

Entrepreneurship and its determinants in a cross-country setting

Andreas Freytag · Roy Thurik

Published online: 30 December 2006
© Springer-Verlag 2006

Abstract The relative stability of differences in entrepreneurial activity across countries suggests that other than economic factors are at play. The present paper offers some new thoughts about the determinants of entrepreneurial attitudes and activities by testing the relationship between institutional variables and cross-country differences in the preferences for self-employment as well as in actual self-employment. Data of the 25 member states of the European Union as well as the US are used. The results show that country specific (cultural) variables seem to explain the preference for entrepreneurship, but cannot explain actual entrepreneurship. The present paper also introduces the remaining four papers of the special issue of the *Journal of Evolutionary Economics*, which center around the theme *Entrepreneurship and Culture*.

Keywords Cross-country setting · Self-employment

JEL Classification L26 · M13 · O57 · P52 · Z1

R. Thurik (✉)

Centre for Advanced Small Business Economics, Erasmus University Rotterdam, P.O. Box 1738,
3000 DR Rotterdam, The Netherlands
e-mail: thurik@few.eur.nl

R. Thurik

EIM Business and Policy Research, P.O. Box 7001, 2701 AA Zoetermeer, The Netherlands

R. Thurik

Max Planck Institute of Economics, Jena, Germany

A. Freytag

Wirtschaftswissenschaftliche Fakultät, Friedrich Schiller Universität Jena, Carl-Zeiss-Straße 3,
07743 Jena, Germany
e-mail: a.freytag@wiwi.uni-jena.de

A. Freytag

European Centre for International Political Economy (ECIPE), Rue Du Luxembourg 3, B-1000,
Brussels, Belgium

1 Introduction

The phenomenon of entrepreneurship is present at various levels of observation, such as the person or the firm, region or industry, and even nation (Davidsson 2004; Wennekers and Thurik 1999). Moreover, the approaches to explaining the phenomenon have built on a variety of disciplines such as economics, sociology and psychology (Wennekers et al. 2002). In the 20th century, three scholars, Schumpeter, Kirzner and Knight, shaped the economics literature on entrepreneurship.¹

It is well-known that the level of entrepreneurship, for instance as expressed as the percentage of owner/managers of incorporated and unincorporated businesses relative to the labor force, differs strongly across countries (Van Stel 2005). This variation is related to differences in levels of economic development, and also to diverging demographic, cultural and institutional characteristics (Blanchflower 2000; Wennekers 2006). There is evidence of a U-shaped relationship between the level of business ownership (self-employment) and per capita income.² Recent research in the framework of the Global Entrepreneurship Monitor (GEM) using the rate of nascent entrepreneurship or the prevalence of young enterprises shows the same phenomenon.³ Nascent entrepreneurship also reveals a wide-ranging diversity across nations and even regions.⁴ An explanation for this variation is much needed, as many governments attach high hopes to a positive effect of entrepreneurship on economic growth and, as a consequence, try to promote new business start-ups.

Whereas a number of individually relevant determinants of entrepreneurship have been widely explored (Parker 2004; Grilo and Irigoyen 2006), differences across countries remain unexplored. There is a general feeling that, while intertemporal differences can be attributed to economic effects such as per capita income and to technological developments, contemporaneous differences are of a mainly institutional or cultural nature. In other words: the relative stability of differences in entrepreneurial activity across countries suggests that factors other than economic ones are at play (Grilo and Thurik 2005b). In order to learn more about the relationship between culture and entrepreneurship, the guest editors of the present special issue organized a workshop with outstanding scholars in both fields—culture and entrepreneurship—to see how these two phenomena are linked.

The collection of contributions of the present issue is not meant primarily to answer questions; it is also meant to raise them. The knowledge so far is relatively eclectic and not collected in comprehensive and concise form. We are convinced that this special issue of the *Journal of Evolutionary Economics* will provide useful and original thoughts that will encourage other scholars to further explore the topic.

The present paper is meant to open the discussion and is organized as follows. Section 2 presents three strands of the theoretical literature on the entrepreneur. In Section 3 we discuss the literature concerning country differences in entrepreneurial activities. The subsequent Section 4 offers some new thoughts regarding the

¹ See Swedberg (2000) for views from other parts of the social sciences.

² See Blau (1987); Acs et al. (1994); Carree et al. (2002).

³ See Wennekers et al. (2005) and Van Stel et al. (2005).

⁴ See Masuda (2006) for an analysis of Japanese regions.

determinants of entrepreneurial attitudes and activities by testing empirically the relationship between institutional variables and the cross-country differences in the preferences for self-employment as well as in actual self-employment. Data of the 25 member states of the European Union as well as the US are used. The results of this exercise are intriguing. In this particular sample, the considered country specific cultural and institutional variables seem to explain the preference for entrepreneurship, but not actual entrepreneurship. In Section 5, we introduce the other four contributions to this special issue.

2 Economic theory and the level of the individual entrepreneur

The economics literature on the role of entrepreneurship is dominated by the influence of three scholars—Schumpeter, Kirzner and Knight. The Schumpeterian tradition stresses the inherent disequilibrium nature of market dynamics. It breaks with the neo-classical approach, which tended to analyze market functioning and agents' decisions as an equilibrium phenomenon, and it sees entrepreneurial activity as almost identical to innovative activity. The entrepreneur is the 'persona causa,' pushing the economy out of equilibrium. In the Kirznerian tradition, entrepreneurs demonstrate alertness to exploit (profit) opportunities. They are involved in a process of learning and discovery with the result being that the economy is pushed back towards equilibrium. Kirznerian entrepreneurs operate in a different phase of the product life cycle than do Schumpeterian ones. The Knightian tradition emphasizes the importance of two functions of entrepreneurs: (1) providers of entrepreneurial inputs who (2) receive a return for bearing (non-calculable) risk. Hébert and Link (1989) show that these three intellectual traditions can be traced back to Cantillon's *Essai sur la Nature du Commerce en Général*.⁵ Casson (1982) and Wennekers and Thurik (1999) attempt to make a synthesis again.

