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# Foreign direct investment of Polish enterprises: the relationship between firm characteristics and the number of foreign units

## Abstract

**Research background and purpose:** The aim of this paper is to examine foreign direct investment (FDI) undertaken by Polish enterprises within the framework of the internationalization process, with particular emphasis on the number of foreign entities as a proxy for the degree of internationalization. The study seeks to identify the relationship between the number of foreign entities and selected firm characteristics, including expenditure on fixed assets, net sales revenue, the value of imports and exports, and the structure of employment.

**Design/methodology/approach:** The research adopts a quantitative and analytical approach to assess the relationships between the number of foreign entities and selected characteristics of Polish enterprises engaged in internationalization. Pearson's correlation coefficient is employed to examine the strength and direction of linear relationships between the analyzed quantitative variables.

**Findings:** The results indicate that the development of key economic indicators – such as expenditure on fixed assets, sales revenue, employment, and trade turnover (imports and exports) – is closely associated with the growth in the number of foreign entities and the investment conditions prevailing in host countries. Polish enterprises increasingly allocate capital to Central and Eastern Europe as well as Western Europe, primarily due to cultural proximity and relatively short geographical distances, which facilitate efficient supply chain management. The findings confirm the growing importance of foreign direct investment in the internationalization process of Polish enterprises.

**Value added and limitations:** This article contributes to the literature on business internationalization by integrating theoretical considerations with an empirical analysis of the relationship between the number of foreign entities of Polish firms and their selected economic characteristics. The study is subject to several limitations, including the use of aggregated data and its focus on linear relationships and selected quantitative indicators, which may not fully capture the complexity of internationalization processes.

**Keywords:** *foreign direct investment (FDI); internationalization; Polish enterprises; foreign entities*

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## 1. Introduction

The process of internationalization constitutes an important direction in the development of modern enterprises, as it enables firms to enter foreign markets, enhance their competitiveness, and diversify sources of revenue. The literature emphasizes that internationalization may take various forms, ranging from exports and strategic alliances to foreign direct investment (FDI), which is regarded as the most advanced and capital-intensive mode of international business activity. In recent years, Polish enterprises have increasingly engaged in foreign direct investment, which has become a key element of both firm-level development strategies and the broader economic growth process. Through international expansion, Polish companies are able to participate more actively in global value chains and strengthen their competitive position in international markets.

An important indicator of the degree of firm internationalization is the number of foreign entities - such as branches, divisions, or subsidiaries - established abroad. Changes in the number and structure of these entities provide a clear illustration of the scale and intensity of enterprises' involvement in the internationalization process. The subject matter of this study integrates both theoretical and practical perspectives. On the one hand, it contributes to a deeper understanding of the internationalization process of enterprises; on the other, it offers practical insights for firms and business support institutions that may be useful when planning and implementing activities in foreign markets.

According to *EY's European Investment Attractiveness Survey 2024*, foreign direct investment in Europe declined by 4% in 2023 compared to 2022 and remained 11% below its 2019 level, i.e. before the outbreak of the COVID-19 pandemic. France, the United Kingdom, and Germany continued to attract the largest share of FDI and remained the three leading destinations, together accounting for approximately half of all investment projects. In 2023, the number of FDI projects decreased by 5% in France (1,194 projects) and by 12% in Germany (733 projects). In contrast, the United Kingdom recorded a 6% increase in projects (985), overtaking Germany and moving into second place. Despite expectations of a post-pandemic rebound in investment, Europe experienced its first decline in FDI since 2020. This downturn was driven by sluggish economic growth, persistent inflation, rising energy prices, and heightened geopolitical uncertainty. In 2023, companies worldwide announced 5,694 greenfield investment projects and expansions across 44 European countries, compared to 5,962 projects in 2022, representing a year-on-year decline of 4%. Investment levels were also 14% lower than at their peak in 2017, while employment generated by FDI fell by 7% year-on-year to 319,923 jobs.

Investors identified increased regulatory burdens, volatile energy prices, and political instability as the main risk factors influencing investment decisions. In particular,

Europe's pioneering regulatory initiatives in areas such as artificial intelligence, sustainability, and data protection have raised concerns among investors regarding their potential impact on business growth. Additional sources of uncertainty include the ongoing energy crisis, the approaching European elections, and rising social tensions and political radicalism.

At the same time, several countries in Southern and Eastern Europe have benefited from supply chain reorganization and the relocation of manufacturing activities. Although the overall number of manufacturing projects declined slightly across Europe, growth was observed in countries such as Spain, Turkey, Poland, Italy, Serbia, the Czech Republic, and Hungary. Conversely, the slowdown in investment in digital and business services has negatively affected countries where these sectors traditionally play a significant role, including the Netherlands and Belgium. The war between Russia and Ukraine continues to weigh on investment in neighboring markets, particularly Romania, Finland, and the Baltic states.

Despite the recent decline, investors remain cautiously optimistic about Europe's long-term prospects, expecting a gradual improvement in economic conditions. In the context of rising global geopolitical tensions, the relative stability of major European economies represents a significant advantage. Consequently, although foreign direct investment has experienced a temporary downturn, early signs suggest a gradual recovery. This article contributes to the literature on business internationalization by combining theoretical insights with an empirical analysis of the relationship between the number of foreign entities of Polish enterprises and their selected economic characteristics.

