

*Andrzej Buszko*  
*University of Warmia and Mazury in Olsztyn*

## **DOES THE SHADOW ECONOMY AFFECT FOREIGN DIRECT INVESTMENT? CASE STUDY OF POLAND AND POLISH REGIONS**

*The main goal of the research was to identify the relationship between the level of shadow economy and Foreign Direct Investment. The research was carried in Poland and Polish regions during 1990-2020. MIMIC approach was employed to calculate the level of shadow economy as a % of Polish and regional GDP. Pearson correlation index and Kolmogrov-Smirnov test were applied as well. The study proved there is a sound negative correlation (-0,636) between the shadow economy and foreign direct investment in Poland, but regional associations between those two variables demonstrated different results. Unlike in other Polish provinces, in Opolskie and Podkarpackie the correlation index confirmed a positive association between the level of shadow economy and FDI flow.*

**Key words:** shadow economy, foreign direct investments, regions, transformation, macroeconomic situation

**JEL Codes:** E26, D52, E02

### **Introduction**

Foreign Direct Investment (FDI) draws attention not only of economists but politicians and academics as well. Not every country can attract FDI and the effects of FDI have been discussed from many perspectives. Generally, FDI is regarded to be positive from the host country standpoint. It is commonly believed that overseas investors deliver technology, capital assets, access to international markets, and new management strategies. In this way, the host country can reduce the economic gap between well-developed and less-developed states (Faeth, 2009). Usually, researchers try to discover the motivations behind the flow of FDI.

Porto and Hoekman (2010) assert that the main factors fostering FDI relate to labor costs and access to natural resources. Whenever labor costs are low and foreign companies can gain the possibility to buy cheap raw materials, they will be more willing to invest in such a country. Vaseyechko (2012) points out the overall macroeconomic situation in host countries. If the macroeconomic situation improves, FDI goes up. Moosa (2002) refers to the earlier Markowitz (1991) work and argues that FDI is a suitable approach to minimize risk due to the diversification of market operations. Denisia (2010) developed this idea and postulated that FDI would expand whenever the benefits of offshore activity were higher than the costs of functioning in the mother country. Dunning and Lundan (2008) coined the OLI model [Ownership (O); Location (L) and Internalization (I)]. In this respect government policy is the essential issue. The authors point out that foreign companies should be granted at least similar conditions to

those they are given in their own country. This makes for fair business opportunity and investors can enhance export capabilities.

Internationalization of business is a crucial feature for companies both local and foreign. If they focus just on local markets the opportunities for growth are very limited. This view is shared by Hymer (1976) who was sure that companies preferred to invest overseas whenever they could exploit unique business advantages. Usually there is harsh competitiveness in well-developed market-oriented economies, therefore some companies are pushed away. Their skills may be employed more successfully abroad.

Krugman (1998) explained the location theory of production. In a way this idea refers to classical location theory. It explains the mechanism of the new economic geography (NEW). Krugman categorized two main groups of factors shaping NEW. The first group includes centripetal forces like market size, labor, general economic situation. The second - centrifugal characteristics like land rents, immobile assets and external features. In this way Krugman gave birth to a more sophisticated approach of FDI. He made an assumption of the new growth theory in respect to imperfect competition, as well as a new trade theory.

Whenever companies follow the path of increasing returns, they do not obey equal circumstances of business handling. The typical problem relates to transaction costs, especially those associated with information. Every time transaction costs are supposed to be low, FDI is going to increase. Dixit and Stiglitz (1977) explained the flow of FDI by the monopolistic assumption. Companies invest more willingly in those regions where they can gain sound market share. In such a situation, investors occupy a favorable place and they can multiply their profits. Kinoshita and Campos (2006) neglected those considerations. They claim that the quality of institutions in the host country is the main factor tailoring FDI. Foreign investors frequently follow transparent modes of business and prefer to obey regulations that are already in place. If institutional order is opportune, FDI will increase. This view is especially important for countries under economic transformation. If they introduce a proper institutional order that is similar to market oriented, democratic and well-developed countries, they can expect higher FDI flow (Navoi, 2008).

Some researchers and academics prefer to analyze the flow of FDI against the background of international trade theories (Graham, 1996, Helpman, Melitz, Yeaple, 2003). Companies, especially big ones, do not rely just on a single market – generally they are export-oriented. They try to be closer to their final clients and can exploit local labor forces – usually taking into consideration the level skills to the costs that are borne. In this respect Poland proves to be an attractive FDI destination. Poland can offer a well-educated, skilled labor force for moderate costs. In this way both final export products and services become cheaper and stay attractive on the international markets. Moreover, the quality is kept on a high level.

Aliber (1970) forwarded the currency strength theory. He researched countries with weak and strong currencies and analyzed the level of FDI. He proved that a country with weaker currency is more attractive for foreign investors, since the capitalization rate is higher. It is possible to argue with this approach since Aliber studied only Canada, USA and United Kingdom. Those countries represent matching economic models and have similar institutional orders. The situation will likely differ when dissimilar economies are evaluated. The currency rate is not the only important factor shaping FDI levels.

Referring to FDI theories, the consideration of perfect and imperfect markets should have been highlighted as well. The first approach was demonstrated by MacDougall (1958) and later on by Kemp (1964). They focused on a marginal productivity approach, asserting that a higher level of productivity attracts foreign capital. Whenever the marginal productivity of capital is equalized, then FDI will stop. The theory of the perfect market is based on neoclassical assumptions and builds from the position that each product or service is perfectly elastic, and that market equilibrium is determined by the price node of demand and supply. Each producer is then forced to follow the market equilibrium price since a higher price would bring no sales. Perfect market theory is commonly criticized due to many important annotations. Profit margin is not the only imperative factor fostering producers' market behavior. Thus, market equilibrium does not exploit the collective income of the industry as a whole (Nomidis, 2016). Companies do not adjust their production capabilities according to price equilibrium, and costs of production can vary. Therefore, profit margins differ among firms both domestic and foreign. The similar costs of market entry are just theoretical assumptions since companies try to exploit their unique competencies as much as possible and attempt to gain a monopolistic market position. So, any discussion of the perfect market should also address the monopolistic character of competition. Which is why some researchers, such as Caves (1971), support imperfect market theory as the main driver shaping foreign direct investments. Markets behave in sophisticated ways and each individual company, especially those operating overseas, is going to gain market advantage. Based on this approach each individual company creates its own incomparable strategy which makes the company exceptional in the market.