The three traditions started by studying the role of entrepreneurship in the economy, but contributed to a field concerned with self-employment decisions known as the theory of income choice. This field has proved useful in describing some of the factors influencing the occupational decision. In this neo-classical approach, agents act as (expected)—utility maximizers taking an occupational choice decision—to become employees or entrepreneurs (self-employed)—given the utility associated with the returns accruing from the two types of activity (de Wit 1993; Grilo and Irigoyen 2006). This constrained optimization approach is inspired primarily by the role of an entrepreneur as found in the work of Knight (1971) although the specification and the working assumptions vary according to the factor playing the key role in explaining self-employment decisions.

Knight views the entrepreneur as playing a twofold function: "(a) exercising responsible control and (b) securing the owners of productive services against uncertainty and fluctuations in their incomes."⁶ The first 'provider' function plays a role answering the question why different individuals make different occupational

⁵ They refer to the edition of *Essai sur la Nature du Commerce en Général* translated by H. Higgs 1931, London: McMillan.

⁶ As quoted by Grilo and Irigoyen (2006).

choices by emphasizing the role of entrepreneurial ability. Several authors follow this route by postulating differences across potential entrepreneurs (or firms) in terms of some form of entrepreneurial efficiency (Jovanovic 1982, 1994; Lucas 1978; Murphy et al. 1991; Holmes and Schmitz 1990; Lazear 2004, 2005). The *second* ‘risk bearer’ function gives a particular role to the presence of risk or that of risk attitudes in the occupational choice decision. Kihlstrom and Laffont (1979) and Parker (1996, 1997) show that the degree of risk aversion and the differences in risk of the two occupational alternatives determine the occupational choice. A *third* aspect that has been emphasized in explaining different occupational choices is the existence of liquidity constraints. Evans and Jovanovic (1989), building upon Lucas (1978) and Jovanovic (1982), show that, under certain conditions due to capital constraints, there is a positive relationship between the probability of becoming self-employed and the assets of the entrepreneur. This influential study led to many follow up investigations of both conceptual and empirical nature (Hurst and Lusardi 2004).

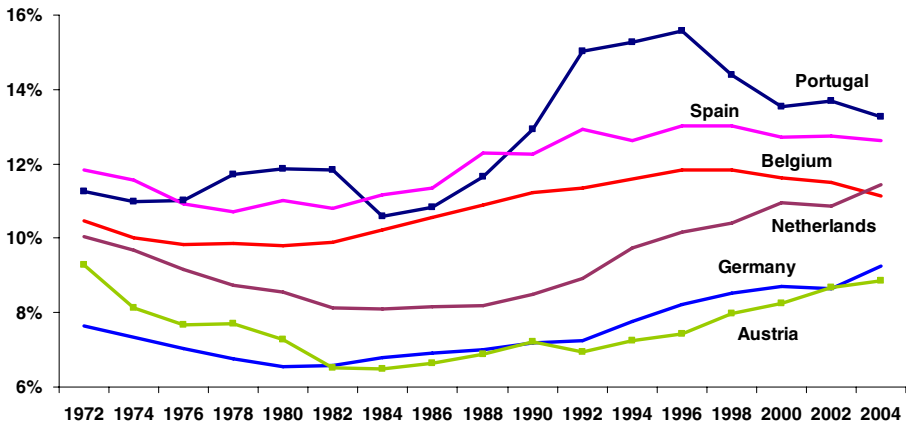
A large empirical literature has been built on the insights of the occupational choice models and has sought to test the role of factors influencing self-employment decisions at the micro level. These studies attempt to explain the probability of someone being or becoming self-employed. See Parker (2004); Blanchflower (2004) and Grilo and Thurik (2005a,c) for references. Typical explanatory variables include age, gender, race, education, earnings, capital assets, previous professional experience, marital status, professional status of the parents, and scores from psychological tests. There are many other determinants of being or becoming self-employed which are dealt with in the literature, such as employment status (wage, part-time, unemployment, characteristics of the workplace), minority behavior, immigrant behavior, family firm effects and attitudinal effects (past failures, relatives with experience, confidence, knowing other entrepreneurs, opportunity perception).

3 Country differences and the eclectic approach

The level of entrepreneurship, expressed as the percentage of owners/managers of incorporated and unincorporated businesses relative to the labor force i.e., the rate of entrepreneurship, differs strongly across countries.⁷ Moreover, the percentage of nascent or young entrepreneurs differs strongly across countries,⁸ as does latent entrepreneurship, i.e., declared preference. Grilo and Thurik (2006) provide a survey of European countries and the US. These differences are assumed to be related to levels of economic development, in addition to demographic, cultural and institutional characteristics (Blanchflower 2000). Differences over time seem to be dominated by economic influences, whereas cross-country variations seem to be affected by cultural and institutional components (Wennekers et al. 2002). In particular, there is some intriguing evidence that the level of business ownership displays a U-shaped relationship when related to economic development (Blau 1987; Acs et al. 1994; Carree et al. 2002). This U-shape appears also in the case of nascent

⁷ For instance, see Van Stel (2005) for data of 23 OECD countries over a recent period of some 30 years.

