A C T A U N I V E R S I T A T I S L O D Z I E N S I S
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THE FACTORS OF OUTWARD FDI FROM V4 COUNTRIES FROM THE PERSPECTIVE OF EU AND EMU MEMBERSHIP: A PANEL GRAVITY MODEL APPROACH

1. INTRODUCTION

The largest enlargement of the European Union, which took place in 2004, changed dramatically the macroeconomic contours of European economies, especially from the perspective of new member states. The Visegrad Group countries (V4), including the largest new EU member state, have experienced many changes and challenges, especially in the times of ongoing crisis or recession. The current period and availability of data allow one to test and verify the changes in FDI outflows from the four Visegrad countries in the years 2004–2012 (9 years).

In some cases, despite globalisation processes, the geographic distance seems to still be a barrier against internationalisation – both for trade and investment (Wach 2015). The role of distance can be empirically checked by using a gravity model. The core gravity model only takes into account the size of economies measured by home and host GDP (GDP per capita), as well as geographical distance, i.e.: the proxy of transport costs and other barriers. The augmented gravity model allows one to include a number of other variables that could potentially affect the decisions regarding the selection of the country to undertake FDI.

The purpose of this article is to explain what factors, from the point of the Visegrad Group countries, were important determinants in outward FDI. A gravity model is applied as the main method using reliable sources of data such as statistical data from Eurostat, CEPII and the World Bank (Doing Business database).

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2. THEORIES OF FOREIGN DIRECT INVESTMENT

The literature offers numerous concepts, models and theories explaining foreign direct investment (FDI) inflows and outflows. The most popular classification of these theories divides them into three groups (Kilic et al. 2014), namely macro-level theories, micro-level theories as well as the development theories, which combine both macro- and micro-aspects.

Macro-level FDI theories include capital market theory, dynamic macroeconomic theory, exchange rate theory, economic geography, gravity approach or institutional analysis, among others. Macroeconomic theories treat FDI as a form of capital flow between different economies in the world, trying to explain the motivations and determinants of FDI.

Capital market theory postulates that FDI is determined by interest rates. The theory of portfolio capital transfers has become a sort of the introduction to the consideration of the factors of FDI and their location. The basic premise of making FDI and portfolio investment in a country is the expectation for a higher rate of return than in the home country. The expected profit rate should compensate the costs and risks associated with taking business overseas as well as foreign currency risks. The deficiencies of this concept have been raised by many scholars, the first of whom was Hymer (1976). Caves (1982: 25) proves that an international difference in expected returns is not sufficient to induce FDI, which is caused by other motives (Caves 1982: 21). Thus, portfolio theory can only partially explain FDI.

Dynamic macroeconomic FDI theory states that FDI flows are up to the changes in the macroeconomic environment. The exchange rate theory of FDI links FDI flows with the exchange rates, perceiving it as a way of exchange rate reduction (Cushman 1985). The economic geography theory of FDI searches for success factors in attracting FDI by a given region or city in which internationally successful industries operate (Porter 1990). The gravity approach towards FDI (Isard 1954) explores the flows of FDI through the prism of geographic, economic or cultural distance (closeness vs. distantness). The institutional theory of FDI focuses on the impact of the institutional framework on the flows of FDI (Wilhelms and Witter 1998).

Micro-level FDI theories include the firm-specific advantage theory, oligopolistic markets theory, theory of internalisation, or eclectic theory, among others. Microeconomic theories are elaborated from the point of view of multinational companies. These theories try to explain why multinational companies choose FDI rather than other entry modes like exporting or licensing.

The firm-specific advantage emphasises that firms invest overseas due to particular specific advantages such as the access to resources or materials, economies of scale, or transportation costs (Hymer 1976). The theory of

oligopolistic markets considers FDI a defensive move in oligopolistic markets, in other words FDI is a kind of followed reaction which helps sustain oligopolistic equilibrium.

