ORIGINAL PAPER

Justyna Zygmunt
Opole University of Technology, Poland

Entrepreneurial activity drivers in the transition economies. Evidence from the Visegrad countries

Abstract

Research background: Entrepreneurship issues in the transition economies have attracted growing attention from scholars in recent years. However, the debate over the value of entrepreneurship in reinforcing structural change is still incomplete. The need for a more thorough approach is noticeable, taking into account drivers which determine entrepreneurial activity in the transition economies. The findings may be useful for recognising opportunities and threats of the development of these economies.

Purpose of the article: This paper extends research on entrepreneurship in the transition economies by considering drivers of entrepreneurial activity. The aim of the paper is to investigate what drivers have their consequences for entrepreneurial activity in the Visegrad countries. As the Visegrad countries represent a unique context, because they faced a similar structure at the beginning of the transition process, a valuable insight can be gained by focusing on them.

Methods: Hypothesis development is based on the literature review. Fixed effects panel regression was employed for hypothesis testing. Panel data consists of 396 observations for the Visegrad countries for the 2004–2014 period. To control for autocorrelation and heteroscedasticity, Durbin-Watson test and Wald statistic were used, respectively.

Findings & Value added: This paper contributes to the existing literature by presenting an analysis of drivers having their impact on entrepreneurial activity in the Visegrad countries. It provides new insights on understanding of the entrepreneurship issues in the transition economies. The main finding is that entrepreneurial activity in the Visegrad countries is determined significantly by the economy structure and human capital. However, the signifi-

icance and the intensity of these effects are different. The findings may be interesting for policymakers in particular. Shifting from general entrepreneurship support towards a focus on promoting entrepreneurial behaviour among high-skilled workers should be considered. Fostering networking, collaboration and internalisation should be regarded for knowledge transfer and spillover enhancement.

Introduction

The spatial diversity of entrepreneurial activity has long been observed. Disparities in entrepreneurship between countries, and increasingly, between and across regions have been recognised in numerous studies. Consistent with endogenous growth theory, it is argued that entrepreneurship varies depending upon the region-specific resources (Fritsch, 1997, pp. 437–448), such as industrial density, population, income level (Reynolds *et al.*, 1995, pp. 389–407; Armington & Acs, 2002, pp. 33–45), cultural determinants (Bosma *et al.,* 2008, pp. 129–146), human capital (Huggins *et al.,* 2017, pp. 357–389; Zygmunt J., pp. 226–236). From the perspective of the knowledge spillover theory of entrepreneurship, differences in entrepreneurial activity may depend on the capacity to turn knowledge into innovation (Audretsch & Keilbach, 2004, pp. 605–616) and the amount of network capital (Huggins & Thompson, 2015, pp. 103–128).

While in the literature the concentration on developed countries (Van Stel & Storey, 2004, pp. 907–932) and most lately on emerging countries prevails (Bruton *et al.*, 2008, pp. 1–12), relatively less research attention has been focused on the transition economies. However, the transition economies provide a particularly vulnerable setting for investigating entrepreneurial activity since entrepreneurship appears to have a crucial substance in the transition process. Therefore, it seems important to better understand the aspects of entrepreneurial activity in such economies.

The subject of entrepreneurship in the transition economies has attracted growing attention of scholars in recent years, mainly with a focus on entrepreneurial patterns (McMillan & Woodruff, 2002, pp. 153–170), institutional environment for entrepreneurship (Kshetri, 2009, pp. 246–254), entrepreneurship culture (Fritsch & Wyrwich, 2016, pp. 157–189). It has been also observed that the stage of economic freedom does matter for entrepreneurial activity (e.g. Erkut, 2016, pp. 11–26).