⁸ See Reynolds et al. (2005) for a survey of the Global Entrepreneurship Monitor data set.



Source: Compendia 2004.2. See Van Stel (2005).

Fig. 1 Rate of entrepreneurship in six OECD countries

entrepreneurship (Wennekers et al. 2005). The implication of such a U-shape is that, as economies develop, the rate of new business startups or that of nascent entrepreneurship declines, but picks up again in highly developed economies. This reversal marks the regime switch between the managed and the entrepreneurial economy (Audretsch and Thurik 2001, 2004).

In Fig. 1, the development of the rate of entrepreneurship is given for six countries of the 23 of the Compendia data set (Van Stel 2005). The rate of entrepreneurship is defined as the percentage of the number of non-agricultural business owners (including unincorporated and incorporated self-employed but excluding unpaid family workers) in the total labor force. We clearly observe not only the U-shaped development over time, but also persistent differences between countries.⁹ Whereas economic development is often given as the main driver of the U-shape, the persistent differences between countries point to non-economic causes such as cultural factors, which have a tendency to remain relatively stable over time. The further investigation of this latter view is the primary incentive for this special issue of the *Journal of Evolutionary Economics*.

Whereas the explanation for the individual proclivity towards entrepreneurship is dominated by income choice models, the explanation for the rate of entrepreneurship clearly belongs to the realm of multidisciplinary investigations. See Verheul et al. (2002) for such an ‘eclectic’ framework and Wennekers et al. (2002) as well as Audretsch et al. (2007b) for updates. Other investigations also use the ‘eclectic’ approach.¹⁰ Typically, these eclectic investigations attempt to bring together elements from different fields and levels of analysis.

⁹ Another phenomenon which is underresearched is the rise in variance of the rate of entrepreneurship until 1992—it more than doubled in the period 1972–1992 for the 23 OECD countries of the Compendia set—and its stabilization afterwards.

¹⁰ See the contributions by Busenitz et al. (2000), Stevenson and Lundström (2001) and by the Global Entrepreneurship Monitor teams (Reynolds et al. 1999, 2002; Acs et al. 2005).

The multidimensionality of entrepreneurship is reflected both in the way it is defined and the way it is measured. Reference is often made to definitions of entrepreneurship from economics (based on both the functions of the entrepreneur and the perception of economic opportunities and innovation) and to those from the managerial world, where entrepreneurship is referred to as a way of managing. This discrimination is also referred to as that between occupational and behavioral entrepreneurship (Sternberg and Wennekers 2005: 193). As regards measurement, two approaches are suggested. Business ownership and self-employment are considered as equivalent to entrepreneurship and can be the basis for *static* indicators (Wennekers et al. 2002). From a *dynamic* perspective, the proposed measures of entrepreneurship are based on latent (preference), nascent and start-up activity (Grilo and Irigoyen 2006). In Verheul et al. (2002), for instance, the framework distinguishes various disciplines and several levels of analysis (micro, meso and macro), and classifies the explanatory factors into two categories—supply and demand side. From the demand side, the framework focuses on factors that influence the industrial structure and the diversity of consumers' tastes, such as technological development, globalization and standard of living developments. The supply side looks into various structural characteristics of the population and the way these affect the likelihood of someone becoming an entrepreneur. Population growth, urbanization rate, age structure, participation of women in the labor market, income levels and unemployment are examples of such factors. While the supply and demand sides refer to the macro level, the eclectic framework also integrates the decision-making process explaining how and why individuals make the choice to become self-employed as opposed to other job opportunities in terms of risks and rewards of different occupational alternatives—along the lines discussed above.

Other than personal characteristics, the environment in which business is conducted plays a crucial role in fostering or weakening entrepreneurial activities both in terms of firm creation, of firm expansion and of implementation of process, product and management innovation within a firm. From a policy point of view, these “framework conditions” are the aspects that offer the widest scope for action. Issues such as the fiscal environment, labor market regulations, administrative complexities, intellectual property rights, bankruptcy law, education and skill upgrading, etc. are understandably crucial in determining the entrepreneurial dynamism of an economy.¹¹

Cultural aspects are assumed to shape the environment in which business is conducted. From a research point of view, there is a paucity of contributions dealing with cultural influences. Hofstede (2001, p.9) refers to culture as “the collective programming of the mind that distinguishes the members of one group or category of people from another.” This programming typically happens early in life (Hofstede 1980; Barnouw 1979) and leads to behavioral patterns which continue over time and hence set the cultural context (Hofstede 1980; Mueller and Thomas 2001). Psychological research shows links between values, beliefs and behavior. Hence, it is plausible that differences in culture, in which individual values and beliefs are imbedded, influence a wide range of behaviors, including the decision to become self-

¹¹ See Stevenson and Lundström (2001) and Audretsch et al. (2007a) for surveys of entrepreneurship policies.

employed rather than to work for others (Mueller and Thomas 2001). Using this logic, several studies explore the relationship between various aspects of culture and entrepreneurial behavior across cultures (Busenitz et al. 2000; Davidsson 1995; Huisman 1985; Lee and Peterson 2000; McGrath and MacMillan 1992; Mueller and Thomas 2001; Tiessen 1997; Noorderhaven et al. 2004). Basically, there are three views (Wennekers 2006).

