Impediments on the way to entrepreneurship. Some new evidence from the EU's post-socialist world.

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Abstract

Purpose - The purpose of this study is to shed light on demographic, environmental and perceptional characteristics and their impact on entrepreneurial engagement in the post-socialist region of the European Union (EU).

Design/methodology/approach - A rich dataset of 5,501 observations obtained from the Flash Eurobarometer Survey on Entrepreneurship 2007 is used, while a binomial probit regression model is employed.

Findings - Gender, mother's occupation, unemployment and economic growth are reported as significant determinants of entrepreneurship. The econometric results also suggest that lack of financial resources, individual's risk aversion, a large number of start-up procedures and increased tax rates are all positively related to self-employment.

Research implications – It is suggested that the existing structural changes and transition process under which the examined countries operate have influenced the attitude of individuals toward entrepreneurial engagement throughout the last two decades.

Originality/value - The study provides useful information in relation to the attitude of post-socialist society toward structural issues which possibly dishearten its engagement to entrepreneurship. Both the geographical area (post-socialist European countries) and the time this research was conducted (i.e. three years after the examined countries' accession to the EU) can be perceived as factors of great interest for both policy makers and entrepreneurs.

Keywords Entrepreneurship, Transition economies, European Union, Bureaucracy, Risk aversion

Paper type Research paper

Introduction

A plethora of research studies, policy reports and scientific articles dedicated to entrepreneurship have been published over the last 30 years, where a phenomenal shift from managed to entrepreneurial economy has also been observed (Audretsch and Thurik, 2001a). Apart from that, nowadays economic growth does not merely originate from industrialised multinational corporations (MNCs), but also from innovative and knowledge-based small and medium enterprises (SMEs). Indeed, during the past decades, heavy industrialisation, which was derived from MNCs, used to be the hub of global economic prosperity and growth. Now it could rather be supported that entrepreneurial engagement is one of the most influential determinants of both economic development and employment generation around the globe (Audretsch and Thurik, 2001b; Thurik *et al.*, 2008; Wennekers and Thurik, 1999).

Many studies have been conducted from multiple perspectives, concerning various geographical locations in regard to determinants of entrepreneurship. As concerns developed economies, such as the United States of America (Verheul *et al.*, 2002), France (Henriquez *et al.*, 2002), Germany (Tamásy, 2006), the United Kingdom (Parker, 2004), Japan (Masuda, 2006), and Hong Kong (Fu-Lai Yu, 2000), several studies have been performed and reveal intriguing findings associated with which factors determine levels of entrepreneurial engagement. Apart from country-level studies, other research works have examined the same topic, with the difference that a cross-country comparison analysis was conducted (Audretsch *et al.*, 2002; Freytag and Thurik, 2007; Grilo and Thurik, 2006; van der Zwan *et al.*, 2010). The findings from the aforementioned studies indicate that cultural, political and demographic differences occur among countries and reveal that each one has a unique insight toward entrepreneurship. This belief is even greater, especially for transition countries, in which substantial changes in the political and economic scene have emerged during the last two decades (Knaack and Jager, 2003). In reality, the fact that transition economies have attracted research attention only over the last 15 years cannot be characterised as paradoxical. Their recent accession to the EU in 2004, the relatively recent change in their political scene and the move from a socialistic to a capitalistic economy during the 90s, are some of the most important aspects that make such a region very interesting for further examination.

In general it is argued that, in transition countries, severe problems exist mainly because of government imperfections (Bartlett and Bukvic, 2001; Enste, 2003; Schleifer and Vishny 1993), financial deficiencies (Aidis, 2005; Pissarides *et al.*, 2003), and lack of efficient business support (Djankov *et al.*, 2002; Smallbone and Piasecki, 1995). These facts can be further illustrated by considering the distinguishing work on this topic, which is conducted by Smallbone and Welter (2001). The authors come across substantial findings regarding the

negative impact of the unstable business environment, informal networks, bureaucracy and individuals' pessimistic attitudes toward entrepreneurship in Southeast European (SEE) economies.

Although numerous research studies have been conducted with respect to determinants of entrepreneurship in transition economies there are several additional motives for proceeding to this particular study. First, while a great range of research work has concentrated its interest on transition economies of Europe, the vast majority of it has been conducted during the last century, and/or at the beginning of the previous decade, where not many structural and institutional changes had been implemented. Second, due to the nature of the topic, as well as the importance that personal traits play in examining the determinants of entrepreneurial activity, time series analyses and panel data are almost infeasible to conduct in order to give more precise information regarding the time trend toward entrepreneurship in such a changed geographical region; thus updated cross-section data analysis is the most effective method for examining this sort of research question.

