Positioning of Central and East European Economies in the Context of the IDP Paradigm

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Marian Gorynia, Poznań University of Economics, al. Niepodległości 10, 60-967 Poznań, POLAND
Tel: (48 61) 856 93 61
Fax: (48 61) 854 39 87
E-mail: m.gorynia@ue.poznan.pl

Jan Nowak, Central European University, 1023 Budapest, Frankel Leó út 30-34, HUNGARY
Tel.: (36 1) 887-5058
Fax: (36 1) 887-5005
E-mail: nowakj@ceubusiness.org

Piotr Tarka, Poznań University of Economics, al. Niepodległości 10, 60-967 Poznań, POLAND
Tel: (48 61) 856 93 61
Fax: (48 61) 854 39 87
E-mail: piotr.tarka@ue.poznan.pl

Radoslaw Wolniak, University of Warsaw, ul. Długa 44/50, 00-241 Warsaw, POLAND
Tel.: (48 22) 831 3201
Fax: (48 22) 839 3074
E-mail: wolniak@wne.uw.edu.pl

Abstract

This study investigates the advance of six Central and East European (CEE) countries along their investment development paths (IDPs) between 1990 and 2006 and attempts to determine these countries' IDP positioning at the end of the studied period. It also strives to identify the differences and similarities between the individual countries' IDP trajectories and draw conclusions and recommendations for policy makers. After outlining the IDP model and presenting a review of empirical studies pertaining to the said model in CEE, the paper then compares IDP trajectories of the six CEE countries and analyses three key issues: the timeframe and conditions of moving from IDP stage 1 to stage 2; the advance towards IDP stage 3 and the significance in this context of the outward FDI performance index (OPI). Both simple statistical tools and econometric modelling of the IDP related data are applied.

Introduction

The interface and interplay between inward and outward FDI coupled with development constitutes the essence of the IDP paradigm, the central theoretical model in this study. In the context of this model, a comparative analysis is conducted of IDPs of six CEE countries, embracing two somewhat distinct groups: – the Czech Republic, Hungary, Poland and Slovakia, constituting one group, and Bulgaria and Romania forming the other group. Both groups show relative internal homogeneity in terms of geographical proximity, generally the same stage in establishing and developing a market economy, common experience and time frame in acceding to the European Union (EU), with the first group joining the EU in 2004 and the second group in 2007. Moreover, they also share many components of culture. The general perception of those CEE countries is that the first group is more developed and consists of leaders in the transition process whereas the second group, located in the Balkans, comprises of two "follower" states with a considerable development gap separating them

from the said leaders. The study tries to determine how these factors of internal homogeneity and group differences influence the individual countries IDP trajectories.

But the main purpose of the present investigation is to determine the timing and explore the factors that have influenced the movement of these six CEE countries through their IDP stages. Thereafter, conclusions and policy recommendations are proposed, which are not only applicable to the analysed countries but which might serve as guidelines or simply be of interest to other East European states.

The data sets used in this study have been derived from UNCTAD's World Investment Reports and Handbook of Statistics. The data collected cover the entire period of the six countries' transition process to the market led economic system (with the exception of the Czech Republic and Slovakia, for which data do not include the years 1990-92 when both were functioning as Czechoslovakia) up to 2006, the last year for which the relevant data for all countries were available.

The research methodology combines the calculation and interpretation of indicators, ratios and indices relating to the variables present in the IDP model with a regression analysis of those variables, using linear and non-linear function specifications for comparison purposes and in order to find the best fit between the empirical data and the model parameters. The regression analysis in particular allows the authors to conclude about the passage of some of the countries into stage 3 of the IDP.

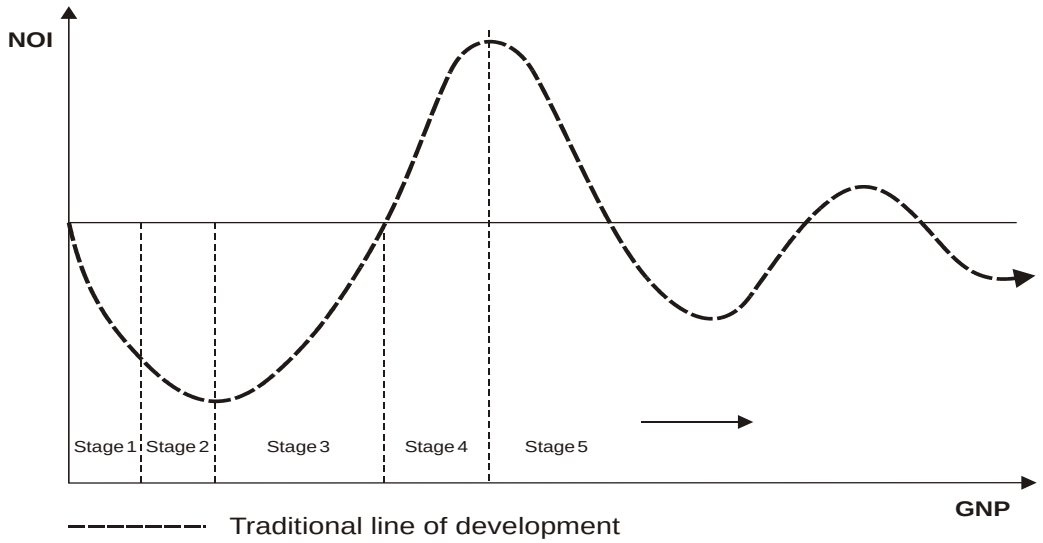
The first part of the study outlines the principal components of the IDP model and presents a review of empirical research applying and/or relating to the IDP model in CEE. The following section compares IDP trajectories of the six CEE countries. Analysis is concentrated on three key issues: the timeframe and conditions of moving from IDP stage 1 to stage 2; the problems of determining the advance towards IDP stage 3 and the significance in this context of the outward foreign direct investment (FDI) performance index. The

concluding section summarizes the main findings and policy implications, draws attention to their limitations and delineates future research options and avenues.

The IDP Concept and Its Application to the CEE Countries

According to the IDP paradigm (Dunning, 1981, 1986 and 1997, Dunning and Narula 1994, 1996 and 2002, and Narula and Dunning, 2000) the inward and outward investment position of a country is systematically linked to its economic development. Changes in the volume and structure of FDI lead to different values in the country's net outward investment position (NOIP), defined as the difference between gross outward direct investment stock and gross inward direct investment stock. As illustrated in Figure 1, the changing NOIP passes through 5 stages intrinsically related to the country's economic development, measured by its GNP or GDP.

Figure 1. The Pattern of the Investment Development Path



Note: Not drawn to scale – for illustrative purposes only
Source: Dunning and Narula, 2002, p. 139.

