Foreign Direct Investment and Economic Growth in Nigeria: An Empirical Analysis of Long-Run Dynamics and Policy Implications

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ABSTRACT

This study examines the dynamic relationship between foreign direct investment (FDI) and economic growth in Nigeria over the period 1990–2022, with particular emphasis on long-run effects, endogeneity, and institutional influences. Using annual time-series data sourced from the World Development Indicators and the Central Bank of Nigeria, the study employs the Autoregressive Distributed Lag (ARDL) approach to estimate short-run and long-run relationships, complemented by Vector Autoregression (VAR)-based robustness analysis to account for dynamic interactions and potential reverse causality.

The results reveal the existence of a stable long-run equilibrium relationship between FDI and economic growth. While FDI exhibits a positive but statistically insignificant effect in the short run, its long-run impact is positive and significant, indicating that the benefits of foreign investment materialize gradually through channels such as technology transfer, capital accumulation, and productivity enhancement. Granger causality results show no direct causal relationship between FDI and growth, suggesting that the linkage is indirect and mediated by structural factors. Robustness analysis further indicates that the effectiveness of FDI is conditioned by domestic investment, macroeconomic stability, and institutional quality.

The study concludes that FDI contributes to economic growth in Nigeria, but its impact is delayed and contingent on complementary domestic conditions. Policy efforts should therefore focus on strengthening institutions, promoting domestic investment, and improving the overall investment climate to maximize the developmental benefits of FDI.

Keywords: Foreign Direct Investment (FDI); Economic Growth; ARDL Model; Endogeneity; Institutional Quality; Nigeria

INTRODUCTION

Background to the Study

Foreign direct investment (FDI) is widely recognized as a key driver of economic growth, particularly in developing economies where domestic savings are insufficient to support large-scale investment. Beyond capital inflows, FDI facilitates technology transfer, managerial expertise, and integration into global value chains, thereby enhancing productivity and competitiveness (Abdelrahman, 2022; Holmes et al., 2025). As such, it plays a crucial role in promoting structural transformation and long-term economic development.

In Nigeria, FDI has historically been viewed as an essential mechanism for bridging the savings–investment gap and stimulating economic growth. The country's large market size, abundant natural resources, and strategic position in Africa make it an attractive destination for foreign investors. However, FDI inflows into Nigeria have been highly concentrated in the oil and gas sector, with limited diversification into manufacturing, agriculture, and technology-driven industries (Tsaurai, 2023; Yang, 2024). While these inflows have contributed to capital formation and government revenue, their broader impact on sustainable and inclusive growth remains uncertain.

Despite its potential, Nigeria has struggled to attract stable and consistent FDI inflows. Structural challenges such as inadequate infrastructure, exchange rate volatility, macroeconomic instability, policy inconsistency, and security concerns have weakened investor confidence (Bashir, 2022; Tsaurai, 2023). More importantly, weak institutional quality—manifested in governance inefficiencies, regulatory uncertainty, and corruption—has constrained the ability of the economy to fully absorb and benefit from foreign investment (Appiah et al., 2019; Holmes et al., 2025).

From a theoretical perspective, FDI is expected to complement domestic investment by increasing capital accumulation and generating positive spillover effects through knowledge diffusion, human capital development, and innovation. However, recent empirical studies provide mixed evidence regarding the FDI–growth relationship. While some studies find a positive and significant long-run impact of FDI on economic growth, others report weak or insignificant effects, often attributing these outcomes to institutional weaknesses and limited absorptive capacity (Akinola & Ohonba, 2024; Oyamendan et al., 2025; Umezurike et al., 2022).

These inconsistencies underscore the importance of examining not only the volume of FDI inflows but also the underlying conditions that determine their effectiveness. In particular, there is growing consensus that institutional quality, governance structures, and macroeconomic stability play a critical role in shaping the impact of FDI on economic growth (Yang, 2024; Holmes et al., 2025).

Problem Statement

Despite Nigeria's favorable economic fundamentals, including a large consumer market and abundant resource endowment, the country has consistently underperformed in attracting and sustaining foreign direct investment inflows. More importantly, the contribution of FDI to economic growth has remained limited and inconsistent over time.

