FDI inflows and economic growth in north African countries: Do institutional quality and financial development matter?

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ABSTRACT

Our study enhances the existing literature regarding the relationship between foreign direct investment (FDI) and economic growth. Our objective is to identify the main transmission mechanisms through which FDI flows can stimulate economic growth in North African countries. An analysis of four North African countries (Tunisia, Algeria, Morocco, and Egypt) from 2000 to 2022 clearly shows that FDI flows are positively related to economic growth, and this relationship improves when these countries have strong institutions and a better financial system. We obtained the results using the Generalized Method of Moments Estimation (System GMM). Our main findings indicate that the quality of institutions and a well-developed financial system are key factors in attracting foreign direct investment (FDI). Therefore, the successful implementation of the rule of law attracts foreign investment, promoting economic growth. Elevated levels of corruption diminish the beneficial impact of FDI on economic growth in these nations. To attract foreign investment, these countries need a robust system with low corruption, a functioning legal system, and fewer bureaucratic obstacles. The results of this study have significant implications for policymakers. Our study provides recommendations for policymakers in North African nations based on the obtained results.

Contribution/ Originality: This research is one of the few studies that have examined the significance of institutional quality and financial development in attracting FDI to North African nations. There appears to be no direct association between economic growth and FDI in these countries. Instead, it relies on a sophisticated financial system and a resilient institutional structure.

1. INTRODUCTION

The direct correlation between foreign direct investment (FDI) and economic growth has been extensively studied recently, both theoretically and empirically, although the main transmission channels that determine the nature and intensity of this relationship have not been clearly identified. FDI inflows stimulate economic growth by providing funds, technology, and managerial expertise. Good-quality institutions, including strengthening the rule of law and good governance frameworks, are critical for attracting FDI. Strong institutions offer a stable and predictable environment for investors (Bhujabal, Sethi, & Padhan, 2024).

The rise in exchange due to economic globalization has augmented cross-border capital flows, making foreign capital inflows crucial for the economic growth of developing countries. These capital movements generate financial resources, as well as technology transfers, management skills, and market opportunities. Nevertheless, these capital flows do not always have the same effect on growth, and for the recipient countries to benefit from them, they need

to have strong institutions (Dorożyński, Dobrowolska, & Kuna-Marszałek, 2020). And a well-developed financial system (Ibrahim, Adam, & Sare, 2019) in the recipient country.

A limited number of research studies have highlighted the fact that the relationship between FDI and economic growth is conditioned by various other factors linked to the host country's absorption capacity. These factors include how developed the economy is Blomstrom, Lipsey, and Zejan (1992) how advanced the financial system is Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) and Hermes and Lensink (2003), the human capital (Borensztein, De Gregorio, & Lee, 1998). The stability of the economy and liberal markets (Bengoa & Sanchez-Robles, 2003). The trade liberalization (Balasubramanyam, Salisu, & Sapsford, 1996). The difference in technology between the host and home countries (Havranek & Irsova, 2011). And joint ownership of the company involved in FDI (Javorcik, 2004).

The main transmission channels that explain the type and intensity of the relationship between FDI and economic growth have not received much attention in recent research. Our study focuses on two transmission factors through which the positive effect of FDI on economic growth occurs, namely financial development and institutional quality. According to Levine (1991) the efficiency of financial development allows savings to be allocated to profitable projects, thus alleviating constraints related to the external financing of firms and attracting more foreign investors. The inflow of FDI improves accessibility to capital and reduces transaction costs, thus stimulating economic growth through an increase in savings (Levine, 1997). Recent research indicates that financial development presupposes the building of a robust institutional framework to stimulate economic growth. Consequently, enhancing the quality of institutions increases the volume of FDI (Chodisetty & Reddy, 2019). Thereby facilitating access to financing and fostering local economic growth (Khan, Dong, Bibi, & Khan, 2024).

FDI, financial development, and the quality of institutions are catalysts for economic growth. It is therefore essential to adopt an approach that considers the interaction between these factors to foster economic growth. FDI brings three main benefits to host economies. Firstly, it stimulates growth, helps to reduce unemployment rates by bringing additional capital to the host nation, and boosts the economy (Adams & Klobodu, 2017). Secondly, FDI enhances the competitiveness of local companies by facilitating technology transfer, which improves their efficiency and contributes to the economic development of the destination country (Markusen & Venables, 1999). Finally, FDI facilitates the integration of host countries into the globalization process, promoting market expansion and stimulating economic diversification (Devarajan & Fengler, 2013). Nevertheless, most North African countries have drawn relatively little of this capital for two reasons. The first is that, for a long time, these countries opted for import-substitution strategies (Tunisia, Morocco) or industrial development (Algeria), resulting in low levels of international integration. A second aspect is that workers have endured hardship over a long period, in addition to the low overall productivity (Noorbakhsh, Paloni, & Youssef, 2001). Due to macroeconomic, political, and institutional instability (World Investment Report, 2020).

