

# Regulatory Quality and Foreign Direct Investment: A Case Analysis of North Macedonia

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## Abstract

The present study investigates how governance affects Foreign Direct Investment (FDI) inflows by using North Macedonia as a case study to focus on the relationship between FDI and regulatory quality in a small economy setting. FDI is crucial for economic growth in emerging economies, and regulatory quality is a key factor influencing investment inflows. Using econometric modeling and data from 2002 to 2022, the study tests whether improved regulatory quality boosts FDI. The analysis, which includes control variables like GDP growth, inflation, and economic openness, shows that stronger regulatory quality increases FDI inflows. Additionally, economic growth and inflation positively correlate with FDI, highlighting the importance of fostering growth and considering inflation-targeting policies to attract investment. These insights are valuable for policymakers and investors looking to enhance small economies' economic growth and subsequent development.

## Keywords

Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Regulatory Quality Index, Econometric Modeling, Economic Development

## 1. Introduction

Foreign Direct Investment (FDI) is a critical driver of economic growth, contributing to capital inflows, technology transfer, and employment creation (Gkasis et al., 2013; Saurav & Sinha, 2020; Santos, 2023). The present analysis focuses on North Macedonia, a small European economy which is reliant on FDI, to explore how the

country's regulatory framework can affect the amount of FDI inflows, thus contributing to a small economy's economic growth and development. Regulatory quality, measured by the Regulatory Quality Index, is a key factor that affects the country's attractiveness to foreign investors, making it essential for policymakers to understand its impact. This study examines the relationship between FDI, measured as a percentage of GDP, and regulatory quality in North Macedonia.

Following its independence in 1991, North Macedonia encountered significant political and economic challenges, including high unemployment, inflation, and inherited debt from the previous regime (Cviić & Sanfey, 2010). The government responded by implementing around forty regulations to enhance economic opportunities and safeguard foreign investors' rights (Kikerkova, 2013). With support from international organizations like the World Bank and the International Monetary Fund (IMF), the country pursued macroeconomic stabilization, focusing on reducing unemployment, curbing inflation, and fostering sustainable growth. Privatization of state-owned enterprises was a crucial part of this strategy, aligned with the Copenhagen economic criteria for European Union membership (Golitsis et al, 2020; Golitsis, et al., 2022). Despite these efforts, FDI inflows remained modest, especially compared to neighboring transition economies such as Serbia and Bulgaria. North Macedonia's early challenges, including the name dispute with Greece and political instability in the region, contributed to low levels of FDI. In 2006, the government launched a more aggressive FDI strategy, creating Technological Industrial Development Zones (TIDZs) with significant tax incentives to attract foreign companies. However, even with these initiatives, FDI growth remained inconsistent.

The global financial crisis of 2008 significantly impacted FDI inflows, causing a steep decline. While there was a partial recovery in the following years, FDI levels never reached the pre-crisis peak (Kabashi, 2014). In recent years, the government has implemented reforms aimed at improving contract enforcement, protecting property rights, and enhancing institutional efficiency to create a more favorable environment for foreign investors (Kirovska et al., 2022). Given North Macedonia's persistent struggles with low FDI levels, it is crucial to explore the factors that could boost investment inflows. One of the most significant factors is regulatory quality, which this study aims to examine. The research seeks to provide a deeper understanding of the historical trends of FDI in North Macedonia and assess how changes in regulatory quality have influenced these trends over time. By analyzing the relationship between FDI inflows and regulatory quality, this study offers valuable insights for policymakers and investors looking to foster economic growth in a small economy sharing the characteristics of North Macedonia.

## 2. Literature Review

Foreign direct investment (FDI) in North Macedonia has recently become a topic of both public debate and academic investigation. Many studies have focused on the role FDI plays in the country's economic growth, particularly in its effects on

employment and exports. This literature review provides a conceptual framework, examining the key concepts related to FDI and regulatory quality, and how these elements interact in the context of North Macedonia.

## 2.1. Foreign Direct Investment

FDI refers to the investment by foreign entities in a country's economy, often through the acquisition of a significant ownership stake in domestic enterprises (UNCTAD, 1998; OECD, 2002). FDI is widely recognized for its potential to enhance economic growth by bringing capital, advanced technology, and expertise to a host economy (Borensztein et al., 1998; Dunning & Lundan, 2008; Golitsis et al., 2018). It can also help generate employment opportunities, contributing significantly to a host country's development (Elkomy et al., 2016). In the context of North Macedonia, FDI has been essential for building physical capital and introducing innovative technologies, both of which are seen as vital for economic development (Kabashi, 2014).

Factors that attract FDI include market size, infrastructure, political stability, and regulatory quality. Research highlights two main categories of factors influencing FDI: internal or "pull factors" and external or "push factors". Pull factors include market size, labor costs, political stability, and openness to trade, while push factors stem from global conditions, such as interest rates and the economic growth of wealthier nations (Dabla-Norris et al., 2010; Anyanwu, 2011). North Macedonia's efforts to improve its regulatory framework and offer incentives to foreign investors are key pull factors that have shaped its FDI landscape.

## 2.2. Regulatory Quality Index

The Regulatory Quality Index is one of the six composite indicators of governance within the Worldwide Governance Indicators (WGI). It evaluates the effectiveness of government policies and regulations that foster private sector development and economic growth. The index measures a country's ability to create sound regulations, with components such as rule of law, government transparency, and business-friendly policies playing crucial roles (World Bank Group, 2023).

Studies by the OECD and the World Bank highlight the importance of regulatory reforms in promoting governance, fostering transparency, and encouraging stakeholder participation in developing countries (OECD, 2002; Kaufmann et al., 2004). In North Macedonia, the Regulatory Quality Index has seen improvements, with a notable rise in 2017, marking an increase from 0.441 in 2016 to 0.505, according to the World Bank's Global Database. These improvements signal progress toward creating a more favorable environment for FDI.

## 2.3. Impact of Regulatory Quality on FDI

Regulatory quality plays a crucial role in shaping a country's attractiveness to foreign investors. A robust legal and regulatory system allows investors to secure property rights and ensures that those rights are enforced predictably. Economic

theory suggests that policy uncertainty can deter investment by increasing the risk associated with setting up operations (Bernanke, 1983; Bloom, 2009). Conversely, countries with high regulatory quality are more likely to attract FDI due to the stability and predictability of their business environments (Contractor et al., 2021).

In the case of North Macedonia, improvements in regulatory quality, particularly in areas such as investor protection and cross-border trade protocols, have had a positive impact on attracting FDI. Nonetheless, the fluctuating levels of FDI in recent years indicate that regulatory quality alone is not sufficient, and other factors, such as political stability and market size, must also be considered.

#### 2.4. Methodological Approaches

FDI has gained increasing attention in developing countries, leading to a surge in empirical research. However, there remains a notable gap in the literature concerning the factors influencing FDI in South Asia. Most studies focus on macroeconomic variables like GDP, capital formation, interest rates, exchange rates, labor, and trade openness but often overlook the role of institutions and political factors. Bimal (2017) attempts to fill this gap by analyzing FDI determinants in South Asia, highlighting the significance of both institutional and economic factors. Using a dynamic panel data model from 1999 to 2013, the study concludes that countries with large markets, stable economies, liberal trading policies, and low financial and political risks are more likely to attract FDI.

Contractor et al. (2021) complement this with a study on regulatory and institutional factors influencing FDI in 149 developing countries. Their multilevel mixed panel regression shows that efficient start-up procedures, minority investor protection, and strong trade protocols are crucial for FDI inflows, reinforcing the importance of institutional quality in emerging markets. In contrast, Jurčić et al. (2020) find that institutional quality does not significantly affect FDI inflows in Croatia, highlighting regional variations in FDI determinants. Meanwhile, Mádr & Kouba (2015) explore the political environment's impact on FDI in middle income countries, noting that political stability, democracy, and corruption levels are key factors. Bénassy-Quéré et al. (2007) provide valuable insights into the role of institutions in FDI, using a gravity model to show that institutional quality, including factors like transparency, property rights, and contract law, is crucial for attracting FDI. They emphasize that institutional alignment between host and source countries can increase FDI flows, underscoring the importance of institutional convergence for economic development. Desli (2018) examines the impact of institutional reforms on FDI in the EU during the financial crisis of 2008, noting that regulatory quality and tax adjustments promote FDI, particularly in stronger economies. However, for countries like Greece, reforms have not yet translated into significant FDI increases. These studies highlight the complex factors influencing FDI, showing the need for analyses that account for both economic and institutional variables.