Imperfect market theory produced interesting ideas, such as: heterodox economics, game theory, transaction cost approach, behavioral-empirical concepts, experimental economics, industrial organization, neuroeconomics and more (Buckley, Casson 1976; Dunning, 1988).

Perfect market theories ignore the shadow economy, where market equilibrium is violated by companies operating illegally. They deliver products and services usually below market price equilibrium and legally functioning companies cannot cope with their counterparts. Whenever the shadow economy operates at a high level and occupies a sound place in the market niche, the sanctioned price equilibrium is difficult to achieve.

Some economies face big problems with informal activity and have most social motions supported by the shadow economy. Venezuela is a typical case. In Venezuela perfect market theory does not apply. In other countries, the shadow economy is a characteristic feature of conducting business. Its level can remain remarkably high and constitute more than 60% of a country's GDP – therefore the shadow economy affects and modifies the business environment significantly (Buszko, 2021).

### **Methodological assumptions**

The level of shadow economy for 1990-2020 was calculated employing an MIMIC approach. This technique is recognized, accepted and widely applied to evaluate the level of shadow economy in market-oriented economies. MIMIC technique is based on the structural equation model. It consists of statistical relationships among latent

(unobserved – the level of shadow economy) and evident (observed) variables. The following observed data were accepted in the research: GDP per capita, unemployment rate, number of private companies, medium paid salary, social transfers, GINI index. The data was accurately filtered to avoid redundant statistics. The Pearson correlation index was used to check the correlation between independent variables. The Index was calculated in the following way:

$$r_{xy} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\sum_{i=1}^n (y_i - \bar{y})^2}}$$

Since it is based on the method of covariance, the index is assumed as the best approach of measuring the relationship among assumed research variables. It gives information about the magnitude of the correlation, as well as the direction of the relationship. The Kolmogorov–Smirnov (KS) test for normality of residuals was applied and was calculated by the formula:

$$F_n(x) = \frac{1}{n} \sum_{i=1}^n I_{X_i} \leq x$$

KS is a nonparametric test of the equality of continuous one-dimensional probability distributions that can be used to compare a sample with a reference of probability distribution.

The following hypothesis was taken: There is a negative correlation between the level of shadow economy and foreign direct investment both in Poland and in Polish regions.

Statistical software was used to carry out the calculations.

## **Barriers and opportunities for foreign direct investment: the case of the shadow economy – literature review**

Literature devoted to FDI has focused on hurdles and prospects as well as effects of capital flow. However, researchers do not pay much attention to the shadow economy itself, but rather emphasise the characteristic features that constitute motion of the shadow economy. The shadow economy exists in any country and just varies in its level and category (Feige, 2015). The shadow economy affects many important spheres of legal activity. It causes inefficiency and limits fair market play. Those who are involved in the shadow economy occupy better market position and are favored not due to their skills and knowledge, but because they are able to rely on informal relations. The shadow economy deprives legal businesses and fosters corruption and internal debt; it also decreases poverty, as well as unemployment. Schneider and Hametner discovered a positive relation between the size of the shadow economy and GDP growth. The study was carried out in Colombia. They found that the shadow economy upgraded GDP progress (Schneider, Hametner, 2007). The shadow economy is a challenging economic category and is difficult to measure, (Williams, Schneider, 2016). Adair (2017) proved that the shadow economy displayed large discrepancies throughout the European Union. Daron and Dell (2010) go a step further - claiming that the shadow economy causes problems in regional development (2010). Mara (2011) noted that the shadow economy devastates legal activity and reduces the level of FDI. Westerlund and Edgerton (2007)

pointed out that a high level of shadow economy negatively affected foreign capital flows. The same standpoint was shared by Lee and Park (2013). Their exploration proves that countries with better institutional order and a low level of shadow economy attract better foreign direct investment than do countries with weak institutional quality and a high level of shadow economy.

Tanzi (2002) notes that the shadow economy negatively affects all business activity (including FDI) due to the high level of uncertainty. Deilami (2010) voices the opposite opinion. He highlighted the relation between tax avoidance, shadow economy and FDI. Based upon his research it could have been stated that the shadow economy assured good tax avoidance and that foreign investors would exploit this opportunity very skillfully. Davidescu and Alecsandru (2015) studied FDI in Romania in respect of the shadow economy. They found unidirectional causality between FDI and the shadow economy. However, they also proved that FDI, especially over the longer run, required a relatively small level of shadow economy motion.

Some researchers, especially in early studies (Leff, 1964; Leys, 1965; Huntington, 1968) assert a positive relation between corruption and business activity. They claim that the corruption could have been treated as “grease for the wheel” that clearly supports economic motion. Abotsi (2016) analyzed the impact of corruption on foreign direct investment. He created a simple but interesting model of the relation between corruption and FDI, arguing that the quality of institutional order in the host country amplified the rate of capital return. The quality of institutional solutions shapes productivity and whenever the return of capital was higher than the institutional level of quality, corruption did not affect FDI. This is contrary to situations when the return of capital is beyond this level. In such cases, corruption hammers FDI. Overall, a high quality institutional order reduces corruption.

Dreher and Gassebner (2013) discussed corruption in very regulated business environments. They coined it “overregulated settings” and they were pretty sure that corruption enhanced creativity as well as entrepreneurship. It might also support foreign direct investment. Based upon corruption, entry to the host country may be reduced and foreign companies will be not overly taxed. The due taxes will be preserved by corruption. In such a case the investor needs to calculate the level of corruption (measured by bribes) and profit returns. Whenever profit returns are higher than the level of corruption, still the risk of foreign direct investment reduction is limited (Lianju, Luyan, 2011). Lianju and Luyan have not mentioned that some internationally recognized companies follow ethical business practices and do not pay bribes. So, foreign investors should be divided into two groups. The first includes those who employ bribes as normal business practice and the second are those who avoid doing this. Countries with higher levels of corruption lose the second group of investors and overall capital flow is narrowed. Aidt (2009) posited interesting results from his studies. He investigated the relation between value added and corruption. Aidt found a negative correlation between these two factors. This may have serious ramifications for both the host country and foreign direct investment. The host country will be not benefit from high know-how investment flow, and investors cannot expect a high level of value added. That means investors will be more eager to transfer old technologies, and the host country’s expectation of technology gap reduction will be not met. Investors will deliver products or services just to corrupted markets.

