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What drivers affect entrepreneurial activity in the transition economies? The case of the Visegrad countries

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Abstract

Research background: While a large literature exists linking entrepreneurship with its drivers in developed economies, entrepreneurship issues in the transition economies are still no entirely recognised. The Visegrad countries represent a unique scope for examining drivers affecting entrepreneurial activity in the transition economies, since they faced similarities at the beginning of the transformation. The findings may be supportive in identifying threats and opportunities of the economic development of Central and Eastern Europe regions.

Purpose of the article: This paper contributes to the literature on entrepreneurship by focusing on drivers of entrepreneurial activity in the transition economies. The aim of the paper is to analyse how entrepreneurial activity in respective Visegrad countries is influenced by various drivers.

Methodology/methods: Entrepreneurship activity and its drivers in the Visegrad countries were considered for the 2004-2014 period. Hypotheses were tested with the usage of an Ordinary Least Squared regression. F-test was employed to test estimated regressions. Goodness-of-fit of the regressions was controlled with the coefficient of determination. To check for the collinearity, Pearson's correlation coefficient was used.

Findings & Value added: In this paper the approach for improving the understanding of issues related to entrepreneurship in the transition economies is made. This paper contributes to the understanding of how entrepreneurship activity in the Visegrad countries is influenced by various drivers. The main finding is that although entrepreneurial activity in the Visegrad countries seems to be influenced by similar drivers that have been identified for developed economies, the way in which respective drivers matters for entrepreneurship is, in certain cases, distinct. The findings may attract attention of policymakers and may be useful in the processes of policy pursuing.

Introduction

The relationship between entrepreneurial activity and economic growth has received substantial attention in recent years, both from researchers and policy makers (see, e.g., Fritsch, 1997, pp. 437-448; Audretsch & Lehmann, 2005, pp. 1194-1197; Bosma &Schutjens, 2011, pp. 711-742; Huggins &Thompson, 2015, pp. 114-120). While entrepreneurship issues in developed economies have been extensively examined, little is known about mechanisms related to entrepreneurship in the transition economies. The understanding of entrepreneurship issues in these economies seems important since it may provide a valuable insight on processes of reintroducing or establishing entrepreneurial attitudes in a transforming society. Since entrepreneurial activity is regarded as a pivotal factor of economic development in the transition economies (McMillan & Woodruff, 2002, pp. 153-170) it seems essential to understand its essence.

Entrepreneurship issues in the transition economies has been regarded in the literature in recent years (see, e.g., Smallbone & Welter, 2001, pp. 229-262; Kshetri, 2009, pp. 246–254; Wyrwich, 2013, pp. 667-682; Fritsch & Wyrwich, 2016, pp. 157-189). However, the debate on challenges faced by the transition economies with regard to entrepreneurship regions is still incomplete.

This paper extends research on entrepreneurship issues in the transition economies by focusing on entrepreneurial activity drivers. Hence, the aim of the paper is to analyse how entrepreneurial activity in respective Visegrad countries is influenced by various drivers. The focus on the Visegrad countries may provide compelling conclusions since these countries shared similar characteristics at the moment of the transition start. To test for an impact of various drivers on entrepreneurial activity an Ordinary Least Squared regression has been used.

This paper contributes to the literature on entrepreneurship by focusing on drivers affecting entrepreneurial activity in the transition economies. New insights on understanding of entrepreneurial activity in the transition economies is provided. The findings may be supportive in identifying threats and opportunities of the economic development of Central and Eastern Europe regions.

The structure of the paper is as follows. Theoretical background and hypotheses development is provided in first section. This is followed by method of the research. Another section includes empirically based findings. The final section includes conclusions.

Theoretical background and hypotheses development

An engagement in entrepreneurial activity during the transition process is accompanied with an extremely high level of uncertainty, since transformation into market economy is a challenging and usually rapid process. It is related mostly with unstable and sometimes adverse environment with, particularly at the beginning, the absence of market institutions and transparent law, and with limited access to finance. Such circumstances lead in large part to notably high business risk. However, a structural change generally does not suppress entrepreneurial activity. On the contrary, the enormous growth in entrepreneurship rate is mostly observed. On the example of East Germany, Fritsch *et al.* provide evidence that transformation to market economy involves a significant increase in entrepreneurial activity (2014, pp. 429-430). The same conclusion draw Ireland *et al.* for Central and Eastern Europe countries (Ireland *et al*., 2008, pp. 107-108), and McMillan & Woodruff for China and Vietnam (2002, pp. 154).

