# Internationalization and Economic Growth in the New Member States of the European Union<sup>1</sup>

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# Abstract

The paper analyses the internationalization of the economies in ten new member states (NMS-10) of the European Union (EU) using panel data for the period 2000 – 2008 in a regression framework analysis. The degree of internationalization is measured by foreign direct investment (FDI) and trade openness. The focus is on the association between FDI and economic growth. We have confirmed moderate positive effect of inward FDI on growth of gross domestic product (GDP), but not for outward FDI and trade openness. Investment to GDP ratio and employment growth are positively associated with economic growth, and vice versa rate of inflation and government final consumption expenditure as a percentage of GDP.

**Keywords:** economic growth, economic internationalization, foreign direct investment, new member states, trade

**JEL Classification:** F43, F21, C23, O52

#### Introduction

Globalization of the world economy is mainly thought as an economic globalization, which means a high level of internationalization of the world economy at different levels of regions and countries. The level of their economic globalization is most suitably expressed as a level of internationalization of their economies. The magnitude and intensity of globalization can be measured by several indicators, such as capital movements and foreign direct investment (FDI) flows, international trade flows, the economic activity of multinational firms and the internationalization of technology (OECD, 2010).

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<sup>&</sup>lt;sup>1</sup> We gratefully acknowledge for useful comments and suggestions by the anonymous journal reviewers.

Foreign direct investment can be defined as an internationalization strategy in which the firm establishes a physical presence abroad through acquisition of productive assets (Cavusgil and Knight, 2008). Similarly Organisation for Economic Co-operation and Development (OECD, 2009) defines FDI as an objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor.

The main goal of this article is to disclose the association between inward FDI and economic growth in order to set the empirically supported grounds for policy makers' decisions regarding FDI incentives. Since FDI is considered as a key component of national development strategies for developing and transition countries. It is expected to have a positive association with economic growth. In a spite of that, empirical evidence gives mixed results (e.g. Zajac and Balaz, 2007). The role of FDI as a driver of economic growth is not a unanimously supported fact in economic literature, although some new studies give support to a positive contribution of FDI inflows on economic growth (Ghosh and Wang, 2009). OECD (2002) points out the positive influence of FDI on total factor productivity raise and increase in resource efficiency, and considers the FDI as a major catalyst to development especially in developing countries, emerging market economies and countries in transition, where it is expected to trigger technology spillovers, and assist human capital formation, contribute to international trade integration, help to create a competitive business environment and enhance firms' development.

Summing up the previous theoretical literature, it argues that the FDI has an impact on economic growth in two basic ways. Firstly, it affects capital accumulation, and secondly, it stimulates technology diffusion. In relation to domestic investments, the presence of FDI can crowd in domestic upstream and/or downstream investments, but can also overtake or displace domestic investments and thus crowd them out (Agosin and Machado, 2005).

Possible influences of FDI on economic growth are biased to the host economy's characteristics hence transition and emerging economies are expected to experience similar effects. The transition-induced liberalization of international trade attracted large capital flows, including FDI, to transition economies, although FDI inflows to the Central and Eastern European (CEE) transition economies in the 1990's started as relatively low (Nath, 2009). The conditions in transition countries enabled large potential gains from the FDI, especially and in the presence of adequate level of human capital in the host country (Aleksynska, Gaisdorf and Kerr, 2003). Nevertheless, the association between transition process and FDI is endogenous, since the transition process enables the basis for effective FDI, whilst the FDI accelerates the transition process (Zacharov and Kusic, 2003). In addition to the transition process, trade liberalization and investment risk diminution in a form of regional integration, such as EU, also played an important role in creating an environment that enables countries to benefit from FDI. Several researches established a positive association between EU accession and FDI inflows to acceding countries (Brenton and Di Mauro, 1998; Nicoletti et al., 2003; Bevan and Estrin, 2004; Iwasaki and Suganuma, 2009). Spain and Ireland are often described as the successful cases, where strong FDI inflows, following the EU accession, largely contributed to their economic performance (Dragusha and Bejleri, 2008). It was found that merely the announcements of EU accession prospects or accession negotiation positively affected the attraction of FDI to candidate countries, although negotiating countries seem to experience an adverse impact on FDI at final phases of negotiation, which is most likely the consequence of revision of FDI incentives (Iwasaki and Suganuma, 2009). On the other hand, FDI inflows can largely contribute to the fulfilment of the economic conditions for EU accession (Zacharov and Kusic, 2003).

