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Analysis of determinants of the inflow of foreign direct investment to Poland. Part I – theoretical considerations[1]

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1. Introduction

One of the most important processes taking place in the contemporary global economy is internationalization. It involves the creation and development of various transnational links between enterprises; among them foreign direct investment (FDI)[2]. The development of international capital flows, and in particular FDI, is on the one hand a factor in deepening the globalization process of the world economy, which may favor the modernization of a country, and on the other hand – the result of this process. The essence of FDI is not only the associated cash flow, but also the transfer of new technologies, knowledge, *know-how*, work and factors of production (Michałowski, 2006; Stawicka, 2008; Wojciechowski and Lubacha-Sember, 2014).

In the global economy, most FDI is located in highly developed countries (*World Investment*

1 The article was developed as part of the implementation of a research project co-financed by the Marshal's Office of Lubuskie Province in the framework of the competition *Small Grants for Public Universities from Lubuskie Province*.

2 FDI is perceived as the most advanced, but at the same time, the riskiest form of internationalization of an enterprise's business operations (Gorynia et al. 2005; Gorynia et al. 2007; Fonfara, 2009; Obłój and Wąsowska, 2010; Sitek, 2012; Szóstek, 2013; Alfaro and Chauvin, 2016; Karaszewski et al. 2016; Cieślik, 2017a; Dorożyński, 2018; Skawińska, 2018).

Report… 2018). However, for several years, there has been an increase in the inflow of FDI to developing countries, including Poland, which has become one of the largest recipients of foreign capital from among the countries of Central and Eastern Europe (Gorynia et al. 2010; Czech, 2016; Wach and Wojciechowski, 2016; Cieślik, 2018a; Cieślik, 2018b; Jirasavetakul and Rahman, 2018; Wyrwa, 2018).

For example, according to the data of the National Bank of Poland, FDI inflow to Poland in 2019 was PLN 50.8 billion, with the largest amount recorded for the Netherlands (31,6 billion PLN), Luxembourg (7,4 billion PLN), Germany (6,7 billion PLN), and Malta (6,0 billion PLN).

Many foreign enterprises consider Poland a very attractive place to invest[3] – this is encouraged by a number of basic advantages that give Poland an edge in competing for the acquisition of foreign direct investment. These advantages include the country's: strategic position in Central Europe (along the route of European transport corridors), economic development rate above many other EU countries, membership in the European Union and related subsidies for supporting the country's development, relatively large market, high and high-quality GDP growth rate, and relatively inexpensive human capital (Budner, 2004; Kłysik-Uryszek, 2010; Kuczewska, 2012; Pietras, 2018). In 2018, foreign investors completed 272 projects in Poland – 6th largest among European countries (EY's

3 Of the ten largest industrial international companies in the world by value of foreign assets in 2017, eight have already invested in Poland (these are: Toyota Motor Corporation, BP plc, Total SA, Volkswagen Group, Exxon Mobil, British American Tobacco, General Electric, Chevron Corporation) (*List of Major Foreign Investors in Poland*, 2017). Assessment of the investment location factors in Poland (prepared cyclically) can be interpreted based on the data contained mainly in two publications: that of the Polish Institute for Market Economics and that of the Warsaw School of Economics (SGH). An analysis carried out by the Polish Institute for Market Economics was able to capture the multidimensional nature of investment attractiveness. In order to reflect it as accurately as possible, several variables were used in the assessment of the spatial diversification of particular benefits (factors) of FDI location such as: transport accessibility, labor costs, volume and quality of labor resources, market capacity, level of development of economic and social infrastructure, level of economic development, overall safety, activities pursued by provinces to attract investors. In the report, developed by a team of experts under the supervision of H. Godlewska-Majkowska at the Warsaw School of Economics (in the College of Business Studies at the Institute of Entrepreneurship), research findings have been published regularly since 2002. The report identifies potential and actual investment attractiveness. The following factors are considered important for the investor: labor-market conditions, equipment in technical and social infrastructure, market situation and natural determinants. On the other hand, assessments of the actual investment attractiveness relate to the inflow of investment capital and investment effects, considered from the point of view of productivity and the efficiency of the outlays incurred.

Attractiveness Survey Europe, 2019). Additionally, Poland ranks 5th in Europe in terms of the number of jobs created as part of foreign direct investment (EY's Attractiveness Survey Europe, 2018).