This study is based on Flash Eurobarometer Survey on Entrepreneurship data, while it is enriched with country (aggregate) level data. The paper is structured as follows. The next section reviews the existing literature. A detailed analysis in regard to the design of the empirical study, including data specification and measurement methods, is developed in the third section. This is followed by a section reporting on the estimated results from the econometric analysis. Finally this study is concluded by presenting both findings and policy implications, while stating possible limitations.

Literature review

Despite the fact that the concepts of entrepreneurship and self-employment are not considered as identically equal, the vast majority of research work that has been conducted in the past has equated them (Parker, 2004). In reality, since most empirical studies concentrate their work on explaining the behavioural choice between paid- and self-employment, it can be said that such an equation reasonably exists. Accordingly this research perceives entrepreneurship and self-employment as equal, although not identical notions. Under this section I will review the related literature on three important elements of entrepreneurial engagement. First, on traditionally examined demographic characteristics. Second, on related impediments of entrepreneurial activity. Finally, acknowledging the positive relationship between entrepreneurship and the level of economic growth and employment (Audretsch and Thurik,

2001b), the literature will also review the two latter factors and their impact on entrepreneurial engagement.

Demographic characteristics

Gender

For entrepreneurship, gender has been always considered as one of its most influential determinants (Mathews and Moser, 1995). Especially for transition countries, where entrepreneurial engagement was in many occasions considered as a blockbuster occupational orientation, women were even more unlikely to get involved with new business venturing. This is also depicted in the work of Aidis *et al.* (2007), who conclude that there are still inheritances from the Soviet past, which are liable for some inequalities between genders as regards their activity with entrepreneurship. Recent empirical studies (Estrin and Mickiewicz, 2010; Krasniqi, 2009) which focus on transition economies stress the greater likelihood that males are more likely to be involved with entrepreneurship compared to their female counterparts.

Age

Age is a factor of crucial importance for someone who is interested in engaging in entrepreneurship. Individuals who are keener to start up a new venture are usually younger, since they acquire energy, enthusiasm, entrepreneurial education and other techniques, which are all related with the newly introduced notion called "knowledge-based economy". It is not surprising that two recent studies conducted in transition economies (Estrin and Mickiewicz, 2010; Krasniqi, 2009) find that the propensity of being older has a negative effect on entrepreneurial engagement. On the other hand, entrepreneurial activity requires that someone is able to adequately finance his/her own business venture. Possible absence of financial aid, subsidies and other fiscal policies may dishearten the possibility that a younger individual will be able to engage in entrepreneurship.

Education

The level of education of human capital in transition countries determines to a great extent the level of entrepreneurial orientation of each individual (Estrin and Mickiewicz, 2010; Glas and Petrin, 1998). Furthermore, entrepreneurial engagement can be even greater when educational institutions focus their interest in providing specialised learning dedicated to

entrepreneurship. Peterman and Kennedy (2003), through their research study, find that students completing an enterprise programme revealed significantly higher perception of both desirability and feasibility of being engaged in entrepreneurship. On the other hand, high levels of education have the ability to foster individuals to wage employment, since the knowledge-based market strives to absorb the most intelligent and well-educated human capital. Evidence from developing countries indicates that more educated workers normally prefer wage employment rather than self-employment (van der Sluis *et al.*, 2005).

Parents' occupation

Individuals whose parents are/were entrepreneurs are much more likely to become entrepreneurs (Stam *et al*., 2010). Indeed, considering the level of family business ownership in a worldwide scale, it is not deceitful to say that parental occupation is a rather strong and positive determinant of a child's entrepreneurial orientation. From a genetic point of view, a recent study on genetics and entrepreneurial orientation from Nicolaou *et al.* (2008) indicates that it is of vital importance for people to start considering genetic aspects as explanatory determinants on why people engage in entrepreneurship. Similarly, a study from Aldrich and Kim (2007) reveals robust effects on entrepreneurial engagement sourcing from genetic inheritances and parenting practice during childhood.

Urbanisation

Regarding transition economies, there is evidence that individuals who live in urban or metropolitan areas are more likely to engage in entrepreneurship compared to their counterparts who live in rural areas (Krasniqi, 2009). While urban areas benefit from educational quality of life, they also have to cope with other environmental problems (Pennings, 1982). In urban areas, where clusters are more robustly tied, knowledge transfer can be disseminated more frequently and efficiently, leading to knowledge-intensive venture creations. On the other hand, in rural areas people are more prone to engage in farming activities or other craft-based professions, a fact that, in reality, increases the level of self-employment.