Despite extensive research on foreign direct investment, there is still a limited understanding of how the number of foreign entities reflects the degree of internationalization of firms, particularly in the case of Polish enterprises. Moreover, existing studies rarely examine the relationship between the number of foreign units and firm-level economic characteristics using aggregated national data.

The aim of this study is to examine the scale and determinants of foreign direct investment undertaken by Polish enterprises, with particular emphasis on the relationship between the number of foreign entities and selected firm characteristics. The study applies a quantitative approach based on Pearson's correlation analysis using data from the Central Statistical Office of Poland.

The specific objectives are as follows:

- to analyze changes in the number of foreign entities in the period 2008–2021,
- to examine the relationship between the number of foreign entities and key economic indicators (revenues, employment, exports),
- to assess differences in these relationships across host countries,
- to identify geographical patterns of foreign direct investment of Polish enterprises.

The remainder of the paper is structured as follows. Section 2 reviews the literature, Section 3 presents the methodology, Section 4 discusses the results, and Sections 5 and 6 provide discussion and conclusions.

## 2. Literature review

Foreign direct investment, most often carried out by transnational corporations or large enterprises, has become a key factor in globalization processes. Foreign direct investment is one of the main ways of integrating economies into the global economy. FDI is not only an important channel for the flow of capital between countries, but also for the exchange of goods, services and knowledge, and it serves to connect and organize production on an international scale (OECD, 2025). Foreign direct investment, most often undertaken by transnational corporations and large firms, has become a key driver of globalization processes. FDI represents one of the principal mechanisms through which national economies are integrated into the global economic system. It not only facilitates the flow of capital across borders, but also enhances the exchange of goods, services, technologies, and knowledge, serving to coordinate and organize production on an international scale (Rugman & Collinson, 2012).

Foreign direct investment can be analyzed at two complementary levels: the macroeconomic and the microeconomic level. From a macroeconomic perspective, FDI represents a specific form of international capital flow recorded in the balance of payments. In this context, FDI-related transactions include, among others, income accruing to foreign investors from equity participation or other forms of ownership-related claims (Dunning & Lundan, 2008). From a microeconomic perspective, FDI should be understood as a mode of firm internationalization, whereby enterprises undertake investment activities outside their home country. In global terms, foreign investment constitutes a transfer of capital across national borders. Investments carried out in a foreign country with the objective of obtaining a lasting influence over the management and operations of an enterprise are classified as foreign direct investment (Rogaczewski, 2015). In line with the definition adopted by the European Commission, FDI refers to a category of cross-border investment in which an investor resident in one country establishes a lasting interest and a significant degree of influence in an enterprise located in another country. This influence is typically associated with ownership of at least 10% of the voting rights, which distinguishes FDI from portfolio investment (European Commission, 2021).

According to the OECD, foreign direct investment should be understood as direct investment implying a long-term relationship, reflected in a sustained interest of the direct investor in an enterprise located in another economy (OECD, 2025). FDI encompasses both greenfield investments - establishing new business operations abroad - and the acquisition of all or part of existing foreign enterprises. In this context, the

capital investor assumes the role of an entrepreneur who, through ownership or partial ownership of a firm, gains effective control over its management. As a result, the investor becomes not only the owner of the invested capital but also the administrator of the firm's assets, which enables decision-making with respect to the scale and structure of production as well as the strategic directions of the enterprise's development. Consequently, the foreign direct investor performs a dual role, acting simultaneously as an investor and a manager (Narula & Pineli, 2019).

Foreign direct investment may be defined as the export of capital by economic entities from one country to another with the objective of establishing production facilities or subsidiaries abroad, acquiring foreign enterprises, or obtaining an ownership stake that ensures a significant influence over the firm's strategic and operational decisions (Rogaczewski, 2025). In addition to the basic modes of international investment - namely portfolio investment and foreign direct investment - other forms of international business activity can also be distinguished. These include joint ventures, mergers and acquisitions, and licensing agreements, which represent alternative strategies for firms seeking to expand their operations beyond national borders. Under this approach, direct investment involves the allocation of capital in enterprises operating within a foreign national economy, with the intention of exercising control or substantial influence over their activities. Consequently, foreign direct investment is generally understood as investment undertaken in a country other than the investor's country of origin, characterized by a long-term perspective and a direct involvement in the management and development of the foreign entity.

These investments involve the long-term allocation of capital in a foreign enterprise with the objective of obtaining effective control over its management and deriving economic benefits from its operations (UNCTAD, 2023). An investor engaging in direct expansion into a foreign market may either establish a new firm from the ground up – referred to as a greenfield investment – or acquire an existing enterprise, which constitutes a brownfield investment (Nocke & Yeaple, 2007).

Greenfield investments are typically undertaken in the case of relatively smaller projects and involve the establishment of a new enterprise from the ground up. According to Mihaylova (2020), this form of investment is particularly valued by host countries, as it directly contributes to an expansion of their production or service capacity. However, greenfield investments require substantial financial resources, a long investment horizon, and a high level of organizational commitment on the part of the investor.