The problem of premises for locating funds by enterprises with foreign capital has a long history in economic research, including in international economics and international business (Dorożyński, 2018, p. 11). B.B. Nielsen, C.G. Asmussen and C. Weatherall (2017, pp. 62-82) reviewed 153 studies on the determinants of location choice by international companies, published between 1976 and 2015 in renowned scientific journals. However, they focused primarily on the relationship between the choice of location and certain attributes of host economies, e.g. the size of the internal market, the quality of the institution, the rate of corporate income tax, the level of remuneration, infrastructure or human capital resources. Ambiguity, and sometimes even contradiction of the conclusions formulated so far, provides the premise for conducting in-depth research of the factors determining the decision and location of foreign direct investment, in particular at a regional level (Przybylska, 2001, pp. 129-142; Karaszewski, 2004, pp. 140-141; Kola and Kuzel, 2007, pp. 183-184; Stawicka, 2007, p. 148; Lizińska, 2012, pp. 203-205; Nakonieczna-Kisiel, 2018).

The review of research studies shows that, between 1990 and 2017, economic determinants played a key role in the decision-making process of FDI (Karaszewski, 2001; Lizińska, 2012; Stawicka, 2014; Gorynia et al. 2015; Shukurov, 2016; Cieślik, 2017b; Jaworek and Karaszewski 2018). This is also confirmed by the research findings relating to the motives for choosing Poland as a place to locate capital in the form of direct investment. Among them, market and resource motives were of major importance. While market motives can be said to remain as relevant to this day, there has been a significant advancement in the area of resources. In the initial period, their cost advantages were predominant, i.e. efficiency determinants (mainly labor costs), but over time quality determinants (staff qualifications, skills, etc.) took over (Jaworek and Karaszewski, 2018, s. 46-51). A review of research into the determinants of FDI in Poland confirms that the size and structure of FDI that change over time prompt subsequent theoretical and empirical efforts to explain their determinants (Cieślik, 2018c, s. 96). This is due to changes in the perception of the reasons for the internationalization of enterprises and changes in the perception of the importance of these determinants. At the same time, M. Jaworek and W. Karaszewski (2018, s. 42) emphasize that "changes occurring in the motives for choosing FDI locations and differences in motives deciding about the choice of the country and region justify the need for continuous research aimed at identifying these changes from the perspective of time and from different location levels". The results of cyclical research studies carried out by a team of employees at Nicolaus Copernicus University in Toruń, which clearly show the different factors considered by foreign investors in choosing the country and region for locating capital, point to the need for further research of different subjective scope.

Therefore, this study contains an analysis of the main determinants of the inflow of foreign direct investment to Poland.

This article is the first of the two parts of the cycle and covers theoretical considerations regarding the determinants of foreign direct investment, serving as the introduction to the second, empirical part, in which the research results will be discussed.

The aim of the article is to identify the factors determining the inflows of direct foreign investments to Poland. The article was structured so as to best achieve the research goal.

The first part presents the nature and determinants of foreign direct investment. In the second part of the article, the methodology of the designed study is discussed. Conclusions were included at the end of the article.

2. Literature review – The nature and determinants of foreign direct investment

Foreign direct investment is a specific form of international flow. Many different definitions of FDI can be found in the literature, resulting from an evolution in the perception of the purpose of these investments[4] (Bojar, 2008; Kozłowska, 2015; Puchalska, 2016; Kuźmińska-Haberla, 2017). Institutions monitoring FDI inflow rely mainly on the recommendations of the International Monetary Fund (IMF) and the Organization for Economic Cooperation and Development (OECD). Foreign direct investment, as defined by the IMF (2009, p. 100), is "a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy". Therefore, FDI is an investment made with a view to exerting a lasting influence on an enterprise's operations in another country, while the investor's goal is to exert an effective influence on the management of that enterprise (Cieślik, 2005, pp. 24-25; Pilarska, 2005, p. 9; Michałowski, 2006,

4 The ambiguity of the concept results from the degree of detail of individual definitions rather than their economic content.

p. 108; Kozłowska, 2015, p. 16). However, this definition seems too general and it was interpreted differently in different countries, which led to discrepancies in the classification of investments as either direct or portfolio-based (Pilarska, 2005, p. 9). To make the statistical data in international comparisons consistent, the OECD developed a benchmark definition of foreign direct investment. The definition proposed by the OECD defines the essence of FDI more precisely in a quantitative aspect, specifying the lower bound of shares that decide about the nature of the investment. A single foreign investor should control at least 10% of ordinary shares or capital (Witkowska, 1996, pp. 12-13; Grynia, 2017, p. 110).

Having more than 10% of shares implies the existence of long-term relations between a direct investor and an enterprise (direct investment), and therefore a significant degree of influence on the management of that enterprise (Bojar, 2008, p. 16). In line with this approach, FDI is investment that gives rise to long-term correlations reflecting the share of an economic entity of one country in an economic entity of another country, with the immediate goal of the investor being to effectively influence the management of a company operating in a given territory. In addition, the essence of FDI is the transfer of not only capital, but also of work and knowledge (technological, marketing and organizational). The lasting impact of FDI can be achieved through (Mańczak, 2012, p. 229): (1) acquiring the appropriate number of shares of the existing enterprise (10% of the number of shares), (2) taking over the existing enterprise, or (3) launching one's own business from scratch.

