Spillovers usually manifest in knowledge spillovers and learning, technology adaptation, labor mobility, etc., from former to latter. As far as their actual impact is concerned, there are studies that point to minor effects (Blomström and Kokko 1998) or such that elaborate negative effects on domestic firms but positive spillovers within the foreign enclave (Aitken and Harrison 1999; Zhou et al. 2002). Other studies like the one conducted on UK give some interesting results on the fact that domestic-owned firms do not gain from the presence of foreign-owned firms because there are weak links between them, interpreted through growth of foreign direct investment versus productivity growth (Girma et al. 2001).

Some authors argue the liaison between spillovers and gaps (Aitken et al. 1997, 1996; Blomström and Sjöholm 1999), where foreign-owned firms can have high levels of productivity however lower than domestic-owned firms (Haddad and Harrison 1993). Nonetheless, the presence of foreign-owned firms might induce arrested development for domestic-owned firms instead of catching up process (Aitken et al. 1997; Keller and Yeaple 2009). The extent of the gaps is defined as one of the possible triggers for spillovers between foreign-owned companies and domestic-owned firms (Girma et al. 2001; Dosi and Soete 1983; Hubert and Pain 2001; Ferragina and Mazzotta 2013; Demena and van Bergeijk 2017).

Effect of ownership change The matter of performance differentiations between foreign-owned firms and domestic-owned firms can be found in the literature of mergers and acquisitions, where two main lines are utilized. First, a take-over occurs due to low level of stock prices and adds disciplinary value to management, increasing post take-over performance and the value of the firm while limiting efficiency gains because of considerable transaction costs (Girma and Görg 2004; Yang et al. 2017). Second, a take-over happens with one primary goal, that is, efficiency gains secondary to the growth of the firm. Efficiency is upgraded by labor reduction (Conyon et al. 2002b). When ownership change occurs, another dilemma is whether high-productivity assets are overhauled and how they function after the take-over. In some cases when such assets are overtaken, there is positive upshot of the performance (McGuckin and Nguyen 1995; Chari et al. 2012). On the other hand, it is unclear if it happens because of domestic or foreign take-over (Conyon et al. 2002a).

Foreign entry into market structure When foreign-owned firm enters existing market structure, the entrant changes the rules of the game and thus causes divergence in conduct of already instituted firms on that market structure. Additionally, if the foreign firm enters into market structure with "greenfield project" (the parent company starts a new venture by constructing new operational facilities from the ground up), it has upper hand in turn of location, technology, plant size, and reputation. Contrary, firms already present on the market structure are disadvantaged by local investments and drawbacks related to the trend of regional technology shifts. Nonetheless, foreign entry is most often seen as a way to apply efficiencies on established firms (Driffield and Munday 1998; Dikova and van Witteloostuijn 2007), increase productivity and growth (Mata and Portugal 2004), employment, and market share. Exits have been studied and it has been found that exits of a market structure are more likely to occur by foreign-owned firms, generally due to corporate strategy (Görg and Strobl 2003; Feliciano and Lipsey 2015).

Efficiency effects from foreign direct investments

Direct effects

The effects from foreign direct investment can be direct or indirect, based on the logic that the entry of any company with increased productivity positively influences domestic firms and their competitiveness. However, domestic firms that are not being able to meet those strengths within any particular sector subdued to foreign entry will

eventually be pushed out of the market (Kathuria 2000; Damijan et al. 2013). The direct effect of foreign direct investment refers to comparison of productivity between affiliates of foreign firms and domestic firms. Hence, through microeconometric analysis is estimated either in the levels of the knowledge capital or firm specific assets that translate into productivity advantage for foreign-owned firms, opposed to domestic companies. This can lead to potentially biased estimates because direct effects and spillovers are estimated in isolation, i.e., the econometric approaches presume that the productivity of the control group is independent of foreign ownership, which is in contrast with the idea of spillovers.

In the literature, it is noted that foreign direct investments can cause negative upshots on domestic companies' productivity (study on Venezuela) (Aitken and Harrison 1999), which is in consistency with a study on Indian FDIs' impact (Kathuria 2000). In this context, it is clear that the foreign companies operating on domestic market have keen interest in preventing technology leaks to their competitors. Therefore, it is observed that, generally, the foreign companies' function as enclaves where their know-how has nothing to do with the local companies (Kokko 1994; Harding and Javorcik 2011). Nonetheless, it must be affirmed that FDIs can have negative consequence on domestic companies in two basic modes: (1) they can appropriate their market share or (2) attract the finest human capital, thus starve the local economy of good quality resources. As a result of such developments, domestic companies might suffer drawback on economies of scale and higher costs (Aitken and Harrison 1999; Girma and Görg 2007).