## 2.5. Studies on FDI and Economic Growth

FDI plays a pivotal role in fostering economic growth in host countries (Bhujabal et al., 2024). Extensive research has highlighted the positive effects of FDI through various channels, laying the groundwork for understanding its broader impact. The neo-classical growth model, introduced by Solow (1956), provided the initial framework for understanding FDI's role in economic growth. Solow's model suggests that while an increase in capital per worker boosts productivity, this effect diminishes over time as the capital-labor ratio stabilizes. This model explains why countries with lower labor-to-capital ratios often experience higher capital accumulation and per capita growth.

Subsequent research has expanded on this model, identifying specific ways in which FDI drives growth. Blomström & Kokko (1998) argued that FDI promotes technology transfer, enhances human capital, fosters competition, and improves infrastructure, all of which contribute to higher productivity. Similarly, Borensztein et al. (1998) demonstrated that FDI stimulates investment, technological advancement, and export growth, leading to overall economic expansion. Iamsiraroj & Ulubaşoğlu (2015) conducted a large-scale analysis of the global FDI-growth relationship, confirming FDI's positive influence on economic growth. Their study highlighted regional variations and identified factors like trade openness and financial development as key to realizing growth benefits from FDI.

Institutional quality has also been recognized as a critical factor in maximizing the benefits of FDI. Wei (2000) contended that strong institutions, such as robust property rights and efficient legal systems, reduce transaction costs and risks, enhancing FDI's positive impact. Bhaumik & Dimova (2007) supported this view, finding that better governance and regulatory environments improve the productivity-enhancing effects of FDI. Gherghina et al. (2019) further explored the link between FDI, institutional quality, and sustainable development goals (SDGs). Their findings suggest a non-linear relationship between FDI and GDP per capita in Central and Eastern Europe, with institutional quality and certain SDGs driving economic growth.

Overall, these studies underscore the multifaceted nature of FDI's contributions to economic growth and emphasize the importance of institutional quality and broader development goals in shaping its outcomes.

## 2.6. Studies on FDI and Regulatory Quality

The relationship between foreign direct investment (FDI) and regulatory quality is critical in understanding FDI patterns. While prior research highlighted the impact of FDI on economic growth, this section shifts focus to the role of regulatory quality in attracting foreign investment. Regulatory quality, which includes transparency, efficiency, and consistency, is a significant determinant of FDI inflows. Research indicates that favorable regulatory environments often lead to higher FDI levels (Contractor et al., 2020). Data from UNCTAD (2016) and the National Bank of the Republic of North Macedonia (2024) reflect a global trend towards

liberalization and regulatory adjustments to attract FDI, especially since the collapse of communist regimes. Institutional quality, including governance factors like government effectiveness, corruption control, and rule of law, is also crucial for FDI. Research by [Li & Resnick \(2003\)](#) and [Kaufmann et al. \(2004\)](#) highlights that stronger institutional frameworks make countries more attractive to investors by reducing risks and enhancing protection ([Wei, 2000](#)).

Studies have shown that easing government restrictions on FDI boosts positive investor sentiments. [Grosse & Trevino \(2005\)](#) noted increased foreign investment in Central and Eastern Europe following regulatory reforms. [Bevan et al. \(2004\)](#) found similar effects in Eastern Europe, demonstrating how changes in regulatory environments impact FDI patterns. Further evidence from [Djankov et al. \(2002\)](#) and the [World Bank Group \(2020\)](#) confirm a positive correlation between regulatory reforms and FDI in countries like Georgia and New Zealand. These findings underscore the importance of regulatory quality in attracting foreign investment and fostering economic growth. The regulatory environment also affects investor perceptions of political and legislative stability, which are crucial for investment decisions ([Wei, 2000](#)). Transparent and well-enforced regulations increase investor confidence, while ambiguous or burdensome regulations may deter investment ([Busse & Hefeker, 2007](#)).

In summary, the improvement of regulatory and institutional quality is essential for attracting foreign investment and driving economic growth. By enhancing regulatory frameworks, governance, and their absorptive capacity in general ([Desli et al. 2012](#)), countries can become more appealing to investors, which in turn, can promote sustainable growth and economic development.

## **2.7. Studies on FDI in North Macedonia**

Focusing on North Macedonia, this section builds on our understanding of how FDI interacts with the regulatory environment, institutional quality, and economic growth in a small economy setting. After gaining its independence in 1991, North Macedonia began political and economic reforms with the goal of joining the EU. Despite some progress, it is still a challenge for the country to achieve macroeconomic stability and meet the Copenhagen criteria. With a small market of just over two million people and limited domestic savings, FDI is crucial for economic growth ([Osmani & Ahmeti, 2021](#)). Initially, FDI was modest, primarily from the privatization of state-owned enterprises through mergers and acquisitions in the services sector. In response, the government introduced Technological Industrial Development Zones (TIDZs) in the 2000s to attract greenfield FDI investments by offering tax breaks and incentives to boost reindustrialization and exports. However, FDI levels have remained relatively low. Recent optimism about increased FDI inflows in the future follows the resolution of the dispute with Greece for the country's name, suggesting potential for growth ([Osmani & Ahmeti, 2021](#)).

Research on FDI in North Macedonia is limited, making the present study a significant contribution to the existing literature on the effect of regulatory quality

on FDI in small economies. The Centre for Economic Analysis of North Macedonia assessed the costs and benefits of incentives for foreign investment in TIDZs (Garvalieva et al., 2016). The findings indicated that the costs outweighed the benefits, negatively impacting the national budget. Similarly, Karajkov et al. (2016) criticized North Macedonia's costly policies aimed at attracting foreign investment, arguing that they deplete public funds and limit resources for essential services. These studies highlight the need to evaluate the effectiveness and sustainability of investment incentives and policies in North Macedonia. Policymakers should carefully consider the costs and benefits of these initiatives to ensure long-term economic stability and growth. The insights from these studies are valuable for optimizing investment strategies and maximizing the benefits of FDI for the country's growth and development.

### 3. Theoretical Model Structure

#### 3.1. Theoretical Framework

The present study is anchored in established theories of Foreign Direct Investment (FDI), economic development, and regulatory quality, which collectively provide a comprehensive foundation for the analysis.

**FDI Theories:** The study draws upon John Dunning's eclectic paradigm (Dunning, 1980), which identifies three primary motivations behind international investments—market-seeking, efficiency-seeking, and resource-seeking behaviors. This theory helps explain why multinational enterprises (MNEs) choose specific locations and how host countries, like North Macedonia, attract FDI based on these criteria. For instance, market-seeking investors are attracted by large or growing domestic markets, while efficiency-seeking FDI is motivated by cost advantages, and resource-seeking firms look for natural resources or skilled labor.

**Economic Development Theories:** FDI's contribution to economic growth is explored through neoclassical and new growth theory lenses. Neoclassical growth theory emphasizes capital accumulation and labor force improvements (Solow, 1956), while new growth theory highlights the role of knowledge spillovers, technology transfer, and human capital formation that FDI can promote (Blomström & Kokko, 1998; Borensztein et al., 1998; Iamsiraroj & Ulubaşoğlu, 2015). In this context, FDI serves as a critical channel for transferring technological innovations and boosting productivity, thus driving long-term economic growth.

**Regulatory Quality Theories:** Regulatory quality plays a key role in creating a conducive environment for FDI. This study draws on theories that highlight the importance of transparent, efficient, and stable regulatory frameworks in fostering investor confidence and economic performance (Li & Resnick, 2003). High regulatory quality reduces risks and uncertainties for foreign investors, making a country more attractive for FDI inflows (Kaufmann et al., 2004; Contractor et al., 2020). For instance, stable legal frameworks and effective governance reduce transaction costs and improve the predictability of business environments (Bantimaroudi et

al., 2023; Bellos & Golitsis, 2023).

**Internalization Theory:** This complements Dunning's paradigm by explaining how multinational enterprises internalize cross-border activities to optimize firm-specific advantages, such as proprietary technologies or managerial expertise (Buckley & Casson, 2016). This theory helps clarify why certain firms choose direct investment over other forms of international engagement, such as exporting or licensing, by minimizing costs associated with external market failures.

**Institutional Theory:** The institutional context also plays a pivotal role in shaping FDI decisions. Institutional theory posits that both formal (e.g., legal frameworks, property rights) and informal (e.g., cultural norms, political stability) institutions critically influence investment behaviors and economic outcomes (Wei, 2000; Bhaumik & Dimova, 2007; Gherghina et al., 2019; Contractor et al., 2020). This study particularly focuses on North Macedonia's institutional environment, examining how regulatory efficiency, governance, and institutional reforms can enhance FDI attractiveness and contribute to sustainable economic development.