From the point of view of EU law (see: Kozłowska, 2015, p. 16), FDI is a form of investment that results in the creation or maintenance of permanent economic relations between a foreign investor and an enterprise, even if it does not lead to control of the enterprise. This confirms that the EU mainly draws attention to the mutual economic ties between member countries. However, individual Member States place particular emphasis on the investor obtaining control over the enterprise, whereas the lower limit of shares in individual EU countries is not identical.

In accordance with the legislation in force in Poland, a foreign entrepreneur is considered to be a foreign person who – similarly to OECD standards – may be a natural person residing abroad and not having Polish citizenship, a legal person based abroad, or an organizational unit based abroad which is not a legal person but which has legal capacity (*Ustawa z dnia 6 marca 2018 r. o zasadach uczestnictwa przedsiębiorców zagranicznych…*).

Overall, it can be assumed that direct investment consists of investing capital in foreign enterprises in order to obtain a lasting influence on the management of its operations and derive relevant profits (Karaszewski, 2004, p. 19). This approach to direct investment clearly shows that FDI is more than just a simple transfer of funds aimed merely at profit. In other words, foreign investors, by placing their capital abroad, exercise control over the activities of an enterprise.

Foreign direct investment may consist of (Karaszewski, 2004, pp. 22-25; Cieślik, 2005, p. 25; Kłysik-Uryszek, 2010, p. 58; Kuźmińska, 2010, pp. 113-114; Kłysik-Uryszek, 2011, p. 15; Organiściak-Krzykowska, 2012, pp. 172-173; Pera, 2012, pp. 144-148; Dorożyński, 2018, p. 30-31): launching independent business activity abroad from scratch (greenfield investments), taking over the management of an already existing enterprise (cross-border acquisitions and mergers), or co-creating a new venture in cooperation with a domestic partner (joint ventures)[5]. Sometimes, brownfield investments are distinguished among acquisitions, whose aim is to transform the acquired enterprise into a completely new unit through the development and replacement of equipment and technologies, and often also human resources and production equipment. Greenfield investments are characteristic of developing countries and rely on the fact that a foreign investor is building a plant in the host country from scratch. On the other hand, investments in the form of mergers and acquisitions are predominant in developed countries and take place most frequently through the acquisition of a controlling interest by one entity in the other or by a joint decision made by both entities on merging their activities, with these entities being located in different countries (Kuźmińska, 2010, p. 113; Romiszewska 2012, pp. 63-64).

The intentions of investors involved in greenfield projects seem to be the most transparent. In their case, FDI consists of launching a branch or subsidiary abroad, a move which – due to the high entry costs and the need to establish a position on the market – is most often implemented by large corporations with an established global or regional brand[6]. Such corporations are prepared, both in

5 This form of investment is characteristic of developing economies. Foreign investors may, thanks to such cooperation, reduce the risk of failure resulting from ignorance of the local market, while the host country gains access to financial resources, knowledge and technologies usually exceeding its domestic resources. The literature provides a detailed breakdown of joint ventures: joint creation – launched from scratch by partners, joint acquisition – takeover of an already existing company, or partial fusion – involving the inclusion of a new partner in an already existing company (Kuzel, 2007, pp. 29-30).

6 The role of the headquarters (main office) sometimes taken over by their strong daughter companies, who gain the status of direct investor by being the supplier of capital and technology.

terms of technology and staff, to operate in a turbulent environment and resist strong international competition, being able to respond promptly to market signals and to flexibly adapt their strategy to the changing environmental conditions.

In summary, FDI is the capital investment made outside the country of an investor's business operation to obtain benefits as a result of business activity conducted there. FDI is understood as those flows of capital abroad that allow the investor to participate directly and sustainably in the management of the entity fed by their capital. An investment is considered to be direct, and an enterprise – foreign-invested, when the investor obtains, either directly or indirectly, at least 10% of votes in the decision-making body of a foreign-invested enterprise (Karaszewski et al. 2016, p. 24; Kisiel and Graszkiewicz, 2018, pp. 34-35).

The importance of foreign direct investment can be measured by the size of its flows, i.e. the value of investments made in individual years, and the size of their stock, i.e. the sum of the cumulative value of investments in the analyzed period. In statistics, FDI flows can be inward (flows into the country, inflows) or outward (flows out of the country, outflows), while resources tend to be analyzed in nominal terms and in relation to GDP (Świerkocki, 2011; Zielińska-Głębocka, 2012, p. 139; Dorożyński, 2018, p. 31).

