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Analysis of Foreign Direct Investments in Romania

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ANALYSIS OF FOREIGN DIRECT INVESTMENTS IN ROMANIA

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ABSTRACT

This paper presents a comprehensive and comparative analysis of foreign direct investments (FDI) conducted by companies seeking to expand their presence in international markets. Its primary aim is to explore the role of FDI and the multifaceted factors influencing the selection of specific regions in Romania as preferred investment destinations.

Foreign direct investments are a crucial strategy for establishing and solidifying a long-term presence in foreign nations. The decision of where to invest abroad is complex and strategic, involving economic, social, technological, and infrastructural considerations. This study examines these factors to understand the preferences of foreign firms when choosing regions for direct investments. The analysis employs a conditional logit model, incorporating key variables. This model enables an in-depth exploration of the most attractive regions in Romania for foreign direct investments, offering valuable insights for international enterprises' strategic planning.

The study commences with an examination of fundamental FDI concepts, delving into their distinctive characteristics and critically reviewing the existing literature. Subsequently, a comprehensive analysis of Romania is conducted, exploring its unique features, rich history, and diverse regions, all of which constitute its socio-economic landscape. This detailed overview provides the necessary context to understand why Romania is an appealing destination for FDI.

During the research phase, the primary analytical tool used is the Conditional Logit Model, facilitating the selection of specific regions within Romania as investment destinations for foreign parent companies. Furthermore, the study presents the motivations behind this choice in comparison to potential alternatives.

Key Words: Foreign Direct Investment, Romania, Conditional Logit Model

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1. INTRODUCTION

In an era marked by increasing globalization and economic interdependence, understanding the factors influencing foreign direct investment (FDI) has become paramount for regions seeking to position themselves strategically in the global economic landscape. This thesis delves into the intricate web of investment decision-making within specific regions of Romania, employing a Conditional Logit Model to unravel the nuanced dynamics governing such choices.

At the core of this investigation lies a comprehensive database capturing a spectrum of FDI-related parameters, ranging from details about the investing companies to the origin countries and the specific regions of destination within Romania. Leveraging this rich dataset, the study centers around the application of a Conditional Logit Model, a robust statistical framework well-suited for analyzing discrete choices, a key characteristic of investment decisions.

The independent variables considered in the model encompass a diverse set of economic indicators, reflecting the multifaceted nature of the investment environment. Parameters such as GDP, population size, unemployment rates, the extent of rail networks, condition of public roads, as well as expenditures and employment figures in research and development (R&D) domains, form the bedrock of the analytical framework. The careful selection of these variables is driven by the aim to capture the intricate interplay between economic, infrastructural, and innovation-related factors influencing investment decisions.

The focal point of this research is to pinpoint the determinants that significantly sway investment choices in the specified Romanian region. Amidst the myriad of variables, the study aims to discern the critical factors that contribute to a specific choice, offering valuable insights for policymakers, businesses, and scholars alike.

As the analysis unfolds, this thesis not only contributes to the academic discourse on investment decision modeling but also holds pragmatic implications for regional development strategies. Decoding the intricacies of investment preferences, it paves the way for informed policy interventions and strategic initiatives that can enhance the attractiveness of the region to potential investors.

In the subsequent chapters, we embark on a journey through the methodology, results, and implications of this nuanced exploration, striving to shed light on the underlying forces shaping investment decisions within the chosen region of Romania.

2. FOREIGN DIRECT INVESTMENT DEFINITIONS AND THEORIES

This chapter gives a general overview of the distinguishing characteristics of an MNE, a multinational company, and foreign direct investments (FDI) classifications and theories and explains the types of investments and the activities of the multinational company.

2.1 Multinational Enterprises and Foreign Direct Investments: The components

Foreign direct investment is defined as net inflows of investment to acquire a long-term management stake (10 percent or more of voting shares) in a company operating in an economy other than the investors. It is the total of equity capital, earnings reinvestment, other long-term capital, and short-term capital as represented in the balance of payments (World Bank).

A multinational enterprise (MNE) is a corporation that makes FDI and owns or controls value-added operations in many countries. Several indicators have been discovered in the study that may be used to assess an enterprise's level and intensity of multi-nationality:

1. the number and scale of worldwide affiliates and companies it owns or controls;
2. the number of countries in which it has value-added activities;
3. the proportion of its global assets, profits, income, or employment due to its international affiliates.
4. Internationalization of ownership or management
5. The extent and pattern of systemic benefits resulting from its governance of a network of economic activities in various countries;
6. The extent to which higher-value activities, such as R&D, are internationalized;
7. The extent and pattern of responsibility for the creation and use of institutions and assets devolved to foreign affiliates.

All of these variables help to distinguish between different types of FDI and foreign manufacturing. The MNE is one of numerous businesses that do business in other countries, and it has two close relationships:

- International trading corporation that exchanges items and services across borders, but not before or after adding value to them via the use of assets owned or controlled by it elsewhere.
- It engages in a variety of economic operations, at least some of which are carried out in a nation or countries other than the one in which it is incorporated.

2.1.1 Stocks and Flows

FDI statistics encompass two distinct concepts:

- Flows, that measure annual levels of investment on a net basis.
- Stocks, record the total book value of all existing FDI, inward or outward.

2.2 Typologies of FDI

2.2.1 Vertical, Horizontal and Conglomerate

The first classification of foreign investment can be distinguished between horizontal and vertical investment.

Horizontal investments refer to those investments in a foreign country by a company that engages in the same type of business as it does in its native country, also present in the foreign country. Through these types of investments, a company acquires the same type of business abroad. It involves investing in foreign markets to bypass trade barriers, improve entry into the local economy, or leverage technical expertise by setting up operations close to established firms.

In contrast, *vertical* investments refer to the activity of a company acquiring a complementary business in a foreign country. Through these types of investments, companies optimize costs

by acquiring a plant where the necessary raw materials and complementary assets needed for their production are present.

In a *conglomerate* FDI, a company invests in a foreign business that is unrelated to its core business. Because the investing company has not experience in the foreign company's area of expertise, this often takes the form of a joint venture.

2.2.2 Classification based by direction

FDI can be categorized as either inward or outward:

- *Inward FDI* refers to investments made in a country by foreign entities or companies from other countries.
- *Outward FDI* denotes investments made by domestic companies in the economy of foreign countries.

2.2.3 Classification Based on Objective

There are four main types of multinational investment activities abroad, as identified by Dunning and Lundan (2008):

1. *Natural Resource Seeking Investments*: These involve companies seeking access to specific natural resources with higher quality or lower costs compared to their home country. This could include primary producers and manufacturers looking to reduce costs or ensure a secure supply of resources. The acquired resources may be exported to more developed countries for higher value-added activities.
2. *Market Seeking Investments:* Companies pursuing market-seeking investments are interested in selling their goods or services in a particular country or region. This may be driven by various factors, such as existing customer or supplier activities in foreign countries, the need to adapt products to local preferences and cultural factors, reducing production and transportation costs, and the desire to be physically present in leading markets served by competitors.

3. *Efficiency Seeking Investments:* Efficiency-seeking FDI involves the rationalization and optimization of resource and market-seeking activities. Multinational corporations aim to gain economies of scale and scope as well as risk diversification through common governance of physically dispersed activities. This type of investment is typically pursued by experienced, large, and diversified companies producing standardized products with globally accepted processes.
4. *Strategic Asset or Capability Seeking Investments:* Strategic assets seeking investments focus on engaging in FDI to acquire assets or develop strategies that enhance the company's global competitiveness. The motive here is to improve the portfolio of assets and human competences, sustaining the company's unique advantages or weakening those of competitors.

It's important to note that many multinational corporations pursue multiple objectives in their FDI ventures. For example, a company may seek natural resources in a foreign country not only to access those resources but also to serve the local market and take advantage of cost efficiencies. Similarly, a market-seeking investment may also involve acquiring technological capabilities or organizational skills to enhance the company's competitiveness in that market. Overall, multinational corporations employ complex strategies that consider various factors like resource availability, market potential, cost efficiencies, and access to strategic assets or capabilities. These objectives are often interconnected, and companies may adapt their strategies based on changing market conditions and opportunities.

2.2.5 Greenfield and Brownfield

According to the Bureau of Economic analysis (BEA) a *greenfield* investment is a project "where foreign investors establish a new business or expand an existing business on U.S. soil". For other parent company creates a subsidiary in a different country, building its operations from the ground up. In addition to the construction of new production facilities, these projects can also include the building of new distribution hubs, offices, and living quarters.
With greenfield investing, a company will build its own, brand-new facilities from the ground up.

A *Brownfield* investment happens when a company purchases or leases an existing facility, in other words a type of foreign direct investment where a company invests in an existing facility to start its operations in the foreign country.

Figure 1: Brownfield fdi and greenfield fdi

Source: Corporate Finance Institute

2.3 General trends of FDI

Throughout the course of history, multinational corporations have engaged in foreign direct investment (FDI) dating back to ancient times, approximately 2500 B.C., when Sumerian merchants stationed representatives in foreign ports to facilitate trade. By the 16th century, trading companies emerged as early multinational entities, exemplified by the dominance of the British East India Company in the Asian market. The onset of the First Industrial Revolution brought about a significant transformation, leading to the emergence of industrial multinationals. In the subsequent centuries, the United States ascended as a major player in FDI, approaching the levels of European countries. Particularly noteworthy is the substantial investment made by railway companies in various nations in the early 20th century.

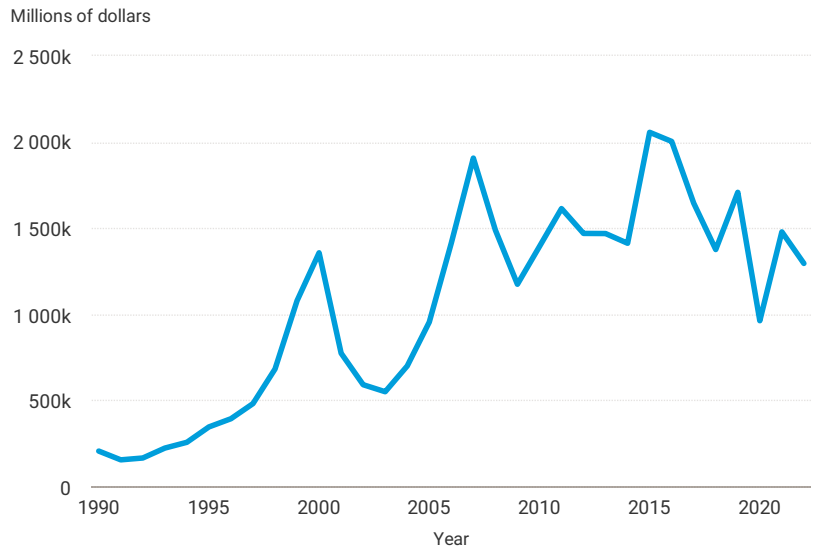
Between the two World Wars, FDI flows dwindled due to the implementation of austerity measures and restrictive policies in many countries. Simultaneously, investments in natural resources surged in Africa and Asia, while Latin America embraced the nationalization of its resources. In the following years, the United States assumed a prominent role as a global leader in FDI. However, the Economic Crisis of 1973 exposed weaknesses in the American model, highlighting the effectiveness of approaches employed by Japanese companies. In Europe, FDI

flows shifted their focus towards other European countries. The post-crisis era witnessed lower FDI levels compared to the beginning of the century.

Starting in the 1980s, FDI flows intensified significantly, driven by globalization processes resulting from technological advancements in communication and transport. The 1990s witnessed a remarkable surge in FDI as countries removed trade barriers and underwent changes in exchange rate policies, especially in Asia and Latin America. In 2000, global FDI inflows surged to nearly 1.4 trillion dollars, marking a substantial increase compared to 1990. However, the burst of the dot-com bubble in 2001 led to a reduction in FDI flows until 2003, with China and India experiencing a rise in outflows during this period.

The financial crisis of 2008 resulted in a sharp decline in FDI inflows, particularly impacting developed nations. In the aftermath of the crisis, FDI levels gradually rebounded but remained below 2007 levels. Developing countries emerged as key players in attracting FDI. By 2018, developed countries accounted for 42.9% of investments, while developing economies captured 54.4%, and transition economies received 2.6% of the total FDI. This shift in participation was driven by promising prospects in emerging countries, regional integration processes, and the ongoing trend of offshoring service functions and manufacturing.

Figure 2: Foreign direct investment flows in the world



Source: UNCTAD World Investment Report 2022

2.4 Economic Theories

This paragraph highlights some of the most important leading economic and behavioral explanations of the existence of MNEs and of the FDI during the history.

2.4.1 The contribution of Hymer

The initial contribution from the foreign direct investment literature came from Hymer (1960, 1968), who, in his doctoral dissertation, expressed his dissatisfaction with the theory of indirect (or portfolio) capital transfers as an explanation for foreign value-added activities of firms. He highlighted three reasons for his discontent. Firstly, when risk and uncertainty, volatile exchange rates, and the cost of acquiring information and making transactions were considered within classical portfolio theory, many of its predictions, such as the cross-border movements of money capital in response to changes in interest rates, were no longer valid. These market imperfections influenced the behavior and performance of firms, especially their strategies in serving foreign markets.

Secondly, Hymer argued that FDI involved the transfer of a bundle of resources (technology, management skills, entrepreneurship, etc.) and not just financial capital, as explained by portfolio theorists like Iversen (1935). Firms were driven to produce abroad with the expectation of earning economic rent on the entirety of their resources, including their organizational arrangements.

Thirdly, the most fundamental characteristic of FDI was that it did not entail any change in the ownership of resources or rights transferred, whereas indirect investment, transacted through the market, did necessitate such changes. Consequently, the organizational approach for both the transaction of resources (e.g., intermediate products) and the value-added activities associated with these transactions was different.

It is noteworthy that Hymer was primarily interested in FDI as a means for firms to control the use of property rights transferred to their foreign subsidiaries. While his thesis touched on various other issues, subsequent scholars delved more deeply into them. For instance, Aliber (1970, 1971) developed a formal model of FDI based on the inefficiencies of international financial and currency markets, and Hymer's identification of the international firm as a firm

that "internalizes or supersedes the market" provided a useful prologue to the theory of internalization for knowledge, business techniques, and skilled personnel transfer.
Hymer's early work is best known for its application of an industrial organizational approach to the theory of foreign production. He argued that for firms to own and control foreign value-adding facilities, they must possess specific innovative, cost, financial, or marketing advantages exclusive to their ownership. These advantages, termed "ownership advantages," imply the existence of some form of structural market failure.

2.4.2 The Production Cycle Theory of Vernon

The Production Cycle Theory was developed in 1966 by Vernon and explains certain types of foreign direct investment made by U.S. companies in Western Europe after the Second World War in the manufacturing industry.
Vernon's production cycle theory states that the production cycle of a company in the manufacturing industry is divided into four stages: innovation, growth, maturity, and decline. In the first stage, companies begin to develop a new innovative product to put it on the local market. Once the local market is served, the company exports the products to foreign markets as well. This theory is based on empirical evidence related to the growing demand for manufacturing products in Europe in the post-World War II period and thus also the growing export given their technology advantage over international competitors.
Once the product begins to enter the market, the technology also becomes known, and manufacturers begin to standardize production or imitate American products. American companies are then forced to build local industrial plants to maintain their market share, and firms try to minimize the costs of value-added activities. Now, their market expertise becomes more important. Consumer demand becomes more elastic, labor becomes an important cost factor, and as the foreign market increases, companies are prompted to invest more and more in foreign countries.
The initial expertise and advantage given by the innovativeness of the product may be eroded by the greater expertise of firms in other countries offering the product on their markets.

Vernon introduced the model in the 1960s to explain the market-seeking output of companies of a particular nationality. However, with the passage of time and the incredible access of MNEs to markets around the world, its applicability has diminished.

2.4.3 The eclectic or OLI Paradigm

The eclectic or OLI (Ownership-Location-Internalization) paradigm aims to present a comprehensive framework to determine the scope and pattern of foreign-owned production carried out by a country's domestic enterprises, as well as domestic production owned or controlled by foreign enterprises. (Dunning & Lundan 2008)**.**

Unlike internalization theory, it does not claim to be a theory exclusively focused on the multinational enterprise (MNE); instead, it serves as a paradigm that encompasses various explanations of cross-border value-adding activities conducted by enterprises (Dunning, 2001a).

The theory of MNE activity lies at the intersection of macroeconomic theory of international trade and microeconomic theory of the firm. It combines macro resource allocation and organizational economics. The theory contends that to explain the ownership of such output and the spatial distribution of other types of output that require resources, capabilities, and institutions not equally accessible to all firms, two kinds of market imperfections must exist. Firstly, structural market failure discriminates between firms (or owners of corporate assets) in their ability to gain and sustain control over property rights or to govern multiple and geographically dispersed value-added activities. Secondly, there is the intrinsic or endemic failure of intermediate product markets to conduct transactions with lower net costs (or higher net benefits) compared to what a hierarchy could achieve (or incur).

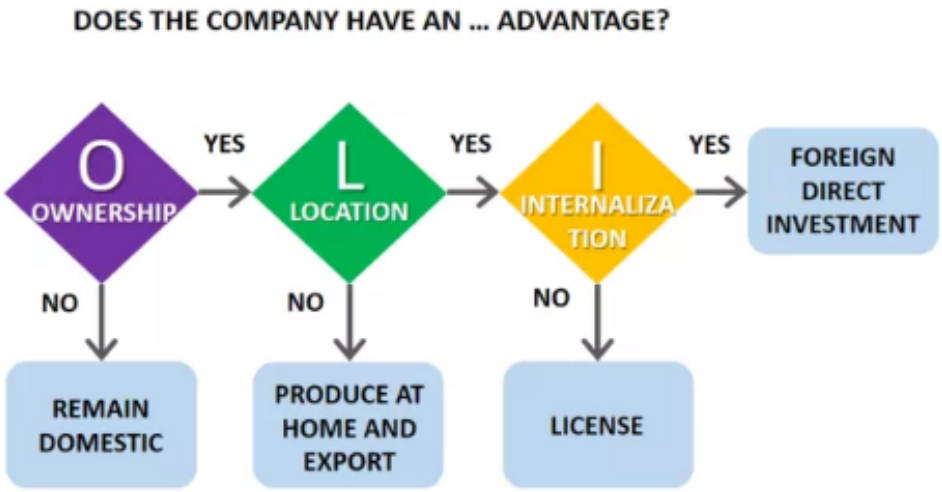
Variables like market structure, transaction costs, and firms' managerial strategies become critical determinants of international economic activity. The firm is no longer considered a black box, and markets are not the sole determinants of transactions. Both the geographical distribution of natural and created factor endowments and the modality of economic organization play a crucial role in explaining trade and production patterns. Furthermore, firms vary in terms of organizational systems, innovative and institutional abilities, as well as their evaluation and approach towards commercial risks. They also differ in their strategic responses

to these (and other) variables. This framework is equally applicable in explaining certain types of trade where the advantages of trading firms are specific to the firm rather than the country. The paradigm then breaks down into specific advantages related to owning unique assets that can generate future cash flows by serving a particular market (O), specific advantages related to owning assets in a specific geographic location in their origin and in their use (L), not only Ricardian rents but also the legal, political environment of the asset in question.

Finally, the paradigm states that there are internalization advantages (I) and they are identified as that added benefit, given by better internal organizational efficiency for example, in case the multinational decides to add value to its O advantages instead of selling them to foreign companies. Given these three points of the OLI paradigm, the best production strategy is then defined so that it conforms to the long-term goals of the stakeholders involved in the managerial conduct of the company.

At any moment in time, the more a company has advantages OR, the more it will have incentives to internalize their use, instead if they find more interest in using them in another location outside their own and more will localize the production in a foreign country.

Figure 3: OLI paradigm



Source: Dunning (1977) Picture from Business-to-You

2.4.4 Internalisation Theory

The theory of internalization is essentially aimed at explaining why hierarchies are used to organize cross-border transactions of intermediate products rather than relying on market forces. It was initially proposed in the mid-1970s by a group of economists from Sweden, Canada, Britain, and the United States who worked mostly independently.

The fundamental hypothesis is that multinational hierarchies provide an alternative way to coordinate related value-added activities across national borders compared to market transactions. Firms are likely to engage in foreign direct investment (FDI) when they perceive that the overall benefits of owning and controlling both domestic and foreign activities, along with the transactions resulting from them, outweigh those offered by external trading relationships. According to internalization theory, the extent and nature of MNE activity will be positively correlated with the costs involved in organizing cross-border markets for intermediate products, considering a specific distribution of factor endowments.

The focus of this theory is to identify situations where cross-border markets for intermediate products are likely to be internalized within hierarchies, leading firms to own and control value-adding activities outside their home countries. Building upon the earlier ideas of Coase (1937, 1960) and Penrose (1959), it seeks to explain the international division of labor within a firm by comparing the relative costs and benefits of this internal organization versus market transactions between separate firms. Certain types of transactions between specific buyers and sellers involve higher costs than others, and hierarchical organizational costs are also likely to vary depending on the activity, country, and firm involved.