At the beginning of stage 1 of the IDP the NOIP – reflecting the difference between outward and inward FDI stocks – is close to zero and later on assumes negative, and rapidly growing

values. Inward FDI, negligible or low in absolute values, flows in mostly to take advantage of the country's natural assets. Outward FDI is also negligible or non-existent since foreign firms prefer to export, import and/or to enter into non-equity relationships with local firms. Stage 2 is characterized by an increased inflow of FDI with outward FDI remaining still low although larger than in the previous stage. Therefore, the NOIP continues to decrease, although towards the latter part of stage 2 the rate of the decrease slows down as the growth of outward FDI converges with that of inward FDI. Countries in stage 3 are said to exhibit a growing NOIP due to an increased rate of growth of outward FDI and a gradual slowdown in inward FDI, geared in this case more towards efficiency-seeking motives. In stage 4 outward FDI stock continues to rise faster than the inward one and the country's NOIP crosses the 0 level and becomes positive. Country location advantages are now mostly derived from created assets. This stage, as well as the last (5th) one, is typical of the most developed countries. In stage 5 the NOIP first falls and thereafter demonstrates a tendency to fluctuate around the 0 level but usually with both inward and outward FDI increasing.

The IDP model has been used as a framework in numerous empirical studies, which by and large attempted to validate it by either employing cross-sectional or longitudinal data sets.[1] However, a relatively small number of studies could be identified that directly or indirectly deal with IDPs of CEE countries, of which only three represent a cross-nation comparative analysis. [2]

Boudier-Bensebaa (2008) undertakes a comparative analysis of the IDP in the whole region of Central and Eastern Europe (including the former Soviet Republics) and the European Union of 15 member states. The "Eastern" countries concerned are classified into 4 distinct groups according to their per capita level of GDP and NOIP. The NOIP of the

[1] A succinct review of the two types of IDP empirical studies, cross-sectional and longitudinal, can be found in Gorynia, Nowak and Wolniak (2006).
[2] Several studies focus on individual CEE countries' IDP. They either explicitly use the IDP framework or focus on some of its elements, typically on outward FDI. A review of these studies is presented in Gorynia, Nowak and Wolniak, 2008.

"Eastern" countries places them in stages 1 or 2 of the IDP, while that of the EU countries points to stages 4 or 5. The first most advanced group of the "Eastern" countries consists of the Czech Republic, Estonia, Slovenia, Hungary, Slovakia, Poland, Latvia, Lithuania and Croatia. The said group is identified as moving towards the end of stage 2 of their IDPs or even towards the beginning of stage 3. Within the "Eastern" countries groups and sub-groups their NOIP reveals a tendency to converge. But as far as income levels are concerned no convergence is found either inside the "Eastern" countries or between them and the EU. Finally the author draws attention to the fact that data on FDI stocks and GDP do not cover all the factors affecting FDI and development. In the FDI sphere, left out are the non-equity forms of investment. As for the effect on FDI, besides GDP, elements such as EU accession, globalisation and the transformation process per se should be also taken into account. Boudier-Bensebaa focuses on cross-sectional analysis across countries and does not attempt to assess and explain the individual countries' IDP trajectories. This missing element is taken up by the authors of this study who argue that individual countries' IDP idiosyncrasies can provide a deeper understanding and more insightful explanation of the varying IDPs and their convergence or divergence within groups of countries.

In the second cross-nation study focused on Central and Eastern Europe, Kottaridi, Filippaios and Papanastassiou (2004) attempt to integrate Dunning's IDP model with Vernon's Product Life Cycle and Hirsch's International Trade and Investment Theory of the Firm. These authors analyze the location determinants of inward FDI and the interrelationship between inward FDI and imports during the years 1992-2000 in eight new EU member states from CEE and two candidate countries – Bulgaria and Romania. They find evidence of the ten CEE countries going through the second stage of the IDP and gradually moving towards the third stage, which corroborates the findings of Boudier-Bensebaa (2008) with respect to the most advanced CEE economies , labelled CEECs1.

Although focused on outward FDI only and not using the IDP concept as a framework, the study of Svietličič and Jaklič (2003) is worth mentioning in the context of this review as it also represents a comparative analysis of several CEE countries (the Czech Republic, Estonia, Hungary, Poland and Slovenia). This analysis clearly demonstrates that major increases of FDI outflows started in the latter part of the 1990s. This is yet another indication of the CEE countries entering stage 2 of the IDP during that period. At the same time Svietličič and Jaklič find positive correlation between a country's level of development and its rate of investment abroad, and observe that outward FDI of the five countries under study tends to be geographically concentrated in countries with close historical or cultural ties.

Regression Models Used in IDP Studies

Many of the IDP studies apply econometric modelling in testing the paradigm. Dunning himself (1981, 1986 and 2002) postulated and used a quadratic specification to describe the IDP curve (the formula for this specification is presented later in this paper). A quadratic function allows for the non-linearity in the relationship. The same function has been used by several other authors analysing IDPs of individual countries or groups of countries (see e.g. Tolentino, 1987; Narula 1996; Barry, Goerg and McDowell, 2003; and Boudier-Bensebaa, 2008). Other authors (see e.g. Buckley and Castro, 1998; and Bellak (2001) found a cubic specification better fitting their empirical data.[3]

Some other approaches to econometric analysis of IDP are also noteworthy. Durán and Úbeda (2001 and 2005) for example applied factor and cluster analyses to identify the countries reaching specific stages of the IDP. These authors also applied panel data analysis for a number of 4th stage countries. Similarly Boudier-Bensebaa (2008) applied a quadratic

[3] A cubic specification is as follows: $NOI = a + b_1\ GDPpc^3 + b_2\ GDPpc^5 + m$

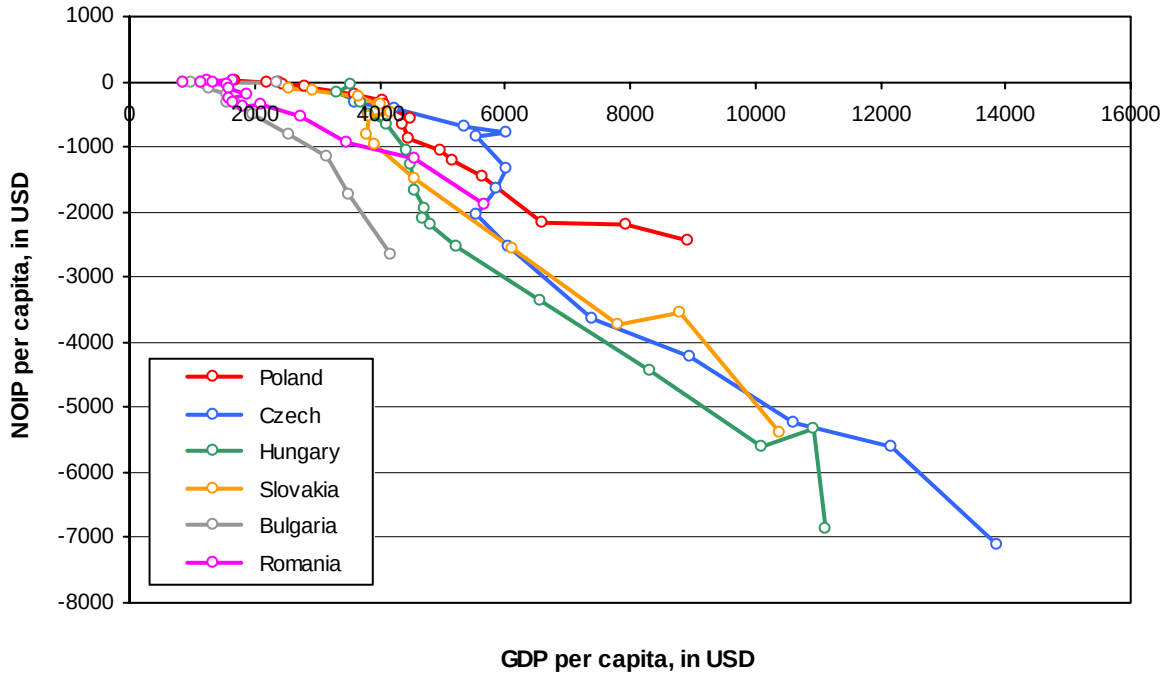
equation to a panel of 27 CEE countries and ran the regression not only for the entire sample but also for two clusters in that group .