Environmental characteristics

Availability of Financial Resources

Access to financial resources is one of the most decisive problems that upcoming, young, and unsuccessful entrepreneurs face in the early stages of their careers. As Pinto (2005) points out, transition economies are characterized by a significantly low level financial service sector and higher risk aversion by commercial banks. As it can be interpreted, these two issues completely contradict the interests of an entrepreneur. In addition, Pissarides (1999) demonstrates that even in the most advanced countries of the region, such as Poland, the Czech Republic, and Hungary, the major problem is the lack of long-term resources essential for business development. Furthermore, general macroeconomic circumstances and economic uncertainties, such as high credit costs, high bank charges, as well as an increasing level of interest rates resulted in a continuing number of banking crises in the SEE region. A related example is provided by the research study of Bitzenis and Nito (2005) who find that entrepreneurs in Albania rarely receive bank loans in order to finance their ventures, since bureaucratic and complex procedures force them to other financing methods.

Administrative Complexities

Grey and informal economy is considered as one of the most imperative determinants of entrepreneurial inefficiency in the SEE region (Aidis, 2005). This inefficiency, as a rule, is produced by well-established and politically connected business owners through rent-seeking and lobbying activities. As Bartlett and Bukvic (2001) and Ovaska and Sobel (2005) indicate, larger firms are usually in a more privileged position than SMEs, and they engage in influencing activities through a fraudulent political environment. Schleifer and Vishny (1993) take this argument further by explaining that the adoption of techniques such as bribery and corruption comes from the cultural heritage of communist dregs in the past. In the same way, as supported by the recent work of Griffiths *et al*. (2009), the entrepreneurial intentions of a country are lessened because of high levels of corruption. Furthermore, Saar and Unt (2008) conducting research in Estonia find that no adequate direct support measures for the development of SMEs exist, while the government is characterized as “one with limited intervention”.

On the other hand, corruption can be an informal facilitator against bureaucracy and complex administration schemes, particularly in countries with poor financial resources and without control over their public administration (Dreher and Gassebner, 2007). Under a complex bureaucratic system individuals and firms learn how to be more flexible and creative. Accordingly, they become capable of adapting their needs to the existing system. In association to the previous argument, Hashi and Krasniqi (2011) researching

entrepreneurship and small business growth in the transitional part of Europe, find that corruption is positively associated with the growth of entrepreneurship. Consequently, it can be assumed that both entrepreneurs and public policy employees act in some way illegally, and in many cases, follow methods such as bribing. This has often been proved an effective method, as it overcomes the complex procedures and the bureaucratic attitude of public policy instruments; however, such behavior cannot be perceived as ethical.

Inefficient business environment

As supported by Djankov *et al*. (2002), legal entry into the business sector still remains a remarkably bureaucratic, difficult, time-consuming, and costly procedure in most countries of the world. In particular, in transition economies, regulation of entry seems to be both restricted and costly for the entrepreneurs. This is certainly a negative point, as argued by Djankov *et al*. (2002) that more strict entry regulation is also related to a greater degree of corruption. As Pinto (2005) argues , the presence of an informal economy is of major concern in the SEE region, as it weakens public revenues and destabilizes public services' performance. As a consequence, this raises doubts and disbeliefs for most entrepreneurs toward the government and public services, as the latter is not able to support private business development (Smallbone and Piasecki, 1995). Additionally, other empirical studies conducted in transition economies also highlight the negative effect of insufficient business environment on entrepreneurship growth (Chilosi, 2001; Krasniqi, 2007). Another crucial element for the efficient function of the overall business environment and entrepreneurial culture is the level and effectiveness of the country's legal structure. Estrin *et al.* (2006) argue that a strong legal system is perceived as a facilitator of entrepreneurship, since it sends a positive message that successful reforms have taken place.

Risk Aversion

Transition economies have faced deep political, economic and institutional reforms during the last two decades leading people to a more idiosyncratic way of thinking and acting in this particular region. One of the most severe issues people have to confront is their own attitude toward entrepreneurship, as well as the level of risk hiding beyond each new venture. Roberts *et al.* (2000) argue that many business owners in transition countries concentrate more on interim get-rich-quick business tactics rather than on long-standing business growth. From the same perspective, it can be illustrated why many entrepreneurs are both employed in the public sector and at the same time run their own business on a part-time basis. In accordance,

many people may be risk neutral against self-employment, or may have a negative attitude toward people who have failed in a past entrepreneurial attempt. As is observed by various recent studies (Caliendo *et al.*, 2009; Cramer *et al.*, 2002; Dohmen *et al.*, 2009), a possible engagement in entrepreneurship is, in many cases, deterred by individuals' attitude toward risk; that is, people with lower degrees of risk aversion are more likely to engage in entrepreneurial activities. Grilo and Thurik (2006) recently studied the impact of risk attitude on entrepreneurship and find that people living in transition economies are more irresolute and risk averse in relation to their counterparts living in the "old" Europe, while they highlight that risk tolerance in transition economies has greater influence on both latent and actual entrepreneurship than in market economies.

