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Changes of inward and outward FDI stocks in Poland and the stage of the investment development path

ABSTRACT

The aim of the paper is to analyze changes of inward and outward foreign direct investments (FDI) stocks in Poland in the years 1994–2016 in the field of the theory of J.H. Dunning's investment development path (IDP). The following research hypothesis was adopted: If a persistent reduction of net outward FDI stock (NOI) to 0 is accompanied by economic growth (GDP growth, GDP *per capita*, structural changes in the economy), then it will be possible to achieve stage 3 of the IDP.

The results of empirical research indicate that the changes of NOI accompanying economic development in 1994–2016 were insufficient to confirm full advancement of IDP stage 3 in Poland. We do not observe a definite change in the NOI and economic development stage from stage 2 to 3. Nevertheless, we can support that some changes occur that prove that the economy is at the beginning of stage 3, as the following symptoms are observed: a drop in the levels of NOI, NOI *per capita* and an increase in the outward performance index (OPI). Considering that stages 1 and 2 continued nearly for 10 years each, the confirmation of stage 3 is likely after 2022. Then we will have empirical data for the period 2013–2022.

Keywords: FDI, GDP, Investment Development Path, NOI, OPI

JEL Classification Codes: C50, F21, F37, F43, O11, O47

Introduction

In the case of Poland an attempt at empirical verification of Dunning's theory of the investment position development and identification of its development stage will let us assess the almost 30-year period of the country's economy opening to foreign direct investment (FDI) flows and expansion of Polish companies to foreign markets. In this relation the aim of the paper is to analyze changes of inward and outward FDI stocks in Poland (FDI) in the years 1994–2016 in the field of the theory of J.H. Dunning's investment development path (IDP).

In particular, in view of the theory of IDP by J.H. Dunning, we take the following research questions: Do the changes in the inward and outward FDI stocks follow according to IDP? How long have the stages of IDP continued in Poland till now? Can decisions on inward and outward FDI be in relation with changes in economic development advancement?

The following research hypothesis was adopted: If a persistent reduction of net outward FDI stock (NOI) to 0 is accompanied by economic growth (GDP growth, GDP *per capita*, structural changes in the economy), then it will be possible to achieve stage 3 of the IDP.

We use methods from the literature used in international economics and international finance, and econometric methods of regression analysis. All statistics used in the article comes from the statistical database of the NBP (National Bank of Poland), OECD.Stat., UNCTAD. Stat. and GUS (Statistics Poland, SP).

1. The Evolution of the investment development path

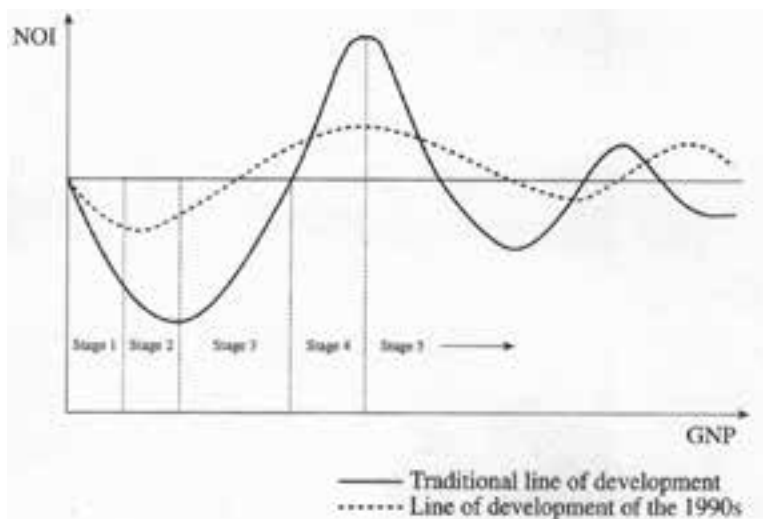
The IDP provides a framework to understand the dynamic interaction between FDI and economic development. The IDP is based on two premises: economic development implicitly involves a succession of structural changes; and these changes entail a dynamic relationship between their nature and the type and volume of FDI that a country sends and receives [Dunning, 1981; Narula, 1996; Dunning, Narula, 1996, Lall, 1996, pp. 423–441].

The IDP introduced by J. Dunning [1981, 1991] explains the relationship between the net outward investment position (NOI or NOIP) of a country (i.e. the gross outward FDI stock minus the gross inward FDI stock) and its path of economic development. The IDP traces a J-curve for the first four stages plus a wiggle stage 5 in which beyond a certain point in the IDP, the absolute size of Gross National Product (GNP) is no longer a reliable guide of a country's competitiveness; neither indeed is the NOI position [Narula, 1996, p. 11].

In stage 1 the NOIP 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, as 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 NOI 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. In stage 3, countries are beginning to make investment abroad, but still remain net receivers of FDI. In the 4th stage, outward investment is higher than inward investment. Finally, in the more advanced countries, in the 5th stage, on average, FDI outflows are neutralized by incoming investment. These countries tend to reach an unstable equilibrium around zero. The trend of this latter stage is consistent with the international integration of the industrialized economies [Dunning, 1993; Dunning, Narula, 1996, p. 7], as shown in Figure 1.

Figure 1. The pattern of the IDP according to J.H. Dunning and R. Narula (1996)



Note: Not drawn to scale – for illustrative purposes only.

Source: Dunning, Narula, 1996, p. 2.

The IDP is implicitly built on the notion that the global economy is necessarily in terms of the various stages of economic development in which its diverse constituent nations are situated. This path is framed in terms of J.H. Dunning's eclectic paradigm of international production. The IDP indicates that countries tend to go through main stages of development and these stages can be usefully classified according to the propensity if those countries are to be outward/or inward direct investors. The IDP essentially traces out the net cross-border flows of industrial knowledge, the flows of industrial knowledge, the flows that are internalized in FDI and that restructure and upgrade the global economy, although there is also the non-equity type knowledge transfer such as licensing, subcontracting, and the like.

Therefore, the IDP can thus be interpreted as a cross-border net learning curve exhibited by a nation that successfully moves up the stages of development by acquiring industrial knowledge from its more advanced neighbors. A move from the J-shaped bottom or the negative NOI (NOIP) segment to the 'wobble' segment of the IDP indicates an equilibrium

in knowledge dissemination – that is, a narrowing of the industrial knowledge gap between the advanced and the catching-up countries.

Moreover, the IDP theory is quite similar to the *Flying Geese Paradigm* (FG) of Catch-up Growth developed by T. Ozawa. They both emphasize the hierarchical nature of external commercial relations, especially when the IDP theory is viewed from the perspective of developing countries [Ozawa, 2005, pp. 108–109].