In the context of the existing literature on IDP of CEE countries the present study attempts to make a contribution to the development of knowledge of CEE countries' IDP idiosyncrasies by conducting a comparative analysis of a fairly homogenous group of CEE economies, using longitudinal data sets, and covering the entire transition period. It therefore fills important gaps in the hitherto undertaken research on IDP in transitional economies, which has been fragmentary and has become largely outdated with respect to CEE countries other than Poland. The advantage of comparing a small and homogenous group of economies , all being at roughly the same stage of the transition process completion and showing only moderate differences in the level of development, is that any differences in these economies' IDP trajectories can be attributed to other than GDP and transition stage factors, thus enriching our understanding of IDP determinants beyond those envisioned in the classic IDP model.

IDP Trajectories of Six Central and East European Countries

Tables 1-6, containing data on GDP and NOIP for each of the six countries plus Table 7 with NOIP per capita dynamics of all six economies , presented in the appendix, allow for a detailed analysis of each country's relative positioning on its respective IDP from the point of view of two issues: the movement from IDP stage 1 to stage 2 and then the movement towards IDP stage 3. Table 8, showing changes in the outward FDI performance index (OPI), included in the same appendix, is also used in the analysis of closeness of countries to IDP stage 3. In addition Figure 2, presented below, shows the relationship between NOIP per capita and GDP per capita for the said six countries . The dots represent the points of intersection of NOIP and GDP per capita values for each year of the analyzed period.

Figure 2. The NOIP per Capita and GDP per Capita in USD* of Poland, Czech Republic, Hungary, Slovakia, Bulgaria and Romania, 1990 – 2006



*At current prices.
Source: Derived from tables 1 to 6 in the Appendix .

Passing from IDP Stage 1 to Stage 2

Determining and comparing the points in time of each country's passing from stage 1 to stage 2 of its respective IDP is truly a difficult and daunting exercise, tainted to a certain extent with subjective evaluation of available data. For Poland, the authors' previous research determined the end of year of 1995 as the moment when the country moved from stage 1 to stage 2 of its IDP. An indication of that moment of change to stage 2 was firstly a marked increase in the negative NOIP per capita and secondly the growth index of that measure, relative to the previous year, reaching the value of over 219.0 and then falling to 146.8 next year. For the Czech Republic and Hungary also 1995 was identified as the last year of stage 1 presence with the negative NOIP per capita growth index reaching 165 and then subsiding to 115.4 for the Czech Republic, and for Hungary going up to 162.4 and then dwindling to a mere 118.2. Slovakia was positioned as ending its stage 1 presence in 1996 with the said

growth index attaining a level of 160.6 and being very close to those of her neighbours: Hungary and the Czech Republic, as identified above. The slide the following year was however much steeper, remaining on practically the same level, with a growth index of 100.1. Romania and Bulgaria entered stage 2 even later, i.e. in 1997, with a negative growth index of the NOIP per capita of 235.7 for the first economy and 207.5 for the second one. Thus for the group of six countries there was a remarkable concentration of the time of moving from stage 1 to stage 2 of each country's IDP: for Romania and Bulgaria it was 1997, for Slovakia 1996 and for the remaining three 1995. An emerging hypothesis for transition economies of CEE thus appears to be that the duration of stage 1 of their IDPs lasts from 6 to 8 years, taking the beginning of the transformation process as the starting point.

As for the absolute values of each country's NOIP and NOIP per capita the highest (i.e. lowest in reality because of the minus sign) were recorded for Hungary (in 1995): 11026 mln USD and 1067 USD respectively. This was reached at the second highest level of GDP per capita of 4443 USD. The Czech Republic was second with a negative NOIP (also in 1995) of 7005 mln USD, NOIP per capita of 679 USD but with the highest level of GDP per capita in the group reaching 5360 USD. Slovakia followed with NOIP per capita of 347 USD and GDP per capita of 3977 USD but at the same time the NOIP itself had the negative value of 1863 mln USD in 1996. Poland (in 1995 again) was next with a NOIP per capita of 189 USD and GDP per capita of 3603 USD but with an absolute NOIP of 7304 mln USD – close to that of the Czech Republic. Then there was Bulgaria (in 1997) with a NOIP per capita on a lower level of 120 USD and the lowest in the group GDP per capita of 1265 USD. At the very end of this peculiar ranking came Romania (also in 1997) with a NOIP per capita of only 102 USD and a GDP per capita of 1583 USD, slightly higher than that for Bulgaria. Romania's absolute NOIP value of 2291 USD placed her higher than that of the much more developed

Slovakia. The lowest absolute value of NOIP in the group, at the level of 985 USD, was recorded by Bulgaria.

The leading position of Hungary at the end of the IDP stage 1 reflects the existence of pull factors other than those connected to the size of the country's internal market, such as low labour costs and the quality of created assets, but also the role of economic policy, especially towards privatisation of state owned firms, which adopted a more active approach than for example in the case of Poland, steering FDI to selected sectors of the economy (Antalóczy and Éltető, 2003). The second rank of the Czech Republic with a NOIP and NOIP per capita which were both 64% of those of Hungary but with a GDP per capita being 21% higher than the Hungarian one also reflects the relative abundance of created assets in attracting FDI. At the lower end there was Slovakia with 17% of Hungary's NOIP, 33% of Hungary's NOIP per capita but almost 90% of Hungary's GDP per capita, indicating a relatively developed transition economy however with relatively little appeal to foreign investors. This lesser attractiveness of FDI was reflected also in the one year longer duration of stage 1 compared with the rest of the group under investigation. And then there was Poland with lower values of NOIP per capita and GDP per capita, pointing to a relatively weak interest of foreign direct investors but at the same time with the value of absolute NOIP being 66% of that for Hungary, revealing thus the compensating effect of the extensive factor attracting FDI, i.e. market size and its growth potential. But at the end of the list were the two Balkan states with Bulgaria's NOIP per capita being just 11.25% of Hungary's and Romania's NOIP per capita at the bottom with 9.56% of that of Hungary. These proportions were in line with the low share of Bulgarian and Romanian GDP per capita being 28.5% and 35.6% respectively of that of Hungary. All this evidence tends to confirm the still unexploited potential for inward and outward FDI of those two countries at the end of their IDP stage 1. Overall there was no common denominator discernable in the group of six countries as to the

level of NOIP per capita and GDP per capita at which transition from stage 1 to stage 2 of each country's IDP occurred.

Moving Towards IDP Stage 3

Determining which of the analysed countries is in what position relative to its IDP stage 3 is a difficult task. Changes in the NOIP per capita are one indicator that may be used for that purpose. It has the advantage of neutralising to some extent the influence of country market size thus making country comparisons more plausible.