Internalisation theory is based on the issues relating to transaction costs (Buckley, Casson 1976; Hennart 1982). The firm aims to internalise in order to create an internal market within the international structure of the firm. The main driving force in this case is the reduction of transaction costs. If the firm uses its technological advantages, the preferred form of expansion into foreign markets is FDI. Buckley and Casson (1981) postulate that the tendency to internalise depends on the strength and direction of the impact of four factors such as industry specifics, regional specificities, specifics of the country and, last but not least, the specifics of the firm (managerial and marketing experience).

In his eclectic theory, Dunning (1980, 1988) combines three basic concepts, namely the theory of monopolistic advantages, the internalisation theory and the theory of location factors. Thus, the eclectic theory of production is defined as the OLI paradigm (ownership-location-internalisation). Due to its complex nature, the OLI paradigm is often considered the general theory of FDI, which allows one to answer fundamental questions regarding FDI. Dunning singled out four main types of FDI, namely resource seekers, market seekers, efficiency seekers, and strategic asset or strategic capabilities seekers (Dunning 1998; Wach 2012: 69).

Development theories of FDI (mixed theories) include the product life cycle theory, Japanese FDI theories or five stage theory, among others.

Product life cycle theory (Vernon 1966) links the possible FDI flow with the product life cycle and is a kind of response to the failure of the H-O theory of international trade. FDI blooms during the maturity product phase, which is perceived by the market expansion and technological innovation spread in any parts of the world.

Kojima and Ozawa (1984) gave fundamentals for so-called Japanese FDI theories (initially developed in 1970s by Ozawa). Their concept of three waves of FDI focuses on the economic development of a country starting from underdeveloped economies based on low labour costs advantage (inflows of FDI), through developing economies (inflows and outflows of FDI are observed), to developed economies facing serious innovation-based competition.

A similar concept was introduced also by Dunning (1981, 1986, 1988) in his five stages of investment development path (IDP), linking "*net outward investment*" (NOI) and GDP per capita. Outward and inward FDI differs in these five stages of economic development.

Recently, different theories of behavioural economics have emerged in the economic theory of FDI, including the network approach (Hosseini 2005). These new perspectives on FDI include the dynamic capabilities perspective,

the evolutionary perspective with its core Scandinavian model (U-model) as well as the integration–responsiveness perspective known as the I–R paradigm (Prahalad, Doz 1987).

Table 1. A Review of the selected empirical research results on FDI determinants

Determinants	**Effects**		
	Positive	**Negative**	**Insignificant**
Macroeconomic stability (including economic growth)	Duran (1999); Dassgupta and Ratha (2000); Vijayakumar, Sridharan and Rao (2010)		
Market size (GDP per capita)	Lankes and Venables, (1996); Sahoo (2006); Schneider and Frey (1985); Tsai (1994); Lipsey (1999)	Edwards (1990); Jaspersen, Aylward and Knox (2000)	Asiedu (2002); Wei (2000); Loree and Guisinger (1995);
Infrastructure facilities and quality	Kumar (1994); Loree and Guisinger (1995)		
Institutions and its quality (including corruption)		Wei (2000) – corruption;	Wheeler and Mody (1992);
Labour costs	Wheeler and Mody (1992); Kumar (1994), Sahoo (2006)	Schneider and Frey (1985);	Tsai (1994); Loree and Guisinger (1995); Lipsey (1999)
Trade Openness (trade effects)	Edwards (1990); Gastanaga et al. (1998), Hausmann and Fernandez-Arias (2000)		
Trade protection (tariffs and non-tariffs)	Grubert and Mutti (1991); Kogut and Chang (1996)		
Taxes and tariffs		Loree and Guisinger (1995); Wei (2000); Gastanaga et al. (1998),	Wheeler and Mody (1992); Lipsey (1999);
Political instability		Schneider and Frey (1985); Edwards (1990);	Hausmann and Fernandez-Arias (2000); Loree and Guisinger (1995); Jasperen et al. (2000)
Gross capital formation	Vijayakumar, Sridharan and Rao (2010)		Lipsey (2000); Krkoska (2001)
Currency valuation (exchange rate effects)	Vijayakumar, Sridharan and Rao (2010); Blonigen (1997)		
Firm characteristics (*including* firm-specific assets)	Kogut and Chang (1991); Blonigen (1997)		

Source: own compilation based on Vijayakumar, Sridharan, Rao (2010: 5-6); Blonigen (2005: 383-403) and Asiedu (2002: 110).