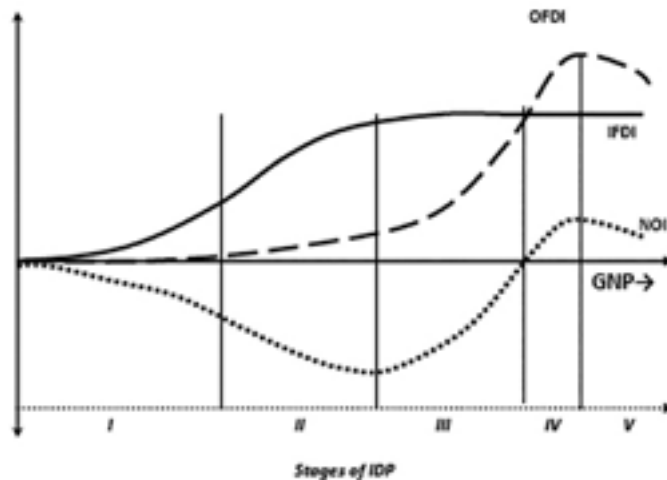
In the 2000s, the framework of the IDP had some revisions in the theoretical literature because of differential empirical findings. For this reason, R. Narula and J. Guimón published in 2010 a text recapitulating the discussion about IDP. According to these authors “The IDP should adopt a broader perspective, encompassing the idiosyncratic economic structure of countries as well as the heterogeneous nature of FDI. It is critical to understand the complex forces and interactions that determine the turning points in a country’s IDP, and to more explicitly acknowledge the role of historical, social and political circumstances in hindering or promoting FDI” [Narula, Guimón, 2010, p. 5]. Moreover, they wrote that lessons learnt over the last decade, and the myriad effects of globalization, have required it to be revised and updated. These changes have diluted – and in some cases completely altered – the efficacy of traditional policy options used by countries. At the same time, multinational enterprises (MNEs) have responded proactively to globalization by modifying their strategies, their spatial organization and the modalities by which they interact with host economic actors. These changes by MNEs, in turn, have influenced the scope of opportunities and challenges facing governments that follow FDI-assisted development strategies [ibidem].

In the opinion of R. Narula and J. Guimón, drawing on J.H. Dunning’s eclectic paradigm [Dunning, 1980, pp. 9–31], the IDP analyzes how patterns in FDI respond to changes in the ownership (O) advantages of domestic firms; the O advantages of MNEs; and the location (L) advantages of countries. This three-way dynamic interaction can be categorized in five stages, which may be observed in most countries, although with significantly different rates of change and points of inflection.

Stage 1 of the IDP reflects the situation in most of the least developed countries, where both inward and outward FDI are very small. The country lacks O or L advantages, often due to the combination of a limited domestic market, a lack of infrastructure, low-skilled labour force and inappropriate institutions and government policies. In stage 2 inward FDI (IFDI) grows significantly thanks to the development of some L-specific advantages that raise the country’s attractiveness to MNEs. However, outward FDI (OFDI) remains very limited because the O-advantages of domestic firms are still weak, giving rise to an increasingly negative net outward investment (NOI) position. In stage 3, OFDI increases as domestic firms become more competitive in comparison to foreign firms. In this stage OFDI may surpass IFDI flows, but the IFDI stock remains higher (and hence the NOI remains negative). In stage 4, the NOI position turns positive after continued growth in OFDI underscoring the development of O advantages. Finally, in the most developed countries (stage 5) the expected outcome is an unstable equilibrium around zero, although often this unstable equilibrium

is not achieved at zero but rather around a substantially positive or negative position. It is worth emphasising two points. Firstly, these stages are indicative. Secondly, progress within stages and between stages is by no means 'automatic'. Countries may move backwards as well as forwards (Figure 2).

Figure 2. Graphical representation of the IDP according to R. Narula and J.H. Dunning (2010)



Note: Only for illustrative purposes. Not drawn in scale. The Y axis – for OFDI, IFDI, NOI; the X axis – for stages of IDP.

Source: Narula, Dunning, 2010, pp. 263–287.

R. Narula and J. Guimón [2010, p. 5] underlined that the IDP of individual countries are unique. Each country follows its 'own' particular IDP which reflects exogenously determined characteristics such as size, population, geographic location, natural resource endowments, political economy, and so forth. Thus, comparisons between countries by taking a cross-sectional view should only be undertaken with the greatest caution.

2. Review of empirical studies of the IDP

According to R. Narula and J. Guimón [2010], motivations of inward and outward FDI evolve over the IDP in tandem with the development of location and ownership advantages. At stage 1, the key role of governments is to set up basic legal and commercial institutions and infrastructure. At stage 2, education, transport and ICT (information and communications technologies) infrastructure become increasingly important, while at the third stage the key role of governments is often to enforce competitive markets. At stage 4, the key role of policy is to minimise transaction costs, support innovation, and foster economic restructuring (Table 1).

Empirical studies testing the graphically IDP may still be useful for detecting deviations of individual countries compared to their expected IDP and explaining possible reasons for those gaps in terms of a country's structural variables, policies or company strategies.

A country's expected IDP is to be interpreted not only in relation to its *per capita* income, but also considering other circumstances associated with its socio-economic-political structure, other aspects of its development, such as its external economic relationships at the national and supranational level, and the country's policy orientation and institutional profile.

Table 1. Evolving motivations of inward and outward FDI across the IDP

IDP stage	Inward FDI (IFDI)	Outward FDI (OFDI)
1	Little IFDI initially. For FDI, resource-based motives, and later market seeking are important.	Very little OFDI. Mainly minor strategic investments and capital flight.
2	Growing presence of market-seeking FDI which may attract some labour-intensive manufacturing.	Little OFDI. Some resource- and market-seeking investment in other developing countries; some 'escape' investment into developed countries; mostly natural resource investment or light manufacturing employing established technologies.
3	Raising inward FDI, market-seeking and increasing efficiency-seeking FDI in manufacturing, even in activities supplying more sophisticated products for domestic markets or requiring more skilled labour.	Growing OFDI. All kinds of investment including efficiency-seeking and some asset augmenting investment; mass-produced differentiated consumer goods, e.g. electrical products, clothing; more service investment, e.g. construction, banking.
4 & 5	Increasingly market-seeking, efficiency-seeking and asset-augmenting investment.	Increasingly efficiency-seeking and asset-augmenting investment; regional and global; more M&As and alliances; investment in knowledge-intensive sectors, e.g. ICT, biotechnology, and high value-added services, e.g. consultancy.

Source: Narula, Guimón, 2010, p. 9.

Analysis of the IDP has been undertaken by a number of foreign authors: T. Ozawa [1996, pp. 142–173], S. Lall [1996, pp. 423–441], H. Zhang and D. van den Bulcke [1996, pp. 380–420], J. Buckley and F.B. Castro [1998, pp. 1–15], J.J. Durán and F. Ubeda [2001, pp. 1–34], R. Narula and J.H. Dunning [2000, pp. 141–167], F. Barry, H. Georg and A. McDowell [2003, p. 341–349], X. Liu, T. Buck and C. Shu [2005, pp. 97–115], J. Galan, J. Gonzalez-Benito, J. Zuñiga-Vincente [2007, pp. 975–997], R. Narula and J. Guimón [2010, pp. 5–19], etc. These surveys were carried out for both groups of countries, like the European Union: V.B. Iacovoiu and M. Panait [2014] or Central and Eastern European countries: R. Narula and J. Guimón [2010], and individual countries, e.g. Portugal: P.J. Buckley and F.B. Castro [1998, pp. 1–15]. Their findings confirm deviations of the paths for individual countries compared with the traditional IDP.

The empirical studies concentrated on two methods of the IDP's verification, i.e. narrow and broad statements. The *narrow* statement of the IDP – which focuses on the relationship between a country's NOI position and its GNP *per capita* – must be used with caution, because the simplifications needed to reduce the process to a two-dimensional graph hide the complex and intricate interactions between FDI and development. While such numerically driven and graphical representations serve a specific purpose, they are less useful in drawing policy implications. Such empirical analyses need to be complemented with a deeper qualitative assessment of the interactions between FDI and development [Narula, Guimón, 2010, p. 5].