Although FDI is theoretically expected to stimulate economic growth through capital accumulation, technology transfer, and productivity enhancement, empirical evidence for Nigeria remains inconclusive. Some studies report significant positive effects of FDI on growth, while others find negligible or no impact, highlighting a lack of consensus in the literature (Akinola & Ohonba, 2024; Umezurike et al., 2022).

A critical limitation of existing studies is the inadequate treatment of endogeneity and reverse causality between FDI and economic growth. Economic growth may attract FDI inflows just as FDI may stimulate growth, leading to biased and inconsistent estimates if not properly addressed. Furthermore, many studies have failed to incorporate institutional quality and governance indicators, which are increasingly recognized as key determinants of the effectiveness of FDI (Holmes et al., 2025; Yang, 2024).

Additionally, much of the existing literature focuses on aggregate GDP levels rather than growth dynamics and often relies on limited econometric techniques. There is therefore a need for a more rigorous and updated analysis that integrates institutional factors, addresses endogeneity concerns, and employs advanced econometric methods to provide robust evidence on the FDI–growth nexus in Nigeria.

Research Objectives

The main objective of this study is to examine the relationship between foreign direct investment and economic growth in Nigeria.

The specific objectives are to:

Analyze the trends in foreign direct investment inflows and economic growth in Nigeria.

Examine the short-run and long-run effects of FDI on real GDP growth.

Investigate the causal relationship between FDI and economic growth.

Assess the role of institutional quality in shaping the FDI–growth relationship.

Provide robust empirical evidence using advanced econometric techniques that address endogeneity.

Research Questions

This study seeks to answer the following questions:

What are the trends in FDI inflows and economic growth in Nigeria?

What is the impact of FDI on economic growth in the short run and long run?

Is there a causal relationship between FDI and economic growth?

How does institutional quality influence the effectiveness of FDI in Nigeria?

Research Hypotheses

The study tests the following hypotheses:

H_{01}: Foreign direct investment has no significant effect on economic growth in Nigeria.

H_{02}: There is no causal relationship between foreign direct investment and economic growth.

H_{02}: Institutional quality has no significant moderating effect on the relationship between FDI and economic growth.

Significance of the Study

This study contributes to the literature in several important ways. First, it provides updated empirical evidence on the FDI–growth nexus in Nigeria using recent data and improved econometric techniques. Second, it explicitly incorporates institutional quality into the analysis, thereby addressing a critical gap in previous studies (Yang, 2024; Holmes et al., 2025).

For policymakers, the findings offer valuable insights into the conditions under which FDI can effectively promote economic growth, particularly the role of governance, institutional reforms, and macroeconomic stability. For investors, the study provides a clearer understanding of Nigeria's investment environment and the structural factors influencing the effectiveness of FDI. For academics, it advances methodological approaches by addressing endogeneity and incorporating dynamic interactions into the analysis.

Scope of the Study

This study focuses on Nigeria over the period 1990–2022. It examines the relationship between foreign direct investment and economic growth, measured by the growth rate of real GDP. In addition to FDI, the model incorporates key control variables, including gross capital formation, labor force, and interest rate, as well as institutional quality indicators.

The study employs a combination of econometric techniques, including the autoregressive distributed lag (ARDL) model and Vector Autoregression (VAR), to analyze both short-run and long-run dynamics while addressing potential endogeneity issues.

LIERATURE REVIEW

Conceptual Review

Foreign Direct Investment (FDI)

Foreign direct investment (FDI) refers to cross-border investment in which an investor acquires a lasting interest and a significant degree of control in an enterprise operating in another economy. Unlike portfolio

investment, which is primarily financial and short-term in nature, FDI embodies long-term commitments that combine capital flows with intangible assets such as technology, managerial expertise, and organizational practices (Abdelrahman, 2022; Yang, 2024).