Sustainability proves to be another interesting feature fostering foreign direct investment. Well-developed countries pay close attention to sustainable growth. Companies are forced to abolish aggressive strategies that neglect the environment and threaten the existence of the global environment and future generations (Mebratu, 1998). They should spend more money for environment protection, reducing fossils consumption of fossil raw materials and following strict manufacturing regulations related, for example, to pollution (Neumayer, 2003). Large shadow economy motion can attract those investors who do not care about sustainability. They exploit raw materials without any restrictions and do not follow any norms regulating the standards of manufacturing. In this way foreign investors can very easily multiply their profits. Such a path is noticed even by recognized multinational companies. Especially, chemical as well as wood processing firms choose countries where sustainable growth does not play an important role and which are associated with a high level of shadow economy performance.

Saravia, Canavire-Bacarrez and Rios-Avil (2012) focused on the very important issue relating to intellectual property rights, shadow economy and foreign direct investment. They constructed both a theoretical model and conducted empirical analyses. Research showed that whenever intellectual property rights are violated, especially in the shadow economy countries, it reduced the flow of international capital.

Those results seem to be obvious ones, unless the problem of speculative capital flows is raised. Speculative capital flows generally are short-term oriented and they cannot be considered with "pure direct investment". International speculators generally transfer their assets to those markets where they can quickly (even based on hourly transactions) realize their profits (Reinhart, Rogoff, 2009). The situation changes significantly when the origin of speculative capital is traced. Frequently the capital is created in an unlawful way and seeks opportunities for legalization. There are many possibilities to do this, but without any doubt foreign direct investment may be employed both in countries with high and even moderate levels of shadow economy. It can be argued that the more problematic the origin of speculative capital, the more investment is directed to countries heavily affected by shadow economy motion. The change of assets category is a convenient way to legalize capital. Moreover, it provides prospects for transferring legal money (in the form of earned profits based upon FDI) to any other country. This statement aligns with the research of Nikopour, Habibullah, Schneider and Law (2009). They analyzed 145 countries and five periods covering the years 1999/2000, 2001/2002, 2002/2003, 2003/2004, 2004/2005. They asserted the result that FDI produced a shadow economy. Unfortunately, they did not trace the origin of capital: legal capital hesitating to operate within the shadow economy framework, versus illegal capital.

This is why those two types of capital and foreign direct investment patterns should have been distinguished. Goel, Ram, Schneider, Potempa (2020) studied the correlation between FDI and the shadow economy and exposed a slight positive 0,15 association between these two variables. In other words, it means that the growth of FDI supports enlargement of the shadow economy.

## Foreign Direct Investment Flow to Poland

Starting from 1990 when market-oriented reforms were introduced, Poland has enjoyed a tremendous flow of FDI. Even though the level of foreign capital has been increasing, it varies in its structure and origin. By 2020 FDI in Poland exceeded \$240 billion, which accounted for 25% of the external capital transferred to Central and Eastern European countries.

By 2010 based upon foreign capital nearly 25 000 companies started their operation in Poland, and they represent owners from 107 countries. The medium capital flow to Poland on a yearly basis varied between \$11-15 billion USD and constituted 40% of GDP (Rocznik Statystyczny, 2020). This figure is close to well-developed market-oriented economies, even though their GDP both in real and per capita terms are far higher than in Poland. Foreigners are mainly involved in green field investment or purchasing existing local companies. 70% of investors come from Germany, USA, France, Italy, Japan, Netherlands, Switzerland, Austria.

Privatization was a very crucial factor that encouraged overseas firms to come to Poland. The market size, access to skilled and well-educated workers, central localization and liberal approach to economic development offered challenging opportunities for growth. In 2020 the assets of foreign companies increased to \$415 billion. The biggest company in the respect of assets is French Orange – a giant in the telecommunications industry in Poland. The second place belongs to ArcelorMittal group, formally registered in Luxemburg, which was formed by a merger between the Spanish firm Arcelor and Indian Mittal family. ArcelorMittal Poland controls the steel manufacturing industry in Poland. The third place is occupied by the Porsche-Piëch group, engaged in motor vehicle production and sales. This group is mainly recognized since it is the owner of Volkswagen, Porsche, Scania and MAN Trucks brands. American companies focus more on financial services and forwarding private equity funds to Poland, although Americans control Żabka retail chain shops and are involved in the energy business as well. Sociedade Francisco Manuel Dos Santos SGPS, S.E, is a Portuguese company that developed an efficient network of popular shops named Biedronka, Hebe and Bliska. Those shops occupy a sound position in the Polish retail market and are prevalently accepted by local customers.

External companies operating in Poland introduced long term strategies by generally reinvesting earned profits. In 2017 alone, they reinvested \$11 billion while net capital flow was only \$9 billion (Rocznik Statystyczny, 2020). A positive trend is observed with operating revenue. Companies with foreign capital have been constantly increasing their operating revenue. In 2019 it reached the level of \$472 billion.

Taking into the consideration the size of the foreign companies operating in Poland, the majority (65%) are firms employing up to 49 people. Medium-size companies (50-200 workers) constitute 23%, and large companies (more than 200 employees), 15%. The structure of foreign companies is different from the structure of local firms. The predominant share of local companies are small entities (99.1%), medium-sized only 0.7%, and just 0.2% are large organizations – mainly state-owned corporations. Foreign companies hire nearly 2 million people. The most favored industries which attract foreign investors are real estate construction and services, manufacturing motor vehicles as well as accessories. Foreign decision makers are interested in banking

sectors, financial services and wholesale trading, excessively. Those activities occupy nearly 80 % of all capital flow sent to Poland. Foreign companies have proved to be very skillful and deliver market-oriented strategies, know-how, and new technologies. In this way they have gained sound market share. In order to compete successfully, Polish local companies were forced to change old-fashioned strategies into new ones.