The scholars following the *broad version of the IDP* [e.g. Barry et al., 2003, pp. 341–349; Galan et al., 2007, pp. 975–997; Liu et al., 2005; Narula, Dunning, 2000] have utilized it as

a framework within which to explore the interactive relationship between the O advantages of firms and the L advantages of countries, and how each provides the potential to instigate changes in the other, whether seen at the country, industry or firm level. The broad version of the IDP reflects the fact that while a relationship exists between FDI and development, there is a very large 'black box' of intervening mechanisms and processes [Bell, Marin, 2004, pp. 653–686].

A new approach that is a broader version of the IDP according to J.J. Durán and F. Ubeda [2001, p. 6; 16] should incorporate the following assumptions:

- Use inward and outward FDI stocks (in both relative and absolute terms).
- Include structural variables in the model used to reflect: the degree of economic development, peculiarities of countries, and nature of international trade.
- Use multivariate analysis: factorial analysis, cluster analysis, and a non-parametric test.

They surveyed a group of 85 countries, separately for developed and developing countries, at the end of 1997. For example, countries like Poland, Latvia, Lithuania, Romania, the Russian Federation, and Slovenia were classified at stage 3.

In the Polish literature dealing with this subject, attempts to verify IDP for Poland have been undertaken for the following years:

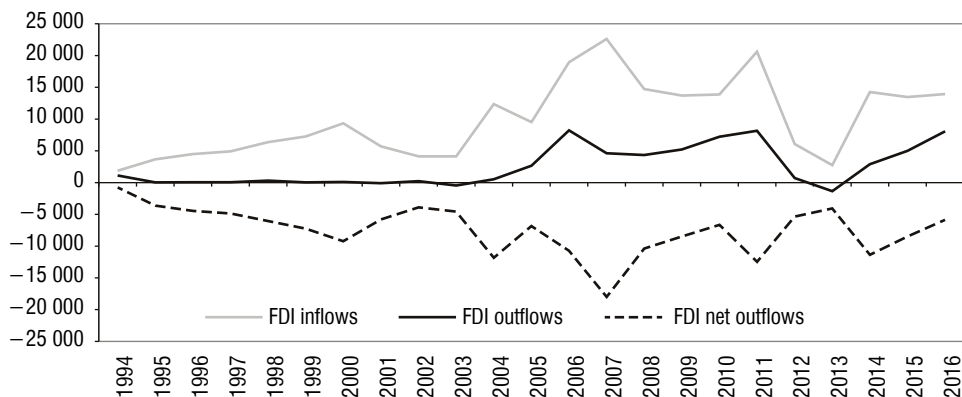
- 1990–2005 – M. Kola and M. Kuzel [2007, pp. 171–202]; they showed that in 2004 Poland entered stage 3 of the investment development path.
- 1990–2006 – M. Gorynia, J. Nowak and R. Wolniak [2010, pp. 66–87]; they stated that Poland (like Bulgaria, the Czech Republic, Romania, Hungary, and Slovakia) had not reached stage 3 of IDP yet. According to the NOIP model, it is in the second part of stage 2. It should indicate a decrease in the negative value growth rate. On the other hand, the moment at which the growth rate equals 0 will signal reaching stage 3. Identification of this moment is difficult because periodic and random changes in the growth rate of NOIP *per capita* were indicative for all the 6 countries examined. What is more, too low a level of foreign investment made by Polish enterprises is the element which does not let us state unambiguously whether the country has entered stage 3.
- 1995–2011 – W. Lizińska, R. Marks-Bielska [2014, pp. 707–731]; they identified the Polish economy to be at the beginning of stage 3. The transition through the first two stages of the IDP may have occurred relatively quickly (especially in the countries undergoing the process of systemic and economic transformations), however, the transition through subsequent stages will take longer and may have a difficult to define effect from the point of view of the impact on economic development of the country.

3. Analysis of the IDP: the case for Poland

To begin the analysis of the IDP for Poland in relation to net outward FDI stock, it is worth focusing on tendencies in these FDI flows in the economy. Then focuses on FDI stocks ultimately determine the net international investment position and economic growth.

Figure 3 demonstrates these flows changed over time in the years 1994–2016. Whereas a clear trend to increase FDI outflows net was noted (corresponding to perseverance of stage 1 in 1994–2000 (7 years)), the following years brought about significant fluctuations. 2004 and 2007 saw explicit surpluses in investment inflows over investment outflows. On the other hand, a declining trend in FDI outflows net was observed since 2007 (except for 2011 and 2014). FDI outflows net decreased especially in 2012–2013, yet it was not the result of expansion of Polish companies in foreign markets but of a simultaneous significant drop in FDI inflows. In 2014–2016, FDI outflows net decreased as well. However, this trend may also turn out to be short-term. A partial explanation of this situation is re-organization of the capital of international companies. These companies purposefully increased their direct investment abroad (withdrawing it from Poland) in connection with the changes in income tax regulations concerning investment fund societies [NBP, 2017, pp. 33–35].

Figure 3. FDI flows and FDI net outflows in Poland in 1994–2016 (USD million)

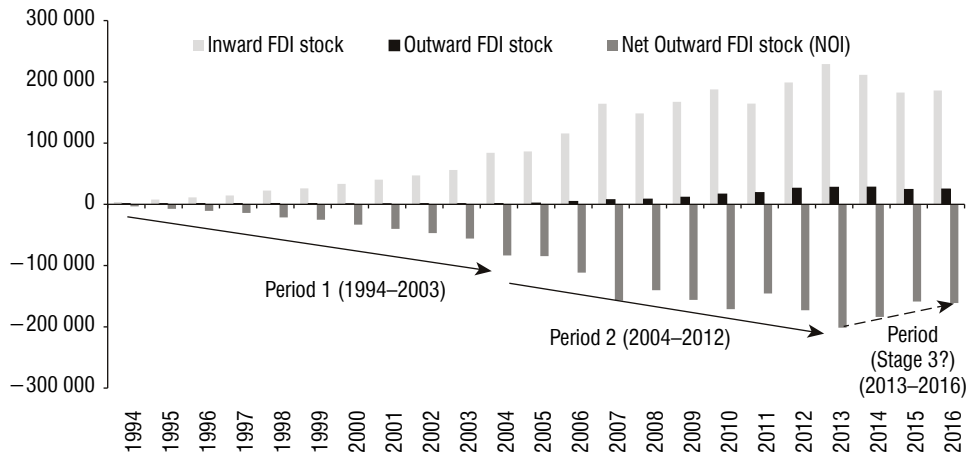


Note: FDI outflows net = FDI outflows – FDI inflows.

Source: Own compilation on the basis of: NBP, 1994–2017.

Next, let us proceed to the analysis of FDI stocks and net outward FDI stock (NOI, NOIP). Referring to the IDP theoretical curve to changes in FDI net stock (not taking into account structural changes), three periods (stages) can be distinguished: stage 1–1994–2003 (10 years), stage 2–2004–2012 (nearly 10 years) and stage 3–2013–2016, which is now in question. A temporary decrease of the NOI for merely several years indicates the difficulty of confirming the research hypothesis. The condition of maintaining a permanent change trend has not been met. To identify a clear stage 3 of IDP, changes of NOI decline should continue for a minimum of several years in order to prove that this tendency is persistently stable (not changeable). Considering that stages 1 and 2 continued nearly for 10 years each, it is likely that the confirmation of the third stage will be possible after 2022. Empirical data for the period 2013–2022 will be available then (Figure 4).