While internalization theory can be considered a general theory as it predicts when firms choose to internalize foreign markets, it is sometimes better described as a paradigm due to the different types of market failures that determine one form of foreign added-value activity compared to another. For instance, in certain consumer goods or service industries, the market might not ensure sufficient control over the final product's quality for an intermediate product seller, who may choose forward integration instead. On the other hand, backward integration, such as into natural resources, might be motivated by the need to reduce the risk of supply interruptions or price fluctuations. Additionally, the common governance of multiple activities in various locations could be driven by the desire to gain economies that are external to the

specific activities but internal to the owning firm. This focus indicates that internalization theory, in general, and the version presented by Buckley and Casson (1976) in particular, are more concerned with explaining a firm's exchange function and the internalization of intermediate product markets, rather than its transformation or value-added function, which involves coordinating diverse activities within a single firm (Dunning, 2003b).

3. INDUSTRIES AND THE ROLE OF FDI IN ROMANIA

In this chapter is presented an overview of Romania, firstly describing the history from the 1947, the characteristics that could be favorable for the foreign direct investments, the regions of the country and some other important features for the analysis.

3.1 History and economy of Romania

In 1947, the Communist Party of Romania, which may have had around 5,000 members by the war's end, had secured exclusive political control with assistance from the Soviet Union. While a significant portion of bureaucrats, teachers, and cadres later joined the Party, it cannot be asserted that the Party genuinely had a broad mass base, even in urban areas.

During 1947, the living standards of the Romanian population, particularly the majority of the peasantry, educational levels, and social infrastructure were comparable to those of economically disadvantaged countries situated on the periphery of Europe, such as South Africa, Portugal, and Turkey. Stalin's industrialization strategy and the Soviet model of central planning for its execution were established in 1948. In contrast to Bulgaria, Romania did not receive any assistance to implement these projects. Furthermore, Romania had to make war reparations to the Soviet Union and relinquished control of a significant portion of its oil, mineral, and forestry resources through joint ventures primarily benefiting the Soviet Union. Since the early 1950s, the economy has been administered according to a global hierarchy. The initial unsuccessful attempt to collectivize agriculture was not accomplished until 1962. Most investment resources are allocated to heavy industry. The economic model and investment strategy are upheld by an exceptionally restrictive political system, in which politics, culture, and the educational system are utilized to encourage and mobilize people to achieve objectives set by the Communist Party (Jackson, 1977). There is minimal reliance on costly (and potentially economically unfeasible) individual material incentives.

The economy in the Ceausescu era: 1965-1989

Nicolae Ceausescu assumed the role of general secretary of the Communist Party of Romania following the passing of Gheorghiu-Dej in 1965. The "Ceausescu era" denoted a partial departure from the conventional planned economy, shifting towards a more directed economic approach and hyper-centralization accompanied by political repression. During this period, Romania gradually strengthened its economic and political independence from the Soviet Union. In 1964, the nation maintained a neutral stance in the Sino-Soviet conflict; in 1968, it opposed the Soviet intervention in Czechoslovakia. Subsequently, independent policies were pursued, particularly towards the Third World, emphasizing the continuation of Romania's unique economic strategy focused on swift, extensive industrialization with limited collaboration with the Soviet-dominated Council for Mutual Economic Assistance. Ceausescu and his circle aimed to mold Romania into a stronghold of industrialization and self-sufficiency.

Net investment (inclusive of inventory increases) rose from 18% of net physical output in 1951-55 to 34% in 1971-75 and further to 36% in 1976-80; it then declined to 27% between 1981 and 1985. Employment in the industry increased from 12% of the labor force in 1950 to approximately 37% at present, contributing about two-thirds of the total net physical product in 1989.

Simultaneously, although the percentage of the population engaged in agriculture, the second-highest in Europe (after Albania), decreased from 71% in the early 1950s to 28%. Rejecting Soviet political dominance, Ceausescu pursued a trade policy involving the importation of technology from the West and enhanced trade with less developed countries willing to acquire machinery (and weapons) of lower quality based on long-term agreements. In return, Romania exported oil and other raw materials.

By the mid-1970s, less developed countries accounted for 20% of Romania's imports, the Soviet bloc's share dropped to 40%, and advanced market economies took the remainder. In the 1970s, Romania heavily borrowed from the West to finance industrialization. However, as global competition intensified and real interest rates rose in the early 1980s, servicing the foreign debt, peaking at $9 billion in 1981, became increasingly burdensome.

Facing challenges in financing trade with the West in the late 1970s and 1980s, Romanian leaders transferred some trade goods to the Soviet Union, exchanging machinery and quality consumer goods for Soviet energy and raw materials. Displeased with the IMF's attempt to impose conditions, Ceausescu initiated a stringent program in 1982 to repay Romania's foreign debt, despite being a comparatively lighter burden than that of many other countries. This objective was accomplished partially through declining living standards and the aforementioned reduction in investment rates.

With the decrease in Western machinery imports and Romania exporting a significant portion of its best machinery, capital substitution virtually ceased. To ensure debt repayment, consumer goods and food products produced in Romania were primarily destined for export. Workers, struggling to feed themselves, resorted to scavenging, enduring harsh conditions in cold winter areas, dark houses, and public spaces throughout the year. Additionally, they faced frustration due to political oppression and constant pressure to work longer and harder. Economic growth slowed around 1980, evident in official statistics from 1987. The economic downturn hit its lowest point in November 1989 when the official press announced the repayment of foreign debt but dismissed any alleviative measures for the consumer crisis. Subsequently, spurred by events in Eastern Europe, Romanians took to the streets.

The economy after the Revolution of December 22, 1989

The initial actions of the revolutionary government, known as the Council of the National Salvation Front, were focused on enhancing the well-being of the populace. Food exports experienced a standstill, and quantities of coffee and essential items were imported. Despite electricity shortages, prices for consumers and municipalities decreased, and quantitative restrictions on energy consumption were lifted. To allocate more electricity for personal use, production in energy-intensive industries was slowed down, leading to the complete shutdown of the Slatina aluminum plant, which consumed as much electricity as the entire consumer market. The area of agricultural land permitted for private cultivation doubled, and controls on private sales by farmers and compulsory deliveries were abolished. The workweek was reduced from 46 to 40 hours. There was a substantial reduction in secret police activity, and freedom of the press and personal expression was enforced. The Council established a social-

democratic-oriented political party, the National Salvation Front, which secured 80% of the vote in the May 1990 election. The process of land privatization advanced swiftly, with hundreds of cooperatives dissolved by 1990. According to official figures in December 1990, nearly 100,000 small businesses were operational, albeit with modest capital.

However, the establishment of such businesses faced hindrances due to a hastily drafted decree in March 1990, limiting the size of private companies and controlling access to inputs and materials. On November 16, 1990, a law inspired by French commercial law came into effect, permitting the establishment of any organizational form without restrictions on size, employment, or assets. Although certain requirements, such as minimum investment and restrictions on organization types, existed, the law aimed to encourage flexibility. In 1989, only six foreign joint ventures were present in Romania, all with foreign minority participation. Nationalist slogans promoting "self-reliance" in the 1990s initially discouraged additional foreign investment despite an increase in the number of foreign companies. However, a new direction emerged in April 1991 with a law allowing foreign participation through joint ventures or wholly foreign-owned companies. Applications for registration still required government approval. Foreign companies received numerous tax and tariff benefits, safeguarded against nationalization, and another law outlined the privatization and restructuring of public companies. State-owned enterprises in strategic sectors had to become natural state-owned enterprises, with continued state subsidies to maintain "soft" budget constraints. State-owned enterprises in other fields were to be converted into commercial enterprises, and the primary method of privatizing state-owned commercial enterprises was through vouchers.

The Agency for Privatization planned to issue vouchers with a nominal value to every resident Romanian adult, tradable among citizens from November 1991. These vouchers could be converted into shares in individual firms or mutual funds, with employees having priority for shares in the companies they worked for. This approach aimed to privatize 30 percent of firms by value, with the remaining equity sold to the public, and employees potentially enjoying rights to discounted shares. The chosen privatization method considered the limited capital of citizens, as the average household held $35 at the black-market rate in total savings and foreign currency by the end of 1989. The government's goal was to privatize half the equity of all commercial firms by 1993. Unemployment, although growing, remained small, and some benefits were available, along with the opening of retraining centers for unemployed and low-

income workers. An innovative option allowed recipients of unemployment benefits to receive a lump sum, which could be used to start a small business. To address relative price distortions, consumer prices were administratively raised and adjusted in late 1990 and early 1991. As a partial compensation, wages, pensions, and income transfers were increased through government edicts. Wages were further raised through enterprise-level bargaining between management and newly formed labor unions. As a result, the wage level was expected to double by the end of May relative to its level in early April, although the price level would have more than doubled. The government aimed to limit inflation through tight fiscal and monetary policies and by curbing wage increases. However, the past practice of deficit financing through off-budget non-reimbursable loans from the national bank to subsidize state enterprises appeared likely to continue, and effective wage controls seemed distant.

3.2 Trends of GDP, FDI Inflows and FDI stock in Romania

Until the late 1990s, Romania attracted comparatively little FDI despite having one of the most liberal FDI legislation in Eastern Europe that guaranteed national treatment and protection of foreign investment (Perkins, 1994). Continuous political commitment to reforms resulted in higher FDI flows over time as more MNEs entered the market. The large-scale privatization process was crucial in paving the way for FDI from outside, making the opportunity for acquisitions important. The three-stage privatization program implemented in Romania during the 1990s, which included (1) mass-privatization programs between 1995 and 1996, (2) mass-privatization programs between 1995 and 1994, and (3) large-scale privatizations continued on a case-by-case basis from 1997 on, can be linked to the country's success in luring FDI (Negrescu, 1999). Due to the priority given to privatizing small and medium-sized businesses, FDI was hardly apparent in the first two rounds. Foreign investors began to target banks, insurance firms, and later, utilities because of the privatization of large-scale businesses. Consequently, although FDI inflows during the 1990s remained low, economic reforms quickened after 1997, when changes were made to the privatization law, and new and more transparent market mechanisms were introduced. As a result, the FDI inflows grew fast during most of the 2000s and peaked in 2008 just as the global financial crisis began to unfold. By the mid-2000s, Romania privatized some of its electricity and gas distribution companies that,

together with the investments in telecommunications, brought European FDI in the infrastructure sector. In terms of annual inflows, by 2007, the country, now a member of the EU, ranked thirty-second out of 141, with annual inflows of FDI representing 6% to 8% of GDP. During 2008, FDI inflows to Romania increased by 34% compared to the year before (UNCTAD, 2008). The decade of the 2000s saw the start of a significant rise in foreign direct investment (FDI) into Romania, a rise that was accompanied by developments in the privatization of large corporations and the liberalization of several service sectors, including telecommunication, utilities, and retail: Romania had a sizable market for cross-border acquisitions. Since 2003, an investigation initiated by the National Bank of Romania and the National Institute of Statistics has been examining the Foreign Direct Investment (FDI) inflows in the Romanian economy. The data for the period between 2000 and 2013, which includes information about GDP, FDI inflows, and FDI stock in Romania, is based on statistics from The World Bank and the United Nations Conference on Trade and Development (UNCTAD) and is presented in Table 1.

Table 1: Trends of GDP, FDI Inflows and FDI stock in Romania, 2000 – 2013

	GDP	FDI inflows	FDI stock
2000	37 305	1 057	6 953
2001	40 586	1 158	8 339
2002	45 989	1 141	7 846
2003	59 466	2 196	12 202
2004	75 795	6 436	20 486
2005	99 172	6 483	25 817
2006	122 696	11 367	45 452
2007	170 617	9 921	62 962
2008	204 339	13 909	67 911
2009	164 344	4 844	72 008
2010	164 792	2 940	70 264
2011	182 611	2 522	71 344
2012	169 396	2 748	78 010
2013	189 638	3 617	84 596

Source: based on the data base of The World Bank and of the United Nations Conference on Trade and Development (UNCTADstat), http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx, http://data.worldbank.org/indicator/NY.GDP.MKTP.CD/countries?display=default

In the year 2000, Romania embarked on a series of reforms aimed at curbing public expenditure, expediting privatization, and enhancing the tax system, leading to optimistic

prospects for Foreign Direct Investment (FDI). Nevertheless, in 2002, the nation confronted an unfavorable global environment, followed by a resurgence of positive trends in 2003. Subsequent to the signing of the EU Accession Agreement and extensive privatization initiatives in 2003, there emerged evidence of industrial restructuring and heightened product quality and diversity, much of which was facilitated by incoming FDI (Haar 2010). However, owing to the inherent political and institutional uncertainties in a transitional setting, greenfield FDI persisted as a preferred choice for market entry in what was perceived as a potentially challenging market.

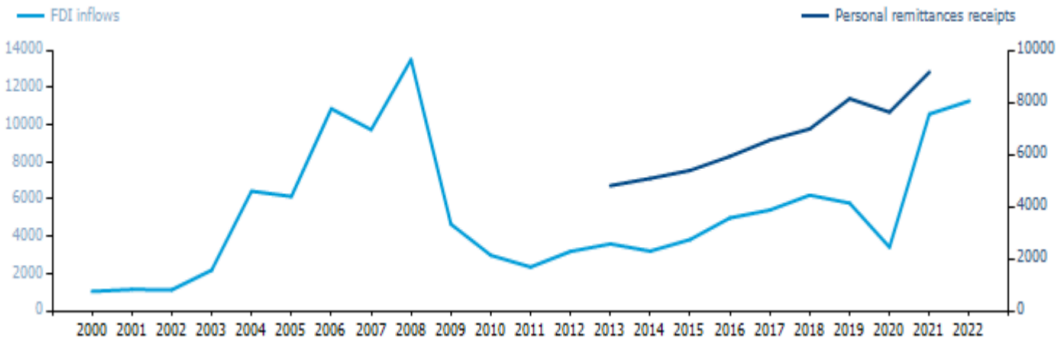
Romania underwent a protracted and arduous transformation to a market economy, attracting relatively modest amounts of FDI in the first decade of transition, with a total FDI stock of only $10 billion in September 2003, equivalent to the annual FDI inflows in Poland in 2000 alone (Marinescu 2003). In 2004, FDI in Romania totaled US Dollars 6,436 million, with 58 percent of the net FDI flow representing foreign direct investor's equity stakes in direct investment enterprises in Romania, 28 percent as reinvested net earnings, and 13 percent as net credit received by direct investment enterprises from foreign direct investors (including those within the group) (NBR, 2004, p. 2-3). After Romania's certain accession to the European Union in 2004, there was a substantial surge in FDI flows, making Romania the destination for half of the FDI directed towards South-Eastern Europe, primarily driven by privatization in the energy sector. Even though the privatization of the largest commercial banks (BCR) by an Austrian investor concluded in 2005, its statistical reflection only materialized in 2006 when actual payments were made (Şerbu, 2007). In 2005, FDI stock reached US Dollars 25,817 million, indicating a 26.02 percent increase compared to 2004. Various factors, such as tax reforms, Romania's EU accession, enhancements in the business environment, and major privatizations, contributed to the growth of FDI inflows. In 2006, FDI inflows amounted to US Dollars 11,367 million, marking a substantial increase of 75.34 percent compared to the end of 2005, with a significant portion going towards reinvested earnings and intra-group loans. FDI stock continued its ascent in 2006 by 76.05 percent compared to 2005. In 2007, foreign direct investment experienced a decrease of 12.72 percent compared to 2006, while the FDI stock in 2007 witnessed a 38.52 percent increase compared to 2006. As shown in Table 1, the value of FDI inflows in 2008 reached US Dollars 13,909 million, marking the highest value after a decline in FDI inflows in 2007.

However, due to the economic crisis, FDI inflows from 2009 onwards plummeted to levels observed in the early 2000s. The fact that 2008 set a record for FDI into Romania over the previous two decades was exacerbated by the fact that several existing investors increased their capital in Romanian ventures to capitalize on the nation's relatively high economic growth rate and the implicitly favorable business environment provided by its recent EU membership.

In contrast, the period from 2009 to 2011 was marked by political instability stemming from disputed presidential elections in 2009. Attempts to topple the government were frequent, and the ruling party had a slim majority. Consequently, many investors either scrapped or delayed their investment plans, awaiting a return to political stability. Romania also lost some of its allure compared to rapidly growing emerging economies, as labor costs rose, and the regulatory burden of the EU gradually infiltrated the business environment. Despite efforts to enhance the transport infrastructure, progress in that regard was slow. All these factors positioned Romania at a relative disadvantage as an investment location at a time when investors became highly cost sensitive.

Starting from 2009, FDI inflows to Romania sharply declined by 65.17 percent compared to 2008, primarily due to the global financial crisis at the end of 2008. Despite this decline, FDI stock continued to rise in 2009, reaching US Dollars 72,008 million, accounting for an increase from 18.64 percent of GDP in 2000 to almost 44 percent of GDP in 2009. The years 2010 and 2011 saw a continued decrease in FDI inflows, with FDI inflows totaling only US Dollars 2,522 million in 2011. FDI stock also experienced a decline in 2010, amounting to US Dollars 1,744 million compared to 2009. In the years 2012 and 2013, there was an uptick in FDI inflows, but the levels remained low, with US Dollars 2,748 million in 2012 and US Dollars 3,617 million in 2013, significantly lower than the US Dollars 13,909 million recorded in 2008. As illustrated in Table 1, Romania held the highest stock of FDI in 2013, with the FDI stock increasing from US Dollars 78,010 million in 2012 to US Dollars 84,596 million in 2013, signifying an 8.44 percent increase compared to 2012 and accounting for 44.61 percent of GDP in 2013.

Figure 4: FDI inflows to Romania, Millions of US$



Sources: UNCTAD database (2000-2022)

3.2.1 Advantages and weak points of Romania attracting Foreign Direct Investments

The primary advantages of the nation in attracting foreign investment will be presented in this paragraph. Since joining the European Union in 2005, the country has witnessed an enhancement in its foreign relations, putting an end to its relative isolation. The implementation of cautious monetary measures post its EU accession has earned the confidence of foreign investors. A favorable growth rate of 6% in 2021 and a comparatively modest level of public debt (as per the IMF) are positive aspects to attract foreign direct investments. A domestic market of considerable size, with 21.2 million residents as of 2021 (according to the CIA World Factbook), an adept and reasonably priced labor force and a robust agro-food production, encompassing wheat, barley, rapeseed, and more are some of the features of the country attracting investors from all the world. The low dependence on coal, oil, gas, and uranium for energy and the access to utilities through industrial park infrastructures, coupled with unique benefits based on their industry and exemptions from real estate, construction, and planning taxes complete the advantages to choose the Romanian regions.

On the other side, the main weaknesses of the country encompass:

- Persistent political instability.

- Inadequate infrastructure.

- Elevated corruption risks.

- A substantial informal economy.

- The uncertainty in the judicial, legislative, fiscal, and regulatory systems erodes the business community's confidence.

- A demographic decline, marked by a low birth rate and emigration of educated youth, impacting a relatively impoverished population with limited purchasing power.

- Fragility in the banking sector, which, however, does not discourage investment and entrepreneurial risk-taking.

- High private sector debt in foreign currencies.

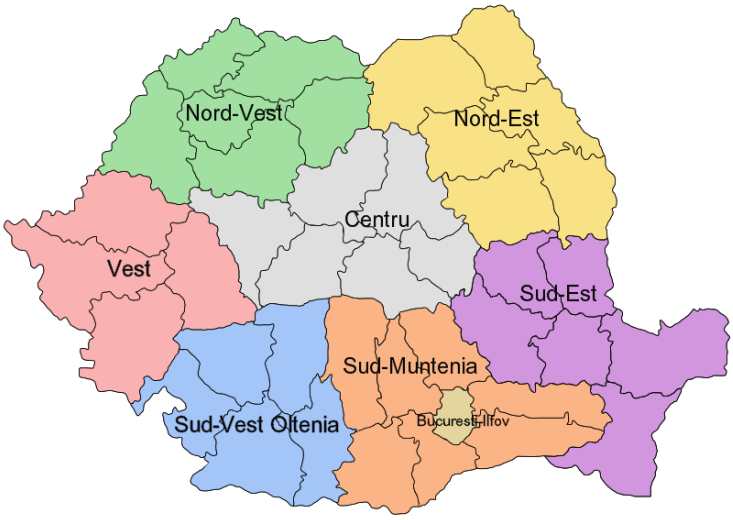
- A high external debt burden on the country.