The Foreign Direct Investments in Poland have been diverse. The predominant share have been in the Mazowieckie province. Mazowieckie received ca. 50% of all FDI transferred to Poland between 1990 - 2020. The average annual amount of foreign capital sent to this region was approx. 40 billion PLN, although FDI varied significantly during 1990-2020. Mazowieckie is the most populated area in Poland, with a population of 5,9 million. Warsaw is its metropolitan zone and is home to the most important financial institutions (e.g. Warsaw Stock Exchange, the largest domestic and international banks), governmental offices, companies operating worldwide. The capital of Poland, Warsaw also offers well-developed infrastructure. Mazowieckie is recognized as the best developed region in Poland with the highest level of GDP per capita. In 2020, its GDP per capita was 176% times the country's average, and 105% times the average GDP per capita indicated for the entire European Union. Warsaw is the leading city not only in Mazowieckie, but in Poland, with other cities far below Warsaw's results.



**Figure 1. Foreign Direct Investment in Poland (BoP, current USD) 1990-2020 \$ billion**

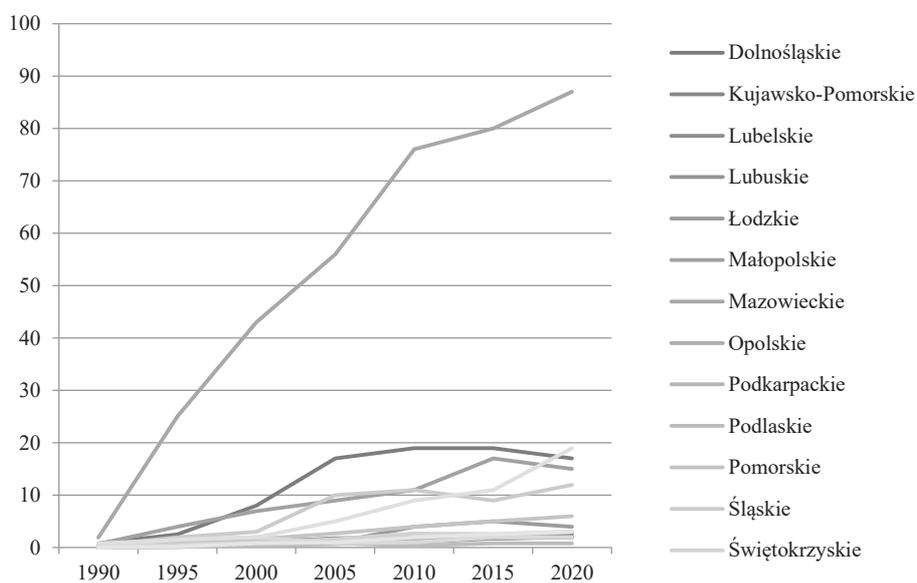
Source: World Bank Data Retrieved <https://databank.worldbank.org/reports.aspx? Source =2 & series = BX.KL.DINV.CD.WD&country=POL> date of access 2021/07/07.

Also in Mazowieckie province, the Radom area has just 45% of the average GDP per capita calculated for the European Union. A similar situation is found in other places like Ostrołęka, Siedlce, even Płock (a well-industrialized city where the giant petrochemical refinery Orlen is located), Grójec and others. Mazowieckie, especially Warsaw, offers for foreign investors not only a central location but access to a well-educated labor force (the best Polish universities are located in the capital of Poland), and the well-managed Chopin international airport (50% of all passengers use this airport). Fitch Agency scored BBB+ for Mazowieckie, taking into an account its investment attractiveness.

The Dolnośląskie, Małopolskie, Śląskie and Wielkopolskie provinces could also attract FDI quite skillfully. Their singular share of total FDI sent to Poland constitutes ca. 8%. Dolnośląskie, Małopolskie, Śląskie and Wielkopolskie are quite well industrialized and provide good opportunities for foreign investors. Wielkopolska draws attention from Western European investors, especially from Germany. Dolnośląskie as well as Śląskie offer respectable opportunities for foreign manufacturing capabilities and logistic systems. Małopolskie is specialized in B2B services.

The other regions in Poland occupied a very small share in total Polish FDI flow. Their singular share varied but did not exceed 5% during 1990-2020. Habitually, foreign investors are not especially active in the Warmińsko-Mazurkie, Świętokrzyskie, and Podlaskie regions. Their share of FDI was ca. 2% during 1990-2020 period. Although some recognized international companies like Ikea, Michelin and Egger Group came to Warmińsko-Mazurskie and started export-oriented activity there.

Michelin, a known French tire manufacturing and wholesaler company, bought the existing Polish Stomil firm and expanded its successful business in this part of Europe. Ikea and Egger Group gained access to raw materials (furniture businesses) and started their green field activity in Wielbark and Biskupiec, respectively. Unfortunately, regions like Pomorskie and Zachodniopomorskie were seen as very challenging in attracting FDI, which proved to be limited. This is somewhat surprising, as they offer good infrastructure, a skilled labor force, as well as a high number of private local companies ready for cooperation. They have a long tradition in ship production (famous shipyards in Szczecin, Gdansk and Gdynia) but no foreign investors were interested in investing in this business.



**Figure 2. The level of Foreign Direct Investment in Polish Regions 1990-2020 / PLN billions**  
 Source: GUS (2021). Economic Activities of Entities with Foreign Capital, Warsaw. (Działalność gospodarcza podmiotów z kapitałem zagranicznym. Warszawa.)

Podlaskie, Lubelskie regions could be operating as “the gate to Ukraine, Belarus or Russia” but they have not exploited this opportunity successfully. After 2015, an interesting trend was noticed. Investors from Ukraine, Belarus and Russia started to be more vigorous in the Polish market. In 2018 investors from Ukraine created 2016 companies in Poland, from Belarus 333 firms were created and from Russia, 275 firms. Even though the number of companies from those countries is quite impressive, their share of total foreign capital remains insignificant. The assets from Ukraine, Russia and Belarus did not exceed 0,3% of all foreign capital engaged in Poland. Moreover, the majority of those firms are located in the Mazowieckie region and they are commonly involved in services.