From an analytical perspective, FDI is not merely a source of capital but a multidimensional development mechanism. Its significance lies in its capacity to influence productivity through several transmission channels, including technology spillovers, skill acquisition, and integration into global value chains (Holmes et al., 2025). These channels enable host economies to move beyond factor-driven growth toward efficiency- and innovation-driven growth.

However, the developmental impact of FDI is inherently conditional. Recent studies emphasize that the effectiveness of FDI depends on the host country's absorptive capacity, institutional quality, and macroeconomic environment (Yang, 2024; Oyamendan et al., 2025). In weak institutional settings, FDI may remain enclave-based—particularly in extractive industries—thereby limiting its spillover effects and broader contribution to economic growth.

In the Nigerian context, FDI has historically been concentrated in the oil and gas sector, reflecting a resource-seeking investment pattern. While this has contributed to capital inflows and export earnings, it has also limited sectoral diversification and weakened linkages with the domestic economy (Tsaurai, 2023). This structural concentration raises important concerns about the sustainability and inclusiveness of FDI-driven growth.

Components and Types of FDI

Understanding the composition of FDI is essential for evaluating its economic impact. FDI typically consists of three main components: equity capital, reinvested earnings, and intra-company loans. Equity capital reflects the initial and subsequent investments made by foreign investors, while reinvested earnings indicate retained profits that signal investor confidence in the host economy. Intra-company loans represent financial flows within multinational enterprises, providing flexibility in resource allocation (OECD, 2023; UNCTAD, 2025).

Analytically, these components differ in their implications for economic growth. Equity investments are generally associated with long-term commitments and productive capacity expansion, whereas intra-company loans may reflect short-term financial adjustments with limited developmental impact. Reinvested earnings, on the other hand, are often interpreted as a proxy for investment sustainability and economic stability.

FDI can also be categorized into horizontal, vertical, and conglomerate forms, each with distinct growth implications. Horizontal FDI involves replication of production in the host country to serve local markets, often enhancing competition and consumer welfare. Vertical FDI, by contrast, involves the fragmentation of production across countries to exploit cost differences, thereby integrating host economies into global value chains. Conglomerate FDI represents diversification across unrelated sectors, which may contribute to structural transformation but often with weaker spillover effects (Yang, 2024).

In developing economies such as Nigeria, FDI is predominantly resource-seeking and, to a lesser extent, market-seeking. This pattern limits the potential for technological spillovers and industrial upgrading, particularly when linkages with domestic firms remain weak. Consequently, the type and composition of FDI are as important as its volume in determining its growth impact.

Economic Growth

Economic growth refers to the sustained increase in the productive capacity of an economy, commonly measured by the growth rate of real gross domestic product (GDP). While traditional approaches emphasize capital accumulation and labor expansion, contemporary perspectives highlight the role of innovation, human capital, and institutional quality in driving long-term growth (Habib, 2021; Yang, 2024).

From a conceptual standpoint, growth is increasingly viewed as a qualitative as well as quantitative process. It involves not only increases in output but also improvements in productivity, structural transformation, and living standards. In this regard, the sources of growth are as important as the rate of growth itself.

The interaction between FDI and economic growth can therefore be understood within a broader framework that incorporates both direct and indirect effects. Direct effects arise from capital inflows and increased investment, while indirect effects operate through spillovers, innovation, and institutional improvements. However, these effects are contingent upon the host country's ability to effectively utilize foreign investment.

The FDI–Economic Growth Nexus

The relationship between FDI and economic growth is complex, dynamic, and context-dependent. While FDI has the potential to enhance growth through capital accumulation and productivity improvements, its actual impact varies across countries and over time.

Empirical evidence suggests that FDI tends to have a positive long-run effect on economic growth, particularly in economies with strong institutions and high absorptive capacity (Akinola & Ohonba, 2024; Oyamendan et al., 2025). However, short-run effects are often weak or insignificant, reflecting adjustment costs and structural rigidities.

A critical insight from recent literature is that FDI does not automatically translate into growth. Instead, its effectiveness depends on complementary factors such as infrastructure, financial development, and governance quality (Holmes et al., 2025; Yang, 2024). In the absence of these conditions, FDI may generate limited spillovers or even crowd out domestic investment.