As can be seen from Figure 1, the growth rate of inward FDI of ten new member states from the 2004 EU enlargement (NMS-10: Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Latvia, Malta, Poland, Slovakia, and Slovenia) was constantly surpassing the rate of EU-15 countries until the downfall, experienced in the year 2005, which could be the consequence of the adverse impact of EU accession on FDI (Iwasaki and Suganuma, 2009).



Figure 1 Growth Rate of Inward Foreign Direct Investment in Ten New Member States

Source: Compiled by the authors on the basis of UNCTAD (2010a; 2010b).

The importance of establishing the direction of the FDI impact on economic growth lies in the fact that it represents a base for several important policy decisions of countries, which will consecutively either encourage or restrict FDI. Some authors argue on the positive impact of FDI on economic growth during

transition process and highly recommend transition countries to take every possible measure to enhance the investment climate (Neuhaus, 2006). On one hand, some of them call the attention to the fact, that FDI incentives should above all promote activities that create a potential for spillovers, linkages between foreign and local firms, education, training, and research and development (R&D) (Blomstrom and Kokko, 2003). Especially authors, focusing on the non-EU emerging market economies, point out the importance of higher FDI inflows for the progress in transition process (Iwasaki and Suganuma, 2009).

Previous and on-going research on the impact of FDI on economic growth in NMS-10 is primarily affected by the relative small panel for the number of countries, short observation period and the limited availability of data. Considering these facts and limitations, the empirical analysis of this research consists of the panel data analysis for the NMS-10 that joined the EU in its largest single expansion on the 1st May 2004, observed during the period 2000 – 2008, which enables the comparison of the periods before and after the EU accession in the limits of available data.

The article first presents literature review. Then it explains the methodology and data used. The focus in the empirical section is on the panel econometric results. Final section concludes and derives policy implications.

#### 1. Literature Review

Research literature is still unanimous about the influences of FDI on economic growth, both on the impact and its channels. There has been a shift in literature from a highly negative connotation of the impact of FDI on economic growth during the 1960's and 1970's towards more positive connation during the 1980's and 1990's.

The neo-classical economists were the first to include technology into the production function as a production factor, although their models handle technological progress as exogenous and focus on the capital accumulation as the main active driving factor of economic growth (Solow, 1956). FDI therefore contributes to the capital accumulation and subsequently affects the economic growth in the short-run, while the long-run impact is constrained due to hypothesis of diminishing returns to scale.

On the other hand, endogenous growth theorists developed a model, which handles economic growth as a result of endogenous factors (Romer, 1986; Barro and Sala-i-Martin, 2003). Latter model also includes knowledge and technology, which enable increase in rates of economic growth on a long-run. In endogenous growth models, FDI has a role of a diffuser, which facilitates the transfer of

knowledge and technology as drivers of economic growth. They identified the two-channels of the impact of FDI on economic growth: the transfer of tangible and intangible assets (De Mello, 1997). They furthermore suggest that the transfer of technological and business know-how through FDI helps to bridge the "ideal gap" between nations and can have spill-over effects on entire national economy (Romer, 1993).

The impact of FDI on economic growth has been tested by several empirical studies, which are based on either neo-classical or endogenous growth theoretical approaches. Microeconomic studies provide mixed results on the association between FDI and economic growth. Typically they find that the association can be attributed to certain specific factors and therefore cannot be generalized. On the other hand, macroeconomic studies mostly suggest a positive impact of FDI on economic growth, especially if some additional requirements about absorptive capacities are met. Some of them support the endogenous growth theory and state, that FDI has a positive impact on economic growth above all through technology diffusion, although the magnitude of its productivity and consecutively its impact on economic growth depends on the stock of human capital available in the host country, which enables the exploitation of the spill-over effects of FDI. They also oppose the claim on negative effect of FDI on domestic investment. On the contrary, they conclude that FDI even stimulates the level of domestic investment and therefore increase the overall level of investment (Borensztein, De Gregorio and Lee, 1998; Xu, 2000).

The positive impact of FDI on economic growth can also be explained through adequate level of development of financial market conditions and the level of economic freedom in the host country that allow the exploitation of FDI spill-over effects (e.g. Ferencikova and Fifekova, 2006; 2008). However, certain absorptive capacities such as market structure and human capital are still needed (Hermes and Lensink, 2003; Durham, 2004; Alfaro et al., 2004; 2006; Bengoa and Sanchez-Robles, 2003). Several newer studies on a regional level showed similar results (Omran and Bolbol, 2003; Chong and Lim, 2009; Chee, 2010).