Figure 4. FDI stocks and Net Outward FDI stock in Poland in 1994–2016 (USD million)

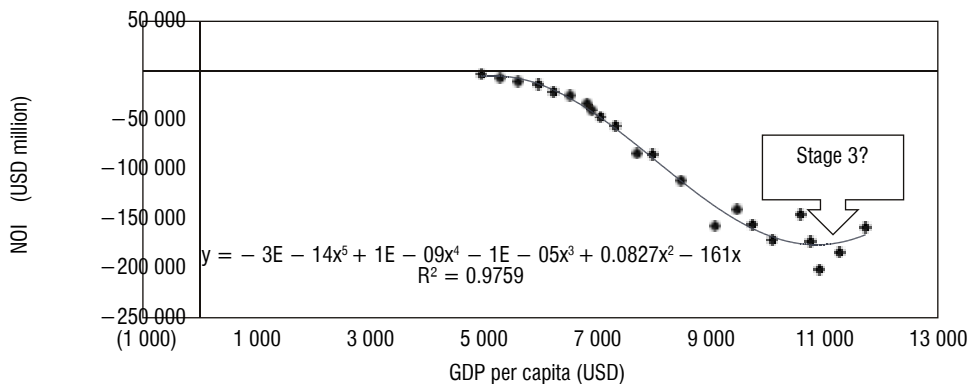


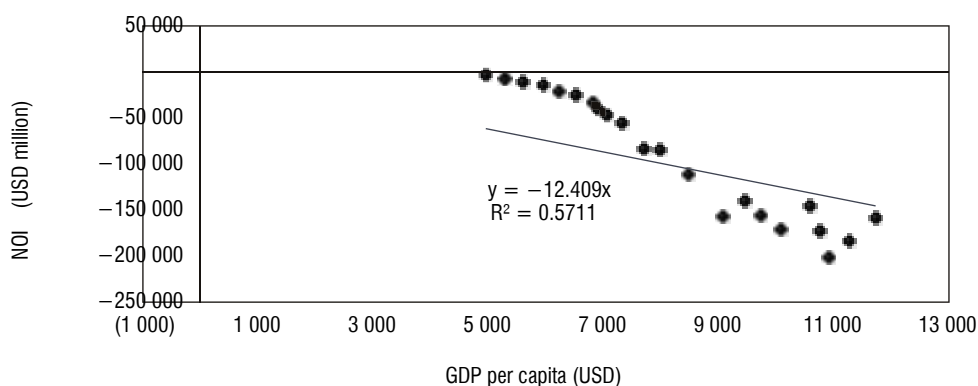
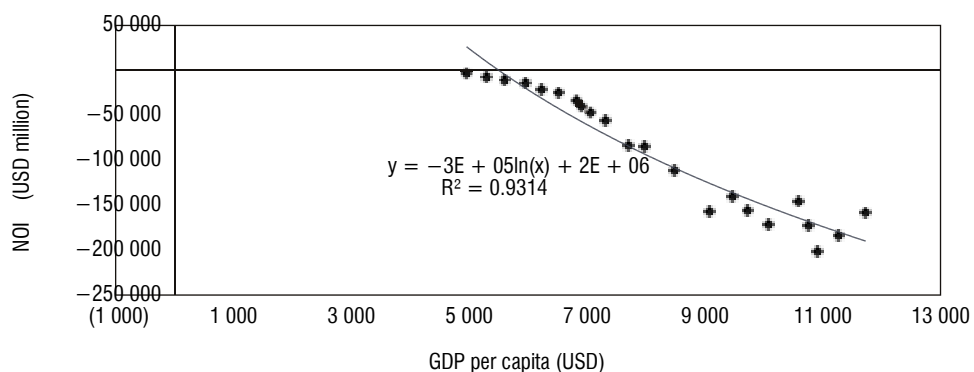
Note: Net outward FDI stock (NOI) = outward FDI stock – inward FDI stock.

Source: Own compilation on the basis of: NBP, 1994–2017.

An attempt at econometric measurement of relationships occurring between net outward FDI stock (NOI) and GDP *per capita* in Poland in 1994–2016 was estimated on regression results. The highest degree of the coefficient of determination (R^2) as well as of Pearson correlation coefficient (R) is presented by these relationships with polynomial regression at $R^2 = 0.9759$ ($R = 0.9879$), then with logarithmic regression at $R^2 = 0.9314$ ($R = 0.9651$) and linear regression at $R^2 = 0.5711$ ($R = 0.7557$). The trend curve for the polynomial regression $y = -3E - 14x^5 + 1E - 09x^4 - 1E - 05x^3 + 0,0827x^2 - 161x$ could signal the beginning of stage 3. While the IDP research for Poland carried out so far (Gorynia, Nowak, Wolniak: for the years 1990–2006 and Lizińska and Marks-Bielska for the years 1995–2011) postulated that stage 2 was successfully reached or that there were initial symptoms of stage 3; this study extended to cover 2016 (Figure 5, Table 2).

Figure 5. The relationship between Net Outward FDI stock (NOI) and GDP *per capita* in Poland in 1994–2016 (USD million) by different types of regression





Source: Own compilation on the basis of: NBP, 1994–2017; UNCTAD.Stat., 1994–2017.

Table 2. Estimated parameters for the relationship between Net Outward FDI stock and GDP per capita in Poland in 1994–2016

Equation	Coefficient of determination (R^2)	Coefficient of convergence (indetermination) (φ^2)	Pearson correlation coefficient (R)
$y = -3E-14x^6 + 1E-09x^4 - 1E-05x^3 + 0.0827x^2 - 161x$	$R^2 = 0.9759$	0.0241	0.9879
$y = -3E-05\ln(x) + 2E + 06$	$R^2 = 0.9314$	0.0686	0.9651
$y = -12.409x$	$R^2 = 0.5711$	0.4289	0.7557

Note: Calculations for the following types of regression: polynomial, logarithmic and linear.

Source: Own compilation on the basis of Figure 5.

Outward Performance Index (OPI) can then be used to identify more accurately the moment of transition to another IDP stage, especially from stage 2 to stage 3. UNCTAD describes this index with the equivalent symbol OND.

What is the OPI? The Outward FDI Performance Index captures a country's relative success at investing elsewhere in the global economy via FDI. If a country's share of global outward FDI matches its relative share in global GDP, the country's Outward FDI Performance Index is equal to one (1.0). A value greater than one indicates a larger share of FDI relative to GDP; a value less than one indicates a smaller share of FDI relative to GDP. A negative value means

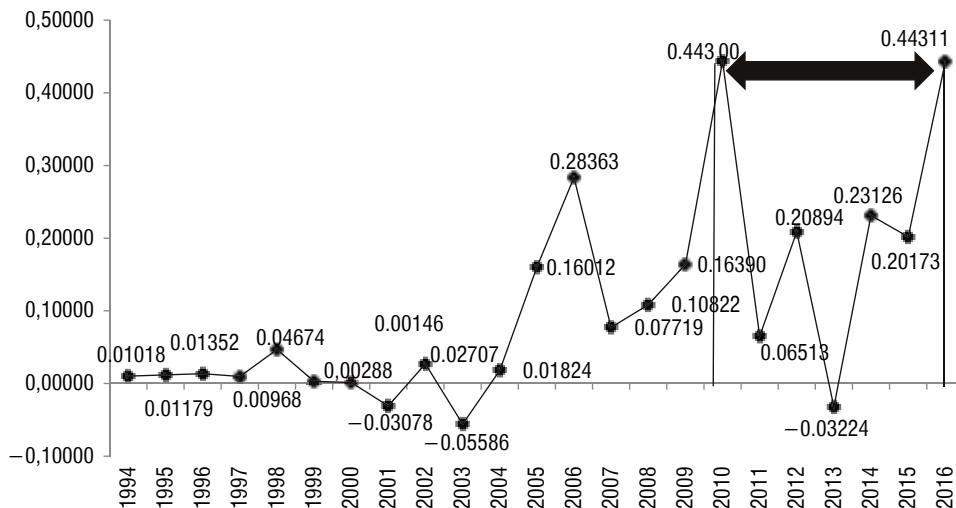
a country disinvested elsewhere in that period. Moreover, from the point of view of positioning on the IDP path, the index value of a given country close to 1.0 or higher than 1.0 means that this country is more predisposed to reach a subsequent stage of development on its IDP trajectory, in this case, reach stage 3. The (OPI_i) index is calculated following the formula:

$$OPI_i = \frac{\text{Outward FDI flows}_{i-\text{country}}}{\text{Outward FDI flows}_{\text{world}}} \cdot \frac{GDP_{i-\text{country}}}{GDP_{\text{world}}}$$