Empirical investigations into FDI are usually conducted from the perspective of the determinants/motives as well as their impact on economy

(Marona, Bieniek 2013). This article focuses on the motives of FDI. Most of the above-mentioned factors and their impact on the economy have been empirically tested; nevertheless most of the research focuses only on a few or a couple of factors selected by the researchers, which makes the research very pragmatic (Table 1).

3. METHODS

As in the case of cross-sectional data, panel data concerns a certain group of individuals, with the difference that they are observed in some periods of time. Panel data is indicated by y_{it}, where: $i = 1, \ldots, N$-unit, $t = 1, \ldots, T$-period. Panel models exist in both static and dynamic forms. The overall formula of the static model under consideration is (1):

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

where: y_{it} – is the dependent variable, β_0 – is the intercept, β' – is the vector of structural parameters, x_{it} – is matrix of considered variables, α_i – is the effect of individual i-unit, v_t – is effect of t-period, u_{it} – random error component.

Referring directly to Model 1, where the insignificance of the individual and periodic effects is assumed, the panel appears homogeneous. It comes down to the fact that the relationship between variables in a statistical sense is not significantly different for the test units and periods. The homogeneous assumption applied in the model means in practise that the analysed individuals have a similar specification. In turn, it means specific variables' coefficients for different units should be similar (Baltagi 2005: 30-35).

The consequence of the existence of time-invariant variables in the model (e.g.: a common border of neighbouring countries, access to the sea) is co-linearity with individual fixed effects. Co-linearity does not allow the fixed-effects model to be used. When the explanatory variables are correlated with the error term it is also not permitted to use random effects model. Literature proposes several solutions to this problem:

- Estimation of FE model using Hausman-Taylor approach,
- The Chamberrlain approach of RE model (Chamberlain, Moreira 2009: 107-133).

According to Hausman-Taylor procedure (Baltagi 2005: 124-127) variables included in the X vector are split into two parts according to the criterion of variation in time. On this basis, the form of the model is as follows (2):

$$y_{it} = z'_i \gamma + x'_{it} \beta + \alpha_i + \xi_{it};\ i = 1, \ldots, N;\ t = 1, \ldots, T, \tag{2}$$

where: $z_i^{'}$ – is a vector of time-invariant variables, $x_{it}^{'}$ – is a vector of time-varying variables.

Model assumes (3) and (4):

$$E\left(\xi_{it} \mid z_i^{'}, x_{it}^{'}, \alpha_i\right) = 0, \tag{3}$$

$$\hat{\gamma} = \left(\frac{1}{N}\sum_{i=1}^{N} z_i z^{'}\right)^{-1} \left(\frac{1}{N}\sum_{i=1}^{N} z_i (\bar{y}_i - \bar{x}_i^{'} \hat{\beta}_{FE})\right), \tag{4}$$

where: β_{FE} – is a vector of the FE estimates of β, expected values of $\bar{y}_i$ and $\bar{x}_i$ – are the arithmetic means of individuals in-time, (3) is expected value of conditional error term.

Estimation of the model with time-invariant variable according to Hausman-Taylor procedure is twofold. In the first stage, β structural parameters of the FE model are estimated, and taking into account the fact that time constant variables are linear with the individual effects (as it was said previously), these parameters are discarded. In the second stage, using the γ estimator, parameters of the variables constant in time with regard to the arithmetic average of these variables and parameter β estimates are estimated.

3.1 Using the Gravity Model

The gravity model appears as an adaptation of the law of universal gravitation for socioeconomic phenomena like trade, investment flows and/or migrations. The concept of the gravity model of international trade (Linnman 1966) was proposed independently by Tinbergen (1962) and Pyhonen (1963). This formula (5) was to explain bilateral flows among countries taking into account the size of countries and the limiting factors in trade, which reflected the costs of movement between two countries. The proxy of the resistance factor was the geographical distance (Błaszczuk 1974: 1095-1104; Anderson 1979: 106-116).

$$X_{ij} = K \frac{Y_i^a * Y_j^b}{D_{ij}^c}. \tag{5}$$

The model in linearised form is:

$$\ln X_{ij} = \ln K + a \ln Y_1 + b \ln Y_2 - \beta_3 \ln D_{ij}, \quad (6)$$

where: X_{ij} – the volume of trade between countries *i* and *j*, Y_i, Y_j – the size of the economy of the country *i* and *j*, expressed by GDP, GDP per capita, the size of the market, population size, etc., *D* – distance, transportation costs, *K* – factor proportionality, *a*, *b*, *c* – elasticity parameters.