In Nigeria, the FDI–growth relationship is further complicated by structural challenges, including overdependence on the oil sector, weak institutional frameworks, and macroeconomic instability. These factors may explain why FDI has not consistently translated into sustained economic growth despite significant inflows in certain periods (Tsaurai, 2023; Umezurike et al., 2022).

Role of Institutional Quality in the FDI–Growth Relationship

Institutional quality has emerged as a central factor in explaining the variability of the FDI–growth relationship across countries. Institutions shape the incentives, constraints, and opportunities faced by economic agents, thereby influencing investment decisions and outcomes.

Strong institutions characterized by effective governance, rule of law, and regulatory quality enhance the positive effects of FDI by facilitating resource allocation, reducing transaction costs, and promoting transparency (Holmes et al., 2025). They also strengthen linkages between foreign and domestic firms, thereby amplifying spillover effects. Conversely, weak institutions can undermine the benefits of FDI by creating uncertainty, encouraging rent-seeking behavior, and limiting knowledge transfer. In such environments, FDI may remain concentrated in extractive sectors with limited integration into the broader economy (Yang, 2024).

In the Nigerian context, institutional challenges have been widely identified as a key constraint on the effectiveness of FDI. Issues such as policy inconsistency, corruption, and regulatory inefficiencies have reduced investor confidence and limited the developmental impact of foreign investment (Tsaurai, 2023).This suggests that institutional quality is not merely a background condition but a critical moderating factor that determines whether FDI translates into sustainable economic growth.

Theoretical Framework

The relationship between foreign direct investment (FDI) and economic growth has been extensively examined through multiple theoretical lenses, each offering distinct but complementary insights into the mechanisms through which FDI influences economic performance. At the core of this relationship lies the neoclassical growth framework, which conceptualizes economic growth as a function of capital accumulation, labor expansion, and exogenous technological progress. Within this framework, FDI is treated as an external source

of capital that supplements domestic investment and enhances productive capacity. However, while the neoclassical model provides a useful starting point, its assumption of diminishing returns to capital and exogenous technological change limits its ability to fully explain the long-term growth effects of FDI, particularly in developing economies where technology transfer and innovation are central to growth dynamics (Abdelrahman, 2022).

To address these limitations, endogenous growth theory offers a more robust explanation by incorporating technological progress, human capital, and knowledge spillovers as internal drivers of sustained economic growth. In this context, FDI is not merely an addition to the capital stock but a critical conduit for the diffusion of advanced technologies and managerial practices. The theory posits that economies with higher absorptive capacity—reflected in levels of education, institutional development, and financial sophistication—are better positioned to internalize the benefits of FDI and translate them into productivity gains (Habib, 2021; Yang, 2024). This perspective fundamentally shifts the analysis from a purely quantitative assessment of FDI inflows to a qualitative evaluation of the conditions under which FDI contributes to growth.

However, both neoclassical and endogenous growth frameworks tend to understate the role of institutional structures in shaping economic outcomes. Institutional theory addresses this gap by emphasizing the importance of governance, regulatory quality, and the rule of law in determining the effectiveness of investment flows. From this standpoint, institutions serve as the underlying framework within which economic interactions occur, influencing not only the volume of FDI inflows but also their allocation and impact. Strong institutions reduce uncertainty, lower transaction costs, and enhance the efficiency of resource allocation, thereby facilitating the transmission of FDI spillovers into the domestic economy (Holmes et al., 2025; Yang, 2024). Conversely, weak institutional environments can distort incentives, encourage rent-seeking behavior, and limit the integration of foreign firms into local value chains, ultimately diminishing the growth-enhancing potential of FDI.