In terms of government measures to encourage or restrict FDI, Romania has taken various initiatives to enhance transparency, fortify tax administration, and establish legal avenues for swiftly resolving contractual issues. Since 2009, different administrations have successfully reduced the budget deficit, as claimed by the Romanian government, from 9.1% of GDP in 2009 to 4.4% in 2019. The increase in wages, particularly the minimum wage set at RON 2,300 (approximately EUR 458), facilitates economic growth through sustained household consumption. The introduction of a new tax code in September 2015 allowed for several tax changes supporting economic liberalization, including a decrease in the dividend tax from 16% to 5% and a reduction in the VAT rate from 24% to 19% in 2017. Additionally, in six free zones, mainly situated on the Danube or near the Black Sea, investors can benefit from tax and customs advantages. According to EU regulations on regional development aid, investments in these free zones may receive state subsidies.

3.3 Regions and subdivision of Romania

Romania is split into seven macroregions, each of which has its own distinctive characteristics that differentiate the economy, nature, and distribution of the population, the majority of which is concentrated within the most significant metropolitan areas.

Figure 5: Nuts 2 Regions of Romania



Source: Wikipedia.

In terms of geographical distribution, Foreign Direct Investment (FDI) primarily flowed into development regions characterized by robust physical infrastructure, with the Bucharest-Ilfov region leading at 62.5 million. The Centre region constituted 8.7 percent with a total of 8.8 million, the South-Muntenia region accounted for 6.5 percent with a total of 7.5 million, the West region for 7.5 percent, and the North-West region for only 5.7 percent of FDI inflows. Regarding the major contributors to FDI stock as of December 31, 2013, The Netherlands held 24.4 percent, Austria 19.1 percent, Germany 11.2 percent, and France 7.6 percent (NBR, 2014, p. 11).

Romania is divided into eight development areas, each named after its geographical location: north-east, south-east, south, south-west, west, north-west, centre, Bucharest, and Ilfov.

The **North-Eastern** region, situated in the ancient province of Moldova, is a place where history, culture, and traditions coexist with a breathtaking natural environment. Its six counties include Bacau, Botosani, Iasi, Neamt, Suceava, and Vaslui. The economy in this region is predominantly rural, especially in the north, despite the presence of numerous industrial centers. The North-East Region is regarded as one of Europe's prime investment destinations due to cost-effective labor and a skilled workforce. Geographically and historically, the Southeast Region amalgamates Moldova, Muntenia, and Dobrogea, blending history and national culture. The administrative structure of the region comprises six counties: Constanta, Tulcea, Braila, Galati, Vrancea, and Buzau. Agriculture, commerce, tourism, and services are traditional sectors in the region, along with various established enterprises.

The **South Region**, Romania's third largest, encompasses seven counties: Arges, Calarasi, Dambovita, Giurgiu, Ialomita, Prahova, and Teleorman. The northern part has a higher industrial presence, while the underdeveloped south ranks second in Romania in terms of poverty. This region is characterized by the prevalence of agricultural workers.

The **South-Western** Development Region consists of five counties: Dolj, Gorj, Mehedinti, Olt, and Valcea. Abundant agricultural, hydroelectric, and thermo-energy resources contribute to the region's natural potential and economic legacy. The region's subsoil is rich in coal, metal and non-metallic minerals, salt, oil, natural gas, and diverse flora, forming a traditional economic zone balanced between agriculture and industry.

The **Western** Development Region, situated in western Romania on the border with Hungary and Serbia, is comprised of four counties: Arad, Caras-Severin, Hunedoara, and Timiş. Leveraging favorable conditions and building on an exceptional industrial legacy, the region experienced consistent growth post the communist period, surpassing the Romanian average and attracting substantial international investments across various industries.

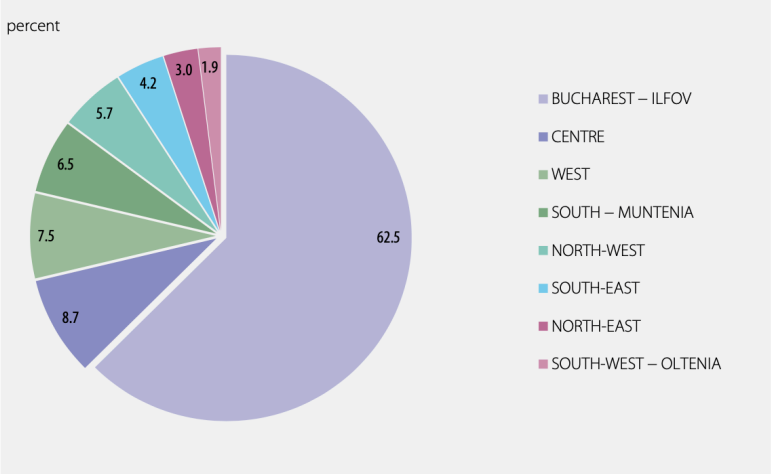
The **North-Western** Region (Northern Transylvania), one of Romania's eight development areas, includes six counties: Bihor, Bistrita Nasaud, Cluj, Maramures, Satu Mare, and Salaj. Recognized for its scenic beauty, the region's economy is primarily centered on traditional sectors like agriculture and industry, both heavily reliant on labor with relatively low added value.

The **Central** Region of Romania, situated in the country's center amid the Carpathian Mountains, is the sixth largest region in terms of land area, encompassing the counties of Alba, Brasov, Covasna, Harghita, Mures, and Sibiu. Due to its strategic geographical location, the region connects with six of the seven development regions, making it almost equidistant from its central area to border crossing points. The economy exhibits a distinctive industrial character, evident in the significant contribution of the industry to GDP and the importance of the secondary sector in employment.

The **Bucharest and Ilfov** Development Region comprise Bucharest and Ilfov County. Despite its enhanced economic performance compared to other Romanian regions, the Bucharest-Ilfov region has a relatively lower level when compared to EU regions with a capital or city, even when considering capitals of new EU Member States. The region is highly urbanized, with over 90% of the population residing in cities.

Geographically, FDI primarily targeted developing regions with strong physical infrastructure, such as the Bucharest-Ilfov region (62.5 million). The Centre area received 8.7 percent of FDI flows with a total of 8.8 million, the South-Muntenia region received 6.5 percent with a total of 7.5 million, the West region received 7.5 percent, and the North-West region received just 5.7 percent, with other regions playing a less significant role in the investments made by foreign countries.

Figure 6: FDI position distribution by development region in 2021

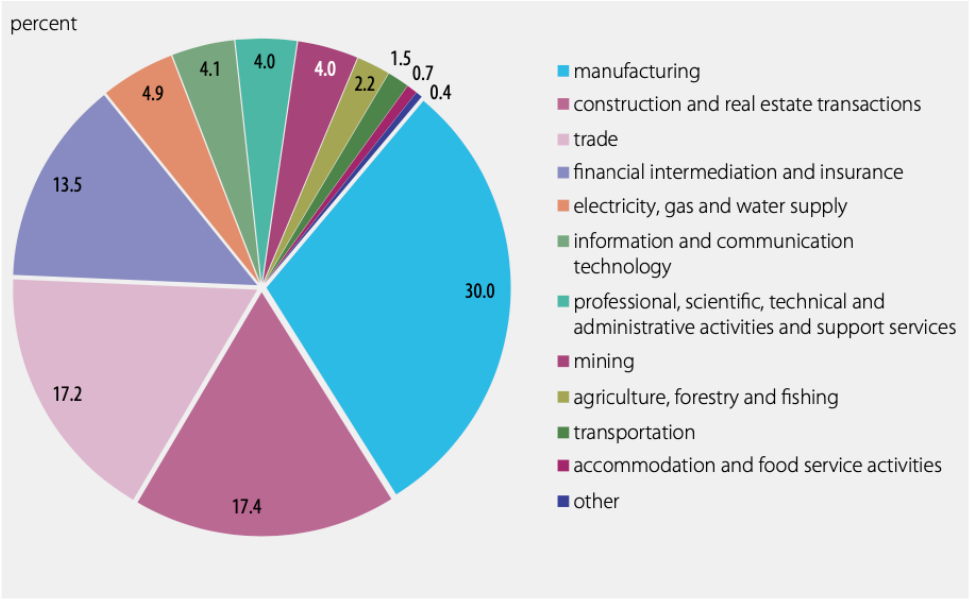


Source: National Bank of Romania FDI report of 2022

3.4 Industry distribution

The information provided in this section are found in the Foreign Direct Investment Report of 2022 (National Bank of Romania, 2022) reporting 2021 data. Regarding the economic activity, FDI primarily focused on manufacturing (30 percent of the total), financial intermediation and insurance (13,5 percent of total FDI), trade (17,2 percent), construction and real estate transactions (17,4 percent), electricity, natural gas and water supply (4,9 percent).
Within the manufacturing industry, the three largest recipients were mining (4 percent of total FDI), transport means (1,5 percent), and metallurgy (NBR, 2022), while information and communication technology is one of the greater growing economy activity.

Figure 7: FDI position by main economic activity as of 31 December 2021

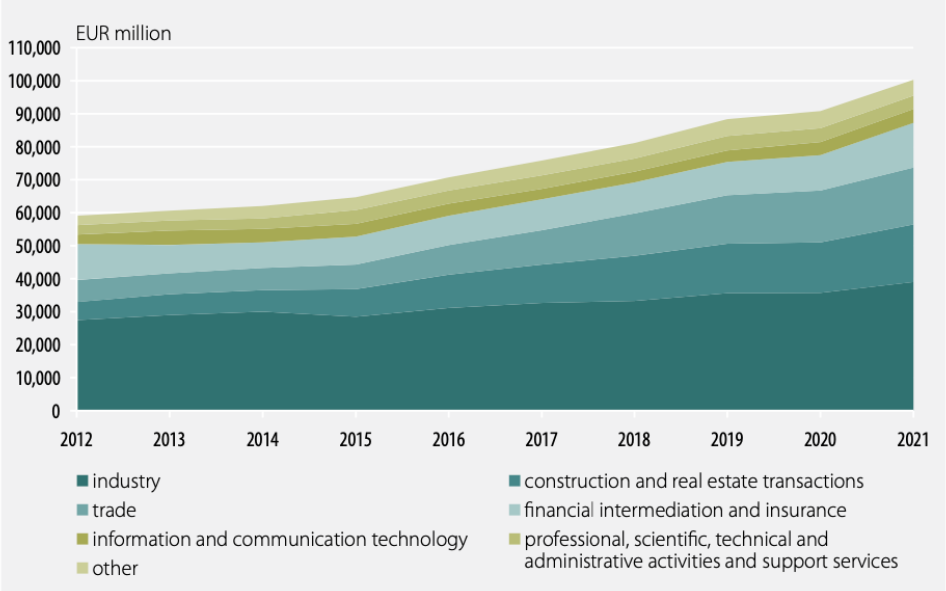


Source: National Bank of Romania (2022)

It can also be noted that between 2012 and 2021 the construction and real estate transactions sectors and the sectors linked to trading and financial intermediation and insurance had a

notable positive trend, in fact foreign companies were more attentive to these growing sectors in Romania, as it can be noticed in the chart below.

Figure 8: FDI position by main economic activity



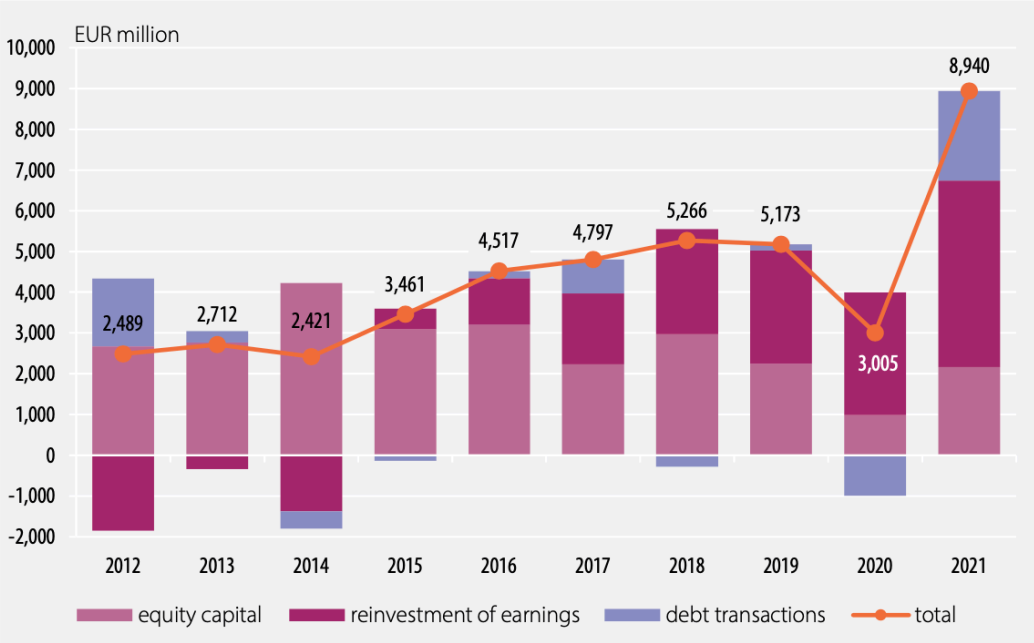
Source: National Bank of Romania

3.5 Investing Regions and Countries

The positions of direct investment of foreign countries in Romania can be realized through debt or equity instruments. The debt instruments include marketable securities such as bonds, commercial paper, debentures, non-participating preference shares and other tradable non-equity securities as well as loans, deposits, trade credit and other accounts payable/receivable, it is the most volatile component of flows and made a fluctuating contribution to the increase in FDI flows (OECD). The equity positions include common and preferred shares (exclusive of non-participating preference shares which should be included under debt), reserves, capital contributions and reinvestment of earnings, it made the smallest contribution to FDI flows in Romania, the downward trend of this component is closely linked to that of the reinvestment of earnings, that increased in time. The need to finance foreign investment was mainly covered

through profits that were not distributed to shareholders in the form of dividends. Furthermore, the decrease in equity capital is also a result of the persistent downward trend in losses incurred by FDI enterprises in the past ten years (as these entities no longer need to cover such losses from equity capital), as well as of lower greenfield investment made by new-entry investors in the Romanian market.

Figure 9: FDI flows by component in 2012-2021



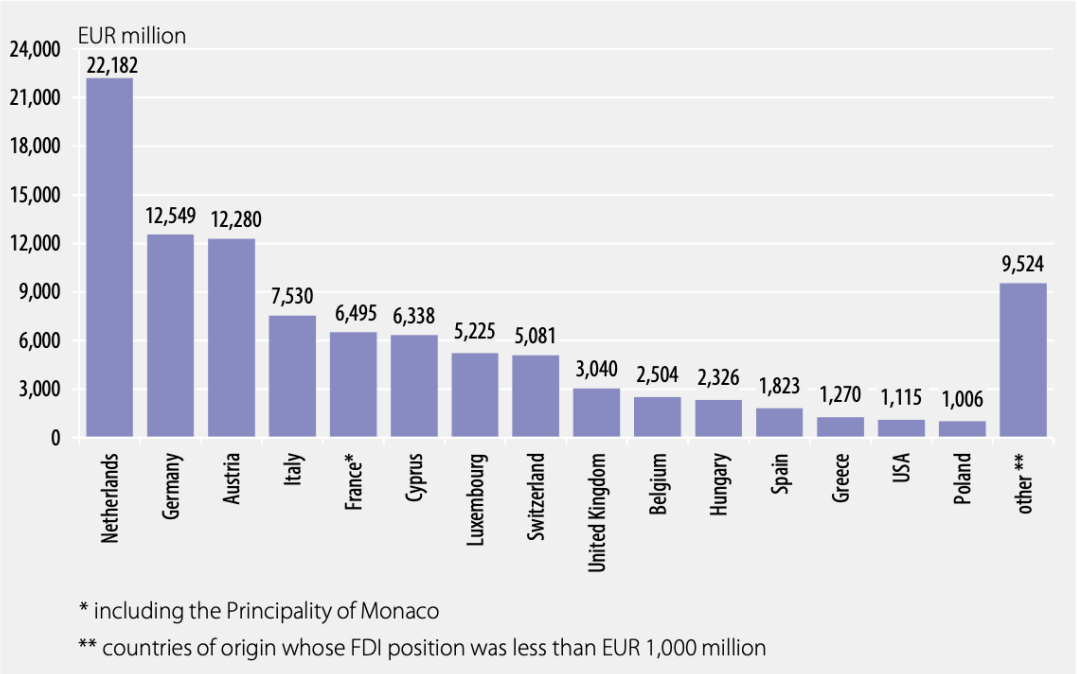
Source: National Bank of Romania

The top countries ranked by the share of the FDI position in Romanian enterprises as of 31 December 2021 were Netherlands (22.1 Millions of FDI position), Germany (12.5 Millions), Austria (12.2 Millions), Italy (7.5 millions), France (6.5 millions) and Cyprus (6.3 millions). The breakdown considered the country of residence of the direct holder of at least 10 percent of the share capital of FDI enterprises in Romania.

If compared with the FDI position distribution by Ultimate Investing Country, Germany continues to rank, directly or through affiliates in third countries, topmost among the countries that invested in Romania, with a position of EUR 14,911 million (14.9 percent of the closing

FDI position), followed by Austria (10.7 percent), France (9.7 percent), Italy (7.9 percent), the United States (7.8 percent) and Netherlands (3.8 percent).

Figure 10: FDI position distribution by immediate Investor Country as of 31 December 2021



Source: National Bank of Romania FDI report

4. LITERATURE REVIEW OF FDI DETERMINANTS

Having outlined the fundamental features of foreign direct investment and the configuration of Romania and its regions, this chapter will underscore the primary determinants influencing parent companies' investment choices in specific Romanian regions and the motivations guiding a company to invest in Romania.

To start, Foreign Direct Investments play a crucial role in fostering economic growth, directly impacting income levels and the quality of the institutional framework. This study is centered on evaluating the influence of Foreign Direct Investments on Romania, examining their effects on economic metrics, as well as the risks and advantages encountered by investors and the nature and extent of foreign direct investment (FDI) inflows. The level of openness is influenced by trade barriers and restrictions imposed by host countries. Unfavorable trade restrictions contrary to the interests of multinational corporations (MNCs) tend to heighten trade barriers when attempting to access the host country's markets. This significantly affects their investment decision-making processes. However, the perception of trade openness varies for MNCs based on the type of investment they intend to pursue. While some companies prefer markets with FDI has consistently been regarded as a critical source of external resource inflows to developing countries over the years, constituting a significant portion of capital formation in these nations. Despite their limited or even declining share in the global distribution of FDI, foreign direct investment continues to exert a substantial impact on the economy.

4.1 Trade Openess

As outlined by Dowrick and Golley (2004), trade openness denotes the proportion of overall trade within an economy, representing the combined value of exports and imports in relation to the GDP. In the literature concerning determinants, trade openness is considered a crucial factor influencing the reduction of trade barriers to minimize transaction costs. Some seek export-related investments in host markets with fewer trade barriers and restrictions on imports from competitors, enabling them to maximize profits in domestic markets (Asiedu, 2002). There is a widespread agreement on the perceived significance of trade openness in attracting

foreign investors to host countries (Oman, 2000; Cohen, 2007; Dunning and Lundan, 2008). The more governments implement changes and policies leading to the openness of their economies, the greater the likelihood of attracting substantial FDI in terms of both quantity and quality. However, empirical studies investigating its impact produce varying results. Research by Nurudeen et al. (2011) and Seetanah and Rojid (2011) in Nigeria and Mauritius, respectively, illustrates a robust connection between trade openness and the level of FDI inflows, despite using different methodologies. Both studies indicated a significant relationship.

Conversely, studies focusing on Malaysia utilizing the OLS model (Sharma, Nayagam, & Chung, 2012) and Central and Southeastern Europe (CSE) using the OLI framework (Mateev, 2009) found that trade openness did not have a statistically significant impact on inward FDI in the respective countries, despite its influential role. It is suggested that, in the case of CSE, this variable might have been correlated with other factors influencing investment decisions. The study on Malaysia emphasized issues with the model and specification of proxies used in the analysis, considering that many other determinants appeared to be insignificant as well. Furthermore, Azam and Lukman (2010), employing a quantitative approach, discovered that trade openness was a significant determinant for India from 1971 to 2005.

The increase in trade flows between countries creates an environment conducive to learning and knowledge creation, thereby facilitating FDI activities. Economic openness, typically measured by trade flows, exhibits a positive correlation with FDI inflows (Amal, 2016). Similarly, Al-Sadig (2009) employed the total value of exports and imports over GDP to represent economic openness and found a positive and significant relationship. As hypothesized, most studies on this theme establish a positive relationship between FDI and economic openness.

4.2 Market Size

According to Chakrabarti (2003), an expansion in the market size of a location leads to an increase in the level of direct investment in that area due to heightened demand. Large markets attract foreign investors as they provide the opportunity to internalize profits from sales within the host nations. Woodward (1992) suggests that foreign corporations prefer regions with strong markets and low levels of unionization. Bagchi's spatial analysis of FDI in the United States explores the impact of specific market and regional growth characteristics. The literature suggests that market magnitude can be estimated by GNP, GDP per capita, or GDP, and this is considered a major determinant of FDI for MNCs seeking to expand their operations into foreign markets. The size of the market holds significant weight for numerous MNCs due to the potential to garner substantial profits. Consequently, sizable markets are likely to attract a greater number of foreign companies, thereby enhancing competitiveness. A larger market provides more opportunities for MNCs to achieve economies of scale and reduce production-related expenses (Cohen, 2007).

