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### REFLECTION OF FOREIGN INVESTMENTS AND FOREIGN TRADE IN ROMANIA



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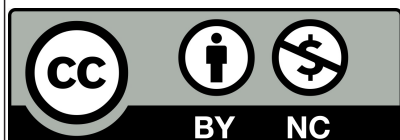
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# REFLECTION OF FOREIGN INVESTMENTS AND FOREIGN TRADE IN ROMANIA

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## ABSTRACT

Foreign direct investment (FDI) plays a critical role in shaping a country's trade performance by enabling multinational enterprises to access new markets and expand production and distribution networks. The purpose of this study is to investigate the impact of foreign investment inflows on foreign trade in Romania over the period 2003–2022, using annual time-series data. Following stationarity tests, the Granger causality approach was applied to determine the direction of causality between the variables. The empirical findings reveal a unidirectional causal relationship running from FDI to foreign trade, indicating that FDI inflows significantly stimulate Romania's trade volume, while the reverse relationship is not statistically supported. These results suggest that policies aimed at attracting foreign investment can serve as an effective tool for enhancing Romania's trade performance and integration into global markets.

**Keywords:** *foreign investments, foreign trade, emerging economies, Romania, Granger causality*

**JEL Classification:** F14, F21, F23, C22.

**UOT:** 339.727.22:339.5(498)

## INTRODUCTION

It is believed that trade and foreign direct investment are critical to an economy's growth. Trade offers substantial benefits for skill sets that may be enhanced by innovation and high-productivity technologies. As direct rivals in the global economy or as subcontractors for multinational corporations, exporters stand to gain from technical advancements and breakthroughs (Anda et al., 2023). An important part of the growth of the host nations is foreign direct investment (FDI). FDI is thus acknowledged as one of the most important external finance sources for all nations in the era of globalization. Both directly and indirectly, the significance of FDI in the economy landscape of industrialized nations benefits host nations. By introducing new technology and managerial abilities, foreign investments are an important resource for emerging nations' production, exports, job creation, and overall economic progress.

Numerous factors, including capital, taxes, inflation, budget deficit, etc., are involved. via agreements like subcontracting, local businesses might get access to new foreign markets

via relationships with big corporations. The acquisition of export-oriented capacity and industrial restructuring made possible by FDI boost the competitiveness of the host nation (Voica et al., 2021). The primary indicators of the growth of Ukraine's foreign economic activity were examined in Martyniuk and Muravska's (2020) research, and an effort was made to design a foreign trade partnership plan with the goal of enhancing the nation's economic security.

As an independent sector of the domestic economy, foreign commerce plays a significant role in economic development, is influenced by business internationalization, and is essential to the globalization process (Paliu-Popa, 2011). With the strengthening of global markets, the escalation of international commerce, and technical advancement, starting a business in the formerly communist nations of Central and Eastern Europe has advanced significantly. Mariana et al. (2011) point out that there is a geographical variation in the number of foreign investments in this sector, and they stress that this is because the economies of the host nations vary in their attractiveness. There are also those who claim that imports of goods and services and foreign direct investment have a detrimental effect on Romania's economic growth. They support the implementation of appropriate policies to boost economic growth and the adoption of cautious measures to address trade and foreign investment uncertainties in Romania (Anda et al., 2023).

From this point of view, the aim of this study is to examine the impact of foreign investment inflows on foreign trade in Romania for the period 2003-2022. This study includes the following: the Section 1 includes literature reviews on foreign investments and foreign trade, Section 2 shows the dataset and methodology, including the purpose and analysis method of this study, the Section 3 shows the findings of this study, and the Section 4 includes the discussion and conclusion of the study.

## **BACKGROUND AND LITERATURE REVIEW**

### **Foreign Investments**

For many global economies to succeed, foreign inflows—especially foreign direct investment, or FDI – are essential. To entice FDI, some economies have modified their frameworks for FDI policies and put in place unique requirements, such tax cuts and other incentives (Duarte et al., 2017). Foreign direct investment frequently serves as a crucial catalyst for economic growth and development in the nations that welcome it (Hayat, 2019). A study by Alexiou (2009) found that trade openness and gross fixed capital creation both boosted economic development in seven countries in Southeastern Europe for the period 1995-2005. However, increasing exports, encouraging foreign investors to invest in the country, and increasing the flow of foreign visitors are effective ways for a country to maintain its foreign exchange reserves (Huseynli, 2022a).

There are many different definitions of FDI. FDI is defined by the OECD (2015) as “an investor’s sustained interest in and significant influence over the operations of an enterprise in an economy”. The infrastructure of the host nation may be improved with the aid of foreign direct investment, which can boost economic development and productivity. Additionally,

there are other ways to do this, including investing in a joint venture with a foreign partner, buying shares in a foreign firm, or setting up a subsidiary or affiliate business abroad (Chiriluş & Costea, 2023). FDI can increase the export capacity of developing economies and thus their foreign exchange earnings. A nation's economy may gain from FDI flows in a number of ways, such as the creation of jobs, the spread of important technology, and higher productivity (Belloumi, 2014).

There is still a need for a thorough understanding of how FDI affects many economic aspects in many nations, particularly their involvement in the global monetary system. For low-income nations with less developed financial systems and less established economies, this monetization strategy is nevertheless crucial (Sirag et al., 2018). The local investment market in the host nation may benefit greatly from foreign direct investment (FDI) (Anda et al., 2023). Multinational Enterprises (MNEs) from top Western nations that invest overseas by using their global leadership and competitive advantage have been the subject of early FDI study (Knoerich, 2017). FDI is favored above other types of capital because of its net cash flow. The economic advantages are welcomed by investors and the participating economies (Anda et al., 2023).

Inflows of FDI are one of the main forces behind globalization and are becoming more and more significant in a nation's economic growth. Economic growth serves as a critical indicator of a nation's expanding economic share and is a significant variable for all countries (Huseynli, 2022b). The macro determinants of FDI inflow to Japan between 1989 and 2002 were studied by Kimino et al. (2007). The dependent variable was the amount of FDI that came into Japan from 17 different countries; the independent variables were the GDP, the export performance of the source countries, the relative bilateral exchange rate, the variations in borrowing costs, the relative labor cost, and the national risk rating.