Indirect effects

Indirect effects are those that occur through productivity "spillovers," where the theoretical notion is that domestic firms can learn from the presence of foreign multinationals in their vicinity. So, identification of the effects of foreign ownership at industry level on domestic firm productivity is problematic because of industry/region specific shocks that cause endogeneity concerns. Certainly, local companies can benefit quite a lot if they keep direct contact with the FDIs, that is, at early stage as suppliers and later as part of the extended supply chain of the foreign entrant (Girma et al. 2015b). Increase of overall business process standards impacts on increased performance of domestic firms, and such spillovers are frequently found to be positive and quite considerable (Javorcik 2004; Barrios et al. 2011). Additionally, more recent research on developed countries provide evidence on positive productivity spillovers, like the study on UK manufacturing plants (Haskel et al. 2007) or US manufacturing plants (Keller and Yeaple 2009). In general terms, the spillover is transfer of modus operandi, from foreign direct investments to domestic companies through varieties of networks due to mutual contacts. Hence, main transfers occur in corporate governance and managerial practices, design and enforcement of marketing mix, production methods, and general knowledge related to business issues (Apostolov 2013; Moons and van Bergeijk 2017). Local companies use new techniques to improve their processes that result because of interaction with foreign managers as well as former employees of foreign direct investments. Usually, in earlier stages, they learn to imitate or adopt the techniques in order to increase the quality of their products and services. Further, there is a substantial

benefit of advanced professional services or widening the supplier chain networks. The standards are higher since FDIs function on international markets, and they must use the same corporate policy elsewhere, which influences the local economy positively. Local companies absorb such practices to improve time efficiency or quality. Additionally, in order to escape single supplier's bargaining power, foreign firms are willing to transfer technology to chosen local firms (Blalock and Gertler 2008). On the other hand, it is in the best interest of the company to increase demand providing support to domestic consumers and thus transfer of process skills. If that is the case, spillovers are to be found indirectly in (1) increased domestic productivity and product quality; (2) economies of scale of domestic companies that are achieved by supplying foreign firms and new entries of domestic companies to the same market on behalf of increased demand; (3) better availability of technological goods increases productivity of domestic firms or downstream technology diffusion via trade; and (4) mechanisms as a rule linked to horizontal spillovers, such as imitation or employment turnover may crop up in vertical as well (Zhang et al. 2014).

Nonetheless, foreign direct investments and presence of foreign capital can be positive even in nonexistence of spillovers. Especially when taken under consideration the cases of economies in transition, the foreign direct investments have crucial role in overall enterprise restructuring (Blanchard 1998; Apostolov 2014).

Foreign direct investment, effects, and domestic entrepreneurship

The relationship between entrepreneurship and foreign investment is increasingly important and researched subject. Chamberlin's model of monopolistic competition clearly indicates that there is rapport between increased entry of new firms into the market and welfare (Pascoa 1993); however, economists have advised also on the other opposite, i.e., excessive entry. Anyhow, there are many studies that confirm the major role of entrepreneurship in job creation and overall economic growth (Schumpeter 1934; Markusen and Venables 1999; Fama and Jensen 1983; Koellinger and Roy Thurik 2011). The level of entrepreneurship points to the intensity of competitive pressures on a domestic market as well as the concentration of exogenous changes of demand and technology (Arrow 1974). Also, through rates of entrepreneurship can be seen the state of spillovers from foreign direct investment and their impact on human capital, technology, and managerial skills in the transfer process from foreign entrants to domestic firms (Fama and Jensen 1983). Consequently, innovators and managers that grasp their experience through work at foreign firm can transfer their knowledge to other domestic company or most likely to make the transfer via creation of new firm. On the other hand, high payments made to human capital in foreign firms can constrain entrepreneur's business as it struggles to establish itself on the market. Nonetheless, foreign companies have the need to accumulate asset specific products that can be supplied by specialized entrepreneurship businesses which find their brake into the market dominated by foreign ownership.

It is well supposed that foreign-owned firms can crowd-out entrepreneurship, and in many cases, it is a result of higher wages for workers pressuring for employment over self-employment. Thus, they sweep up limited domestic resources and dry out managerial talent and finances, which results in higher operating costs for entrepreneurship businesses

and higher entry barriers into the market. As a consequence of such negative spillovers from foreign direct investments, there is reduced market competition and induced rate of entrepreneurship creation. In some instances, there are studies that analyze single countries and industries where the spillover outcome was mixed, for example, a study on firm entry and exit of Belgian manufacturing sector = (De Backer and Sleuwaegen 2003), the authors note the significance of structural effects of foreign presence through linkages. In another study about Irish manufacturing sector, there are positive effects from firm entry, however, raised doubts on the survival rate of firms (Görg and Strobl 2002). Indeed, the relationship between foreign direct investments and entry of new domestic firms has been specified as U-shaped curve with noted initial negative effect, however, positive overall outcome over time (Barrios et al. 2005).

According to Grossman, there are two modes on foreign investment's impact on host economy and domestic firm formation (Grossman 1984): (a) foreign investment is inclined to lower the number of entrepreneurs and (b) inflows of foreign capital affects the distribution of entrepreneurs. Higher wages and prospects in foreign-owned companies is appealing to potential entrepreneurs; thus, the overall effect is reduced number and negative distribution of individuals that would otherwise become entrepreneurs. There have been studies that specially analyze developing countries, and the models suggest that there is a "crowd-out" effect of foreign investment on domestic entrepreneurship especially in the case of wider technology gap (Goergen et al. 2010).

Indeed, foreign investment can have positive or negative effect on entrepreneurship in host economy and it can happen simultaneously. The way this is going to play out depends on country specific characteristics.