**Integration of Theories:** These theoretical frameworks are integrated into the research model to examine the dynamics between FDI inflows, economic development, and regulatory quality. The eclectic paradigm and internalization theory provide insights into the decision-making processes of MNEs, while economic and regulatory quality theories explain the broader macroeconomic impacts of FDI. Institutional theory ties these elements together by emphasizing the role of institutional structures in facilitating or hindering these processes. According to our understanding, together, these perspectives form a robust conceptual foundation for analyzing the impact of regulatory quality on FDI inflows and the subsequent economic outcomes in North Macedonia.

## 3.2. Research Model Outline

The research model synthesizes the theoretical perspectives discussed, translating them into an empirical framework for analyzing the relationship between FDI inflows and regulatory quality. This conceptual framework captures the relationship between FDI inflows, economic fundamentals, regulatory quality, and economic outcomes. Thus, the logical flow of the model is as follows:

### 3.2.1. FDI Theories and Drivers

- *Input:* The model begins with **FDI inflows** as the dependent variable, influenced by external factors such as market-seeking, efficiency-seeking, and resource-seeking motivations derived from Dunning's eclectic paradigm.
- *Framework:* These motivations are influenced by the host country's market size, cost advantages, and resource availability, all of which serve as independent variables representing economic fundamentals.

### 3.2.2. Economic Development and FDI Impact

- *Process:* Once FDI inflows are established, the next "block" evaluates their

impact on economic development. Using **neoclassical and new growth theories**, this segment assesses how FDI contributes to capital accumulation, technology transfer, and productivity growth. Indicators like Gross Domestic Product (GDP), employment rates, and capital formation represent these effects.

### 3.2.3. Regulatory Quality as a Mediating Factor

- *Intermediary:* **Regulatory quality** is introduced as a key mediating variable. This block assesses how governance, legal systems, and institutional quality impact both the attraction of FDI and its subsequent economic effects. Measures of transparency, consistency, and efficiency in regulations are used as proxy variables to capture this mediating effect.

### 3.2.4. Institutional Context and Internalization Theory

- *Influence:* The model accounts for the **institutional context** of North Macedonia by integrating both formal and informal institutions (e.g., property rights, political stability). This segment draws from **institutional theory** and **internalization theory**, showing how multinational enterprises internalize activities based on institutional efficiency. Indicators like governance quality, political stability, and property rights protection are considered here.

### 3.2.5. Diagnostic and Control Variables

- *Validation:* The final block includes **diagnostic tests** (e.g., stationarity, serial correlation, heteroskedasticity) to ensure model robustness, alongside **control variables** such as inflation rates, exchange rate volatility, and human capital, which are integrated to isolate the effect of regulatory quality on FDI inflows.

## 3.3. Gaps in the Existing Literature

Although a large strand of literature has explored FDI determinants and the impact of regulatory quality on FDI, existing literature tends to focus on broader regional frameworks or diverse countries with varying economic, political, and regulatory conditions. This leaves North Macedonia's and other small economies' unique FDI dynamics underexplored. This gap includes a lack of understanding of the specific factors that attract or deter FDI in North Macedonia, the unique challenges the country faces in attracting foreign investment, and the untapped opportunities within its regulatory framework.

This study aims to fill this gap by conducting a detailed empirical analysis tailored to North Macedonia's economic environment. By examining FDI trends, identifying underlying determinants, and evaluating the influence of regulatory quality, this research seeks to provide targeted insights relevant to the country's growth and developmental trajectory. The goal is to offer actionable information for policymakers, investors, and regulators, contributing to more effective policy formulation, investment strategies, and regulatory reforms. This research aspires to enrich both

academic understanding and practical approaches to fostering sustainable economic growth in North Macedonia; it can then be used as a case study for other small economies facing identical or similar challenges (Golitsis et al., 2018).

### 3.4. Research Problem, Questions and Objectives

#### 3.4.1. Research Problem (Gap)

There is limited empirical research on the relationship between FDI and regulatory quality in North Macedonia. While global studies on FDI determinants and regulatory quality are abundant, the specific context of North Macedonia remains understudied. This gap in the literature highlights the need for an in-depth empirical analysis tailored to the unique economic conditions of the country.

#### 3.4.2. Research Questions

- 1) How have FDI net inflows in North Macedonia evolved over time?
- 2) How does the Regulatory Quality Index vary in North Macedonia?
- 3) What is the relationship between FDI net inflows and regulatory quality in North Macedonia?

#### 3.4.3. Research Objective

The primary objective of this study is to examine the relationship between FDI net inflows and regulatory quality in North Macedonia. It aims to provide empirical evidence that can guide policymakers and investors by offering insights into how regulatory improvements can foster foreign investment and economic growth.

## 4. Methodology

The research employs a multiple regression model based on the Classical Linear Regression Model (CLRM) framework to analyze FDI net inflows (Brooks, 2019). Time series data spanning from 2002 to 2022 is scrutinized to ensure the model's reliability, beginning with an assessment of stationarity. The Augmented Dickey-Fuller (ADF) test is applied to verify whether the time series is stationary by comparing it against lagged values. Autoregressive terms, selected using criteria such as the Akaike Information Criterion (AIC) or Schwarz Information Criterion (SIC), are incorporated to account for potential serial correlation (Golitsis et al., 2021; Rodrigues et al., 2024). The null hypothesis of the ADF test assumes the series is non-stationary, and rejection of this hypothesis indicates stationarity. The mathematical form of the ADF test (Harris, 1992; Yovchev et al., 2024) is as follows:

$$\Delta y_t = \psi y_{t-1} + \sum_{i=1}^p \alpha_i \Delta y_{t-i} + u_t \quad (1)$$

In addition to the stationarity test, several diagnostic checks are performed to validate CLRM assumptions. To ensure residuals are uncorrelated across time, the Durbin-Watson statistic and Breusch-Godfrey test are employed, which confirm the absence of serial correlation. Heteroskedasticity is examined using the White

test, indicating constant variance in the residuals. Furthermore, the normality of residuals is validated by the Jarque-Bera test, affirming that residuals are normally distributed.

Multicollinearity is addressed through the Variance Inflation Factor (VIF), ensuring independent variables are not highly correlated with each other. This is critical to producing stable and reliable coefficient estimates. The presence of multicollinearity or omitted variables could result in inefficient or biased estimates, affecting the robustness of the model.

To further ensure that estimates are Best Linear Unbiased Estimators (BLUE), the model is tested for correct specification. This involves verifying that the functional form is appropriate and that relevant variables are included. Specification errors, such as the omission of relevant variables or inclusion of redundant ones, are carefully avoided to minimize biases in coefficient estimates. Additionally, heteroskedasticity, non-normal residuals, or multicollinearity are controlled to maintain the accuracy of hypothesis testing and confidence intervals (Emmanouilidis et al., 2024).

Proper testing of these assumptions is essential for accurate results. Methods for verifying these assumptions are outlined in the study. Although focused on North Macedonia, the findings may be relevant to other emerging economies, particularly in the Western Balkan region, and can guide policy recommendations for enhancing governance and attracting more FDI.

#### 4.1. Data Sources and Variables

This study employs secondary data from the World Bank's database, covering the period from 2002 to 2022, to explore the determinants of foreign direct investment (FDI) in North Macedonia. The dependent variable is FDI net inflows (BoP, current million US\$). Our choice of independent variables, including macroeconomic policy indicators, economy size, labor market conditions, and economic openness, is grounded in the established literature on FDI determinants. An overview of these independent variables is provided in [Table 1](#).

**Table 1.** Independent variables.

Factor	Variable	Indicator	Description	Source	Time span
Regulatory quality	REGULATORY	Regulatory Quality: Estimate	Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e., ranging from approximately -2.5 to +2.5.	World Bank	2002 - 2022

## Continued

<b>Macroeconomic policy and stability</b>	GDP_gr	GDP growth (annual %)	Gross Domestic Product, annual growth rate.	World Bank	2002 - 2022
	INF	Inflation, consumer prices (annual %)	Inflation, as measured by the consumer price index, reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	IMF	2002 - 2022
	BUDGET	Budget balance (% of GDP)	Net lending (+)/Net borrowing (-). Includes the central budget and extra budgetary funds.	Central Bank	2002 - 2022
<b>Economic size</b>	FCE_nom	Final consumption expenditure (current, million US\$)	Final consumption expenditure is the sum of household and general government final consumption expenditure.	World Bank	2002 - 2022
<b>Labor market</b>	UN	Unemployment, total (% of total labor force)	Share of the labor force that is without work but available for and seeking employment.	World Bank	2002 - 2022
<b>Openness of the economy</b>	CAB_p	Current account balance (% of GDP)	Sum of net exports of goods and services, net primary income, and net secondary income.	IMF	2002 - 2022

**Macroeconomic Policy and Stability Indicators:** Macroeconomic stability, particularly measured through variables such as inflation and GDP growth, is a critical factor influencing FDI. Studies have consistently shown that stable and predictable economic environments attract higher levels of FDI. For instance, [Asiedu \(2006\)](#) finds that macroeconomic stability, especially low inflation, is associated with increased FDI inflows in developing countries. Similarly, [Schneider & Frey \(1985\)](#) highlight the importance of economic growth in creating a conducive environment for foreign investors, suggesting that higher growth rates signal robust economic prospects. More recently, [Nguyen & Do \(2022\)](#) emphasize the role of institutional quality and macroeconomic stability in attracting FDI to Asian economies, underscoring the need for a stable economic environment. In our model, the inclusion of GDP growth and inflation is justified by their relevance in reflecting the overall stability and health of the economy, which investors closely monitor.