According to Formula 5, trade volume is proportional to the countries' size (in terms of GDP or other variable imaging market size) in *ceteris paribus* terms, and volume decreases with increasing distance between the two countries, which generates additional costs that reduce the attractiveness of trade. However, there are many variables that embody economic measures of the locations (e.g.: gross national product, gross domestic product and population, gross domestic product per capita or endowment of production factors – in absolute values or per capita). It is debatable which measure of GDP (in current prices, in constant prices or in purchasing power parity) is the most adequate for gravity models (Folfas 2012: 6-10; Czarny, Folfas 2011: 5-7).

4. DATA

In this paper, we analysed FDI outward stock from the Visegrad countries to other EU-27 countries.[1] At the end of 2004, the V4 countries invested 10 246 million EUR globally, of which nearly 68% was concentrated in the EU-27 countries (Table 2). There was almost 7.5 times more FDI outward stock in 2012 in comparison to 2004. The FDI stock from the V4 countries into the world amounted to 85 502 million EUR: 59 051 million EUR was invested in the EU-27. While the share of FDI of V4 countries in the EU-27 is around 67% for the accounted period from 2004 to 2012, it is noticeable that there are clear differences at the level of individual countries. In the year of the accession to EU, the V4 countries allocated nearly 70% of outward FDI within the EU-27. In the case of Poland this figure amounted to 58%.

[1] In the years 2000–2006 the figures were calculated for the EU-27, although the EU had less members.

Table 2. Outward stock FDI of V4 invested within the EU-27 and globally in the years 2000–2012

	Absolute figures (in millions EUR)								The share of FDI into EU-27 in the whole outward stock FDI (in %)			
Home	CZ		HU		PL		SK		CZ	HU	PL	SK
Host	EU-27	World	EU-27	World	EU-27	World	EU-27	World				
2000	486	809	486	:	473	1 094	322	392	60	:	43	82
2001	624	1 373	763	1 771	471	1 312	446	542	45	43	36	82
2002	980	1 372	1 359	2 064	768	1 387	451	523	71	66	55	86
2003	1 445	1 776	1 721	2 538	954	1 709	525	663	81	68	56	79
2004	1 994	2 760	3 100	4 411	1 426	2 456	439	619	72	70	58	71
2005	2 157	3 061	4 410	6 619	2 562	5 305	381	504	70	67	48	76
2006	3 179	3 811	5 737	9 414	7 362	10 878	858	1 010	83	61	68	85
2007	5 392	5 810	7 507	11 783	8 586	14 351	1 133	1 268	93	64	60	89
2008	8 548	9 021	6 678	12 395	10 330	17 111	1 852	2 113	95	54	60	88
2009	9 653	10 272	6 035	13 726	12 377	20 527	1 913	2 188	94	44	60	87
2010	10 531	11 165	5 269	15 339	24 940	33 141	2 164	2 587	94	34	75	84
2011	9 626	10 218	5 505	18 256	30 503	40 510	2 823	3 108	94	30	75	91
2012	12 220	12 754	10 212	25 760	33 731	43 644	2 888	3 344	96	40	77	86

* FDI figures for 2000–2003 are calculated for the EU-27 according to original data.

Source: own calculations based on EUROSTAT (bop_fdi_pos) NACE Rev. 1.1 and NACE Rev.2.