However, for export-oriented MNCs that do not primarily target host countries as their key marketplaces when investing abroad, the relevance of market size diminishes, as emphasized by Kyereboah-Coleman and Agyire-Tettey (2008). Their research highlights that MNCs might engage in FDI to access other intermediate markets for export-related purposes. Additionally, concerning government policies aiming to stimulate FDI influx in a host nation, market size has the potential to drive growth as long as the domestic institutional framework and macroeconomic environment align with the short and long-term strategic objectives of MNCs. Despite their smaller economies compared to Argentina, Brazil, and India, countries like Singapore and Malaysia can still compete effectively due to more favorable FDI policies (Oman, 2000).

The positive impacts of market size on inward FDI have been affirmed by numerous studies across various economies, irrespective of their size (Shamsuddin, 1994; Vijayakumar, Sridharan, & Rao, 2010). Moreover, Azam and Lukman (2010) demonstrated that market size had a highly significant impact on India's inward FDI from 1971 to 2005. Conversely, the studies by Seetanah and Rojid (2011) and Asiedu (2002) suggest a negative correlation for Mauritius and sub-Saharan African countries, respectively. The latter study attempts to justify these findings based on the perceived risk of the region by MNCs. However, unlike Africa,

the nation of Mauritius has been relatively successful in attracting foreign investors despite its comparatively smaller market size due to existing good opportunities to draw in export-oriented MNCs.

Market size can serve as an indicator of economic advancement in a market, and therefore, several authors have employed it as a variable to explain FDI patterns. This line of thought suggests that economically developed markets will receive more FDI inflows, considering higher disposable income and increased consumption. The research by Sun, Tong, and Yu (2002) delving into determinants for FDI across China's provinces found a robust relationship between GDP and FDI. They noted that studies before 1991 did not identify a significant relationship between these variables, but the effect became highly positive in studies after this year, reflecting shifts in FDI trends. The positive effect of GDP can be explained by its direct impact on the return the foreign firm will receive from the investment, as the firm benefits from a larger market (Sun et al., 2002). Additionally, the research by Krifa-Schneider and Matei (2010) identified a positive correlation between market size, indicated by GDP, and inbound FDI.

4.3 Infrastructure

Infrastructure is a widely discussed subject in numerous writings addressing the positioning of FDI. The Eclectic Paradigm, as presented by Dunning & Lundan (2008), underscores the importance of this aspect in the "Location" phase of the analysis. Additionally, an area lacking sufficient infrastructure leads to increased production and distribution costs, acting as a deterrent to investments (Bortoluzzo et al., 2013). Bortoluzzo, Sakurai, and Bortoluzzo (2013) conducted a study assessing the determinants of FDI across various states, identifying infrastructure as a crucial element for attracting foreign investors. They utilized kilometers of roads per state as a proxy for this variable. Furthermore, they noted that public policies often focus on providing tax incentives to attract FDI, potentially overlooking investments in improving infrastructure quality. In a study by Sun, Tong, and Yu (2002), the significance of infrastructure for FDI was emphasized, anticipating a positive correlation between these variables. They employed GDP per square kilometer, highways per km², and railways per km² as proxies for infrastructure, concluding that these were significant factors influencing the

allocation of foreign investments. In contrast, Krifa-Schneider and Matei (2010), examining FDI inflows in 33 developing or transitioning economies from 1996 to 2008, found a negative or insignificant relationship between tangible infrastructure and FDI. This finding was unexpected, given that previous research had suggested a positive and substantial association with the infrastructure factor.

Infrastructure stands out as a critical factor in FDI determination, with a positive correlation observed between infrastructure and inbound FDI. Numerous empirical studies highlight the significance of infrastructure in location decisions for FDI, as emphasized by Wei et al. (1999), Mariotti and Pischitello (1995), Broadman and Sun (1997), and He (2002). A location endowed with robust infrastructure holds more appeal than others (Wei et al., 1999; He, 2002).

4.4 Labour cost and quality

This parameter primarily appears as the wage rate and pertains to the percentage change in labor expenses within a host country. It's widely believed that a low labor cost tends to act as an enticement for multinational corporations (MNCs) to invest in foreign markets due to the potential for reducing production costs. Conversely, higher labor-related expenses tend to have opposing effects (Baker, 1999; Cohen, 2007). However, empirical investigations depict diverse impacts on the relationship between labor costs and the influx of FDI.

The connection between FDI and wage rates seems to exhibit a similar pattern in both developed and less developed countries (LDCs). Wijeweera and Mounter (2008), utilizing a Vector Auto Regression (VAR) model, demonstrate that the wage rate in Sri Lanka is the primary factor influencing inward FDI. Shamsuddin's (1994) study involving 36 LDCs reveals that elevated wages have a negative impact on inbound FDI. Conversely, Sahoo's (2006) research, utilizing the Dynamic Panel Data Model (DPDM), unveils a positive association between FDI inflow and wage rates concerning skilled labor markets in South Asia. This is due to the abundant supply of skilled labor whose expertise is crucial for MNCs' success in the region. The market rates for skilled labor in this region still constitute a small fraction when compared to developed economies. Additionally, Vijayakumar et al. (2010) have established an inverse relationship between labor costs and inbound FDI in the BRIC countries.

Among the crucial production expenses relevant to FDI, labor costs are particularly emphasized in the literature. Within the various empirical studies conducted on this subject,

conclusions regarding the impact of this factor vary. The study by Krifa-Schneider and Matei (2010) discovered a positive yet statistically insignificant correlation between unit labor costs and FDI, aligning with Lipsey's (1999) findings. Lipsey (1999) argues that in certain sectors like manufacturing, the need to attract a higher-skilled workforce offsets, to some extent, the inclination to seek the lowest-wage location. Another study by Cheng and Kwan (2000) regarding the determinants of FDI across 29 Chinese regions from 1985 to 1995 concluded that labor costs have a detrimental effect on inward FDI, with a 1% change in wages resulting in a 0.5% decrease in inflows. Furthermore, the research by Sun, Tong, and Yu (2002) revealed a positive relationship before 1991 and a negative relationship thereafter.

In the context of foreign investment, Klein and Rosengren (1994) delineate the effects of exchange rates on wages, linking these variables based on two theories. Firstly, the imperfect-capital-markets theory posits that a firm's wealth relative to its foreign counterpart increases when the local currency appreciates. Secondly, the relative-labor-cost theory suggests that the depreciation of the local currency leads to an increase in inward FDI. Consequently, both theories concur that a weaker exchange rate may result in increased FDI inflows, while a stronger exchange rate impedes FDI inflows.

4.5. Human capital

Educational achievement in a specific society has a significant impact on the influx of foreign direct investment (FDI). The levels of education can function as an indicator of labor quality, and foreign investors would prefer to establish their enterprises in countries with higher educational levels, up to a point where the cost becomes too high. Moreover, the extent of educational attainment can indicate a country's openness to foreigners, with nations shifting their orientation from ethnocentric to geocentric as education levels rise (Trevino et al., 2008). In the same study, the author explores the quantitative correlation between inward FDI and educational levels, using the percentage of students enrolled in tertiary education, and establishes a substantial and positive relationship between these variables for Latin American countries (Trevino et al., 2008).

Bortoluzzo, Sakurai, and Bortoluzzo (2013) employed the illiteracy rate as a proxy for the level of human capital, represented by the percentage of individuals aged 15 years or older who cannot read and write. The study concluded that this variable is crucial in explaining FDI

levels, anticipating at least a 7% increase in FDI per capita with a 1% decrease in the illiteracy rate. Additionally, Cleeve's research (2008) used illiteracy levels and secondary school enrollment as proxies for human capital in Sub-Saharan African countries, revealing significant relationships, positive for secondary school enrollment and negative for illiteracy levels. Another aspect explored in empirical literature is the proportion of research engineers, scientists, and technicians relative to the total number of employees, showing a notable and positive relationship between this variable and FDI inflows (Sun et al., 2002).

Cantwell (1989) underscores that investments driven by knowledge-seeking motives vary across locations due to factors specific to those locations. These factors include the number of scientists and educated individuals in the region, established innovations, R&D intensity, the education system, and effective linkages between educational institutions and corporations. Consequently, companies might expand their existing technologies by venturing internationally to access novel knowledge. This expansion may suggest two types of knowledge-seeking behavior: one exhibited by firms originating from advanced technical centers and the other by those from less developed technical centers (Cantwell and Janne, 1999). Firms from less developed technical locations aim to catch up and establish their research centers abroad to enhance their existing technology. Conversely, firms from advanced locations, although not needing to catch up, may also position their research centers abroad to access a more diverse range of technologies embodied in new plant and equipment, a goal applicable to every firm (Cantwell, 1989). Florida (1997) finds that gaining access to new indigenous technology takes precedence over customizing existing technology for new markets (Wilbur Chung et al.).

4.6. Macroeconomic stability

A multinational corporation faces diverse risks, some similar to those encountered by local firms and others unique to its international operations. Ghoshal (1987) proposed a general classification of these risks as macroeconomic risks, encompassing variables beyond the company's control. This includes catastrophic events and fluctuations in wages, interest rates, exchange rates, unemployment, inflation, and more (Ghoshal, 1987).

The main factors explored in literature regarding these aspects encompass the Gross Domestic Product (discussed earlier in this chapter), the inflation rate, the foreign exchange rate, and unemployment. Elevated levels of inflation are seen as signaling instability in the host country's internal economy and a challenge in maintaining a consistent monetary policy. Asiedu (2013) considers inflation a gauge of uncertainty in macroeconomic stability, and their study covering 99 developing economies from 1984 to 2011 revealed a significant negative correlation between inflation and FDI.

In terms of the effects of exchange rates, the literature presents divergent conclusions. One perspective, based on the wealth effect and relative production cost effects, suggests that a depreciation in the host country's currency leads to increased foreign investment due to lower production costs and increased wealth for foreign companies compared to local firms. Another viewpoint is that during a depreciation of the local currency, the subsidiary profit is discounted at a lower value, potentially resulting in decreased FDI inflows (Boateng et al., 2015). Boateng's studies (2015) on Norwegian FDI inflows concluded a positive and significant role of exchange rates in the inflows, whereas Krifa-Schneider and Matei (2010) found a negative but not significant relationship, indicating a lack of consensus on the effect of exchange rates.

Regarding the unemployment rate in the host economy, Billington (1999) suggests that a foreign investor may be attracted to a higher availability of local labor, implying that increased unemployment levels can lead to higher FDI. However, high unemployment levels can also indicate a depletion of skilled local labor, adversely affecting FDI. A UK-based study by Billington (1999) indicated a positive and significant relationship between FDI and unemployment. Conversely, results from Boateng et al. (2015) showed a negative relationship between the variables.

Thus, the empirical literature on the macroeconomic determinants of FDI does not seem to converge on a consensus. Studies on the topic diverge on certain points, indicating that greater macroeconomic stability does not always correlate with higher levels of FDI inflows. In some situations, a certain level of instability can offer higher returns (albeit with higher risk) as per common sense.

4.7. Incentives

Among the strategies that governments can employ to encourage FDI are fiscal incentives, often provided in the form of tax advantages. The literature on this topic presents varying perspectives. One viewpoint suggests that fiscal incentives, under specific conditions, can stimulate investments, generate new employment opportunities, and foster various socio-economic advantages. Conversely, another perspective argues that this approach should not be prioritized. The rationale behind this is that the costs associated with incentives outweigh the potential benefits. Moreover, proponents of this view believe that incentives may exacerbate issues like corruption and governance challenges. They propose focusing on enhancing local elements such as infrastructure instead (Cleeve, 2008).

In an empirical analysis by Cleeve (2008) involving 16 Sub-Saharan African countries, a significant link between fiscal incentives and FDI was identified. The author examined profit repatriation, tax holidays, and tax concessions, finding a positive relationship between the first two factors and FDI, while the third exhibited a negative relationship. The argument presented is that offering excessive concessions could deter FDI attractiveness, emphasizing the need for a balanced approach to drive growth and development. Another study by Head and Ries (1996) assessed the effectiveness of incentive areas in China, condensing a range of benefits into dummy variables for these incentive zones. The results demonstrated a positive relationship between governmental incentives and FDI.

4.8. Agglomeration and cultural distance

Another significant factor influencing FDI is the presence of agglomeration economies. Agglomeration economies play a crucial role in attracting foreign direct investment. They pertain to the favorable impacts and cost advantages linked with the concentration of activities in a particular area and the clustering of interconnected production facilities (Chadwick, 1989; Krugman, 1991; Smith and Florida, 1994). There is consistent evidence suggesting that multinational corporations are enticed by concentrations of economic activities within their industry and closely associated sectors (Glickman and Woodward, 1988; Wheeler and Mody, 1992;; Devereux and Griffith, 1998; Guimaraes et al., 2000; Driffield and Munday, 2000). The overall quantity of industrial enterprises within a region is anticipated to have a substantial pull on FDI, as the existence of industrial clusters signifies a range of favorable circumstances for foreign investors, including the availability of local suppliers, specialized workforce, and infrastructure (He, 2002). As per Coughlin, Terza, and Arromdee (1991), the concentration of manufacturing activities was a key aspect influencing the location choices of foreign companies in the US during the years 1981-1983. Another factor associated with agglomeration economies is the density of the population (Lale Berkoz, Sevkiye SenceTurk, 2009).

5. CONDITIONAL LOGIT MODEL

The central focus of economics revolves around understanding human decision-making behavior and the underlying motivations that drive these choices. Given that econometrics lacks the capacity to directly observe all the myriad factors that influence human behavior, it relies on statistical assumptions about individual decision-making behavior, drawing from data gathered through population sampling (McFadden, 1973). In the realm of studies related to location-based decision-making, a discrete economic model known as the conditional logit model, introduced by McFadden (1973), takes center stage.

McFadden (1973) introduced the conditional logit model, resembling logistic regression in structure but distinctive in its incorporation of characteristics pertaining to the various alternatives presented to individuals rather than individual attributes.

Built upon the foundational principles of random utility maximization, the conditional logit model has emerged as a valuable instrument for modeling a firm's locational decisions (Guimarães et al., 2003). This model proves to be a reliable means to assess how the multifaceted determinants discussed in the preceding chapter impact the choices of multinational enterprises regarding their investments in specific subregions, as opposed to others.

The conditional logit model serves as a statistical tool for analyzing choices or decisions made by individuals when they encounter a range of options. Its application extends across a spectrum of fields, encompassing economics, transportation, marketing, and more. Its fundamental premise posits that individuals, when confronted with alternatives, assess each option based on a set of attributes, ultimately selecting the alternative that maximizes their utility, given these attributes. A distinctive characteristic of the conditional logit model is its aptitude for accommodating the correlation of unobservable factors in decisions made by the same individual. This attribute renders it particularly valuable for examining discrete choices, whether they pertain to modes of transportation, product preferences, location-based decisions, or other scenarios, thereby providing profound insights into the dynamics of the decision-making process.

Occupational choice is a pivotal determination in a specific moment, entailing the selection of an investment decision from a spectrum of possibilities for example. This choice hinges on a multitude of factors, including personal interests, characteristics of the territory, and economic

considerations. The conditional logit model proves to be an insightful instrument in delving into the intricacies of this decision-making process.

The conditional logit model delineates the likelihood of selecting a particular alternative "j" within a set of mutually exclusive options. This likelihood is contingent upon a specific array of attributes. The model articulates these choice probabilities via a specialized variation of the logit function, known as the conditional logit model, which accommodates the interplay between attributes and choices within a structured framework.

Here's the equation for the conditional logit model:

$$\mathrm{P}(y_{ij} = 1 \mid \mathrm{X}_i) = \frac{e^{X_{ij}\beta}}{\sum_{k=1}^{J} e^{X_{ij}\beta}}$$

In this equation:

- $\mathrm{P}(y_{ij} = 1 \mid \mathrm{X}_i)$ is the probability that individual "i" chooses alternative "j."
- X_{ij} represents the vector of attributes or characteristics of alternative "j" for individual "i."
- β is a vector of parameters to be estimated, representing the effect of the attributes on the choice probabilities.
- J is the total number of alternatives in the choice set.

The numerator of the equation represents the probability of choosing alternative "j" given the attributes, and the denominator represents the sum of probabilities for all available alternatives in the choice set. The choice with the highest probability is the one that the individual is most likely to select. This model is commonly used to estimate the impact of different attributes or characteristics on choice probabilities and to make predictions about individual choices in various contexts, including transportation mode choice, product selection, and occupational choice.

6. MODEL AND ANALYSIS

Based on the literature regarding the determinants of foreign direct investment and on the econometric model regarding the conditional logic model, in the first part of this research, data regarding the independent variables of Romania were searched from the national sites for statistics such as the National Statistical Site of Romania and Eurostat.

The initial section of the chapter outlines the database used in the model, covering the dependent variable and detailing the database filters applied. It also introduces the independent variables chosen for the model, such as GDP per capita, population, labour cost, unemployment rate, infrastructure, employees and expenditure in research and development fields, and infrastructure, like public roads and rail network from the 2000 to the 2022. This section then discusses the utilization of the database in the Stata software, elucidating the formatting procedures to align it with the model's requirements.

All data were collected at a detail of NUTS 0, 1, and 2, in fact they were then distinguished both at the national level, at the 4 macro-regions of Romania, and finally at a greater detail related to the 8 regions into which Romania is divided. After collecting the data, these were used together with data on foreign direct investment in Romania to see then what was the choice of firms outside the country in locating investments.

The subsequent part of the chapter engages in a descriptive analysis of the database variables. It comprehensively examines the values in the database, emphasizing the distinct characteristics for each region. It offers a more detailed analysis of the dependent variable and eventually explores the correlations among the independent variables.

The final segment of the chapter scrutinizes the results reflected in the model. It initially delineates the outcomes for the entire period of analysis and sectors. Subsequently, it explores the variances in the determinants for FDI within the primary industry sectors, chosen based on the FDI count.

In this study, it is presumed that all companies aim to maximize profits. Therefore, they select a particular location when the expected profit surpasses that of other available locations.

6.1 Description of the Foreign Direct Investments dataset

The initial phase in developing the econometric model involves collecting and preprocessing data. This process ensures that the input for the model is error-free, fostering the production of consistent outcomes.

This Chapter delineates each variable earmarked for use within the model. Initially, the focus is on the dependent variable, associated with foreign investments across each Romanian region. Subsequently, there's an elaboration on the data employed for the independent variables. The selection of these variables for inclusion in the model is based on determinants identified in the literature, enabling the model to encompass all relevant factors influencing FDI inflows and selecting the variables that could impact the choice of investment in a certain region of Romania. Prior studies have often encountered challenges in assembling the necessary data for the model. In the paper, some adjustments and approximations were required for certain data, and this section also outlines these modifications.

6.1.1 Dependent variable

The focal variable in the model pertains to the selection of foreign investments within various regions of Romania. To compile this information, the dataset utilized is the FDI Markets. This database encompasses specific company-level information about greenfield FDI initiatives announced after 2003. The dataset used for this study encompasses records from 2003 to 2019. For each investment, the following details are available: the date, the investing and parent company, the investor location (country, state, and city), the destination location (country, state, and city), the industry (by activity, sector, and sub-sector), the capital investment (estimated or not), the number of jobs created (estimated or not), and the project type (new expansion or co-location).

For the following study, some changes were made in the database to adapt it to the purpose of the analysis. Firstly, are selected only the investments having Project Type equal to New, so only new investments in the selected region are considered, excluding projects for expansion of firms that were present in Romania and Co-location projects. Secondly, columns for the

identification of the Source Country of the parent company and for the Country of destinations are added (iso).

To start to analyze the greater presence of Foreign Direct Investments in specific regions in Romania, the use of the dataset of firms investing in Romania was essential. So, for the analyses are used 3793 observations of investment for Romania. These observations include not only the year of investment, the Investing Company, the origin Country but also the region of destination, the industry sector, the amount of capital invested and the tipology of investment, expansion of a new investment.

In the table 2 are presented the foreign investments going to Romania, sorted by country of origin investing. As it is already shown in the precedent chapters, Germany is the country that invests the most in Romania, with 20% of total investments. After Germany, France and the United States are also close to 10%. This country is followed by Austria, the UK, Spain and Italy with an ever-decreasing percentage of investments.