FDI and firm creation

The literature on inward FDI effects and particularly on creation of domestic firms (Rodríguez-Clare 1996; Markusen and Venables 1999; Audretsch 2007; Albulescu and Tămăşilă 2015) illustrate that there are two main effects on host economies: (a) demand side effect and (b) competition effect. First, FDIs can increase demand for local intermediate goods which reflects positively on newly created domestic firms and second, FDIs enjoy market power either on the product market or the factor market that can negatively influence new firm creation. Another issue is the process of internationalization and growth of smaller firms and their inclusion in international business processes (Etemad 2004) and whether FDIs support them in that process.

Entrepreneurship and occupational choice

One of the most widely employed model to explain firm formation is the occupational choice model where individuals make comparisons between wages earned as a worker versus potential entrepreneurial income. The probability of individuals starting a new firm is a positive function of managerial ability (Romano 1991) and, contrary, a negative function of an individual's risk attitude (Berndt and Gupta 2009). Other models permute both differences, in managerial ability and in worker ability (to be employed rather than to start a new firm) (Stout 1988). Many of the models center around closed economy; however, one of the first studies modeled on open economy setting scrutinizing firm formation in relation to foreign trade and investment is the one of Grossman. The importance of the study is that it

shows the negative impact of foreign direct investment and competition on the number of domestic entrepreneurs, where their number lowers as a result of reduction of prices on products tightening profit margins and entrepreneurial income/wage ratio of domestic entrepreneurs (Jensen and Meckling 1976). Foreign direct investment introduces competition in all factor markets, while at the same time, foreign firms crowd-out domestic entrepreneurship, especially on the labor market (De Backer and Sleuwaegen 2003; Santarelli and Vivarelli 2007). The crowd-out effect also pushes best penitential entrepreneurs to become workers for wage in foreign-owned firms and eventually reduces the number of new entrepreneurship businesses (Merlevede et al. 2014). These movements on the labor market are usually explained by a model based on firm entry (Stout 1988). In fact, it is supposed that the economy is comprised of two homogeneous factors of production (capital K and labor L) (Wong et al. 2005; Santarelli and Vivarelli 2007).

Analytical framework

Sample selection and data

The data used in this research is from Enterprise Surveys data sets specified by the World Bank Microdata Library. An Enterprise Survey is a firm-level survey of a representative sample of an economy's private sector. The surveys cover a broad range of business environment topics including access to finance, corruption, infrastructure, crime, competition, and performance measures. The surveys are derived through two instruments: the Manufacturing Questionnaire and the Services Questionnaire. The questions are addressed to business owners and top managers, normally 1200–1800 interviews in larger economies, 360 interviews in medium-sized economies, and 150 interviews in smaller economies.

The manufacturing and services sectors are the primary business sectors of interest of the Enterprise Survey. This corresponds to firms classified with ISIC codes 15-37, 45, 50-52, 55, 60-64, and 72 (ISIC Rev.3.1). Service firms include construction, retail, wholesale, hotels, restaurants, transport, storage, communications, and IT. Firms with 100% government/state ownership are not eligible to participate in an Enterprise Survey.

As far as sampling and weights are concerned, the Enterprise Surveys use stratified random sampling, that is, all members of the population have the same probability of being selected and no weighting of the observations is necessary. In a stratified random sample, all population units are grouped within homogeneous groups and simple random samples are selected within each group. The strata for Enterprise Surveys are firm size, business sector, and geographic region within a country. Sector breakdown is usually manufacturing, retail, and other services. Obtaining panel data across multiple years is characteristic in current Enterprise Surveys.[1]

Variables used on performance

Under the assumption that investments undertaken by foreign-owned firms are indeed productivity enhancing, the increased levels of their activities are predicted to lead to higher

[1] Enterprise Surveys - World Bank Microdata Library, available at: [http://www.enterprisesurveys.org/]

Table 1 Summary statistics on the performance model

	Summary statistics Performance			
	Mean	Std. dev.	Min	Max
pfo	12.20862	17.71655	0	84.9
ftw	75.85862	103.3542	6.7	542.1
cu	76.45882	5.419416	63.2	89.8
aeg	9.563889	2.202227	5	14.3
alpg	1.974286	4.055305	−5.7	12.3
ptsexd	16.27931	14.31342	0.1	62.3
ptsexi	6.394828	5.319426	0.1	20.9

productivity for domestic-owned firms. Following Guadalupe, we consider variables for foreign ownership, productivity, sales that are exported (Guadalupe et al. 2012), and a model that is used for estimation of the impact of foreign investment on firms' innovation activities. To capture spillovers, which are the main purpose of this research, we use slightly modified model used by Girma, essentially reinterpreted model, where firms' productivity-enhancing activities depend on the capacity of domestic firms to absorb spillovers from FDI (Girma et al. 2015a). Following this literature, as variables, we utilize the number of permanent full-time workers, capacity utilization (%), annual employment growth (%), annual labor productivity growth (%), proportion of total sales that are exported directly (%), and proportion of total sales that are exported indirectly (%), in order to see if the proportion of private foreign ownership in a firm (%) is the effect (Table 1).