The FDI influx increases the strength of the economic development engine. For the transfer of capital and technology globally in general, FDI is becoming an important strategy (Neuhaus, 2006). However, as Yakubovskiy, Rodionova, and Derkach (2019) point out, the benefits of drawing in foreign capital, particularly FDI, are frequently matched by the financial resources leaving the country in the form of foreign investment income and a general decline in the recipient nations' current account balances. However, the 4-5% GDP FDI share aids in mitigating the adverse effects of financial crises (Sukhadolets et al., 2021).

An important factor in the growth of national economies is foreign investment. According to Yakubovskiy, Rodionova, and Derkach (2019), multinational corporations in developed nations benefit from many initiatives that prolong the life cycle of products, create innovative methods to enhance sales in foreign markets, lower internal manufacturing costs, etc. Economic development is a social requirement since it reduces social tension, increases unemployment, and improves living standards. It is also a necessary for the economy because a stagnant economy increases the budget deficit (Ciobanu, 2021).

It is argued that inflows of FDI can facilitate increased exports in host countries (Bajgar & Javorcik, 2020). Zarotiadis (2008) identifies three primary drivers of FDI and the ways in which it impacts trade flows.

- 1) The reason FDI moves from the country of origin to the host country is the quantity of money in the origin country, which comes from investments made abroad. In this instance, trade flows suffer because FDI investment eliminates the comparative advantages that mimic trade.
- 2) It claims that since the host nation has to leverage its comparative advantages, FDI moves from the country of origin to the host nation. In this instance, trade flows rise as a result of rising exports from the home country.
- 3) It indicates that when businesses decide to enter international markets through exports or FDI, they do so based on a variety of factors, including the cost of transportation, trade restrictions, and the size of the host nation. FDI moves to the host nation from the country of origin.

Capital, technology, and knowledge may all be brought to the nation that receives investment from outside. Consumers may benefit from higher-quality goods and services as a result of more competition in the local market. Foreign direct investment may also aid in the development of new markets for domestically produced products and services, which can boost exports and economic growth (Brada et al., 2021).

Multinational corporations frequently orchestrate and oversee global value chains through vertical foreign direct investment strategies aimed at minimizing labor expenses (Baldwin, 2011). This phenomenon has significantly impacted developing and emerging nations, particularly China, resulting in a tangible trade creation effect (Escaith, Nannette Lindenberg, and Miroudot 2010) as a consequence of the growth in intermediate trade of inputs. Foreign direct investment (FDI) has recently emerged as the paramount source of new infrastructure financing globally and stands as the most reliable and extensive source of foreign capital flows to emerging economies during their transitional phases. A multitude of studies has demonstrated that foreign direct investment fosters knowledge transfer, enhances human capital development, and bolsters firm competitiveness. The heightened economic activity resulting from these factors is essential for the eradication of poverty and the enhancement of living standards (Vendrell-Herrero et al., 2018; Wang & Chen, 2014; Li & Liu, 2005). A study by Huseynli (2022c) explored the causal relationship between the advancement of the tourism sector in Morocco, South Africa, and Tanzania, and the influences of foreign investments, total capital increases, and economic growth within these nations. The study revealed a causal relationship among various variables across all three nations.

Countries with superior institutional qualities are positioned to attract greater investment by mitigating uncertainty and lowering the cost of conducting business. To enhance institutional quality, it is essential to establish reform-oriented institutions that effectively address corruption (Tun et al., 2012; Aziz & Mishra, 2018). Foreign Direct Investment (FDI) serves as a significant source of capital, contributing positively to economic growth and development in numerous countries. It has the potential to generate employment, enhance productivity, and promote economic activity. It may also facilitate the introduction of new technologies and management practices to the host country. Improper management of FDI may lead to adverse effects for the host country (Chiriluş & Costea, 2023). Conversely, foreign

direct investment (FDI) is identified as a significant source of foreign exchange. This has notably aided certain established yet indebted economies in their expansion and development. It generates essential funding and enables the host country to assimilate and benefit from advanced innovations from abroad. The advancement of the financial sector is essential for the overall development of a financial system, as it facilitates foreign direct investment and enhances revenue generation. Without foreign direct investment, this effect does not manifest (Anda et al., 2023).

## **Foreign Trade**

International trade facilitates the unrestricted movement of goods, services, and factors of production across borders. Foreign Direct Investment (FDI) has historically played a crucial role in the continued growth of numerous economies and remains significant in this regard. The effects of trade are substantial, varying in intensity across different regions. Numerous policymakers and economists have contended that free trade is preferable to restricted trade, as it diminishes poverty, reduces inflation, and enhances employment opportunities (Anda et al., 2023).

Exports and trade are significant determinants of economic growth. Key explanatory variables of foreign direct investment (FDI), including market size, trade openness, market instability, fiscal rules, and taxation, are predominantly linked to economic and financial factors. In the study conducted by Carmen (2011), Romania's accession to the European Union, its benefits and costs, advantages and disadvantages of accession were examined. As a result of the study, some recommendations were presented to policy makers. In the study conducted by Paliu-Popa (2011), Romania's foreign trade evolution was examined separately between 2000-2010 according to two components, export and import, without excluding the trade balance. The study conducted by Mariana et al. (2011) do not provide an economic analysis of the "cause-effect relationship" between Romania's active manufacturing exports and the attractiveness, management, and foreign investment utilization of the Romanian economy under the overall effects of the global financial crisis. Instead, they highlight the benefits of foreign companies in evaluating the Romanian economy's capacity to absorb technology. The presentation, interpretation, and analysis of the situation of international double taxation—more especially, the taxation on business profits—are covered in the paper by Dumiter and Jimon (2017). This topic is very significant and currently of interest in Romanian law. As a result of the study, a real warning is presented about the need for taxpayers and tax authorities, both nationally and internationally, to take measures that consider the global structure of the constantly changing and evolving contemporary business environment, in terms of corporate profits.

After examining 120 nations from 1970 to 1997, Halit Yanikkaya (2003) concluded that trade boosted economic development in developed countries as well as developing ones. Irwin (2002) looked at extremely long-term patterns in global income and commerce. He concluded from the study that there was a structural break during the period between the mid-1980s and 2000, presumably because of a new, much more liberal regime for exports under the auspices

of GATT and the World Trade Organization (WTO), and that trade grew marginally faster than income between 1950 and 2000 (with a trade elasticity of 1.7). Today, FDI is a major source of support for many governments' commitment to free trade and the growth of multinational firms. Global policymakers have prioritized increasing foreign trade and foreign direct investment (Anda et al., 2023).

The research by Nikolaos Dritsakis and Pavlos Stamatou (2018) looked at the long-term and short-term benefits of trade openness on economic development for 13 newly admitted EU nations between 1970 and 2015. The study's findings revealed that trade openness had a favorable impact on economic development over both the short and long haul.

