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The Determinants of Internationalisation – A Panel Gravity Model Approach

John Smith, Diana Evans

ABSTRACT

Objective: The objective of this paper is to evaluate determinants of the general FDI flow to Visegrad countries and the effect of participation in EMU and EU. The objective of this paper is to evaluate determinants of the general FDI flow to Visegrad countries and the effect of participation in EMU and EU.

Research Design & Methods: It was decided to investigate how augmented gravity model of trade allows identifying and evaluating the significance of pull and push factors of FDI. In an empirical analysis of panel data Hausman-Taylor estimator was used because of the time-invariant variables presence.

Findings: While investment decisions regarding the choice of country are determined by the size of the target market, the distance is still a negative factor in creation of FDI volume. Additionally

Implications & Recommendations: It is necessary to develop an "FDI attracting mechanism" using existing resources. Business regulations and taxation policy as well as main macroeconomic variables which are responsible for the economy standing are also examined as attracting the FDI flow.

Contribution & Value Added: The originality of this work lies in studying some aspects of FDI inflow into the group of both similar and different countries in economic... The originality of this work lies in studying some aspects of FDI inflow into the group of both similar and different countries in economic...

Article type: research paper

Keywords: Internationalisation; Visegrad countries (V4); FDI; gravity theory;

panel;

JEL codes: C33, F21

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[Please remember that the above items must not exceed the first page!]

INTRODUCTION

Please, do not forget to include the objective of the paper and the research methods in the introduction.

[Read the guidelines for authors very carefully before formatting the article, please!]

LITERATURE REVIEW [MAIN HEADINGS]

International Entry Modes [Sub-Headings]

Table 1. List of indicators used in the analysis [Calibri 9pt, bold]

Components of the intellectual capital	Indicator	Source (the code of dataset)	
Human capital assets	HCA_1: Percent of persons with upper	Eurostat	
[Calibri 9pt]	secondary or tertiary education attainment	(edat_lfse_08)	
	(%) aged 25 to 64		
	HCA_3: Percent of persons participated in	Eurostat	
	education and training aged 25 to 64	(trng_lfse_01)	
	HCA_4: Researchers as percentage of total	Eurostat	
	employment	(rd_p_perslf)*	
	HCA_5: Employment rate (15 to 64 years)	Eurostat (Ifsi_emp_a)	
	HCA_6: Employment in knowledge-	Eurostat	
	intensive activities as percentage of total	(htec_kia_emp and	
	employment	htec_kia_emp2)	
Relational capital	RCA_3: Foreign students as percentage of	Eurostat	
assets	all students	(hrst_fl_tefor)*	
	RCA_4: International outgoing calls (1000	Eurostat	
	minutes)	(isoc_tc_cal)*	
	RCA_5: Number of arrivals of non-residents	Eurostat	
	at tourist accommodation establishments	(tour_occ_arnat)*	

^{*} missing data were eliminated by imputation, in the case of shorter time series were used to extrapolate the trend, taking into account the method giving the lowest ex-post error evaluation Source: own elaboration based on (Andriessen & Stam, 2005). [Calibri 8pt, left]

¹ Footnote (Calibri 8 pt)

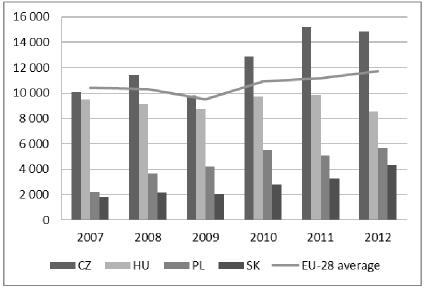


Figure 1. Export in high-tech sector from V4 countries to EU countries and EU-28 average in 2007-2012 period in million EUR [Calibri 9pt, bold, centered]

Source: Eurostat. (htec_trd_tot4). [Calibri 8pt, centered]