### **Shadow economy performance in Poland and its regions 1990-2020**

Like other countries, Poland has been affected by shadow economy motion. The roots and the effects of this illegal activity seem to be recognized. The origins of the shadow economy usually relate to:

- taxation system,
- low level of tax morality,
- weak institutional order,
- GDP and overall macroeconomic situation. Whenever a poor economic situation is observed, the shadow economy tends to grow and become stronger
- national culture and business organizational culture,
- criminality and organized crime groups,
- corruption,
- high costs of labor force,
- overregulated labor market,
- history. In some countries like Poland the shadow economy has been widely accepted and many Poles participate in it,
- globalization (Schneider, Medina, 2018; Schneider, 1998; Thomas, 1992; Fichtenbaum,1989).

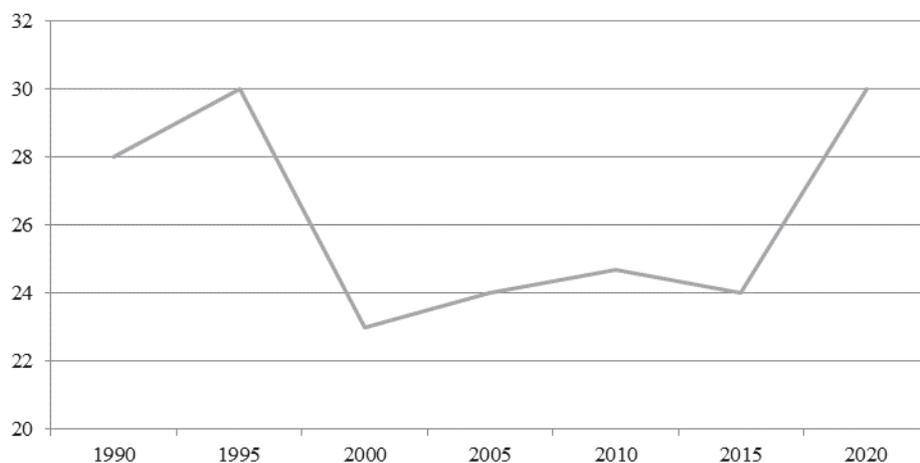
When Poland introduced market-oriented reforms the shadow economy proved to be very active. The command economy (commonly named as planned, shortage, socialist) did not offer an effective approach to fulfilling society’s needs and created many market loops. Investment in heavy industrialization made for a lopsided economic structure. Light industry, especially consumer manufacturing and food production were not correctly invested or developed. Those sectors were practically marginalized. Market loops were typical patterns of economic performance and consumers were satisfied by shadow economy activity, which helped fill a supply void. Individuals commonly employed corruption in order to get access to consumer goods or services.

The first years of Polish transformation created good opportunities for growth of the shadow economy. Although the assumptions of the Balcerowicz Plan – labelled as “shock therapy” – could have been evaluated as the right path in the long-run , since decision- makers wanted to reduce inflation, improve efficiency of companies, and diminish the role of central planning, many state-owned companies went into bankruptcy

and unemployment quickly grew. In 1991 nearly 1,2 million jobless were registered. Furthermore, comparing 1990 to 1989, GDP declined by \$6,2 billion (Rocznik Statystyczny, 1992). The situation was quite harsh, especially where former big state-owned agriculture companies (PGR) were formed. Employees were fired and the shadow economy was often the only option for survival. Moreover, PGR were popular in less developed Polish regions, and when unemployment occurred – the shadow economy was given impetus to develop.

Government revenue institutions, tax officials and police were not prepared to cope with the new economic reality, and the shadow economy bloomed.

Starting from 1990, the shadow economy in Poland increased. In 1990 its level constituted 27% of GDP and in 1995 it had reached 31% of GDP. Such an upsurge of the shadow economy was fostered by many factors, including the time needed for adapting from a planned economy to the new business environment of a market economy. This situation was tough not only for Polish entrepreneurs but for foreign investors as well. Some characteristic features of the planned economy were not abolished immediately. Still, especially in the beginning of the 1990s, the active role of government was noticed. Government played an active role in the privatization process and external businessmen vigorously participated in it (Buszko, 2021). The Polish market was ranked as promising and challenging, it became the biggest market in Central Europe, and the state was deemed a leader of introducing a market-oriented economy. The reforms were made quickly and relatively complexly. Other countries like Bulgaria, Romania, and the Baltic States implemented “stop and go” reforms. The future of those reforms was not so clear, therefore foreign direct investment was not as high as it in Poland. In the 1990s Poland was regarded as setting the blueprint of market-oriented reforms (Balcerowicz, 1995).



**Figure 3. The level of shadow economy in Poland during 1990-2020 (% GDP)**

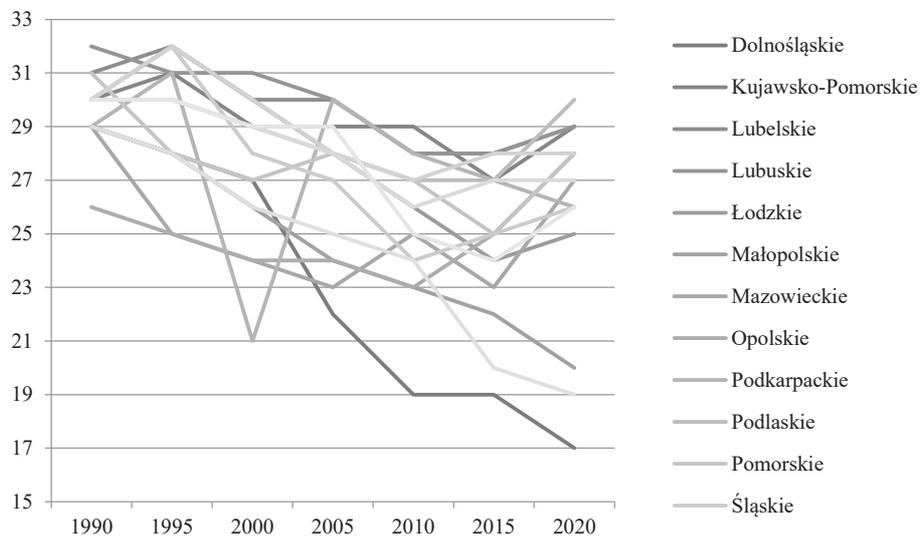
Source: Author's own estimation based upon methodological assumption.