Unemployment and economic growth

Entrepreneurship is related to both economic growth and employment generation (Audretsch and Thurik, 2001b; Thurik *et al.*, 2008; Wennekers and Thurik, 1999). On the one hand, economic growth yields prosperity, financial stability, market liquidity, and many business opportunities. Evidence from transition countries highlights the positive relationship between economic growth and income increase with entrepreneurial engagement (Belitski and Korosteleva, 2012; Earle and Sakova, 1999; Estrin *et al.*, 2006). On the other hand, economic growth is related to new work placement creation and inward investments, a fact that can lead individuals to wage employment rather than self-employment. Furthermore, there is no clear view in regard to the relationship between entrepreneurship and unemployment. As it is supported by the study of Thurik *et al.* (2008), unemployment can have both a positive (refugee effect) and negative (Schumpeter effect) impact on entrepreneurship.

In order to better illustrate the views and expectations on the already formulated related literature, Table I presents the expected outcomes of the model's estimation, as well introduces the variables, short definitions, sources and their operationalisation.

[Table I goes here]

Empirical study

Data

The data used in this study were obtained from the Flash Eurobarometer Survey on Entrepreneurship, No. 192, which was conducted by The Gallup Organisation

Hungary/Europe upon the request of the European Commission. The interviews were conducted in January 2007, while the survey was organised and managed by the Eurobarometer Team of the European Commission (Directorate-General of Communication). Although the survey is conducted in 28 countries the data in this study are related to eight transition economies of the EU viz. Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, and Slovenia, while the initial sample is based on a total of 5,501 observations [1]. Table II reports on the characteristics of each country of the sample. More precisely, analytic information regarding the number of employed and self-employed individuals of the sample is presented, while a ratio reporting the level of self-employment in each country is also revealed. The descriptive statistics show that Slovenia and Slovak Republic have the lowest rates of self-employment, while Czech Republic and Poland have the greatest.

[Table II goes here]

Data specification and measures

Regarding the dependent variable, it takes the value "0" when the respondent answered that she/he is a paid employee and the value "1" when the respondent answered that she/he is self-employed [2]. Accordingly the dependent variable was named *Entrepreneur*. The next step involves the determination of the explanatory variables. In total, 15 variables were used. These variables, according to their context, can be divided into the following three categories.

Socio-demographic – control variables

Gender: This is a dichotomous independent variable and the values are coded with "0" and "1" if the respondent is female or male, respectively.

Age: This is a continuous variable referring to the age of the respondent at the time this survey took place.

Education: This continuous variable is a product of three categorical-likert variables. Precisely, three questions which are related to the entrepreneurial education each respondent has received at school are used (see Table III). Accordingly a factor analysis was conducted and revealed that these three variables can jointly be used as a proxy of entrepreneurial

education. The mean of the sum of the above three answers is measured in order to construct this control variable.

[Table III goes here]

Father: This is a dichotomous variable taking the value "1" if the respondent's father was self-employed, and the value "0" otherwise.

Mother: This is also a dichotomous variable taking the value "1" if the respondent's mother was self-employed, and the value "0" otherwise.

Urban: This measure is in a dichotomous formation and it takes the value "1" if the respondent answers that she/he lives in a metropolitan/urban zone, and the value "0" if she/he lives in a rural area.

Perception variables

The questions used for these variables ask the interviewees to choose among four different levels of agreement (strongly disagree, disagree, agree, or strongly agree) for a number of different statements. For the purpose of this study, a number of particular statements are chosen accordingly. More specifically, from the statement "it is difficult to start one's own business due to lack of available financial support", the variable *financial lack* was created. In the same manner, regarding two statements declaring difficulty in starting a business, given complex administrative procedures and difficulty in obtaining relevant information, the variables *administrative complexities* and *inefficient business environment* were created, respectively. Finally, the variable *risk aversion* was created from a statement asking whether a respondent should not start her/his own business when risk of failure is high. This means that a respondent who, for example, agrees with this statement can be characterised as risk averse. These four variables are in a likert-type formation taking the value "1" if the respondent strongly disagrees with the question and the value "4" if she/he strongly agrees with it.