Variables used on entrepreneurship

The basic parameters that have been most widely used for estimating entrepreneurship are (1) barriers for entry into the market, i.e., most precisely the possibilities to create and sustain a *new* firm ("managerial ability"/model based on firm entry) (Stout 1988) and (2) "worker ability" (to be employed rather than to start a new firm) which usually depends on the *levels of income* generated by working for self vs working for other (Jensen and Meckling 1976).

Therefore, we apply the same reasoning and use latest developments in entrepreneurship research as latent variable was taken the proportion of firms with legal status of privately held limited liability (including limited liability one natural person) (%).[2] Independent variables are separated in order to estimate entrepreneurship of the two previously explained basic parameters, more specifically:

a) Foreign direct investment (in percent of real GDP), access to finance and business licensing and permits indicator—firm entry—as used by De Backer and Sleuwaegen (De Backer and Sleuwaegen 2003)

[2] In Macedonia (and most of transition economies) 'limited liability company' and 'limited liability company one natural person' are distinct legal forms to enter into the market i.e. to register and start new business, therefore most valuable indicator for 'new firm'/ 'firm entry'.

b) Model and EconometricsForeign direct investment (in percent of real GDP) and GDP per capita growth (annual %)—levels of income—as used by Estrin et all. (Estrin et al. 2014) (Table 2).

Additionally, due to Tobit analysis, we can read the causes that are involved in the change of economy's ownership structure or the impact of private foreign ownership. The sample data is well drawn and used purposely.

Model and econometrics

In this study, we use the Tobit model (or censored normal regression model) in order to calculate approximately the unknown parameters, which is a censored normal regression model. The Tobit model has proven over time to give stable results and it is widely used. The latent variable stands for output, or in this case, it is tested to see if it is the effect. Further, the independent variables are inputs and they are investigated to clarify if they are the cause.

The structural equation in the Tobit model is (Sigelman and Zeng 1999; Wooldridge 2015):

$$\gamma i^{*} = X_i \beta + \varepsilon_i \tag{1}$$

where $\varepsilon_i \sim N(0, \delta^2)$. γ^* is a latent variable that is observed for values greater than τ and censored otherwise. The observed y is defined by the following measurement equation:

$$\gamma_{i=} \begin{cases} \gamma^{*} \; if \; \gamma^{*} > \tau \\ \tau_{\gamma} \; if \; \gamma^{*} \leq \tau \end{cases} \tag{2}$$

In the typical Tobit model, we assume that $\tau = 0$, i.e., the data are censored at 0. Thus, we have

$$\gamma_{i=} \begin{cases} \gamma^{*} \; if \; \gamma^{*} > 0 \\ 0 \; \; if \; \gamma^{*} \leq 0 \end{cases} \tag{3}$$

Table 2 Summary statistics on entrepreneurship models

Summary statistics									
Entrepreneurship 1					Entrepreneurship 2				
	Mean	Std. dev.	Min	Max		Mean	Std. dev.	Min	Max
lsll	63.21897	32.84045	2.5	99.6	lsll	63.21897	32.84045	2.5	99.6
fdi	2.527586	0.6509893	1.6	3.3	fdi	2.527586	0.6509893	1.6	3.3
af	23.67105	6.709248	8.8	33.5	gdppercap	0.3396552	1.813171	−1.004	4.136
blp	2.360526	3.013711	0	10.5					

Expected value of the latent variable γ^*:

$$E\left[\gamma^*\right] = X_i\,\beta \tag{4}$$

Expected value of $\gamma \mid \gamma > 0$:

$$E[\gamma|\gamma > 0] = X_i\beta + \sigma\lambda(\alpha) \tag{5}$$

Expected value of γ:

$$E[\gamma] = \Phi\frac{X_i\beta}{\delta} + [X_i\beta + \sigma\lambda(\alpha)] \tag{6}$$

Applied to our research, this model has the following shape:
Model on performance

$$\begin{aligned} PFO_{i,t} = {} & \beta_o + \beta_1 FTW_{i,t} + \beta_2 CU_{i,t} + \beta_3 AEG_{i,t} + \\ & \beta_4 ALPG_{i,t} + \beta_5 PTSExD_{\mathrm{i,t}} + \beta_6 PTSExI_{\mathrm{i,t}} + \varepsilon_{i,t} \end{aligned} \tag{7}$$

First model on entrepreneurship

$$LSLL_{i,t} = \beta_o + \beta_1 FDI_{i,t} + \beta_2 AF_{i,t} + \beta_3 BLP_{i,t} + \varepsilon_{i,t} \tag{8}$$

Second model on entrepreneurship

$$LSLL_{i,t} = \beta_o + \beta_1 FDI_{i,t} + \beta_2 GDPpercap_{i,t} + \varepsilon_{i,t} \tag{9}$$

Model on performance variables

- where the *latent variable*, $PFO_{i,t}$, is the proportion of private foreign ownership in a firm (%)
- the *independent variables* are as follows:

1. $FTW_{i,t}$ is the number of permanent full-time workers
2. $CU_{i,t}$ is the capacity utilization (%)
3. $AEG_{i,t}$ is the annual employment growth (%)
4. $ALPG_{i,t}$ is the annual labor productivity growth (%)
5. $PTSExD_{\mathrm{i,t}}$ is the proportion of total sales that are exported directly (%)
6. $PTSExI_{\mathrm{i,t}}$ is the proportion of total sales that are exported indirectly (%)