This paper extends research on entrepreneurship in the transition economies by analysing drivers of entrepreneurial activity. Thereby, the aim of the paper is to investigate what drivers have their consequences for entrepreneurial activity in the Visegrad countries. Entrepreneurial environment of some Central and Eastern European countries has been regarded in pre-

vious studies, mostly the Czech Republic (e.g. Fabuš, 2017, pp. 127–137), the Slovak Republic (e.g. Ivanová, 2017, pp. 255–272), and Poland (e.g. Adamowicz & Machla, 2016, pp. 405–437; Wąsowska, 2016, pp. 27–39; Pietrzak *et al.*, 2017; pp. 190–203; Zygmunt A., 2017, pp. 505–521). Nevertheless, the discussion on entrepreneurial activity in the transition economies is still incomplete. By examining the Visegrad countries, valuable insights can be gained, as they represent a unique context, facing a similar structure and scarcities in their economic development at the beginning of the transition. Fixed effects panel regression has been applied as a research method in this paper.

The paper contributes to the existing literature by providing new insights into the issues related to entrepreneurial activity in the transition economies. Since entrepreneurship plays an important role in fostering economic growth (Audretsch *et al.*, 2008, pp. 687–698), the findings may also constitute the basis for identifying opportunities and threats for the economic development of Central and Eastern European regions.

The reminder of the paper is structured as follows. The first section provides theoretical background and hypothesis development, while the second one concerns the research method. This is followed by empirically based findings. The final section provides conclusions.

Theoretical background and hypothesis development

The effects of the transition depend in large part on entrepreneurial activity. Whereas entrepreneurial activity is considered as one of determinants of economic development in market economies (Valliere & Peterson, 2009, pp. 459–480), its significance in the transition from a centrally planned to free market appears to be of utmost importance (Ireland *et al.*, 2008, p. 108). As emphasised by Ireland *et al.* (2008, p. 108), "entrepreneurship is not only an intended outcome of the transition […] but also a key factor in insuring the transition's success". The value of entrepreneurial activity in reinforcing a structural change is evinced mostly in creating jobs, supporting economy reforms (McMillan & Woodruff, 2002, p. 153), increasing competitiveness and developing market diversification.

The transformation process to free market follows different trajectories. Poland underwent the transition quite successfully (McMillan & Woodruff, 2002, pp. 153–170), as did Hungary. Also the Czech Republic, Slovenia and the Slovak Republic are regarded as the most developed among the transition economies (Manolova *et al.,* 2008, p. 206). In Romania and Russia, the structural change has not proceeded smoothly (Stoica, 2004, pp.

236–277). Some constraints in the transition process have been observed for Ukraine (Smallbone *et al.,* 2010, pp. 655–670). While in the majority of the transition economies the adoption of market economy principles took a long time, a unique example of a swift transformation is represented by East Germany. With a proven framework from West Germany, the adaptation to free market was conducted "practically overnight" (Fritsch *et al.*, 2014, p. 428).

Among the transition economies, a distinct group is represented by the Visegrad countries[1], facing structural similarity[2]. This similarity is evinced mostly in (i) the length of time under socialism, (ii) starting time of the transformation, (iii) economic conditions, (iv) political system, (v) transition objectives, (vi) early effects of the transition[3]. A concentration on the Visegrad countries constitutes an exceptional basis for observation of drivers affecting entrepreneurial activity in the transition economies. Some entrepreneurship aspects of particular Visegrad countries have been studied before (see, e.g., McMillan & Woodruff, 2002, pp. 153–170; Manolova *et al.*, 2008, pp. 203–218), while only a few studies have considered the Visegrad countries integrally. The latter focus mostly on international entrepreneurship (Gubik & Wach (Ed.), 2014, pp. 1–148), different types of entrepreneurship (senior's, the young's, women's – see, e.g., Holienka *et al.*, 2016, pp. 124–133), dependence on unemployment rate (Dvouletý & Mareš, 2016, pp. 146–156). The drivers of entrepreneurial activity are not regarded explicitly in these studies. However, it seems that the initial transformation environment has a value for entrepreneurial activity development. Therefore, the need for a more thorough approach is noticeable, since such an approach could lead to possible conclusions which may be useful for improving entrepreneurship in the transition economies.