Some authors called to statistical weaknesses of previous research and consequently their results (Carkovic and Levine, 2002). They extracted the exogenous component of FDI and found that it does not exert an independent positive influence on economic growth. Similarly some studies, conducted for transition economies also found no evidence of causality effects between FDI and economic growth (Haddad and Harrison, 1993; Lyroudi, Papanastasiou and Vamvakidis, 2004; Stanisic, 2008), whilst some others confirmed previous findings regarding the importance of absorptive capacities (Aleksynska, Gaisdorf and Kerr, 2003), or called on the interaction between trade and FDI to be decisive for the impact on economic growth (Nath, 2009). To sum up, most of the studies on the impact of FDI on economic growth are of microeconomic nature, dealing with the benefits of firms from FDI, or locally limited on certain regions, whilst studies, focused on a specific group of countries in a certain period are rare. Some studies on transition economies exist, but they focus either on strictly Eastern-European and Balkan countries or they miscellaneously study Eastern-European with other Eastern, former Soviet Union countries (Ferencikova and Dudas, 2005). This research therefore contributes to the empirical analysis of the internationalization and economic growth in the NMS-10 for the studied period.

### 2. Methodology and Data

The research is based on panel data analysis. Panel data was chosen for the research, as it provides advantages over cross-sectional and time-series data, enabling the observation of heterogeneous cross-section units in a specified time period, and thus providing more informative and efficient data, as well as the possibility to study the dynamics of adjustment and to construct and test complex behavioural models.

The panel data-set was analyzed using a fixed effects regression model, which summarizes theoretically grounded important determinants of economic growth. The model was adopted from the previous research and adapted in accordance with the subject and period of study and the availability of data (Nath, 2009; Ghosh and Wang, 2009). The model can in its simplest form be written as:

$$\Delta GDP_{it} = \alpha_i + \beta \, \, \mathbf{x}_{it} + \gamma \, \, \mathbf{z}_{it} + \mathcal{E}_{it}$$

where

 $\Delta GDP_{it}$  – the annual growth rate of real gross domestic product (GDP),

- $\alpha_i$  the fixed effect of country-specific factors, that do not change in time,
- $x_{ii}$  a vector of independent variables,
- $z_{it}$  a vector of control variables,
- $\varepsilon_{ii}$  a random error, which is individually and equally distributed in time and units.<sup>2</sup>

The main characteristic of panel data regression model is a double index on its variables, which denotes the cross-section component *i* and time component *t*. Vector of independent variables consists of the growth rate of employment  $\Delta L_{it}$ , computed as the first log difference of annual aggregate employment, investment to GDP ratio ( $I_{it}$  /  $GDP_{it}$ ), computed as gross capital formation as a percentage

<sup>&</sup>lt;sup>2</sup> With a mean 0 and variance  $\sigma_{\epsilon}^2$ .

of GDP, the growth rate of inward ( $\Delta IFDI_{it}$ ) and outward ( $\Delta OFDI_{it}$ ) FDI, both calculated as the first log difference of FDI stock, acquired in US Dollars at current prices and current exchange rates in millions and converted into constant prices using GDP deflator, the trade openness ( $OPEN_{it}$ ), computed as the sum of aggregate exports and imports to GDP, and the gross domestic expenditure in R&D ( $GERD_{it}$ ), computed as the R&D percentage of GDP. Vector of control variables consists of the rate of inflation ( $INFL_{it}$ ) and the government final consumption expenditure ( $GFCE_{it}$ ) as a percentage of GDP. The final equation to be empirically estimated can consequently be written as:

$$\Delta GDP_{it} = \alpha_i + \beta_i \Delta L_{it} + \beta_2 (I_{it} / GDP_{it}) + \beta_3 \Delta IFDI_{it} + \beta_4 \Delta OFDI_{it} + \beta_5 OPEN_{it} + \beta_6 GERD_{it} + \gamma_1 INFL_{it} + \gamma_2 GFCE_{it} + \varepsilon_{it}$$

The decision for using fixed effects model mainly follows the intention of cited authors, especially due to the fact that countries under study are at the similar level of economic development and are experiencing some similar initial conditions, which are not in the primer interest of the research, and are therefore traded for country-specific factors. Furthermore, fixed effects model is chosen as a way of eliminating omitted variable bias (Nath, 2009; Ghosh and Wang, 2009). Finally, the decision for the use of the fixed effects model is supported by the results of the Hausman test, which pointed out statistically significant differences between random and fixed model and therefore justified the use of the latter.