The dynamics of the NOIP per capita of all six countries are presented in Table 7. Percentage points (pps) changes of these NOIP per capita growth rates were calculated from the beginning of IDP stage 2, i.e. starting with the year of 1997. According to the original model, the NOIP in the latter part of stage 2 should exhibit falling growth rates of negative values. The moment when the said growth rates would reach "0" level would signal entering IDP stage 3. This phenomenon however is difficult to discern from the analysis of available data. Periodic and haphazard changes rising and slowing down the NOIP per capita growth rates were symptomatic for all six countries investigated.

Therefore a regression analysis was undertaken to determine each country's path towards stage 3 of their IDP. Methodologically regression outcomes are not greatly affected by minor deviations. Even though most assumptions of a regression cannot be tested explicitly, gross violations can be detected and should be dealt with appropriately. In particular, outliers can seriously bias the results by "pulling" or "pushing" the regression line in a particular direction, thereby leading to biased regression coefficients. Often, excluding just a single extreme case can yield a completely different set of results. In this analysis firstly an attempt was made to eliminate outliers and then to fit the appropriate line to existing data. One can see in figures 1

and 2 the plot with six lines according to available data. The curved lines are different because of different data configuration.

These regression lines were drawn through the points on a scatter plot to visualize the relationship between the investigated variables. In the ensuing analysis it definitely sloped down (from top left to bottom right). This indicated a negative or inverse relationship between the variables. If it was to slope up (from bottom right to top left), a positive or direct relationship would be indicated. The regression line often represents the regression equation on a scatter plot.

In the first part of analysis a simple regression was performed[4], regressing NOIP per capita (the dependent variable) on GDP per capita (the independent variable). A linear regression equation is usually written as:

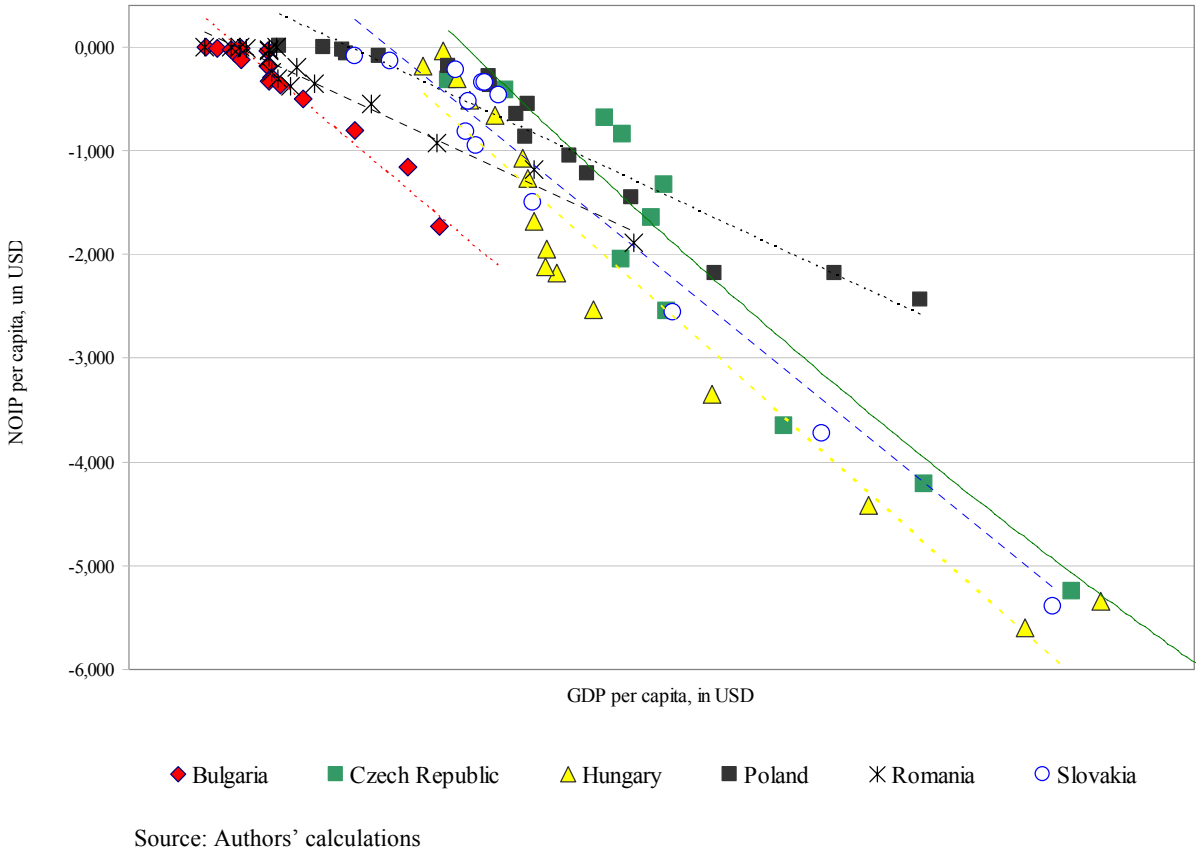
$$Y = \alpha + \beta X + \mu \qquad (1.0)$$

The analysis embraced data for the period from 1990 to 2006, for Bulgaria, Hungary, Poland, and Romania, and a shorter period starting from 1993 to 2006 for the Czech Republic and Slovakia.

The general computation problem in regression analysis was at first to fit a line to a number of points (crossing NOIP and GDP) in order to see the shape of data on the plot. In linear regression, it is assumed that the relationship between variables must be linear. In practice, this assumption for linear regression can hardly ever be confirmed.

[4] Using Statistica 8.0 and Excel software

Figure 3. Simple Linear Relationships between NOI Per Capita as the Dependent Variable and GDP Per Capita as the Independent Variable for the Individual Countries in the Study.



Source: Authors' calculations

For the data with the linear regression experiment, the fit of variability was not well performed under estimation. The relationship between the model and the dependent variable was quite weak. As for $\hat{\sigma}_2$ - Std. Error of Estimate, it shows the measurement of data dispersion on the scatter plot in relation to GDP and NOIP. The greater the value of $\hat{\sigma}_2$, the greater the dispersion of data around the regression line which is drawn along the data points. In the primary linear analysis it was observed that the smallest dispersion appears in the data analysis of the following two countries: Romania $\hat{\sigma}_2$ - 0.104 and Bulgaria $\hat{\sigma}_2$ - 0.282. The other countries (Czech Republic, Hungary, Slovakia and Poland) attain higher levels of dispersion estimation. However this was still not considered as a satisfying level of model fit.

In the case of R^2, in descending order (according to the linear regression function) variability in the observed values was explained by studied countries as follows: Romania R^2 - 96.2%, Slovakia R^2 - 95.8%, Hungary R^2 - 94.5%, R^2 Czech Republic – 93.3%; Poland R^2 - 92.0%, and Bulgaria R^2 - 85.1%. In the case of Bulgaria "only" 85.1% of the entire variability was explained by the regression function with two variables (NOIP and GDP). As a result there was still 14.9% of information unaccounted for. Therefore in a second round it was decided to retry the analysis with an advanced nonlinear regression model.