Table 2: Foreign Direct Investments of Countries that invest in Romania by frequences

Source Country	Freq.	Percent	Cum.
Germany	777	20.49	20.49
France	405	10.68	31.16
United States	374	9.86	41.02
Austria	250	6.59	47.61
United Kingdom	223	5.88	53.49
Spain	176	4.64	58.13
Italy	163	4.30	62.43
Netherlands	158	4.17	66.60
Greece	131	3.45	70.05
Belgium	117	3.08	73.13
Switzerland	93	2.45	75.59
Sweden	84	2.21	77.80
Turkey	83	2.19	79.99
Israel	70	1.85	81.83
Japan	65	1.71	83.55
Denmark	56	1.48	85.03
Hungary	51	1.34	86.37
Poland	48	1.27	87.64
Czech Republic	45	1.19	88.82
China	41	1.08	89.90

Source: author's contribution

In the table 3 are presented Countries that invest In Romania and the relative frequencies of investment. As we have already seen, Germany is the country that invests the most in

Moldavia, with 16,9 % of total investments. After Germany, Romania and the United States are also close to 10%. This is followed by Russia, France, Ukraine and UK with an ever-decreasing percentage of investments.

Table 3: Countries that invest in Romania in the database with the relative frequencies

Source Country	Freq.	Percent	Cum.
Germany	24	16.90	16.90
Romania	15	10.56	27.46
United States	14	9.86	37.32
Russia	11	7.75	45.07
France	10	7.04	52.11
Ukraine	9	6.34	58.45
United Kingdom	8	5.63	64.08
Italy	6	4.23	68.31
Turkey	6	4.23	72.54
Kazakhstan	5	3.52	76.06
Austria	4	2.82	78.87
Azerbaijan	4	2.82	81.69
Japan	4	2.82	84.51

Source: author's contribution

6.1.2 Independent Variables of the Model

The independent variables used to assess the location choice by the companies represents the determinants found in the literature and presented in the previous chapter, presenting nationwide influences. This analysis is conducted at a regional level and some variables like macroeconomic indicators like inflation or exchange rates are not included, given their uniformity across the Nation, making them unrepresentative in this specific analysis.

The first aspect considered is the economic one, in fact the investment decision is driven by economic motivations, so the market size and growth are considered. In particular the GDP, the population and the consequent GDP for capita is calculated for each region present in Romania at a level of NUTS 2 and also the number of enterprises present in the regions are taken into account.

GDP is the real GDP at constant prices of the region i in the year t. The GDP is one of the economic variables used to measure the market size and its coefficient is expected to be positive, in fact the GDP of a specific region positively impact on the locational choice of the firms. All the data are collected from the European statistic Institute of Eurostat.

Population is the second variable used for the analyses. It was extracted from INSSE, the Romanian National Institute of Statistics and represents the number of habitants in a specific region in a specific year. This demographic variable assesses the concentration of the population. We'll see that the population is concentrated in some urban areas in regions with a higher degree of development like the capital Bucharest, while in other rural areas the population is much lower. The GDP per capita was derived by dividing the GDP values by the population for each region of Romania.

Number of enterprises is an important economic variable used to assess the concentration of the economic firms accross Romania. This variable counts the number of firms in a specific region i in a year t. Data are collected from the Romanian National Institute of Statistics.

Another aspect considered is the presence of Labor forces in a specific region, in fact if are present resources and the cost linked to these variables is lower than in the origin country the firms are incentivized to invest in the Romanian regions and the choice of the investment must take into account also the Labor factors.

Regarding the labor, the literature highlights the importance of the wages as a measure of the labor costs, but while the wages do not differentiate in a great way from one region to another, this variable is not considered in this study, but the presence of resources and the unemployment rate are important to take into account this aspect.

Labour forces is the economic variable that measure the amount of labour resources of the region i in the year t. This variable is a measure of the population that is employed in a specific region of the country and with the unemployment rate is a crucial measure linked to the Labour characteristics.

This data is collected from the Romanian National Institute of Statistics and the data are extracted by the label “Labour resources by gender, macroregions, development region and counties.”

Unemployment rate is the social variable defined as the number of people that is looking for an occupation but do not find any on the market including also individuals 14 years old and above and as a percentage of the labour forces in the region I in the year t. This data is collected from the European statistic Institute of Eurostat. This variable is the other one valued important for the human capital aspects and for the choice of investment in a region.

After the considerations about the economic variables and the presence of labour, also the Research and Development field is a key factor in promoting productivity and economic growth and development and the presence of adequate resources and the possibility to undertake effective R & D activity can enhance economic growth (Maloney and Rodriquez-Clare, 2007; Wang 2010). An essential component of regional development strategies is the need to support and foster innovative activities based on increased R & D investments, both public and private. To assess the degree of development of each region the expenditures and the employers in these fields are given.

Expenditure in research and development is one of the technological variables used to assess the degree and the amount of expenditure in R&D fields to improve the condition of the population. This variable consists in the evaluation of expenditures in these fields in a specific region i in a year t. Data are collected from the Romanian National Institute of Statistics.

Employers in research and development is another variable that measure the technological experts involved in R&D fields. This variable counts the number of people employed in Research and Development projects in a specific region i in a year t. Data are collected from the Romanian National Institute of Statistics.
Given the considerable investments it demands and its integral role in the production process, the transportation sector plays a pivotal role in the economic framework of society. Transport is deeply interwoven with the infrastructures across different areas. Several scholarly studies underscore the importance of infrastructure, noting that an enhanced infrastructure yields

positive effects on the foreign direct investment entering host countries, as illuminated in the literature review.

Public roads is one of the variables that measure the number of km of public roads in a region i in a year t. This is an important variable to assess the degree of development of infrastructure in regions. The public roads are distributed in all the countries and counts obviously more kilometrages In urban and more populated areas. Data are collected from the Romanian National Institute of Statistics.

Rail network is another variable used to assess the degree of development of infrastructure. This is measured as the number of km of rail in a region I in a year t. Data are collected from the Romanian National Institute of Statistics. Rail Network and Public Roads variable are the variables that measure the transport system, seen as a vital element of our daily existence. Infrastructure continually influences society due to its economic and societal contributions. The need for transportation has grown with the increased progress, making the movement of goods particularly vital.

Table 3 summarizes all the explanatory variables that will be considered in the model, as the independent variables. Those variables explain the aspects considered by the empirical literature to affect the FDI inflows in a regional perspective.

Table 4: Independent variables used in the model divided by categories

Macro categories	Variables	Model Variable	Source
Market Size	• GDP per capita calculated from the GDP and the population • Population per region • Number of enterprises	• Gdp_pc • Pop • Num_ent	Eurostat
Human Capital and Labor	• Unemployment rate: % of people than look for an occupation but do not find it. • Labour resources: number of employed people	• Unemp • Labf	INSSE Statistical Institute of Romania
R & D factors	• Expenditure in R & D fields • Employers in R& D fields	• Exp_rd • Emp_rd	INSSE Statistical Institute of Romania
Infrastructure	• Public roads as km present per region • Rail network as km present per region	• Pubr • Railn	INSSE Statistical Institute of Romania

The unemployment rate, GDP, number of enterprises, labor force, and population provide indications of the economic environment in which the investment takes place.

Variables related to R&D expenditures and employees reflect the investment's orientation toward innovation.

Variables related to public roads and the rail network indicate the quality of infrastructure available in the investment region. GDP per capita represents a key indicator for assessing the level of economic development in the region.

6.1.3 Dataset structure

This chapter provides a detailed analysis of the database concerning Foreign Direct Investments (FDI) in Romania. The dataset comprises key variables including Investment ID, Geocodes identifying relative regions, year, origin (Source Country and State) of the investment, investing company, industry activity, investment choice, administration region, effective and estimated investment capital, effective and estimated jobs created, unemployment rate, GDP, number of enterprises, labor force, population, R&D expenditures and employers, public roads, rail network, and the calculation of GDP per capita.
The final dataset is composed of two tables, one representing investment made, regarding dependent variable and its characteristics. The second table contains the information on the independent variables and the states and years of the data. All the data and transactions are treated on *Stata/IC 16.0*. To link and merge these two files every destination region identified by its NUTS 3 present in the investment database file is used as a key to join the corresponding NUTS 2 present in the dataset with all the independent variables. In that way for example the Administration Region called Bihor present in the investment database was linked to the RO11 region in which is located, the one called NORD-EST.

The table containing the information on the investments is composed of the ID of the investment, the destination region identified by a GEOCode that is the labeled with RO and 2 digits, the year of the investment, and the industry activity of the company.
The investment ID is a unique value associated with each of the entries of the database of investments.
This variable is required for the model that will be used to reference the choice made by each investor.
Also, as the model requires information on the decisions not made, we need to include a row for every region and mark if it is the choice.
Geocodes variables identify the regions involved in the investments, providing insights into the geographical distribution of investments, and assessing any regional patterns and is also used as a key to join the investments table with the independent variables table.

The year indicates the time period in which the investment occurred, offering temporal context to the analyses.

The origin variable identifies the country (and state, if applicable) from which the investment originates, offering insights into the geographical origin of investors.

Investing Company and Industry Activity provide detailed information about the company making the investment and the specific industrial activity involved.

Investment Choice reflects the decision to invest in terms of the breadth and nature of the investment.

Administrative regions delineate the geographical scope of the investment within Romania.

Investment Capital and Jobs are related to invested capital and created jobs (actual and estimated) and are crucial for assessing the economic impact of the investment.

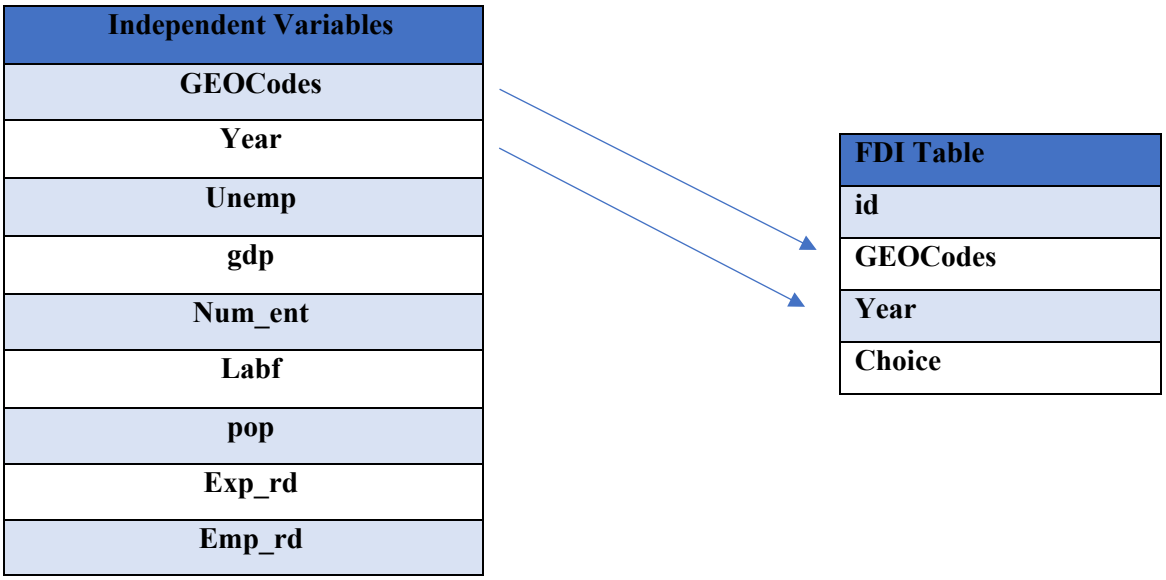
After dropping all the dataset with no specific Administration Region (dropping 667 observations and keeping the other 2502) and sorting for code and year, it was possible to arrive at the choice.

This was possible through the function fillin. With the transaction was possible to keep the id code and to create the dataset with all the possible choices (with the variable choice = 0) and with the effective choice of the best NUTS 2 region.

The table with the information on the independent variables has columns containing the following information: year, state, GDP per capita (*gdp_cp*), population (*pop*), number of enterprises (*num_ent*), unemployment rate (*unemp*), Labour resources (*Labf*), public roads (*pubr*), rail network(*railn*), and expenditures and employers in Research and development fields (*exp_rd and emp_rd*).

Finally, when both tables are treated, they are joined in a single table to be used in the model. The Table 5 illustrates the data model and the fields that are used in the join.

Table 5: Join of the two tables through GEOCodes and Year



Source: author elaboration.

The dataset comprises key variables including Investment ID, Geocodes identifying relative regions, year, origin (Source Country and State) of the investment, investing company, industry activity, investment choice, administration region, effective and estimated investment capital, effective and estimated jobs created, unemployment rate, GDP, number of enterprises, labor force, population, R&D expenditures and employers, public roads, rail network, and the calculation of GDP per capita.

The next chapter will present detailed results from this analysis, contributing to guiding future strategies and economic policies.

The analysis is expected to provide a comprehensive view of the geographical distribution of investments, identifying regions most attractive to foreign investors. Additionally, significant correlations between economic variables and foreign direct investments are anticipated.

6.1 Descriptive analysis

The distribution of foreign direct investment (FDI) inflows across the regional units of Romania exhibits significant disparities. Among the new greenfield projects initiated from 2003 to 2018, comprising the 2502 entries in the database, the administrative region with the highest number of investments is Bucharest, accounting for 918 investments (29% of the total). Following closely is Cluj, representing the second-highest region with approximately 6% (187 projects), trailed by Timisoara, Brasov, Constanta, and Prahova, collectively contributing the majority of inflows in Romania. Conversely, the five regions at the bottom include Covasna, with 7 projects, along with Botosani, Salaj, and Muntenia. The information on the tables shows that the discrepancy among the regions in Romania is highly significant. Regarding the GDP per capita, the Capital district of Bucarest-Ilfov had the highest value per capita in 2018, while the lowest value is registered in regions like VEST and SUD-VEST OLTENIA. Among the EU Member States with more than 2 NUTS2 regions, the highest regional disparities between the regions with the highest and the lowest GDP per capita are observed in Romania (ratio of 3.6, Eurostat). Regarding the population figures, this is distributed across all the territory, with no great difference between the regions, from 1 to 3 millions across the development regions. An higher discrepancy between the regions is presented by the two variables employers and expenditures in Research and Development units, in fact while in some regions like Bucharest-Ilfov the presence and investment in R & D is significant (in other regions this presence is almost zero. Regarding the unemployment rates, the higher values are concentrated in the Center region and the lower in the South-Est region. The infrastructure, measured by the kilometers of road, has the highest value in Nord-Est, and the lowest in the Federal District. In table 6 are presented all the variables used in the model.

Table 6: Descriptive statistics of the variables – period 2003 to 2018 (aggregated by year and Macroregion)

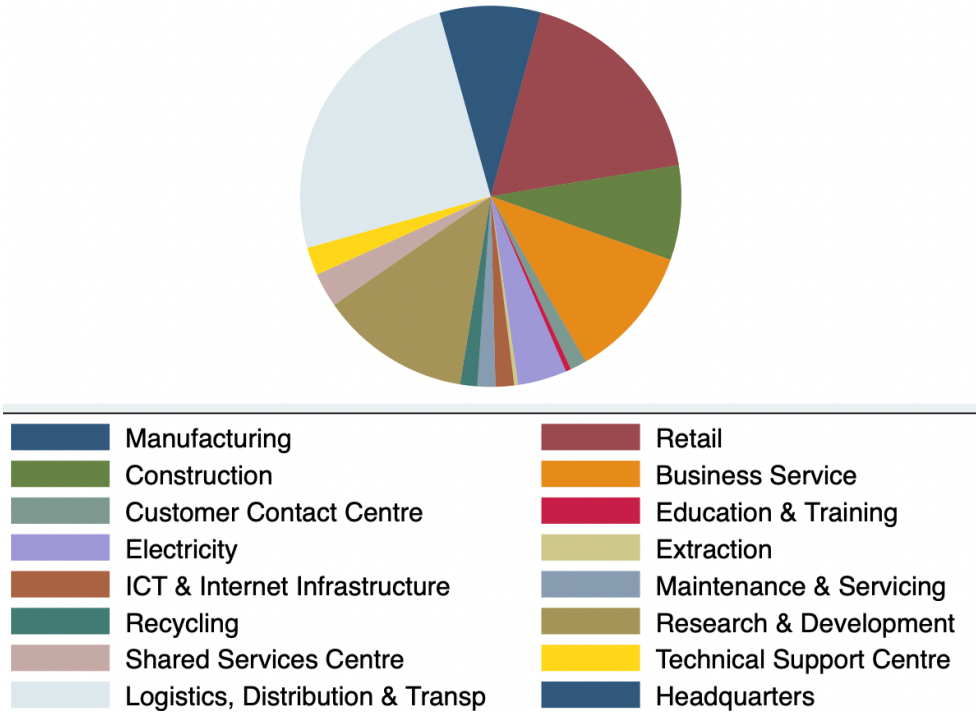
Variable	Units of Measure	Mean	Std. Dev.	Min.	Max.
Unemp	% on total	6.59	2.01	2.4	10.8
Labf	Thousands of people	1678	326	1144	2429
gdp	Millions of €	16’379	8’633	4’526	55’307
Num_ent	# of firms	68’065	25’725	34’381	144’057
pop	Millions of people	2,6	1,63	1,688	3,226
Emp_rd	# of people	5320	6050	1464	23095
Exp_rd	Millions of €	69,485	279’281	7.046	661,353
railn	Km	1’351.61	487.86	279	2009
pubr	Km	10’328	3748.24	850	14’892
Gdp_pc	Thousands of € / pc	16,35	8134	2,92	53,9

6.2.1 Analysis of the FDI database

In the dataset, encompassing 2924 investment decisions, it is crucial to emphasize that companies from diverse sectors may attribute significance to various determinants. Therefore, comprehending how investments are distributed across sectors holds importance. This substantial number of investments is significant for gauging the applicability of the model and achieving statistically meaningful outcomes.

Moreover, the temporal distribution of investments may influence determinants. However, the number of investments is not concentrated in specific years. A notable observation is the surge in FDI numbers in the early 2010s, followed by a decline to levels reminiscent of the early 2000s in 2016. This trend could be linked to the economic and political crisis in Europe.

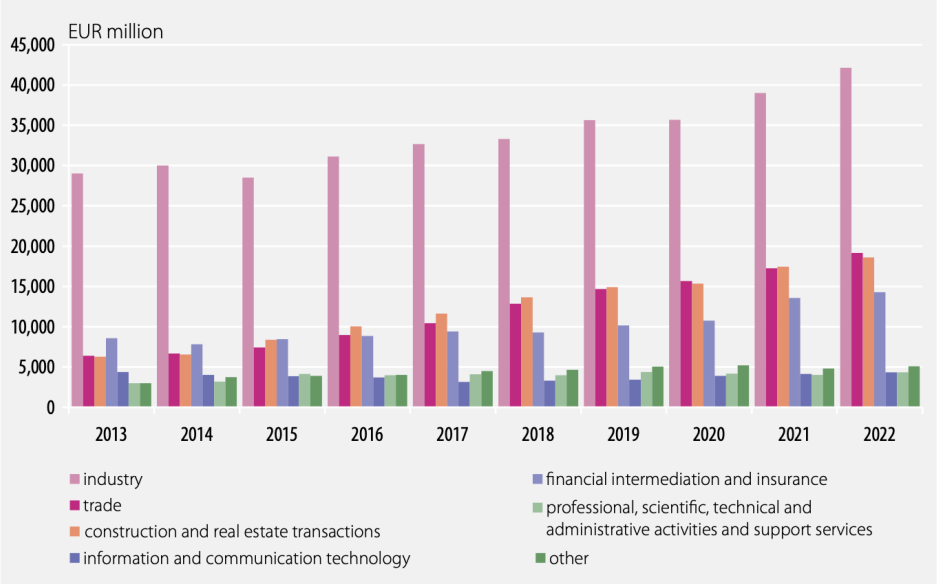
Figure 11: Sector division of the FDI dataset created with Stata software.



Source: author contribution

Examining the industry sector of investing companies, as illustrated in Figure 11, reveals a substantial number of investments in the Retail and Manufacturing sectors, constituting 5992 and 3672 investments, respectively. These figures represent 30% and 18% of the dataset's total investments, respectively. Other noteworthy sectors include Business Services and Construction, accounting for 35% of the projects. The business and Construction services sector exhibits a concentration of investments in the Southeast region, with some also in the South region. Between 2013 and 2022, the four major economic activities dominating the FDI position contributed 92.8 percent to its overall growth.