First and second model on entrepreneurship variables

- where the *latent variable*, $LSLL_{i,t}$, is the proportion of firms with legal status of privately held limited liability (including limited liability one natural person) (%)
- the *independent variables* are as follows:

1. $FDI_{i,t}$ is the foreign direct investment (in percent of real GDP)

2. $AF_{i,t}$ is the access to finance indicator
3. $BLP_{i,t}$ is the business licensing and permits indicator
4. $GDPpercap_{i,t}$ is the GDP per capita growth (annual %)

- β is a p-dimensional *parameter vector*
- ε is the *error term* or *noise*

Results and effects

Results of the models

Results of the model on performance

We use the model developed by Girma (Girma et al. 2015a), which is based on the notion that increased activity of foreign-owned firms not only leads to higher productivity for domestic-owned firms (Guadalupe et al. 2012) but also includes the spillover effects. Hence, on these grounds, we develop our model on performance of domestic firms and use: (1) for foreign ownership—the proportion of private foreign ownership in a firm; (2) for productivity—number of permanent full-time workers; capacity utilization; annual employment growth; annual labor productivity growth; and (3) for sales that are exported—proportion of total sales that are exported directly and proportion of total sales that are exported indirectly. We have taken these variables because it is most likely that foreign direct investments are directly related to them Fig. 1.

As tested (Table 3 and Fig. 2), the number of permanent full-time workers is positive and significant ($p < 0.01$). Consequently, it can be said that foreign ownership has influenced the overall economy with constant increase of employment. It is usually found in the literature such developments to be characteristic with influx of investments, especially owing to intra-industry dynamics (Barrios et al. 2011; Javorcik 2015).

In the case of capacity utilization, we find mixed results and negative outcomes, but there is not enough evidence to confirm any claim on such influence. We find similar

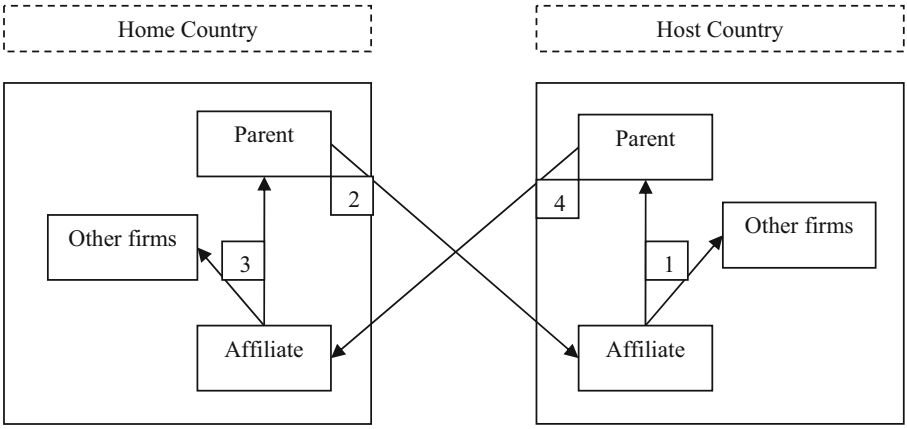

Fig. 1 Comparisons

Table 3 Tobit model analysis (PFO)

Tobit	Latent variable models						
	Macedonia						
Independent variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]
ftw	0.036283 [0.0113081]***		0.0366849 [0.0111987]***	0.0333332 [0.0114265]***	0.0387373 [0.047672]	0.0598109 [0.0142586]***	0.0330051 [0.0101872]***
cu	−0.1538562 [0.1028523]	−0.1683107 [0.1216148]		−0.1105819 [0.1005353]	−0.3035561 [0.4207425]	−0.1182997 [0.1425745]	−0.1783439 [0.0971717]*
aeg	0.3302973 [0.2563103]	0.1644196 [0.2971312]	0.2272962 [0.2340981]		1.865271 [0.8777686]**	−0.0031554 [0.3438083]	0.2871813 [0.2496343]
alpg	−0.4311357 [0.1431159]***	−0.4168672 [0.16931]**	−0.3833353 [0.130963]***	−0.3446165 [0.1301515]**		−0.0974858 [0.1748052]	−0.3982301 [0.1359354]***
ptsexd	0.1992135 [0.0403104]***	0.2541058 [0.0432946]***	0.1946636 [0.0392535]***	0.1857421 [0.040143]***	0.3346404 [0.1453834]**		0.1996696 [0.0406714]***
ptsexi	−0.0687712 [0.1068379]	0.0872253 [0.1128977]	−0.1384919 [0.0887713]	−0.0324534 [0.1063868]	0.3606344 [0.4207236]	−0.0825858 [0.1484503]	
_cons	11.16555 [6.977586]	12.95818 [8.231389]	1.398385 [2.198414]	10.96774 [7.197051]	2.702066 [29.21122]	13.22586 [9.678282]	12.79227 [6.561315]*
Pseudo R2	0.2105	0.1573	0.1896	0.2006	0.0603	0.1037	0.208
Time period	2002–2013						