2. LITERATURE REVIEW

2.1. Institutional Quality, FDI and Economic Growth

The establishment of an institutional framework, including elements such as effective governance, regulation, the rule of law, and anticorruption initiatives, is important for attracting foreign investment. Good institutional quality can bolster investors' trust and mitigate investment risks (Hayat, 2019). FDI plays a primordial role in national economic development, while institutional quality, which includes political stability, regulatory frameworks, and the rule of law, is crucial for encouraging and sustaining foreign investment inflows (Luo & Wang, 2012). As a result, weak institutional quality, shown by high corruption levels, can increase transaction costs (Uhlenbruck, Rodriguez, Doh, & Eden, 2006), making foreign investors less likely to invest (Gastanaga, Nugent, & Pashamova, 1998). In addition, a study by Hayat (2019) found that countries with less robust institutions underperform those with more robust institutional frameworks. The study's findings highlight the need to examine the importance of political and institutional factors that influence FDI flows. The relationship between FDI, institutional quality, and

economic growth highlights the critical role of strong institutions in improving FDI to promote sustainable economic development. Guenichi and Omri (2024) assert that improving a robust institutional framework can mitigate the risks associated with fluctuating capital flows and ensure that foreign investment contributes positively to sustained economic growth.

Since the 1990s, diverse countries have introduced financial reform programs in response to the involvement of international financial institutions such as the World Bank and the International Monetary Fund (IMF). However, the impact of these reforms on the financial and economic spheres differs between countries, particularly during crises. The success of these reforms is not guaranteed. This finding necessitates an investigation into the reasons behind the disparate effectiveness of financial reform across different countries. Many studies suggest that successful financial reforms presuppose a robust institutional framework (Arestis, Demetriades, Fattouh, & Mouratidis, 2002). These reforms will fail to reverse the trend in economic activity unless they are paired with suitable institutional reforms (Baltagi, Demetriades, & Law, 2007).

In the late 1990s, the literature on economic development underwent a profound revitalization, highlighting the relevance of the institutional approach. Indeed, research conducted in the field of New Institutional Economics (NIE), notably that initiated by the precursor of this approach, North (1990), proved that the quality of institutions is the main determinant of long-term growth. Good quality of institutions is an incentive to attract and optimize FDI. On the one hand, strong institutions have the capacity to boost investor confidence, reduce investment risk, and foster a climate conducive to economic growth. On the other hand, weak institutions can lead to misallocation of resources, macroeconomic instability, and economic inefficiencies.

NIE study's findings indicate that institutional and political aspects are key elements of long-term macroeconomic performance. The NIE spans various theoretical fields, covering property rights, asymmetric information, and transaction costs (North, 1990). Most studies have indicated that the market does not function in isolation; it necessitates a clear institutional framework. The establishment of a robust institutional framework aims to guarantee market and government transparency, as well as enhance a country's competitiveness. Recent studies (Igan, Lauwers, & Puy, 2022; Li, Tanna, & Nissah, 2023). Have shown the significant role of institutions in the FDI-growth relationship. This robust institutional framework boosts the influence of FDI on economic growth while highlighting the conditions that optimize the benefits of these capital inflows.

We have concluded that to enhance our understanding of the mechanisms by which foreign investment and institutions interact to promote economic growth, an institutional framework that acts as a catalyst is necessary. Lucas (1993) suggests that in emerging economies, institutional factors, as compared to purely economic factors, play a significant role in attracting inward FDI. Consequently, the establishment of a vigorous institutional framework maximizes the benefits of foreign capital inflows in stimulating economic growth. This result thus highlights the need for policymakers to strengthen institutional structures to better promote investment and achieve sustainable development.

A good institutional framework is necessary to achieve ideal conditions that maximize the effects of FDI on economic development in emerging nations (Peres, Ameer, & Xu, 2018). Nxumalo and Makoni (2021) explain the processes via which foreign investment and institutions collaborate to foster economic development. Today, capital inflows are important to the economic success of emerging and developing economies, as demonstrated by the case of 12 emerging market economies from 2007 to 2017. These inflows can provide the necessary finance, facilitate technology transfers, and offer management expertise. The impact of these inflows on economic growth depends on the quality of the host country's institutions. In this context, Igan et al. (2022) have shown that foreign players' investment favors the improvement of domestic institutions' quality. In the case of 89 countries, the authors demonstrated that FDI via strong institutions better stimulates economic growth. However, this influence diminishes in countries characterized by initially very low institutional quality. In addition, Ahmed, Kousar, Pervaiz, and Shabbir (2022) looked at emerging markets and found that the influence of strong institutions on growth was greater.