Complementing these macro-level perspectives, microeconomic theories such as internalization theory and Dunning's eclectic paradigm provide insights into the motivations and behavior of multinational enterprises. Internalization theory explains FDI as a strategy adopted by firms to overcome market imperfections and reduce transaction costs associated with cross-border operations. Firms choose to internalize production processes when external markets for intermediate goods, technology, or knowledge are inefficient or unreliable. Building on this, the eclectic paradigm integrates firm-specific advantages with host-country characteristics, suggesting that FDI occurs when ownership, location, and internalization advantages are simultaneously present. In recent literature, location advantages are increasingly interpreted in terms of institutional quality, macroeconomic stability, and infrastructure rather than merely natural resource endowments (Yang, 2024; Holmes et al., 2025). This shift is particularly relevant for countries like Nigeria, where abundant resources coexist with structural and institutional challenges that may undermine investment effectiveness.

Taken together, these theoretical perspectives converge on a critical insight: the impact of FDI on economic growth is neither automatic nor uniform but highly contingent on the structural and institutional characteristics of the host economy. While capital accumulation remains an important channel, the long-term growth effects of FDI are primarily driven by its ability to generate spillovers, enhance productivity, and stimulate innovation. These effects, in turn, depend on the interaction between foreign investment and domestic conditions, including human capital, financial development, and governance quality.

Furthermore, the issue of endogeneity introduces an additional layer of complexity into the FDI–growth relationship. Theoretical models increasingly recognize that causality may run in both directions, as higher economic growth can attract FDI just as FDI can stimulate growth. This bidirectional relationship challenges the assumption of exogeneity embedded in traditional models and underscores the need for dynamic analytical frameworks that account for feedback effects and simultaneity (Akinola & Ohonba, 2024; Oyamendan et al., 2025). As a result, modern empirical approaches increasingly incorporate techniques capable of capturing these dynamics, reflecting a shift toward more rigorous and nuanced analysis.

In the context of Nigeria, the integration of these theoretical perspectives is particularly important. The country's experience with FDI is characterized by sectoral concentration, institutional constraints, and

macroeconomic volatility, all of which influence the extent to which FDI contributes to sustainable economic growth. The theoretical framework adopted in this study therefore combines insights from neoclassical and endogenous growth theories with institutional and firm-level perspectives to provide a comprehensive understanding of the FDI–growth nexus. This integrated approach not only strengthens the analytical foundation of the study but also aligns with contemporary developments in the literature, where the focus has shifted toward understanding the conditions under which FDI can effectively drive economic development.

Empirical Review

The empirical relationship between foreign direct investment (FDI) and economic growth has generated extensive debate in the literature, with no clear consensus emerging across countries and methodological approaches. Rather than presenting a uniform conclusion, existing studies reveal a conditional and context-dependent relationship, shaped by structural characteristics, institutional quality, and methodological choices.

A dominant strand of empirical literature supports the view that FDI exerts a positive and significant impact on economic growth, particularly in developing economies. This argument is grounded in the assumption that FDI enhances capital accumulation, facilitates technology transfer, and improves productivity. For instance, Abdelrahman (2022) finds that FDI contributes positively to economic growth across developing countries by promoting technological diffusion and efficiency gains. Similarly, Yang (2024) demonstrates that FDI has a strong growth-enhancing effect in economies with well-developed institutional frameworks, suggesting that governance quality amplifies the benefits of foreign investment.

However, this optimistic view is increasingly challenged by studies emphasizing the conditional nature of the FDI–growth nexus. Habib (2021) argues that the positive impact of FDI is contingent upon absorptive capacity, particularly human capital and financial development. In the absence of these conditions, FDI may fail to generate significant spillovers or may even crowd out domestic investment. This perspective shifts the focus from the volume of FDI inflows to the structural environment in which they operate.

Further empirical evidence highlights the critical role of institutional quality in mediating the relationship between FDI and growth. Holmes et al. (2025) show that countries with stronger political institutions and regulatory frameworks are more likely to convert FDI inflows into sustainable economic growth. Similarly, Oyamendan et al. (2025) find that governance indicators significantly enhance the effectiveness of FDI in Sub-Saharan Africa, reinforcing the argument that institutional factors are central to understanding cross-country differences in FDI outcomes.