Currently, several viable economic theories regarding FDI location factors can be found in the literature. These can be divided into microeconomic (explaining the phenomenon of investing from the point of view of the enterprise making this investment) and macroeconomic theories (assuming a holistic view of the economy) (Stawicka, 2008, p. 297). These theories attempt to explain the reasons for the formation of international enterprises and the motives for making investments outside of their country of operation, as well as to indicate the factors affecting the choice of location of their business activity. FDI determinants against the backdrop of selected economic theories are shown in table 1[7].

7 Since these theories have been the subject of numerous studies, the article is mainly limited to indicating them in order to avoid duplication of their description. Cited/selected theories were discussed, among others, in: Geldner (1986, pp. 61-113); Witkowska (1996); Dziemianowicz (1997, pp. 13-27); Oziewicz (1998, pp. 63-106); Przybylska (2001, pp. 49-96); Karaszewski (2004, pp. 31-57); Rymarczyk (2004, pp. 33-56); Cieślik (2005, pp. 107-161); Pilarska (2005, pp. 14-51); Jaworek (2006, pp. 28-52); Michałowski (2006, pp. 108-110); Gorynia (2007, pp. 97-108); Kłysik-Uryszek (2010, pp. 60-64); Kuźmińska (2010, pp. 114-116); Wawrzyniak (2013); Kozłowska (2015, pp. 24-77); Cieślik (2017b, pp. 175-183).

Table 1. Determinants of FDI location according to selected economic theories

Theory	Author
Eclectic theory of international production referred to as the OLI paradigm (Ownership-Location-Internalization)	J.H. Dunning
John H. Dunning divided the factors that influence the decision to internalize production into three groups: (O) ownership of specific advantages, (L) location of specific advantages, (I) internalization of specific advantages. The source of the first advantage, i.e. resulting from ownership, may include resources and skills in the form of: proprietary technology, patented trademarks, knowledge and experience in management and marketing, or market entry control. These advantages may also spring from the size and position of the enterprise, product diversification, division of labor and specialization, monopoly, better equipment in resources and their better use, as well as exclusivity or privileged access to specific factors of production or market outlets. The second type of advantage concerns location. If a country does not benefit from market-specific conditions (size and prospects of market development in a host country), costs (availability of human and natural resources, knowledge and cost of these factors, as well as the amount of transportation costs) or efficiency (level of education among workers and employees), plus there is no favorable investment climate (macroeconomic and political stabilization, high-quality institutions, an investment incentives package, appropriate transport and ICT infrastructure), a potential investor has no incentive to found a branch there and the market of this country is most often serviced by means of exports. The third group stems from internalization and is related to firm-specific advantages, which should ensure the enterprise's greater profits by conducting transactions inside the company than through licenses or direct sale of patents, turn-key projects or export of final products. Premises for these advantages are to be sought in various manifestations of market failure, especially in the field of intangible assets.	
Location theory	J.H. Dunning, A.M. Rugman, P. Tesch
The most important premise that encourages enterprises to directly invest abroad is the possibility to compete thanks to the location of production in a region and the physical presence of the enterprise in that market. The location theory correlates FDI with the competitive advantages of a country or region, which has a positive impact on the development of enterprises and provides location advantages. This, in turn, enables enterprises to gain a competitive edge in the area of disposal on foreign markets, price advantage, as well as economies of scale and scope. The location theory seeks to identify factors that determine both favorable and unfavorable geographic areas for conducting business activity. The most important determinants of a country's or market's advantage are: spatial distribution of factors of production and markets, scope and nature of state investments, favorable investment climate, i.e. economic (sales market, resources of production factors, costs of obtaining them), legal (economic regulations), social (local lifestyle, regional culture, language skills) and political (political stability and related risk of investment), labor quality and productivity, transport and communication costs, condition of economic, transport, institutional infrastructure etc. in a host country, appropriate attitude to language, cultural, religion barriers, etc., advantages pertaining to the scale of R&D, as well as in the area of production and sales. The combination of a company's ownership advantage and a potential host country's location advantage becomes the premise for internationalization of the enterprise.	