**Economy Size (GDP):** The size of the economy, typically represented by Gross Domestic Product (GDP), is another well-documented determinant of FDI. Larger economies tend to attract more investment due to their capacity to absorb capital and provide a broader market for goods and services. This relationship is supported by studies such as [Chakrabarti \(2001\)](#), who notes that market size is a

crucial pull factor for FDI, as it indicates the potential for greater returns on investment. More recently, [Rommens & Van Gorp \(2023\)](#) highlight the importance of economy size in sectoral analyses of FDI in developing countries, reinforcing the role of GDP in attracting FDI. Our inclusion of GDP as a variable reflects its role in indicating the economy's size and potential to generate returns, which is highly relevant for foreign investors evaluating investment destinations.

**Labor Market Conditions (Unemployment Rate):** Labor market conditions, including the unemployment rate, are essential in determining FDI inflows, particularly for investors seeking a skilled and available workforce. Previous research by [Campos & Kinoshita \(2003\)](#) has shown that lower unemployment rates often correlate with a more productive and flexible labor force, which enhances the attractiveness of a host country. In our study, we include the unemployment rate as a proxy for labor market flexibility and workforce availability, which are critical factors for firms considering where to locate labor-intensive operations. This aligns with recent research by [Nguyen & Do \(2022\)](#), who find that labor market conditions, as part of institutional quality, are vital for attracting FDI in Asian economies.

**Economic Openness:** Economic openness, often measured through trade openness (exports plus imports as a percentage of GDP) and related variables, is a key driver of FDI, as it reflects the ease with which firms can engage in international trade. A more open economy is typically more attractive to foreign investors because it allows easier access to global markets and integration into global supply chains. According to [Dollar & Kraay \(2004\)](#), greater economic openness facilitates FDI by reducing trade barriers and promoting market efficiency. Furthermore, [Boateng et al. \(2015\)](#) provide evidence that trade openness is a significant determinant of FDI inflows into Norway, reinforcing the importance of this variable in our model. Therefore, our inclusion of trade openness is directly supported by its proven role in enhancing the country's attractiveness to foreign investors.

## 4.2. Econometric Model

To build an appropriate econometric model for time series data, the first step is to determine the order of integration of the variables—whether they are stationary or non-stationary. We use the Augmented Dickey-Fuller (ADF) test for this purpose, with automatic lag selection based on the Schwarz Information Criterion and allowing for an intercept in the equation for levels. The test results, listed in [Table 2](#), indicated that some variables are stationary (integrated of order 0), while others are non-stationary (integrated of order 1). To avoid spurious regression, non-stationary variables need to be differenced before modeling.

Based on the obtained results from the conducted stationarity tests of the model variables, the following multiple regression model was developed to test the established research hypotheses:

$$\log(\text{FDI}_{\text{nom}}) = \beta_0 + \beta_1 \Delta \text{REGULATORY} + \beta_2 \text{GDP}_{\text{gr}} + \beta_3 \text{INF} + \beta_4 \text{BUDGET} + \beta_5 \Delta \log(\text{FCE}_{\text{nom}}) + \beta_6 \Delta \text{UN} + \beta_7 \text{CAB}_p + \beta_8 \text{DUM} + u \quad (2)$$

where,  $\beta_0$  is the intercept and  $\beta_k$  are the respective slope coefficients, DUM is a dummy variable with values 1 for 2014 and 2020 (when the data showed a sharp drop in the FDIs, which could not have been explained by the other independent variables), and  $u$  is the error term. To avoid spurious results, the model differentiates I (1) variables. Absolute variables like FDI and FCE are transformed using natural logarithms to standardize measurement scales and address potential heteroskedasticity, particularly in datasets with mixed variable types. This transformation shifts the interpretation of coefficients from absolute to relative terms.

**Table 2.** ADF test results ( $p$ -values).

Variable	level	1st diff.	Order
FDI_nom	0.0349	n/a	I(0)
REGULATORY	0.6919	0.0000	I(1)
GDP_gr	0.0002	n/a	I(0)
INF	0.0841	0.0000	I(1)
BUDGET	0.0461	n/a	I(0)
FCE_nom	0.9104	0.0003	I(1)
UN	0.9865	0.0375	I(1)
CAB_p	0.0296	n/a	I(0)

Source: Authors' computation, 2024.

The model is estimated to use the CLRM approach with robust standard errors to handle potential serial correlation. Key assumptions of the CLRM are tested, including multicollinearity (via variance inflation factors), heteroskedasticity (using the White test), serial correlation (Breusch-Godfrey test), normal distribution (Jarque-Bera test), and overall model specification (Ramsey RESET test). Some independent variables were excluded from the model due to assumption violations or statistical insignificance. The final model, which excludes breakpoints in the stable FDI data and insignificant lagged variables, serves as the basis for our hypothesis testing.

### 4.3. Hypotheses testing

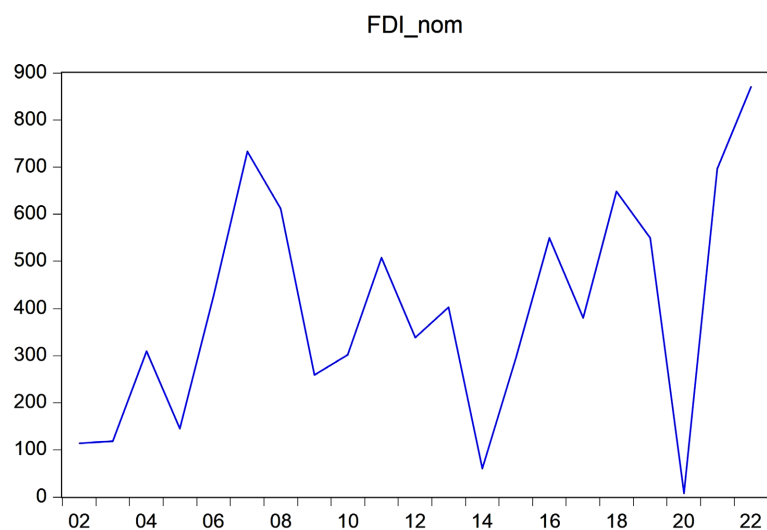
To test the hypotheses, specific criteria must be met. For the first hypothesis, the coefficient for the regulatory quality index must be positive and statistically significant at the 5% level of significance. The second hypothesis requires at least one coefficient among GDP growth, inflation, or budget balance to be positive and significant. For the third hypothesis, the coefficient for final consumption expenditure or current account balance should be positive, while the unemployment rate coefficient should be negative and significant, reflecting positive labor market development. These criteria are evaluated using a one-tailed  $t$ -test, as detailed in **Table 3**.

**Table 3.** Criteria for acceptance of the research hypotheses.

Hypothesis	Criteria	Decision
Hypothesis 1	$\beta_1 > 0$	$t_{\beta_1} > t_{\alpha;n-k} / p_{\beta_1} < 0.05$
Hypothesis 2	$\beta_2 > 0$ , or $\beta_3 > 0$ , or $\beta_4 > 0$	$t_{\beta_2} > t_{\alpha;n-k} / p_{\beta_2} < 0.05$ , or $t_{\beta_3} > t_{\alpha;n-k} / p_{\beta_3} < 0.05$ , or $t_{\beta_4} > t_{\alpha;n-k} / p_{\beta_4} < 0.05$
Hypothesis 3	$\beta_5 > 0$ , or $\beta_6 < 0$ , or $\beta_7 > 0$	$t_{\beta_5} > t_{\alpha;n-k} / p_{\beta_5} < 0.05$ , or $t_{\beta_6} < -t_{\alpha;n-k} / p_{\beta_6} < 0.05$ , or $t_{\beta_7} > t_{\alpha;n-k} / p_{\beta_7} < 0.05$

## 5. Data description and Discussion of Results

Between 2002 and 2022, North Macedonia saw a gradual increase in FDI net inflows, rising from approximately \$114 million in 2002 to over \$870 million in 2022, the highest level in the period. The trend exhibited notable deviations due to global economic conditions. There was a significant spike in 2007 because of pre-crisis inflation, followed by declines in 2009 and 2014 due to the global financial crisis and the European sovereign debt crisis. The most pronounced drop occurred in 2020 following the coronavirus pandemic, but there was a rapid recovery the following year. **Figure 1** shows FDI inflows' fluctuations throughout this period. FDI as a percentage of GDP averaged around 4% over the period, with a low of 0.06% in 2020 and a peak of 8.8% in 2022. In 2019, FDI constituted about 6.4% of the country's GDP.