2.2. Financial Development, FDI and Economic Growth

The development of the financial sector aims to increase access to external capital, reduce transaction costs, and provide diverse financing options for companies, thereby enhancing their attractiveness to international investors. Desbordes and Wei (2025) demonstrated the significant impact of financial developments in countries of origin and destination on FDI. The study's conclusions indicate that financial expansion facilitates the acquisition of external financing and energizes the manufacturing sector, resulting in an increase in foreign direct investments. Earlier research has shown that financial development and foreign direct investments (FDIs) influence each other, and having these FDIs can help boost local financial development (Nguyen & Lee, 2021). The capital inflows can improve local financial markets by stimulating capital mobilization and facilitating the introduction of new financial services and products (Pradhan, Arvin, Hall, & Bahmani, 2014). In the case of 30 developing Asian countries, Pham, Gan, and Hu (2022) showed a positive correlation between financial development and FDI inflows. FDI has become a major source of capital accumulation in both developed and developing countries since the 1980s. The World Investment Report (2019) indicates the average proportion of annual FDI flows in gross fixed capital accumulation was 9% in developed nations, 13% in transition nations, and 10% in developing nations between 2000 and 2017. An increase in these funds stimulates banking system development and ensures the stability of the regulatory framework. Such measures have the potential to increase investor confidence and stimulate international investments. These elements highlight the necessity of a robust financial sector to promote the attraction and benefits of FDI, which contribute to economic growth (Azman-Saini & Law, 2010).

Emphasizing the need for legal institutions in helping to explain differences in financial development between countries, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997) clarified the relationship between FDI, financial development, and economic growth. Therefore, individuals with savings are more inclined to invest their money in businesses, which in turn fosters the growth of financial markets in countries where the legal system protects property rights and investor rights and facilitates the termination of contracts between private actors. On the other hand, a financial system characterized by weak protection of property rights (Sinha, Saha, & Vasilev, 2024) and investor rights is likely to slow down the development of the financial sector (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000).

Additionally, the law and finance theory shows that the way countries protect investor rights, establish contracts, and develop their finances is influenced by the type of legal system they have (common law or civil law). In a similar context, Beck, Demirguc-Kunt, and Levine (2004) demonstrated that the rise of financial intermediaries is favored by a legal system that guarantees creditors the full recovery of their loans in case of default. Modigliani and Perotti (2000) based their analysis on the quality of the application of legal rules rather than on the nature of the law, unlike LLSV. These studies illustrate the superiority of Scandinavian civil law countries over Anglo-Saxon countries regarding the influence of law enforcement quality on financial development. Moreover, Hyytinen and Takalo (2002) observed that the evolution of financial markets leads to changes in investor protection, and not the other way around. The main conclusion of these critiques emphasizes that the level of investor protection is determined not only by the nature of the rights but also by the efficacy and quality of the enforcement of these legal rules[1].

Roe (2004) adopted the "ideological" approach to the political thesis, affirming that political decisions guiding investor protection and the quality of their implementation are driven by ideology. This approach aims to address the challenges arising from the liberalization of corporate capital and the goal of deepening markets by implementing policies and social structures within these companies.

The resolution of these problems is not limited to establishing a legal framework. However, it is essential to accompany legal reforms with political reforms to promote the flourishing of financial systems, increase the attraction of foreign direct investments, and stimulate economic growth.

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[1] They are measured by the "Law and Order" indicator in our empirical study.

2.3. Complementarity between Institutional Quality and Financial Development

Since the 1990s, in developing and emerging nations, particularly in North African countries, the establishment of good-quality institutions and financial sector development continue to pose significant barriers to progress. Although these two areas are crucial in explaining differences in economic growth between countries, specialists in institutional economics focus on the overall improvement of institutions. However, finance experts have concentrated solely on the financial determinants of development. It has been evident from the beginning that a strong correlation exists between financial development and institutions. Levine (1997) defines institutions as elements of a "third type" that provide an essential structure, rendering advancement in the financial system unattainable without them.

Previous analyses examined the importance of institutions and financial development, along with their interrelationships (Lim, 2014). Pistor, Raiser, and Gelfer (2000) in the case of transition countries, demonstrated the importance of institutional structure in the banking sector for promoting economic growth. However, several of these studies suffer from gaps arising from the use of various definitions for the concepts of "institution" and "financial development." The main reason for this dichotomy between institutional economics and financial development theories lies in the distinct research areas they represent. Financial development, characterized by the improvement of financial markets and institutions, promotes an efficient allocation of resources. A well-developed financial system has the capacity to attract more FDI by improving access to capital and reducing transaction costs.