After 1995, a decrease in the shadow economy was observed. By 2000, the level had dropped to 23% of GDP. Within the next 15 years the shadow economy varied between 23-26% of GDP. After 2019, the shadow economy again increased, mainly due to the Covid pandemic situation. The overall macroeconomic situation worsened. The level of GDP decreased, and unemployment grew. The pandemic locked down many industries and negatively affected export activity of Polish companies, both domestic and foreign. The pandemic cut demand from Germany, which is a key importer of Polish products and services. Nearly 80% of German companies noticed a decrease of turnover and were forced to cut operation costs. Consumption was reduced by 15% and imports fluctuated. Since unemployment grew by 2%, the German government also focused on facilitating local manufacturing activity over imports (Folkerts-Landau, 2020).

The overall performance of the shadow economy in Poland has varied by region and over time. In the beginning of the 1990s, it operated at similar levels across all regions. Later, much higher levels were seen in less developed regions, while in well-developed provinces, the level was significantly lower.

Starting from 1990 in Wielkopolska the shadow economy has decreased. In the beginning of the transformation period, the shadow economy constituted 29% of regional GDP; in 2020 it had reached the level of 19%. Surprisingly even during the pandemic this process has not been stopped. A similar trend was observed in two other regions: Małopolskie and Dolnośląskie, although the decline of illegal economic activity was not as significant as in Wielkopolska. In Małopolskie the shadow economy in 1990 was 30% of regional GDP, and in 2020 it had dropped to 21%. Up until 1995 the shadow economy in this region remained at a relatively high level. Dolnośląskie could cope with the shadow economy comparatively well. As with other Polish regions, in Dolnośląskie at the beginning of the 1990s, the shadow economy occupied a significant place in business activity, at 30% of local GDP. In 2020 its level was reduced by 10%.

During the planned economy, the Śląskie region was known as the heavy industrial center of Poland. Although there have been many attempts to modernize this area and liquidate inefficiency – mainly in the coal mines and steel works – many of them are still under operation. Unemployment rate as a crucial factor of shadow economy movement did not play important role there. The problem of unemployment did, however, become serious in the eastern and northern Polish provinces. Which is why the shadow economy in Podlaskie, Warmińsko-Mazurskie, Lubelskie, and Podlaskie persisted at a very high level – in excess of 25% of their local GDP. A high level of the shadow economy was also observed in other less developed regions like Świętokrzyskie, Kujawsko-Pomorskie and even Łódzkie. Łódzkie was the strong textile center and after bankruptcy of many state-owned manufacturing companies, unemployment grew and unfortunately an adequate strategy for this region was slow to develop. So, the market loops were fulfilled by shadow economy motion.



**Figure 4. The level of shadow economy in Polish regions 1990-2020 (% GDP)**  
 Source: Author's own estimation based upon MIMIC approach.

## Findings

Based upon a methodological approach, Table 1 presents the correlation between the shadow economy and foreign direct investment in Poland.

**Table 1. The correlation level between shadow economy and foreign direct investment in Poland**

Category	Shadow economy	Foreign direct investment
Foreign direct investment	-0,636	1
Shadow economy	1	-0,636

Source: Author's own estimation based upon methodological approach  $p < 0,05$ .

The correlation constitutes -0,636 level. It represents sound negative association. It means that whenever FDI increases in Poland, the shadow economy is reduced and vice versa. An increase in shadow economy activities diminishes FDI capital flow.

The situation in Polish regions proved to be different.

In Dolnośląskie, Małopolskie and Wielkopolskie the correlation between the shadow economy and foreign direct investment flows were on very high level. The Pearson correlation index was on the level -0,94; -0,95 and -0,93 respectively. In those regions the association between analyzed variables proved to be very important. FDI negatively affected shadow economy growth. A similar tendency was noticed in Zachodniopomorskie, Lubuskie, Łódzkie Śląskie and even Świętokrzyskie, unlike the Opolskie and Podkarpackie regions. In Opolskie and Podkarpackie the association between shadow economy and foreign direct investment proved to be positive. In

Opolskie the index was 0,58 and in Podkarpackie 0,16, which means that the growth of FDI supported shadow economy enlargement.

In Warmińsko-Mazurskie the correlation index between shadow economy and foreign direct investment was low and demonstrated a level of -0,29. Based upon this result it can be stated that the increase of FDI reduced shadow economy growth but less significantly.

**Table 2. The correlation level between shadow economy and foreign direct investment in Polish regions 1990-2020**

Region	The correlation value
Dolnośląskie	-0,94
Kujawsko-Pomorskie	-0,63
Lubelskie	-0,82
Lubuskie	-0,84
Łódzkie	-0,87
Małopolskie	-0,95
Mazowieckie	-0,45
Opolskie	0,58
Podkarpackie	0,16
Podlaskie	-0,45
Pomorskie	-0,59
Śląskie	-0,85
Świętokrzyskie	-0,80
Warmińsko – Mazurskie	-0,29
Wielkopolskie	-0,93
Zachodniopomorskie	-0,90

Source: Author's own calculation based upon methodological approach,  $p < 0,05$ .

## Conclusions

The research provided more questions than answers. The shadow economy affects foreign direct investments. It can be stated that a high level of shadow economy commonly is a barrier to any investment, including overseas as well. Speculative capital that is trying to hide its origin may be interested in targeting countries or regions with high shadow economy motion. Those who prefer transparent business and stable economic environments are not as willingly to be active in those areas. The shadow economy makes for an unpredictable and complicated situation for both domestic and external investors. It would be interesting to explore the extent that the level of shadow economy can threaten legal businesses. The shadow economy exists in any country, it just varies in level and category. A low level may not noticeably affect business activity.

The hypothesis was partly confirmed. There is not a strong negative correlation between the shadow economy and FDI in Polish regions.

Generally, FDI supported Polish development. Overseas investors created job opportunities and enhanced export-oriented activity. Large well-known foreign companies prefer to work in a transparent way and their operation in local markets diminishes shadow economy performance. Foreigners choose regional subcontractors legally. The increasing flow of FDI benefits regional development. Local as well as central authorities can then attract good overseas companies, generally operating legally.

This case is applied to Wielkopolskie, Dolnośląskie and Małopolskie provinces, especially.