Product life-cycle theory	R. Vernon
The theory assumes the existence of three stages of product development: innovation (introduction), maturity and standardization(saturation), presenting the accompanying changes in the location of production. In the first stage, a product subject to technological and functional modifications is produced in a small quantity in the home country, which is highly developed economically. At the end of this stage, small exports to countries with similar (high) level of economic development commence. In the second stage, in which the product is no longer considered an innovation, the company strives to achieve economies of scale by switching to mass production and locating plants in subsidiaries in economically developed countries. In turn, the stage of saturation is when research and development become less important, prompting production to be moved to developing countries where the costs of factors of production are lower.	
Theory of comparative advantage	K. Kojima
K. Kojima divided FDI into two types. The first was the so-called Japanese model, in which FDI supports trade and results from changes in individual countries in the shaping of labor and capital costs. Because of this, production of certain goods is moved from economies characterized by relatively high labor costs to those where the cost factor is relatively low. The second type of foreign direct investment is trade-inhibiting investment, made in connection with the company enjoying monopolistic or oligopolistic advantages (the American model). This type of FDI is therefore based on microeconomic factors.	
Theory of currency areas (Currency premium theory)	R.Z. Aliber
FDI is a byproduct of the presence of various currency and customs areas performing to a certain extent the decision-making function, while the position of the currency and the amount of duty in a country affect the choice of the place of production. FDI is a natural effect of the different purchasing power of individual currencies on the international money market. FDI flows should originate from countries with strong currencies and be directed towards countries with a much weaker currency position, which means that their assets on the deposit market are capitalized at a higher rate than the assets of local enterprises.	
Theory of working out investment position in foreign markets	J.H. Dunning
The theory explains decisions of locating foreign direct investment by means of the level of economic development of individual countries. J.H. Dunning finds a correlation between investment position in foreign markets, i.e. the net size of these investments per capita, and the level of economic development measured by the amount of national income per capita.	
Ownership advantage theory	S. Hymer, R.E. Caves, F.T. Knickerbocker, J.H. Dunning
An important premise of foreign expansion implemented by a company lies in having a certain advantage, as well as permanently disposing of the possibility of using, or appropriating, this advantage. This advantage should be important enough to allow for neutralization of a better head start of enterprises in the investment location, simultaneously anticipating a similar strategy of the competitor - rival.	

The authors of this theory assume that the greater the ownership of an enterprise, the stronger its position on the international market and the greater incentives to internalize these advantages will be, which may then lead to takeovers or merging with foreign companies to further increase ownership over competitive enterprises..	
Internalization theory	P.J. Buckley, M. Casson, S.P. Magee, A.M. Rugman
The theory refers to a hypothesis that all direct investments and the founding of multinational enterprises are the result of market imperfections and the replacement of the external market by the internal one. This concept is based on transaction costs theory, according to which transnational enterprises wanting to avoid additional costs (e.g. costs of talks and negotiations, cost of price determination, administrative fees, cost of defining partners' obligations, transaction risk price, etc.) when concluding market transactions employ foreign direct investment, as it is more advantageous to make internal transactions within the same economic entity, i.e. to internalize economic activities. Internalization of an enterprise depends on the strength and directions of impact of factors such as: branch specificity (e.g. market structure, product type, etc.), national specificity (e.g. political system, tax system), regional specificity (that is, geographical location, difference in culture, language and religion), enterprise specificity (i.e. experience in the field of management and marketing).	

Source: own elaboration based on the sources provided

Numerous studies show that reasons for making foreign direct investments change along with the change in the value of incoming investments, as demonstrated by W. Lizińska (2012, p. 684) in her research. Analyzing the current economic trends, it seems clear that the significance of some of the "traditional" factors decreases and their hierarchy changes. An argument can be put forward that "qualitative" factors (market size, workforce, etc.) are replaced in high-growth regions by "qualitative" factors (qualifications, level of technological development) (Siuta, Litwa, 2006, p. 313; Puchalska, 2016, p. 90).

3. Research methodology - Theoretical model and selection of variables

The first stage in analyzing the motives of foreign investors was their identification based on the literature and distinguishing specific groups of themes among them. The subsequent stage focused on determining the cause-and-effect relationship between the scale of inflow of foreign direct investment (response variable) and selected macroeconomic parameters of the economy (explanatory variables) (Markowicz, Miłaszewicz, 2007; Cieślik, 2017a).

The exploration stage was carried out from behind the desk and served to identify the state of knowledge regarding the timeliness and legitimacy of considering selected factors determining FDI inflow. Its purpose was to justify the need to undertake research, identify the current state of knowledge, identify the limitations of current scientific achievements, pinpoint knowledge gaps, as well as to recommended directions for further research and identify basic operational and measurement assumptions for explanatory research. This was made possible by the systematic literature review (Czakon, 2011) enabling a critical, objective synthesis of scientific achievements in the selected research area (Klimas, 2019). The literature addressing the factors determining the inflow of FDI was collected based on: (1) publications indexed in the largest international electronic databases containing peer-reviewed papers published in social science journals, i.e. Ebsco, Proquest and Web of Science; (2) grey literature publications, available on the SAGE Knowledge platform and by using dedicated search engines for both peer-reviewed and non-referenced papers (including Research Gate and Google Scholar). The implementation of the first part is a preliminary stage for the pursuit of proper research aimed at solving the formulated research problem.

The timeliness of the research problem at hand implies the need to pay special attention to the appropriate design of the research process As the literature indicates, decisions made at the design stage of research, and further diligence in implementing those decisions, determine not only the quality of the research project itself (Czakon, 2016), but more than anything, the credibility of the conclusions drawn on their basis (Niemczyk, 2015) .