The *first* view is the ‘aggregate psychological trait’ explanation of entrepreneurship. The idea is that if a society contains more people with ‘entrepreneurial values,’ more people will become entrepreneurs (Davidsson 1995; Uhlaner and Thurik 2007). Davidsson refers to McClelland (1961) and other proponents of the individualistic view of culture. A *second* view refers to the degree of ‘legitimation’ or ‘moral approval’ of entrepreneurship within a culture (Etzioni 1987). This view claims that a higher overall level of ‘legitimation’ of entrepreneurship implies wide ranging manifestations, including more attention to entrepreneurship within the educational system, a higher social status of entrepreneurs, and more tax incentives to encourage business start-ups. Obviously, this results in higher demand for and supply of entrepreneurship (Etzioni 1987). The *third* view is the ‘push’ explanation of entrepreneurship. This view starts from the assumption that variation in entrepreneurship is based upon differences in values and beliefs between the population as whole and potential entrepreneurs. It argues that, in a predominantly non-entrepreneurial culture, a clash of values between these groups may drive the latter away from the average (non-entrepreneurial) organization and into self-employment (Baum et al. 1993; Noorderhaven et al. 2004). The second ‘legitimation’ view is the reverse of the third ‘push’ view.

Aspects of culture are difficult to model. None of the three views is easy to capture in terms of variables. Therefore, in the following section, we decide to use proxies for culture which can be expressed by more directly observable variables, such as social spending, regulation, political organization, etc. Thereby, we assume that individuals are trying to meet social norms rather than generally to distinguish themselves from their countrymen. In doing so, we concentrate on the first two views. Cross-country differences are assumed to be based on differences in cultural and/or related institutional aspects. In this issue, Koenig et al. (2007) refer to these aspects as cultural orientations, i.e., manifestations of culture at the individual as opposed to manifestations at the aggregate level. They introduce a new scale measuring cultural orientations of business owners, since they feel that existing cultural orientation scales are not suitable for business owners. The scenario based approach as opposed to the usual Likert based approach is certainly new in the world of economic analyses.

4 An example of the influence of culture

As we have seen from the literature on the determinants of entrepreneurship, regularities exist which hold for many individuals across countries. In a recent analysis, Grilo and Thurik start from this assumption and use individual variables such as gender, age, education level and whether parents are self-employed, measures of risk tolerance, internal and external locus of control and four perceptions of ‘obstacles’ to examine what they call entrepreneurial energy (Grilo

and Thurik 2006). This energy is captured in two dimensions: latent and actual entrepreneurship. In other words: to *want to be* an entrepreneur and to *be* an entrepreneur. Latent entrepreneurship is measured using the declared preference for self-employment over employment. They use Eurobarometer survey data (some 8,000 respondents) from the 25 member states of the EU as well as the US for the year 2004.¹² The set of explanatory variables used does not include country-specific macro-economic or cultural phenomena. Country differences are controlled for using country dummies. Observing the coefficients of the country dummies, Grilo and Thurik conclude that, in comparison with the US, European citizens have a lower preference for self-employment.¹³ This lower preference level has not been explained so far, nor are differences between the coefficients explored. Observing the coefficients of the country dummies of the equation explaining actual entrepreneurship, Grilo and Thurik found no clear regularities.¹⁴

In the present study, we will use the coefficients of these 26 country dummies in a confrontation with some country-specific cultural and macro-economic aspects since, in addition to personal variables, these country-specific effects may play an important role in the decision to (want to) be an entrepreneur. By culture we understand a broad idea of cultural as well as institutional constraints of human behavior.¹⁵ As these constraints differ from country to country, they may contribute to the explanation of different degrees of entrepreneurial energy across countries.

The variables to be explained in our analysis are the coefficients of the country dummies for both the preference for entrepreneurship (PREFER) and actual entrepreneurship (ACTUAL), computed with the US as benchmark. A negative value shows a lower inclination relative to the US to (want to) be an entrepreneur. The coefficients¹⁶ can be seen as measures of nationwide entrepreneurship energy corrected for individual effects. Below we refer to these variables as ‘corrected’ actual and preference for entrepreneurship.

As exogenous variables, we use the following four variables. First, we use the regulatory dimension (OREF) from the ‘Frazer’ index of economic freedom, as defined by Gwartney et al. (2005).¹⁷ Only regulatory aspects are used here because

¹² Grilo and Thurik (2006) follow the setup of Grilo and Irigoyen (2006) while specific attention is given to differences between the eight former communist member states and the 17 other EU member states. The most striking result is the higher influence of risk tolerance in shaping both latent and actual entrepreneurship in transition economies relative to market economies.

¹³ The dummy coefficients in the ‘preference’ equation are negative for all 25 European countries and almost always significant (with the exception of four countries: Cyprus, Ireland, Lithuania and Portugal).

¹⁴ The dummy coefficients in the ‘actual’ equation are negative for six European countries (France, Luxembourg, Portugal, Malta, Latvia and Slovenia) but significantly only for France and Luxembourg. They are positive for all remaining 19 countries but significantly only for Belgium, Greece, Finland, Cyprus, Czech Republic, Hungary, Poland and Slovakia.

¹⁵ Here we depart from the North (1994) approach where institutions are defined to include culture but where a distinction between the two is also made (formal constraints such as rules, laws and constitutions versus informal constraints such as norms of behavior, conventions, etc.).

¹⁶ The coefficients are taken from Table 3, columns 2 and 5, respectively, in Grilo and Thurik (2006, 90–91). For the US we take a value of zero since it is the benchmark country.

¹⁷ The other dimensions of the ‘Frazer’ index are: size of government (expenditures, taxes and enterprises); legal structure and security of property rights; access to sound money; and freedom to trade internationally. They are not used in the present analysis.