Economic progress is often fueled by foreign commerce. New industries have emerged in nations with free trade policies as a result of the growing demand for domestically produced products in international markets. The amount of FDI inflows is greatly influenced by the host nation's political and economic stability, which is a key component in luring FDI. Even if the relationship between GDP and FDI has been studied, more aspects need to be looked at (Anda et al., 2023).

## **Literature Review on Foreign Investments and Foreign Trade**

The link between foreign trade and FDI is contingent upon the nature of the investment (market, resource, or efficiency search), as well as the tactics used by multinational corporations. Trade between the host nation and the parent country in the case of the branch independent strategy consists of specialized exports of products or services from the parent firm to the subsidiaries. A straightforward integration technique used by the multinational corporation might result in sizable exports from the host nation. The export of goods, resources, expertise, and services increases as the chosen integration approach becomes more intricate, both within the corporate system and in interactions with external businesses (Voica et al., 2021).

Because money and capital may be transferred quickly across borders, foreign direct investment is essential in today's globalized economy (Anda et al., 2023). The introduction of innovative technology, procedures, and tactics for improved economic performance is the primary advantage of foreign direct investment (FDI) for emerging economies. Economists and political activists are fascinated by the connection between foreign direct investment (FDI) and economic progress, as Anda et al. (2023) contend. More cross-border economic ties, lower trade barriers, and more broadly dispersed opportunities for foreign direct investment are characteristics of modernity. China's growing proportion of global manufacturing exports over the past couple of decades (from 3% in 1990 to 25% in 2016) is a significant finding for global trade because any long-term structural shift in the Chinese economy might have an impact on global commerce. Accordingly, a major change from a model of trade growth driven by exports to one driven by domestic demand is a structural element that may eventually account for the slowdown in global trade (Hong et al., 2017). However, governance stability is a crucial need for the nation that receives the FDI influx to flourish economically (Žarković et al., 2024).

Examining the link between trade, FDI, and economic advancement in different nations is essential to give evidence suggesting whether FDI and trade or growth, trade, and FDI are responsible for the region's fast economic development (Anda et al., 2023). It is unclear how much this link represents the growing tendency of trade and foreign direct investment in both home and foreign economies, as well as how one influences the other (Liu et al., 2009).

In this respect, Romania will be affected "highly" in the field of high-tech goods and services, but "lowly" in general. This result is similar to the results obtained by Irwin (2015). For example, a study conducted by Irwin (2015) indicated that Romania, Italy, Croatia and Slovenia were the least affected member states after the United Kingdom's exit from the EU.

By providing access to new international markets, technological externalities, and increased human capital, FDI has been shown to have a positive knock-on impact on the local economy (Moraru, 2013; Almfraji & Almsafir, 2014). A high immigrant population lowers Romania's ability to compete for foreign investment. The possibility for returning labor may boost Romania's attraction to investors in the long run, even as immigration lowers the country's capacity to draw FDI in the near term owing to the loss of staff (Cichock, 2009). Chiriluș and Costea (2023) examined the connection between Romania's GDP growth, trade openness, CO2 emissions, and foreign direct investment (FDI). According to the research, FDI inflows, GDP growth, and CO2 emissions are significantly correlated, with GDP growth having a bigger effect on FDI than CO2 emissions.

Romania still depends more on the growth of bigger industries than on domestic or foreign investment. Plans to privatize the banking and energy sectors have attracted foreign investment. Foreign direct investment influences the spread of contemporary technology, the development of human resources, the rise in domestic investment, and the growth of global commerce (Anda et al., 2023). For the Chinese economy between 1984 and 1998, Liu et al. (2001) looked at the causal link between FDI and trade (exports and imports). Purchaser and Ucal (2003) used data from Türkiye for the years 1987–2002 to investigate the causal relationship between exports, FDI, and production. Panel data analysis was used in the Demirhan and Masca (2008) research to examine the factors that influenced FDI inflows into 38 developing nations between 2000 and 2004.

Ho et al. (2013) investigated the relationship between trade openness, market size, and other FDI foundations in six rapidly growing countries: Brazil, China, India, Russia, South Africa, and Malaysia. The research was carried out between 1977 and 2010. Using panel data, Seyoum et al. (2014) investigated Granger causal relationships between trade liberalization and foreign direct investment in 25 Sub-Saharan African countries from 1977 to 2009.

Andrey et al. (2020) looked at Romania's foreign trade competitiveness from 2007 to 2016 and how much of it was concentrated in key markets. A study by Bajgar and Javorcik (2020) found that there is a positive correlation between the presence of multinational corporations (MNCs) in upstream (input-providing) industries and the quality of products exported by Romanian companies. The study used customs data along with company-level information for the years 2005-2011. In 2020, Akadiri et al. looked explored the connections

between trade openness, economic development, and FDI for 25 African nations between 1980 and 2018.

The connection between FDI and growth in the economy was investigated in the research by Misztal (2010) using Romania as an example for the years 2000–2009. Between 1975 and 2009, Ranjan and Agrawal's (2011) research examined the variables that affected foreign direct investment's admission into the BRIC nations—Brazil, Russia, India, and China. Market size, economic health and development expectations, infrastructure, trade openness, labor costs, gross capital formation, and the overall labor force were all independent variables in the model. The research by Albu (2013) looked at the Romanian instance and the relationship between GDP and exports of FDI.

Hintošová et al. (2018) looked at the factors that affected the flow of FDI into Poland, Hungary, the Czech Republic, and the Slovak Republic—the Visegrad countries—between 1989 and 2016. The model used market size, labor cost, trade openness, economic stability, innovation, and taxation characteristics as independent variables. Sabir et al. (2019) investigated the impact of the level of institutions on FDI inflows from 1996 to 2016 using panel data collected for low, lower middle, upper middle, and high-income countries. Based on available statistical data, Ciobanu (2021) examined the effects of foreign direct investment (FDI) on GDP growth as well as the causal relationships between GDP, trade liberalization, employment rates, and FDI in the case of Romania over the 1991–2018 period.