North African countries lack the institutional capacity to supervise and regulate their financial sectors, as well as to collect the essential data necessary for an accurate assessment of the health of their financial institutions. Institutional deficiencies have evidently hindered financial development and, consequently, limited the attractiveness of FDI, which could have further boosted economic growth. Furthermore, a high level of institutional quality is essential for the efficient functioning of financial sectors and the success of investment projects. Dollar and Levin (2005) proved a positive and significant correlation between institutional quality and project success. Keefer and Knack (1997) demonstrated that the positive impact of FDI on economic growth requires high-quality institutions. Likewise, Contractor (2021) asserts that this relationship necessitates adequate financial development. Institutional quality and financial development are mutually dependent factors that significantly influence FDI. Financial development guarantees an effective distribution of resources, while a robust institutional framework cultivates a conducive investment environment. These two factors create a strong investment climate that fosters economic growth. Figure 1 illustrates the importance of institutional quality and financial development in attracting foreign direct investment to North African countries.
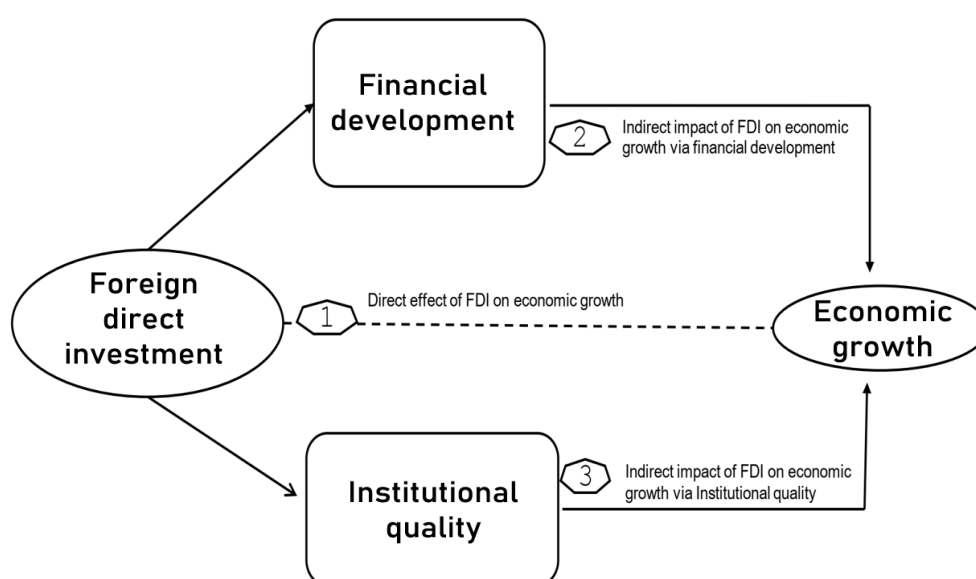

Figure 1. Conceptual and theoretical model.

3. METHODOLOGY

Our study used a balanced panel dataset encompassing four North countries over 23 years, from 2000 to 2022[2]. The selected time frame is based on data availability.

3.1. Empirical Model

The study investigates the influence of institutional quality and financial development on the relationship between foreign direct investment and economic growth. The study was conducted in four North African nations (Tunisia, Algeria, Morocco, and Egypt) from 2000 to 2022. The specified time frame is based on the availability of data for all the selected variables considered in the study. The World Investment Report (2020) provides the World Development Indicators (WDI) as the source of the data. Institutional indicators are obtained from the database of the Political Risk Services (PRS) Group as the annual variables of the International Country Risk Guide (ICRG), one of the products of the PRS Group. The appropriate model for achieving our research objective is an endogenous economic growth model.

$$y_{i,t} = \beta_0 y_{i,t-1} + \beta_1 FDI_{i,t} + \beta_2 FD_{i,t} + \beta_3 X_{i,t} + \mu_t + \varphi_i + \varepsilon_{i,t} \qquad (1)$$

Considering the growth rate as the dependent variable, Equation 1 can be reformulated as follows.

$$Growth_{i,t} = y_{i,t} - y_{i,t-1} = (\beta_0 - 1)y_{t-1} + \beta_1 FDI_{i,t} + \beta_2 FD_{i,t} + \beta_3 X_{i,t} + \mu_t + \varphi_i + \varepsilon_{i,t} \qquad (2)$$

In Equation 2, "i" refers to the country, the subscript "t" indicates the various periods, "y" corresponds to the logarithm of real GDP per capita, and "FDI" stands for foreign direct investment. Financial development is denoted by "FD", whereas "X" represents the matrix of control variables. In this context, μ_t represents a time-specific effect, φ_i is a country-specific unobserved fixed effect, and $\varepsilon_{i,t}$ indicates the error term. Equation 2 underpins our estimation. The convergence coefficient is denoted as $(\beta_0 - 1)$.

The identification of the transmission channels that elucidate the type and intensity of the relationship between FDI and economic growth remains ambiguous, both theoretically and empirically. Our study is one of the few that addresses this research gap by specifically tackling the issue at hand. Therefore, financial development (Aibai, Huang, Luo, & Peng, 2019) and institutional quality (Sabir, Rafique, & Abbas, 2019) are the primary mechanisms through which FDI inflows influence economic growth. Consequently, in Equation 2, we will add a new term that combines FDI and institutional quality (FDI x IQ)[3], as well as another term that combines FDI and financial development (FDI x FD)[4], to help explain things better, instead of just using the standard variable in the economic growth model[5].

$$Growth_{i,t} = (\beta_0 - 1)y_{t-1} + \beta_1 FDI_{i,t} + \beta_2 FD_{i,t} + \beta_3(FDI_{i,t} \times INS_{i,t}) + \beta_4(FDI_{i,t} \times FD_{i,t}) + \beta_5 X_{i,t} + \mu_t + \varphi_i + \varepsilon_{i,t} \qquad (3)$$

The effect of FDI on economic growth is analyzed by evaluating the coefficients β_3 and β_4, which quantify the significance of institutional quality and financial development, respectively. A positive and statistically significant β_3 coefficient may indicate that a robust institutional framework enhances the marginal effect of FDI on economic growth. If β_4 it is positive and statistically significant, an increase in financial development enhances the effect of FDI on economic growth. The findings suggest a complementary relationship between institutional quality and FDI, as well as between financial development and FDI.