The research uses panel data for the NMS-10 for the period 2000 - 2008. The data used was acquired from UNCTADstat database (UNCTAD, 2010b) and the World Bank (2010).

Summary Statistics for the Mills To, Menuge 2000 2000						
	Mean	Std. dev.	Min.	Max.		
$\Delta GDP$	0.0473	0.0284	-0.0469	0.1154		
$\Delta L$	0.0103	0.0296	-0.0886	0.0951		
I/GDP	-1.3801	0.2141	-1.9476	-0.9065		
$\Delta IFDI$	0.1777	0.1636	-0.2479	0.6305		
$\Delta OFDI$	0.2866	0.4268	-2.3798	1.9509		
OPEN	0.2154	0.2712	-0.5486	0.6666		
GERD	-0.3454	0.4810	-1.4137	0.5008		
INFL	0.0440	0.0316	-0.0078	0.1848		
GFCE	-1.6380	0.0866	-1.8314	-1.4522		

Table 1 Summary Statistics for the NMS-10, Average 2000 – 2008

*Note:*  $\Delta GDP$  – annual growth rate of real gross domestic product,  $\Delta L$  – growth rate of employment, I/*GDP* – investment to GDP ratio,  $\Delta IFDI$  – growth rate of inward FDI,  $\Delta OFDI$  – growth rate of outward FDI, *OPEN* – trade openness, *GERD* – gross domestic expenditure in R&D, *INFL* – rate of inflation, and *GFCE* – government final consumption expenditure as a percentage of GDP.

Source: Own calculation on the basis of data obtained from UNCTAD (2010b) and the World Bank (2010).

Table 1 presents basic summary statistics of variables that are used in the empirical analysis. Minimum and maximum values indicate some variations between the NMS-10 countries.

Table 2 presents the mean values of the variables used in the analysis by the individual NMS-10 countries. The mean values confirmed that the NMS-10 countries represent a rather homogenous group of countries.

Table 2 Mean Values for the Individual NMS-10 Countries, Average 2000 – 2008

	, 3								
	$\Delta GDP$	$\Delta L$	I/GDP	∆IFDI	∆OFDI	OPEN	GERD	INFL	GFCE
CY	0.0364	0.0258	-1.6251	0.2280	0.3542	0.0257	-1.0488	0.0331	-1.7169
CZ	0.0416	0.0016	-1.2987	0.1845	0.2982	0.3197	0.2922	0.0226	-1.5357
EE	0.0641	0.0120	-1.1126	0.1584	0.2983	0.4713	-0.1297	0.0542	-1.7031
HU	0.0351	0.0048	-1.3672	0.2065	0.5305	0.3515	-0.0702	0.0582	-1.5157
LT	0.0675	-0.0112	-1.4627	0.1674	0.4460	-0.0057	-0.7034	0.0794	-1.6434
LV	0.0693	0.0235	-1.1549	0.1273	0.0833	0.1350	-0.3239	0.0362	-1.6131
MT	0.0204	0.0127	-1.6895	0.1834	0.2418	0.5323	-0.8091	0.0273	-1.6082
PL	0.0408	0.0038	-1.5530	0.1729	0.3126	-0.3338	-0.5460	0.0310	-1.7163
SI	0.0422	0.0098	-1.2941	0.1475	0.2353	0.1938	0.3762	0.0420	-1.6486
SK	0.0551	0.0145	-1.2869	0.2545	0.1474	0.4535	-0.6217	0.0458	-1.6751
NMS-10	0.0473	0.0103	-1.3801	0.1777	0.2866	0.2154	-0.3454	0.0440	-1.6380

*Note*: CY – Cyprus, CZ – Czech Republic, EE – Estonia, HU – Hungary, LT – Lithuania, LV – Latvia, MT – Malta, PL – Poland, SI – Slovenia, and SK – Slovakia. For other abbreviations of variables see note to Table 1. *Source*: Own calculation on the basis of data obtained from UNCTAD (2010b) and the World Bank (2010).