Country level variables

Gross domestic product per capita (GDPPC): This is a valuable indicator measuring the growth inequalities among the examined countries. A logarithmic transformation is made for this particular variable. Data correspond to the year 2007 and are estimated in US dollars.

Unemployment rate: This factor is in many cases related to necessity entrepreneurship. Again, since we research on eight different countries where the unemployment level is diversified, I opt to use this sort of measure for controlling such a variation. This variable is calculated as the percentage of unemployed people among the total labour force of the country.

Start-up procedures: An efficient measure for observing the level of bureaucracy in each country is the number of start-up procedures an entrepreneur has to deal with. Start-up procedures are defined as those required to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations. This measure is in a count formation.

Total tax rate: This variable acts as a supplementary measure of the efficiency of the business environment. Regarding the operationalisation of this variable, total tax rate measures the amount of taxes and mandatory contributions payable by businesses after accounting for allowable deductions and exemptions as a share of commercial profits and is calculated as the percentage of tax corresponding to commercial profits.

Legal rights: This variable measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The variable is in a scale formation and the index ranges from "0" to "10", with higher scores indicating that these laws are better designed to expand access to credit.

The following table (Table IV) presents the descriptive statistics of all the examined variables.

[Table IV goes here]

Methodology

The dichotomous formation of the dependent variable leads to the assumption that a binomial probit regression model is the most efficient to be used. In case of a dichotomous dependent variable, the selection of a linear model for estimating the effects of the explanatory variables would cause problems. In order to overcome such problems I use a class of binary choice models which are designed appropriately in order to model the choice among two discrete alternatives (Verbeek, 2006). The dichotomous dependent variable *Entrepreneur* (*Y*) is used for the estimation of the probit model. The variable takes two possible outcomes, either the value "1" if the respondent is self-employed, or the value "0" if the respondent is employed.

Apart from the dependent variable, there is a vector of regressors *X* which are assumed to have an impact on dependent variable *Y*. In general terms the model is formatted as:

$$Pr\{Y = 1|\mathrm{X}\} = G\,(X', \beta)$$

Where *Pr* is the probability of dependent variable *Y* depending on vector *X*, *G* is the cumulative distribution function (CDF) and *β*s are the parameters which are estimated using maximum likelihood estimation.

In order to examine the impact of each factor separately, I run a stepwise regression model. Model 1 (basic model) estimates the probability that someone is an entrepreneur based on control variables of the research; that is, demographic characteristics of the respondents (gender, age, education, father, mother and urban), as well as two country level characteristics (GDPPC and unemployment rate). Likewise, the next models are also estimated via a stepwise method using the appropriate variable(s) for each step. In the final model I use robust standard errors in order to estimate the coefficients. This means that, in order to control for correlation among observations within each of the examined countries, I need to cluster the standard errors. Especially when handling datasets with unequal observations across groups (countries), a standard robust estimator of variance will enable me to relax the assumption of independence. According to this technique, the standard errors are reported more efficiently, while at the same time the values of the coefficients are not affected.

Thus the full model is structured as follows:

$$Entrepreneur_i = \alpha + \beta_1 Gender_i + \beta_2 Age_i + \beta_3 Education_i + \beta_4 Father_i + \beta_5 Mother_i + \beta_6 Urban_i + \beta_7 LnGDPPC_i + \beta_8 Unemployment_i + \beta_9 Financial\_lack_i + \beta_{10} Administrative\_complexities_i + \beta_{11} Start\text{-}up\_procedures_i + \beta_{12} Inefficient\_business\_environment_i + \beta_{13} Total\_tax\_rate_i + \beta_{14} Legal\_rights_i + \beta_{15} Risk\_Aversion_i + \varepsilon_i$$

Findings

One of the most frequent problems faced in regression analyses, especially when a large number of dummy variables are used, is the presence of multicollinearity (Hair *et al*., 1998). In first order, multicollinearity can be identified through the correlation matrix, where variables can be highly, but imperfectly, correlated (Greene, 2003). In this case, after examining the correlation matrix, no serious presence of correlation of 0.80 or above is found. However, in order to further support my previous assumption, I also estimate the

variance inflation factors (VIFs) for each coefficient. These range from 1.01 to 1.78, thus no significant multicollinearity exists in the estimated model.

Looking at the estimates presented in Table V it is robustly supported that the probability of being an entrepreneur is vastly related to the gender of the individual, and more precisely with the probability that the respondent is a man. It can be assumed that this finding is quite expected considering the previous empirical work which suggests that masculinity indeed plays a crucial role regarding entrepreneurial activity of individuals (Roper and Scott, 2009; Verheul and Thurik, 2001).