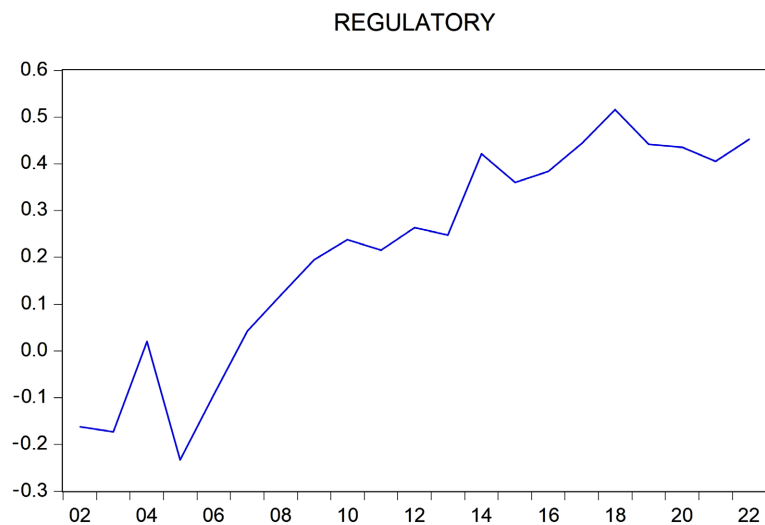


Source: Based on authors' calculations.

**Figure 1.** Foreign direct investments in North Macedonia, BoP net inflows, in million US\$.

Over the past 20 years, North Macedonia has made notable strides in improving

its regulatory environment and fostering private sector development, though overall regulatory quality remains modest. **Figure 2** presents how the Regulatory Quality Index has evolved during the observed period. The most significant progress occurred between 2005 and 2013, with the regulatory quality index increasing from  $-0.23$  to  $0.25$ . A substantial rise was observed in 2014, pushing the index above  $0.4$ , but subsequent years saw a period of stagnation. In comparison, leading countries in regulatory quality in 2022 include Singapore (2.21), Australia (1.89), New Zealand (1.87), and Denmark (1.84). The global average is around 0, while North Macedonia is ranked 65th out of 205 countries. Regionally, Montenegro (0.54), Croatia (0.5), and Greece (0.46) have better rankings, whereas Bulgaria (0.32), Albania (0.16), and Serbia (0.14) rank lower.



Source: Based on authors' calculations.

**Figure 2.** Regulatory quality index for the republic of North Macedonia.

To assess macroeconomic stability in North Macedonia, this study considers the economic growth rate (GDP growth), price stability (inflation rate), and fiscal policy (budget balance). Over the observed period, the average GDP growth rate is approximately 2.75%, with higher rates of 4.67% to 6.47% from 2004 to 2008 and negative growth in 2009 ( $-0.36\%$ ), 2012 ( $-0.46\%$ ), and 2020 ( $-6.11\%$ ). Price stability is generally moderate, with an average inflation rate of around 2.34%. Notable spikes in inflation occurred in 2008 (8.33%) due to the global financial crisis, and in 2022 (14.2%) due to the COVID-19 pandemic and global conflicts disrupting supply chains.

The size of the economy, measured by final consumption expenditures, shows significant growth from \$3.9 billion in 2002 to \$11 billion in 2021, although the percentage of GDP dedicated to final consumption has decreased from 98% in 2002 to 86% in 2022. Neighboring countries have higher consumption expenditures, with Greece at \$193 billion, Bulgaria \$69 billion, Serbia \$54 billion, Albania \$16 billion, and Kosovo \$9 billion. North Macedonia's fiscal policy has been

expansionary since 2008, resulting in a persistent budget deficit. The average deficit is around  $-2.7\%$  of GDP, increasing to  $-6\%$  in recent years. Persistent budget deficits can potentially crowd out private investments, affecting the attractiveness of the country for foreign investors. North Macedonia's openness to trade, assessed through the current account balance (CAB), averages around  $-3.8\%$  of GDP, indicating a net borrowing position. The CAB deficit peaked at \$1.2 billion (12.5% of GDP) in 2008 and was a small surplus in 2018. In 2022, the CAB deficit was \$865 million, or approximately 6.4% of GDP.

Labor market conditions show improvement from the mid-'90s when unemployment was above 30%. Since 2005, unemployment has steadily decreased to around 15% in 2022. **Table 4** provides detailed data, while **Figure 3** illustrates the dynamics of these variables over time.

### 5.1. Correlation Analysis

The correlation analysis presented in **Table 5**, reveals that while FDI in North Macedonia exhibits a positive relationship with most independent variables, unemployment and the current account balance are exceptions. At a 5% significance level, significant correlations are observed with GDP growth rate, inflation rate, and final consumption expenditures. The linear relationships between these variables are illustrated in **Figure 4**.

### 5.2. Model Estimation

The regression model estimation reveals that the model is statistically significant, with an F-statistic of 24.6 ( $p < 0.05$ ), and it meets the assumptions of the classical linear regression model. The adjusted  $R^2$  is 0.9, indicating that the model explains approximately 90% of the variation in FDI net inflows. The model is well-specified with a correct functional form (RESET test statistic of 3.19,  $p > 0.05$ ). Although the Durbin-Watson statistic and the Breusch-Godfrey test suggest potential negative serial correlation, the use of robust standard errors mitigates this issue. The residuals follow a normal distribution (Jarque-Berra test statistic of 5.25,  $p > 0.05$ ) and show no evidence of heteroskedasticity (White test statistic of 1.99,  $p > 0.05$ ). **Table 6** summarizes the diagnostic tests conducted.

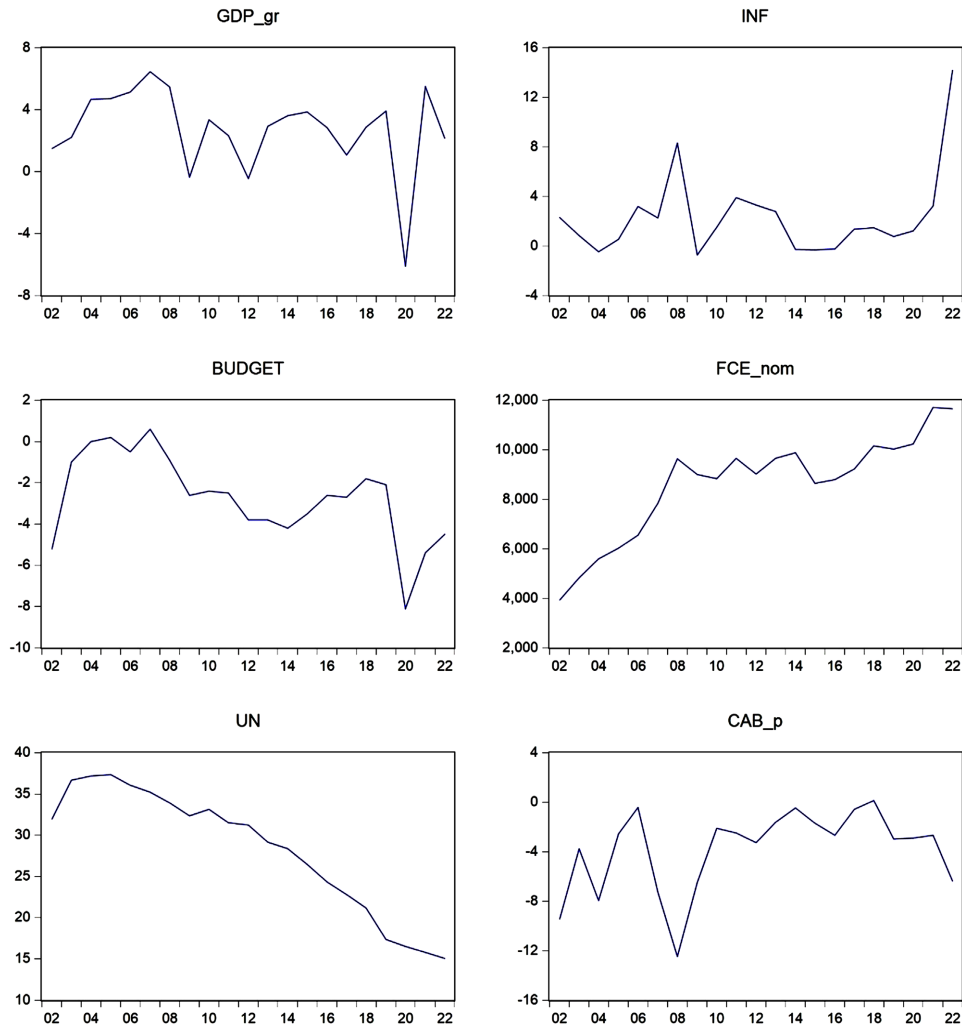
**Table 4.** Descriptive statistics of the variables used in the analysis.