3.2. Methodology

This study aims to analyze how financial development and the quality of institutions affect foreign direct investment (FDI) and, subsequently, economic growth in North African countries. Consequently, we employ the two-

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[3] Seen below in Table 2 by regressions (2), (3), and (4).

[4] Seen below in Table 2 by regression (5).

[5] Seen below in Table 2 by regression (1).

stage generalized method of moments (GMM) developed by Arellano and Bover (1995) and Blundell and Bond (1998) to estimate Equation 3. We chose this estimator for two main reasons. The first objective is to control for country-specific effects, a task that proves impossible using country-specific dummy variables because of the dynamic characteristics of the regression equation. We address a problem that arises when growth or other dependent variables influence some explanatory variables. We investigate this endogeneity by utilizing a GMM estimator in a two-stage system for dynamic panel data estimation.

The consistency of the GMM estimator depends on the appropriateness of the instruments used. Two specifications are evaluated. The first test is the Sargan-Hansen test for assessing over-identification restrictions. In the case of over-identification of an equation[6], it is possible to check whether the excluded instruments are indeed independent of the model's error term. A significant rejection of the null hypothesis of the Sargan-Hansen test, which posits that all instruments are uncorrelated with the error terms, undermines the validity of an estimate. The second step involves checking the second-order serial correlation (AR (2)). The Arellano and Bond (1991) test for a second-order autoregressive process aims to assess the absence of second-order serial correlation in the residuals, which serves as the null hypothesis. The null hypothesis may be rejected due to insufficient lags of the "AR" residuals or inadequate lagged instruments. The GMM estimator is considered consistent in the absence of second-order serial correlation in the first-difference residuals.

3.3. Data and Sources

The research is conducted in four North African countries from 2000 to 2022. The chosen time frame is based on the availability of data for all the selected variables considered in the study. The World Investment Report (2020) provides the World Development Indicators (WDI) as the source of the data. Institutional indicators are obtained from the database of the Political Risk Services (PRS) Group, which provides the annual variables of the International Country Risk Guide (ICRG), one of the products of the PRS Group.

3.3.1. The Dependent Variable

The dependent variable is economic growth, measured as the annual percentage growth rate of GDP at market prices, based on constant local currency. Aggregates are based on constant 2015 prices, expressed in U.S. dollars. The World Bank Development Indicators provide data collected from 2000 to 2022. A robust economy, as indicated by GDP, signifies an enhanced ability to fulfill financial obligations and cultivate a conducive environment for investment prospects (Khan, Khan, Abdulahi, Liaqat, & Shah, 2019; Valickova, Havranek, & Horvath, 2015).

3.3.2. The Independent Variables

Initial GDP per capita: This measure incorporates a five-year lag of the logarithm of real GDP per capita. The computed coefficient of this variable indicates the rate of conditional convergence (Barro, 2016).

Foreign direct investment (FDI): This variable denotes the net inflows of investment to acquire a lasting management interest in an enterprise operating within an economy separate from that of the investor. This series illustrates net inflows into the reporting economy from foreign investors, expressed as a ratio to GDP. FDI serves as an additional funding source for the banking sector and signifies international investors' confidence in the favorable conditions of the recipient country; hence, it positively influences credit dynamics (De Haas & Van Lelyveld, 2006). Financial development and the quality of institutions constitute the various outlets through which foreign direct investment significantly contributes to fostering economic development.

Financial development (FD): This variable represents domestic credit to the private sector by banks as a percentage of GDP. Financial resources are allocated to the private sector by other depository institutions, including loans,

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[6] When the number of instruments exceeds that of the endogenous regressors.

purchases of non-equity securities, trade credits, and other accounts receivable that create a repayment obligation. The availability of finance fosters investment, growth, innovation, and employment (Beck & Levine, 2004). Good-quality institutions and an effective legal framework profoundly influence trust in this context (North, 1990). These elements enable secure financial transactions, encouraging banks to increase their lending activities; therefore, this variable serves as an indicator of national financial development (Beck & Levine, 2002).

3.4. Institutional Variables

Good quality of institutions refers to a country's effectiveness in creating a stable, efficient, and predictable investment environment for foreign investors. A robust institutional environment attractive to foreign capital encompasses several dimensions, including the rule of law, property rights, and the ability to enforce contracts. High institutional quality is essential to reduce transaction costs, facilitate coordination, and promote economic development (Samadi & Alipourian, 2021).