The current foreign investment regime in Romania is designed to attract foreign investors. The basic principles adopted in the Community on the subject have been transferred to Romanian legislation, namely: freedom in the forms and methods of investment, open access market and equal treatment of Romanian and foreign investors, resident or non-resident, in all areas of economic activity, the right of foreign investors to return their investment profits after paying taxes and legal fees (Ceaurescu et al., 2009). Stanciu (2020) discusses issues such as the UK's withdrawal from the EU, its possible effects on the Romanian economy and the impact on trade. The very pessimistic concerns about the repatriation of more than 170,000 Romanians from the UK and the financial losses of over 800 million euros, and the risk of Romania losing an important trading partner with investments worth up to 1.5 billion euros in the national economy with which it has a positive trade balance, are among the main reasons why Brexit is a topic of discussion for Romania. Issues such as possible trade losses suffered by Romania, narrowing bilateral transactions and the eventual decrease in foreign investment due to British investors withdrawing were evaluated from an economic standpoint.

The effects of trade, final consumer spending, exports and imports of goods and services, and foreign direct investment on Romania's economic development were examined by Anda et al. (2023). Using yearly data from 1990 to 2020, the research looked at the link between the variables using both short-term and long-term analytical estimations. The study's findings showed that, via both positive and negative shocks, trade and final consumer expenditure variables had a short-term beneficial impact on Romania's economic development. The long-term research revealed that variable foreign direct investment had a negative relationship with economic development in Romania, but variable trade and final consumer spending had a beneficial impact via both positive and negative shocks.

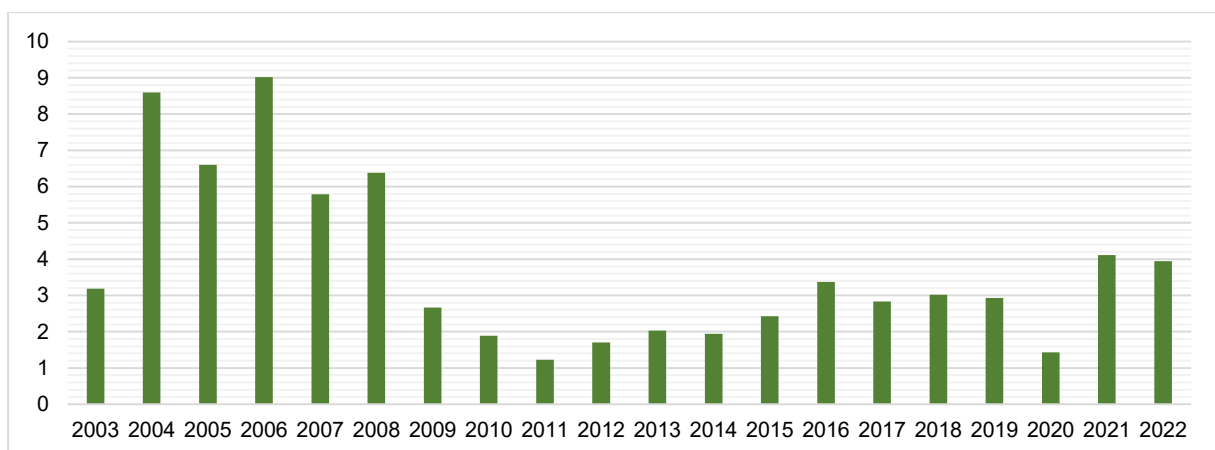
Voicea et al. (2021) looked at data from three EU country groups (Bulgaria and Romania, the Visegrád Group, and the Eurozone) over the years 2005–2019 in order to analyze the connection between trade and FDI. The causes of trade openness and FDI inflows into Romania between 1997 and 2019 were investigated in the paper by Rathnayaka et al. (2021). Using yearly

## METHODOLOGY

### Purpose and Data Set

The World Bank database provided the statistical data needed for the research. The data used in the study includes the years 2003–2022. The data set was evaluated on an annual basis. Both foreign investments and foreign trade volume are included in the analysis as a percentage structure of GDP. Romania's level of FDI between 2003 and 2022 is shown in Figure 1.

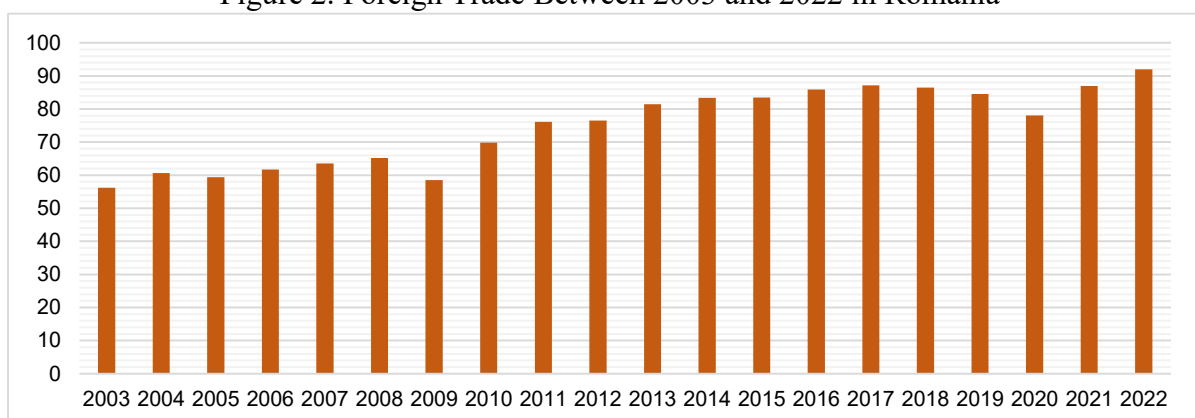
Figure 1. Foreign Direct Investments between 2003 and 2022 in Romania



Source: World Bank

The Figure 2 gives Romania's foreign trade level between 2003 and 2022.