Entrepreneurial activity is determined by numerous drivers. One of the most significant is the unemployment level. A substantial increase in unemployment is a transition outgrowth, and has been observed during the transformation process in many countries. On the basis of East Germany, Fritsch *et al.* conclude that (2014, p. 430) "the relatively high unemployment rate […] may have resulted in many businesses being started up 'out of need'". This observation is not only limited to the transition economies,

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[1] Visegrad countries: the Czech Republic, Hungary, Poland, the Slovak Republic.

[2] Structural similarity is regarded here in a broader sense than Krugman's approach since not only economic factors are considered (compare, Krugman, 1991, pp. 483–499).

[3] These observations apply mostly to the beginning of the transition. Albeit, the outcomes of the transition in the Visegrad countries are non-identical mainly because of different institutional arrangements. For evidence of nowadays inhomogeneity within the Visegrad countries see, e.g. Sukiassyan (2007, pp. 35–56).

though. Many studies provide evidence of entrepreneurial activity association with the unemployment rate also in developed countries (for an overview see, e.g., Gries & Naudé, 2010, pp. 310–311). This suggests the following testable hypothesis:

H1: *Entrepreneurial activity in the Visegrad countries is positively related to the unemployment level.*

The economy structure seems to be of importance for entrepreneurial activity. For a developed economy, Fritsch & Falck found positive impact of short-term unemployment on entrepreneurship in the services sector, and no existence of such a relationship in manufacturing industries (2007, pp. 157–172). Differences concerning economy sectors may be explained by relatively low entry costs (Reynolds *et al.*, 1995, pp. 389–407) and low qualification requirements in the services sector. However, the economy structure of the transition countries, especially at the beginning of the transformation, varies pivotally from Western models. Manufacturing large-scale companies dominate, with an almost negligible share of services and trade (McMillan & Woodruff, 2002, p. 154). This framework changes during the transformation towards a free market structure, with greater importance of services and with small and medium companies preponderance. Hence, the following hypothesis is assumed:

H2: *Entrepreneurial activity in the Visegrad countries is stronger for services than for manufacturing industries.*

Entrepreneurial activity tends to be greater with a high presence of new knowledge. According to the knowledge spillover theory of entrepreneurship, spatial diversity in entrepreneurship may derive from disparities in investments in new knowledge (Audretsch & Lehmann, 2005, pp. 1194–1197). The ability of entrepreneurs to access knowledge and generate innovation determines growth at the micro (enterprise) and macro level (region, country). The stock of knowledge is therefore essential for entrepreneurial activity. However, in the transition economies access to knowledge is generally limited, especially within geographically close areas which face similar transformation scarcities. Under the centrally planned economy, knowledge creation and transfer has not been widely supported. A low level of trust has inhibited these single cases of knowledge transfer which randomly occurred. Hence, scarce knowledge sources may encourage enterprises to create innovation by themselves or to imitate them from outside the region (Gries & Naudé, 2010, pp. 321–322). This observation is sup-

ported by Drejer & Vinding (2007, pp. 259–275), who suggest that knowledge insufficiency may be diminished by acquiring it outside, mostly by engaging in internalisation and collaboration processes. Thus, the following hypothesis is proposed:

H3: *Inflows of knowledge positively influence entrepreneurial activity in the Visegrad countries.*

Pivotal to entrepreneurial activity is human capital. The level of education and work experience determines the individuals' skills and knowledge which seem requisite to "recognize and exploit an entrepreneurial opportunity" (Wyrwich, 2013, p. 670). Human capital is regarded as a significant endogenous resource (Huggins & Thompson, 2015, pp. 114–120), and those regions which are creative are more likely to enhance entrepreneurial activity by attracting human capital (Benneworth, 2004, pp. 439–458). Since human capital is related to the region's character, it has its strong consequences for the transforming countries. In the transition economies, a significant obstacle is a lack of previous market experience (Smallbone & Welter, 2001, p. 256), which means that skills and knowledge acquired under socialism, even regarded as valuable then, have proved to be useless in most cases within the transition process. Moreover, in many transition economies the amount of human capital has been diminished by high out-migration rates. However, it may be supposed that the amount of human capital change over time along with the transition to Western economy frameworks. Thus, it is expected that in transition economies the impact of human capital on entrepreneurial activity is similar. Hence, the following hypothesis is assumed:

H4: *An increase in human capital in the Visegrad countries leads to the enhancement in entrepreneurial activity.*

Research method

To analyse the drivers which have their consequences for entrepreneurial activity in the Visegrad countries (E_{it}), a panel regression analysis was used. Hausman test was employed to confirm that fixed effects estimation should be used. The model has one cross-section dimension for the Visegrad countries i, with i = the Czech Republic, Hungary, Poland, the Slovak Republic; and one time dimension t, with t = 2004, 2005,…, 2014. The model is specified as:

$$E_{it} = U_{it}\beta_1 + S_{it}\beta_2 + I_{it}\beta_3 + HW_{it}\beta_4 + M_{it}\beta_5 + R\&D_{it}\beta_6 + G_{it}\beta_7 +$$

$$+D_{it}\beta_8 + \alpha_i + \varepsilon_{it}$$

(1)

where: E_{it} − entrepreneurial activity; other variables as described in Sample and variables section.

Consistent with previous studies, it was assumed that the effect of some variables on entrepreneurial activity is longitudinal, mostly with lagged outcomes (see, e.g., Huggins & Thompson, 2015, p. 116; Bosma & Schutjens, 2011, p. 716). To control for the collinearity among explanatory variables, the graph analysis method was used (Bartosiewicz (Ed.), 1980). Durbin-Watson test was employed to detect the presence of autocorrelation. To check for the heteroscedasticity, Wald statistic was used.

Sample and variables

For this research, the Visegrad countries were analysed over the 2004–2014 period. The data used in the analysis come from Eurostat, and were formed into a panel. In total, panel data consists of 396 observations.

Entrepreneurial activity (dependent variable) was measured as the log number of start-ups per capita for country i and year t (E_{it}).

Explanatory variables were measured as follows. Unemployment (U_{it}) was measured as the unemployment rate in country i and year t. The economy structure was measured by the share of employment in services to total employment in country i and year t (S_{it}), and the share of employment in manufacturing industries to total employment in country i and year t (I_{it}). Consistent with previous studies, several variables for human capital were used. The share of population with university degrees in relation to total employment in country i and year t was used as a proxy for highly skilled workforce (HW_{it}). Migration (M_{it}) was measured as the rate of net migration for country i and year t. To measure the inflows of knowledge, spending in R&D per capita in country i and year t was employed ($R\&D_{it}$).

Several control variables were included. It seems interesting to control for economic growth. Since entrepreneurship and growth are claimed to remain in an interdependent relationship (Bosma & Schutjens, 2011, pp. 711–742), it is expected that this growth has a positive influence on entrepreneurial activity. A transition economy is less likely to provide a high amount of human capital, growing demand, adequate knowledge stocks,

and knowledge spillovers, which relevantly constrain entrepreneurial opportunities. Thus, a country's output growth (G_{it}) is measured as the real GDP per capita for country i and year t. According to Reynolds *et al.*, growing demand for goods and services determines entrepreneurial activity (1995, pp. 389–407). They suggest that significant impact on demand is exerted by population growth (Reynolds *et al.*, 1995, p. 391). In this respect, Fritsch and Falck (2007, pp. 159–160) claim that high population density may result in a high level of entrepreneurial activity. Hence, demand (D_{it}) is measured as the number of people per square kilometre in country i and year t. Descriptive statistics and correlation matrices of the dependent variable and explanatory variables are shown in Tables 1–2.

Findings

High levels of collinearity between explanatory variables were identified. It led to the exclusion of some variables from the model. The lagged effect of variables was considered (for $t-1$ and $t-2$), providing evidence that the impact of explanatory variables on the dependent variable is statistically significant for t. Finally, the following variables were included in the model: S_{it}, HW_{it}, M_{it}.

Estimation results (Table 3) provide evidence that entrepreneurial activity in the transition economies is affected by various drivers. However, the significance and intensity of these effects are different.