This means that: $OPI_i > 1.0 \Rightarrow +NOIP_i$ and $OPI_i < 1.0 \Rightarrow -NOIP_i$

Figure 6 shows that the OPI index displayed low levels in 1994–2000. After 2000, it increasingly fluctuated to reach its highest levels in 2006 (0.284), 2010 (0.443), and in 2016 (0.443). The maximum levels (0.443 for 2010 and 2016) reached so far are nearly a half of the threshold (1.0), which is targeted by Poland to definitely enter stage 3 (Figure 6).

Figure 6. Outward Performance Index (OPI) in Poland in the years 1994–2016



Source: Own compilation on the basis of: NBP, 1994–2017; UNCTAD.Stat., 1994–2017.

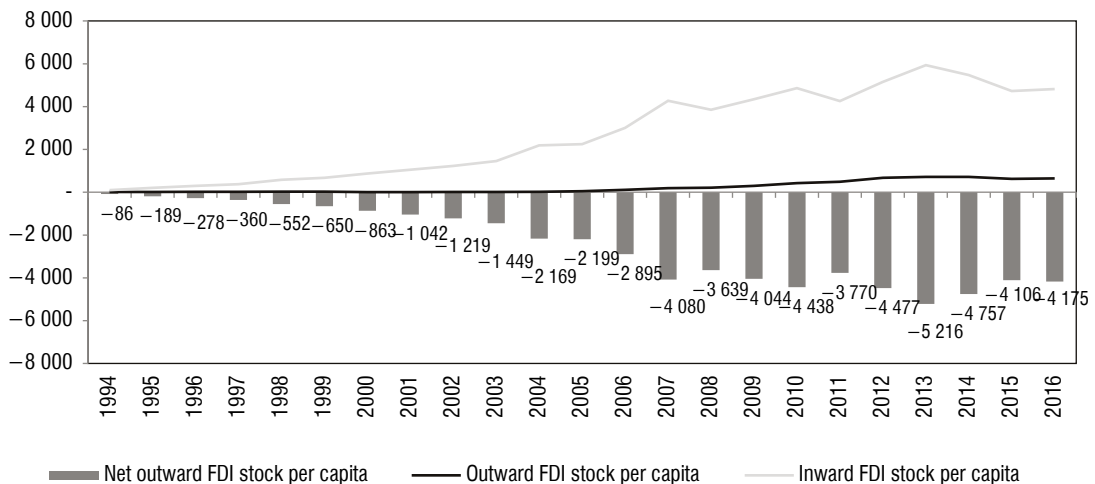
The analysis of net outward FDI stock *per capita* indicates that it has decreased in recent years, i.e. 2013–2015. However, 2016 noted another rise. Such a situation confirms that so far we have not seen a long-term tendency which would clearly indicate that Poland has reached stage 3. These results are not sufficient to definitely confirm the condition formulated in the research hypothesis. They may indicate only the beginning of stage 3 (Figure 7).

We can underline that, if conditions of Poland's investment attractiveness for foreign entities as well as for Polish companies which plan their activities abroad continue (as in 2014–2016), then the transition to stage 3 can become identifiable.

However, when one observes dynamic changes in global economy (e.g. during a crisis, especially in the European Union and the USA), it seems that stable economic conditions for

Poland can be uncertain in the future. This may mean occurrence of short-term changes (of NOI) which make unambiguous identification of the actual stage difficult. It seems that an indication of reaching stage 3 of IDP for Poland will be clear when a unidirectional decreasing trend in the negative investment position persists for about 5–10 years.

Figure 7. FDI stocks *per capita* and Net Outward FDI stock *per capita* in Poland in 1994–2016 (USD)



Note: Net outward FDI stock *per capita* = Outward FDI stock *per capita* – Inward FDI stock *per capita*.

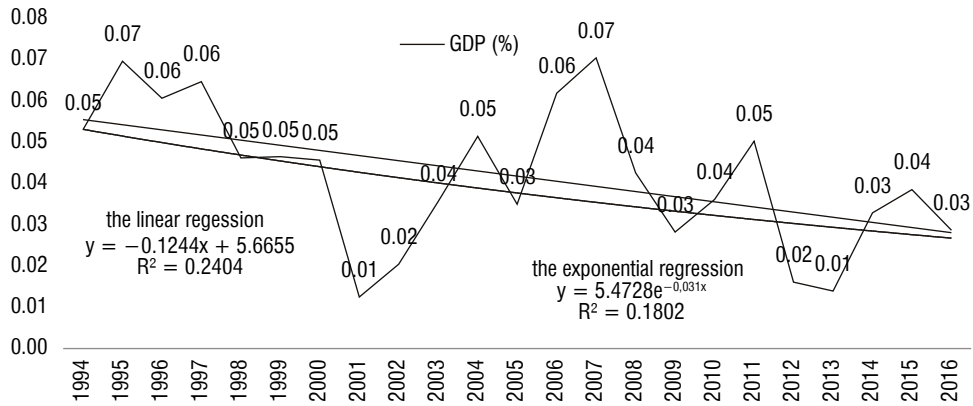
Source: Own calculations on the basis of: UNCTAD.Stat., 1994–2017.

4. Selected economic effects in the Polish economy

Another important question is: Can decisions on inward and outward FDI be related to changes in economic development advancement? The answer to this question requires analysis of changes of the level of economic development in connection with structural changes in the Polish economy, e.g.: GDP growth, GDP *per capita*, relationship between GDP *per capita* and FDI stocks, and analysis of participation of sectors of the national economy in gross value added (GVA).

The analysis of the GDP growth rate (dynamics) in the years 1994–2016 indicates that a weak negative growth trend occurred in Poland ($y = -0.1244x + 5.6655$) to a low level of the coefficient of determination $R^2 = 0.2404$. The main declining stages occurred especially in 1995–2001 and 2007–2013. However, the initial estimates by – tutaj chodziło o statystyki GUS– Statistics Poland (SP) of GDP growth for 2017 amount to 4.6% (CSO, 2018). In the case of future growth, it means a decline of the negative trend (i.e. the negative directional indicator of the linear regression) (Figure 8).