The subject of empirical testing performed in this paper will be the following detailed research hypotheses derived from the theoretical model combining market and resource motives for FDI:

Hypothesis 1: The number of international enterprises and the value of share capital at the disposal of foreign-invested companies in a province are positively correlated with market size.

Hypothesis 2: The number of international enterprises and the value of share capital at the disposal of foreign-invested companies in a province are negatively correlated with labor costs.

Hypothesis 3: The number of international enterprises and the value of share capital at the disposal of foreign-invested companies in a province are positively correlated with workforce quality.

Hypothesis 4: The number of international enterprises and the value of core capital at the disposal of foreign-invested companies in a province are negatively correlated with workforce availability.

Due to the complexity of the theoretical construct under consideration, a combination of different cognitive and methodological approaches was adopted. The conceptualization of dependencies between the researched variables considered in the designed research is illustrated on diagram 1. The proposed model was designed on the basis of literature research and it is a conceptualization of the relationship between the variables indicated.

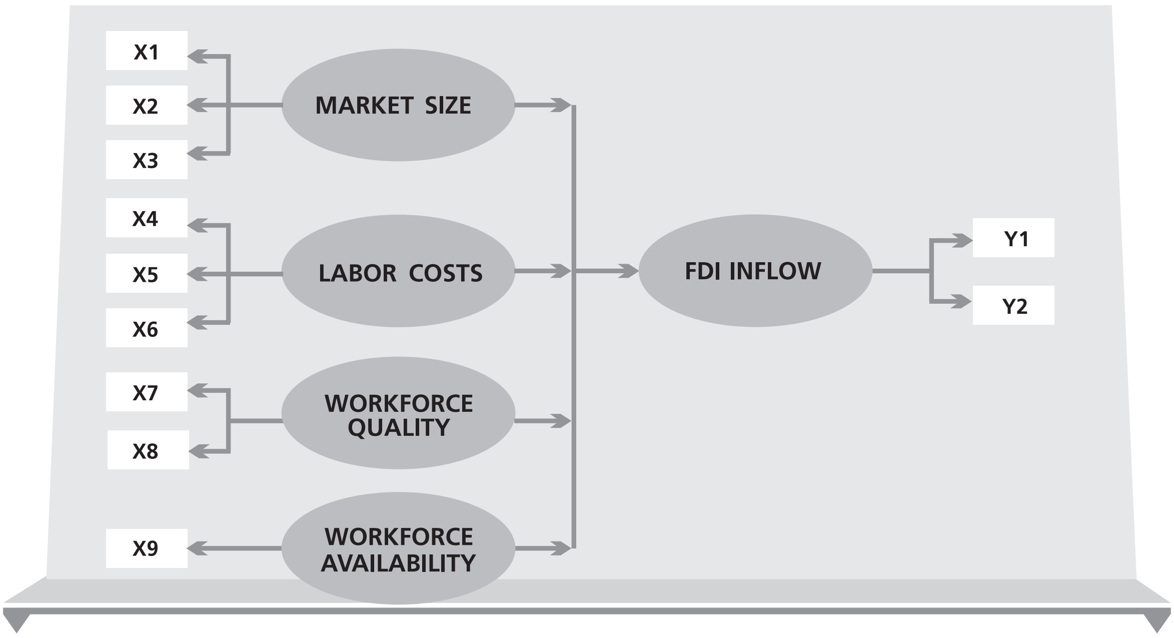

Figure 1. Determinants of the inflow of foreign direct investment to Poland – conceptual model

Source: own study

The choice of explanatory variables in the model was dictated by the attempt to include the most frequently researched determinants of foreign direct investment. The dependent (response) (y) variable, representing the level of inflow of foreign direct investment to Poland, was expressed by the number of active foreign-invested enterprises in a given year and the value of the share capital at the disposal of foreign-invested enterprises. Meanwhile, the independent (explanatory) (x) variables are indicators illustrating the most important determinants for the location of foreign direct investment in Poland. The following variables were assumed as explanatory: market size, labor costs, and the quality and availability of labor (table 2).

Table 2. Indicators describing FDI determinants

Symbol	Indicator name	Indicator characteristics	Indicator representing category
X1	GDP	stimulant	market size
X2	GDP per capita	stimulant	
X3	population	stimulant	
X4	average monthly gross wage	destimulant	labor costs
X5	labor productivity per one employee	stimulant	
X6	compensation of employees	destimulant	
X7	number of students per 10,000 residents in a region	stimulant	workforce quality
X8	share of R&D employees in total employees	stimulant	
X9	unemployment rate	destimulant	workforce availability

Source: own elaboration

Empirical studies employ several different measures to determine the size of the market, although these are most commonly GDP and GDP per capita. Some researchers also try to obtain the value of this variable by referring to the size of the population of a studied area (Resmini, 2000; Wei, 2000; Habib and Żurawicki, 2002; Johnson, 2006). As noted by A. Chakrabarti (2001, p. 98), GDP and GDP per capita show two different aspects of market size. While absolute GDP reflects the total size of the population, GDP per capita represents the level of income and the related quality of demand (the higher GDP per capita, the greater should be domestic demand for more advanced goods and better quality) (Johnson, 2006, p. 17). Thus, GDP per capita reflects not only the level of income, but also the quality of demand in the sense of increased demand for more advanced and higher-quality goods (Wawrzyniak, 2010, p. 92). A. Chakrabarti (2001) additionally points out that the variable representing the size of the host market appears almost in all empirical studies related to FDI determinants.