Table 1 Correlation matrix

	PREFER	ACTUAL	OREF	PCD	LEI	HEALTH
PREFER	1					
ACTUAL	-0.25	1				
OREF	-0.07	-0.30	1			
PCD	-0.33	0.20	-0.22	1		
LEI	0.09	-0.14	0.01	-0.89*	1	
HEALTH	-0.03	-0.08	-0.17	-0.64*	0.71*	1

Note: * significant at the 1% level

they affect individual decisions concerning self-employment; reflect cultural aspects well and are sufficiently different across countries. In addition, we employ a post communism dummy (PCD) to incorporate historical influences on role models and institutions, the life expectancy index (LEI) taken from the *Human Development Report* (UNDP 2005), as well as public and private spending for health care as a share of GDP (HEALTH), also taken from the *Human Development Report*. HEALTH can be used as proxy for social spending.

Given that our two variables to be explained (PREFER and ACTUAL) represent the for individual variables ‘corrected’ country differences in entrepreneurial energy, our hypotheses are the following. PREFER and ACTUAL are negatively influenced by OREF. In other words: the higher the degree of regulation, the lower the for individual variables ‘corrected’ entrepreneurial energy. We expect the for individual variables ‘corrected’ entrepreneurial energy to be lower in post communist countries, the reason being that individuals are simply less used to entrepreneurial activities when raised in communist countries.¹⁸ Life expectancy (LEI) is also expected to have a negative impact on the for individual variables ‘corrected’ entrepreneurial energy. A high life expectancy can be interpreted as a proxy for security (Freytag and Vietze 2006). High security is negatively correlated with the incentive to become an entrepreneur. Finally, HEALTH can take two directions of influence: first, high social spending discourages entrepreneurs because of their high costs (negative sign), and second, high social spending can be seen as a sign of high solidarity within a country, which may then encourage individuals to take risks (positive sign). We expect the first interpretation to be more likely in European welfare states. We will not make a priori assumptions on the difference of the influence on PREFER and ACTUAL.¹⁹

Table 1 presents the correlations between all dependent and independent variables. We see that life expectancy as well as percentage public and private spending for health care are lower in post communist countries and that, indeed, these two variables are positively correlated. The ‘corrected’ preference for entrepreneurship and the ‘corrected’ actual entrepreneurship show a low negative

¹⁸ Consequently, this effect is expected to vanish slowly over time.

¹⁹ From Grilo and Irigoyen (2006) and Grilo and Thurik (2005b, 2006) we know that differences in the effects on the preference for entrepreneurship and actual entrepreneurship can be sizable.

Table 2 The influence of some cultural variables on the preference for entrepreneurship and actual entrepreneurship in the 25 EU member states and the US

Dependent variables	PREFER (latent entrepreneurship)		ACTUAL (actual entrepreneurship)	
Exogenous variables	Coefficient	<i>t</i> -statistic	Coefficient	<i>t</i> -statistic
Constant	7.31	4.13	1.32	0.38
OREF	-0.22	-3.94	-0.12	-0.99
PCD	-0.91	-6.26	0.03	0.09
LEI	-6.54	-3.45	-0.48	-0.15
HEALTH	-0.06	-1.77	-0.00	-0.03
R-squared	0.53		0.12	
Observations	26		26	

Note: White heteroskedasticity-consistent standard errors are used.

correlation. The former variable is lower in post communist countries, whereas the second is higher.

The simple linear regression results are given in Table 2 and show that while ACTUAL cannot be adequately explained by the four variables, PREFER can. All coefficients explaining the ‘corrected preference’ for entrepreneurship are significant at the 1% level, except for HEALTH, which is significant at the 10% level. Their signs are in line with what we expected: regulation has a negative effect on the ‘corrected’ preference for entrepreneurship and so has the fact that a country has a communist history. Life expectancy and percentage public and private spending for health also have a significantly negative impact on latent entrepreneurship.

We report further about four tests we performed. *First*, we leave out PCD since it correlates with LEI and HEALTH. The results show that the post-communist dummy is highly relevant; all other variables become insignificant. *Second*, we used ACTUAL in the PREFER regression and vice versa. As could be inferred from the low negative correlation between the variables they both have negative coefficients in the respective specifications with a significance below the 5% level, but their presence did not affect the (significance of the) coefficients of the other variables. *Third*, we used the general index of economic freedom instead of OREF. The results generally remain unaffected, only HEALTH becomes insignificant in the PREFER relation and obviously the R-squared drops to 0.36. *Lastly*, we replaced PREFER and ACTUAL by the uncorrected percentages of the preference for entrepreneurship (PRE) and the actual entrepreneurship (ACT), which can be computed from Table 1 of Grilo and Thurik (2006, p. 87). The results show that the explanation of the preference specification drops heavily from R-squared equals 0.53 to 0.30, while the coefficients of the actual specification remain insignificant.²⁰

The most intriguing result remains that country specific (cultural and macro-economic) variables seem to explain the preference for entrepreneurship but not actual entrepreneurship. It is tempting to assume that the actual decision is determined rather by hard economic factors such as tax rates, direct regulatory

²⁰ The correlation coefficient between PRE and ACT is positive but low (0.24) while that between PREFER and PRE is 0.91 and that between ACTUAL and ACT is 0.82.

burden and the level of unemployment (Van Stel et al. 2007). By contrast, the preference for self-employment can be traced back to some cultural variables.