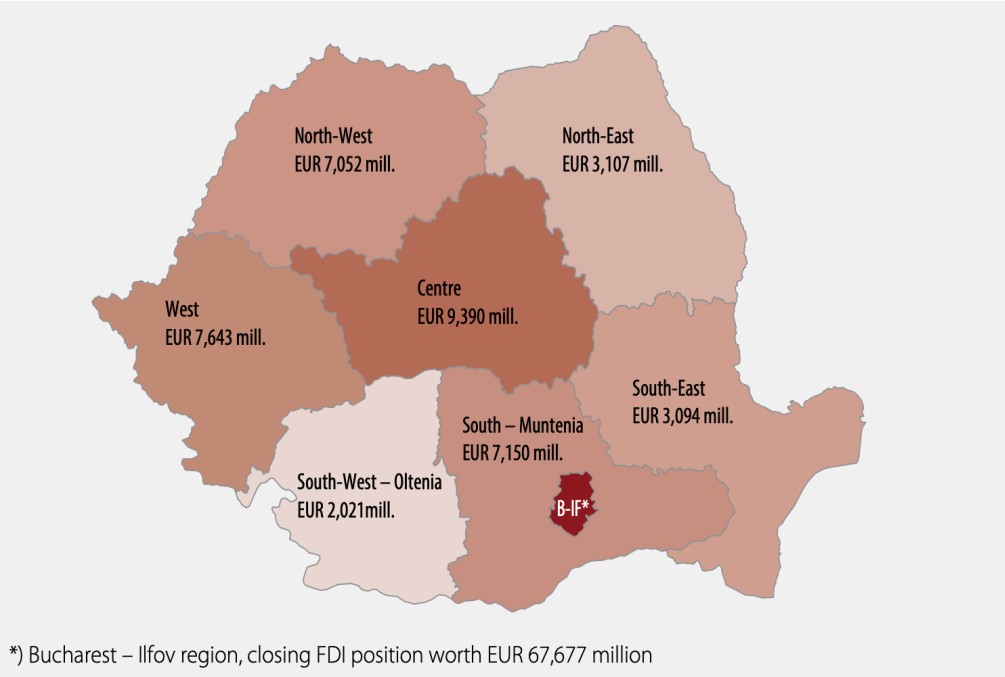
Figure 12: FDI position by main economic activity in 2013-2022



Source: National Bank of Romania FDI report (2022)

In absolute terms, industry saw an increase of EUR 13,138 million (+45.3 percent compared to December 31, 2013), trade rose by EUR 12,734 million (+198.8 percent), construction and real estate transactions increased by EUR 12,318 million (+196.5 percent), and financial intermediation and insurance grew by EUR 5,721 million (+66.8 percent). Within the industry, manufacturing holds 77.3 percent of the closing position. A breakdown by components reveals that transport equipment has the largest share in total manufacturing investment (22.1 percent), followed by oil processing, chemicals, rubber, and plastic products (21.1 percent). Food, beverages, and tobacco (12.2 percent) and metallurgy (10.4 percent) are also significantly represented. As of the end of 2022, the dominant concentration of the FDI position was in the BUCHAREST – ILFOV development region, comprising 62.7 percent of the total FDI position. It was followed by the CENTRE region at 8.7 percent and the WEST region at 7.1 percent. Conversely, the NORTH-EAST and SOUTH-WEST – OLTENIA regions recorded the lowest levels of foreign investment at 2.9 percent and 1.9 percent, respectively. The hierarchy of development regions based on their share in the closing FDI position has remained consistent since 2021.

Figure 13: FDI position distribution by development region



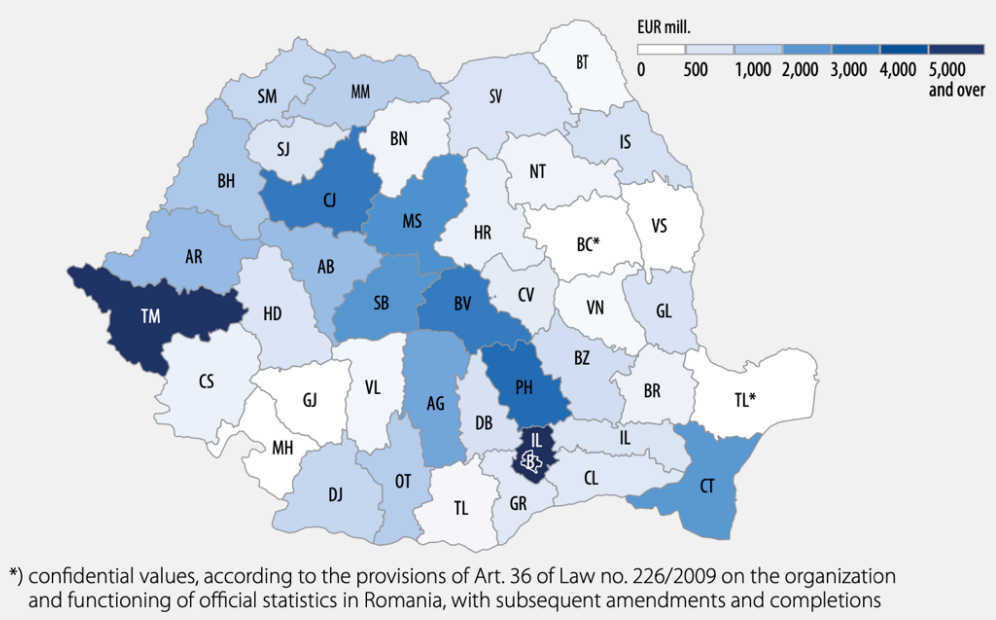
Source: National Bank of Romania FDI (2022)

Enterprises classified as FDI with a workforce of at least 20 employees, alongside those termed as atypical, underwent a thorough statistical examination. These entities collectively held 97.6 percent of the total FDI position.

The distribution of the FDI position by county for enterprises with a workforce of at least 20 employees and atypical enterprises reveals that Bucharest claimed a substantial share of EUR 59,145 million by the end of 2022, constituting 56.1 percent of the closing FDI position of such entities. Following closely are the counties of Ilfov (EUR 7,469 million), Timiș (EUR 5,240 million), Prahova (EUR 3,293 million), Cluj (EUR 2,894 million), and Brașov (EUR 2,825 million). In comparison to 2021, the first four counties maintained their positions in the ranking, with Cluj County surpassing Brașov county. Despite its lower ranking, Botoșani county reported the most substantial relative increase in the FDI position over the last year (+55.0 percent). From 2013 to 2022, FDI positions experienced diverse developments across

counties. Notably, 18 counties exhibited a growth pace in the FDI position above the national average of 83.4 percent, while 24 counties fell below this average (seven counties experienced a decrease in foreign direct investment). Maramureș county recorded the most significant growth, with its closing FDI position surging more than 27 times, from EUR 34 million at the end of 2013 to EUR 929 million in 2022. Covasna followed suit, with an over four-fold increase (EUR +301 million), trailed by Satu Mare and Sibiu, both recording a threefold increase in their FDI position, i.e., EUR +532 million and EUR +1,396 million, respectively.

Figure 14. FDI position distribution by county for enterprises with at least 20 employees and atypical enterprises



Source: National Bank of Romania FDI report (2022)

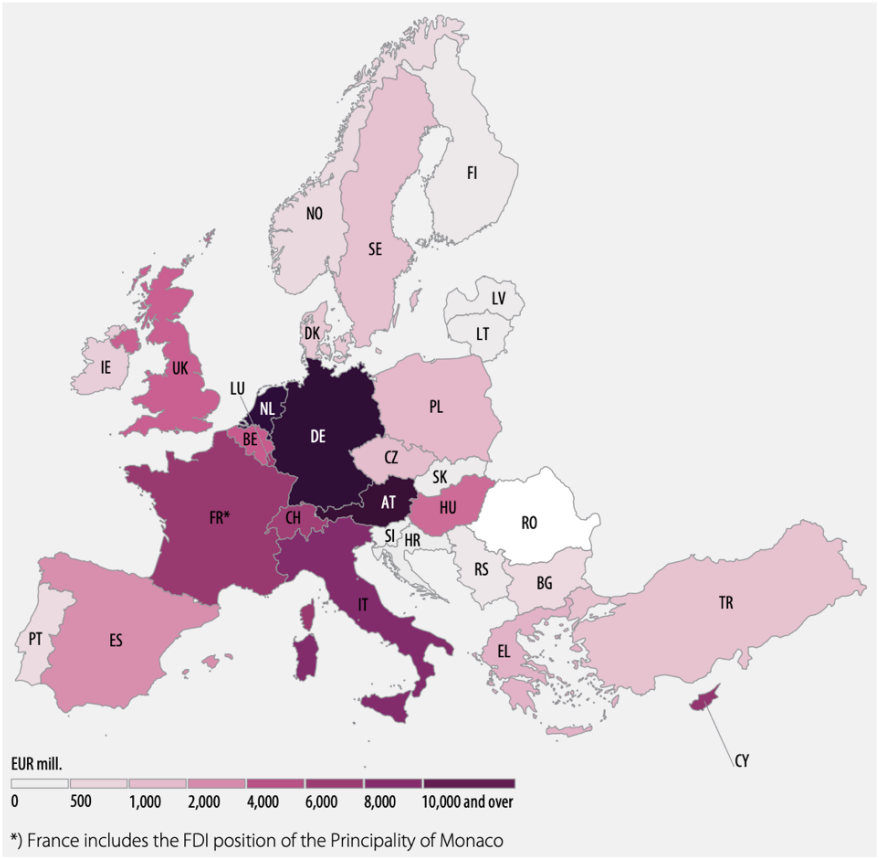
In absolute terms, FDI positions exceeding EUR 1 billion were observed in Bucharest, which saw an FDI growth of EUR 27,040 million in 2013-2022 (+84.2 percent, closely aligned with the national average). Subsequently, Ilfov county experienced an expansion of its FDI position by EUR 434 million (+146.1 percent), Timiș with EUR 2,264 million (+76.1 percent, below the national average), Cluj with EUR 1,776 million (+158.9 percent), Sibiu with EUR 1,396

million, and Prahova with EUR 1,285 million (with a growth pace of only 64.0 percent) (Refer to Table 8 in the Statistics section).

As of December 31, 2022, the primary contributors to the FDI position in Romanian enterprises included the Netherlands (constituting 21.9 percent of the total FDI position), Germany (13.0 percent), Austria (12.0 percent), Italy (7.6 percent), Cyprus (6.3 percent), and France (6.0 percent). This allocation was determined based on the country where the direct holder, possessing at least 10 percent of the share capital in Romanian FDI enterprises, was a resident (Refer to Table 10 in the Statistics section).

The preponderance of foreign direct investment originated from Member States of the European Union (amounting to 86.4 percent), with a notable concentration from countries within the euro area, as illustrated in the chart below.

Figure 15: FDI position by European Immediate Investor Country as of 31 December 2022



Source: National Bank of Romania

6.2 Results on all the dataset

Figure 16: Output of the conditional logit model on all the dataset

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =     20,016
                                                LR chi2(10)       =    1213.64
                                                Prob > chi2       =     0.0000
Log likelihood = -4595.9424                     Pseudo R2         =     0.1166
```

choice	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
railn	.0003351	.0001076	3.11	0.002	.0001241	.000546
gdp_pc	.0266541	.0073458	3.63	0.000	.0122566	.0410516
Unemp	.0251292	.0163673	1.54	0.125	-.0069501	.0572084
Labf	-.0007541	.0001659	-4.55	0.000	-.0010792	-.0004289
emp_rd	.000038	.0000201	1.90	0.058	-1.29e-06	.0000774
exp_rd	1.46e-07	4.30e-08	3.39	0.001	6.16e-08	2.30e-07
num_ent	.0000177	2.78e-06	6.38	0.000	.0000123	.0000232
pubr	.0001199	.0000349	3.43	0.001	.0000514	.0001883
pop	.2638429	.0739408	3.57	0.000	.1189215	.4087643
gdp	-.0006359	.0001784	-3.57	0.000	-.0009855	-.0002864

The transaction used to evaluate the impact of the independent variables on the choice of investment is clogit in Stata. The number of observations on which is based the model, and the choice of investment is 20016. And in this output are shown all the coefficients, standard errors, confidence intervals at the 95% level and p-value.

Wald Chi2 and Pseudo R2

- Chi2(9) = 1213.64: A significant Chi2 indicates that at least one of the independent variables has a significant impact on the choice of the investment region. The high value of the Wald Chi2 and its associated p-value (0.0000) indicate the overall significance of the model.
- Pseudo R2 = 0.1166: This value represents the percentage of variability in the model explained by the independent variables. A higher value indicates better model fit to the data. The Pseudo R2 suggests that the model explains approximately 11.66% of the variability in the choice of the investment region.

Analysis of Significant Variables:

Rail Network (railn) and Public Roads (pubr): The positive coefficient suggests that an increase in the rail network or public roads is associated with a higher probability of choosing a specific region for investment. The positive and significant coefficient for "railn" highlights the importance of transportation infrastructure, particularly the rail network, in the decision-making process for foreign investments. Improving or expanding rail infrastructure could attract more investments.

GDP per Capita (gdp_pc): Its coefficient is positive and also its statistical significance is notable. Higher GDP per capita may play a role in attracting investment.

Unemployment Rate (Unemp): The positive coefficient with a p-value high indicates that the variable has not potential significance. Higher unemployment rate may be associated with a higher likelihood of investment.

Labor Force (Labf): The negative coefficient for labor force (Labf) indicates that, holding other variables constant, an increase in the labor force is associated with a decrease in the probability of choosing the region, so might not be necessarily attractive to investors. This could be due to concerns about labor market competitiveness, labor costs, or other factors.

Employers in R&D (emp_rd), Expenditures in R&D (exp_rd): These variables show positive coefficients with high statistical significance (more for exp_rd) indicating a significant positive impact on the choice of the region. Higher investment in research and development attracts foreign investment. Macroregions that prioritize innovation and technological advancements may be more appealing to investors.

Population (pop): The coefficient is positive and also statistically significant, suggesting that population size may be a significant factor in the choice of the region.

Number of Enterprises (num_ent): The positive and highly significant coefficient suggests a substantial positive impact on the choice of the region.

Significant variables, such as rail network, R&D-related factors, and the number of enterprises, can inform practical decisions. For example, regions with strong rail networks and a robust R&D ecosystem may be more attractive for foreign direct investment.

In conclusion, the results indicate that the independent variables are influencing the choice of the region for foreign direct investments. In-depth analysis of significant variables and consideration of practical implications are important steps for a comprehensive understanding of the results. The model demonstrates overall good fit, as indicated by the Wald chi2 and Pseudo R2.

6.2.1 Manufacturing industry

The transaction used to evaluate the impact of the independent variables on the choice of investment is clogit in Stata. The number of observations on which is based the model, and the choice of investment is 3672, because are selected only the observation within the Manufacturing Industry. And in this output are shown all the coefficients, standard errors, confidence intervals at the 95% level and p-value.

Figure 17: Output of the conditional logit model applied to the manufacturing industry.

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =      3,672
                                                LR chi2(10)       =     100.79
                                                Prob > chi2       =     0.0000
Log likelihood = -904.06912                     Pseudo R2         =     0.0528

------------------------------------------------------------------------------
      choice |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       railn |  -.0002476   .0002131    -1.16   0.245    -.0006652    .0001701
         gdp |  -.0002141   .0004314    -0.50   0.620    -.0010597    .0006314
      gdp_pc |   .0099723   .0176731     0.56   0.573    -.0246664     .044611
       Unemp |    .179914   .0400413     4.49   0.000     .1014344    .2583936
        Labf |  -.0029795   .0004086    -7.29   0.000    -.0037803   -.0021787
      emp_rd |   .0001282    .000052     2.46   0.014     .0000262    .0002301
      exp_rd |   8.27e-08   1.02e-07     0.81   0.416    -1.17e-07    2.82e-07
     num_ent |    .000039   6.02e-06     6.48   0.000     .0000272    .0000507
        pubr |   .0006312   .0000858     7.36   0.000      .000463    .0007993
         pop |   .2537769   .1732562     1.46   0.143    -.0857989    .5933527
------------------------------------------------------------------------------
```

In figure 17 is presented the output about the conditional logit model applied to the industry activity of manufacturing in Romania, considering all macroregions. The manufacturing industry in Romania is characterized by a skilled workforce and competitive operating costs,

an efficient use of the logistic infrastructure, with a focus on supply chain efficiency for manufacturing companies.

Model Fit:

LR Chi2(6) = 100.79, p-value = 0.000: The LR Chi2 test suggests that the model is statistically significant at a significance level of 0.05. This indicates that at least one of the independent variables has a significant impact on the choice of macroregion for manufacturing industry activity.

Pseudo R2 = 0.053: The Pseudo R2 value is relatively low, indicating that the model explains only a small percentage (5,3%) of the variability in the choice of macroregion for manufacturing.

railn (Rail Network): The negative coefficient suggests that an increase in the rail network is associated with a lower probability of choosing a specific macroregion for manufacturing. However, the result is marginally significant (p-value = 0.245). While the rail network doesn't show a significant statistical impact, it might not be a decisive factor for investors in the manufacturing industry, investors in fact may prioritize other transportation modes or factors in their decision-making.

gdp_pc (GDP per Capita): The coefficient is very close to zero, and the high p-value (0.57) indicates that GDP per capita does not appear to have a significant impact on the choice of macroregion for manufacturing. Other economic indicators or specific industry-related factors may be more relevant.

Unemp (Unemployment Rate): The positive coefficient with a p-value of 0.00 suggests that a higher unemployment rate is associated with a higher probability of choosing a specific macroregion for manufacturing. The positive impact of the unemployment rate is statistically significant and positive, this could be because regions with higher unemployment rates might offer cost advantages for businesses due to a larger available workforce.

Labf (Labor Force): The negative coefficient suggests that a higher labor force is associated with a lower probability of choosing a specific macroregion for manufacturing. This result is statistically significant (p-value = 0.00). This might be because investors prefer regions with a balance in labor availability rather than an oversupply.

emp_rd (Employers in R&D) and exp_rd (Expenditures in R&D): While exp_rd does not have an impact on the choice of macroregion for manufacturing, as indicated by their high p-values, emp_rd is considered significant. This suggests that regions with a strong R & D workforce and a thriving business environment are key factors for manufacturing investments.

Num_ent (Number of Enterprises): the positive coefficient, indicating that a higher number of enterprises is associated with a higher likelihood of the investment choice. A thriving business environment is considered a key factor in the investment decision.

Pubr (Public Roads): the positive coefficient and the effect is statistically significant. A well-developed public road network significantly increases the likelihood of investment. Infrastructure, especially in transportation, is crucial for the manufacturing industry.

In summary, some variables, such as unemployment rate, labor force, employers in R&D, number of enterprises, and public roads, show statistically significant effects on the investment choices in the manufacturing industry. However, other variables like rail network and expenditures in R&D do not demonstrate statistical significance in this model. Investors, policymakers, and business strategists in the manufacturing sector should consider these practical insights. For instance, while the rail network might not be a primary concern, factors like the size of the labor force, R&D and the state of public infrastructure play substantial roles in shaping investment decisions.

6.2.2 Construction

The transaction used to evaluate the impact of the independent variables on the choice of investment is clogit in Stata. In this output are shown all the coefficients, standard errors, confidence intervals at the 95% level and p-value. The construction sector has some specific characteristics, in fact this type of Industry is driven by the demand of specific needs, is highly diverse, encompassing a wide range of activities around the country and has a substantial impact on the economy of Romania. In the last years, for example, the commitment of the government for the contruction of highways in all the country has an important impact on the economy.