Nonlinear regression is appropriate when the relationship between the dependent and independent variables is not intrinsically linear. It was introduced here, based on Dunning's (1981) approach of regressing NOI on GDP, and thus utilizing a quadratic specification in order to allow for the non-linearity in the relationship. As a result, a nonlinear specification was applied with the utilized formula as follows:

$$NOI = a + b_1\ GDPpc + b_2\ GDPpc^2 + m \qquad (1.1)$$

where: NOI stands for the dependent variable NOI per capita;

GDPpc stands for gross domestic product per capita (the independent variable);

a - is the intercept;

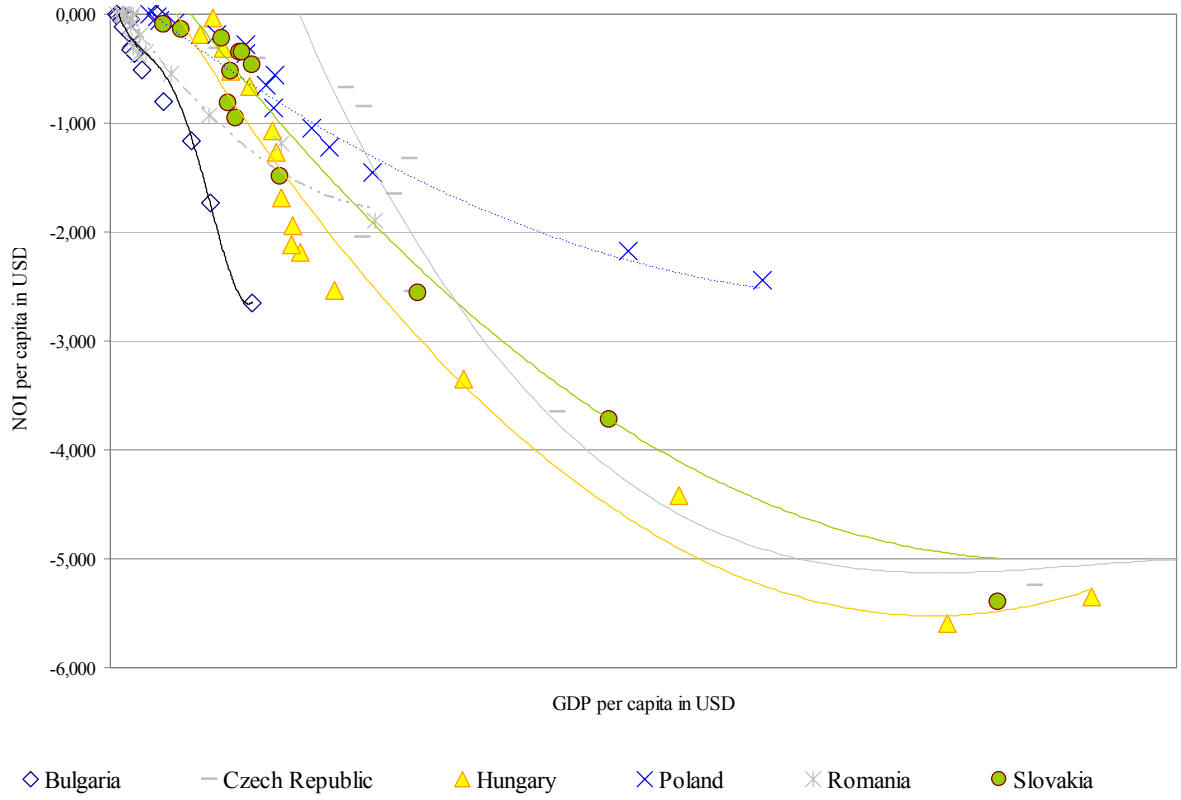
b - is the slope or regression coefficient;

m - is the regression error.

The resultant IDP curves for the six countries are shown in Figure 4.

The scatter plot (when comparing Figure 4 with Figure 3) shows alternately a decline, leveling out and then a tendency to rise over time. The shape of the plot is such that it is unlikely that a single non-linear equation would provide a good fit and allow sufficient interpretability. The computed non-linear regression statistics are shown in the table below. The said non-linear model provided very strong results for all parameters which are highly significant in the overall model (F statistic at 5% level).

Figure 4. Advanced Non-linear Relationships between NOI Per Capita as the Dependent Variable and GDP Per Capita as the Independent Variable for the Individual Countries in the Study



Source: Authors' own calculations

Table 1. Non-linear regression statistics*

	Bulgaria	Czech Republic	Hungary	Poland	Romania	Slovakia
R - [Multiple R]	0.937	0.977	0.981	0.986	0.991	0.982
R^2 - [R – square]	**0.877**	**0.954**	**0.962**	**0.974**	**0.984**	**0.964**
R^2 adjusted	0.860	0.946	0.957	0.960	0.969	0.959
Std. Error of Estimate	0.179	0.489	0.428	0.214	0.095	0.267

* Dependent variable denotes NOI per capita and independent variable GDP per capita.

Source: Authors' calculations

In linear regression models the quality of fit of a model is expressed in terms of the coefficient of determination, also known as an R^2. In non-linear regression such a measure is, unfortunately, not readily defined. One of the problems with the R^2 definition is that it

requires the presence of an intercept, which most non-linear models do not have. A measure, relatively closely corresponding to R^2 in the nonlinear case is R^2 = 1 - SS(Residual)/SS(Total $_{\text{Corrected}}$)**.** The degree to which the predictor (independent variable) is related to the dependent variable is expressed in the R^2 coefficient. In regression, an R^2 can assume values between 0 and 1.

In case of R^2, where a nonlinear relationship was implemented, the regression function and variability in the observed values was explained by the investigated countries as follows: Romania had an R^2 of 98.4%; Poland had an R^2 of 97.4%; Slovakia showed an R^2 of 96.4%; Hungary's R^2 was 96.2%; Czech Republic's R^2 was 95.4%; and Bulgaria's R^2 of 87.7% had the worst fit. As a result, the R^2 coefficients were increased considerably when a non-linear function was applied. It proved to provide a much better fit than the previous linear analysis.

The ANOVA method was then applied for nonlinear relationship and within the range of acceptability of the model from a statistical perspective. For a non-linear model, as might be expected, the analysis is only approximate because the calculated mean square ratio will not have an exact *F* distribution. However, the distribution of the mean square ratio is only affected by intrinsic non-linearity and not by parameter effects non-linearity, and intrinsic non-linearity is generally small. The analysis provided a control system over regression equation fit. The significance values of the *F* statistic (for all countries in the study) are definitely less than 0.05, which means that the variations explained by the models are not due to chance. The *F* statistics (based on ANOVA procedure), indicate that using the models (for each country) is better than guessing the mean. In short, ANOVA tests the null hypothesis and the assumption that all regression coefficients are equal zero. For all countries the *p*-values show "approximately zero," meaning that, if the NH (*null hypothesis* with no relationship) were true, the change of *F* exceeding its observed value would be essentially zero. This part

of analysis shows very strong evidence against NH (*null hypothesis*) and in favor of AH (*alternative hypothesis* – indicating strong relationship).