In this study, market size was reflected in the value of GDP at current prices, and its absorptivity – in the population, GDP per capita, and the gross household income per capita. A larger host market enables the simultaneous operation of a larger number of business entities (both domestic and foreign), thereby achieving economies of scale and increasing the likelihood of breaking even in terms of investment costs. In view of the above, a positive impact of the size of a host market on FDI is anticipated (Zhang, 2001; Erdal and Tatoglu, 2002; Janicki and Wunnava, 2004; Buch et al. 2005; Clausing and Dorobantu, 2005; Kirkpatrick et al. 2006; Bellak et al. 2008).

However, in relation to the variable reflecting/approximating labor costs, a negative impact on FDI is expected (Carstensen and Toubal, 2004; Janicki and Wunnava, 2004; Bellak et al. 2008). Higher labor costs mean a decrease in the profitability of a potential investment and therefore discourage FDI[8]. Having said that, empirical studies reach markedly varied conclusions. They indicate both the existence of negative and positive correlations, but also the lack of a statistically significant influence of labor costs on FDI (cf. e.g. research overview presented in: Chakrabarti, 2001; Zhang, 2001; Hilber and Voicu, 2006; Wawrzyniak, 2010, 2013). Labor costs are the most controversial of all potential FDI determinants. This is because, although in theoretical approaches there is agreement on the importance of cheap labor in attracting transnational corporations, a large disparity is nevertheless observed in empirical research findings – some argue that higher labor costs in a host country reduce the size of FDI (Bellak et al. 2008; Sakali, 2013), others suggest a lack of correlation whatsoever, while still others find there is a positive correlation (Bénassy-Quéré et al. 2005; Boudier-Bensebaa, 2005; Wawrzyniak, 2013). In the study, labor costs were expressed by the average monthly gross wage and labor productivity per employee, and a negative relationship was established between FDI inflow and labor costs.

Another factor taken into account in the analyses is the quality of the workforce. When high, workforce quality not only leads to increased production, but also enables the implementation of activities that use advanced technologies. This is particularly important for capital-intensive FDI, targeted at a qualified workforce. Therefore, areas marked by higher workforce quality should expect higher inflows of FDI compared to those where the quality of the workforce is low. In the study, the number of students per 10,000 residents in a region was used as the measure of workforce quality. The availability of qualified employees

8 A higher unit labor cost means a higher marginal cost, and consequently, a lower FDI inflow (Bellak et al. 2008).

can significantly increase competitiveness of a host country in the international market, which is pivotal in attracting foreign direct investment (Quazi, 2007, p. 60). Given that the majority of empirical studies support the concept that higher workforce quality attracts FDI, a positive impact is anticipated.

Having said that, availability of labor force is an FDI determinant that is relatively rarely considered in empirical research. To measure it, the unemployment rate is used. However, there is no agreement in the literature on the direction of the influence of this variable on FDI. On the one hand, higher unemployment means easier access to manpower resources, making employees value their current employment more and being more willing to work for lower wages (compare: Billington, 1999, pp. 66-67). On the other hand, high unemployment may lead to an erosion of skills (Billington, 1999, p. 67), be a symptom of labor market rigidity for international enterprises (e.g. related to minimum wages or low spatial mobility) (compare: Boudier-Bensebaa 2005, p. 615), or signal the existence of less competitive conditions and a lower quality of life (Hilber and Voicu, 2006, pp. 13-14; Wawrzyniak, 2017, p. 58). In the study, the unemployment rate was to reflect the availability of the workforce. Despite the previously indicated disagreement in the literature with regard to the direction of the influence of this variable on FDI, it was assumed that a lower unemployment rate attracts FDI. Therefore, a negative impact is anticipated.

Due to the complexity (Dyduch, 2015) of the considered constructs determining the specifics of the research model, a decision was made to apply structural equation modeling (SEM) as a method of testing hypotheses, which in turn had an impact on variable measurement methods (Światowiec-Szczepańska, 2015; Bedyńska and Książek, 2012). The method enables measuring and testing the directional relationship occurring between complex multi-dimensional theoretical constructs such as those assumed in the model. The structural equation model describes and empirically tests causal relationships - between manifest and latent variables - identified against the backdrop of previous theoretical or partial empirical research. Unlike multivariate regression, it adopts the confirmatory, rather not exploratory, approach to raw data analysis. In addition, SEM, in contrast to multivariate regression, allows simultaneous estimation of a series of separately conducted but interrelated multiple regression equations. Importantly, the variable captured in the model can play the role of an independent and dependent variable in relation to other variables included in the model (Hair et al. 2014).