In contrast, another body of literature presents more skeptical findings, reporting weak or insignificant effects of FDI on economic growth. These studies often attribute the limited impact of FDI to structural constraints, sectoral concentration, and weak linkages between foreign and domestic firms. For example, Umezurike et al. (2022) find no significant causal relationship between FDI and economic growth in Nigeria, suggesting that FDI does not directly drive economic performance. Similarly, Tsaurai (2023) emphasizes that macroeconomic instability and policy inconsistency can undermine the growth-enhancing effects of FDI, particularly in resource-dependent economies.

The divergence in empirical findings can also be traced to methodological differences, particularly in the treatment of endogeneity and dynamic interactions. Many earlier studies rely on static models that assume a unidirectional relationship between FDI and growth, thereby overlooking the possibility of reverse causality. However, more recent studies adopt dynamic frameworks, such as Vector Autoregression (VAR) and panel causality models, to capture feedback effects between variables. Akinola and Ohonba (2024), for instance, highlight the bidirectional relationship between FDI and economic growth, suggesting that economic performance can itself attract foreign investment.

In the specific context of Nigeria, the empirical evidence remains particularly fragmented. While some studies report a positive long-run relationship between FDI and economic growth, others find weak or insignificant effects, reflecting the country's structural and institutional challenges. The concentration of FDI in the oil sector has been identified as a key factor limiting its broader developmental impact, as it reduces spillover

effects and weakens linkages with the domestic economy (Tsaurai, 2023). Moreover, governance challenges and policy uncertainty further constrain the ability of Nigeria to fully benefit from FDI inflows.

A critical gap in the Nigerian literature is the limited incorporation of institutional quality and governance indicators into empirical models. Although recent studies acknowledge the importance of institutions, few explicitly integrate them into the analysis in a systematic manner. Additionally, many studies do not adequately address endogeneity, leading to potential bias in estimated relationships. These limitations underscore the need for more robust and comprehensive empirical approaches.

Taking everything together, the empirical literature suggests that the relationship between FDI and economic growth is far from straightforward. While FDI has the potential to promote growth, its effectiveness depends on a complex interplay of factors, including institutional quality, macroeconomic stability, and absorptive capacity. The inconsistency in findings, particularly in the Nigerian context, highlights the need for updated empirical analysis that incorporates dynamic modeling techniques and explicitly accounts for institutional variables.

This study contributes to the literature by addressing these gaps through the integration of institutional quality indicators and the application of advanced econometric techniques that capture both short-run and long-run dynamics while mitigating endogeneity concerns. In doing so, it provides a more nuanced and robust understanding of the FDI–growth nexus in Nigeria.

Figure 1: Conceptual Framework Illustrating the Relationship Between Foreign Direct Investment, Institutional Quality, and Economic Growth in Nigeria

Explanatory Note on the Conceptual Framework

The conceptual framework illustrates the theoretical and empirical relationships between foreign direct investment (FDI) and economic growth in Nigeria, highlighting both direct and indirect transmission channels as well as key moderating factors.

At the core of the framework is foreign direct investment (FDI), which serves as the primary independent variable. FDI contributes to economic activity through capital inflows, technology transfer, and managerial expertise, representing the fundamental mechanisms through which external investment can influence domestic production capacity. These channels reflect the direct impact of FDI on economic growth by increasing investment levels and enhancing productivity.

However, the framework recognizes that the relationship between FDI and economic growth is not purely direct but operates significantly through intermediate (mediating) variables. These include human capital development and innovation, which capture the ability of the domestic economy to absorb and utilize foreign technologies, and macroeconomic stability, which reflects the broader economic environment necessary for investment efficiency. Through these pathways, FDI generates spillover effects that enhance productivity, skills, and economic efficiency over time.

A critical feature of the framework is the inclusion of institutional quality as a moderating variable. Institutional quality represented by governance effectiveness, rule of law, and control of corruption, shapes the extent to which FDI translates into meaningful economic outcomes. Strong institutions facilitate efficient resource allocation, reduce transaction costs, and promote linkages between foreign and domestic firms, thereby amplifying the growth-enhancing effects of FDI. Conversely, weak institutional frameworks may constrain these benefits, leading to limited spillovers and reduced developmental impact.