The motivation to engage in entrepreneurial activity is heterogeneous. After decades of conditions which can be considered as unfavorable to entrepreneurship, one may expect that entrepreneurial attitude in the society is severely inhibited. Indeed, the central planned economy does influence entrepreneurial activity (Kshetri, 2009, pp. 236-254), with the effects visible long after the transition process. On the example of East Germany it was indicated by Wyrwich that the generation which was exposed the most to socialistic values was less willing to involve in entrepreneurship even 15 years after structural change in economy (2013, pp. 667-682). Nevertheless, the adverse environment for business does not entirely hinder entrepreneurial attitudes. A possible explanation for this phenomenon may refer to informal institutions (North, 1990, pp. 1-159), including patterns and attitudes towards entrepreneurship which occurred before the socialism and remained persistent (Fritsch *et al*., 2014, pp. 441). Entrepreneurship activity which existed under the centrally planned economy has constituted a "seedbed" (Smallbone & Welter, 2001, pp. 250) for taking advantage on emerging market opportunities, which at the beginning of the transition were highly profitable (McMillan & Woodruff, 2002, pp. 159). However, the expansion of entrepreneurial activity may have different foundation. Since the transition from centrally planned to free market entails a massive unemployment growth, it gives the reasons to the necessity entrepreneurship to emerge (Fritsch *et al*., 2014, pp. 429-430).

Entrepreneurial activity is determined by heterogeneous drivers. On the grounds of the literature studies the principal drivers may be recognised as: unemployment level, economy structure, knowledge creation and transfer, human capital (see, e.g., Reynolds *et al*., 1995, pp. 389-407; Audretsch & Lehmann, 2005, pp. 1194-1197; Bosma &Schutjens, 2011, pp. 711-742; Fritsch *et al*., 2014, 427-446; Huggins &Thompson, 2015, pp. 114-120).

Although the identification of these drivers is based mostly on observations for developed Western economies, it seems that they also apply to these economies which undergo a transformation towards free market structure. Hence, the following hypotheses are tested in this paper:

H1 Unemployment level in the Visegrad countries tends to influence positively
entrepreneurial activity.
H2 Economy structure has a significant impact on entrepreneurial activity in the Visegrad countries.
H3 Entrepreneurial activity in the Visegrad countries increases with the growth of knowledge inflows.
H4 Human capital in the Visegrad countries has a positive effect on entrepreneurial activity.

Method of the Research

To examine how entrepreneurial activity in respective Visegrad countries is influenced by various drivers an Ordinary Least Squared regression was used. The empirical model to be estimated can be written as below:

$$E_i = \beta_0 + U_i\beta_1 + S_i\beta_2 + I_i\beta_3 + HW_i\beta_4 + M_i\beta_5 + R\&D_i\beta_6 + G_i\beta_7 + D_i\beta_8 + \varepsilon_i \quad (1)$$

where,
E_i – entrepreneurial activity,
other variables as described below.

Estimated regression was tested using an F-test. Pearson's correlation coefficient was employed to exclude variables with high level of collinearity (Pearson's correlation above 0.85). Coefficient of determination was used to indicate goodness-of-fit of the regression. Lagged impact of variables was taken into consideration.

Sample and Variables

Entrepreneurship issues in the Visegrad countries were considered for the 2004-2014 period. The data source is EUROSTAT.

Dependent variable (E) was proxy as the share of self-employed within total workforce. Explanatory variables used for assessing the value of different drivers on entrepreneurial activity in the Visegrad countries, together

with expected signs of coefficients are shown in table 1. Control variables have been applied (variables: G and D).

Table 1. Definition of variables and expected sign of coefficient

Variable ($Indicator$)	Definition	Expected sign
Unemployment (U)	Unemployment rate	+
Inflows of knowledge ($R\&D$)	Spending in R&D per capita	+
Economy structure:		
Services (S)	Share of employment in services to total employment	+
Industry (I)	Share of employment in manufacturing industries to total employment	-
Human capital:		
Highly skilled workforce (HW)	Share of population with university degrees in relation to total employment	+
Migration (M)	Rate of net migration	-
Economic growth:		
Output country growth (G)	Real GDP per capita	+
Demand for goods and services (D)	Number of people per square kilometre	+

Source: Own based on Reynolds *et al.* (1995), Audretsch & Lehmann (2005), Bosma &Schutjens (2011), Fritsch *et al.* (2014), Huggins &Thompson (2015).

Descriptive statistics of variables are included in table 2.