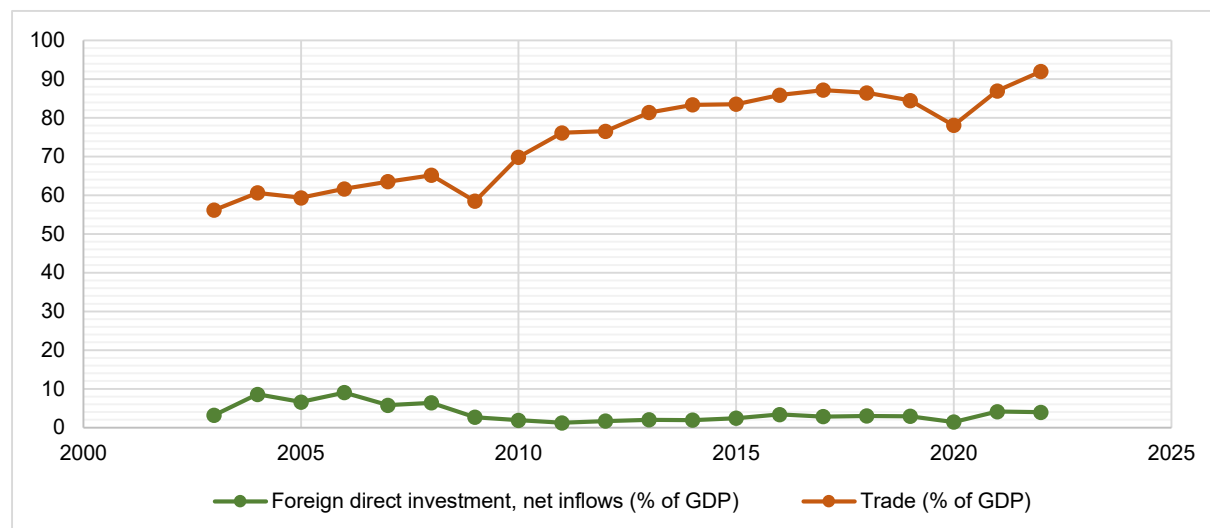
Figure 2. Foreign Trade Between 2003 and 2022 in Romania



Source: World Bank

In Figure 3, the relationship between FDI and foreign trade level of Romania between 2003 and 2022 is shown comparatively.

Figure 3. Foreign Direct Investments and Foreign Trade between 2003 and 2022 in Romania



Source: World Bank

### Analysis method

In the context of econometric time series analysis, causal links are often determined by testing for Granger causality (Granger 1969, 1988). This process is usually grounded in the idea of predictability. To ascertain if there is a Granger causality link between variables, the Granger causality test is applied to the variables.

Granger (1969) was the one who initially introduced the Granger causality test. One common way to find out whether two time series variables are causally related is to use the Granger causative test. Thus, using testing for Granger causality, it was attempted to ascertain if international trade and foreign direct investment had an impact on each other in Romania.

If variable Y can be predicted more accurately using data from both X and Y than using data from Y alone, then variable X is said to be the Granger cause of variable Y in the Granger causality test. Information was supplied by the World Bank. Applying the Augmented Dickey-Fuller (ADF) unit root method and the Granger causality test were part of the analytical step. After doing unit root testing on all the data, it is helpful to investigate whether these variables are causally related. Following the assessment of the lag length and the confirmation that the series of values are stationary at the identical level, the second stage was conducting the Granger causality test.

## ANALYSES AND RESULTS

Information about the variables required for analysis is included in Equation 1. For the study, foreign investments and foreign trade were considered as variables.

$$variables = f (foreign\ investment , foreign\ trade) \quad (1)$$

In order to measure the effects of the variables on each other, each of them was considered as dependent and independent. In this way, two equations were obtained. Equations 2 and 3 include our model required for analysis.

$$foreign\ investment = \beta_0 + \beta_1 foreign\ trade \quad (2)$$

$$foreign\ trade = \beta_0 + \beta_1 foreign\ investment \quad (3)$$

Before performing causality analysis, a series of assumption tests must be tested first. These tests are the determining factors on the way to the analysis, which is the final stage. The first and most important of these assumptions is testing the stationarity of unit roots. The application of the ADF test to the variables in our data set yielded significant results, it was determined that level stationarity was not achieved in both variables. In the ADF test that was applied again later, it was concluded that only the second-order data were stationary. The test results for both level-order and quadratic stationarity are given in Table 1.

The ADF test serves as a widely utilized approach for assessing the stationarity of a time series. If a time series is not stationary, its mean and variance change over time, which creates problems for the sound performance of economic analyses. This test determines whether the root of the series is unitary.

The outcomes of these tests are essential for assessing the stationarity of the data. The stationarity of the series utilized in econometric models – specifically, the determination of whether the analyzed series are stationary – has a substantial impact on the outcomes of the empirical model (Huseynli, 2023). If the data is not stationary, conducting causality analyses such as Granger causality can be misleading, because such analyses can only yield sound results using stationary data. Therefore, when the data are stationary in the second degree after taking the difference, Granger causality analysis can be performed. This allows the causal relationship between the two variables to be correctly assessed. When considered from this perspective, the ADF test results given in Table 1 reveal that the foreign investments and foreign trade data in Romania are not stationary at the level, but show stationarity in the second degree.

Table 1. Information on Stationarity Levels of Data

| Level Values of Series                    |     |                    |             |               |             |
|-------------------------------------------|-----|--------------------|-------------|---------------|-------------|
| ADF test result                           |     | Foreign investment |             | Foreign trade |             |
|                                           |     | t-statistics       | Possibility | t-statistics  | Possibility |
| ADF testing statistics                    |     | -1.910669          | 0.3199      | -0.972529     | 0.7410      |
| Test<br>Critical Values                   | %1  | -3.886751          |             | -3.831511     |             |
|                                           | %5  | -3.052169          |             | -3.029970     |             |
|                                           | %10 | -2.666593          |             | -2.655194     |             |
| Stationarity Level of Second Order Series |     |                    |             |               |             |
| ADF test result                           |     | Foreign investment |             | Foreign trade |             |
|                                           |     | t-statistics       | Possibility | t-statistics  | Possibility |
| ADF testing statistics                    |     | -15.72111          | 0.0000      | -4.893409     | 0.0016      |
| Test<br>Critical Values                   | %1  | -3.886751          |             | -3.920350     |             |
|                                           | %5  | -3.052169          |             | -3.065585     |             |
|                                           | %10 | -2.666593          |             | -2.673459     |             |

Source: Authors' calculations

In this context, firstly, the stationarity of the data at the level was tested within the scope of the study. In other words, it was checked whether the time series was stationary at the initial level. This was done with the ADF test and the results are shown in Table 1. The stationarity of the data was evaluated with the t-statistics and p-values obtained in this test. Here, the p-value is 0.3199, which is a value well above the 5% significance level. In addition, the t-statistic (-1.910669) remains at a value higher than the critical values (especially at the 5% level -3.052169). This situation shows that the foreign investment series is not stationary at the level.

A similar situation is also valid for the foreign trade data. The p-value is 0.7410 and the t-statistic is -0.972529, which shows that there is no stationarity at the level. Therefore, the foreign trade series is also not stationary at the level. With this, it was determined that both foreign investments and foreign trade data were not stationary at the level. This situation shows that the data is not suitable for direct analysis because non-stationary series show random fluctuations over time and may create problems in modeling.