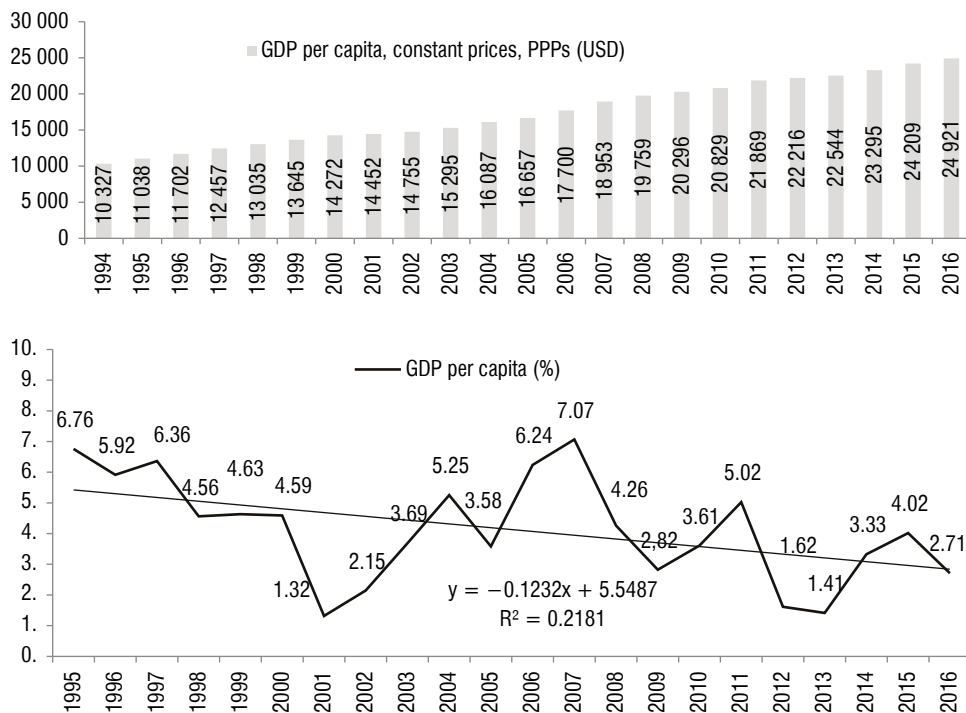
Figure 8. GDP growth rate for Poland in the period 1994–2016 (%)



Source: Own calculation on the basis of: OECD.Stat, 1994–2017.

Changes in the values of GDP *per capita* in 1994–2016 indicated a growing tendency. However, when we analysed their dynamics, e.g. in the 2000 s, it was weaker than in the second half of the 1990s. At determination of the linear trend, the slope is negative ($y = -0.0013x + 1.0573$). The rate of GDP *per capita* exhibited maximum growth (7.7%) in 2007 and minimum growth (1.32%) in 2001 (Figure 9).

Figure 9. GDP per capita for Poland in the period 1994–2016 (USD, %)

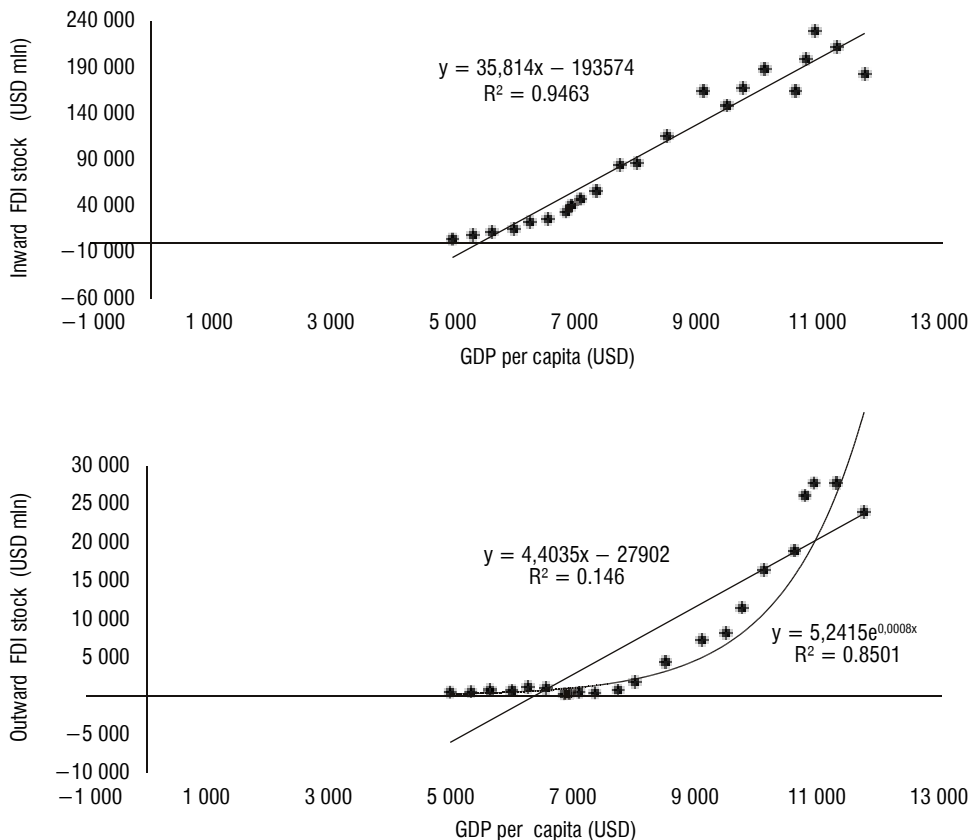


Source: Own compilation on the basis of: OECD.Stat, 1994–2017.

In the examined years, changes in the GDP growth and GDP *per capita* growth rates indicated clear fluctuations in the economic conditions. Taking into account the global conditions (including the crisis of 2007/2008), the presence of foreign capital did not support growing or at least stable dynamics of economic growth. Therefore, the changes slowed down the process of the transition of the Polish economy from stage 2 to stage 3 of the IDP.

The estimated correlation between GDP *per capita* and inward FDI stock is obviously positive ($y = -35.814x - 193574$ and $R^2 = 0.9463$) over the long period of 1994–2016. The same applies to the relation between the GDP *per capita* and outward FDI stock (for the linear regression: $y = -4.4035x - 27902$ and $R^2 = 0.8146$ and for the polynomial regression: $y = 5.2415e^{0.0008x}$ and $R^2 = 0.8501$). These regressions are very simple econometric methods, however, they show the direction of changes (tendencies) in the period (Figure 10).

Figure 10. The relationship between GDP *per capita* and inward FDI stock and outward FDI stock in Poland in the period 1994–2016



Source: Own compilation on the basis of: NBP, 1994–2017; OECD.Stat, 1994–2017.

The analysis of the gross value added (GVA) for Poland in the years 1995 and 2016 showed distinct changes in the shares of activities. Changes occurred between these years in such sections as:

- agriculture, forestry, hunting, fishing – a fall from 6.0% to 2.1% (–3.9 p.p.)
- industry – a decline from 27.6% to 23.4% (–4.2 p.p.)
- construction – a drop from 6.3% to 6.1% (–0.2 p.p.)
- trade, repair of motors vehicles – a decrease from 17.4% to 15.9% (–1.5 p.p.) (Table 3).

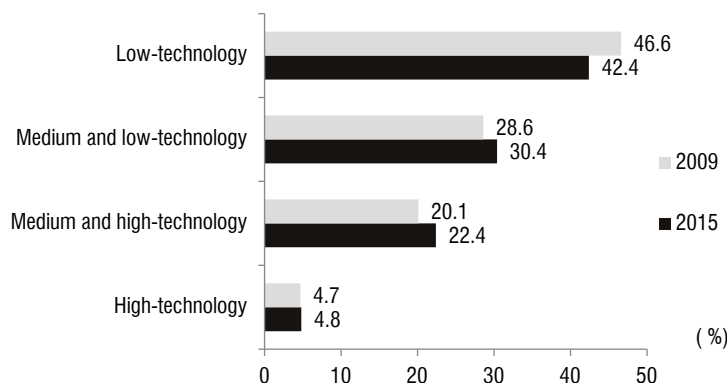
Table 3. Gross Domestic Product and Gross Value Added in Poland in the years 1995, 2005 and 2016 (% , current prices)

Code	Specification	1995	2005	2016
	Gross Domestic Product, of which:	100.0	100.0	100.0
	Gross Value Added, of which:	87.1	87.9	88.5
A	Agriculture, forestry, hunting, fishing	6.0	2.9	2.1
C	Industry	27.6	22.1	23.4
	Mining and quarrying	3.6	2.3	1.4
	Manufacturing	20.6	16.1	18.1
	Electricity, gas, steam and air conditioning supply	3.4	2.7	2.7
	Water supply; sewerage waste management and remediation activities		1.0	1.2
F	Construction	6.3	6.7	6.1
G	Trade, repair of motors vehicles	17.4	16.4	15.9

Source: Own compilation on the basis of: CSO, 2000, p. 423; CSO, 2017, pp. 395–396.