Obviously, we cannot rule out reverse causality. We have assumed and could show that cultural aspects constrain the behavior and preferences of would-be entrepreneurs. However, the question is whether or not our direction of causality is correct. It may be that the preference for self-employment has (also) an impact on the cultural setting in a country. As we cannot settle this interesting matter, we do see future research potential. Part of it is addressed in the special issue.

5 This issue

This special issue of the *Journal of Evolutionary Economics*, entitled “Entrepreneurship and Culture,” deals with some questions related to cultural aspects of entrepreneurship. Given the newly developed interest in institutional aspects of economic interaction, the focus on cultural aspects with respect to entrepreneurship is justified if not overdue. Moreover, above we argued that, given the interest in the determinants of entrepreneurship, there is a lack of cultural elements.

This issue contains four papers which take different perspectives on the topic. It starts with two papers discussing the origins of entrepreneurship, thereby distinguishing between individual and political sources. These papers analyze OECD countries and employ cross-country methods. First, Wennekers, van Stel, Thurik and Noorderhaven (2007) discuss whether uncertainty avoidance is a source of entrepreneurship. An occupational choice model is introduced to support the macro-level regression analysis using pooled macro data for 1976, 1990 and 2004 and controlling for several economic variables. It yields evidence that uncertainty avoidance is *positively* correlated with the prevalence of business ownership. A restrictive climate of large organizations in high uncertainty avoidance countries seems to push individuals striving for autonomy towards self-employment. For 2004 alone, this positive correlation is no longer found, indicating that a compensating pull of entrepreneurship in countries with low uncertainty avoidance may have gained momentum in recent years. Furthermore, an interaction term between uncertainty avoidance and GDP per capita in the pooled panel regressions shows that the historically negative relationship between GDP per capita and the level of business ownership is substantially weaker for countries with lower uncertainty avoidance. This suggests that rising opportunity costs of self-employment play a less important role in this cultural environment, or are being compensated by increasing entrepreneurial opportunities.

Second, Uhlaner and Thurik (2007) focus on post-materialism as a source for entrepreneurship using Inglehart’s four item post-materialism index. A distinction is made between nascent entrepreneurship, new business formation and a combination of the two, referred to as total entrepreneurial activity, as defined within the *Global Entrepreneurship Monitor (GEM)*. Their set-up is also tested for the rate of established businesses. A set of economic, demographic and social factors is included to investigate the independent role postmaterialism plays in predicting entrepreneurial activity levels. In particular, per capita income is used to control for economic effects. Education rates at both secondary and tertiary levels are used as

demographic variables. Finally, life satisfaction is included to control for social effects. Data from 27 countries (*GEM*, *World Values Survey* and other sources) are used to test the hypotheses. Findings confirm the significance of postmaterialism in predicting total entrepreneurial activity and, more particularly, new business formation rates. These two papers show that entrepreneurship is definitely influenced by cultural aspects.

After discussing cultural determinants of entrepreneurship, the issue proceeds by analyzing the effects culture has on the success of entrepreneurs in creating growth. Beugelsdijk (2007) looks at 54 European regions. He develops a measure for entrepreneurial attitude and uses this as exogenous variable for innovativeness (patents per capita) and growth (GRP per capita) in the regions. A measure of 'entrepreneurial culture' is developed using individual value patterns of entrepreneurs and non-entrepreneurs. Extensive robustness analysis suggests that differences in economic growth in Europe can indeed be explained using this newly developed variable, albeit in an indirect way. Differences in growth are partly due to differences in regional innovativeness, which can be explained by differences in entrepreneurial culture. Culture affects growth through the intermediating mechanism of innovativeness.

Finally, Koenig, Steinmetz, Frese, Rauch and Wang (2007) measure cultural orientations of business owners using a methodological setup. They hold that, whenever research is oriented towards the individual level, that is, whenever individual business owners are studied, researchers should measure cultural orientations at the individual level instead of culture at the aggregate level. They develop scales measuring cultural orientations of business owners using dimensions such as uncertainty avoidance, power distance, collectivism, assertiveness, future orientation, humane orientation and performance orientation. Scenario-based scales are introduced measuring cultural orientations of business owners. These orientations are manifested in the practices business owners apply in their businesses. Scenario-based measurement (as opposed to common Likert item-based measurement) is certainly new in the world of economic analyses. The scales have been validated on some 450 Chinese and German business owners and proven to be invariant across the two countries. Full configural, full metric, and partial scalar invariance are supported, as well as partial factor variance and partial error variance invariance. This suggests that they hold cross-country validity and allow for meaningful cross-cultural comparisons.

Early versions of these papers have been presented at a workshop the editors of the present issue organized jointly with Lorraine Uhlaner at the Max Planck Institute of Economics in Jena, February 7, 2005. We are grateful to our host, who not only provided us with facilities but also covered the costs for the entire enterprise. We are also grateful to those participants to the workshop whose papers are not covered in this issue, as well as to the referees whose work contributed enormously to the quality of the papers.

Acknowledgement The authors would like to thank Sjoerd Beugelsdijk, Isabel Grilo, Lorraine Uhlaner, Sander Wennekers, and the participants in the workshop on *Entrepreneurship and Culture*, Jena, February 7, 2005) for their comments. The workshop was a joint effort of the Max Planck Institute of Economics in Jena, EIM Business and Policy Research in Zoetermeer and the Economics Faculty of the Friedrich Schiller Universität Jena. This paper has been written in the framework of the research program SCALES carried out by EIM and financed by the Dutch Ministry of Economic Affairs.