Standard errors are in brackets

Significance level: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

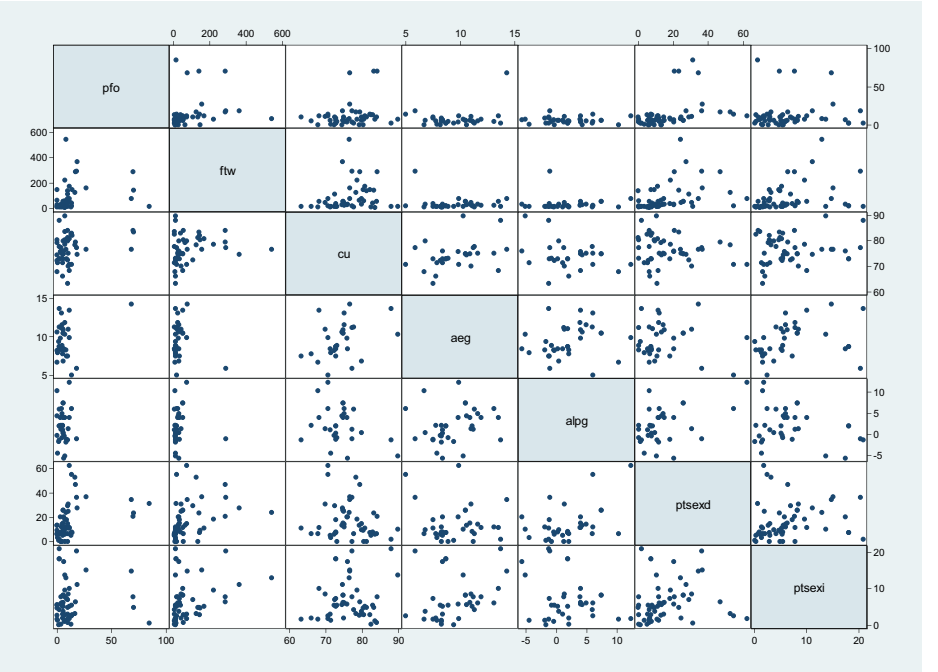

Fig. 2 Graph matrix of the first model

results on the variable annual employment growth, even though the tendency has shown to be positive; thus, it must be said that there is lack of proof to support with solid assertion.

Further, when analyzed the variable annual labor productivity growth, it is clear that it has negative inclination. The significance level of $p < 0.05$ rejects the null hypothesis and gives ground for our account that in fact is related to foreign ownership. The fact that it is negative can be interpreted through the state of economy's business cycles and level of technological advances (Gorodnichenko et al. 2014). Figure 2, in this case, makes the situation clearer and shows implicit relation to capacity utilization and change of ownership. Due time, this variable is expected to get into positive territory as enterprise restructuring finalizes and capacities are fully used and expended (Apostolov 2014, 2016b).

Total sales that are exported directly are positive and significant $p < 0.01$, which is strong evidence that FDIs are consistent with country's exports (Girma et al. 2008; Damijan et al. 2009; Conconi et al. 2016). In this case, it is mainly because of country's policies are directed towards displacement of the largest foreign direct investments into free technological and investment zones, which have special regulation favorable to boosting export growth.

The last variable, total sales that are exported indirectly, shows mixed results but mostly positive; however, it is not significant and therefore cannot hold grounds. It is clearly in the right direction and indirect exportation would show significant increase in linkages of domestic firms, mainly suppliers, with the foreign direct investments. Nevertheless, as the economy has been just recently subdued to higher amount of FDIs (Fig. 3), there is a tame lag between foreign entry and shift of the domestic supplier base

to meet foreign ownership's needs, which eventually should effectuate in the years to come.

In relation to gross domestic product, the model tries to confirm or deny the claim that foreign direct investments' effects are important and positive over time on the bases of analyzed variables.

The analysis performed (Table 3 and Fig. 2) shows positive ties of foreign direct investments with most of the selected movements in the domestic economy. However, there are also negative outcomes that have to be considered as well.

Figure 3 shows that gross domestic product and foreign direct investments are closely tied. Indeed, it is evidence that the influence of foreign direct investments is significant and contributes greatly anchoring the main indicator of the domestic economy.

Results of the model on entrepreneurship

In the second model through two separate estimations, we aim explaining the changes in entrepreneurship. The basic parameters that have been most widely used for approximating entrepreneurship are (1) barriers for entry into the market, i.e., most precisely the possibilities to create and sustain a *new firm* ("managerial ability"/model based on firm entry) and (2) "worker ability" (to be employed rather than to start a new firm) which usually depends on the *levels of income* generated by working for self vs working for other. Therefore, the basic variable that shows newly created firms is the proportion of firms with legal status of privately held limited liability (including limited liability one natural person), which is also put it in relation to income levels to see if the available labor is more likely to start a new business or be employed. The first estimation as independent variables contains foreign direct investment (in percent of real GDP), access to finance and business licensing and permits indicator. On the other hand, the second estimation uses foreign direct investment (in percent of real GDP) and GDP per capita growth (annual %).