After concluding that the data were not stationary at the level, it was tested whether these data could be differenced or whether the series became stationary after the difference was taken. The ADF test was repeated for second-order stationarity and the results are given in the "Stationarity Level of Second Order Series" section in Table 1.

As can be seen from the relevant section, the foreign investments series was stationary at the second order. The T-statistic was -15.72111, much lower than the critical values (especially at the 1% critical -3.886751). In addition, the p-value was 0.0000, which shows that we rejected

the null hypothesis there exists a common root) and the series was stationary. The foreign trade series also shows second-order stationarity. Here too, the t-statistic is -4.893409, below the critical values, and the p-value is 0.0016, which indicates that the series is stationary.

Finally, it was observed that both the foreign investments and foreign trade series exhibited second-degree stationarity, that is, the data became stationary after the difference was taken. This situation is necessary for the validity of advanced analyses to be made on the series.

Following the application of the ADF test, the stationarity level of the variables was assessed, the next necessary assumption was made. With this assumption, appropriate lag lengths of the data were determined. As can be seen from Table 2, the most optimal delay length was determined to be five. Information on appropriate delay length is included in Table 2.

Table 2. The result of Appropriate Delay Length

| Lag | LogL      | LR        | FPE       | AIC       | SC        | HQ        |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|
| 0   | -78.86401 | NA        | 165.0931  | 10.78187  | 10.87627  | 10.78086  |
| 1   | -60.42808 | 29.49748* | 24.34323  | 8.857078  | 9.140298  | 8.854061  |
| 2   | -57.14464 | 4.377926  | 27.93347  | 8.952619  | 9.424652  | 8.947590  |
| 3   | -49.71381 | 7.926216  | 19.60836* | 8.495175  | 9.156022  | 8.488135  |
| 4   | -47.60981 | 1.683197  | 31.33733  | 8.747975  | 9.597636  | 8.738925  |
| 5   | -38.01659 | 5.116388  | 23.02841  | 8.002212* | 9.040685* | 7.991150* |

*\*Indicates the appropriate lag length for the relevant test.*

*Source: Authors' calculations.*

Table 2 presents the results of different model evaluation criteria for various lag lengths (from lag = 0 to lag = 5). The most important conclusion that can be drawn from Table 2 for Lag = 5 is that the lowest values are obtained in AIC, SC, and HQ criteria. Especially values such as AIC = 8.002212, SC = 9.040685, and HQ = 7.991150 show that lag = 5 is the most suitable lag length. In addition, it is seen that lag = 5 is quite suitable for other criteria such as LogL and FPE. However, in terms of LR test and FPE, lag = 1 and lag = 3 also show remarkable results, but in general lag = 5 receives more support as it shows the best fit in these criteria.

Considering all these, as a result of the evaluation of Table 2, it was determined that the most appropriate lag length is lag = 5. Lag = 5 increases both the predictive power (FPE) of the model and keeps the complexity (AIC, SC, HQ) of the model at the optimal level. Therefore, this lag length was accepted as the most appropriate choice for the model to be used in further analyses. The lag selection procedure based on the AIC, SC, and HQ information criteria inherently minimizes residual autocorrelation, as these criteria penalize model specifications that fail to adequately capture the dynamic structure of the series. Combined with the confirmed stationarity of both series at the second difference (Table 1), this provides sufficient assurance of the model's statistical adequacy for the purposes of the Granger causality test conducted in this study.

The results obtained from Table 2 suggest applying the model using lag = 5 and conducting causality analyses. Based on this and the purpose of the study, Granger causality analysis was applied. Specifically, the Granger causality test was used to investigate the causal link between the amount of foreign trade and FDI in Romania. Granger causality test investigates the power of one variable (e.g. foreign investments) to predict another (e.g. foreign trade) in the future. The results of this test determine whether there is a causal relationship between two variables. The fact that the variables used in the study were second-order stationary made it impossible to apply the Johansen cointegration test. Following the completion of the assumption tests, the Granger causality test was employed. The outcomes of the Granger test are presented in Table 3.

Table 3. The Result of Granger Causality Test

| Hypotheses                                                                            | F-value  | Probability value (p) | Decision at 1% significance level |
|---------------------------------------------------------------------------------------|----------|-----------------------|-----------------------------------|
| Changes in foreign trade volume are one reason for the change in foreign investments. | 0.419749 | 0.8107                | Rejected                          |
| Changes in foreign investments are the reason for changes in foreign trade.           | 6.040521 | 0.0488                | Accepted                          |

*Source: Authors' calculations*

The first hypothesis (“Changes in foreign trade volume are one reason for the change in foreign investments”) tests the effect of changes in foreign trade volume on foreign investments. Granger causality test findings indicate that there is no significant relationship between the amount of foreign commerce and foreign investments. Here, the p-value (0.8107) is quite high, and this value is well above 0.01 at the 1% level of significance, meaning that foreign trade does not have a Granger causality effect on foreign investments. In other words, changes in foreign trade volume do not lead to a change in foreign investments. Therefore, the  $H_1$  hypothesis, namely “changes in foreign trade volume have an effect on foreign investments”, is rejected (Table 3).

The second hypothesis (“Changes in foreign investments are the reason for changes in foreign trade volume”) tests whether changes in foreign investments affect foreign trade volume. Granger causality test findings demonstrate that foreign investments significantly affect foreign trade volume. Here, since the p-value is 0.0488, which is below the 5% level of significance, this result is statistically significant. In other words, foreign investments lead to a significant change in foreign trade volume. Therefore, the  $H_1$  hypothesis, that is, “foreign investments cause changes in foreign trade volume”, was accepted (Table 3).

Table 3 shows that a one-sided level of connection was detected between the variables considered and examined within the framework of Romania. The volume of foreign trade in this country does not have any effect on foreign investments. Thus,  $H_1$  hypothesis is rejected for this model. In another model, a significant result was obtained. Namely, foreign investments

in this country have a positive effect on the foreign trade volume. Therefore, in this context, H<sub>1</sub> hypothesis is accepted.