Figure 18: Output of the conditional logit model applied to the Construction Industry

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =      2,312
                                                LR chi2(10)       =     412.38
                                                Prob > chi2       =     0.0000
Log likelihood = -394.76848                     Pseudo R2         =     0.3431

------------------------------------------------------------------------------
      choice |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       railn |   .0003585   .0004226     0.85   0.396    -.0004697    .0011868
         gdp |  -.0004286   .0005773    -0.74   0.458    -.0015601    .0007029
      gdp_pc |   .0171838   .0235594     0.73   0.466    -.0289918    .0633594
       Unemp |   .1840602   .0592678     3.11   0.002     .0678974     .300223
        Labf |  -.001322    .0006081    -2.17   0.030    -.0025138   -.0001301
      emp_rd |   .0001666   .0000719     2.32   0.021     .0000256    .0003076
      exp_rd |   3.32e-07   1.84e-07     1.81   0.071    -2.81e-08    6.93e-07
     num_ent |   .0000231   .0000106     2.18   0.029     2.31e-06    .0000439
        pubr |   .0002274   .0001249     1.82   0.069    -.0000173    .0004721
         pop |   .1430296   .2247947     0.64   0.525    -.2975599    .5836191
------------------------------------------------------------------------------
```

Model Fit:

- LR Chi2(8) = 412, p-value = 0.0000: The LR Chi2 test suggests that the model is highly statistically significant, indicating that at least one variable has a significant impact on the choice of macroregion for construction industry activity.

- Pseudo R2 = 0.34: The Pseudo R2 value is relatively high, indicating that the model explains a substantial portion (34.3%) of the variability in the choice of macroregion for construction.

The model explains a significant portion of the variability, but there may still be unaccounted factors influencing the choice of macroregion for construction.

Variable Analysis

railn (Rail Network): The rail network does not seem to be a significant factor in the decision-making process for investments in the construction industry. This aligns with existing literature, which suggests that for construction projects, factors like accessibility and proximity to suppliers might be more crucial.

gdp_pc (GDP per Capita): The coefficient is negative but not statistically significant (p-value = 0.458), indicating that GDP per capita does not appear to significantly influence the choice of macroregion for construction. This could imply that factors other than the economic strength of a region play a more decisive role in construction investment decisions.

Unemp (Unemployment Rate): The positive coefficient (p-value = 0.002) suggests that a higher unemployment rate is associated with a higher probability of choosing a specific macroregion for construction. This could be because regions with a surplus labor force might attract construction projects.

Labf (Labor Force): The negative coefficient (p-value = 0.03) suggests that a higher labor force is associated with a lower probability of choosing a specific macroregion for construction. This might suggest that construction projects in Romania might be more capital-intensive or rely on specialized labor.

emp_rd (Employers in R&D) and exp_rd (Expenditures in R&D): Both variables have positive coefficients, indicating a positive association with the choice of macroregion for construction. Emp_rd is statistically significant (p-value = 0.021). This is an interesting finding and may indicate a trend where construction projects are increasingly incorporating innovative and technology-driven approaches while the lack of statistical significance suggests that expenditures in R&D may not be a decisive factor in the construction investment decision-making process.

num_ent (Number of Enterprises): The positive coefficient (p-value = 0.029) suggests that a higher number of enterprises is associated with a higher probability of choosing a specific macroregion for construction. This could be due to the demand for construction services in economically vibrant and diverse business environments.

pubr (Public Roads): The coefficient is positive but not statistically significant (p-value = 0.069), indicating that public Roads may not significantly influence the choice of macroregion for construction. Although public roads show a positive association with investment likelihood, the lack of statistical significance suggests caution in interpreting this relationship.

In conclusion, while the model is statistically significant, careful consideration of individual variable impacts and addressing collinearity is crucial for a comprehensive interpretation of the results. For the construction industry in Romania, factors such as the labor market, innovation through R&D, and the overall business environment play crucial roles in investment decisions. The findings provide valuable insights for policymakers and investors seeking to understand the dynamics of the construction sector in different regions of Romania.

6.2.3 Retail Industry

The Retail Industry is the most interested by the investments in Romania, in fact it counts 5992 observations of investment in the database of Foreign Direct Investments, that are the 30% of the total of Investments. The transaction used to evaluate the impact of the independent variables on the choice of investment is clogit in Stata.
One significant trend shaping the retail scene is the remarkable expansion of e-commerce.
Technological advancements and shifts in consumer behavior have propelled online shopping to the forefront, transforming the way people make purchases. In this dynamic market, Romania has successfully attracted numerous international retail chains, contributing to the modernization of retail experiences with globally recognized brands. Consumer preferences in Romania reflect a balance between traditional and modern retail. Hypermarkets and supermarkets remain popular, particularly in urban and suburban areas, offering a diverse

range of products spanning groceries, electronics, clothing, and household goods. Shopping malls, prevalent in major cities, provide a comprehensive shopping experience with a plethora of stores, entertainment options, and dining establishments.

Figure 19: Output of the conditional logit model applied to the Retail Industry

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =      7,832
                                                LR chi2(10)       =     565.72
                                                Prob > chi2       =     0.0000
Log likelihood = -1752.9111                     Pseudo R2         =     0.1389
```

choice	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
railn	.0004642	.000175	2.65	0.008	.0001212	.0008071
gdp	-.0013698	.0002923	-4.69	0.000	-.0019428	-.0007969
gdp_pc	.0569227	.012076	4.71	0.000	.0332542	.0805912
Unemp	-.0299697	.0258851	-1.16	0.247	-.0807035	.0207642
Labf	-.0003458	.0002676	-1.29	0.196	-.0008703	.0001786
emp_rd	-.0000452	.0000309	-1.47	0.143	-.0001057	.0000153
exp_rd	3.28e-07	8.55e-08	3.84	0.000	1.61e-07	4.96e-07
num_ent	.0000107	4.55e-06	2.36	0.018	1.80e-06	.0000196
pubr	.0000138	.0000556	0.25	0.804	-.0000952	.0001228
pop	.5571118	.1260114	4.42	0.000	.3101339	.8040897

The conditional logit model analyzes the investment choices of a foreign country in Romania, focusing on different regions in Romania. The decision is based on various variables such as GDP per capita, unemployment rate, labor force, employers and expenditures in research and development (R&D), number of enterprises, rail network, and public roads. Let's analyze the model results based on the output in figure 19.

Variables Analysis:

gdp_pc (GDP per capita): The coefficient is positive , indicating that higher GDP per capita is associated with a slightly higher likelihood of the investment choice. And also the p-value (0.00) suggests that this effect is statistically significant.

Unemp (Unemployment Rate): The coefficient is negative suggesting that a higher unemployment rate is associated with a lower likelihood of the investment choice. However,

the p-value (0.247) indicates that this variable is not statistically significant. Investors in the retail sector might be influenced by factors other than the immediate labor market conditions.

Labf (Labor Force): The coefficient is negative but the p-value (0.196) suggests that this variable is not statistically significant. The size of the labor force does not seem to be a significant driver for retail investments in specific regions. Retail investors might prioritize factors like consumer demographics and purchasing power.

emp_rd (Employers in R&D): The coefficient is negative but, similar to the previous variables, it's not statistically significant (p-value = 0.143). The number of employers in R&D does not appear to strongly influence the choice of regions for retail investments. Retail sector decisions might be more responsive to factors directly tied to consumer behavior and market demand.

exp_rd (Expenditures in R&D): The coefficient is positive and it is statistically significant with a p-value of 0.00. This suggests that higher expenditures in R&D increase the likelihood of the investment choice. This suggests that regions with higher R&D spending attract more retail investments, possibly indicating a focus on innovative retail strategies.

num_ent (Number of Enterprises): The coefficient is positive indicating that a higher number of enterprises is associated with a higher likelihood of the investment choice. This effect is statistically significant (p-value = 0.018). A competitive and diverse business environment seems to be a key factor for the retail sector.

railn (Rail Network): The coefficient is positive and it's statistically significant (p-value = 0.008). The rail network seem to be a significant factor in the decision-making process for retail investments. This aligns with the nature of the retail industry, where factors like accessibility and proximity to consumers may be crucial.

pubr (Public Roads): The coefficient is negative and like some other variables, it's statistically significant (p-value = 0.004). A well-developed public road network is a statistically significant factor in the choice of regions for retail investments.

Model Fit

The likelihood ratio chi-squared test (LR chi2) tests the overall significance of the model. In this case, the LR chi2 is 565, and the p-value is very low (0.0000), suggesting that the model, as a whole, is statistically significant.
The Pseudo R-squared is 0.1389, indicating that the model explains approximately 13,89% of the variability in the investment choices.

In summary, some variables such as expenditures in R&D and the number of enterprises appear to have a statistically significant impact on investment choices. However, other variables, including GDP per capita, unemployment rate, and some infrastructure-related variables, do not show statistical significance in this model.

6.2.4 Business services Industry

The industry encompasses a wide range of services, including IT outsourcing, business process outsourcing (BPO), shared services, and more. The growth of this industry is largely attributed to Romania's workforce, multilingual capabilities, and cost-effectiveness, making it an attractive destination for international companies seeking outsourcing solutions. One noteworthy trend is the expansion of IT and software development services.
Romania in the last years has positioned itself as a hub for technology-driven services, with a thriving ecosystem of software developers, IT professionals, and innovative startups.
Futhermore, Romania's accession to the European Union has played a pivotal role in the development of the business services industry. EU membership has provided a stable regulatory environment, access to funding programs, and opportunities for collaboration with European partners.

Figure 20: Output of the conditional logit model applied to the Business Services Industry

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =      2,440
                                                LR chi2(10)       =     265.78
                                                Prob > chi2       =     0.0000
Log likelihood = -501.34089                     Pseudo R2         =     0.2095
```

choice	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Unemp	-.0352652	.0548427	-0.64	0.520	-.142755	.0722246
gdp	.0005378	.0005435	0.99	0.322	-.0005274	.0016031
num_ent	9.33e-06	9.06e-06	1.03	0.303	-8.43e-06	.0000271
Labf	.0012883	.0004818	2.67	0.007	.0003439	.0022326
pop	-.3831758	.2267757	-1.69	0.091	-.8276479	.0612963
emp_rd	.0001023	.0000665	1.54	0.124	-.000028	.0002326
exp_rd	-3.04e-07	1.24e-07	-2.45	0.014	-5.48e-07	-6.08e-08
railn	.0012405	.0003457	3.59	0.000	.0005629	.0019181
pubr	-.0003651	.0001096	-3.33	0.001	-.0005799	-.0001503
gdp_pc	-.0253107	.022423	-1.13	0.259	-.0692589	.0186376

Examining the Conditional Logit model specific to the Business Services Industry of the database of foreign direct investments in Romania, some considerations are essential in the analysis of the investment choice.

Model fit

1. Chi2 and Pseudo R2: The Wald Chi2 is significant (chi2(10) = 265.78, $p < 0.05$), indicating that at least one independent variable significantly impacts the choice of the investment region.
2. The Pseudo R2 suggests the model explains approximately 20.95% of the variability in the choice.

Variables Analysis

Unemployment (Unemp): the variable exhibits a negative coefficient, and it is not statistically significant (z = -0.64, p = 0.520). It suggests that unemployment rates may not play a decisive role in region selection for Business Services investments. The lack of significance implies

that, from a practical standpoint, variations in unemployment rates may not strongly influence the choice of a region for Business Services investments.

GDP have a coefficient positive but not statistically significant (z = 0.99, p = 0.322). This implies that GDP and also GDP per capita may not be determining factors in the selection of regions for investment in Business Services. While economic output is considered, their lack of statistical significance suggests that other factors may carry more weight in decision-making.

Number of Enterprises (num_ent): The positive coefficient for the Number of Enterprises is not statistically significant (z = 1.03, p = 0.303), indicating that the sheer number of enterprises in a region may not strongly influence Business Services investments. This suggests that factors beyond the quantity of existing enterprises may be more crucial in the process of decision of the specific region.

Labor Force (Labf): The variable shows a significant positive coefficient (z = 2.67, p = 0.007), indicating that a larger labor force is associated with a higher probability of region selection for Business Services investments. A skilled and ample labor force appears to be a key consideration for industries in Business Services, aligning with the expectation of workforce availability.

Population (pop): Population exhibits a negative coefficient but is not statistically significant (z = -1.69, p = 0.091), suggesting that the overall size of the population may not be a primary factor in region selection for this industry. The lack of significance implies that population size may not be a critical factor, and other variables might have a more substantial impact on decision-making.

Employers in R&D (emp_rd): Employers in R&D show a positive coefficient but are not statistically significant (z = 1.54, p = 0.124), indicating that the number of employers engaged in research and development may not be a predominant factor in the choice of region. The lack of statistical significance suggests that innovation-related considerations may not be driving the selection of regions for Business Services investments.

Expenditures in R&D (exp_rd): Expenditures in R&D have a negative and significant coefficient ($z = -2.45$, $p = 0.014$), indicating that higher expenses in research and development are associated with a lower probability of region selection. This suggests that, contrary to expectations, high R&D expenditures may not be a decisive factor in choosing a region for Business Services investments, but other variables could be important in this decision.

Rail Network (railn): The Rail Network variable has a significant positive coefficient ($z = 3.59$, $p < 0.001$), emphasizing the importance of a well-developed rail network in attracting Business Services investments. The significance suggests that efficient logistics, represented by a robust rail network and the need for a rapid and efficient transportation of resources or services play an important role in the decision-making process.

Public Roads (pubr): Public Roads have a negative and significant coefficient ($z = -3.33$, $p = 0.001$), suggesting that a well-developed public road infrastructure is associated with a lower probability of region selection. This unexpected negative relationship may indicate that other factors, perhaps related to accessibility or congestion, might be influencing the choice of the region for this industry.

In conclusion, the statistical analysis provides nuanced insights into the factors influencing the choice of regions for Business Services investments in Romania. While some variables like Labor Force and Rail Network emerge as significant determinants, others may not carry as much weight in decision-making, emphasizing the need for a comprehensive understanding of industry-specific dynamics.

6.2.5 Results comparing UE investors and non-UE parent investors

In analyzing investments in a specific region of Romania, a significant differentiation emerges between European Union (EU) member states and those outside the EU. This distinction, shaped by historical and economic contexts, plays a crucial role in shaping investment dynamics. As highlighted in the previous chapters, economic relationships, trade policies, and investment strategies vary significantly between the two groups of

countries, outlining a complex framework that directly impacts the economic development of the region under consideration. In the figures 21 and 22 are presented the Stata outputs for the conditional logit models for Countries of the European Union and for Countries that are not part of the European Union.

Figure 21: Output of the conditional logit model applied to the Countries of the European Union

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =     14,080
                                                LR chi2(10)       =     650.31
                                                Prob > chi2       =     0.0000
Log likelihood = -3334.6633                     Pseudo R2         =     0.0888

------------------------------------------------------------------------------
      choice |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Unemp |   .0065412   .0190783     0.34   0.732    -.0308515    .0439339
         gdp |  -.0008042    .000218    -3.69   0.000    -.0012315   -.0003768
     num_ent |   .0000176   3.23e-06     5.44   0.000     .0000113    .0000239
        Labf |  -.0006234   .0001885    -3.31   0.001    -.0009928    -.000254
         pop |   .2867998   .0892648     3.21   0.001     .1118441    .4617555
      emp_rd |  -7.95e-06   .0000237    -0.34   0.737    -.0000544    .0000384
      exp_rd |   8.80e-08   5.32e-08     1.66   0.098    -1.62e-08    1.92e-07
       railn |   .0002936   .0001237     2.37   0.018     .0000512    .0005361
        pubr |   .0000619   .0000404     1.53   0.125    -.0000172     .000141
      gdp_pc |   .0333745   .0089673     3.72   0.000     .0157988    .0509502
------------------------------------------------------------------------------
```

Figure 22: Output of the conditional logit model applied to the Countries that are not part of the European Union

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =      5,936
                                                LR chi2(10)       =     629.06
                                                Prob > chi2       =     0.0000
Log likelihood = -1228.4171                     Pseudo R2         =     0.2038

------------------------------------------------------------------------------
      choice |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Unemp |   .0653777     .03255     2.01   0.045     .0015808    .1291745
         gdp |  -.0003799   .0003201    -1.19   0.235    -.0010074    .0002476
     num_ent |    .000018   5.53e-06     3.26   0.001     7.17e-06    .0000288
        Labf |  -.0010926   .0003503    -3.12   0.002    -.0017791   -.0004061
         pop |   .2698598    .137085     1.97   0.049     .0011783    .5385414
      emp_rd |   .0001517   .0000389     3.89   0.000     .0000753     .000228
      exp_rd |   2.21e-07   7.99e-08     2.77   0.006     6.48e-08    3.78e-07
       railn |   .0004319   .0002192     1.97   0.049     2.16e-06    .0008616
        pubr |   .0002646   .0000712     3.72   0.000     .0001251    .0004041
      gdp_pc |   .0164066   .0132225     1.24   0.215    -.0095089    .0423222
------------------------------------------------------------------------------
```

The outcomes of conditional logistic models provide insightful perspectives on the dynamics of investment choices in Romanian regions by investors from European Union (EU) and non-EU countries. Beyond the statistics, let's delve into the practical significance of these results and their implications for investment attraction strategies.

In both models, the presence of labor force and the development of a railway network appear to be two important criteria for the investment. Efficient transportation infrastructure is evidently a common priority for investors, highlighting the importance of ongoing investments in this area.

However, preferences on the general economy and infrastructure vary between EU and non-EU investors. It is advisable to evaluate these differences to develop targeted investment attraction strategies.

EU Investors: Preferences and Considerations

EU investors appear to favor regions with lower economic development levels, potentially indicating an inclination to contribute to regional upliftment. The prominence of the number of enterprises as a significant factor suggests a preference for regions with a vibrant entrepreneurial landscape.

Economic Development and Research Opportunities: Tailoring Strategies

Economic development appears to be a crucial factor for EU investors. Regions emphasizing economic incentives and entrepreneurial diversity could attract greater attention. Meanwhile, non-EU investors are drawn to research opportunities, emphasizing the need for fostering innovation hubs. The objective of these countries that try to invest in the country is to produce taking benefit from the lower costs of production to sell outside from the country.

GDP: EU investors show a preference for regions with lower GDP.

Number of Companies: A greater number of companies promotes attractiveness.

Workforce: A smaller but potentially more skilled workforce is preferred.

Population: More populous regions are chosen more frequently.

R&D: Investments in R&D are not significant.

1. Sensitivity to Economic Development Level: EU investors seem inclined towards regions with a lower level of economic development, showcasing a potential interest in contributing to regional development. This could be interpreted as an interest in contributing to the development of less-developed regions or as a response to more favorable economic incentives.

2. Quantity of Enterprises and Competitive Market: The high coefficient associated with the number of enterprises indicates a preference for regions with a denser entrepreneurial landscape. This suggests that economic competition and the presence of a variety of entrepreneurial activities may be attractive factors for EU investors.

Non-EU Investors: Differentiated Dynamics and Key Influences

Non-EU investors seem less sensitive to the economic development level, prioritizing factors such as research and development (R&D) opportunities and efficient transportation infrastructure. Non-EU investors appreciate a balance between specialized skills and a larger population. Balancing workforce characteristics could be crucial for regions aiming to attract a diverse range of investors. They exhibit a distinct set of preferences, placing emphasis on R&D opportunities and efficient transportation infrastructure. The positive association between R&D expenditures and the region's choice implies a keen interest in innovation and technological advancements.

GDP: There is no clear preference based on GDP.
Number of Companies: A higher number of companies is a positive factor.
Population: More populous regions are chosen more frequently.
R&D: Investments in R&D are significant and positively correlated with the choice of region.
Transport Networks: A well-developed rail network is a good thing.

1. Diversity in Sensitivity to GDP: In contrast to EU investors, non-EU investors seem less influenced by the region's level of economic development. This suggests that, for non-EU investors, other factors may be more decisive in choosing to invest in certain regions.

2. Research and Development (R&D): The significant positive association between R&D investments and the region's choice indicates that non-EU investors are sensitive to opportunities for innovation and technological development. Regions with a favorable research environment may be particularly attractive.

3. Transportation Infrastructure: The presence of a well-developed railway network emerges as a significant factor. This could reflect a greater emphasis on logistical aspects and the ease of goods transportation, emphasizing the importance of efficient infrastructure for these investors.

Implications for Investment Attraction Strategies

The analysis suggests that Romania has the opportunity to tailor its investment attraction strategies based on the origin of investors. While emphasizing economic incentives and entrepreneurial diversity might be effective for EU investors, promoting environments conducive to R&D and efficient transportation infrastructure could be crucial for non-EU investors.

An appropriate approach might also involve collaborations with academic institutions and organizations to support the development of a highly skilled workforce and promote regions based on their specific characteristics. Understanding the specific investment dynamics of each investor group can strategically position Romania on the global investment stage.

6.2.6 Research and Development Sector

One of the driving forces behind R&D in Romania is the government's commitment to supporting research activities. Initiatives and funding programs aim to stimulate innovation, attract talent, and enhance the country's competitiveness on the global stage. Romania boasts a network of universities and research institutions that play a pivotal role in the R&D sector. These institutions collaborate on national and international research projects, fostering a collaborative environment that encourages knowledge exchange and expertise development. A notable trend in the R&D sector is the emphasis on technology and Information Technology

(IT). Romania has become a hub for IT research and software development, attracting both local and international experts. This focus contributes to the country's reputation as an emerging tech hub in Europe.

Figure 23: Output of the conditional logit model applied to the Research and Development sector

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =        848
                                                LR chi2(10)       =     106.52
                                                Prob > chi2       =     0.0000
Log likelihood = -167.16244                     Pseudo R2         =     0.2416
```

choice	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
railn	-.0003315	.0006403	-0.52	0.605	-.0015865	.0009235
gdp	-.0001151	.0009404	-0.12	0.903	-.0019584	.0017281
gdp_pc	.0027154	.0391299	0.07	0.945	-.0739777	.0794086
Unemp	.0707003	.0951901	0.74	0.458	-.1158688	.2572694
Labf	-.0022543	.0010278	-2.19	0.028	-.0042688	-.0002398
emp_rd	.0002815	.0001165	2.42	0.016	.0000531	.0005099
exp_rd	4.67e-07	2.87e-07	1.63	0.104	-9.55e-08	1.03e-06
num_ent	.0000171	.0000141	1.21	0.226	-.0000106	.0000447
pubr	.000458	.0002211	2.07	0.038	.0000246	.0008914
pop	-.3202314	.4183829	-0.77	0.444	-1.140247	.499784

Model fit

The model as a whole is statistically significant, as indicated by the LR chi-square test (p-value = 0.0000).

The pseudo-R-squared value is 0.2416, suggesting that the model explains approximately 24.16% of the variability in the choice of the "Research & Development" sector.