In a structural equation model, multiple regression coefficients called path coefficients are determined and interpreted. The higher the value of the path coefficient, the greater its impact on the phenomenon under study. Other important model coefficients are: random component variance showing how many variances of the response variable have not been explained by the model and the coefficient of determination (square of the multiple correlation coefficient) R^2 taking values from 0 to 1, expressed as a percentage - shows the percentage of variance explained by explanatory variables. The coefficients are the parameters of a structural equation model.

In addition to the adequacy of SEM in relation to research assumptions, attention should be paid to the particular values exhibited in social science such as the possibility of conducting a precise multidimensional and multivariate analysis of empirical data and confronting theoretical assumptions with empirical data more effectively than in the case of conventional regression and econometric methods (Januszewski, 2011).

During the quantitative analysis of empirical data, modeling will proceed in accordance with the generally accepted analytical procedure divided into two stages (Klimas, 2019; Światowiec-Szczepańska, 2015): (1) design and testing of the measurement model, and then, (2) construction and testing of the structural model.

5. Conclusions

The proposed research concept will allow supplementing and extending the analysis of FDI determinants in Poland. Based on the theories and results from previous research, a model was developed in which the variables and the nature of their relationship were determined. The model is based on four latent exogenous variables describing FDI determinants and one latent endogenous variable describing FDI inflow. In the article, structural equation modeling was indicated as a method for analyzing the factors conditioning the inflow of foreign direct investment. It enables the testing of the hypotheses on the basis of theoretical considerations of the correlations between individual variables regarding both their occurrence and their strength and direction. Structural equation models are generally similar to multivariate regression models, but are more flexible when describing interactions between variables. The main advantage of structural equations is the simultaneous consideration of observable, explicit, measured variables and unobservable variables, while its disadvantage is that it fails to meet the condition of the cause preceding the effect in time.

Due to editorial constraints, the results of model testing will be discussed in a separate article.

Summary

Analysis of determinants of the inflow of foreign direct investment to Poland. Part I – theoretical considerations

This study contains an analysis of the main determinants of the inflow of foreign direct investment to Poland. This article is the first of the two parts of the cycle and covers theoretical considerations regarding the determinants of foreign direct investment, serving as the introduction to the second, empirical part, in which the research results will be discussed. This study focused on determining the cause-and-effect relationship between the scale of inflow of foreign direct investment and selected macroeconomic parameters of the economy. Based on the theories and results from previous research, a model was developed in which the variables and the nature of their relationship were determined. The model is based on four latent exogenous variables describing FDI determinants and one latent endogenous variable describing FDI inflow. In the article, structural equation modeling was indicated as a method for analyzing the factors conditioning the inflow of foreign direct investment. The proposed research concept will allow supplementing and extending the analysis of FDI determinants in Poland.

Keywords: *foreign direct investment; investment location; FDI in Poland; statistical analysis.*

Streszczenie

Analiza uwarunkowań napływu bezpośrednich inwestycji zagranicznych do Polski. Część I – ujęcie teoretyczne

Artykuł poświęcony jest analizie głównych motywów warunkujących napływ zagranicznych inwestycji bezpośrednich do Polski. Stanowi pierwszą z dwóch części cyklu i obejmuje rozważania teoretyczne dotyczące determinant podejmowania bezpośrednich inwestycji zagranicznych, będąc tym samym wstępem do drugiej części – empirycznej, w której omówione zostaną wyniki badań. Badania koncentrowały się na określeniu związku przyczynowo-skutkowego między skalą napływu bezpośrednich inwestycji zagranicznych i wybranymi parametrami makroekonomicznymi gospodarki. Na podstawie teorii oraz wyników dotychczasowych badań zbudowano model, w którym określono zmienne i charakter relacji między nimi. Model bazuje na czterech ukrytych zmiennych egzogenicznych opisujących determinanty BIZ oraz jednej ukrytej zmiennej endogenicznej, tj. napływ BIZ. W artykule do analizy czynników warunkujących napływ bezpośrednich inwestycji zagranicznych wskazano metodę równań strukturalnych. Zaproponowana koncepcja badawcza pozwoli na uzupełnienie i rozszerzenie analiz dotyczących determinant BIZ w Polsce.

Słowa kluczowe: *bezpośrednie inwestycje zagraniczne; lokalizacja inwestycji; BIZ w Polsce; analiza statystyczna.*

JEL Classification: F21; F23; F62; R15

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