Corruption (COR): This measure ranges from 0 to 6, reflecting the characteristics of the political regime. This corruption poses a threat to foreign investment for several reasons: it distorts the economic and financial framework; it reduces the efficacy of government and business by allowing people to attain power through patronage rather than merit; and, importantly, it instills instability within the political process (Bouchoucha & Yahyaoui, 2019; Yahyaoui, 2024).

Law and Order (LO): This measure ranges from 0 to 6, indicating the robustness and neutrality of the legal system (Law) and the degree to which individuals adhere to societal norms (Order). The law subcomponent evaluates the independence, efficiency, and fairness of the judicial system. The order subcomponent examines the general observance of laws and the incidence of criminal activity. The Law-and-Order rankings range from 0 to 6, with higher scores indicating improved conditions. A score of 6 suggests a robust legal system and high compliance with laws, whereas a lower score indicates deficiencies in these legal systems (Mongi & Saidi, 2024).

Bureaucratic Quality (BQ): This measure ranges from 0 to 4 and reflects institutional adherence. Bureaucratic quality assigns a high score to countries whose bureaucracies demonstrate the capability and proficiency to govern consistently, without drastic policy changes or interruptions in government services, and that have well-established mechanisms for recruitment and training.

The scale provided by the International Country Risk Guide (ICRG) measures bureaucratic quality (BQ) by examining the institutional strength and quality of a country's bureaucracy across four aspects: institutional strength, autonomy from political pressure, expertise and governance, and recruitment and training. The robustness and caliber of the bureaucracy serve as additional buffers that often mitigate policy changes during government transitions. Consequently, high scores indicate the capacity and proficiency to administer government services without significant policy alterations.

All institutional indicators are derived from the database of the Political Risk Services (PRS) group, as are the annual variables of the International Country Risk Guide (ICRG), one of the PRS group's products. The "corruption" and "Law and Order" variables range from 0 to 6, while bureaucratic quality ranges from 0 to 4. Generally, higher values indicate improved scores, less corruption, a more efficient legal system, and better bureaucracy, respectively.

3.5. Control Variables

Inflation: Based on the consumer price index, it shows the annual percentage change in the cost to the average consumer of obtaining a basket of products and services that could be fixed or altered at designated periods, such as yearly. Excessive inflation has been shown to negatively impact economic growth (Elder, 2004; Paul, Kearney, & Chowdhury, 1997). A negative coefficient is expected.

Trade openness: This variable indicates the extent of economic integration with international markets. Neoclassical growth models suggest that trade openness and economic growth remain unproven. Although openness generally

promotes economic growth, it can also negatively affect it Yanikkaya (2003). Therefore, we expect a positive coefficient if openness to international trade fosters economic growth. In this study, we have chosen the most straightforward and widely recognized definition: the total of exports and imports expressed as a percentage of GDP (Nam & Ryu, 2024).

Table 1 presents the principal variables and their respective sources used in this study.

Table 1. Variables descriptions.

Variables	Symbols	Measurement	Data sources	Theoretical basis	
Dependent variable					
Economic growth	GDPGR	GDP growth (Annual%)	WDI	Rao, Sethi, Dash, and Bhujabal (2023); Sghaier (2022); Alvarado, Iñiguez, and Ponce (2017); Valickova et al. (2015) and Alfaro et al. (2004)	
Independent variables					
Variables	Symbols	Measurement	Data sources	Expected signal	Theoretical basis
Initial GDP per capita	LAG-RGDP	GDP per capita, PPP (Constant 2021 international $)	WDI	-	(Barro, 2016)
Foreign direct investment	FDI	Foreign direct investment, net inflows (% of GDP)	WDI	+	Bajaj and Bhooshetty (2024); Nazzal, Sánchez-Rebull, and Niñerola (2023); Saha, Sadekin, and Saha (2022); Alvarado et al. (2017); Alfaro et al. (2004) and Noorbakhsh et al. (2001)
Financial development	FD	Domestic credit to private sector by banks (% of GDP)	WDI & Index Mundi	+	Khan (2007); Beck et al. (2004) and Beck and Levine (2002)
Trade openness	TRO	Trade (% of GDP)	WDI	+	Nam and Ryu (2024)
Inflation	INF	Inflation, consumer prices (Annual%)	WDI	-	Nguyen (2022); Elder (2004) and Paul et al. (1997)
Corruption	COR	Corruption This measure ranges from 0 to 6.	ICRG datasets	-	Samadi and Alipourian (2021) and Brouthers, Gao, and McNicol (2008)
Law and order	LO	Law and order This measure ranges from 0 to 6.	ICRG datasets	+	Bhujabal et al. (2024); Samadi and Alipourian (2021); Sabir et al. (2019) and Siddica and Angkur (2017)
Bureaucratic quality	BQ	Bureaucratic quality This measure ranges from 0 to 4.	ICRG datasets	+	Khan et al. (2024); Samadi and Alipourian (2021) and Siddica and Angkur (2017)