## **DISCUSSION AND CONCLUSION**

### **Discussion**

In emerging economies in particular, the connection between FDI and international commerce is crucial. The impact of these two variables on GDP growth is being studied by many countries, including Romania. While foreign direct investment creates positive effects such as technology, innovation and productivity growth in developing countries, it also contributes to opening new foreign markets and developing human capital (Moraru, 2013; Almfraji & Almsafir, 2014). Romania continues to encourage foreign investment through privatization in the energy and banking sectors, and modern technologies, local investments and international trade are growing thanks to these investments (Anda et al., 2023). However, Romania's ability to attract foreign investment may be constrained by factors such as immigration. For example, although high immigration rates in Romania may hinder FDI attraction in the short term, the potential for returning labor can benefit in the long term (Cichock, 2009). The current foreign investment regime in Romania aims to support economic growth by offering investors advantages such as freedom, equal treatment and return of investment profits (Ceausescu et al., 2009).

Studies examining the short- and long-term effects of FDI and trade on Romania's economic growth reveal a complex relationship. The study by Anda et al. (2023) found that in the short term, trade and final consumption expenditure positively affect economic growth, but in the long term, FDI has negative effects. Although studies such as Irwin (2015) show that Romania was among the countries least affected by the UK's exit from the EU, it is still unclear how FDI relations will shape in the future. Romania's foreign trade competitiveness and the influence of multinational companies on local industries also play an important role in strengthening the position of its economy in international markets (Bajgar & Javorcik, 2020). In conclusion, although Romania's economic growth is shaped by the interaction of FDI and trade, further research is needed on how these factors drive each other.

Demirhan and Masca (2008) found that there was a positive and statistically significant correlation between FDI inflows and the per capita growth rate, major telephone lines, and degree of openness. The research carried out by Ranjan, and Agrawal (2011) revealed that possible factors influencing FDI inflow to BRIC countries include trade openness, macroeconomic stability, market size, infrastructural facilities, labor cost, and growth expectations. The findings of the Ho et al. (2013) research indicate that FDI is influenced by several factors, including market size (GDP), economic freedom, interest rate, infrastructure quality, and literacy rate in Malaysia and most of the BRICS nations.

There was a two-way causal relationship between trade openness and foreign direct investment (FDI) in sub-Saharan African nations, according to study by Seyoum et al. (2014). The research

done by Hintošová et al. (2018) revealed that, when using the Visegrad nations as an example, the variables of GDP per capita, innovation unemployment rate, and inflation rate did not exhibit a significant correlation with FDI inflows. Additionally, it is discovered that trade openness, the corporate income tax rate, and research and development spending all have a detrimental effect on FDI. The findings of Andrei et al.'s (2020) research indicate that Romanian agriculture's competitiveness and its reliance on the EU economic space are related bilaterally, as shown by the growth of commercial contacts.

Rathnayaka Mudiyansele et al.'s (2021) research revealed statistically significant negative long- and short-term connections between trade openness and FDI inflows into Romania during the course of the study. Additionally, the Granger causality test showed that foreign investment in Romania is positively correlated with trade openness. Real GDP and FDI are dependent variables, and the findings of Ciobanu's (2021) research indicate that there is cointegration between the variables. According to Albu's (2013) research, greater GDP is a direct consequence of higher FDI and export values.

The findings of Purchaser and Ucal's (2003) analysis for Türkiye indicate that there is no relationship between increase in exports and FDI. For 25 African nations, Akadiri et al. (2020) discovered a bidirectional causal relationship between trade openness and FDI between 1980 and 2018. The research carried out by Voica et al. (2021) revealed that trade flows in the nations under consideration increased as a consequence of FDI investments. Irawan et al.'s (2022) study discovered that despite trading and foreign direct investment are crucial for Indonesia's economic growth, this variable has a strong negative association with growth since Indonesia's trade sector is dominated by imports. According to the findings of the study by Anda et al. (2023), variables related to trade and final consumption expenditure have a positive impact on Romania's economic growth in the short term through both positive and negative shocks. In the long term, however, variables related to trade and final consumption expenditure have a negative impact on Romania's economic growth through both positive and negative shocks, while the variable foreign direct investment has a negative relationship.

## **Theoretical Discussion**

Compared to earlier empirical work on Romania, the present study differs in three respects that together constitute its scientific contribution. Methodologically, it departs from the trade-openness-based specifications used in previous Romanian studies (Rathnayaka Mudiyansele et al., 2021) and from the long-run elasticity estimations typical of ARDL/NARDL applications (Anda et al., 2023; Ciobanu, 2021) by focusing specifically on the direction of causality between FDI and trade volume through the Granger causality test. In terms of scope, the analysis incorporates the most recent two decades of data (2003–2022), allowing the inclusion of dynamics unobserved in earlier studies restricted to pre-2020 periods. Theoretically, the study explicitly situates its findings within Dunning's Eclectic Paradigm and New Trade Theory, thereby testing, rather than merely referencing, the applicability of these frameworks to a Central and Eastern European transition economy. In this sense, the study's contribution lies not in introducing a new theoretical model, but in providing focused, direction-specific

empirical evidence that clarifies an ambiguity left open in the broader Romanian FDI-trade literature, namely whether trade or investment is the leading variable in this relationship.

The connection between international trade and foreign direct investment is generally addressed in the international economics literature within the framework of Dunning's Eclectic Paradigm (OLI Model) and New Trade Theories. Dunning (1988) argues that firms invest in foreign markets based on ownership, location, and internalization advantages, and that these investments can stimulate exports by increasing domestic production capacity. The unidirectional causality finding in Romania is also consistent with this theoretical framework. In other words, while foreign investment positively affects foreign trade by increasing the country's production infrastructure and export potential, foreign trade does not appear to have a direct impact on investment decisions. This suggests that FDI is a more decisive driver in developing economies. Furthermore, New Trade Theories (Krugman, 1979; Helpman & Krugman, 1987) emphasize how economies of scale and intra-firm trade influence foreign investment decisions and trade volume. According to this approach, multinational corporations shape global value chains by shifting production to lower-cost regions, leading to increased investment and trade.

This study makes a significant contribution to the existing theoretical literature by demonstrating a unidirectional causal relationship between FDI and foreign trade. This finding, which demonstrates that FDI drives foreign trade, rather than foreign trade driving FDI, particularly in the context of developing countries, supports the greater impact of investment-focused growth strategies on foreign trade. Furthermore, this strengthens theoretical frameworks that emphasize the need for policymakers to focus on investment attraction strategies rather than foreign trade policies. Therefore, this research helps to examine both the Eclectic Paradigm and New Trade Theories and demonstrates the validity of these theories through the Romanian example.