In the analysed period, there was a progressive concentration of investment allocation within the EU. At the end of 2012, the EU-27/World outward FDI ratio differed for the V4 countries from 40 to 96% (for the Czech Republic it was 96%, Slovakia 86% and for Poland 77%). Quite the opposite trend occurred in the case of Hungary. Just 4 out of every 10 EUR of outward stock FDI were allocated within the EU-27, and the others were mainly in Americas and Asia. It should be noted that during the years 2000–2003, the stock value of FDI from the V4 countries increased by 60–120%. In the period from 2004 to 2012 there was an increase of outward FDI by 260% in the Czech Republic, by 380% in Hungary, by 1,580% in Poland and by 340% in Slovakia. Between 2000–2012 Polish outward FDI increased almost 39 times, while in Slovakia it was 7.5 times, and in the Czech Republic and Hungary it increased 14.8 and 16.4 times respectively. The dynamics of FDI outflow were relatively small in the pre-accession period (Figure 1). The dynamics reached a significantly higher average level after EU accession. It is noteworthy that the growth rate of Polish FDI outward stock reached 60% annually in the years 2004–2008. The empirical data shows that investment growth has significantly decreased after the financial crisis, although improvement has been observed in the case of Hungary, while stabilisation was observed in the case of Poland (Figure 1).

In 2012, more than half of Czech outward FDI was allocated in the Netherlands and one-third in Slovakia, Cyprus and Ireland combined. Hungary localised their investments mainly in Belgium, Croatia, Luxembourg,

Slovakia and Cyprus (total of 75%). As much as as 28% of Polish outward FDI was located in Luxembourg and another third in Croatia, the UK and the Netherlands at the end of 2012. Slovakia invested over 60% of its outward FDI in Cyprus, less than 11% in Croatia and 8% in Luxembourg.

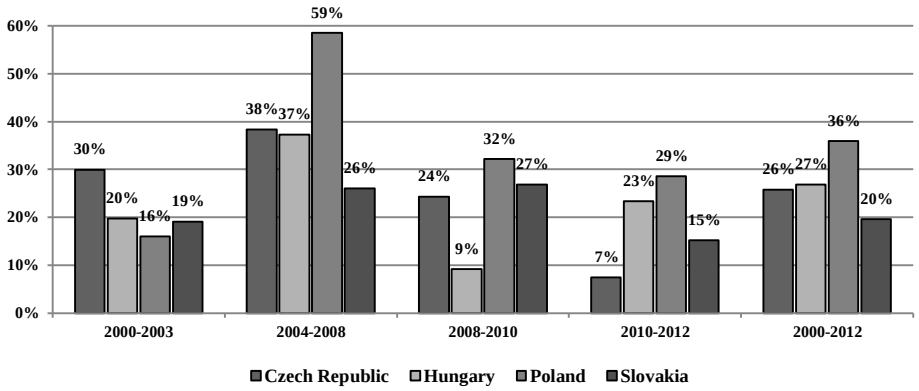

Figure 1. Average annual growth rate of outward stock FDI from V4 countries to EU-27 (in %).

Source: own calculations based on EUROSTAT (bop_fdi_pos).

Table 3 lists variables which were used in the estimation of panel models. It does not include a number of other potential factors analysed in the procedure for estimating models such as membership in integration groupings like CEFTA (before the accession of the V4 to the EU), inflation rate, economic growth rate, nominal and real unit labour costs, the difference in corporate taxation in the host and home country, as well as variables expressing procedural and legal difficulties in establishing businesses in the host country.

Table 3. List of variables used in model estimation

Type of variable	Variable	Description and expected influence	Unit	Source
dependent variable	$lnFDIstock_{ij,t}$	stock FDI from *i*-V4' country to *j*-extra-V4 country within EU-27 in *t*-period	million EUR	EUROSTAT (bop_fdi_pos)
variables of core gravity model	$lnGDPp_{i,t}$	nominal GDP in *i*-V4' country in *t*-period (+)	EUR per capita	EUROSTAT (nama_aux_gph)
	$lnGDPh_{j,t}$	nominal GDP in *j*-extra-V4' country within EU-27 in *t*-period (+)	EUR per capita	EUROSTAT (nama_aux_gph)
	$lnDIST_{ij}$	geographical distance between capitals of *i*-V4' country and *j*- extra V4 country within EU-27	km	CEPII database
location variable	$BORD_{ij}$	common border between *i*-V4' country and *j*-extra V4 country (+)	dummy (1/0)	CEPII database