The implementation of such investments often necessitates close cooperation among multiple entities as well as significant capital expenditures. One specific form of greenfield investment is the joint venture, in which a new entity is established in cooperation with a domestic partner, allowing both parties to share resources, risks, and managerial responsibilities.

This form of investment is particularly characteristic of developing economies. Under this arrangement, cooperating firms jointly contribute capital to establish a new enterprise. By contrast, brownfield investments involve the acquisition of all or part of the equity of existing firms. The primary objective of this form of foreign investment is to modernize and restructure the acquired enterprise in order to enhance its competitiveness, for example through expansion, the replacement of equipment and technology, or changes in the product portfolio. Unlike portfolio investments – such as the purchase of shares, bonds, or other financial instruments – foreign direct investment enables the investor to exercise effective control over the management and operations of a foreign enterprise (Akhtar & Cimino-Isaacs, 2025).

International capital transfers may be understood as the acquisition of domestic fixed assets by foreign entities or, conversely, the acquisition of fixed assets abroad by domestic investors. A review of the relevant literature allows for a distinction between official and private (unofficial) capital transfers. Private capital flows, depending on their time horizon, are further classified into short-term and long-term transactions (Weisensee, 2012).

Investors who decide to allocate surplus capital in foreign markets are typically guided by a variety of motives. These include, in particular, market-seeking objectives, efforts to improve production efficiency, the pursuit of advanced technologies, the search for political and macroeconomic stability, and the desire to overcome barriers to international trade (Marinov & Marinova, 2000). Foreign direct investment may take several organizational and ownership forms. These include (Amberger & Kohlhase, 2023):

- the establishment of new enterprises abroad or the acquisition of existing foreign companies over which the parent company exercises full control, commonly referred to as subsidiaries;
- the establishment of branches, which do not constitute independent economic entities and cannot be registered in the host country as separate commercial or industrial companies, as they lack legal personality;
- the creation of partially owned subsidiaries, in which the parent company does not necessarily hold 100% of the equity. Such entities possess separate legal personality and are registered in host countries as independent economic units with their own legal and organizational frameworks; and
- the acquisition of equity stakes in foreign companies (majority, equal-share, or minority holdings) or the establishment of joint ventures.

In light of the above considerations, the following research hypotheses were formulated:

*H1. The number of foreign entities is determined by the variability of selected economic characteristics of enterprises.*

*H2. There is a statistically significant relationship between the number of foreign entities and the geographical location of the reporting enterprises.*
*H3. Owing to cultural proximity and geographical distance, enterprises are more likely to undertake foreign activities in countries neighboring Poland and in Central and Eastern European countries.*

## 3. Methods

The study applies a quantitative approach using Pearson's correlation analysis based on data from the Central Statistical Office of Poland.

The empirical analysis is based on data obtained from the Central Statistical Office of Poland (GUS). The scope of the GUS survey covers non-financial enterprises conducting business activity in Poland which, in a given reporting period, owned shares, branches, or production facilities abroad. From the perspective of legal form, the surveyed entities include primarily civil and commercial law companies, as well as state-owned enterprises, cooperatives, and natural persons conducting business activity. The survey also encompasses foreign entities in which the reporting units hold shares, branches, or production plants. It should be emphasized that the dataset constitutes a full population sample, and the analysis covers the period from 2008 to 2021.

In order to assess the degree of international engagement of Polish enterprises, the analysis focuses on a set of key variables that reflect the scale and economic dimension of foreign activities. These variables include:

- expenditure on fixed assets of foreign entities,
- net sales revenue generated by foreign entities,
- employment levels in foreign entities, and the number of foreign entities owned by the reporting enterprises.

To examine the relationships between these variables, Pearson's linear correlation coefficient was applied. This method allows for the identification of the strength and direction of linear associations between quantitative variables. The value of the coefficient ranges from –1 to 1, with values closer to –1 or 1 indicating stronger relationships, while values close to zero suggest weak or no linear association. A positive coefficient indicates that higher values of one variable are associated with higher values of another, whereas a negative coefficient indicates an inverse relationship. In addition, dynamic indicators (year-on-year changes and index numbers) were calculated to better capture trends over time and allow for cross-country comparisons.

It should be emphasized that correlation analysis does not imply causality. The applied methodology allows for the identification of co-movements and statistical associations between variables, but it does not permit conclusions regarding cause-and-effect relationships. The results should therefore be interpreted as indicative of

interdependencies rather than causal mechanisms. All calculations were performed using Microsoft Excel with the Analysis ToolPak add-in.