Indicator	FDI_NOM	REGULATORY	GDP_GR	INF	BUDGET	FCE_NOM	UN	CAB_P
Mean	397	0.22	2.75	2.34	-2.70	8615	28.26	-3.81
Median	381	0.25	2.93	1.46	-2.60	9018	31.20	-2.68
Maximum	870	0.52	6.47	14.20	0.60	11,704	37.32	0.14
Minimum	8	-0.23	-6.11	-0.74	-8.10	3942	15.08	-12.47
Std. Dev.	238	0.23	2.73	3.40	2.12	2099	7.52	3.30
Skewness	0.17	-0.60	-1.61	2.30	-0.54	-0.75	-0.53	-1.10

Continued

<b>Kurtosis</b>	2.16	2.07	6.33	8.40	3.22	2.78	1.93	3.46
<b>Jarque-Bera</b>	0.72	2.00	18.74	44.09	1.08	2.02	1.99	4.39
<b>Probability</b>	0.70	0.37	0.00	0.00	0.58	0.36	0.37	0.11

Source: Authors' computation, 2024.



Source: Based on authors' calculations.

Figure 3. Line charts of the other independent variables.

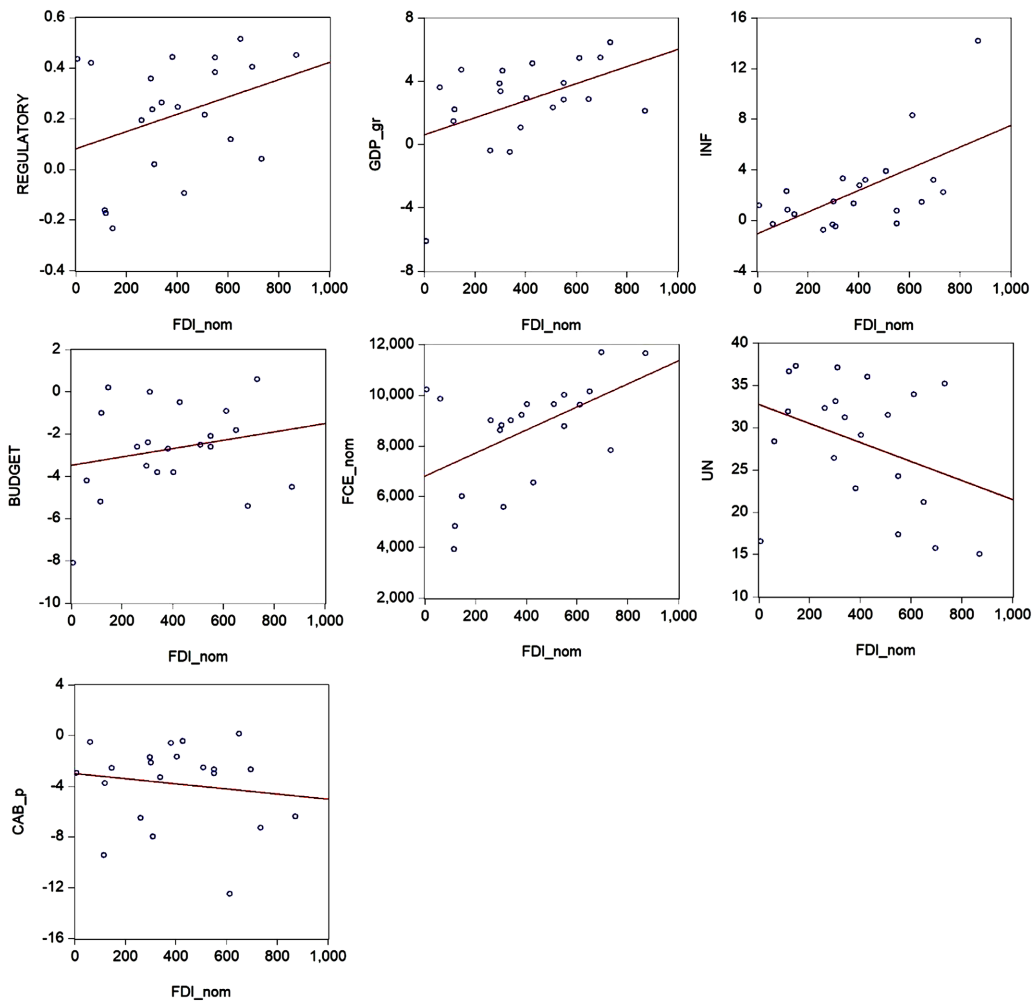
Table 5. Correlation coefficients.

Correlation/Probability	FDI_NOM	REGULATORY	GDP_GR	INF	BUDGET	FCE_NOM	UN	CAB_P
<b>REGULATORY</b>	0.35	1						
	0.1238	–						
<b>GDP_GR</b>	0.47	–0.28	1					
	0.0321	0.2184	–					

Continued

INF	0.60	0.11	0.08	1				
	0.0042	0.6345	0.7293	–				
BUDGET	0.22	–0.52	0.68	–0.13	1			
	0.3360	0.0154	0.0007	0.5862	–			
FCE_NOM	0.51	0.87	–0.14	0.37	–0.44	1		
	0.0169	0.0000	0.5369	0.0950	0.0465	–		
UN	–0.36	–0.83	0.33	–0.26	0.67	–0.74	1	
	0.1139	0.0000	0.1428	0.2560	0.0010	0.0001	–	
CAB_P	–0.15	0.39	–0.12	–0.38	–0.15	0.26	–0.28	1
	0.5293	0.0822	0.6134	0.0920	0.5138	0.2540	0.2137	–

Source: Authors' computation, 2024.



Source: Based on authors' calculations.

Figure 4. Scatter plots, FDI against the independent variables in the model.

**Table 6.** Model 1 diagnostics.

Test	Statistics	Prob.
R-squared	0.94	n/a
Adjusted R-squared	0.90	n/a
Durbin-Watson stat.	2.46	n/a
F-statistic	24.61	0.0000
Breusch-Godfrey (1 lag)	2.96	0.0852
Breusch-Godfrey (2 lags)	3.61	0.1649
White	1.99	0.9813
Jarque-Berra	5.25	0.0724
Ramsey's RESET	3.16	0.1031

Source: Authors' computation, 2024.

**Table 7** shows clearly that the model is affected by multicollinearity, as indicated by the Variance Inflation Factors (VIF), with values exceeding 10 for inflation rate, budget balance, and current account balance. In econometrics, a VIF greater than 5 is problematic, and values above 10 suggest severe multicollinearity, which can lead to unreliable coefficient estimates. This high correlation, particularly between the budget deficit and current account balance, aligns with the "Twin Deficit Hypothesis", which highlights the connection between internal and external imbalances (Panousis & Koukouritakis, 2020; Yovchev et al., 2024). Additionally, these imbalances are known to influence the inflation rate, explaining the observed high correlations among these variables (Aragaw, 2024).

**Table 7.** Model 1 variance inflation factors.

Variable	VIF
D (REGULATORY)	1.6
GDP_GR	4.5
INF	10.4
BUDGET	14.8
DLOG (FCE_NOM)	3.1
D (UN)	2.3
CAB_P	17.5
DUM	3.5

Source: Authors' computation, 2024.

The estimated model indicates that the budget balance, final consumption

expenditure, and current account balance are statistically insignificant, with  $p$ -values exceeding 0.05. This is corroborated by the Wald test, which has a statistic of 1.6 and a  $p$ -value of 0.24, failing to reject the null hypothesis of their joint insignificance.<sup>1</sup> Consequently, these variables may be excluded from the model to avoid losing valuable degrees of freedom and to refine the analysis, particularly given the limited sample size (**Table 8**).