4. RESULTS DISCUSSIONS AND IMPLICATIONS

Our empirical investigation, using panel data analysis with the GMM system method, covers a sample of four North African countries (Tunisia, Algeria, Morocco, and Egypt) from 2000 to 2022. Table 2 summarizes the results, providing an overview of the estimates for five regressions. The first regression (R1) reveals the direct effect of FDI on economic growth. Three regression models (R1, R2, and R3) have been constructed to analyze the indirect effect of FDI on economic growth, considering the quality of institutions. Each regression model incorporates an institutional variable that interacts with the FDI variable. The objective of the fifth regression (R5) is to examine the indirect effect of FDI on economic growth, with an emphasis on financial development.

Table 2. Direct and indirect impacts of FDI on economic growth.

Dependent variable: Real GDP per capita growth					
	(R1)	**(R2)**	**(R3)**	**(R4)**	**(R5)**
Constant	2.61 (4.225)***	4.33 (4.11)***	5.01 (4.86)***	4.56 (5.44)***	4.17 (4.28)***
LAG-RGDP	−0.060 (0.156)	−0.013 (−0.76)	−0.024 (0.88)	−0.101 (−0.424)	−0.066 (−0.224)
INF	−0.332 (−2.014)**	−0.713 (−3.006)***	−0.125 (−2.011)**	−0.87 (−2.442)***	−0.119 (−2.301)***
TRO	0.322 (2.214)**	0.522 (3.006)***	0.167 (2.013)**	0.122 (2.211)***	0.113 (2.184)**
FDI	0.014 (2.110)**				
FDI×COR		−0.012 (−1.797)*			
FDI ×LO			0.092 (5.824)***		
FDI ×BQ				0.066 (4.143)***	
FDI ×FD					0.052 (3.022)***
Test Sargan (p-value)	0.331	0.312	0.264	0.451	0.438
P-value -AR (1)	0.052	0.062	0.021	0.013	0.022
P-value-AR (2)	0.444	0.633	0.351	0.602	0.384
Hansen J: p-value	0.248	0.376	0.361	0.614	0.368

Note: P-Value *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.
The first line gives the coefficients, while the following line displays the t-student values.
In all regressions, the Sargan-Hansen test findings from the GMM system demonstrate that the lagged variables of the different endogenous variables function as valid instruments.

The results in Table 2 are important because they demonstrate a strong connection between, first, foreign direct investment (FDI) in a good institutional environment and the growth rate of real GDP per capita (Regressions 2, 3, and 4), and second, FDI with a strong financial system and economic growth (Regression 5). The first regression analyzes the direct effect of FDI on economic growth. In regressions 2, 3, and 4, adding the ICRG institutional variables together with the FDI variable increases the effect of FDI on growth, especially in the coefficient values. Coefficients range from 0.014 to 0.092 with the inclusion of the "Law and Order" indicator, 0.066 with the "Bureaucratic Quality" indicator, and -0.012 with the "Corruption" indicator.

The predominant type of corruption encountered by businesses is financial corruption, characterized by solicitations for special payments and bribes related to import and export licenses, exchange regulations, tax assessments, law enforcement protection, or loans. This corruption can hinder successful corporate operations and, in some cases, may force the withdrawal or withholding of investments. In our view, these covert forms of corruption pose a significantly greater risk to foreign enterprises, as they may incite public anger, impose unrealistic and inefficient regulations on the state economy, and foster the emergence of the black market.

In the fifth regression, adding the financial development (FD) variable together with the FDI variable makes the impact of FDI on growth stronger, as shown by improved figures and significance. The coefficient increases from 0.014 to 0.052. Financial development is essential for amplifying the positive effects of FDI on economic growth. It guarantees the effective distribution of resources (Bénétrix, Pallan, & Panizza, 2023), enhances the absorptive capacity of the host country (Alvarado et al., 2017), and provides local enterprises with improved access to financing(Nguyen, 2022).

Furthermore, when FDI interacts with variables measuring the quality of institutions, it amplifies its impact on economic growth. Regression 3 indicates that using variables that assess the rule of law yields the most improvement. This result emphasizes the crucial importance of the legal system's quality, highlighting the judicial system's authority and impartiality, along with its adherence to regulations and appeals for FDI (Siddica & Angkur, 2017).

The creation of a robust institutional structure in line with legal regulations is a key factor for attracting international investors, as emphasized by the research of Modigliani and Perotti (2000). Their research highlights the importance of the effective implementation of legal regulations as a catalyst for attracting FDI to stimulate economic growth (Aziz, 2022).