In addition, Table 3 presents the summary statistics of the used variables in more detail for Slovakia. As can be seen from comparisons of Tables 2 and 3, except for the annual growth rate of real gross domestic product ( $\Delta GDP$ ) and investment to GDP ratio (I/GDP), the mean values of all other analysed variables for Slovakia are in absolute terms greater than for the NMS-10 as a whole. The largest discrepancies are seen for greater Slovakian trade openness (*OPEN*) and lower gross domestic expenditure in R&D (*GERD*).

Summary Statistics for Slovakia, Average 2000 – 2008						
	Mean	Std. dev.	Min.	Max.		
ΔGDP	0.0551	0.0253	0.0135	0.0991		
$\Delta L$	0.0145	0.0196	-0.0133	0.0438		
I/GDP	-1.2869	0.0619	-1.4021	-1.2170		
ΔIFDI	0.2545	0.1655	-0.0134	0.4841		
ΔOFDI	0.1474	0.3215	-0.3584	0.7681		
OPEN	0.4535	0.0681	0.3609	0.5537		
GERD	-0.6217	0.1262	-0.7770	-0.4361		
INFL	0.0458	0.0226	0.0161	0.0831		
GFCE	-1.6751	0.0302	-1.7325	-1.6406		

Table 3 Summary Statistics for Slovakia Average 2000 – 2008

Note: For abbreviations see note to Table 1.

Source: Own calculation on the basis of data obtained from UNCTAD (2010b) and the World Bank (2010).

# 3. Econometric Results

Regression results obtained using differently specified models and different estimation procedures are presented in Table 4, which includes determination coefficient ( $\mathbb{R}^2$ ), number of observations used and estimated regression coefficients with pertaining p-values. The relatively low values of the  $\mathbb{R}^2$  can be explained by the short observation period with the smaller number of observations of the balanced panel data gathered. The values of the  $\mathbb{R}^2$  were higher when the regression model was adjusted to bridge the presence of autocorrelation.

The results of a basic fixed effects model without control variables indicate a statistically significant positive effect of employment rate, investments to GDP ratio and inward FDI stock growth on GDP growth, with especially high value of the regression coefficient pertaining to the employment rate. The effect of trade openness on GDP growth is statistically insignificant regardless to the exclusion of FDI component from the regression model. The coefficient of gross domestic expenditure in R&D indicates a statistically significant negative effect, which in a light of the previous research can be attributed to the fact, that the NMS-10s under study have already reached a threshold level of human capital stock (Ghosh and Wang, 2009).

With the inclusion of the control variables for the rate of inflation (*INFL*) and the government final consumption expenditure as a percentage of GDP (*GFCE*) in the fixed effects model, the results still indicate a statistically significant positive effect of employment rate and investments to GDP ratio on GDP growth, although the effects of inward FDI stock growth and gross domestic expenditure in R&D fall into insignificance. Consistently with previous findings of economic literature, the regression coefficient pertaining to the rate of inflation indicates a statistically significant negative effect on GDP growth.

Since the Wooldridge test for autocorrelation (Prob > F = 0.0086) exhibited a presence of a first order autocorrelation, fixed effects model with an AR(1) disturbance was applied. The results again indicate a statistically significant positive effect of employment rate, investments to GDP ratio and inward FDI stock growth, together with a statistically significant negative effect of inflation and the government final consumption expenditure to GDP ratio on GDP growth. Performed Baltagi-Wu test (Baltagi-Wu LBI = 1.717) confirms that the autocorrelation problem has been omitted.

Modified Wald test for heteroskedasticity (Prob > chi2 = 0.0000) was also performed. Since it exhibited a presence of group wise heteroskedasticity, the latter was controlled by the application of robust variance estimates. The robust regression results in this case also indicate a statistically significant positive effect of employment rate, investments to GDP ratio and inward FDI stock growth, with a statistically significant negative effect of inflation on GDP growth and to a lesser extent for the outward FDI stock growth and the R&D percentage of GDP.

Moreover, correlation analysis also shows a mild correlation between gross domestic expenditure in R&D and investments to GDP ratio, which can be attributed to the fact that both variables are computed as a part of GDP. Regression model also passed the Jarque-Bera normality test at 5% level of significance.