**Table 8.** Model 2 estimated coefficients.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.2879	0.3241	16.3170	0.0000
D (REGULATORY)	2.5904	0.5986	4.3275	0.0010
GDP_GR	0.1282	0.0375	3.4181	0.0051
INF	0.0779	0.0225	3.4626	0.0047

The dependent variable is FDI, and the model, a restricted version of Equation 2, shows a strong fit with an adjusted R-squared of 0.9. The F-stat. (35.46,  $p < 0.05$ ) confirms statistical significance. All CLRM assumptions are met, with no serial correlation (Durbin-Watson, Breusch-Godfrey), homoscedasticity (White test: 0.74,  $p \approx 1$ ), and normally distributed residuals (Jarque-Bera: 1.5).

Following the exclusion of the budget balance, final consumption expenditure, and current account balance, the model was re-estimated with the results reported in **Table 9**. The updated model retains an adjusted R-squared of 0.9, reflecting a well-fitted model. The F-statistic is 35.46 with a  $p$ -value less than 0.05, confirming the model's overall statistical significance. The model adheres to all OLS assumptions. The correlogram of the residuals, Durbin-Watson statistics, and Breusch-Godfrey test indicate no serial correlation. Residuals are homoscedastic, as evidenced by a White test statistic of 0.74 with a  $p$ -value close to 1, and they follow a normal distribution, supported by a Jarque-Berra statistic of 1.5. **Figures 5-7** present the estimated residuals, the correlogram of the residuals, and the histogram of estimated residuals, respectively.

**Table 9.** Model 2 diagnostics.

Test	Statistics	Prob.
R-squared	0.92	n/a
Adjusted R-squared	0.90	n/a
Durbin-Watson stat	1.98	n/a
F-statistic	35.46	0.0000

<sup>1</sup>The Wald test tests the null hypothesis that all coefficients are equal to 0, against the alternative that at least one coefficient is different from 0. The test follows the F distribution, whereby the critical value has  $k-1$  and  $n-k$  degrees of freedom ( $df.1 = 3$  and  $df.2 = 12$  in this case).

Continued

Breusch-Godfrey (1 lag)	0.26	0.6094
Breusch-Godfrey (2 lags)	4.83	0.0895
White	0.74	0.9806
Jarque-Berra	1.50	0.4731
RESET	3.12	0.0990

Source: Authors' computation, 2024.

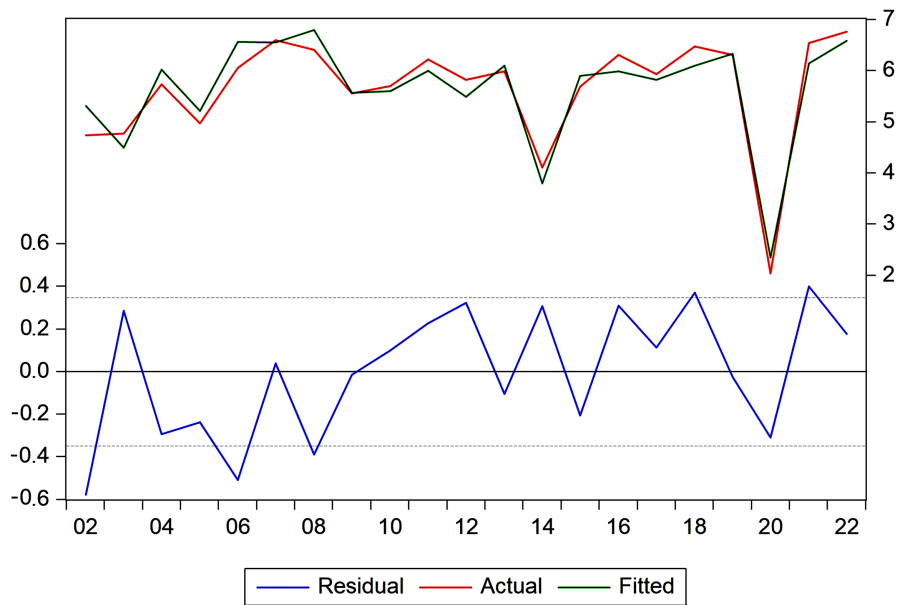
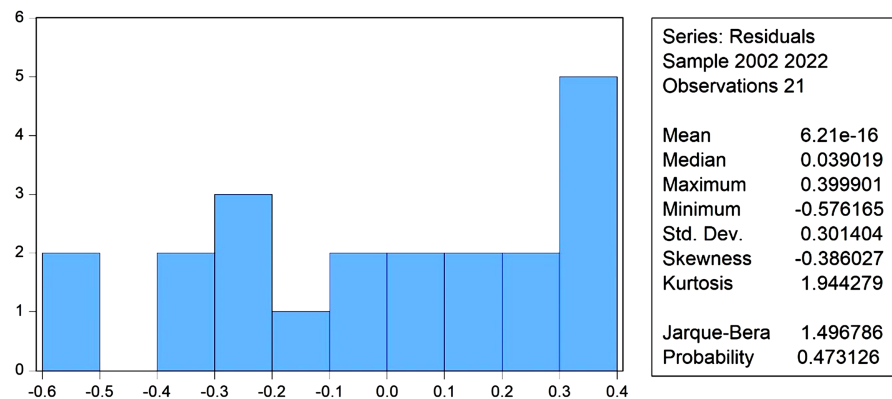


Figure 5. Estimated residuals, actual and fitted values, Model 2.

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 Sample: 2002 2022  
 Included observations: 21

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
█	█	1	-0.090	-0.090	0.1963	0.658
█	█	2	0.293	0.287	2.3715	0.306
█	█	3	0.006	0.055	2.3723	0.499
█	█	4	0.254	0.192	4.2038	0.379
█	█	5	0.016	0.039	4.2112	0.519
█	█	6	-0.051	-0.186	4.2946	0.637
█	█	7	0.131	0.095	4.8908	0.673
█	█	8	-0.223	-0.238	6.7369	0.565
█	█	9	0.014	-0.094	6.7445	0.664
█	█	10	-0.240	-0.114	9.2803	0.506
█	█	11	0.102	0.068	9.7863	0.550
█	█	12	-0.226	-0.034	12.538	0.404

Figure 6. Correlogram of the residuals in Model 2.



**Figure 7.** Histogram of the estimated residuals in Model 2.

Regarding the multicollinearity issue in Model 1, the estimated Variance Inflation Factors (VIF) in Model 2 indicate that the restrictions addressed in Model 1 resolved the problem. In Model 2, presented in **Table 10**, all VIF values are around 1, signifying low correlation among the independent variables and ensuring stable and robust estimated coefficients. Based on the conducted diagnostic tests, Model 2 is a reliable basis for hypotheses testing and deriving conclusions.

**Table 10.** Model 2 variance inflation factors.

Variable	VIF
D (REGULATORY)	1.1
GDP_GR	1.2
INF	1.2
D (UN)	1.1
DUM	1.1

Source: Authors' computation, 2024.

Regarding the estimated coefficients, all are statistically significant, even at a 0.01 significance level, underscoring their strong relevance. The coefficients also have the expected signs, aligning with economic literature and providing theoretical grounding for the model.

The estimated slope coefficient of the regulatory quality index is 2.11. Given that FDI net inflows are in logarithmic terms, this coefficient must be multiplied by 100 for interpretation. This adjustment reflects the relative change in the dependent variable for a unit increase in the independent variable, with all other factors held constant. Since the regulatory quality index is differentiated in the model, it alters the interpretation from levels to growth terms. Consequently, the regulatory quality index has a statistically significant and positive impact on FDI. The coefficient's  $t$ -statistic is approximately 3.73, with a  $p$ -value of 0.002, confirming the acceptance of Hypothesis 1: Regulatory quality positively impacts FDI net inflows.

Regarding Hypothesis 2, the model supports the idea that macroeconomic policy and stability are key determinants of FDI. Specifically, the coefficient for the GDP growth rate indicates that a 1 percentage point increase in growth would lead to an average 12.13% increase in FDI net inflows, holding other factors constant. With 95% confidence, this effect ranges between a 5% and 19% increase. The coefficient's *t*-statistic is 3.5, with a *p*-value of 0.003, validating Hypothesis 2, which asserts that macroeconomic policy and stability positively influence FDI net inflows.

Additionally, the estimated coefficient for the inflation rate is 0.0639, suggesting that a 1 percentage point increase in inflation would result in a 6.4% increase in FDI net inflows, with all other factors held constant. The 95% confidence interval for this coefficient ranges from 2.35% to 10.44%. This finding supports inflation targeting as a monetary policy, which aims to control price levels to foster economic stability and growth. The coefficient's *t*-statistic is around 3.4, with a *p*-value of 0.004, further confirming the acceptance of Hypothesis 2.