The situation proved to be different in less developed regions with high levels of shadow economy motion. Those regions did not attract much foreign capital. Overall it did not change the economic situation in the provinces, even though some improvements could be noticed locally. For example, the Ikea company located itself in a tiny place – Wielbark in Warmińsko-Mazurskie – upgraded the local labor market (1600 people found jobs there), and started cooperation with Polish companies. Workers were trained and became familiar with new technologies and management skills. On the other hand, Ikea did not change the situation in other neighboring towns like Szczytno, Nidzica or Działdowo. Finally, FDI did not decrease the shadow economy motion in the entire Warmińsko-Mazurskie region.

Some provinces that benefit from both FDI flow and the increase of shadow economy may be observed. This process can be explained in three ways. First, the shadow economy occupies the predominant sphere of business and all other entities should join the shadow economy framework or quit the market. Secondly, FDI represents just a very minor part of economic motion and it does not impact on any unlawful activity. Thirdly, FDI comes to the region (or state) but foreign capital flow is originated from the shadow economy. Its presence enhances all illegal performance in the province or state.

This research opened new areas of possible investigations. It would be challenging to know the structure of economy affected by overseas capital flow and shadow economy motion. Some industries, like manufacturing, are not so friendly to the shadow economy, unlike agriculture, construction, entertainment, restaurants or even hotel businesses. It would be interesting also to see if there is a specific pattern of cooperation between foreign and local companies both in Poland and in Polish regions against the background of shadow economy activity. It is likely that each specific situation modifies the means of cooperation and influences the vibrancy of the shadow economy.

## References

- Abotsi, A. (2016). Theory of foreign direct investment and corruption. *International Journal of Asian Social Science* 6(6), pp. 359–337
- Adair, Ph. (2017). Non-Observed Economy vs. the Shadow Economy in the EU: The Accuracy of Measurements Methods and Estimates revisited. 4 th OBEGEF Interdisciplinary Insights on Fraud and Corruption , Nov, Porto, Portugal
- Aidt, T.S. ( 2009). Corruption, institutions, and economic development. *Oxford Review of Economic Policy*, 25(2), pp. 271- 291
- Aliber, R.Z. (1970). A theory of direct foreign investment. [in:] C. P. Kindleberger (ed.), *The International Corporation*. MIT Press, Cambridge, MA, United State
- Balcerowicz, L. (1995). *Capitalism, Socialism, Transformation*. PWN, Warsaw & London
- Buckley, P.J., M. Casson, M. (1976). *The Future of the Multinational Enterprises*. Macmillan, London
- Buszko, A. (2021). *Aksjologiczne szkice na temat szarej strefy*. Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego w Olsztynie
- Caves, R.E. (1971). International corporations: The industrial economics of foreign investment. *Economica*, Vol. 38, No. 149 pp.71-73

- Daron A., Dell, M (2010). Productivity differences between and within countries. *American Economic Journal: Macroeconomics* 2 (1) pp/ 169-188
- Davidescu, A., Alecsandru, V. ( 2015). Shadow economy and foreign direct investment: An empirical analyses for the case of Romania. *Ecoforum* Volume 4, Issue 2 (7), pp. 110-119
- Deilami, H. N. (2010). Relationships between shadow economy and foreign direct investment, growth and poverty. Retrieved from: [http://psasir.upm.edu.my/id/eprint/19471/1/FEP\\_2010\\_10\\_F.pdf](http://psasir.upm.edu.my/id/eprint/19471/1/FEP_2010_10_F.pdf) pp. 22-28
- Denisia, V. (2010). Foreign direct investment theories: an overview of the main FDI theories. *European Journal of Interdisciplinary Studies* No3, pp.53-59
- Dixit, A., Stiglitz, J. (1977). Monopolistic Competition and Optimum Product Diversity. *American Economic Review*, No 67, pp. 297–308
- Dreher, A., Gassebner, M. (2013). Greasing the wheel. The impact of regulations and corruption on firms entry. *Public Choice*, 155(3), pp. 412- 432.
- Dunning, J. H., Lundan, S. M. (2008). *Multinational enterprises and the global economy*. Massachusetts: Edward Elgar Publishing Limited
- Dunning J.H. (1988). The eclectic paradigm of international production: A restatement and some possible extensions. *Journal of International Business Studies*, vol. 19, No. 1 pp.12-18
- Faeth, I. (2009). Determinants of foreign direct investment - a tale of nine theoretical models. *Journal of Economic Surveys*, 23(1), pp.165-196 <https://doi.org/10.1111/j.1467-6419.2008.00560>
- Feige, E. (2015). Reflections on the meaning and measurement of Unobserved Economies: What do we really know about the “Shadow Economy”? University of Wisconsin-Madison pp.23-31
- Fichtenbaum, Ronald, (1989). The Productivity Slowdown and the Underground Economy. *Quarterly Journal of Business and Economics*, Vol. 28, No. 3, pp. 78–90
- Folkerts-Landau, D. (2020). COVID-19: Crisis resilience made in Germany. *Deutsche Bank Report*, 10th June pp. 1-20
- Goel, R., Ram, R., Schneider, F., Potempa, A. (2020). International movements of money and men: Impact on the informal economy. *Journal of Economics and Finance*, Vol. 44, Issue 1, No 9, pp. 179-197
- Graham, E.M. (1996). *Global Corporations and National Governments*. Institute of International Economics, Washington D.C.
- GUS, (2021). *Działalność gospodarcza podmiotów z kapitałem zagranicznym*. Warszawa
- Helpman, E., Melitz M., Yeaple, S.R. (2003). Export versus FDI. NBER Working Paper Series No. 9439. National Bureau of Economic Research, Cambridge, MA, United States. pp.41-45
- Huntington, S.P. (1968). *Political order in changing societies*. New Haven: Yale University Press
- Hymer, S. (1976). *The International Operations of National Firms: A Study of Direct Foreign Investment*, Cambridge, MIT Press
- Kemp, M.C. (1964). *The Theory of International Trade*. Prentice Hall, London
- Kinoshita, Y., Campos, N. F. (2006) A Re-examination of Determinants of Foreign direct Investment in Transition Economies, Mimeo, IMF, Washington, DC
- Krugman, P. (1998). What's new about the new economic geography? *Oxford Review of Economic Policy*, Volume 14, Issue 2, June 7–17, <https://doi.org/10.1093/oxrep/14.2.7> pp.12-18
- Lee, M., Park, D. (2013). Intellectual property rights, quality of institutions, and foreign direct investment into developing Asia. Retrieved from: <https://www.adb.org/sites/default/files/publication/30301/ewp-354.pdf> pp.111-121
- Leff, N.H. (1964). Economic development through bureaucratic corruption. *American Behavioral Scientist*, 8(3): pp. 8-14
- Leys, C. (1965). What is the problem about corruption. *Journal of Modern African Studies*, 3(2): pp. 211-230
- Lianju, S., Luyan, P. (2011). Game theory analysis of the bribery behavior. *International Journal of Business and Social Science*, 2(8), pp. 104-107.