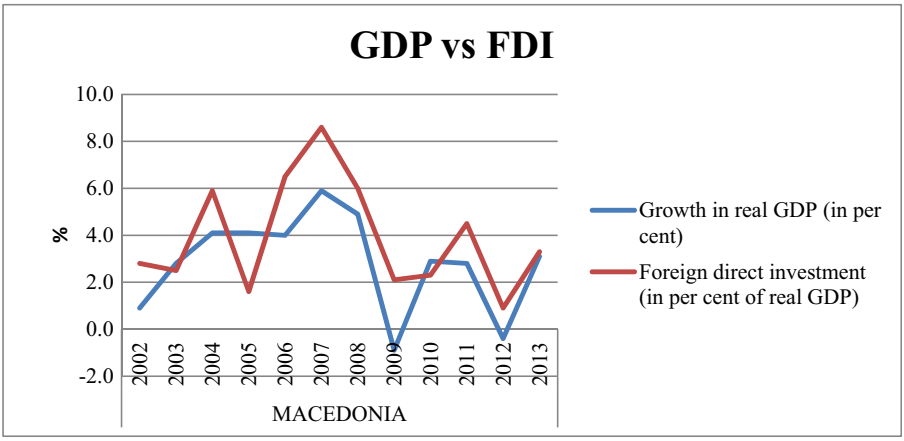

Fig. 3 Gross domestic product versus foreign direct investment

Table 4 Tobit model analysis (LSLL)—1st model

Tobit	Latent variable models				
	Macedonia				
Independent	[1]	[2]	[3]	[4]	[5]
fdi	27.60547 [2.902797]***	26.64788 [2.831508]***	22.64951 [2.385734]***		
af	0.2288246 [0.1988216]		0.2102882 [0.2161464]	−0.3263437 [0.3551643]	
blp	1.464732 [0.560693]**	1.443229 [0.5708038]**		−2.021069 [0.7902157]**	−2.175888 [0.7803366]***
_cons	0.4426924 [11.05313]	8.492828 [8.705144]	17.7171 [9.626438]*	96.28929 [8.525918]***	88.93108 [2.96481]***
Pseudo R2	0.1721	0.1679	0.152	0.0252	0.0225
Time period	2002–201				

Standard errors are in brackets

Significance level: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

1. The results of the first model on entrepreneurship are shown in Table 4. The outcomes point to good relationship between newly created firms (LSLL) and foreign direct investments. Undeniably, there is high positive coefficient and significance ($p < 0.01$). This explains that foreign direct investments have utter structural impact, therefore reinforcing the creation of new firms and overall business environment. Furthermore, columns (4) and (5) validate that if FDI variable is dropped, and then the other two variables go into negative territory which is proof of previously stated.

The variable representing access to finance has positive inclination; however, it is not statistically significant. Consequently, we cannot claim relationship with newly created firms although it is positive. Anyhow, the literature suggests that access to finance is important when it comes to financing entrepreneurship (Beck and Demirguc-Kunt 2006; Kerr and Nanda 2009).

The business licensing and permits indicator as a major barrier to entry into the market in this model gives positive results and statistical significance ($p < 0.05$). It is evident that there is positive influence of reduced bureaucratic procedures and government red type. New firm formation is facilitated by easier access to the market, reflecting managerial ability and entrepreneurship initiatives.

2. The results of the second model on entrepreneurship are shown in Table 5. In order to better understand the bond of levels of income to foreign investment and observe if labor is more inclined to start new business or get employed, we have taken two independent variables, i.e., foreign direct investments and gross domestic product per capita.

Table 5 Tobit model analysis (LSLL)—2nd model

Tobit	Latent variable models		
	Macedonia		
Independent variable	[1]	[2]	[3]
fdi	16.44462 [5.727466]***	28.40827 [5.614592]***	
gdppercap	−8.507521 [2.068013]***		−11.51501 [1.911062]***
_cons	24.27916 [15.18537]	−8.813189 [14.66064]	66.86048 [3.464496]***
Pseudo R2	0.0644	0.0378	0.0507
Time period	2002–2013		

Standard errors are in brackets

Significance level: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

The model proves that there is high positive effect and it is statistically significant ($p < 0.01$). The coefficient is rather high which indicates strong attachment of new firm creation to foreign direct investment.

As far as gross domestic product per capita is concerned, there is strong negative outcome which, as well, is statistically significant ($p < 0.01$). Indeed, this confirms previous notions already present in established literature that foreign investment is likely to influence job seeker to get employed rather to start their own business.

In Fig. 4 are given the movements of gross domestic product per capita opposed to foreign direct investments, and there is clear tie between these two values.

Discussion

Foreign direct investments are increasingly thought to be important for assisting the development of host economy firms. Theoretical models show that there are two main