The analysis of persons employed by the level of technology advancement in manufacturing in Poland from 2009 to 2015 confirmed only declining changes. For example, employment shrank in the low-technology manufacturing (from 46.6% to 42.4%), a slight increase occurred in the other technology manufacturing sectors, especially in high-technology manufacturing (from 4.7% to 4.8%) (Figure 11).

Figure 11. Persons employed by the level of technology advancement in manufacturing in Poland in 2009 and 2015 (%)



Source: Own compilation on the basis of: CSO, 2010; CSO 2016.

In the years 2005, 2000 and 2015, foreign capital entities in Poland were mainly interested in several sectors. They allocated a majority of their financial expenses (including outlays on fixed assets) to: manufacturing (38.78% in 2005 and 40.03% in 2015) and construction (12.98% and 13.32%), whereas the amount of their outlays reduced markedly in the case of: transport and storage (22.57% and 3.56%) and real estate activities (14.1% and 5.36%) between 2005 and 2015 (Table 4).

Table 4. Outlays on fixed assets by NACE sections by entities with foreign capital in Poland in 2005, 2000, 2015 (%)

Specification	2005	2010	2015
Total	100.00	100.00	100.00
A. Agriculture, forestry and fishing	0.59	0.69	0.68
B. Mining and quarrying	0.20	0.64	0.31
C. Manufacturing	38.78	33.65	40.03
D. Electricity, gas, steam and air conditioning supply	4.09	6.47	6.47
E. Water supply; sewerage, waste management and remediation activities	0,00	0,52	0,48
F. Construction	1,87	8,59	7,62
G. Construction	12.98	13.20	13.32
H. Transportation and storage	22.57	2.22	3.56
I. Accommodation and catering	0.52	0.88	1.27
J. Information and communications	0.00	12.15	9.01
K. Financial and insurance activities	3.69	7.31	4.59
L. Real estate activities	14.10	6.72	5.36
M. Professional, scientific and technical activities	0.00	3.20	2.68
N. Administrative and support service activities	0.00	2.37	3.84
P. Education	0.01	0.02	0.10
Q. Human health and social work activities	0.17	0.74	0.38
R. Arts, entertainment and recreation	0.43	0.49	0.17
S. Other service activities	0.00	0.14	0.13

Note: Nomenclature of Economic Activities, NACE.

Source: Own compilation on the basis of: CSO, 2006, CSO, 2011, CSO, 2016a.

Besides the analysis, the IDP explains the relationship between the NOI of a country and its path of economic development – causality, a mutual relationship between FDI flows (and stocks) and GDP in the host country, e.g. for Poland, is a very important matter.

According to N. Hermes and R. Lensink [2003, pp. 142–163], FDI can only contribute to economic growth through spillovers when there is a sufficient absorptive capacity in a host country. In the opinion of D. Herzer, S. Klasens and F. Howak-Lehmann [2008, pp. 793–910], if FDI crowds out domestic investment, then it is quite likely that the economic growth rate in a recipient country will decline. J. Azeinman and L. Noy [2006, pp. 317–337] explained that a positive impact of FDI on the economic growth rate depends on many factors, e.g. human capital, the degree of an economy's openness, financial market development or income *per capita*.

Surveys related to the mutual relationships between FDI and GDP for Poland have been carried out by few authors, e.g. H. Gurgul and Ł. Lach [2009, pp. 77–91], B. Marona and A. Bieniek [2013, pp. 333–350]. Their findings concerned the mutual relationship between FDI and GDP. A. Kosztowniak [2016, pp. 307–332] used the VECM analysis to confirm bi-directional relationships between FDI and GDP. She wrote that: “However, the impact of GDP on attracting FDI inflows to Poland was stronger than that of FDI on GDP growth in the years 1992–2012”.

It means that these empirical findings regarding the IDP also confirmed the presence of the Polish economy at the beginning of stage 3.

Summary

In the case of Poland, an attempt at empirical verification of Dunning’s theory of the investment position development and identification of its stage will let us assess the almost 30-year period of the country’s economy opening to FDI flows and expansion of Polish companies to foreign markets. In this connection, the aim of the paper is to analyze changes of inward and outward FDI stocks in Poland in the years 1994–2016 by the field of J.H. Dunning’s theory of IDP.

Three questions are formulated. The *first question* is: Do changes in the inward and outward FDI stocks follow the IDP? The answer is affirmative: the survey findings (1994–2016) showed that the net investment position changed in line with the IDP. The negative investment position deepened in the years 1994–2013. The scale of direct investment by foreign entities definitely exceeded investment by Polish entities abroad. This also means that Polish entities displayed a low level of competitiveness and expansion in foreign markets. A more evident decline in the negative investment position occurred only in 2014–2016. Yet, it is too short a period to become the basis of a credible assessment since, at the end of 2016, reorganisation of capital related to changes in investment funds took place in direct investment entities, which affected growth of investment abroad. The fact that the level of net outward FDI stock *per capita* lowered with a simultaneous growth of OPI was a positive tendency.

However, in the years 1994–2016 we did not observe a definite change in the net outward investment and economic development stage from stage 2 to 3 in Poland, in the meaning J.H. Dunning’s IDP. Nonetheless, some symptoms of NOI drop and OPI growth appeared (2014–2016), proving that we were entering stage 3. If the negative balance of the investment position declines (reduces) in the near future, then the next 5–10 years it can definitely confirm arrival of the Polish economy at stage 3. However, it seems that the probable scenario of events will involve persistent short-term fluctuations of the investment position balances. These fluctuations will make it difficult to diagnose unambiguously whether it is stage 2 or already stage 3.

The *second question* this paper related to: How long did the stages of IDP continue in Poland? The results of empirical research allow us to conclude that the previous stages,

1 and 2, continued nearly for 10 years (each). 2013 can be seen as the beginning of stage 3. If changes in NOI and Poland's economic development occur at a similar rate as stages 1 and 2, then the period of stage 3 will cover the years 2013–2022.

Next, the *third question* posed was: Can decisions on inward and outward FDI be explained by changes in economic development advancement? We can say that the GDP growth rate exhibited a declining trend which slowed down the growth of GDP *per capita* in the entire period examined (23 years). It means that the GDP growth did not affect strongly the determinants of allocation of FDI in Poland. In the long term, the relationship between GDP *per capita*, inward FDI stock and outward FDI stock regression results showed a positive relation. However, for example, empirical results using the VAR/VECM method to estimate the influence of GDP growth on FDI inflows for Poland showed a very weak impact in the 1990s and 2000s. In conclusion, the research hypothesis was positively verified in the sense that the conditions of a persistent decrease of the NOI to level 0 and of economic growth (GDP, GDP *per capita*, structural changes in the economy) have not been sufficiently met to fully confirm the implementation of the third IDP stage in Poland.