MATERIAL AND METHODS

According to the procedure Hausman-Taylor variables included in the vector X are split into two parts according to the criterion of variation in time. On this basis, the provision of the model is as follows (1):

$$\hat{\gamma} = \left(\frac{1}{N} \sum_{i=1}^{N} z_i z'\right)^{-1} \left(\frac{1}{N} \sum_{i=1}^{N} z_i \left(\bar{y}_i - \bar{x}_i' \beta_{FE}^{\hat{}}\right)\right)$$
(1)

where:

 β_0 - is the intercept,

 β ' - is the vector of structural parameters,

 α_i - is the result of individual i-unit,

 v_t - effect of periodic t-period,

 u_{it} - the assumption of random error component.

RESULTS AND DISCUSSION

Table 2. The list of estimated models

Variable / Measure	Pooled one way individual	One way individual within	One way time within	Two ways within	One way individual random effects	HT²
const.	-45.86***	1	-	ı	-31.540***	-16.4*
$\ln GDP_{it}$	4.53 ***	-0.21	4.47***	1.26	1.78*	2.26**
$\ln GDP_{jt}$	0.58	2.75***	-0.46	3.46***	2.13***	1.12**
EMU_{ijt}	-	1	-	-	=	0.59**
$magrowth_{jt}$	-	-	-	-	-	-6.01*
ln DIST _{ij}	-	-	-	-	-	-1.63**
sea_i	-	-	-	-	-	3.12***
R^2	0.19446	0.19402	0.17379	0.041463	0.1815	80,23
F statistics	1012.7 p<	71 p <	67.3 p <	12.6 p <	72.1 p <	316,6 p <
	2.22e-16	2.22e-16	2.22e-16	4.54e-06	2.22e-16	2.22e-16

Significant codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

 sea_j - binary variable 1- country has got access to sea, 0 – others,

 EMU_{ijt} - each pair countries (partner and host) are in EMU in t- year -1, 0 others,

 $magrowth_{ji}$ - average growth expressed by 3-year moving average of GDP $per\ capita$ PPS yearly logarithmic rate. Source: own calculations in R-studio.

Table 3. Mutual trade between Ukraine (UA) and Slovakia in the years 2008-2013

Year	2008	2009	2010	2011	2012	111. 2013
Export to UA (in m EUR)	504.7	252.3	368.9	472.0	442.1	439.5
Import from UA (in m EUR)	665.9	291.8	446.7	607.8	593.3	577.9
Turnover (in m EUR)	1 170.6	544.0	815.6	1 079.8	1 035.4	1 017.4
Balance (in m EUR)	+161.2	+39.5	-77.8	-135.8	-151.2	-138.4

Source: own calculations based on data from the Statistical Office of the SR 2013 and MZV 2013.

2

² In the LM test (King & Wu, 1997) is found two-way effects presence. According Hausman test (comparing RE and FE model) the null hypothesis was rejected (chi2 = 6.0548, df = 2, p-value = 0.04844) Thus, the FE (while the alternative hypothesis is assumed that GLS estimator is loaded, and should use model fixed effect, the estimator does not show up unbiased). Baltagi test confirmed the presence of Li effects AR (1).Test Baltagi Li: rejection of the null hypothesis-occurrence effects AR (1) / MA (1) error RE. It can be assumed that the extension of the model with autoregressive component would improve the quality of estimates and predictive properties of the model. However, this would require the use of another class of estimators.

The overall formula of the static model, which we will consider is (2):

$$y_{it} = \beta_0 + \beta' x_{it} + \alpha_i + \nu_t + u_{it}$$
 (1)

where:

 β_0 - is the intercept,

 β ' - is the vector of structural parameters,

 α_i - is the result of individual i-unit,

 v_t - effect of periodic t-period,

 u_{it} - the assumption of random error component.

CONCLUSIONS

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[For co-authored articles, provide with the detailed contribution of co-authors]

OPTIONALLY: The contribution of co-authors is equal and can be expressed as 50% each of the authors:

J. Smith prepared the literature review, while D. Evans prepared the statistical calculations.

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