References

- Acs ZJ, Audretsch DB, Evans DS (1994) The determinants of variations in self-employment rates across countries and over time. Discussion Paper 871, Centre for Economic Policy Research, London
- Acs ZJ, Arenius P, Hay M, Minniti M (2005) Global Entrepreneurship Monitor: 2004 Executive Report. Babson College, Babson Park, MA and London Business School, London
- Audretsch DB, Thurik AR (2001) What is new about the new economy: sources of growth in the managed and entrepreneurial economies. *Ind Corp Change* 10(1):25–48
- Audretsch DB, Thurik AR (2004) The model of the entrepreneurial economy. *Int J Entrep Educ* 2(2):143–166
- Audretsch DB, Grilo I, Thurik AR (2007a) Handbook of research in entrepreneurship policy. Edward Elgar Publishing, Cheltenham, UK and Brookfield, US (forthcoming)
- Audretsch DB, Grilo I, Thurik AR (2007b) Explaining entrepreneurship and the role of policy: a framework. In: Audretsch DB, Grilo I, Thurik AR (eds) Handbook of Research in Entrepreneurship Policy. Edward Elgar Publishing, Cheltenham, UK and Brookfield, US (forthcoming)
- Barnouw V (1979) Culture and personality. Dorsey Press, Homewood, IL
- Baum JR, Olian JD, Erez M, Schnell ER, Smith KG, Sims HP, Scully JS, Smith KA (1993) Nationality and work role interactions: a cultural contrast of Israeli and U.S. entrepreneurs' versus managers' needs. *J Bus Venturing* 8(6):499–512
- Beugelsdijk SJ (2007) Entrepreneurial culture, regional innovativeness and economic growth. *J Evol Econ* 17(2), this issue
- Blanchflower DG (2000) Self-employment in OECD countries. *Labor Econ* 7(5):471–505
- Blanchflower DG (2004) Self-employment: more may not be better. *Swed Econ Policy Rev* 11(2):15–73
- Blau D (1987) A time-series analysis of self-employment in the United States. *J Polit Econ* 95(3):445–467
- Busenitz LW, Gomez C, Spencer JW (2000) Country institutional profiles: unlocking entrepreneurial phenomena. *Acad Manage J* 43(5):994–1003
- Carree MA, van Stel AJ, Thurik AR, Wennekers ARM (2002) Economic development and business ownership: an analysis using data of 23 OECD countries in the period 1976–1996. *Small Bus Econ* 19(3):271–290
- Casson MC (1982) The entrepreneur: an economic theory. Martin Robertson, Oxford, UK
- Davidsson P (1995) Culture, structure and regional levels of entrepreneurship. *Entrep Reg Dev* 7(1):41–62
- Davidsson P (2004) Researching entrepreneurship. International studies in entrepreneurship. Springer, Berlin Heidelberg New York
- de Wit G (1993) Models of self-employment in a competitive market. *J Econ Surv* 7(4):367–397
- Etzioni A (1987) Entrepreneurship, adaptation and legitimation. *J Econ Behav Organ* 8:175–189
- Evans DS, Jovanovic B (1989) An estimated model of entrepreneurial choice under liquidity constraints. *J Polit Econ* 97(4):808–827
- Freytag A, Vietze Chr (2006) International tourism, development and biodiversity: first evidence, Jenaer Schriften zur Wirtschaftswissenschaft, 11/2006
- Grilo I, Irigoyen JM (2006) Entrepreneurship in the EU: to wish and not to be. *Small Bus Econ* 26(4):305–318
- Grilo I, Thurik AR (2005a) Determinants of entrepreneurial engagement levels in Europe and the US, papers on entrepreneurship, growth and public policy no 25—2005, Max Planck Institute of Economics, Jena, Germany
- Grilo I, Thurik AR (2005b) Latent and actual entrepreneurship in Europe and the US: some recent developments. *Int Entrep Manag J* 1(4):441–459
- Grilo I, Thurik AR (2005c) Entrepreneurial engagement levels in the European Union. *Int J Entrep Educ* 3(2):143–168
- Grilo I, Thurik AR (2006) Entrepreneurship in the old and the new Europe. In: Santarelli E (ed) Entrepreneurship, growth and innovation. Springer, Berlin Heidelberg New York, pp 75–103
- Gwartney J, Lawson R, Gartzke E (2005) Economic freedom in the world—2005 annual report, Fraser Institute, Vancouver, Canada. <http://www.fraserinstitute.ca/shared/readmore.asp?sNav=pb&id=789>
- Hébert RF, Link AN (1989) In search of the meaning of entrepreneurship. *Small Bus Econ* 1(1):39–49
- Hofstede G (1980) Culture's consequences: international differences in work-related values. Sage, Beverly Hills, CA
- Hofstede G (2001) Culture's consequences; comparing values, behaviors, institutions and organizations across nations, 2nd edition. Sage, Thousand Oaks, CA