Variables Analysis

railn (Rail Network): Holding other variables constant, a one-unit increase in the rail network variable is associated with a decrease in the odds of choosing the "Research & Development" sector by approximately 0.033%, but this effect is not statistically significant (p-value =

0.605). In practical terms, it may indicate that accessibility through rail infrastructure may not be a critical factor for FDI in R&D.

gdp (Gross Domestic Product) and gdp_pc (GDP per Capita): Holding other variables constant, a one-unit increase in GDP is associated with a decrease in the odds of choosing the "Research & Development" sector by approximately 0.011%, and this effect is not statistically significant (p-value = 0.903).

Unemp (Unemployment): Holding other variables constant, a one-unit increase in the unemployment rate is associated with an increase in the odds of choosing the "Research & Development" sector by approximately 7.07%, but this effect is not statistically significant (p-value = 0.458).

Labf (Labor Force): Holding other variables constant, a one-unit increase in the labor force is associated with a decrease in the odds of choosing the "Research & Development" sector by approximately 0.225%, and this effect is statistically significant (p-value = 0.028).

emp_rd (Employment in R&D) and exp_rd (Expenditure in R&D): Holding other variables constant, a one-unit increase in employment in R&D is associated with an increase in the odds of choosing the "Research & Development" sector by approximately 0.028%, and this effect is statistically significant (p-value = 0.016). This makes intuitive sense, as a well-established R&D workforce is attractive for investors in this sector. The same effect is seen also for expenditures in R and D expenditures.

num_ent (Number of Enterprises): Holding other variables constant, a one-unit increase in the number of enterprises is associated with an increase in the odds of choosing the "Research & Development" sector by approximately 0.002%, but this effect is not statistically significant (p-value = 0.226).

pubr (Public Research): Holding other variables constant, a one-unit increase in public research is associated with an increase in the odds of choosing the "Research & Development" sector by approximately 0.046%, and this effect is statistically significant (p-value = 0.038).

pop (Population): Holding other variables constant, a one-unit increase in population is associated with a decrease in the odds of choosing the "Research & Development" sector by approximately 32.02%, but this effect is not statistically significant (p-value = 0.444).

6.3 Robustness test

In this robustness test, the conditional logit model assessing the determinants of investment choices in Romanian regions was reevaluated by dropping the Bucharest – Ilfov development region. The model incorporates all the independent variables of the previous models and now the observations are 12’768 from a complete database of 20’016 observations. Grouping was based on the unique identifier "id."

Figure 24: output of the conditional logit model applied to all the dataset dropping the development region Bucharest – Ilfov.

```
Conditional (fixed-effects) logistic regression

                                                Number of obs     =     12,768
                                                LR chi2(10)       =     281.47
                                                Prob > chi2       =     0.0000
Log likelihood = -3178.0535                     Pseudo R2         =     0.0424
```

choice	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
railn	.0005584	.0001139	4.90	0.000	.0003351	.0007816
gdp_pc	.0199767	.0101048	1.98	0.048	.0001716	.0397818
Unemp	.1036763	.0222402	4.66	0.000	.0600864	.1472662
Labf	-.0014136	.0001883	-7.51	0.000	-.0017826	-.0010446
emp_rd	.0000614	.0000313	1.96	0.050	7.41e-08	.0001227
exp_rd	7.21e-08	1.06e-07	0.68	0.497	-1.36e-07	2.80e-07
num_ent	.0000164	3.44e-06	4.76	0.000	9.65e-06	.0000232
pubr	.0003443	.0000419	8.22	0.000	.0002622	.0004264
pop	.1815711	.0995158	1.82	0.068	-.0134762	.3766184
gdp	-.0004777	.0002448	-1.95	0.051	-.0009574	2.09e-06

Statistical Significance

The statistical significance of the model is evident from the likelihood ratio chi-square test (LR chi2(10) = 281.47, $p < 0.0001$), indicating its effectiveness in capturing the determinants of investment choices in Romanian regions. The Pseudo R-squared value of 0.0424 suggests that the model explains approximately 4.24% of the variability in investment choices.

Impact of Omitting Bucharest-Ilfov

Upon removing the choice of the Bucharest-Ilfov region, the model gains robustness. This adjustment results in increased stability, reinforcing the statistical significance of the remaining variables.

Variable Analysis

Rail Network (railn): The positive coefficient (0.0005584) suggests that higher rail network density corresponds to an increased likelihood of a region being chosen for investment.

GDP per Capita (gdp_pc): The positive coefficient suggests that regions with higher GDP per capita are more likely to be chosen for investment.

Unemployment Rate (Unemp): The positive coefficient (0.1036763) signifies that a higher unemployment rate is associated with an increased likelihood of a region being chosen for investment.

Labor Force (Labf): The negative coefficient (-0.0014136) indicates that higher labor force participation is linked to a reduced likelihood of a region being chosen for investment.

Expenditures in Research and Development (emp_rd and exp_rd): The impact of emp_rd and exp_rd on investment choices is limited, with varying degrees of statistical significance.

Number of Enterprises (num_ent): A positive coefficient indicates that regions with more enterprises are more likely to attract investment.

Public Roads (pubr): The positive coefficient suggests that regions with better public network are more likely to be chosen for investment.

Population (pop): The positive coefficient indicates that regions with a larger population are more likely to attract investment.

The results underscore the significance of GDP per capita, the number of enterprises, public roads network, and population size in influencing investment choices.
Comparing this model with the initial one in Figure 16, all the variables have gained more significance, except for the expenditures for R & D, noticing how impactful is this variable for the Bucharest - Ilfov region. The chi-square test statistics indicate that both models are statistically significant, suggesting that the chosen variables collectively influence investment choices in Romanian regions.
The log likelihood values are higher for the model excluding Bucharest-Ilfov (-3178.0535) compared to the model including it (-4595.9424), indicating a better fit without considering Bucharest-Ilfov. The model including Bucharest-Ilfov demonstrates a higher Pseudo R2 (0.1166) compared to the model excluding it (0.0424), suggesting that the former explains a greater proportion of the variability in investment choices.
The p-values of the variables like rail network, gdp per capita but also unemployment rate are significative and have a positive impact on the selection of the region.
While the model provides valuable insights, limitations include the assumption of proportional odds and potential unobserved heterogeneity. The robustness gained by omitting Bucharest-Ilfov indicates improved model stability but does not eliminate potential other biases.

7. CONCLUSIONS

The exploration of investment dynamics within Romanian regions, elucidated through a series of conditional logistic regression models, offers valuable insights into the multifaceted decision-making processes of investors. This conclusion synthesizes the major findings, practical implications, and limitations of these models, providing a comprehensive overview of the intricacies surrounding foreign direct investment (FDI) choices.

The present paper focuses the attention on the Foreign Direct Investment (FDI) choices within Romania, examining the dynamics across its eight macroregions, using firm-level data. Through an analysis involving the dependent variables, the research aims to highlight the factors and the considerations influencing investment decisions, with a particular focus on the optimal selection of the Bucharest-Ilfov region.

The exploration extends to major industries, including manufacturing, retail, and construction, contributing valuable insights to the broader field of FDI determinants. The research journey embarked with an extensive review of relevant literature, synthesizing insights from scholarly works on FDIs and their determinants. This theoretical foundation provided the conceptual framework for understanding the multifaceted nature of investment decisions.

Subsequently, data collection from the national databases and Eurostat ensures the acquisition of accurate information for the following model. The focal point of the investigation was the application of a Conditional Logit Model, a robust statistical approach tailored for the analysis of discrete choices, to discern patterns in regional investment preferences. The model incorporated some independent variables, ranging from economic indicators such as GDP per capita, unemployment rate, and rail network density, to industry-specific parameters like the number of enterprises and expenditures in research and development (R&D). The inclusion of eight macroregions enriched the granularity of the analysis, offering an understanding of the factors steering investment decisions. The findings illuminate a dynamic interplay of variables shaping investment choices within Romania. The Bucharest-Ilfov region emerges as a compelling magnet for foreign investments, its allure underscored by a confluence of economic indicators, robust infrastructure, and industry-specific dynamics. The Conditional Logit Model shows intricate relationships, emphasizing the significance of variables such as the rail network, unemployment rate, labor force, and investments in R&D. In the realm of

specific industries, manufacturing, retail, and construction stand out as pivotal players in the investment landscape. Each sector presents unique challenges and opportunities, underscoring the need for tailored strategies and accurate policy interventions in order to attract these types of investment. The outcomes of this research hold profound implications for policymakers and stakeholders involved in shaping the investment climate within Romania. The identification of key determinants provides a roadmap for targeted interventions, aiming to enhance the attractiveness of specific regions and industries. The imperative lies in fostering an environment conducive to economic growth, innovation, and employment generation.
Considering the significance of the Bucharest-Ilfov region, policymakers might think about offering specific incentives to enhance its attractiveness. Making strategic investments in infrastructure, along with supporting research and development initiatives, can strengthen the region's competitive position.

Although this research improves the understanding of what drives Foreign Direct Investments (FDI), it does have some limitations. Relying on historical data means there's a time constraint, requiring continuous monitoring and reassessment of investment trends. Future research could explore more dynamic modeling methods, including time-series data and predictive analytics, to predict how investment patterns might change. Additionally, delving into qualitative aspects, such as stakeholder interviews, could provide a deeper understanding of the complexities influencing investment decisions and the models may not capture all relevant variables influencing investment decisions. In fact, they are based on a specific sample of observations, and the findings might not be universally applicable. Regional variations and changes in investment climates could impact the generalizability of the results.
In summary, this research offers a thorough overview of the FDI landscape in Romania, uncovering the nuances that impact investment choices. From theoretical foundations to practical analysis, the study navigates the complex realm of FDI determinants, shedding light on the best approaches for both regional and industry-specific investments. As Romania establishes itself on the global investment stage, the insights gained from this study can guide well-informed decision-making and strategic planning.

In conclusion, the findings underscore the need for tailored investment attraction strategies based on the origin of investors and on the characteristics of the regions. Romania, positioned on the global investment stage, can leverage these insights to strategically promote its regions. EU-targeted strategies could highlight economic incentives and entrepreneurial diversity, while non-EU strategies may focus on innovation ecosystems and efficient logistics.

Striking a balance between skilled and numerous workforces, continual investments in transportation infrastructure, and fostering research and development environments are key takeaways for regions aspiring to be attractive investment destinations. As Romania navigates the complex terrain of foreign direct investment, these findings serve as a compass, guiding policymakers and stakeholders toward informed decision-making and strategic planning. Future research endeavors could delve deeper into the evolving dynamics of investor preferences and explore additional factors influencing investment choices, but the research presented could be an important first paper which can be explored further with other analyses.

8. REFERENCES

- J. H. Dunning, S. M. Lundan. *Multinational and the Global Economy*, 2nd ed., USA, Edward Elgar Publishing Inc., 2008
- E. M Graham, *Foreign Direct Investment in the world economy,* USA, IMF, 1995 from: https://www.imf.org/en/Publications/WP/Issues/2016/12/30/Foreign-Direct-Investment-in-the-World-Economy-1112
- K. Kojima, *A macroeconomic approach to foreign direct investment,* Hitotsubashi Journal of Economics, Vol. 14, No. 1 (June 1973), pp. 1-21 (21 pages) from: https://www.jstor.org/stable/43295560?read-now=1&seq=1#page_scan_tab_contents
- D. Vintila , *Foreign Direct Investment Theories: An Overview of the Main FDI Theories*, European Journal of Interdisciplinary Studies, No. 3 , Bucharest, Academy of economic studies, December 2010 from: https://deliverypdf.ssrn.com/delivery.php?ID=294114121126072124025029101126086070063055032019074004085073097009029005070021104007042057100123047057125071086106122016028006126016017086082012068090093083022127092053080082006091016096066094008089000120085110105023087127110030085018006068091092067087&EXT=pdf&INDEX=TRUE
- M. R. Sarbu, L. Carp, *The Impact of Foreign Direct Investment on Economic Growth: The Case of Romania,* Annals of Danubius University, CEEOL, Romania from: https://www.ceeol.com/search/viewpdf?id=527982
- Dale Weigel, *Multinational approaches to multinational corporations*, International Monetary fund, 1 sep 1974 from: https://www.elibrary.imf.org/view/journals/022/0011/003/article-A008-en.xml

- A. Goldstein, L. Piscitello, *Le Multinazionali*, Società Editrice Il Mulino, Italia, Maggio 2007
- https://www.investopedia.com/terms/f/fdi.asp#toc-types-of-foreign-direct-investment
- https://commonslibrary.parliament.uk/research-briefings/cbp-8534/#:~:text=FDI%20can%20be%20either%20inward,companies%20in%20a%20foreign%20economy.
- N. Ramondo, V. Rappoport , Ruhl Kim J. *Horizontal versus vertical foreign direct investment: Evidence from us multinationals.* UC San Diego typescript manuscript, 2013. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=48215322d002cdc88c8d75b3ae55bf343f63266c
- https://data.oecd.org/fdi/fdi-flows.htm#indicator-chart
- Amin, A., Anwar, S., & Liu, H. (2022). *Outward foreign direct investment and economic growth in Romania: Evidence from non-linear ARDL approach*. International Journal of Finance & Economics, 27(1), 665-677. https://doi.org/10.1002/ijfe.2173
- Andrei, Dalina, *Foreign Direct Investments in Romania. A Structural and Dynamic View* (December 17, 2012). Romanian Journal of Economic Forecasting – 4/2012, Available at SSRN: https://ssrn.com/abstract=2397078
- Franco, C., *Horizontal and vertical FDI: an analysis oftechnological determinants*, INTERNATIONAL JOURNAL OF TECHNOLOGY AND GLOBALISATION, 2012; 6 (3): 225-254 from: http://hdl.handle.net/10807/62794

- https://corporatefinanceinstitute.com/resources/management/brownfield-investment/
- Avner Ben-Ner and J. Michael Montias, *The Introduction of Markets in a Hypercentralized Economy: The Case of Romania*, Journal of Economic Perspectives — Volume 5, Number 4 — Fall 1991 — Pages 163–1 from : The Introduction of Markets in a Hypercentralized Economy: The Case of Romania (aeaweb.org)
- Wilfried Heller (Hrsg.), Romania, *Migration, Socio-economic Transformation and Perspectives of Regional Development from:* 1002882.pdf
- Nicolae Marinescu, Laura N Haar, *Entry Modes and Firm Performance in a Transition Economy: Evidence from Inward FDI to Romania*, Article in Journal of East-West Business · March 2014 from: https://www.researchgate.net/publication/271670618_Entry_Modes_and_Firm_Performance_in_a_Transition_Economy_Evidence_from_Inward_FDI_to_Romania
- Mihaela Herciu, *Measuring International Competitiveness of Romania by Using Porter's Diamond and Revealed Comparative Advantage*, Article in Procedia Economics and Finance, December 2013 from: https://www.researchgate.net/publication/259172389_Measuring_International_Competitiveness_of_Romania_by_Using_Porter%27s_Diamond_and_Revealed_Comparative_Advantage
- National Bank of Romania, *Foreign Direct Investment in Romania in 2021,2020,2019,2018*, 25 Lipscani Street, Bucharest, 030031, Romania
- https://www.lloydsbanktrade.com/en/market-potential/romania/investment
- https://www.firon-barnir.com/editorial/many-solid-reasons-to-invest-in-romania/#:~:text=Becoming%20a%20first%2Drate%20choice,tax%20exemption%20on%20reinvested%20profit.

- Readings in International Business: A decision approach, Robert Z. Aliber, Reid W. Click
- Mihaela-Carmen Muntean, Rozalia Nistor, Costel Nistor, *Competitiveness of developing Regions in Romania*, Department of General Economics, Faculty of Economic Sciences "Dunarea de Jos" University, 59-61 N. Balcescu Street, Galati, ROMANIA from: https://www.researchgate.net/profile/Mihaela-Carmen-Muntean/publication/228423199_Competitiveness_of_Developing_Regions_in_Romania/links/0fcfd5072ad12ae71c000000/Competitiveness-of-Developing-Regions-in-Romania.pdf
- Pîrvu, R., Bădîrcea, R., Manta, A., & Lupăncescu, M. *The Effects of the Cohesion Policy on the Sustainable Development of the Development Regions in Romani*a. *Sustainability*, *10*(7), 2577. https://doi.org/10.3390/su10072577
- Cristina, I. O., Nicoleta, C., Cătălin, D. R., & Margareta, F. *Regional Development in Romania: Empirical Evidence Regarding the Factors for Measuring a Prosperous and Sustainable Economy. Sustainability*, *13*(7), 3942. https://doi.org/10.3390/su13073942
- Nistor, P. (2011). *FDI and Regional Disparities Growth in Romania*. Procedia Economics and Finance, 3, 740-745. https://doi.org/10.1016/S2212-5671(12)00223-7
- Christian A.L. Hilber,c.hilber@lse.ac.uk & Ioan Voicu (2010) *Agglomeration Economies and the Location of Foreign Direct Investment: Empirical Evidence from Romania*, Regional Studies, 44:3, 355 371, DOI: 10.1080/00343400902783230
- https://unctadstat.unctad.org/countryprofile/generalprofile/en-gb/642/index.html

- Danciu, A. R., & Strat, V. A. (2014). *Factors Influencing the Choice of the Foreign Direct Investments Locations in the Romanian Regions*. *Procedia - Social and Behavioral Sciences*, *109*, 870-874. https://doi.org/10.1016/j.sbspro.2013.12.556
- Zaman, G., Vasile, V., Matei, M., Croitoru, C., & Enescu, G. (2011). *Some challenging (macro) economic aspects of FDI in Romania*. *Revista Romana de Economie*, *33*(2).
- Ibolya Kurkò, *The regional disparities foreign direct investment in Romania*, Romanian Review of Regional studies, Volume II, Number 2, 2006 from: https://marinik17.github.io/rrrs/arhive/Artpdf/v2n22006/RRRS022200609.pdf
- Danciu Aniela Raluca, Strat Vasile Alecsandru, *Main determinants of Foreign Direct Investments in Romania - A quantitative view of the regional characteristics involved in the investment strategies of foreign companies*, Academy of Economic Studies, Bucharest, Bucharest Romana Plaza no.6 from https://doi.org/10.1016/j.sbspro.2012.09.1101
- Tomsa Cristina, Trofim Daniel, *The impact of FDI on economic development: a comparative study of Moldova, Romania and Ukraine*, Academia de Studii Economice din Moldova, Republica Moldova, Chisinau, Str. Banulesu-Bodoni 61 from : https://ibn.idsi.md/sites/default/files/imag_file/54-57_40.pdf
- Adina Dornean, Dumitru-Cristian Oanea, FDI Territorial Distribution in Romania, Emerging Markets Queries in Finance and Business, Romania, 2015 from: https://doi.org/10.1016/S2212-5671(15)01439-2
- Arben Sahiti, Skender Ahmeti, Hysen Ismajli, A review of empirical studies on fdi determinants, Baltic Journal of Real Estate Economics and Construction

Management,Riga Technical University from https://sciendo.com/abstract/journals/bjreecm/6/1/article-p37.xml

- Raluca, D. A., & Alecsandru, S. V. (2012). Main Determinants of Foreign Direct Investments in Romania - A Quantitative View of the Regional Characteristics Involved in the Investment Strategies of Foreign Companies. *Procedia - Social and Behavioral Sciences*, *58*, 1193-1203. https://doi.org/10.1016/j.sbspro.2012.09.1101
- Dornean, A., & Oanea, D. (2014). FDI Territorial Distribution in Romania. *Procedia Economics and Finance*, *32*, 610-617. https://doi.org/10.1016/S2212-5671(15)01439-2
- Portrait of the regions, volume 11, Romania
- McFadden, Daniel. 2001. "Economic Choices." *American Economic Review*, 91 (3): 351-378**.** DOI: 10.1257/aer.91.3.351
- Manski, Charles F. "Daniel McFadden and the Econometric Analysis of Discrete Choice." *The Scandinavian Journal of Economics*, vol. 103, no. 2, 2001, pp. 217–29. *JSTOR* from : http://www.jstor.org/stable/3440992. Accessed 29 Oct. 2023.
- J. C. Botello Osorio, M. d. Delgado, How to increase FDI flows: A demonstration of the new determinant creation theory for Mexico and Chile, The Business and Management Review, v. 7 nr. 5, June 2016 from: https://cberuk.com/cdn/conference_proceedings/conference_43861.pdf
- Goschin, Z. (2013). Research and Development Intensity in Romania. A Regional Perspective. *Procedia Economics and Finance*, *15*, 64-70. https://doi.org/10.1016/S2212-5671(14)00447-X

WEB REFERENCES

National Institute of Statistics of Romania: http://statistici.insse.ro

United Nations Conference on Trade and Development: https://unctad.org

Statistical Office of the European Union: https://ec.europa.eu/eurostat

Organisation for Economic Cooperation and Development: https://www.oecd.org

Google scholar: https://scholar.google.com

ResearchGate: https://www.researchgate.net

The Observatory of Economic Complexity (OEC). https://oec.world/en/

Corporate Finance Institute. https://corporatefinanceinstitute.com

The World Bank Open Data https://data.worldbank.org

National Bank of Romania https://www.bnr.ro/