References

Compact publications

1. Aizeman J., Noy L., 2006. FDI and Trade – Two Way Linkages? *The Quarterly Review of Economics*, No. 46(3).
2. Barry F., Goerg H., 2003. McDowell A., 2003. Outward FDI and the Investment Development Path of a Late-Industrializing Economy: Evidence from Ireland. *Regional Studies*, Vol. 37, No. 4.
3. Bell M., Marin A., 2004. Where Do FDI-Related Technology Spillovers Come from in Emerging Economies? An Exploration in Argentina in the 1990s. *European Journal of Development Research*, Vol. 16, No. 3.
4. Buckley P.J., Castro F.B., 1998. The Investment Development Path: The Case of Portugal. *Transnational Corporations*, No. 7(1).
5. Dunning J.H., 1980. *Toward an Eclectic Theory of International Production – Some Empirical Tests*. *Journal of International Business Studies*, Vol. 11, No. 1.
6. Dunning J.H., 1981. *Explaining the International Direct Investment Position of Countries: Towards a Dynamic or Development Approach*. *Weltwirtschaftliches Archiv*, Bd. 119.
7. Dunning J.H., 1991. The Eclectic Paradigm of International Production: A Personal Perspective. In: P. Christos and S. Roger (Eds.), *The Nature of the Transnational Firm*. London and New York: Routledge.
8. Dunning J.H., 1993. *Global Business: The Challenge of 1990*. London and New York: Routledge.
9. Dunning J.H., Narula R., 1996. The Investment Development Path Revisited. In: J. Dunning, R. Narula (Eds.), *Foreign Direct Investment and Governments*. London and New York: Routledge.

10. Durán J.J., Ubeda F., 2001. The Investment Development Path: A New Empirical Approach and Some Theoretical Issues. *Transnational Corporations*, Vol. 10, No. 2.
11. Galan J., Gonzalez-Benito J., Zuñiga-Vincente J., 2007. Factors Determining the Location Decisions of Spanish MNEs: An Analysis Based on the Investment Development Path. *Journal of International Business Studies*, No. 38.
12. Gorynia M., Nowak J., Wolniak R., 2010, January. Investment Development Paths of Central European Countries: A Comparative Analysis. *Argumenta Oeconomica*.
13. Gurgul H., Lach Ł., 2009. Związki przyczynowe pomiędzy bezpośrednimi inwestycjami zagranicznymi w Polsce a podstawowymi wskaźnikami makroekonomicznymi (wyniki badań empirycznych) [Causalities between Foreign Direct Investment in Poland and Basic Macroeconomic Indicators (Empirical Findings)]. *Ekonomia Menadżerska*, No. 6.
14. GUS, 2000, 2017. *Mały rocznik statystyczny Polski 2000, 2017* [Concise Statistical Yearbook of Poland]. Warszawa: GUS.
15. GUS, 2006, 2011, 2016. *Działalność podmiotów z udziałem kapitału zagranicznego w 2005, 2010, 2015* [Economic Activity of Entities with Foreign Capital in 2005, 2010, 2015]. Warszawa: GUS.
16. GUS, 2010, 2016. *Nauka i Technika w 2009 i 2015* [Science and Technology in 2009 and 2015]. Warszawa: GUS.
17. Hermes N., Lensink R., 2003. Foreign Direct Investment, Financial Development and Economic Growth. *The Journal of Development Studies*, No. 40(1).
18. Herzer D., Klasen S., Nowak-Lehmann F., 2008. Search of FDI-led Growth in Developing Countries: The Way Forward. *Economic Modelling*, No. 25(5).
19. Iacovoiu V.B., Panait M., 2014. The Limitation of Investment Development Path Theory. European Union Case. *Economic Insights – Trends and Challenges*, Vol. III (LXVI), No. 4.
20. Kola M., Kuzel M., 2007. Bezpośrednie inwestycyjne zagraniczne polskich przedsiębiorstw na gruncie teorii ścieżki inwestycyjno-rozwojowej. In: W. Karaszewski (Ed.), *Bezpośrednie inwestycyjne zagraniczne w budowaniu potencjału konkurencyjności przedsiębiorstw i regionów*. Toruń: Uniwersytet Mikołaja Kopernika.
21. Kosztowniak A., 2016. Verification of The Relationship Between FDI and GDP in Poland, *Acta Oeconomica*, Vol. 66(2).
22. Lall S., 1996. The Investment Development Path: Some Conclusions. In: J.H. Dunning and R. Narula (Eds.), *Foreign Direct Investment and Governments*. London and New York: Routledge.
23. Liu X., Buck T., Shu C., 2005. Chinese economic development, the next stage: outward FDI? *International Business Review*, 2005, No. 14.
24. Lizińska W., Marks-Bielska R., 2014. Napływ bezpośrednich inwestycji zagranicznych a rozwój gospodarczy Polski. *Ekonomista*, No. 5.
25. Marona B., Bieniek A., 2013. Wykorzystanie modelu VECM do analizy wpływu bezpośrednich inwestycji zagranicznych na gospodarkę Polski w latach 1996–2010 [The Analysis of the Influence of Foreign Direct Investment on Polish Economy in 1996–2010 Using the VECM Methodology]. *Acta Universitatis Nicolai Copernicana – Ekonomia*, XLIV (2).
26. Narula R., 1996. *Multinational Investment and Economic Structure: Globalization and Competitiveness*. London: Routledge.

27. Narula R., Dunning J.H., 2000. Industrial Development, Globalization and Multinational Enterprises: New Realities for Developing Countries. *Oxford Development Studies*, Vol. 28, No. 2.
28. Narula R., Guimón J., 2010, December. The Investment Development Path in A Globalised World: Implications for Eastern Europe. *Eastern Journal of European Studies*, Vol. 1, Iss. 2.
29. Ozawa T., 1996. Japan: The Macro-IDP, Meso-IDPs and the Technology and the Technology Development Path (TDP). In: J.H. Dunning, R. Narula (Eds.), *Foreign Direct Investment and Governments*. London and New York: Routledge.
30. Ozawa T., 2005. Institutions, Industrial Upgrading and Economic Performance in Japan. The Flying Geese Paradigm of Catch-up Growth. *New Horizons in International Business*, United Kingdom: Edward Elgar Publishing Limited.
31. Zhang H., van den Bulcke D., 1996. China: Rapid Changes in the Investment Development Path. In: J.H. Dunning, R. Narula (Eds.), *Foreign Direct Investment and Governments*. London and New York: Routledge.

Internet-based sources

1. GUS, 2018. *Produkt Krajowy Brutto w 2017 – wstępne szacunki 30.01.2018* [Gross Domestic Product in 2017 – initial estimates of 30.01.2018.] Warszawa. Retrieved from: <http://stat.gov.pl/obszary-tematyczne/rachunki-narodowe>.
2. NBP, 2017. *Bilans płatniczy Rzeczypospolitej Polskiej za IV kwartał 2016 r.* [Balance of Payments of the Republic of Poland in IV Quarter, 2016]. Warszawa. Retrieved from: http://www.nbp.pl/home.aspx?f=/statystyka/bilans_platniczy.html
3. NBP, 1994–2017. *Statystyka bilansu płatniczego* [Balance of Payments Statistics]. Retrieved from: http://www.nbp.pl/home.aspx?f=/statystyka/bilans_platniczy.html
4. OECD.Stat, 1994–2017. *National accounts*. Retrieved from: <https://stats.oecd.org/index.aspx?queryid=60702#>
5. UNCTAD.Stat.,1994–2017. *Data Center*. Retrieved from: http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en