Table 2. The *F* statistic for non-linear regression*

	F
Bulgaria	50.007
Czech Republic	114.862
Hungary	177.870
Poland	87.427
Romania	179.045
Slovakia	128.644

* F statistic (sig.) equals 0.000
Source: Authors' calculations

The above verification points to the following important observations on the current positioning on the IDP of all the researched countries. The countries that appear to have entered stage 3 of their IDPs are Hungary and the Czech Republic, with Hungary's movement being more pronounced. This is in line with the original IDP model of Dunning since those two countries recorded the highest GDP per capita levels (among all the countries in this study) for the last year of the data set. At the turning point from stage 2 to stage 3 seems to be Slovakia, also a small but relatively developed country within the group, with the third largest GDP per capita in 2006. Approaching the said turning point is Poland with a GDP per capita being lower than that of Slovakia but much larger than that of Romania and Bulgaria. These last two Balkan countries, relatively least developed, are perceived to be in the second half of stage 2 of their IDPs but still not at the turning point to stage 3. In general all the above conclusions, still somewhat tentative, tend to confirm with regard to all the investigated CEE economies the viability of the IDP paradigm and its principal premise: the evolving relationship between FDI and development.

The analysis of the outward FDI performance index provides an indication as to the magnitude of outward FDI which a country generates relative to the size of its economic

potential, thus indirectly pointing out which country has the highest capacity to move into stage 3 of its IDP. The values of the said index less than 1 signify that outward FDI is less than proportional to the size of the home country's economy as measured by its participation in the global economy as such. If, on the other hand, the values of the said index are higher than 1 then the outward FDI generated is more than proportional relative to the aforementioned size of the home economy. From the point of view of positioning on the IDP the closer the index to 1 or higher than 1 the more predisposed a given country is to advance on its IDP trajectory or in this case reach stage 3 of its IDP faster than others.

In this context the values of the outward FDI performance index (OPI) as applied to the six countries in this study are presented in Table 8, in the appendix. Among those countries Hungary was the unquestioned leader recording the highest OPI values in 1991, 1995, 1997 and from 1999 onwards, surpassing in 2003, 2005 and 2006 the threshold value of 1, reflecting the highest relative effectiveness in outward FDI expansion, which in turn was perceived as the key factor in upgrading the country's international competitiveness. No other country in the group recorded OPI values higher than 1. This evidence supported earlier statistical verification showing that Hungary was already well into her IDP stage 3.

In the previous decade three other countries, Romania, the Czech Republic and Slovakia, occupied the leading position, but only for two years each: Romania in 1990 and 1992, the Czech Republic in 1993 and 1994, and Slovakia in 1996 and 1998. It is worth noting that all of them, except Slovakia in 1998, were in those years in stage one of their IDPs.

In 2006, the last year for which data were available, Poland with its largest internal market, recorded the second highest OPI value of 0.508 in the group, which indicated pursuit of outward expansion considerably below this large country's potential. This observation was however not in line with the previous ranking, positioning Poland in fourth place in the

movement towards stage 3. It can also be interpreted as reflecting the idiosyncratic nature of Poland's IDP. The Czech Republic occupied the third position with the OPI value of 0.44, also pointing to a larger gap (than in the case of Poland) in exploiting the capacity for outward FDI relative to a much smaller internal market but a stronger economy, when measured by GDP per capita. Then came Slovakia with an OPI of 0.267 and the ranking closed with Bulgaria (OPI of 0.195) and Romania (OPI of 0.012). The two Balkan states' performance was in line with their lowest GDP per capita levels for the whole group of countries under investigation and in essence was a confirmation of their companies' paucity of significant competitive advantages that could be successfully exploited via FDI in foreign markets. This observation confirms the credibility of Romania's and Bulgaria's last rank in the previous projection of closeness to the IDP stage 3.

Conclusions

This study revealed that the four analysed countries, commonly identified as the CEE leaders in the transformation process to a market-led economy plus the two less advanced followers from the Balkans, needed from 6 to 8 years from the initiation of their transformation reforms to reach the end of stage 1 on their respective IDPs. Then they required almost twice as long, i.e. from 11 to 13 years, to reach the point where they were in 2006. The passing from stage 1 to stage 2 coincided with reaching negative NOIP per capita and positive GDP per capita levels which, synthesised for the developed group of four CEE countries (thus excluding the two Balkan states), allow for a general conclusion that CEE countries with relatively small domestic markets must be more developed and have a larger influx of or a higher saturation with inward FDI per capita than their larger neighbour to be able to pass to stage 2 of their IDPs. Thus, on the other side of the spectrum, for countries with large internal markets, such as Poland in this study, it is sufficient to record lower

negative NOIP per capita values and GDP per capita levels to be able to pass to the said IDP stage 2.

This has also implications for economic policy which in the case of large economies and large domestic markets does not have to focus on selectivity towards incoming FDI and its quality, but instead a liberal open door policy will be sufficient to attract foreign investors. Romania and Bulgaria can also be classified in this context in the same category as Poland but their idiosyncratic quality rests in the fact that Romania had and still has a mid sized internal market (measured by population) and Bulgaria a market smaller than Hungary but their GDPs per capita were considerably smaller than the Polish one, and NOIPs per capita somewhat smaller than their Polish equivalent.

The latest positioning of all the six countries on their IDPs according to available data shows a differentiated picture as far as movement into stage 3 is concerned. This picture tends to uphold the predictions of Dunning's original IDP model relating economic development with foreign direct outward and inward investment. Thus, accordingly, Hungary and the Czech Republic, undisputably the most developed of the group, are seen as being already at the beginning of their IDP stage 3. Slovakia is placed at the juncture of stage 2 and stage 3 and this fits well with her third rank in the level of GDP per capita. Then close to such juncture is Poland with a lower GDP per capita than the neighbouring Slovakia. And trailing at the end with the lowest development levels are Romania and Bulgaria, which are deemed to be well behind Poland on the path to stage 3.

A slightly different picture emerges if the OPI index is taken into consideration. In this case Hungary also holds the first place, but here as the most effective outward investor relative to the size of its economy and, what is no less important, has continuously held it for the last eight years. This coupled with the second (to the Czech Republic) highest (negative) NOIP per capita and GDP per capita create the perception of thrust that has pushed Hungary

well into stage 3 of her IDP. The country deemed to have the weakest capacity to advance to that stage is Romania with the smallest OPI in the group, equal to only 1.15% of that of Hungary. And Romania's position also fits the original IDP model with her second lowest GDP per capita and lowest (absolute) value of NOIP per capita in 2006.

All of those findings constitute with varying intensity a challenge for economic policy makers, since in the long run only full participation in the economic globalisation process offers a reasonable guarantee of sustained GDP growth and economic and social development. It may be argued that internationalisation does not have to proceed uniquely along the path of foreign direct investment as a substitute or follow up of other means such as exporting. But the IDP paradigm per se focuses on the role in a country's development of the said foreign direct investment. Thus outward internationalisation of national economies via primarily greater outward FDI is advocated as the key to economic development and achievement of sustainable international country competitiveness. This in turn requires firms located in the analysed countries to have real and sustainable competitive advantages which will prove to be superior to those of competitors in a given industry and the creation and/or development of which should be supported by existing and advocated economic policy measures.