## 4. Results

First, net revenues from the sale of products, goods, and materials generated by foreign branches of enterprises headquartered in Poland during the period 2015–2021 were analyzed. Subsequently, the existence of statistical relationships between the level of these revenues in individual years and the number of foreign branches and entities was examined. In addition, a detailed analysis was conducted of the relationship between net sales revenues and employment levels in foreign entities located in countries with the largest number of employees, namely Germany, Russia, the Czech Republic, Ukraine, Romania, Slovakia, Hungary, and the United Kingdom. During the period 2015–2021, net revenues from sales in foreign branches of Polish enterprises exhibited relatively stable dynamics, with an overall upward trend observed over the analyzed years. Nevertheless, year-on-year declines in revenues were recorded in 2016 and 2020. In 2016, revenues decreased by 3.36% compared to 2015, while in 2020 a decline of 6.68% was observed relative to 2019. The latter decrease coincided with the outbreak of the COVID-19 pandemic, which – due to imposed restrictions and disruptions to economic activity – negatively affected corporate sales performance. Excluding these two years, net sales revenues increased both relative to the base year 2015 and on a year-on-year basis, as presented in Table 1.

Table 1. **Changes in net sales revenue in foreign subsidiaries of Polish enterprises, 2015–2021**

| **Years** | **Net sales revenue** (PLN million) | **Absolute change vs. 2015** (PLN Million) | **Year-on-year absolute change** (PLN million) | **Relative change vs. 2015** (%) | **Year-on-year growth rate** (%) | **Fixed-base index** (2015 = 100) | **Chain index** (previous year = 100) |
|---|---|---|---|---|---|---|---|
| 2015 | 5362,4 | 0 | X | 0 | X | 100,00 | X |
| 2016 | 5182,3 | -180,1 | -180,1 | -3,36% | -3,36% | 96,64 | 96,64 |
| 2017 | 6618,0 | 1255,6 | 1435,7 | 23,41% | 27,70% | 123,41 | 127,70 |
| 2018 | 7 518,6 | 2 156,2 | 900,6 | 40,21% | 13,61% | 140,21 | 113,61 |
| 2019 | 7 863,2 | 2 500,8 | 344,6 | 46,64% | 4,58% | 146,64 | 104,58 |
| 2020 | 7 337,9 | 1 975,5 | -525,3 | 36,84% | -6,68% | 136,84 | 93,32 |
| 2021 | 7 863,1 | 2 500,7 | 525,2 | 46,63% | 7,16% | 146,63 | 107,16 |

Source: own study based on data from the Central Statistical Office, Information Department

The largest year-on-year increase in net revenues from the sale of products, goods, and materials generated by foreign branches of enterprises headquartered in Poland was recorded in 2017, amounting to PLN 1,435.7 million compared to 2016 (and PLN 1,255.6 million relative to 2015). The analysis indicates that changes in aggregate sectoral revenues tend to be accompanied by changes in the number of enterprises operating within a given sector. A similar pattern can be observed with respect to net revenues generated by foreign entities of Polish enterprises, where higher revenue levels are associated with periods characterized by a larger scale of foreign activity. Over the period 2015–2021, total net revenues from the sale of products, goods, and materials in foreign branches increased from PLN 5,362.4 million in 2015 to PLN 7,863.1 million in 2021, reflecting an overall upward trend despite short-term fluctuations.

The presented indicators illustrate the dynamics of net sales revenues over time and constitute a descriptive basis for further analysis. They do not imply causal relationships but serve to identify trends and fluctuations in the analyzed period.

The number of foreign entities owned by enterprises based in Poland increased from 3,890 to 4,246 between 2015 and 2021. The analysis reveals a moderate positive relationship between the number of foreign entities and net revenues from the sale of products, goods, and materials generated by foreign branches. The value of Pearson's linear correlation coefficient amounts to 0.53, indicating a positive association between the analyzed variables.

The coefficient of determination ($R^2$) equals 28%, which suggests that approximately 28% of the variability in net sales revenues is statistically associated with changes in the number of foreign entities during the analyzed period, while the remaining variation may be attributed to other factors not captured by the model. It should be emphasized that this result reflects statistical association rather than a causal relationship.

This relationship becomes more apparent when changes in the number of foreign branches between 2015 and 2021 are considered jointly with changes in revenues generated by these branches (Table 2). A temporary deviation from the upward trend was observed in 2020, which coincided with the outbreak of the COVID-19 pandemic. In that year, total net revenues declined, but returned to their 2019 level already in 2021.

Table 2. **Changes in the number of foreign subsidiaries of enterprises headquartered in Poland, 2015–2021**

| Years | Number of foreign subsidiaries | Absolute change vs. 2015 | Year-on-year absolute change | Relative change vs. 2015 (%) | Year-on-year growth rate (%) | Fixed-base index (2015 = 100) | Chain index (previous year = 100) |
|---|---|---|---|---|---|---|---|
| 2015 | 3 890 | 0 | X | 0 | X | 100,00 | X |
| 2016 | 3 897 | 7 | 7 | 0,18% | 0,18% | 100,18 | 100,18 |
| 2017 | 3 941 | 51 | 44 | 1,31% | 1,13% | 101,31 | 101,13 |
| 2018 | 3 849 | -41 | -92 | -1,05% | -2,33% | 98,95 | 97,67 |
| 2019 | 3 979 | 89 | 130 | 2,29% | 3,38% | 102,29 | 103,38 |
| 2020 | 4 030 | 140 | 51 | 3,60% | 1,28% | 103,60 | 101,28 |
| 2021 | 4 246 | 356 | 216 | 9,15% | 5,36% | 109,15 | 105,36 |

**Source:** own study based on data from the Central Statistical Office, Information Department

The number of foreign subsidiaries increased in most of the analyzed years, with the exception of 2018, when a decline of approximately 1% was recorded relative to the 2015 level. The most pronounced growth was observed in 2021, when the number of foreign subsidiaries rose by 9.15% compared to 2015 and by more than 5% relative to 2020. While 2020 was characterized by a decline in net revenues from the sale of products, goods, and materials generated by foreign branches of enterprises based in Poland, no corresponding decrease in the number of foreign subsidiaries was observed. On the contrary, the number of foreign entities continued to increase, rising by 3.6% compared to 2019.