As anticipated, coefficient estimation shows that entrepreneurial activity is to a higher degree influenced by the services sector. It supports Hypothesis 2 and suggests that the share of employment in services to total employment in a country does matter for the number of start-ups per capita in the Visegrad countries. As expected, the economy structure weighs on entrepreneurship in the transition economies, which is to some extent consistent with the observations of Erkut (2016, pp. 11–26). This finding also indicates that the relation identified previously for developed economies (see, e.g., Reynolds *et al.*, 1995, pp. 389–407) holds for the transition countries as well.

The results suggest that the share of population with university degrees in relation to total employment positively influences the share of the self-employed within total workforce. Thus, Hypothesis 4 is supported. However, the level of statistical significance of this relationship is $p \leq 0.10$. A likely reason for such a low value of high-skilled workforce to entrepreneurial activity growth could be explained by the socialist heritage, which may have resulted in impaired propensity for entrepreneurial behaviour.

This explanation is to some extent in line with the findings of Fritch *et al.*, who — based on the example of East Germany — observed that the relation between high-skilled workforce and entrepreneurial activity is inversed and may result from better opportunities in the labour market, which consequently diminishes (2014, p. 434) "out of need" entrepreneurship. Migration shows an impact on entrepreneurial activity in the Visegrad countries.

Since the variable for unemployment has been excluded from the estimated model because of collinearity between explanatory variables, Hypothesis 1 has not been tested. However, the analysis of correlation coefficient between the unemployment rate and the log number of start-ups per capita (Table 2) shows that this relationship is weak and statistically insignificant. Contrary to e.g. Gries & Naudé (2010, pp. 310–311), the expected effect of unemployment on entrepreneurial activity has not been identified.

Similarly, the influence of inflows of knowledge on entrepreneurial activity in the Visegrad countries (Hypothesis 3) has not been tested owing to the exclusion of variables from the model. Based on the correlation matrix (Table 2), it may be claimed though that, interestingly, spending on R&D per capita does not matter for the number of start-ups per capita. A possible explanation is related to quite modest engagement of the Visegrad countries in knowledge transfer processes, which may be evinced in a lack of sufficient knowledge stock to determine growth.

On the grounds of the correlation matrix (Table 2), it may be also observed that the results for control variables show a positive and significant impact of the number of people per square kilometre on entrepreneurial activity in the Visegrad countries. It confirms that entrepreneurial activity responds positively to increases in demand, which confirms the observations of Fritsch and Falck (2007, pp. 159–160). As opposed to research anticipation, the findings reveal that a country's output growth is of no consideration for entrepreneurial activity. This observation is divergent from e.g. Bosma and Schutjens (2011, pp. 711–742).

Conclusions

This paper extends research on entrepreneurship in the transition economies by identifying its drivers. Attempts to relate the level of entrepreneurial activity to the post-socialist background have been made. In particular, the results indicate that to some extent entrepreneurial activity in the Visegrad countries is determined by similar drivers as in developed economies. Accordingly, empirical evidence suggests that employment in service industries in the transition economies do have a similar impact on entrepreneurial

activity, as has been also observed in developed economies. Taking into account that the structural change of the transition economies towards free market economies is mostly not random but is a path-dependent process, the heavy weight of economic growth and demand for goods and services on entrepreneurial activity development that has been observed in this paper[4] may evince the longitudinal effect of these drivers on entrepreneurship in the Visegrad countries.

Another important finding is that high-skilled workforce in the Visegrad countries is less likely to engage in self-employment. This may result from the socialist legacy, which has suppressed entrepreneurial attitudes. Thus, this paper offers interesting practical implications. In order to develop entrepreneurship, policymakers should consider shifting from general entrepreneurship support towards a focus on promoting entrepreneurial behaviour among high-skilled people. Adequate tools should be provided by governments to ensure particular encouragement to engage these people in entrepreneurship. Additionally, the findings indicate that strengthening the processes of knowledge transfer and knowledge spillover is pivotal in order to develop entrepreneurial activity in the Visegrad countries. The policy aimed at promoting internalisation, networking and collaboration should be considered.