[Table V goes here]

Regarding the impact of age and education on entrepreneurship, the results are rather mixed. As far as the first two models are concerned, the sign indicates a slightly negative and significant impact of age and education on the likelihood that someone is an entrepreneur. With the incorporation of the additional determinants in the model, the impact of these two variables turns out to be insignificant, implying that neither of these two demographic characteristics has a considerable impact on the likelihood that an individual will be an entrepreneur.

Regarding the remaining demographic characteristics (*Father* and *Urban*), there is evidence that neither of them can be considered as important for influencing the examined dependent variable. Nonetheless, as regards the variable *Mother*, when the robust standard errors model is estimated, this variable turned out to be a positive and significant determinant of entrepreneurship. It can be derived that the incorporation of robust standard errors corrected the level of significance for this variable.

Concerning the examined country-level control variables, *GDPPC* and *Unemployment*, these are found to have a negative and significant effect on individuals being involved in entrepreneurship. Concerning the first variable, *GDPPC* has a significant sign, while its coefficient's large size implies that the greater the level of wealth and economic prosperity, the less likely an individual is to engage in entrepreneurial activity. This finding is in line with De Backer and Sleuwaegen (2003) and Acs and Amoros (2008). Regarding the second negative relationship, this among unemployment and entrepreneurial engagement, the moderately small size of the coefficient does not enable us to extract very robust conclusions.

In regard to the rest, these estimates are moderately diverse in terms of their impact on entrepreneurial engagement. First, *Financial lack* is found to have a significantly positive

effect on the likelihood that an individual will become an entrepreneur, although it should be noticed that the size of the coefficient indicates only a minor impact on the examined dependent variable. Concerning the complex administrative procedures, the estimates are not clear enough. First, while the perception variable *Administrative complexities* is reported as significantly positive in models 3 and 4, during the full model it turned out that there is no significant effect on the dependent variable. On the other hand, the country-level variable *Startup procedures* was found to be a significantly positive determinant of entrepreneurial engagement.

As concerns the impact of business environment's efficiency, the findings are rather mixed as well. The estimates for the perception variable *Inefficient Business environment* provide no significant indication. Regarding the two country-level variables (*Total tax rate* and *Legal rights*), these are both positively and significantly related to *Entrepreneur*. First, *Total tax rate*, although reported with a very small coefficient, is found to be a positive determinant of entrepreneurial activity. Second, according to the estimates the strength of legal rights act as a facilitator of entrepreneurial engagement, while this finding can be further supported by the existing literature (Estrin *et al.*, 2006). Finally, the last variable of the model's estimation (*Risk aversion*) is found to have positive and significant effect on entrepreneurial activity.

Discussion

As concerns demographic characteristics, it is suggested that men are more likely to get involved with self-employment compared to women, as well as individuals whose mother was an entrepreneur in the past are more prone to engage in entrepreneurial activities. Interestingly, although past literature suggest that education, urbanisation and age play a rather important role on the likelihood that someone will engage in entrepreneurship, no significant impact of these three characteristics on the examined dependent variable is found.

Intriguing results emerge from the incorporation of GDPPC and unemployment variables in the model. These two variables are found to have a significantly negative impact on entrepreneurship. It can be supported that increased level of GDP yields economic prosperity, which in reality has a more positive impact on creation of new vacancies, rather than on entrepreneurial engagement. In other words, when market is demanding increased amounts of human capital in paid employment, there is an analogous negative effect regarding the supply of individuals toward self-employment. Regarding unemployment, the findings suggest that a negative relationship exists with entrepreneurship. As was previously analysed, the existing

literature has been quite diverse as concerns the relationship between these two measures. The author recalls the argument posed by Thurik *et al.* (2008), who define this controversy in this relationship as the "refugee" and "Schumpeter" effects.

Some interesting results emerge from the econometric analysis regarding environmental uncertainties and possible impediments hindering engagement to entrepreneurship. Precisely, existence of financial lack, increased number of start-up procedures and higher tax rates are all positively related with entrepreneurial engagement. Although the existing literature has highlighted the immense negative impact of all these characteristics on self-employment (Smallbone and Welter, 2001), the findings reveal that individuals do not evaluate these parameters as of substantial importance as concerns their entrepreneurial endeavours. On the one hand, post-socialist countries have faced a recent political, economic and social transition, while severe financial, administrative and institutional impediments still exist. On the other hand, individuals who live, work and operate in these regions have possibly developed creative, robust and resistant mechanisms in order to deal with all the possible problems that may confront them. Furthermore, the results provide evidence that risk-averse individuals are more likely to engage in entrepreneurial activities compared to risk lovers. Although high-risk attitude is one of the most influential characteristics concerning entrepreneurial engagement, on this occasion high risk toward entrepreneurial failure does not increase the likelihood of self-employment. This result is also consistent with the findings derived from the work of Grilo and Thurik (2006) and provides evidence that people living in politically and economically fragile and unstable environments are more hesitant regarding their entrepreneurial steps.