Table 2. Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
E	44	0.15	0.03	0.10	0.20
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.

Correlation matrices of dependent variable and explanatory variables are shown in Appendix (tables: 4-7).

Findings

The results of estimations (table 3) allow to conclude that the intensity and the significance of entrepreneurial activity drivers vary among the Visegrad countries.

Table 3. Estimation results

	the Czech Republic	Hungary	Poland	the Slovak Republic
$const$	−0.0141 (0.0622)	0.4472*** (0.0508)	2.5404** (0.8117)	0.2745* (0.1163)
U_{t-1}			0.0015*** (0.0002)	0.0020** (0.0007)
U_{t-2}	0.0040*** (0.0006)	−0.0017** (0.0004)		
I_t	0.3679* (0.1475)	−0.6129** (0.1522)	−0.1643* (0.0615)	−0.5669 (0.2813)
M_t	−0.0022** (0.0004)	−0.0097** (0.0027)	−0.0030 (0.0016)	−0.0021 (0.0032)
$R\&D_t$			−0.0003** (6.3154e-05)	−0.0003* (0.0001)
$R\&D_{t-1}$	0.0002*** (3.3137e-05)	−0.0007*** (0.0001)		
G_t	−2.6569e-06*** (3.7385e-07)			6.8979e-06*** (9.9920e-07)
G_{t-1}		−2.1864e-06 (1.1034e-06)		
D_t			−0.0189** (0.0067)	
R^2	0.9895	0.9521	0.9899	0.9696
$Adjusted\ R^2$	0.97195	0.8724	0.9774	0.9316
$p-value$ $for\ test\ F$	0.0011	0.0047	0.0001	0.0002

Heteroscedasticity and autocorrelation consistent. Standard errors in parenthesis. Level of statistical significance: ***p≤0.01; ** p≤0.05; *p≤0.10. Source: Own estimation.

In accordance to research expectations, the impact of unemployment on entrepreneurial activity is positive and significant. It supports Hypothesis 1 and is consistent with previous studies (see, e.g., Fritsch *et al.*, 2014, pp. 427-446). The results indicate that growth in the number of the unemployed is followed by an increase in the share of self-employed within total workforce. However, it takes time for this dependence to emerge (at least one year). The sign and significance of this influence remain similar for all Visegrad countries with the exception of Hungary, where relationship between unemployment and entrepreneurial activity is reverse.

With the correspondance to research assumptions, economy structure do have an impact on entrepreneurial activity, which is consistent to the observations of Reynolds *et al.* (1995, pp. 389–407). Hypothesis 2 is supported. The results provide evidence that decrease in the share of employment in manufacturing industries to total employment is accompanied by the growth in the share of self-employed within total workforce. However, in the case of the Czech Republic the positive coefficient is observed suggesting that entrepreneurial activity diminishes with the decline in employment in the industry. For the Slovak Republic, the impact of economy structure on entrepreneurship is not statistically significant.

As opposed to research anticipation, findings reveal that for Hungary, Poland, and the Slovak Republic relationship between spending in R&D per capita and the share of self-employed within total workforce is reverse. Hypothesis 3 is not supported. Nevertheless, inflows of knowledge tend to influence positively entrepreneurial activity in a case of the Czech Republic. The estimation results confirm the expected effect of migration rate on the share of self-employed within total workforce. This supports Hypothesis 4. However, the influence of human capital on entrepreneurship activity is statistically significant only for the Czech Republic and Hungary.

Interestingly, the control variables, being overall statistically significant, do not show expected sign. In particular, in a case of the Czech Republic and Hungary, the adverse effect of real GDP per capita on the share of self-employed within total workforce is observed. For that matter, entrepreneurial activity responds negatively to increase of demand in Poland, being inconsistent with research assumptions. However, for the Slovak Republic, the relation between entrepreneurial activity and the country growth is positive and consistent with previous studies.

Conclusions

This paper may contribute to the understanding of how entrepreneurial activity in the transition economies is influenced by different drivers. Although it seems apparent that similar environment at the beginning of the transformation towards free market economy should be reflected to a degree in an economy of respective Visegrad countries, the results provide evidence of ambiguity in terms of entrepreneurship. Specifically, the impact of drivers on entrepreneurial activity seems to vary between the Visegrad countries. Results indicate that this influence for particular transition economies has not only distinct significance, but also is disparate with regard to the course of interaction. This may provide some practical implications, especially for policymakers by affording an insight into fundamental drivers which should be considered to enhance entrepreneurial activity.