Table 3. continuation

Type of variable	Variable	Description and expected influence	Unit	Source
efficiency seeking	$Labprodhost_{j,t}$	real labour productivity per hour worked EUR in *j*-partner in *t*-period (+/-)	EUR/h	EUROSTAT (nama_aux_lp)
	$Unemphost^{2}_{j,t}$	annual average total unemployment based on monthly seasonally adjusted data in *j*-host in *t*-period (+/-)	%	EUROSTAT (une_rt_m)
	$Minwagehost_{j,t}$	minimum wage in *j*-host country in *t*-period (-)	EUR	EUROSTAT (earn_mw_cur)
	$Wageind_{ij,t}$	minimum wage in *i*-V4' country /minimum wage in j-host country in *t*-period (+)	Ratio	EUROSTAT (earn_mw_cur)
	$TaxUEpartner^{3}_{i,t}$	Corporate total tax rate in *i*-V4' country (-)	(% profit)	Doing Business Raports
	$Protect_{j,t}$	Strength of investor protection index (+)	(0-10)	Doing Business Raports
membership[4]	$EU_{ij,t}$	binary variable: 1 if *i*-V4' country and *j*-extra V4 country in *t*-period were both in EU, 0 others (+)	dummy (1/0)	CEPII database
	$EMU_{ij,t}$	binary variable: 1 if *i*-V4' country and *j*-extra V4 country in t-period were both in EMU, 0 others (+)	dummy (1/0)	CEPII database

Source: own calculations based on EUROSTAT, CEPII, Doing Business Reports.

5. RESULTS

After estimating the proposed model, we chose the variables that significantly affected the direction and magnitude of outward FDI from the V4. As mentioned earlier, in this study we propose a panel regression using the H-T approach. The estimated panel model explaining bilateral outward stock of FDI from *i* (*i* = 1, 2, 3, 4) V4 countries to *j* (*j* = 1, 2, …, 26) other EU-27 countries. The sample covers the period of 2000–2012. The applied gravity model is estimated in natural logarithm terms:

$$\ln FDI\_stock_{ij,t} = \beta' \ln GDP_{i,t} + \beta' GDP_{j,t} + \beta' \ln Dist_{ij} + \\ + \beta' Z_{ij,t} + \alpha_i + \nu_t + u_{it}, \tag{7}$$

[2] See: also Szczepkowska, Wojciechowski (2002).
[3] See: also Egger, Pffaffermay (2004), Folfas (2012), Wojciechowski (2013).
[4] See: also Brenton et al. (1999), Lada, Tchorek (2008).

where: *i*, *j*, *t* – indexes respectively for: partner economy, host economy and year, FDI_stock_{ij} – inward stock FDI into host economy coming from partner economy in year *t* in million EUR, $GDP_{ij,t}$ – GDP per capita of partner economy in year *t*, $Dist_{ij}$ – geographic distance between capitals of the partner and host country (km), $Z_{ij,t}$ – vector of other variables potentially impacting bilateral FDI flow, β_i – parameters of core gravity model, λ_i – parameters of $Z_{ij,t}$, α_i – individual effect, v_t – time effect, u_{it} – i.d.d. error term.