There is a clear positive relationship between the number of foreign subsidiaries and net revenues generated by these entities. The value of Pearson's linear correlation coefficient (0.67) indicates a relatively strong positive association between the analyzed variables. The coefficient of determination ($R^2$) equals 0.45, suggesting that approximately 45% of the variability in net revenues from the sale of products, goods, and materials in foreign subsidiaries of Polish enterprises during the period 2015–2021 is statistically associated with variability in the number of foreign subsidiaries. The remaining variation can be attributed to other factors not captured in the analysis. It should be emphasized that these results reflect statistical association rather than causal relationships.

Employment levels in foreign subsidiaries provide an important indication of the scale and geographical distribution of Polish enterprises' international activities. Table 3 presents data on employment in foreign entities, with particular attention to host countries characterized by the highest concentration of employees.

Table 3. **Number of employees in foreign subsidiaries of Polish enterprises, 2015–2021**

| | Years | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **Change 2015-2021 (%)** |
| Total number of employees in foreign units | 154553 | 165109 | 197351 | 194319 | 201092 | 196101 | 208261 | +34.75% |
| Including: | | | | | | | | |
| Germany | 27663 | 32778 | 38288 | 33727 | 31829 | 27279 | 26415 | -4.51% |
| Russia | 20 960 | 19993 | 22628 | 21023 | 22116 | 19963 | 23257 | +10.96% |
| Czech Republic | 16 877 | 18720 | 20375 | 18508 | 19018 | 19387 | 19674 | +16.57% |
| Ukraine | 14 069 | 12891 | 13615 | 14342 | 13515 | 9251 | 11365 | -19.22% |
| Romania | 9 256 | 10383 | 12856 | 13318 | 13427 | 17891 | 14607 | +57.82% |
| Slovakia | 5 525 | 5 513 | 6 183 | 8 715 | 6 659 | 6 386 | 6 525 | +18.10% |
| Hungary | 4 423 | 5 909 | 6 328 | 5 842 | 14 421 | 15 529 | 14 884 | +236.5% |
| United Kingdom | 4 215 | 4 411 | 7 068 | 6 550 | 3 958 | 3 732 | 2 964 | -29.67% |

**Source:** own elaboration based on data from the Central Statistical Office (GUS), Information Department

Between 2015 and 2021, the number of employees in the foreign units of Polish companies experienced minor fluctuations, with an overall upward trend. As a result, during this period, employment increased by 53 708 people, or nearly 35%. The highest number of employees was in foreign units located in Germany, Russia, the Czech Republic, Slovakia, and Ukraine. The dynamics of employment differ significantly across host countries. The highest increase was observed in Hungary (+236.5%) and Romania (+57.8%), while notable declines were recorded in the United Kingdom (–29.7%) and Ukraine (–19.2%).

There is a strong positive relationship between the number of employees in foreign units of Polish enterprises and net sales revenues from the sale of products, goods, and materials generated by these units. The value of Pearson's linear correlation coefficient equals 0.93, indicating a very strong positive association and a relationship that is close to linear in nature.

The results suggest that higher levels of employment in foreign units are associated with higher net sales revenues generated by these entities. To assess whether this relationship is consistent across different host countries, an additional correlation analysis was conducted between the number of employees in foreign units located in countries with the highest employment levels and the total net sales revenues generated by foreign units operating in those countries.

While a strong positive relationship is observed at the aggregate level - reflected in a Pearson's linear correlation coefficient of 0.93 between the total number of employees in foreign units and total net sales revenues from the sale of products, goods, and materials - an analysis conducted at the country level reveals substantial heterogeneity in the strength of this relationship. Specifically, the correlation coefficients calculated for the eight host countries with the highest levels of employment differ markedly depending on the country in which the foreign units operate.

Given cross-country differences in tax systems and reporting conditions, and in order to ensure analytical consistency and clarity, the correlation analysis at the country level was conducted using total net sales revenues generated by foreign units (Table 4).