A well-developed financial system and a robust institutional framework facilitate the allocation of reserves to optimal investments, benefiting all foreign participants and contributing to enhanced economic success. For the North African countries included in our sample, the banking sector is the primary source of investment, effectively mobilizing savings and attracting foreign funds. Consequently, enhancing the robust institutional quality is essential to create a climate favorable to foreign investment. High levels of corruption, however, along with a weak legal system, encourage criminal activity and hinder the flow of capital. The diversion of savings into less productive channels hampers economic growth in these countries.

The countries included in our research are characterized by low institutional quality, mainly marked by an inadequate legal system and relatively high corruption levels. As a result, improving and strengthening the legal and institutional systems, along with a strong financial system, is crucial for ensuring a good relationship between FDI and economic growth. The modernization of financial services is one consequence of a robust and attractive institutional framework for FDI.

Considering our results, we took the opportunity to formulate recommendations for policymakers in North African countries. Institutional and financial factors significantly influence the relationship between FDI and economic growth. This relationship requires carefully planned policy interventions to optimize its benefits. Policymakers should focus on ensuring a stable and transparent policy environment to attract and retain FDI. Therefore, to maximize the benefits of FDI, it is imperative that governments in North African countries implement well-planned policy decisions. Such a political environment fosters the fight against corruption, reduces bureaucratic obstacles, and ensures respect for the rule of law. Crucially, these actions also improve the financial system. These countries can attract and retain more foreign capital by building a strong institutional framework and a sophisticated financial system, thereby fostering their economic growth.

Fight Against Corruption: North African countries must enforce stringent anti-corruption policies.

These policies could lead to decisions such as establishing independent anti-corruption agencies, implementing asset declaration systems for public officials, and enhancing the transparency of public procurement processes.

Reduce bureaucratic obstacles: The complexity of administrative processes in North African countries impedes international investment. Consequently, it is recommended that policymakers in these countries simplify administrative processes, optimize standards, and establish specialized consulting services for foreign investors, thereby improving the appeal of the global business environment.

Fortifying the rule of law: To strengthen the rule of law and safeguard the rights of foreign investors, policymakers in North African countries must prioritize establishing a robust and equitable legislative system. This legal environment includes the protection of property rights, enforcement of contracts, and fair dispute resolution. In fact, foreign investors need assurance that their investments will receive adequate legal protection.

Develop the financial system: Policymakers in North African countries must simultaneously focus on implementing reforms to strengthen the financial sector and create an environment that attracts foreign investors. A robust financial sector offers foreign investors various financing and risk management options. The enhancement of local financial systems, including the modernization of banking infrastructure and the stimulation of capital markets, may facilitate an increase in FDI.

5. CONCLUSION

Throughout a span exceeding two centuries, numerous studies have evidenced a direct relationship between FDI and economic growth, although they have not elucidated the mechanisms by which this correlation operates. This

paper has thus illustrated that institutional quality and financial progress ensure and enhance the beneficial effect of FDI on economic growth, using four North African countries as empirical studies from 2000 to 2022. Thus, a robust institutional structure is crucial for advancing FDI inflows, reducing corruption through an improved legal system, and optimizing bureaucracy. Our main findings show that the quality of institutions in different areas, along with a strong financial system, are key factors that make a country appealing for foreign direct investment. Consequently, the effective application of the rule of law (evaluated by the "LO" indicator) attracts foreign investment and thus promotes economic growth. High levels of corruption in these nations reduce the beneficial effect of FDI on economic growth (Patel, Mohapatra, & Yadav, 2024). Thus, attracting FDI to these nations presupposes a robust institutional framework, characterized by low corruption, an effective judicial system, and improved bureaucratic processes.

We have therefore concentrated our research on the idea that a strong financial system and good institutions are key to how foreign direct investment (FDI) impacts the real economy in four North African countries: Tunisia, Algeria, Morocco, and Egypt. We have proven, through the current literature, that a robust institutional framework and an advanced financial system are essential to effectively attracting foreign investors. This theory is backed by real-world evidence from the growth model, which shows that foreign direct investment (FDI) positively impacts economic growth when there is a strong institutional framework and a well-developed financial system. We concluded that good-quality institutions and a developed financial system guarantee an optimal allocation of savings and capital, which in turn attracts foreign direct investment, ensuring optimal allocation of capital, hence attracting FDI. Consequently, transaction costs diminish, and productivity increases. This reduction in costs stimulates trade and, therefore, supports economic growth, aligning with the findings of the founders of the New Institutional Economics (NIE) (Coase, 2013; North, 1990; Williamson, 1993).

We recommend certain actions for policymakers in North African countries based on our findings. Optimizing the benefits of FDI requires carefully evaluated policy decisions. Policymakers must prioritize establishing a stable and transparent policy framework to attract and retain foreign direct investment (FDI). Therefore, to maximize the benefits of FDI, North African governments should adopt well-considered policy measures. This environment should strengthen anti-corruption efforts, reduce bureaucratic hurdles, and promote the rule of law. Policymakers in these countries should also take steps to strengthen the financial system. By establishing robust institutional frameworks and advanced financial systems, these countries can attract and retain more foreign capital, thereby boosting their economic growth.

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