#### Table 4

Regression Results of the Effect of FDI and other Determinants on Economic Growth in the NMS-10, 2000 – 2008

	Basic fixed effects model (without control variables)	Fixed effects model (with control variables)	Fixed effects model with an AR(1) disturbance	Robust variance estimates
$\Delta L$	0.234**	0.247***	0.262***	0.247***
	(0.016)	(0.008)	(0.001)	(0.003)
I/GDP	0.072***	0.101***	0.140***	0.101**
	(0.007)	(0.001)	(0.000)	(0.023)
ΔIFDI	0.039**	0.031	0.031**	0.031**
	(0.017)	(0.053)	(0.033)	(0.033)
ΔOFDI	-0.007	-0.008	0.008	-0.008
	(0.272)	(0.228)	(0.301)	(0.105)
OPEN	0.032	0.007	-0.061	0.007
	(0.305)	(0.826)	(0.173)	(0.882)
GERD	-0.051***	-0.047***	-0.012	-0.047
	(0.002)	(0.003)	(0.606)	(0.064)
INFL		-0.339***	-0.407***	-0.339**
		(0.001)	(0.001)	(0.040)
GFCE		-0.062	-0.183***	-0.062
		(0.266)	(0.007)	(0.205)
Ν	88	87	77	87
$\mathbf{R}^2$	0.156	0.250	0.326	0.250

*Note*: For abbreviations see note to Table 1. N is number of observations and R<sup>2</sup> is determination coefficient. In the brackets are the p-values. \*, \*\*, \*\*\* indicate significance levels at 10, 5 and 1 percent respectively. *Source*: Own calculation on the basis of data obtained from UNCTAD (2010b) and the World Bank (2010).

The regression results of all applied estimation procedures show a moderate positive effect of FDI on economic growth. They indicate that one percentage point increase in the growth of inward FDI causes 0.039 percentages point growth of GDP. Results of empirical analysis therefore partially confirm previous empirical findings, with the discrepancies, that can be attributed to differences in sampling and observation period. As for other specified explanatory variables, the regression coefficients mostly show expected signs in accordance with economic theory and previous research. The highly statistically significant positive effect of growth rate of employment ( $\Delta L$ ) on GDP growth is consistent

with the Okun's law (Henderson, 2010), that implies a positive association between growth rate of employment and growth of real GDP. Since the investments to GDP ratio variable (*I/GDP*) is a GDP component, the presence of mild correlation as well as the statistically significant positive effect of the *I/GDP* variable on GDP growth was expected. The most surprising theoretically and empirically inconsistent result is persistently statistically insignificant regression coefficient pertaining to trade openness (*OPEN*). The statistically significant negative coefficient of gross domestic expenditure in R&D (*GERD*) indicates the fact, that the NMS-10s under study have reached a threshold level of human capital stock (Ghosh and Wang, 2009).

# Conclusions

The paper analyses the economic growth of NMS-10 in relation to internationalization of their economies. The degree of internationalization of economies is measured by inward and outward FDI and trade openness.

The research model is based on an extended traditional growth theory and includes annual growth rate of real GDP as a dependent variable, the growth rate of employment, investment to GDP ratio, growth rate of inward and outward FDI, trade openness, and gross domestic expenditure in R&D as explanatory variables, and inflation and government final consumption expenditure as control variables. The explanatory variables are specified in a fixed effect economic growth regression model, which is consistent with previously applied researches and adapted to the specific characteristics of NMS-10, observation period and the availability of data.

The regression results indicate a statistically significant moderate positive effect of inward FDI stock growth on GDP growth, but with a statistically insignificant effect of trade openness, which persists regardless to the exclusion of FDI component from the economic growth model. The latter finding is inconsistent with our theoretical expectations and previous empirical work. The negative effect of gross domestic expenditure in R&D on the GDP growth, which does not interfere with the effects of FDI and therefore also rejects the findings of some previous researches, can be interpreted as a consequence of the fact that the NMS-10 countries under study already achieved a threshold level of human capital stock. The regression coefficients pertaining to the other explanatory variables, above all the rate of inflation and government final consumption expenditure as a percentage of GDP show expected negative associations with the annual growth rate of real GDP, which is consistent with other previous empirical GDP.

In accordance with previous theoretical and empirical work, some differentials in results can be explained by differentials in the countries sample and the analyzed observation period. Therefore, the possible further research on the topic could comprehend the comparison between the individual NMS-10 economies, the inclusion of Bulgaria and Romania, which as the two newest member states entered into the EU-27 in 2007, or the comparison of the NMS-10 with some other emerging market economies.

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