Various shortcomings of the study presented here should be acknowledged. First, this paper does not control for cross-country dependency which may appear between the Visegrad countries. Second, this paper does not account for regional spatial dependencies. Although the country level is appropriate to examine entrepreneurial issues, the regional dimension may provide more thorough insight on entrepreneurial activity (see, e.g., Armington & Acs, 2002, pp. 33–45; Gries & Naudé, 2010, pp. 310–311; Huggins *et al.*, 2017, pp. 357–389). Hence, future empirical analyses addressing the extent to which regions matter for entrepreneurial activity in the transition economies seem essential. Third, although this paper reveals useful insight on entrepreneurial activity in the Visegrad countries, it does not account for every driver influencing entrepreneurship. Future research should adopt alternative approaches providing for, e.g., cultural patterns of entrepreneurship as well as the reasons for entrepreneurship. The future research work might also involve an investigation to what extent a different policy of supporting entrepreneurship within the transition period in respective Visegrad countries has its consequences for entrepreneurial behaviour.

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[4] For the research period starting some years after the transition began.

References

Adamowicz, M., & Machla, A. (2016). Small and medium enterprises and the support policy of local government. *Oeconomia Copernicana*, *7*(3). doi: 10.12775/OeC.2016.024.

Armington, C., & Acs, Z. C.(2002). The determinants of regional variation in new firm formation. *Regional Studies*, *36*(1). doi: 10.1080/00343400120099843.

Audretsch, D. B., Bönte, W., & Keilbach, M. (2008). Entrepreneurship capital and its impact on knowledge diffusion and economic performance. *Journal of Business Venturing*, *23*. doi: doi: 10.1016/j.jbusvent.2008.01.006.

Audretsch, D. B., & Keilbach, M. (2004). Entrepreneurship and regional growth: an evolutionary interpretation. *Journal of Evolutionary Economics*, *14*(5). doi: 10.1007/s00191-004-0228-6.

Audretsch, D. B., & Lehmann, E. E. (2005). Does the knowledge spillover theory of entrepreneurship hold for regions? *Research Policy*, *34*(8). doi: 10.1016/j.respol.2005.03.012.

Bartosiewicz, S. (Ed.) (1980). *Metody ekonometryczne. Przykłady i zadania*. Warszawa: PWE.

Benneworth, P. (2004). In what sense 'regional development?': entrepreneurship, underdevelopment and strong tradition in the periphery. *Entrepreneurship & Regional Development, 16*(6). doi: 10.1080/0898562042000249786.

Bosma, N., Van Stel, A., & Suddle, K. (2008). The geography of new firm formation: evidence from independent startups and new subsidiaries in the Netherlands. *International Entrepreneurship and Management Journal*, *4*(2). doi: 10.1007/s11365-007-0058-8.

Bosma, N., & Schutjens, V. (2011). Understanding regional variation in entrepreneurial activity and entrepreneurial attitude in Europe. *Annals of Regional Studies*, *47*(3). doi 10.1007/s00168-010-0375-7.

Bruton, G. D., Ahlstrom, D., & Obloj, K. (2008). Entrepreneurship in emerging economies: where are we today and where should the research go in the future. *Entrepreneurship Theory and Practice, 32*(1). doi: 10.1111/j.1540-6520.2007.00213.x.

Drejer, I., & Vinding, A. L. (2007). Searching near and far: determinants of innovative firms' propensity to collaborate across geographical distance. *Industry and Innovation*, *14*(3). doi: 10.1080/13662710701369205.

Dvouletý, O., & Mareš, J. (2016). Relationship between unemployment and entrepreneurial activity: evidence found among Visegrad countries. In *Innovation management, entrepreneurship and corporate sustainability* (IMECS 2016). Vysoká škola ekonomická v Praze.

Erkut, B. (2016). Entrepreneurship and economic freedom: do objective and subjective data reflect the same tendencies? *Entrepreneurial Business and Economics Review*, *4*(3). doi: http://dx.doi.org/10.15678/EBER.2016.040302.