Conclusion

This study investigates the impact of demographic, environmental, institutional and personal perception characteristics on the propensity that an individual based in a post-socialist economy of the EU will be engaged in entrepreneurship. Precisely, using individual level data for eight transition countries, which are drawn from the 2007 Flash Eurobarometer Survey on Entrepreneurship, and supporting them with country level data, it is examined how individuals who live in this particular area perceive environmental uncertainties, institutional inefficiencies, financial barriers, and administrative complexities in regard to their decision on engaging or not with entrepreneurship.

One of the main difficulties faced in this study concerns whether the sample of transition economies should be examined by focusing on each individual country or on the group of

countries. The latter was chosen based on the assumption that, through this methodology, a region with high geographical and political proximities would be captured, while more accurate and robust statistic results would be provided, mainly given the large sample size. However, it should be kept in mind that merging the responses from eight different countries into one common group may possibly result in misleading and inaccurate outcomes, given that each country is in some way different from the other in terms of political, economic, and cultural aspects. Furthermore, the fact that the study lacks time series data is a further caveat that should be considered, although in cross-section studies, where surveys measure individuals' perceptions, possible incorporation of time series data is not that feasible.

This study adds to our existing knowledge with regards to how entrepreneurial engagement is deterred or facilitated by important demographic, environmental and perceptional characteristics. Considering that the countries of the sample are still under the transition process, the impact of this research work can still be considered as important for both policy makers and individuals who are already engaged or wish to engage in entrepreneurship. While the plethora of the existing studies provide evidence that administrative, financial and business inefficiencies are the most influential factors impeding individuals' eagerness toward entrepreneurial engagement, this study's findings reveal that such problems are no more perceived, neither indicated as crucial barriers. Unquestionably, it would be naive to support that transition countries have managed to tackle all the aforementioned problems in such a short time span. On the other hand, the results show that individuals in these countries have now the self-capacity and experience to proceed more effectively toward entrepreneurial engagement, regardless the level of environmental difficulties surrounding them. The findings confirm that, in a continuously shifting environment, perceptional and environmental changes occur and in many occasions these are dramatically portrayed.

Notes

1. The initial population of the sample was 5,501 observations. Due to several explanatory variables' missing values, the sample was initially truncated to 4,456 observations (in Model 1), and finally to 3,454 observations (in Model 5).
2. All respondents who answered that they do not engage in a professional activity were treated as missing values.

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TABLES

Table I. Variables' description

Variable	Short definition	Source	Formation	Expected sign
Gender	Male = 1, Female = 0	Survey	Binomial	+
Age	Age of respondent	Survey	Scale	+/-
Education	Entrepreneurial education each respondent has received at school	Survey	Scale	+/-
Father	Father's occupation entrepreneur = 1, otherwise = 0	Survey	Binomial	+
Mother	Mother's occupation entrepreneur = 1, otherwise = 0	Survey	Binomial	+
Urban	Urban/metropolitan zone = 1, Rural zone = 0	Survey	Binomial	+/-
Unemployment	Percentage of unemployed people among the total labor force of the country	WDI (World Bank indicators)	Scale	+/-
LnGDP Per Capita	Logarithm of Gross domestic product per capita	WDI (World Bank indicators)	Scale	+/-
Financial Lack	It is difficult to start one's own business due to lack of available financial support	Survey	Likert (1-4)	-
Bureaucracy	It is difficult to start one's own business due to complex administrative procedures	Survey	Likert (1-4)	+/-
Startup Procedures	Procedures required to start a business	WDI (World Bank indicators)	Count	+/-
Inefficient Business Environment	It is difficult to start one's own business due to difficulty in obtaining relevant information	Survey	Likert (1-4)	-
Tax Rate	Amount of taxes and mandatory contributions payable by businesses	WDI (World Bank indicators)	Scale	-
Legal Rights	The degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending	WDI (World Bank indicators)	Scale	+
Risk Aversion	One should not start his/her own business when risk of failure is high	Survey	Likert (1-4)	+

Table II. Share of self-employment per country

Countries	**Self-employed**	**Employed**	**Total**	**Per cent Ratio Self-employed / Employed**
Czech Republic	89	877	966	9,21%
Estonia	36	464	500	7,20%
Latvia	38	459	497	7,65%
Lithuania	37	466	503	7,36%
Hungary	84	936	1020	8,24%
Poland	110	899	1009	10,90%
Slovenia	23	479	502	4,58%
Slovak Republic	22	482	504	4,37%
Total sample	439	5062	5501	7,98%