Table 4. List of estimated models for V4 countries

$lnFDIstock_{ij,t}$: dependent variable	V4		Czech Republic		Hungary		Poland		Slovakia	
	coeff.	p>|z|	coeff.	p>|z|	coeff.	p>|z|	coeff.	p>|z|	coeff.	p>|z|
$lnGDPp_{i,t}$	9.417	0.001	20.129	0.016	10.159	0.317	28.668	0.000	18.161	0.009
$lnGDPh_{j,t}$	4.011	0.098	11.422	0.045	2.941	0.564	1.342	0.077	-10.125	0.221
$EU_{ij,t}$	1.298	0.050	1.021	0.093	1.936	0.208	0.896	0.018	1.283	0.085
$EMU_{ij,t}$	-0.344	0.758	---	---	---	---	---	---	6.187	0.000
$Labprodhost_{j,t}$	-0.369	0.030	-0.832	0.025	-0.475	0.100	0.060	0.874	0.848	0.079
$Unemphost_{j,t}$	0.170	0.014	0.365	0.008	0.330	0.015	-0.264	0.108	-0.244	0.158
$Minwagehost_{j,t}$	0.019	0.000	0.009	0.192	0.021	0.000	0.009	0.270	-0.008	0.372
$TaxUEpartner_{i,t}$	0.020	0.394	0.020	0.871	0.130	0.250	-0.166	0.021	-0.220	0.087
$Wageind_{ij,t}$	0.358	0.148	-0.461	0.431	-0.471	0.372	-0.561	0.044	2.270	0.000
$Protect_{j,t}$	-0.708	0.582	-9.338	0.009	0.562	0.766	5.662	0.057	-5.777	0.131
$lnDIST_{ij}$	-4.613	0.235	-2.548	0.854	-8.501	0.046	-5.187	0.601	-8.985	0.483
$BORD_{ij}$	6.729	0.519	2.712	0.043	9.846	0.406	8.029	0.624	-5.657	0.874
cons	-94.55	0.012	-213.63	0.064	-70.84	0.442	-202.44	0.018	-0.319	0.998
R^2	0.938		0.978		0.846		0.951		0.979	

Source: own calculations in Stata 12 SE.

Five individual models were estimated in accordance with the Hausman-Taylor procedure for the Czech Republic, Hungary, Poland, Slovakia and the entire Visegrad Group (Table 4). Generally speaking, richer countries make relatively larger investments, taking into account the size of the target market. EU accession has contributed to an increase in FDI outflow from V4. In general, investments were directed mainly to countries with lower labour productivity as well as higher unemployment rates and lower minimum wages than in the V4 countries. The empirical data shows that the gravity model does not work for the V4 (Table 4) due to the negligible effect of distances.

In the case of the Czech Republic, we see that the size of the national economy and the host country are important factors in foreign investment decision-making (market seekers). When choosing a host country, factors such as labour productivity and unemployment rate also seem to be important factors with respect to a 0.05 significance level. The model results confirm the preliminary observations derived from the empirical data, that there was a tendency to invest in neighbouring countries. What is puzzling

is the negative coefficient of the variable that expresses the degree of protection of foreign investors in the host country.

In the case of Hungary, we have unexpectedly positive but statistically insignificant coefficients referring to economies' sizes expressed in terms of GDP per capita. At the same time, the parameter of the DIST is negative and statistically significant. As in the case of the Czech Republic, when choosing a host country for investment, Hungary also paid attention to labour productivity, unemployment rate and the level of minimum wages in the host country. The variable parameter of the EU membership is positive, but unfortunately not statistically significant.

In the case of Poland, economic growth was accompanied by an increase in FDI. The larger the host market was, the larger FDI was, regardless of the distance (market seekers). The presence of the EU has had a positive impact on the growth of Polish outward FDI. Poland has invested rather in countries with lower unemployment and relatively low minimum wages, and has paid attention to the degree of protection for foreign investors. The negative and statistically significant coefficient of the variable TAX suggests unequivocally that the relatively high level of taxation in Poland was a push factor. The case of Slovakia is similar to the Polish one, where taxation was also a push factor. The increase in the domestic economy was accompanied by a rise in FDI outflow. At the same time, the presence of the EU and the EMU has had a positive influence on these processes. Slovakia has invested in countries with higher labour productivity and at the same time where the differences between minimum wages in Slovakia and other countries were relatively small.

6. CONCLUSIONS

FDI flows within the Visegrad Group constitute a relatively small part of the total flows within the European Union. It was found that after EU accession, the dynamics of the FDI outward stock from the V4 countries has significantly improved. Slovakia's accession to the EMU appeared to be an important factor for promoting international expansion. It should be taken into account that this coincided in time of the financial crisis, accompanied by a general decline in FDI flows, especially in the context of reducing FDI inflow to emerging markets. After accession in 2004, the permanent increase in the relative involvement of V4 investors to the inflow of foreign investment from EU countries has been observed. In 2003, for every 1 EUR invested in the V4 countries, only 5 cents were invested by these countries; in 2012, this amounted from 8–12 cents (Slovakia/Czech Republic) to 25–35 cents