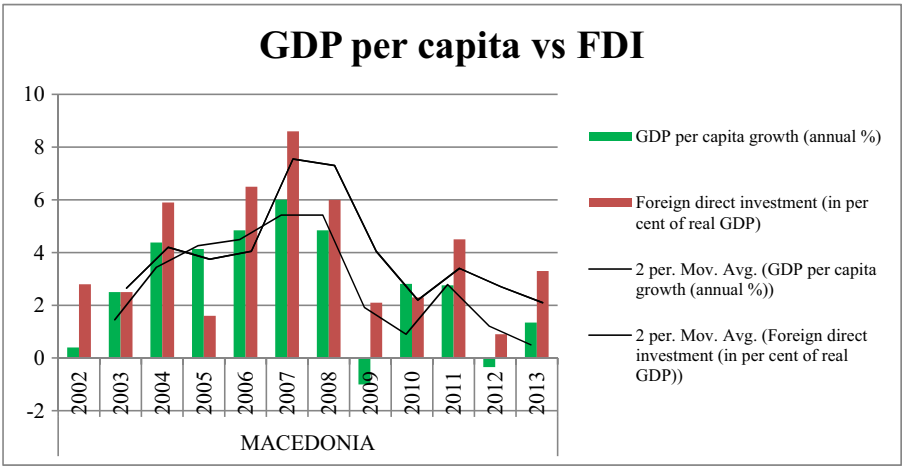

Fig. 4 Gross domestic product (per capita) versus foreign direct investments

economic forces at work. On the one hand, there is increased performance of domestic firms due to a demand-pulling effect as well as increased creation of domestic firms motivated by the input–output linkages foreign-owned firms help generate. On the other hand, there is a competition effect, i.e., foreign companies may force domestic firms to exit the market. These two countervailing forces shape the relationship between foreign and domestic firms and the entrepreneurial activity. Accordingly, this paper offers analysis of the way foreign direct investments influence domestic firms on their performance and entrepreneurial capabilities. Based on the existing theoretical and empirical literature, we test the following assertions: (i) the impact of foreign ownership on the performance of domestic firms through a set of variables most likely to be affected by changes in ownership structure and (ii) the impact of foreign direct investment on barriers to entry/creation of new firms and levels of income.

In our research, we verify that foreign ownership has influenced the overall economy and particularly domestic-owned firms with constant increase of employment. As specified by already established literature, it is evident that economies, and especially transition economies, in the first wave of significant influx of foreign ownership can increase overall employment. However, annual labor productivity growth has shown to be negative and it is due to economy's business cycles and especially level of technological advance, which still accumulates labor-intensive FDIs rather than capital-intensive. Indeed, strong evidence on the impact on exports has been noticed, mainly because the country's policies are directed towards displacement of the largest foreign direct investments into free technological and investment zones, which have special regulation favorable to export growth. The tests conducted on the hypothesis have shown positive ties of foreign direct investments with most of the selected movements in the domestic economy. There are also negative mixed effects particularly related to productivity and indirect exports which is a measure of economy's sophistication and level of inclusion of domestic-owned firms. Nonetheless, gross domestic product and foreign direct investments are closely tied, and the influence of foreign direct investments over gross domestic product is noteworthy.

The second hypothesis tests the relation of foreign ownership influx and entrepreneurship where the results show that there is positive structural impact of foreign direct investments in favor of entrepreneurship development on the domestic market. Creation of new firms and the expansion of managerial abilities have spiked mainly due to increased business confidence as the main denominator is foreign ownership presence and all it conveys to the domestic market. Reduced red type and reduced barriers to entry of start-ups have been rather positive in respect to improvement of entrepreneurship. Much has to be done to improve access to finance in order to perk up the options that potential entrepreneurs have for their ideas. In contrast, income levels indicate hints of crowding-out effects, i.e., high possibility that labor and especially high-quality labor is likely to become employed rather to start new business. At this point of economy's development, the worker ability is encouraged and it is mainly due to increased labor demand driven by foreign investments' need for workers in their newly established production processes. This is in line with established literature on harmful effects from foreign direct investments on entrepreneurship. Furthermore, it is apparent that foreign ownership advances throughout time because of imposed policies as well as overall progress of the economy's gross domestic product owing to increased influx of foreign

direct investments. Domestic-owned firms are included in the process and are very likely that they will add more to value chains as time progresses.

Overall, this research suggests that estimating the effects described in this paper sheds much needed light on various mechanisms through which the proportion of foreign ownership affects potential outcomes of domestic firms. By using these observations, a set of managerial implications arise when making practical decisions, such as whether to go ahead with a venture tied to foreign-owned firm, how much to invest, and in what or which distribution system to use. On more general level, our paper provides important policy debate inputs on the benefits from inward foreign direct investment for host country's firms.

Limitations and future research

Some limitations and future research paths are advised by this study. This research relays on broad indicators that helped measure performance of domestic firms and entrepreneurship vis-à-vis the influx of foreign direct investments. As in any quantitative study, a limitation of our study is the way some of empirical variables were measured. Applying different measures for entrepreneurship in future analysis can help uncover important inferences. Critical constraint is data availability, especially data specifically intended to analyze the entrepreneurship phenomena; however, major economic and business indicators are available at respected databases. Although the discussion presented throughout the paper has showed the validity of the adopted measures, it would be valuable, providing that researchers have access to more specific data, to verify if there are significant differences on results.

Further research is also needed to improve our understanding on the organizational processes carried by FDIs to foster performance and entrepreneurship. In future projects, researchers might wish to use the same (or modified) methodology as applied in this research, for other countries and test if domestic firms' development is constraint to foreign direct investments, in both developed and developing countries. Another possible path of research could be, for instance, an analysis on the impact of foreign direct investments by type of investment and sector. Other interesting questions are those related to the network activities of foreign firms and how these activities contribute to the creation of new firms or the way acquired business experience through interface with foreign firms might be used by a new local firm to access new international customers. Case studies might bring vital contribution to the literature, which eventually leads to solid policy and practice.

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