- Holmes Th.J, Schmitz JA Jr. (1990) A theory of entrepreneurship and its application to the study of business transfers. *J Polit Econ* 98(2):265–294
- Huisman D (1985) Entrepreneurship: economic and cultural influences on the entrepreneurial climate. *Eur Res* 13(4):10–17
- Hurst E, Lusardi A (2004) Liquidity constraints, household wealth and entrepreneurship. *J Polit Econ* 112(2):319–347
- Jovanovic B (1982) Selection and the evolution of industry. *Econometrica* 50(3):649–670
- Jovanovic B (1994) Firm formation with heterogeneous management and labor skills. *Small Bus Econ* 6(3):185–191
- Kihlstrom R, Laffont J-J (1979) A general equilibrium entrepreneurial theory of the firm based on risk aversion. *J Polit Econ* 87(4):719–748
- Knight FH (1971) Risk, uncertainty, and profit. The University of Chicago Press, Chicago, IL, originally published in 1921 by Houghton Mifflin Company
- Koenig Ch, Steinmetz H, Frese M, Rauch A, Wang Zh-M (2007) Scenario-based scales measuring cultural orientations of business owners. *J Evol Econ* 17(2), this issue
- Lazear EP (2004) Balanced skills and entrepreneurship. *Am Econ Rev* 94(2P):208–211
- Lazear EP (2005) Entrepreneurship. *J Labor Econ* 23(4):649–680
- Lee SM, Peterson SJ (2000) Culture, entrepreneurial orientation, and global competitiveness. *J World Bus* 35(4):401–416
- Lucas R (1978) On the size distribution of business firms. *Bell J Econ* 9(3):508–523
- Masuda T (2006) The determinants of latent entrepreneurship in Japan. *Small Bus Econ* 26(3):227–240
- McClelland DC (1961) The achieving society. Van Nostrand, Princeton, NJ
- McGrath RG, MacMillan IC (1992) More like each other than anyone else?: cross-cultural study of entrepreneurial perceptions. *J Bus Venturing* 7(5):419–429
- Mueller SL, Thomas AS (2001) Culture and entrepreneurial potential: a nine country study of locus of control and innovativeness. *J Bus Venturing* 16(1):51–75
- Murphy KM, Shleifer A, Vishny RW (1991) The allocation of talent: implications for growth. *Q J Econ* 106(2):503–530
- Noorderhaven NG, Wennekers ARM, Thurik AR, van Stel A (2004) Self-employment across 15 European countries: the role of dissatisfaction. *Entrep Theory Pract* 29(1):447–466
- North DC (1994) Economic performance through time. *Am Econ Rev* 84(3):359–368
- Parker SC (1996) A time-series model of self-employment under uncertainty. *Economica* 63:459–475
- Parker SC (1997) The effects of risk on self-employment. *Small Bus Econ* 9(6):515–522
- Parker SC (2004) The economics of self-employment and entrepreneurship. Cambridge University Press, Cambridge, UK
- Reynolds PD, Hay M, Camp SM (1999) Global entrepreneurship monitor: 1999 executive report. Babson College, London Business School and the Kauffman Center for Entrepreneurial Leadership
- Reynolds PD, Bygrave WD, Autio E, Cox LW, Hay M (2002) Global entrepreneurship monitor, 2002 executive report. Babson College, London Business School and Kauffman Foundation
- Reynolds PD, Bosma N, Autio E, Hunt S, de Bono N, Servais I, Lopez-Garcia P, Chin N (2005) Global entrepreneurship monitor: data collection design and implementation 1998–2003. *Small Bus Econ* 24(3):205–231
- Sternberg R, Wennekers S (2005) Determinants and effects of new business creation; investigations using Global Entrepreneurship Monitor data. *Small Bus Econ* 24(3):193–203
- Stevenson L, Lundström A (2001) Patterns and trends in entrepreneurship/SME policy and practice in ten economies. *Entrepreneurship Policy for the Future Series, Vol. 3*, Swedish Foundation for Small Business Research
- Swedberg R (2000) Entrepreneurship; the social science view. Oxford University Press, Oxford, UK
- Tiessen JH (1997) Individualism, collectivism, and entrepreneurship: a framework for international comparative research. *J Bus Venturing* 12(5):367–384
- Uhlman LM, Thurik AR (2007) Postmaterialism influencing total entrepreneurial activity across nations. *J Evol Econ* 17(2), this issue
- UNDP (2005) Human development report. United Nations, New York. <http://www.hdr.undp.org/statistics/data/>
- Van Stel A (2005) COMPENDIA: Harmonizing business ownership data across countries and over time. *Int Entrep Manag J* 1(1):105–123
- Van Stel A, Carree MA, Thurik AR (2005) The effect of entrepreneurial activity on national economic growth. *Small Bus Econ* 24(3):311–321

- Van Stel A, Storey D, Thurik AR (2007) The effect of business regulations on nascent and young business entrepreneurship. *Small Bus Econ* (forthcoming)
- Verheul I, Wennekers S, Audretsch D, Thurik AR (2002) An eclectic theory of entrepreneurship: policies, institutions and culture. In: Audretsch DB, Thurik AR, Verheul I, Wennekers ARM (eds) *Entrepreneurship: determinants and policy in a european-US comparison*. Kluwer, Boston, MA, pp 11–81
- Wennekers ARM (2006) *Entrepreneurship at country level: economic and non-economic determinants*, PhD thesis, Erasmus Research Institute of Management (ERIM), Rotterdam
- Wennekers ARM, Thurik AR (1999) Linking entrepreneurship and economic growth. *Small Bus Econ* 13(1):27–55
- Wennekers ARM, Uhlaner L, Thurik AR (2002) Entrepreneurship and its conditions: a macro perspective. *Int J Entrep Educ* 1(1):25–64
- Wennekers S, van Stel A, Thurik R, Reynolds P (2005) Nascent entrepreneurship and the level of economic development. *Small Bus Econ* 24(3):293–309
- Wennekers S, Thurik R, van Stel A, Noorderhaven N (2007) Uncertainty avoidance and the rate of business ownership across 21 OECD countries, 1976–2004. *J Evol Econ* 17(2), this issue