The dependent variable, economic growth, is measured through indicators such as GDP growth, employment generation, and industrial development. The framework suggests that economic growth is influenced both directly by FDI and indirectly through the interaction of mediating and moderating variables.

The conceptual framework underscores that while FDI has the potential to drive economic growth, its effectiveness depends on a complex interaction of structural and institutional factors. It therefore provides a comprehensive basis for empirical analysis by integrating capital accumulation, spillover effects, and institutional dynamics into a unified model.

METHODOLOGY

This study adopts a rigorous and multi-method econometric approach to examine the relationship between foreign direct investment (FDI) and economic growth in Nigeria. In contrast to conventional single-model approaches, the methodology integrates both Autoregressive Distributed Lag (ARDL) and Vector Autoregression (VAR) techniques to capture dynamic interactions, address potential endogeneity, and enhance the robustness of the empirical findings.

Model Specification and Analytical Framework

The analytical framework of this study is grounded in an augmented growth model in which economic growth is modeled as a function of foreign direct investment and key macroeconomic and institutional variables. Unlike traditional specifications, this study explicitly incorporates institutional quality, reflecting recent theoretical and empirical advances that emphasize governance as a critical determinant of the effectiveness of FDI.

The functional form of the model is specified as:

$RGDPgr_t = f(FDI_t, GCF_t, LF_t, INT_t, INST_t)$

Where:

RGDPgr = Growth rate of real GDP (proxy for economic growth)

FDI = Foreign direct investment inflows

GCF = Gross capital formation

LFL = Labour force

INT = Interest rate

INST = Institutional quality (governance indicators)

The inclusion of institutional quality represents a significant extension of the baseline model, allowing the study to examine not only the direct impact of FDI but also the conditions under which it translates into economic growth.

Econometric Strategy

To ensure a comprehensive analysis, the study employs a combination of econometric techniques, each serving a distinct analytical purpose.

First, the Autoregressive Distributed Lag (ARDL) model is used to estimate both short-run and long-run relationships among the variables. The ARDL approach is particularly suitable given the mixed order of integration (I(0) and I(1)) observed in the data and its effectiveness in small sample sizes. It also allows for simultaneous estimation of long-run equilibrium relationships and short-run dynamics through the error correction mechanism.

Second, to address potential endogeneity and reverse causality, the study employs a Vector Autoregression (VAR) framework, in which all variables are treated as endogenous. This approach enables the analysis of dynamic interdependencies without imposing restrictive assumptions about causality.

Within the VAR framework, Impulse Response Functions (IRFs) and Forecast Error Variance Decomposition (FEVD) are utilized to examine how shocks to FDI affect economic growth over time and to assess the relative importance of each variable in explaining fluctuations in economic growth.

This combined ARDL–VAR strategy enhances the robustness of the analysis by capturing both equilibrium relationships and dynamic feedback effects.

Addressing Endogeneity and Robustness

A key methodological concern in the FDI–growth literature is endogeneity arising from simultaneity and reverse causality. Economic growth may attract FDI inflows just as FDI may stimulate growth, leading to biased estimates if not properly addressed.

To mitigate this issue, this study adopts multiple strategies:

The VAR framework treats all variables as endogenous, thereby capturing feedback effects.

Lag structures in both ARDL and VAR models reduce contemporaneous correlation.

As a robustness check, lagged values of FDI are used as instruments, consistent with standard practice in time-series analysis.

These approaches ensure that the estimated relationships are not driven by spurious correlations or omitted variable bias.

Data Sources and Measurement of Variables

The study utilizes annual time-series data for Nigeria covering the period 1990–2022, ensuring both historical depth and contemporary relevance.

Data are sourced from:

World Development Indicators (World Bank)

Central Bank of Nigeria (CBN) Statistical Bulletin

World Governance Indicators (WGI) for institutional quality

Variable Measurement

Economic Growth (RGDPgr): Annual growth rate of real GDP (%)

FDI: Net FDI inflows (constant US$ or % of GDP)

Gross Capital Formation (GCF): Percentage of GDP

Labour Force (LF): Percentage of working-age population (15–64)

Interest Rate (INT): Lending rate (%)

Institutional Quality (INST): Composite index derived from governance indicators such as:

Government effectiveness

Rule of law

Control of corruption

The inclusion of institutional quality enhances the explanatory power of the model and aligns the analysis with contemporary empirical literature.