This study is not without limitations. Firstly, this paper does not account for long-lasting entrepreneurial tradition which may outlive a socialism period (as suggested by Fritsch *et al.* for East Germany (2014, pp. 427-446)). Secondly, this paper does not refer directly to the entrepreneurship policies which have been implemented over the transition process in respective Visegrad countries. Hence, it may be interesting to test both for the significance of entrepreneurial tradition, and the efficiency of entrepreneurship policy in these economies. Another limitation of this paper refers to a proxy used for entrepreneurial activity. Although it has been chosen in accord with earlier studies (see, e.g., Fritsch, 1997, pp. 437-448; Audretsch *et al.*, 2008, pp. 691), some may argue that it applies only to individuals starting new firms, leaving aside e.g. corporate entrepreneurs. This may set a starting point for further discussion on entrepreneurial activity in the Visegrad countries.

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Appendix

Table 4. Correlation matrix of dependent variable and explanatory variables (the Czech Republic)

Variable	E	U	S	I	HW	M	R&D	G	D
E	1								
U	0.2202	1							
S	0.8191**	0.1586	1						
I	-0.8209**	-0.3565	-0.9695**	1					
HW	0.8159**	-0.0742	0.9261**	-0.8637**	1				
M	-0.6721**	-0.7284**	-0.7014**	0.8177**	-0.5548	1			
R&D	0.7163**	-0.3113	0.8189**	-0.7150**	0.9637**	-0.3419	1		
G	0.5067	-0.5876	0.6455**	-0.4529	0.7375**	-0.0254	0.8347**	1	
D	0.7531**	-0.2729	0.8966**	-0.7773**	0.9259**	-0.3842	0.9251**	0.9003**	1

Level of statistical significance: ** $p \leq 0.05$
Source: Own estimation.

Table 5. Correlation matrix of dependent variable and explanatory variables (Hungary)

Variable	E	U	S	I	HW	M	R&D	G	D
E	1								
U	-0.5609	1							
S	-0.8443**	0.8423**	1						
I	0.8054**	-0.8207**	-0.9714**	1					
HW	-0.8792**	0.7888**	0.9494**	-0.9662**	1				
M	0.6614**	-0.4487	-0.6655**	0.6515**	-0.7006**	1			
R&D	-0.9519**	0.6211**	0.9062**	-0.9048**	0.9564**	-0.7789**	1		
G	-0.8791**	0.4179	0.6350**	-0.5559	0.7092**	-0.6262**	0.7951**	1	
D	0.8984**	-0.5803	-0.8835**	0.9229**	-0.9473**	0.7340**	-0.9787**	-0.6986**	1

Level of statistical significance: ** $p \leq 0.05$
Source: Own estimation.

Table 6. Correlation matrix of dependent variable and explanatory variables (Poland)

Variable	E	U	S	I	HW	M	R&D	G	D
E	1								
U	0.9260**	1							
S	-0.7952**	-0.6289**	1						
I	-0.7594**	-0.9099**	0.2993	1					
HW	-0.7693**	-0.5496	0.9734**	0.2435	1				
M	-0.0272	-0.1267	0.1865	0.0177	0.1006	1			
R&D	-0.8134**	-0.6248**	0.9493**	0.3524	0.9812**	0.1244	1		
G	-0.9270**	-0.8392**	0.8729**	0.6369**	0.8758**	0.0746	0.9269**	1	
D	-0.2266	-0.0439	0.2563	-0.0933	0.3254	0.0022	0.3365	0.1813	1

Level of statistical significance: ** $p \leq 0.05$
Source: Own estimation.

Table 7. Correlation matrix of dependent variable and explanatory variables (the Slovak Republic)

Variable	E	U	S	I	HW	M	R&D	G	D
E	1								
U	-0.2572	1							
S	0.8757**	-0.0451	1						
I	-0.7342**	-0.1591	-0.9619**	1					
HW	0.8528**	-0.0416	0.9603**	-0.9083**	1				
M	0.1026	-0.3850	0.1151	-0.0461	0.3063	1			
R&D	0.7949**	-0.1408	0.9131**	-0.8612**	0.9739**	0.4011	1		
G	0.8919**	-0.5295	0.8113**	-0.6492**	0.8430**	0.3978	0.8763**	1	
D	0.7605**	-0.0348	0.9111**	-0.8913**	0.9709**	0.4101	0.9877**	0.8140**	1

Level of statistical significance: ** $p \leq 0.05$
Source: Own estimation.