(Poland/Hungary). At the same time, a dynamic decrease of NOI per capita was observed after 2004. Referring to the theory of economic development by Dunning, who studied the relationship between inward/outward FDI and GDP per capita, we can conclude that the Czech Republic and Slovakia reached the second out of four stages of development. The FDI value in these countries is still relatively small. In the cases of Poland and Hungary we can carefully assume that the move to third phase of development has occurred, as the ratio of NOI per capita remains negative and its absolute value has decreased at the same time. This means that in addition to the inflow of FDI to these countries, the dynamics of their own FDI abroad has increased. Given the current trend towards increasing capital involvement in the type of offshore financial centres such as Cyprus and Luxembourg, we should be aware what factors tend to attract investment and therefore pursue policies aimed at eliminating the push factors as far as it is possible and economically justified.

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ABSTRACT

The purpose of this article is to explain what factors, from the viewpoint of the Visegrad Group countries, were important determinants in outward FDI. Referring to the eclectic theory of Dunning and the theory of economic development, we decided to answer the question about the determinants for host country choice. We decided to check whether an augmentation of the classical gravity model of international trade allows one to identify push and pull FDI factors. The panel data approach using the Hausman-Taylor estimator was applied in the empirical analysis. The general results allowed us to verify the main hypothesis positively, but some anomalies were observed. In some cases, despite globalisation processes, distance seems to be still a barrier against investment. Decisions concerning the selection of the host country are usually determined by the size of the market measured by GDP per capita, labour productivity. It has been empirically proven that membership in the EMU and the EU, taxation differences and common borders in some cases has a significant influence on the FDI stock concentration. Investment motives among the V4, as well as the size and dynamics of outward FDI have undergone significant changes in the period between 2000–2012.

DETERMINANTY BIZ Z KRAJÓW V4 DO KRAJÓW UE-27 Z PERSPEKTYWY CZŁONKOSTWA W UNII EUROPEJSKIEJ ORAZ UNII GOSPODARCZEJ I WALUTOWEJ. MODEL GRAWITACYJNY Z WYKORZYSTANIEM DANYCH PANELOWYCH

ABSTRAKT

Celem artykułu jest wyjaśnienie, jakie czynniki w wypadku państw Grupy Wyszehradzkiej stanowiły istotne motywy dokonywania bezpośrednich inwestycji zagranicznych w krajach UE-27. Odnosząc się do eklektycznej teorii Dunninga i teorii rozwoju gospodarczego, postanowiono odpowiedzieć na pytanie jakie są determinanty wyboru kraju przyjmującego inwestycje. Postanowiono sprawdzić, czy rozszerzony model grawitacyjny handlu międzynarodowego pozwala poprzez operacjonalizację zmiennych zidentyfikować czynniki skłaniające do podejmowania BIZ. W celu zweryfikowania postawionych hipotez posłużono się podejściem Hausmana- Taylora przy estymacji modeli panelowych. Wyniki oszacowań sugerują, że model grawitacyjny jest adekwatnym narzędziem do wyjaśnienia odpływu BIZ z grupy krajów V4, niemniej jednak występują pewne anomalie w motywach inwestycyjnych na poziomie

poszczególnych krajów W niektórych przypadkach, mimo procesów globalizacji, odległość geograficzna wydaje się być wciąż istotną barierą w dokonywaniu inwestycji. Decyzje dotyczące wyboru kraju lokaty są generalnie podyktowane wielkością rynku docelowego i wydajnością pracy. Empirycznie potwierdzono oczekiwania, że członkostwo w Unii Gospodarczej i Walutowej oraz Unii Europejskiej, różnice w opodatkowaniu, a także bliskość gospodarek w niektórych przypadkach ma istotny wpływ na wybór kraju inwestycji. Dane empiryczne pokazują, że motywy inwestycyjne pomiędzy krajami V4, a także wielkości i dynamiki BIZ uległy znacznym zmianom w okresie 2000–2012, szczególnie po wstąpieniu do Unii Europejskiej w 2004 roku.