## **Conclusion**

The goal of this research is to determine the possibility that there is a causal relationship between foreign investment inflows and foreign trade. Regarding this matter, an attempt was made to do study on the matter for Romania by means of a series of analyses that utilized annual data from the years 2003 to 2022. For the purpose of this, the variables were subjected to the necessary assumption tests first and foremost. As a result of the analysis of the dataset between 2003 and 2022, it was found that foreign trade in Romania does not have a causal effect on foreign investments. This means that fluctuations in the volume of foreign trade do not cause any changes in the level of foreign investments. This may indicate that Romania's foreign trade does not have a direct effect on foreign investments and perhaps that the country's foreign trade policies do not play a decisive role in the decision-making processes of foreign investments.

However, the amount of international commerce in Romania is positively and significantly impacted by foreign investments. This suggests that when foreign investments increase, foreign trade also increases, especially due to the increase in production capacity and

the possibility of more production. The creation of new production and trade opportunities by foreign investors can lead to an increase in foreign trade in a developing economy like Romania. Foreign investments can modernize the country's production processes, offer new products and services, and thus contribute to the growth of foreign trade volume.

The study's findings demonstrate that foreign investments are an important driver of foreign trade growth in Romania, but foreign trade does not have a direct effect on foreign investments. These results may indicate that policy makers should focus more on foreign investment attraction strategies, considering that foreign investments play an important role in increasing foreign trade. If the effect of foreign investments on foreign trade is great, creating the right investment environments, supporting infrastructure projects and offering attractive conditions for foreign investors can increase Romania's foreign trade capacity.

In conclusion, based on analysis of 20 years of data in Romania, it was found that foreign trade does not affect foreign investment levels. In other words, fluctuations in foreign trade do not directly shape foreign investment decisions. This suggests that Romania's foreign trade policies are not a determining factor for foreign investors, and that investors base their decisions largely on other economic and structural factors. On the other hand, it has been discovered that foreign investment significantly and favorably affects international commerce. Foreign capital inflows contribute to the growth of foreign trade volume by increasing production capacity and creating new trade opportunities.

### **Directions for future research**

This study intentionally limits its empirical model to a bivariate specification involving FDI and foreign trade, in order to directly test the causal direction between these two variables without the confounding effects of an expanded parameter set. Given the annual dataset spanning 20 observations and the optimal lag length of five identified in Table 2, extending the model with additional macroeconomic variables (e.g., GDP, exchange rate, trade openness) would substantially reduce the degrees of freedom available for reliable estimation. Future studies with longer time series or panel data structures could incorporate such variables to provide a more comprehensive explanatory framework.

Considering that this study conducted in Romania examines the general effects of foreign investments on foreign trade, it would be useful for future research to conduct more in-depth analyses on a more specific sectoral basis. First, studies examining the effects of foreign investments on foreign trade volume, especially in different sectors such as manufacturing, technology, services and agriculture, could provide more detailed and sector-specific policy recommendations.

Second, a more in-depth analysis could be conducted on whether foreign investments not only increase foreign trade volume but also lead to changes in the structure of exported products. In particular, it could be investigated which types of products foreign investments cause to be more present in Romania's foreign trade (for example, an increase in high-technology exports instead of low-cost production). Such studies could help understand the structural changes in foreign trade and, in particular, analyze the quality dimension of foreign trade.

Third, this study examined the period 2003-2022, but future research could examine the effects of foreign investments on long-term economic growth. While foreign investments have the potential to increase foreign trade volume in the short term, the impact of these investments on achieving sustainable economic growth and improving the quality of foreign trade in the long term can be investigated in more depth.

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## **XARİCİ BİRBAŞA İNVESTİSİYA VƏ TİCARƏT PERFORMANSI: RUMİNYADAN SÜBUTLAR**

Bəhman Hüseynli

### **XÜLASƏ**

Xarici Birbaşa İnvestisiya (XBİ), çoxmillətli müəssisələrin yeni bazarlara çıxmasına və istehsal və paylama şəbəkələrini genişləndirməsinə imkan yaratmaqla ölkənin ticarət performansının formalaşmasında mühüm rol oynayır. Bu tədqiqatın məqsədi illik zaman seriyası məlumatlarından istifadə edərək 2003-2022-ci illər ərzində Rumıniyada xarici investisiya axınlarının xarici ticarətə təsirini araşdırmaqdır. Stasionarlıq testlərindən sonra dəyişənlər arasında səbəbiyyət istiqamətini müəyyən etmək üçün Granger səbəb-nəticə analizi tətbiq edilmişdir. Empirik tapıntılar XBİ-dən xarici ticarətə qədər uzanan bir istiqamətli səbəbiyyət əlaqəsini ortaya qoyur ki, bu da XBİ axınlarının Rumıniyanın ticarət həcmi üçün əhəmiyyətli dərəcədə stimullaşdırdığını, əks əlaqənin isə statistik cəhətdən dəstəklənmədiyini göstərir. Bu nəticələr göstərir ki, xarici investisiyaların cəlb edilməsinə yönəlmiş siyasətlər Rumıniyanın ticarət performansını artırmaq və qlobal bazarlara inteqrasiya etmək üçün təsirli bir vasitə kimi xidmət edə bilər.

**Açar sözlər:** xarici investisiyalar, xarici ticarət, inkişaf etməkdə olan iqtisadiyyatlar, Rumıniya, Granger səbəb-nəticə analizi

## ПОКАЗАТЕЛИ ПРЯМЫХ ИНОСТРАННЫХ ИНВЕСТИЦИЙ И ТОРГОВЛИ: ДАННЫЕ ПО РУМЫНИИ

Бахман Гусейнли

### РЕЗЮМЕ

Прямые иностранные инвестиции (ПИИ) играют решающую роль в формировании торговых показателей страны, позволяя многонациональным предприятиям выходить на новые рынки и расширять производственные и распределительные сети. Цель данного исследования — изучить влияние притока иностранных инвестиций на внешнюю торговлю Румынии за период 2003–2022 годов, используя годовые данные временных рядов. После проверки стационарности был применен метод причинно-следственной связи Грейнджера для определения направления причинно-следственной связи между переменными. Эмпирические результаты показывают однонаправленную причинно-следственную связь от ПИИ к внешней торговле, указывая на то, что приток ПИИ значительно стимулирует объем торговли Румынии, в то время как обратная связь статистически не подтверждается. Эти результаты свидетельствуют о том, что политика, направленная на привлечение иностранных инвестиций, может служить эффективным инструментом для повышения торговых показателей Румынии и ее интеграции в мировые рынки.

**Ключевые слова:** иностранные инвестиции, внешняя торговля, развивающиеся экономики, Румыния, причинно-следственная связь по Грейнджеру.

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