Fabuš, M. 2017. Current development of business environment in Slovakia and Czech Republic. *Entrepreneurship and Sustainability Issues, 5*(1). doi: 10.9770/jesi.2017.5.1(10).

Fritsch, M. (1997). New firms and regional employment change. *Small Business Economics*, *9*(5). doi: 10.1023/A:1007942918390.

Fritsch, M., Bublitz, E., Sorgner, A., & Wyrwich, M. (2014). How much of a socialist legacy? The re-emergence of entrepreneurship in the East German transformation to a market economy. *Small Business Economics*, *43*(2). doi: 10.1007/s11187-014-9544-x.

Fritsch, M., & Falck, O. (2007). New business formation by industry over space and time: a multidimensional analysis. *Regional Studies*, *41*(2). doi: 10.1080/00343400600928301.

Fritsch, M., & Wyrwich, M. (2016). The effect of entrepreneurship on economic development — an empirical analysis using regional entrepreneurship culture. *Journal of Economic Geography*, *17*(1). doi: 10.1093/jeg/lbv049.

Gubik, A. S., & Wach, K. (Ed.) (2014). *International entrepreneurship and corporate growth in Visegrad countries*. Miskolc: University of Miskolc.

Gries, T., & Naudé, W. (2010). Entrepreneurship and structural economic transformation. *Small Business Economics*, *34*(1). doi: 10.1007/s11187-009-9192-8.

Holienka, M., Jančovičová, Z., & Kovačičová, Z. (2016). Drivers of women entrepreneurship in Visegrad countries: GEM evidence. *Procedia - Social and Behavioral Sciences*, *220*. doi: 10.1016/j.sbspro.2016.05.476.

Huggins, R., Prokop, D., & Thompson, P. (2017). Entrepreneurship and the determinants of firm survival within regions: human capital, growth motivation and locational conditions. *Entrepreneurship & Regional Development*, *29*(3-4). doi: 10.1080/08985626.2016.1271830.

Huggins, R., & Thompson, P. (2015). Entrepreneurship, innovation and regional growth: a network theory. *Small Business Economics*, *45*(1). doi: 10.1007/s11187-015-9643-3.

Ireland, R. D., Tihanyi, L., & Webb, J. W. (2008). A tale of two politico-economic systems: implications for entrepreneurship in Central and Eastern Europe. *Entrepreneurship Theory and Practice*, *32*(1). doi: 10.1111/j.1540-6520.2007.00218.x

Ivanová, E. (2017). Barriers to the development of SMEs in the Slovak Republic. *Oeconomia Copernicana*, *8*(2), doi: 10.24136/oc.v8i2.16.

Krugman, P. (1991). Increasing returns and economic geography. *Journal of Political Economy*, *99*(3). doi: 10.1086/261763.

Kshetri, N. (2009). Entrepreneurship in post-socialist economies: a typology and institutional contexts for market entrepreneurship. *Journal of International Entrepreneurship*, *7*(3). doi: 10.1007/s10843-009-0039-9.

Manolova, T. S., Eunni, R. V., & Gyoshev, B. S. (2008). Institutional environments for entrepreneurship: evidence from emerging economies in Eastern Europe. *Entrepreneurship Theory and Practice*, *32*(1/9). doi: 10.1111/j.1540-6520.2007.00222.x.

McMillan, J., & Woodruff, C. (2002). The central role of entrepreneurs in transition economies. *Journal of Economic Perspectives*, *16*(3).

Pietrzak, M. B., Balcerzak, A. P., Gajdos, A., & Arendt, Ł.(2017). Entrepreneurial environment at regional level: the case of Polish path towards sustainable socio-economic development. *Entrepreneurship and Sustainability Issues*, *5*(2), doi: 10.9770/jesi.2017.5.2(2).

Reynolds, P., Miller, B., & Maki, W. R. (1995). Explaining regional variation in business births and deaths: U.S. 1976–88. *Small Business Economics*, *7*(5). doi: 10.1007/BF01302739.