Table 4. **Correlation between employment and total sales revenue in foreign units by selected host countries, 2015–2021**

| Countries: | Russia | Romania | Hungary | Germa-ny | Czech Republic | United King-dom | Slovakia | Ukraine |
|---|---|---|---|---|---|---|---|---|
| Pearson's linear cor-relation coefficient | 0,73 | 0,73 | 0,64 | 0,63 | 0,40 | 0,17 | -0,11 | -0,17 |

**Source:** own elaboration based on data from the Central Statistical Office (GUS), Information Department

In Russia, Romania, as well as in Germany and Hungary, a relatively strong positive association was observed between the number of employees in foreign units and the total revenues generated by these entities, as reflected by Pearson correlation coefficients exceeding 0.5. This suggests that higher employment levels in foreign units tend to be accompanied by higher revenue levels, while decreases in employment are generally associated with lower revenues. In the case of the Czech Republic, the relationship between employment and revenues was also present, although it was noticeably weaker, with the Pearson correlation coefficient remaining below 0.5. By contrast, in the United Kingdom, Slovakia, and Ukraine, the relationship between the analyzed variables was weak or negligible, with correlation coefficients below 0.2. In Slovakia and Ukraine,

weak negative correlations were identified, indicating that changes in revenues did not move in tandem with changes in employment levels. This pattern may be associated with differences in productivity levels, understood here as revenue per employee, although such an interpretation should be treated with caution. It is likely that other factors -such as price changes, cost structures, or market conditions - also played a role in shaping revenue dynamics in these countries. The observed differences between host countries may be explained by several factors, including differences in labor productivity, cost structures, market size, and institutional conditions. For example, stronger relationships observed in countries such as Germany and Romania may reflect more stable economic environments and higher integration into European value chains, while weaker or negative relationships in countries such as Slovakia or Ukraine may result from structural adjustments, market volatility, or differences in the sectoral composition of foreign entities.

An additional area of analysis concerns the relationship between the number of foreign units operating in individual host countries and the value of exports generated by these entities. Table 5 provides a country-level breakdown of total export values, focusing on host countries characterized by the highest employment levels in foreign units, including Germany, Russia, the Czech Republic, Ukraine, Romania, Slovakia, Hungary, and the United Kingdom.

Table 5. **Exports generated by foreign units in selected host countries, 2015–2021**

| | Export in PLN million in the years 2015–2021 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **Change 2015–2021 (%)** |
| Total exports | 42036,8 | 39740,3 | 44125,0 | 52059,0 | 46743,6 | 35430,9 | 66343,2 | +57.83% |
| Including country of headquarters: | | | | | | | | |
| Germany | 4529,0 | 3039,7 | 4334,2 | 3950,3 | 4357,6 | 2930,6 | 3094,0 | –31.68% |
| Russia | 168,2 | 170,7 | 239,6 | 277,5 | 338,8 | 387,6 | 546,9 | +225.15% |
| Czech Republic | 7588,1 | 5527,2 | 8135,7 | 9042,0 | 8627,3 | 6768,6 | 11731,0 | +54.59% |
| Ukraine | 679,5 | 775,6 | 853,3 | 1 160,5 | 1 160,5 | 576,4 | 775,6 | +14.14% |
| Romania | 1186,8 | 1415,8 | 1500,8 | 1608,0 | 1597,5 | 1253,0 | 1529,5 | +28.88% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Slovakia | 1008,9 | 957,5 | 609,7 | 636,3 | 505,0 | 406,0 | 472,1 | –53.19% |
| Hungary | 253,9 | 340,9 | 465,9 | 506,9 | 386,9 | 399,5 | 627,0 | +147.03% |
| United Kingdom | 3419,8 | 2517,4 | 1584,3 | 3985,9 | 1585,3 | 872,4 | 1073,4 | –68.61% |

**Source:** own elaboration based on data from the Central Statistical Office (GUS), Information Department

The variation in export dynamics across host countries indicates significant differences in the internationalization patterns of Polish enterprises. The highest growth rates were observed in Russia (+225.2%) and Hungary (+147.0%), which may reflect the increasing importance of these markets in the export activity of the analyzed firms. A noticeable increase was also recorded in the Czech Republic (+54.6%) and Romania (+28.9%), confirming the important role of Central and Eastern European countries as key areas of foreign expansion. At the same time, a decline in export values was observed in the United Kingdom (–68.6%), Slovakia (–53.2%), and Germany (–31.7%), which may indicate changes in the structure of firms' foreign operations, including possible shifts in the direction of expansion or differences in market conditions. The obtained results suggest that changes in export activity are spatially differentiated and related to the specific characteristics of individual foreign markets.

The Pearson correlation coefficient of 0.62 indicates a moderate positive association between the number of foreign units and the export value generated by these entities. An even stronger positive relationship is observed between total revenues and export values, as reflected by a Pearson correlation coefficient of 0.85. A weaker, though still noticeable, positive association is identified between export values and employment levels in foreign units, with a Pearson correlation coefficient of 0.52 and a coefficient of determination ($R^2$) of 0.27. This suggests that approximately 27% of the variability in export values is statistically associated with variations in employment levels, while the remaining variation is related to other factors not captured in the analysis. These relationships are observed at the aggregate level for the analyzed period and refer to all foreign units of Polish enterprises. Table 6 illustrates the evolution of interrelationships between key economic indicators of enterprises with foreign units during the period 2015–2021, focusing on host countries characterized by the highest levels of employment and total revenues generated by these entities.