Table III. Factor analysis for Education

	My school education:	Rotated factor loadings	Eigenvalue	Cronbach's alpha
1	Helped me to develop my sense of initiative - a sort of entrepreneurial attitude	0.84	2.11	0.79
2	Helped me to better understand the role of entrepreneurs in society	0.86		
3	Made me interested to become an entrepreneur	0.82		

Table IV. Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Entrepreneur	5,501	0.08	0.27	0	1
Gender	5,549	0.33	0.47	0	1
Age	5,500	49.22	17.60	15	96
Education	4,859	2.66	0.81	1	4
Father	5,225	0.13	0.33	0	1
Mother	5,351	0.08	0.27	0	1
Urban	5,549	0.72	0.44	0	1
Financial Lack	4,998	1.77	0.80	1	4
Bureaucracy	4,983	1.87	0.86	1	4
Inefficient Business Environment	4,795	2.51	0.97	1	4
Risk Aversion	5,170	2.22	0.96	1	4
Total Tax Rate	8	47.20	5.67	37.3	56.2
Start-up Procedures	8	7.90	2.01	5	10
Unemployment rate	8	6.86	2.21	4.3	11
LnGDPPC	8	9.57	0.21	9.31	10.06
Legal Rights	8	7.18	1.46	5	10

Table V. Binomial probit estimates (Dependent variable: Entrepreneur = 1, otherwise = 0)

Explanatory variables	Model 1 (control variables)	Model 2 (Model 1 + Financial lack)	Model 3 (Model 2 + Administrative complexities)	Model 4 (Model 3 + Inefficient Business environment)	Model 5 (Model 4 + Risk aversion)	Model 5 (with robust Standard Errors)
Gender	0.413*** (0.055)	0.396*** (0.057)	0.384*** (0.058)	0.384*** (0.059)	0.346*** (0.060)	0.346*** (0.082)
Age	-0.005*** (0.001)	-0.004** (0.001)	-0.003* (0.001)	-0.002 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Education	-0.072** (0.033)	-0.064* (0.034)	-0.057 (0.036)	-0.029 (0.037)	-0.046 (0.037)	-0.046 (0.053)
Father	-0.025 (0.094)	-0.007 (0.096)	-0.009 (0.097)	0.017 (0.099)	0.007 (0.101)	0.007 (0.120)
Mother	0.101 (0.110)	0.092 (0.112)	0.088 (0.115)	0.121 (0.118)	0.161 (0.119)	0.161** (0.070)
Urban	0.015 (0.063)	0.009 (0.066)	-0.008 (0.067)	-0.024 (0.069)	-0.052 (0.069)	-0.052 (0.124)
Unemployment rate	-0.019 (0.014)	-0.013 (0.014)	-0.028* (0.016)	-0.084*** (0.022)	-0.081*** (0.023)	-0.081*** (0.022)
LnGDPPC	-0.461*** (0.147)	-0.498*** (0.151)	-0.595*** (0.161)	-0.601*** (0.172)	-0.573*** (0.173)	-0.573** (0.273)
Financial lack		0.107*** (0.034)	0.089** (0.036)	0.087** (0.037)	0.078** (0.038)	0.078** (0.031)
Administrative complexities			0.073** (0.033)	0.063* (0.035)	0.058 (0.036)	0.058 (0.038)
Start-up procedures			0.023 (0.016)	0.055*** (0.018)	0.049** (0.019)	0.049*** (0.014)
Inefficient business environment				-0.040 (0.032)	-0.046 (0.033)	-0.046 (0.035)
Total tax rate				0.017*** (0.006)	0.017*** (0.006)	0.017*** (0.004)
Legal rights				0.101*** (0.031)	0.090*** (0.032)	0.090*** (0.028)
Risk aversion					0.075** (0.032)	0.075*** (0.025)
Intercept	3.441** (1.475)	3.497** (1.514)	4.226*** (1.578)	2.876* (1.718)	2.652 (1.738)	2.652 (2.943)
Model Fit statistics						
LogLikelihood	-1,247.06	-1,172.93	-1,138.00	-1,090.96	-1,058.29	-1,058.29
LR χ^2	89.24***	86.52***	88.25***	90.24***	87.50***	-
McFadden's pseudo R^2	0.084	0.085	0.087	0.089	0.089	0.089
N	4,456	4,090	3,851	3,569	3,454	3,454

*** p < 1% ** p < 5% * p < 10% (Standard errors in parentheses).