All the findings and conclusions of this study should be treated as still exploratory and requiring more elaborate verification and testing, also in a comparative framework with other countries of Eastern Europe or the European Union. Moreover, more information should be collected and interpreted concerning the country specific and sector or industry specific economic policy measures that influenced the overall performance of each of the six countries in the context of the IDP model. Further analysis could be enriched by looking also into the role of institutions and the determinants of income level convergence in attracting FDI. The current approach has been conducted primarily from a macro perspective, leaving aside

important micro economic factors such as cost based competencies or other location based advantages. A viable solution in overcoming those limitations and providing additional valuable insights could include the study of the geographic and sector specific aspects of positioning of each CEE country versus other countries in that region or their more advanced partners, for example in the European Union or the Triad framework.

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Appendix

Table 1. GDP and NOIP of Poland in 1990–2006

Year	NOIP millions US Dollars	GDP[a] millions US Dollars	NOIP/GDP	NOIP per capita US Dollars	GDP[a] per capita US Dollars	NOIP per capita (previous year=100)	GDP per capita (previous year=00)
1990	299	64550	0.01	8	1694	100.00	100.00
1991	-24	83705	0.00	-1	2189	-8.00	129.22
1992	-956	92326	-0.01	-25	2406	3970.56	109.91
1993	-2189	94122	-0.02	-57	2446	228.35	101.66
1994	-3328	108425	-0.03	-86	2813	151.73	115.00
1995	-7304	139062	-0.05	-189	3603	219.22	128.08
1996	-10728	156684	-0.07	-278	4059	146.84	112.66
1997	-13909	157154	-0.09	-361	4073	129.73	100.35
1998	-21296	172902	-0.12	-553	4487	153.28	110.16
1999	-25051	167958	-0.15	-651	4364	117.79	97.26
2000	-33209	171332	-0.19	-864	4458	132.75	102.15
2001	-40091	190333	-0.21	-1044	4959	120.88	111.24
2002	-46863	198003	-0.24	-1222	5165	117.03	104.15
2003	-55731	216535	-0.26	-1455	5655	119.06	109.49
2004	-83143	252118	-0.33	-2174	6592	149.37	116.70
2005	-83255	302641	-0.28	-2180	7923	100.27	120.19
2006	-92911	335675	-0.28	-2436	8801	111.76	111.08

[a] – according to official exchange rate
Source: UNCTAD (2007).

Table 2. GDP and NOIP of Czech Republic in 1990–2006

Year	NOIP millions US Dollars	GDP[a] millions US Dollars	NOIP/GDP	NOIP per capita US Dollars	GDP[a] per capita US Dollars	NOIP per capita (previous year=100)	GDP per capita (previous year=00)
1990							
1991	-1816						
1992	-2798						
1993	-3242	37163	-0.09	-314	3603	100.00	100.00
1994	-4247	43633	-0.10	-412	4230	131.00	117.40
1995	-7005	55256	-0.13	-679	5360	165.02	126.71
1996	-8074	62011	-0.13	-784	6022	115.41	112.35
1997	-8686	57135	-0.15	-845	5559	107.77	92.31
1998	-13571	61847	-0.22	-1323	6030	156.58	108.47
1999	-16854	60192	-0.28	-1646	5880	124.43	97.51
2000	-20906	56717	-0.37	-2046	5549	124.25	94.37
2001	-25956	61843	-0.42	-2542	6058	124.29	109.17
2002	-37196	75276	-0.49	-3646	7379	143.40	121.81
2003	-43003	91358	-0.47	-4217	8959	115.67	121.41
2004	-53499	108214	-0.49	-5248	10615	124.43	118.48
2005	-57052	123981	-0.46	-5598	12165	106.67	114.60
2006	-72402	141249	-0.51	-7106	13863	126.94	113.96

[a] – according to official exchange rate
Source: UNCTAD (2007).

Table 3. GDP and NOIP of Hungary in 1990–2006

Year	NOIP millions US Dollars	GDP[a] millions US Dollars	NOIP/GDP	NOIP per capita US Dollars	GDP[a] per capita US Dollars	NOIP per capita (previous year=100)	GDP per capita (previous year=00)
1990	-372	36754	-0.01	-36	3546	100.00	100.00
1991	-1883	34344	-0.06	-182	3319	507.11	93.60
1992	-3200	38274	-0.08	-310	3702	170.06	111.54
1993	-5350	39652	-0.14	-518	3836	167.20	103.62
1994	-6796	42642	-0.16	-657	4125	127.04	107.53
1995	-11026	45891	-0.24	-1067	4443	162.37	107.71
1996	-13017	46399	-0.28	-1262	4499	118.23	101.26
1997	-17321	46975	-0.37	-1683	4564	133.34	101.45
1998	-19949	48337	-0.41	-1943	4708	115.46	103.16
1999	-22336	49359	-0.45	-2181	4820	112.26	102.38
2000	-21590	47958	-0.45	-2114	4695	96.91	97.41
2001	-25851	53317	-0.49	-2537	5233	120.03	111.46
2002	-34058	66710	-0.51	-3351	6563	132.07	125.42
2003	-44831	84419	-0.53	-4422	8326	131.96	126.86
2004	-56567	102159	-0.55	-5593	10101	126.50	121.32
2005	-53893	110364	-0.49	-5343	10942	95.53	108.33
2006	-69067	111990	-0.62	-6867	11134	128.51	101.76

[a] – according to official exchange rate
Source: UNCTAD (2007).

Table 4. GDP and NOIP of Slovakia in 1990–2006

Year	NOIP millions US Dollars	GDP[a] millions US Dollars	NOIP/GDP	NOIP per capita US Dollars	GDP[a] per capita US Dollars	NOIP per capita (previous year=100)	GDP per capita (previous year=00)
1990							
1991	-236						
1992	-327						
1993	-493	13584	-0.04	-93	2550	100.00	100.00
1994	-731	15716	-0.05	-137	2939	147.69	115.26
1995	-1158	19714	-0.06	-216	3676	157.94	125.08
1996	-1863	21376	-0.09	-347	3977	160.55	108.19
1997	-1867	21564	-0.09	-347	4007	100.08	100.75
1998	-2512	22423	-0.11	-466	4164	134.47	103.92
1999	-2842	20602	-0.14	-528	3825	113.10	91.86
2000	-4372	20448	-0.21	-811	3795	153.81	99.22
2001	-5133	21106	-0.24	-953	3917	117.41	103.22
2002	-8045	24522	-0.33	-1493	4552	156.73	116.21
2003	-13753	32977	-0.42	-2553	6122	170.98	134.49
2004	-20075	42015	-0.48	-3727	7800	145.97	127.41
2005	-19070	47428	-0.40	-3540	8804	94.99	112.87
2006	-29045	55072	-0.53	-5391	10221	152.28	116.10

[a] – according to official exchange rate
Source: UNCTAD (2007).