Table 6. **Correlation between selected economic indicators of foreign units by host country**

| | Location of foreign units | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Relationship between | Germany | Czech Republic | Russia | United Kingdom | Slovakia | Romania | Ukraine | Hungary |
| The number of employees and total revenues | **0.63** | 0.40 | **0.73** | 0.17 | -0.11 | **0.73** | -0.17 | **0.64** |
| The number of foreign units and the number of employees | 0.03 | **0.52** | -0.37 | -0.29 | -0.24 | 0.37 | 0.32 | -0.22 |
| The number of foreign units and total revenues | 0.35 | **0.62** | **-0.66** | **-0.52** | 0.24 | **0.59** | **-0.82** | -0.22 |
| Total exports and the number of employees | 0.42 | 0.26 | **0.52** | 0.45 | -0.44 | 0.13 | **0.63** | 0.41 |
| Total exports and total revenues | **0.56** | **0.91** | **0.74** | 0.29 | -0.17 | 0.40 | **0.52** | **0.95** |
| Total exports and the number of foreign units | -0.39 | **0.66** | **-0.95** | **-0.70** | -0.13 | -0.11 | -0.39 | -0.15 |

**Source:** own elaboration based on data from the Central Statistical Office (GUS), Information Department

Given the limited number of observations, the reported correlations should be interpreted as descriptive associations rather than statistically robust causal relationships. The cross-country variation in the strength and direction of the analyzed relationships further confirms that the performance of foreign entities is influenced by country-specific economic and institutional conditions.

## 5. Discussion

The research results indicate that foreign entities of enterprises headquartered in Poland are closely associated with their economic performance, particularly in terms of sales revenues, employment levels, and export volumes. An analysis of data from the period 2015–2021 reveals a generally upward trend in revenues, despite temporary declines

observed in selected years. These findings are consistent with earlier studies, which highlight that the internationalization of business activities is commonly accompanied by an expansion in the scale of operations and improved financial outcomes over the long term (Dunning, 1994; Helpman et al., 2004).

The decline in revenues observed in 2020 coincides with the period of the COVID-19 pandemic and may be associated with an external shock affecting international economic activity. Similar observations are reported by Baldwin and Freeman (2021), who point to sanitary restrictions, disruptions in global supply chains, and weakening international demand as factors that adversely affected firms operating outside their home countries. At the same time, the recovery of revenue levels observed in 2021 suggests a relatively high degree of resilience among foreign entities of Polish enterprises. This observation is consistent with previous research emphasizing the adaptive capacity of internationally active firms when faced with external shocks (Verbeke, 2013).

The observed positive association between the number of foreign entities and the level of sales revenues can be theoretically grounded in the eclectic paradigm, which emphasizes that international expansion enables firms to benefit from locational advantages and improved access to foreign markets (Dunning, 1991). At the same time, the moderate value of the coefficient of determination indicates that variation in the number of foreign entities alone does not account for a substantial share of revenue variability. These findings are consistent with the results reported by Contractor, Kumar, and Kundu (2007), who argue that the outcomes of international expansion depend not only on its scale but also on qualitative factors such as the effectiveness of foreign operations, managerial capabilities, and overall operational efficiency, which are closely associated with firms' financial performance.

The very strong positive association observed between employment levels in foreign entities and the revenues they generate highlights the importance of human capital in the operations of internationally active firms. Similar patterns were reported by Kokko (2003), who emphasized that employment levels are closely linked to production and sales outcomes in foreign subsidiaries. At the same time, the variation in the strength of this relationship across host countries suggests that the employment–performance nexus is context-dependent and may be shaped by differences in labor productivity, labor costs, and institutional conditions (OECD, 2018).

Low or negative correlation values between employment levels and revenues observed in selected countries may be indicative of changes in labor efficiency or structural adjustments in the functioning of foreign entities. Such patterns can be interpreted as reflecting processes in which revenues evolve independently of employment levels. This interpretation is consistent with the arguments put forward by Helpman (2011), who notes that restructuring processes in internationally operating firms are often associated with productivity gains that do not necessarily require an increase in labor input.

An analysis of the export activity of foreign entities reveals a clear positive association between export values and total revenues, highlighting the importance of foreign subsidiaries within international value chains. The obtained results are consistent with the findings of Bernard et al. (2007) and Head and Ries (2001), who emphasize the prominent role of multinational enterprises in global trade flows. At the same time, the relatively weaker relationship observed between export values and employment levels suggests that export performance may increasingly be linked to qualitative factors, such as innovation intensity, product specialization, and the degree of integration into global production networks (Gereffi, 2019).

The heterogeneous nature of the relationships between the analyzed variables across individual host countries highlights the relevance of local institutional and economic conditions in the functioning of foreign operations. As noted by Beugelsdijk et al. (2018), factors such as tax regimes, regulatory stability, and country-specific market conditions are closely associated with the operating strategies and performance of foreign business entities. Accordingly, the results suggest that Polish enterprises adopt differentiated approaches to internationalization, adjusting their strategies to the institutional frameworks and economic characteristics of individual foreign markets.

In summary, the results obtained largely correspond with existing findings in the literature on the functioning of multinational enterprises and foreign direct investment. Nevertheless, it should be emphasized that the use of aggregate data constitutes an important limitation of the analysis, a limitation that has also been highlighted in previous empirical studies (Wagner, 2012). Future research could therefore focus on the use of micro-level data and the inclusion of productivity-related measures, which would allow for a more detailed examination of the mechanisms through which foreign expansion is associated with the economic performance of enterprises.