- MacDougall, G.D.A. (1958). The benefits and cost of private foreign investment abroad: A theoretical approach. *Economic Record*, Vol. 36 pp.31-34
- Mara, E. R. (2011). Causes and consequences of underground economy. Retrieved from: [https://mpra.ub.uni-muenchen.de/36438/1/MPRA\\_paper\\_36438.pdf](https://mpra.ub.uni-muenchen.de/36438/1/MPRA_paper_36438.pdf) pp. 71-73
- Markowitz, H. (1991). Foundations of Portfolio Theory. *The Journal of Finance*, 46(2), pp.469-477. doi:10.2307/2328831
- Mebratu, D. (1998). Sustainability and sustainable development: historical and conceptual review. *Environmental Impact Assessment Review*, 18, pp. 493-520. DOI: 10.1016/S0195-9255(98)00019-5
- Moosa, I. (2002). *Foreign direct investment. Theory, evidence and practice*. Hampshire - UK: Palgrave Publisher, Ltd. (formerly Macmillan Press, Ltd)
- Navoi, A. (2008). Foreign Direct Investment an Indirect Path to the Economy. *Problems of Economic Transition*. Vol 51, No 4, pp. 81-96
- Neumayer, E. (2003). *Weak versus strong sustainability: exploring the limits of two opposing paradigms*. Northampton, Edward Elgar
- Nikopour, H., Habibullah, M., Schneider, F., Law, S. (2009). Foreign Direct Investment and Shadow Economy: A Causality Analysis Using Panel Data. pp.31-36
- Nomidis, D. (2016). A Revision of the Theory of Perfect Competition and of Value. *SSRN Electronic Journal* · November. doi: 10.2139/ssrn.2875582 pp.20-29
- Porto, G., Hoekman, B. (2010). *Trade Adjustment Costs in Developing Countries: Impacts, Determinants and Policy Responses*. The International Bank for Reconstruction and Development/The World Bank 1818 H Street, NW, Washington, DC 20433, USA
- Reinhart C.M., Rogoff K.S. (2009). *This time is different. Eight Centuries of Financial Folly*, Princeton University Press, Princeton and Oxford
- Rocznik Statystyczny Rzeczypospolitej Polskiej. (2020). GUS. Warszawa
- Rocznik Statystyczny Rzeczypospolitej Polskiej. (1992). GUS. Warszawa
- Saravia, A., Canavire-Bacarez, G., Rios-Avil, F. (2012). Intellectual property rights, foreign direct investment and the shadow economy. *Economicas y Financieras*. Universidad EAFIT No 12-33 pp. 3-19
- Schneider, F. (1998). Stellt das Anwachsen der Schwarzarbeit einewirtschaftspolitische Herausforderung dar? Einige Gedanken aus volkswirtschaftlicher Sicht. *Linz, Mitteilungen des Instituts für angewandte Wirtschaftsforschung (IAW)*, I/98, pp. 4–13
- Schneider, F., Medina, L. (2018). *Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?* International Monetary Fund. IMF Working Paper Vol 18/17 pp. 2 – 76
- Schneider, F., Hametner, B. (2007). *The shadow economy in Colombia: size and effects on economic growth*, Working Paper, No. 0703, Johannes Kepler University of Linz, Department of Economics, Linz pp.25-26
- Tanzi, V. (2002). *The shadow economy, its causes and its consequences*. Retrieved from: [http://www.etc.org.br/user\\_file/shadowEconomy/03\\_Artigo\\_Tanzi\\_Shadow\\_Economy.pdf](http://www.etc.org.br/user_file/shadowEconomy/03_Artigo_Tanzi_Shadow_Economy.pdf), pp. 7-11
- Thomas, Jim J. (1992). *Informal economic activity*, LSE, Handbooks in Economics, London, Harvester Wheatsheaf
- Vasyechko, O. (2012). A review of FDI theories: an application for transition economies. *International Research Journal of Finance and Economics*, pp.118-137
- Westerlund, J., Edgerton, D. (2007). A panel bootstrap co integration test. *Economics Letters*, 97 (1), pp.185–190
- Williams, C., Schneider, F. (2016). *Measuring the Global Shadow Economy*, Edward Elgar Publishing. pp 26-31
- World Bank Data Retrieved <https://databank.worldbank.org/reports.aspx? Source =2 & series = BX.KLT.DINV.CD.WD&country=POL> date of access 2021/07/07

## **Czy szara strefa rzutuje na poziom Bezpośrednich Inwestycji Zagranicznych? Przypadek Polski i polskich regionów**

### **Streszczenie**

Głównym celem podjętych badań była identyfikacja zależności pomiędzy poziomem szarej strefy a Bezpośrednimi Inwestycjami Zagranicznymi. Badanie dotyczyło Polski i polskich regionów w latach 1999-2020. Wykorzystano metodę MIMIC w celu wyliczenia poziomu szarej strefy jako % PKB. Posłużono się także współczynnikiem korelacji. Pearsona oraz testem Kolmogorova-Smirnova. Na podstawie przeprowadzonych badań należy stwierdzić, że wystąpiła negatywna korelacja pomiędzy szarą strefą a poziomem BIZ(-0,636). Natomiast w odróżnieniu do Polski oraz innych regionów w Opolskiem i Podkarpackiem związek okazał się pozytywny.

**Słowa kluczowe:** szara strefa, bezpośrednie inwestycje zagraniczne, regiony, transformacja, sytuacja makroekonomiczna.

**JEL Codes:** E26, D52, E02

Information about the author:

**Andrzej Buszko dr hab prof. UWM**  
University of Warmia and Mazury in Olsztyn  
10-900 Olsztyn ul. Oczapowskiego 2  
e-mail: buszko@uwm.edu.pl  
ORCID: 0000-0003-0600-4646