Table 5. GDP and NOIP of Bulgaria in 1990–2006

Year	NOIP millions US Dollars	GDP[a] millions US Dollars	NOIP/GDP	NOIP per capita US Dollars	GDP[a] per capita US Dollars	NOIP per capita (previous year=100)	GDP per capita (previous year=00)
1990	12	20726	0.00	1	2350	100.00	100.00
1991	-50	7629	-0.00	-6	873	-420.29	37.15
1992	-94	8604	-0.01	-11	995	189.98	113.98
1993	-138	10833	-0.01	-16	1267	148.54	127.34
1994	-242	9708	-0.03	-29	1149	177.46	90.69
1995	-341	13106	-0.03	-41	1568	142.48	136.47
1996	-479	9900	-0.05	-58	1197	141.91	76.34
1997	-985	10365	-0.10	-120	1265	207.54	105.68
1998	-1522	12737	-0.12	-187	1567	155.83	123.87
1999	-2392	12955	-0.20	-297	1607	158.41	102.55
2000	-2619	12600	-0.21	-327	1574	110.31	97.95
2001	-2877	13599	-0.21	-362	1711	110.64	108.70
2002	-3993	15510	-0.26	-506	1965	139.71	114.85
2003	-6268	19968	-0.31	-799	2546	157.98	129.57
2004	-9058	24536	-0.37	-1162	3148	145.42	123.65
2005	-13384	27076	-0.49	-1728	3496	148.71	111.06
2006	-20364	32002	-0.64	-2647	4160	153.18	118.99

[a] – according to official exchange rate
Source: UNCTAD (2007).

Table 6. GDP and NOIP of Romania in 1990–2006

Year	NOIP millions US Dollars	GDP[a] millions US Dollars	NOIP/GDP	NOIP per capita US Dollars	GDP[a] per capita US Dollars	NOIP per capita (previous year=100)	GDP per capita (previous year=00)
1990	66	38510	0.00	3	1659	100.00	100.00
1991	43	29054	0.00	2	1254	65.25	75.59
1992	-43	19716	0.00	-2	854	-100.39	68.10
1993	-112	26546	0.00	-5	1157	261.92	135.48
1994	-295	30284	-0.01	-13	1327	265.01	114.69
1995	-700	35726	-0.02	-31	1575	238.67	118.69
1996	-977	35563	-0.03	-43	1576	140.31	100.06
1997	-2291	35533	-0.06	-102	1583	235.65	100.44
1998	-4392	42115	-0.10	-197	1885	192.61	119.08
1999	-5527	35592	-0.16	-248	1600	126.43	84.88
2000	-6815	37025	-0.18	-308	1673	123.88	104.56
2001	-8233	40181	-0.21	-374	1824	121.39	109.03
2002	-7655	45825	-0.17	-349	2090	93.42	114.58
2003	-11980	59507	-0.20	-549	2726	157.23	130.43
2004	-20250	75489	-0.27	-932	3475	169.81	127.48
2005	-25680	98566	-0.26	-1187	4557	127.39	131.13
2006	-40723	122384	-0.33	-1891	5684	159.29	124.73

[a] – according to official exchange rate
Source: UNCTAD (2007).

Table 7. NOIP per capita dynamics of Poland, the Czech Republic, Hungary, Slovakia, Romania and Bulgaria, 1990–2006

Year	PL*	PL	CZ*	CZ	H*	H	SK*	SK	BG*	BG	R*	R
	NOIP per capita (previous year = 100)	Growth rate changes in % points	NOIP per capita (previous year = 100)	Growth rate changes in % points	NOIP per capita (previous year = 100)	Growth rate changes in % points	NOIP per capita (previous year =100	Growth rate changes in % points	NOIP per capita (previous year =100	Growth rate changes in % points	NOIP per capita (previous year =100	Growth rate changes in % points
1990	100.00		-		100.00		-		100.00		100.00	
1991	–8.00		-		507.11		-		–420.29		65.25	
1992	3970.56		-		170.06		-		189.98		–100.39	
1993	228.35		100.00		167.20		100.00		148.54		261.92	
1994	151.73		131.00		127.04		147.69		177.46		265.01	
1995	219.22		165.02		162.37		157.94		142.48		238.67	
1996	146.84		115.41		118.23		160.55		141.91		140.31	
1997	129.73	*–17.11*	107.77	*–7.64*	133.34	*+15.11*	100.08	*–60.47*	207.54	*+65.63*	235.65	*+95.34*
1998	153.28	*+23.55*	156.58	*+48.81*	115.46	*–17.88*	134.47	*+34.39*	155.83	*–51.71*	192.61	*–43.04*
1999	117.79	*–35.49*	124.43	*–32.15*	112.26	*–3.20*	113.10	*–21.37*	158.41	*+ 2.58*	126.43	*–66.18*
2000	132.75	*+14.96*	124.25	*–0.18*	96.91	*–15.35*	153.81	*+40.71*	110.31	*–48.10*	123.88	*–2.55*
2001	120.88	*–11.87*	124.29	*+0.04*	120.03	*+23.12*	117.41	*–36.40*	110.64	*+0.33*	121.39	*–2.49*
2002	117.03	*–3.85*	143.40	*+19.11*	132.07	*+12.04*	156.73	*+39.32*	139.71	*+29.07*	93.42	*–27.97*
2003	119.06	*+2.03*	115.67	*–27.73*	131.96	*–0.11*	170.98	*+14.25*	157.98	*+18.27*	157.23	*+63.81*
2004	149.37	*+30.31*	124.43	*+8.76*	126.50	*–5.46*	145.97	*–25.01*	145.42	*–12.56*	169.81	*+12.58*
2005	100.27	*–49.10*	106.67	*–17.76*	95.53	*–30.97*	94.99	*–50.98*	148.71	*+ 3.29*	127.39	*–42.42*
2006	111.76	*+11.49*	126.94	*+20.27*	128.51	*+32.98*	116.10	*+21.11*	153.18	*+4.47*	159.29	*+31.90*

* PL = Poland , CZ = the Czech Republic, H = Hungary, SK = Slovakia, R=Romania, BG=Bulgaria
Source: Authors' calculations based on UNCTAD (2007).

Table 8. Outward FDI Performance Index of Six Central and East European Countries, 1990-2006

Year	Czech Republic	Hungary	Poland	Slovakia	Bulgaria	Romania
1990	..	0.04	0.01	..	-0.01	0.05
1991	..	0.09	-0.01	..	-0.09	0.01
1992	..	0.00	0.02	..	-0.05	0.03
1993	0.26	0.03	0.02	0.10	-0.03	0.03
1994	0.27	0.11	0.03	0.11	0.00	0.00
1995	0.05	0.10	0.02	-0.17	-0.05	0.00
1996	0.19	-0.01	0.03	0.20	-0.22	0.00
1997	0.03	0.61	0.02	0.27	-0.01	-0.02
1998	0.09	0.25	0.08	0.28	0.00	-0.01
1999	0.04	0.14	0.01	-0.50	0.04	0.01
2000	0.02	0.33	0.00	0.04	0.01	-0.01
2001	0.11	0.29	-0.02	0.12	0.03	-0.02
2002	0.17	0.25	0.07	0.03	0.11	0.02
2003	0.15	1.29	0.09	0.49	0.09	0.04
2004	0.44	0.52	0.15	-0.02	-0.42	0.04
2005	-0.01	1.13	0.53	0.18	0.61	-0.02
2006	0.44	1.07	0.50	0.26	0.19	0.01

Source: Authors' calculation based on data derived from UNCTAD (2007).