## 6. Conclusions

The tabular summary presented above indicates that both the strength and direction of the relationships between the analyzed economic variables vary considerably across countries. The results show that associations observed at the aggregate level for all foreign units do not necessarily translate into similar patterns at the level of individual host countries. At the global level, a moderate positive association is observed between total export values and the number of foreign units, as reflected by a Pearson correlation coefficient of 0.62. However, among the host countries in which the largest number of foreign units of Polish enterprises operate, a comparable positive association is identified only in the Czech Republic (Pearson's $r = 0.62$). In other countries, the relationship between these variables is either weak or, in some cases, strong but negative, as observed for Russia and the United Kingdom. With regard to the relationship between total export

values and total revenues, a strong positive association is observed at the aggregate level for all foreign units worldwide (Pearson's r = 0.85). This suggests that higher export values tend to be accompanied by higher total revenues. A similar positive association is identified in most neighboring countries, with the exception of Slovakia, where a negative correlation is observed. In the case of Slovakia, export values declined substantially over the analyzed period, while total revenues of foreign units remained relatively stable or increased in the final year compared to the base year. This pattern indicates that changes in revenues were not closely aligned with changes in export activity. In the remaining countries, the association between exports and revenues is predominantly positive, with particularly strong and near-linear relationships observed in the Czech Republic and Hungary.

At the global level, during the analyzed period, a moderate positive association was observed between the number of employees in foreign units and the export values generated by these entities, as reflected by a Pearson correlation coefficient of 0.52. A country-level analysis covering eight host countries with the highest employment levels reveals substantial variation in the strength and direction of this relationship. A particularly strong positive association is observed in the case of Russia, while in the remaining countries the relationship between employment and export values is weaker or moderately strong. In these cases, changes in employment levels tend to be accompanied by corresponding changes in export values, although the strength of this association differs across countries. An exception is observed in Slovakia, where a clear but negative correlation is identified. During the analyzed period, employment levels in foreign units operating in Slovakia increased, while export values declined. This pattern indicates that changes in export activity were not aligned with changes in employment levels in this country.

The analysis indicates that a relatively strong positive association between net sales revenues and employment levels in foreign units of enterprises headquartered in Poland was observed during the period 2015–2021 in Russia and Romania (Pearson's r = 0.73), as well as in Hungary and Germany (r = 0.64 and r = 0.63, respectively). Weaker, though still positive, associations were identified in the case of foreign units operating in the Czech Republic and the United Kingdom. By contrast, in Slovakia and Ukraine the relationship between employment levels and net sales revenues was weak and negative, with Pearson correlation coefficients of −0.11 and −0.17, respectively. These results indicate that the strength and direction of the association between employment and revenues differ across host countries, pointing to a clear territorial differentiation in the patterns observed. At the aggregate level, a moderate positive association is observed between the total export value and the number of foreign units, as reflected by a Pearson correlation coefficient of 0.62. Similarly, a strong positive association exists between total export values and total revenues generated by foreign units on a global scale (Pearson's r = 0.85).

The analyses conducted allow for an assessment of the research hypotheses formulated in the study. The results indicate that the degree of internationalization of Polish enterprises is relatively higher in neighboring countries, as reflected in the number and scale of foreign entities operating in these locations. This pattern is associated with the economic scale of foreign units and selected economic characteristics observed in host countries. The empirical findings reveal that variations in key economic indicators - such as expenditure on tangible fixed assets, sales revenues, employment levels, and import and export volumes - are closely associated with changes in the number of foreign entities as well as with country-specific investment conditions. The results further suggest that Polish enterprises display a growing engagement in Central and Eastern European countries. This tendency may be linked to factors such as geographical proximity and cultural similarities, which are frequently emphasized in the literature as facilitating coordination and operational efficiency within international production and supply networks. In addition, the observed patterns are consistent with broader trends discussed in recent studies, including the increasing relevance of nearshoring strategies and efforts to reduce dependence on distant markets. These developments are commonly associated with improved risk management and greater resilience of international operations. Overall, the empirical and theoretical analyses provide a coherent picture of the internationalization patterns of Polish enterprises and highlight the importance of Central and Eastern Europe as a key area of foreign economic activity. While the results support the proposed hypotheses at an associative level, they should be interpreted with due caution, given the descriptive and correlational nature of the analysis.

## 7. Limitations and future research

This study has several limitations. First, the analysis is based on aggregated data, which does not allow for firm-level heterogeneity to be captured. Second, the use of Pearson's correlation coefficient limits the analysis to linear relationships and does not allow for causal inference. Third, the relatively short time series may affect the robustness of the results.

Future research could focus on:

- the use of firm-level (micro) data,
- the application of more advanced econometric methods,
- the inclusion of additional variables such as productivity, innovation, or profitability,
- comparative studies across countries.

Addressing these limitations would allow for a more comprehensive understanding of the internationalization process of enterprises.

## Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author used DeepL to assist with grammar and clarity checks. After using this tool, the author reviewed and edited the content as necessary and takes full responsibility for the content of the publication.

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