Regarding Hypothesis 3, the results show partial acceptance. The unemployment rate, a proxy for the labor market, is statistically significant, whereas final consumption expenditure (related to the economy size) and the current account balance (related to the openness of the economy) are not. The coefficient for the unemployment rate is  $-0.2071$ . Since this variable is transformed using the first difference, it changes from levels to growth terms. The negative impact of the unemployment rate indicates that a decrease in unemployment positively affects FDI net inflows. The coefficient's *t*-statistic is approximately  $-8.3$ , with a *p*-value of 0, leading to the acceptance of Hypothesis 3 only for the labor market component. All results are shown in **Table 11**.

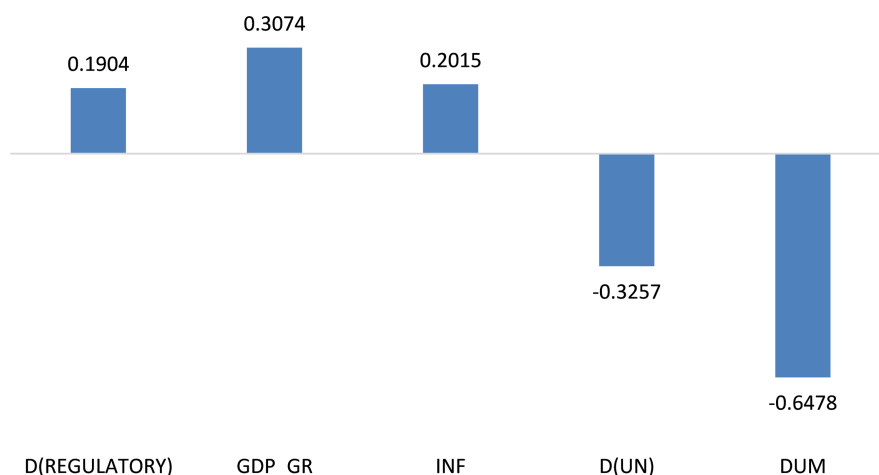
**Table 11.** Model 2 estimated coefficients.

Variable	Coefficient	Std. Error	t-Statistic	Prob.	95% CI Low	95% CI High	Std. coeff.
C	5.1767	0.1279	40.4605	0.0000	4.9040	5.4494	NA
D (REGULATORY)	2.1101	0.5651	3.7341	0.0020	0.9056	3.3145	0.1904
GDP_GR	0.1213	0.0342	3.5472	0.0029	0.0484	0.1942	0.3074
INF	0.0639	0.0190	3.3662	0.0042	0.0235	0.1044	0.2015
D (UN)	$-0.2071$	0.0251	$-8.2595$	0.0000	$-0.2606$	$-0.1537$	$-0.3257$
DUM	$-2.3241$	0.2841	$-8.1808$	0.0000	$-2.9296$	$-1.7185$	$-0.6478$

Source: Authors' computation, 2024.

In terms of the relative impact of the independent variables on FDI net inflows in Model 2, the standardized coefficients reveal the following as presented in **Figure 8**. The control dummy variable, which accounts for sudden drops in FDI net inflows in 2014 and 2020, has the strongest impact with a standardized coefficient of  $-0.65$ . Since this variable is included primarily for control purposes and not for explanatory analysis, it will not be further discussed. Among the independent variables, the

unemployment rate and GDP growth rate have the strongest yet moderate impact on FDI net inflows, with standardized coefficients slightly over 0.3. This indicates that these factors are key determinants of FDI, each significantly influencing the variations in FDI net inflows. The inflation rate and regulatory quality have a lower impact relative to the unemployment rate and GDP growth rate, with standardized coefficients around 0.2. Although their impacts are less pronounced, they still contribute to explaining the variations in FDI net inflows. This analysis highlights the relative importance of each variable in influencing FDI, with a clear hierarchy of their effects.



**Figure 8.** Standardized coefficients.

## 6. Discussion of Methodology and Findings

To investigate the impact of regulatory quality on foreign direct investment (FDI) in North Macedonia, a regression model was estimated using the OLS method. The dependent variable in this model was FDI net inflows, while the regulatory quality index served as the key independent variable. To ensure robustness and address potential omitted variable bias, the model also incorporated additional independent variables covering macroeconomic policy and stability, economy size, labor market conditions, and openness to international trade. The analysis was conducted using yearly data from 2002 to 2022, sourced primarily from the World Bank.

The methodology followed a rigorous approach, encompassing data identification, model estimation, diagnostics, and hypothesis testing. Initially, variables were tested for unit roots using the Augmented Dickey-Fuller test, revealing a mix of  $I(0)$  and  $I(1)$  variables. The  $I(1)$  variables were transformed using first differences before the estimation of the model. Nominal variables, such as FDI net inflows and final consumption expenditure, were also transformed using natural logarithms to rescale measurement units and reduce model variance.

Diagnostic tests were conducted to assess model specification, serial correlation, heteroskedasticity, normal distribution, and multicollinearity. This process

led to the exclusion of some initial variables, resulting in a final model with the regulatory quality index, GDP growth rate, inflation rate, and unemployment rate as independent variables. A dummy variable was also included to account for unexpected drops in FDI in 2014 and 2020, which could not be captured by other variables.

The findings of the study indicate that the first two hypotheses can be accepted, while the third hypothesis can be partially accepted. Specifically:

**1) Regulatory Quality:** The coefficient for the regulatory quality index was positive and statistically significant, suggesting that improvements in regulatory quality would lead to increased FDI net inflows.

**2) Macroeconomic Factors:** The results show a positive relationship between GDP growth rate and inflation rate with FDI net inflows. A one percentage point increase in GDP growth could lead to an approximate 12% increase in FDI, while a one percentage point increase in inflation could result in a nearly 6.5% increase in FDI. These findings imply that enhancing economic growth could significantly attract foreign investors, and a shift towards inflation-targeting in monetary policy might also be beneficial for promoting investment-driven economic growth. However, this area requires further investigation.

**3) Labor Market:** The model indicated that a decrease in the unemployment rate would positively impact FDI inflows, suggesting that improvements in the labor market could attract more foreign investments.

While the unemployment rate and GDP growth rate have a relatively stronger impact on FDI inflows compared to the inflation rate and regulatory quality, all factors exhibit a modest influence, with standardized coefficients between 0.2 and 0.3. This highlights that while these variables are important, their effects on FDI inflows are not overwhelmingly dominant.

## 7. Conclusion

This study provides empirical evidence on the crucial role that regulatory quality and macroeconomic stability play in attracting foreign direct investment (FDI) to North Macedonia. The findings highlight those improvements in regulatory frameworks, such as reducing bureaucratic inefficiencies and enhancing transparency, are vital for increasing investor confidence. Additionally, sound macroeconomic policies, particularly those promoting stable economic growth and a favorable inflation rate, contribute significantly to sustaining FDI inflows.

Our results align with existing literature, confirming that regulatory quality remains a key determinant of FDI inflows, especially in emerging markets. For North Macedonia, specific policy improvements in institutional quality can drive substantial investment-led growth. Moreover, the positive relationship between economic growth, a skilled labor force, and FDI inflows underscores the importance of policies aimed at boosting employment and human capital development.

Policymakers in North Macedonia can take actionable steps based on these findings by focusing on regulatory reforms, maintaining macroeconomic stability,

and ensuring predictable inflation rates. By creating a more transparent and efficient regulatory environment, along with policies that stimulate economic expansion, North Macedonia can strengthen its position as an attractive destination for foreign investors. Reforms aimed at reducing unemployment and improving workforce skills will further bolster FDI inflows, as investors are drawn to markets with a capable and available labor force.

The broader implications of this study suggest that other emerging economies can benefit from similar strategies. By improving regulatory quality and ensuring macroeconomic stability, countries can enhance their appeal to foreign investors, thereby driving sustainable economic growth and development.

Despite these insights, the study acknowledges certain limitations. The reliance on secondary data and the focus on North Macedonia may limit the generalizability of the findings to other contexts. Additionally, the use of annual data could overlook short-term fluctuations, and future research could benefit from using higher-frequency data to capture these dynamics. Moreover, expanding the geographical scope to include comparative analyses with other countries in the region would provide further insights into how regulatory and macroeconomic factors influence FDI across different contexts.

Further research is also encouraged to investigate the impact of sector-specific regulations on FDI and assess the effectiveness of policy interventions aimed at improving regulatory quality. Such studies would not only enhance the understanding of FDI determinants but also offer more practical guidance for policymakers striving to attract foreign investment.

In conclusion, this study reinforces the importance of regulatory quality and macroeconomic stability in attracting FDI to North Macedonia. By addressing these key areas, policymakers can enhance the country's investment climate, drive long-term economic growth, and ensure that North Macedonia remains competitive in the global market.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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