Smallbone, D., & Welter, F. (2001). The distinctiveness of entrepreneurship in transition economies. *Small Business Economics*, *16*(4), doi: 10.1023/A: 1011159216578.

Smallbone, D., Welter, F., Voytovich, A., & Egorov, I. (2010). Government and entrepreneurship in transition economies: the case of small firms in business services in Ukraine. *Service Industries Journal*, *30*(5). doi: 10.1080/026420 60802253876.

Stoica, C. A. (2004). From good communists to even better capitalists? Entrepreneurial pathways in post-socialist Romania. *East European Politics and Societies*, *18*(2). doi: 10.1177/0888325403259864.

Sukiassyan, G. (2007). Inequality and growth: what does the transition economy data say? *Journal of Comparative Economics*, *35*(1). doi: 10.1016/j.jce. 2006.11.002.

Valliere, D., & Peterson, R. (2009). Entrepreneurship and economic growth: evidence from emerging and developed countries. *Entrepreneurship & Regional Development*, *21*(5-6). doi: 10.1080/08985620802332723.

Van Stel, A., & Storey, D.J. (2004). Link between firm births and job creation: is there a Upas Tree effect? *Regional Studies*, *38*(8). doi: 10.1080/003434 0042000280929.

Wąsowska, A. (2016). Who doesn't want to be an entrepreneur? The role of need for closure in forming entrepreneurial intention of Polish students. *Entrepreneurial Business and Economics Review*, *4*(3). doi: 10.15678/EBER. 2016.040303.

Wyrwich, M. (2013). Can socioeconomic heritage produce a lost generation with regard to entrepreneurship? *Journal of Business Venturing*, *28*(5). doi: 10.1016/j.jbusvent.2012.09.001.

Zygmunt, A. (2017). Innovation activities of Polish firms. Multivariate analysis of the moderate innovator countries. *Oeconomia Copernicana*, *8*(4). doi: 10.24136/oc.v8i4.31.

Zygmunt, J. (2017). Enterprises' development in peripheral regions: patterns and determinants. *Problemy Zarządzania, 15*(65). doi: 10.7172/1644-9584.65.14.

Annex

Table 1. Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
E	44	11.33	10.27	12.51	0.67
U	44	10.19	3.63	4.40	19.40
S	44	0.58	0.03	0.53	0.65
I	44	0.34	0.04	0.29	0.40
HW	44	0.28	0.06	0.17	0.41
M	44	0.99	1.69	-0.90	7.70
R&D	44	111.36	68.14	29.80	294.00
G	44	10840.91	2673.93	5400.00	15600.00
D	44	118.51	10.93	106.10	136.30

Source: own estimation based on Eurostat data.

Table 2. Correlation matrix of the dependent variable and explanatory variables

Variable	E	U	S	I	HW	M	R&D	G	D
E	1								
U	-0.0558	1							
S	-0.5523**	-0.1778	1						
I	-0.4847**	-0.1493	-0.2581	1					
HW	0.3521**	0.0222	0.4502**	-0.8055**	1				
M	-0.3367**	-0.5766**	0.1137	0.3917**	-0.3913**	1			
R&D	-0.1188	-0.5937**	0.2032	0.3353**	-0.0076	0.4643**	1		
G	-0.2041	-0.4996**	0.1406	0.5471**	-0.0887	0.4042**	0.8095**	1	
D	0.4637**	-0.4347**	-0.5880**	0.3302**	-0.3083**	0.3333**	0.6031**	0.4429**	1

Level of statistical significance: ** $p \leq 0.05$

Source: own estimation based on Eurostat data.

Table 3. Estimation results

	Model E_{it}
$const$	3.2729
	(2.0326)
S_{it}	15.6529**
	(4.0192)
HW_{it}	3.4718*
	(1.1310)
M_{it}	0.0498**
	(0.0135)
$LSDV\ R-squared$	0.9223
$Within\ R-squared$	0.2976

Heteroscedasticity and autocorrelation consistent. Standard errors in parentheses. Level of statistical significance: ** $p \leq 0.05$; * $p \leq 0.10$.

Source: own estimation based on Eurostat data.