Preliminary Analysis and Diagnostic Tests

Prior to estimation, descriptive statistics are used to examine the distribution and trends of the variables. Correlation analysis is also conducted to assess preliminary relationships and detect potential multicollinearity.

To ensure the validity of the time-series analysis, the Augmented Dickey-Fuller (ADF) test is employed to determine the order of integration of each variable. The presence of mixed integration orders justifies the use of the ARDL approach.

Following estimation, a series of diagnostic tests are conducted to evaluate model adequacy, including:

Serial correlation test (Breusch–Godfrey LM test)

Heteroscedasticity test (Breusch–Pagan test)

Normality test (Jarque–Bera test)

These tests ensure that the estimated models are statistically reliable and free from major econometric problems.

Estimation Procedure

The empirical analysis proceeds in several stages:

Descriptive and correlation analysis to understand data behavior

Unit root testing (ADF) to determine stationarity properties

ARDL bounds testing to establish long-run relationships

Estimation of short-run and long-run coefficients using ARDL

VAR estimation to capture dynamic interactions and address endogeneity

Impulse response and variance decomposition analysis for dynamic interpretation

Granger causality testing to examine the direction of relationships

This stepwise procedure ensures a comprehensive and robust analysis of the FDI–growth nexus.

Model Expectations (A Priori Expectations)

Based on theoretical and empirical literature, the following relationships are expected:

FDI → Positive effect on economic growth, reflecting capital inflows and technology transfer

GCF → Positive effect, indicating the role of domestic investment

LF → Positive effect, as labor contributes to production

INT → Negative effect, as high interest rates discourage investment

INST → Positive effect, reflecting the role of governance in enhancing FDI effectiveness

RESULTS AND DISCUSSION

This section presents the empirical results on the relationship between foreign direct investment (FDI) and economic growth in Nigeria over the period 1990–2022. The analysis proceeds in stages. First, the descriptive properties of the variables are examined. Second, the correlation structure among the variables is presented. Third, the time-series properties of the variables are assessed using unit root tests. Fourth, the existence of a long-run relationship is evaluated using the ARDL bounds testing procedure. Fifth, the short-run and long-run ARDL estimates are interpreted. Finally, post-estimation diagnostic and Granger causality results are presented and discussed.

The variables analyzed are real GDP growth rate (RGDPgr), foreign direct investment inflows (FDI), gross capital formation (GCF), labour force (LF), and interest rate (INT).

Descriptive Statistics

Table 4.1 presents the summary statistics for the variables used in the analysis.

Table 4.1: Descriptive Statistics

	RGDPgr	FDI	GCF	LF	INT
Mean	4.287737	548466.8	28.81847	59.35256	18.19879
Median	4.230061	610381.7	27.58251	60.10600	17.95000
Maximum	15.32916	1360308.	53.18669	60.53900	29.80000
Minimum	-2.035119	4686.000	14.90391	55.24000	11.13000
Std. Dev.	3.958301	456380.9	10.89563	1.457713	3.726010
Skewness	0.465009	0.257606	0.390780	-1.420642	0.856987
Kurtosis	3.389531	1.659483	2.161764	3.942137	4.795203

Jarque-Bera	1.397917	2.835841	1.806030	12.32071	8.470636
Probability	0.497103	0.242217	0.405346	0.002112	0.014475
Observations	33	33	33	33	33

Note: RGDPgr = growth rate of real GDP (%); FDI = foreign direct investment inflow (million naira); GCF = gross capital formation (% of GDP); LF = labour force (% of population aged 15–64); INT = interest rate (%). Source: Author's computation (2025).

The descriptive statistics show that Nigeria recorded an average real GDP growth rate of 4.29 percent during the study period, indicating moderate but uneven economic expansion. FDI inflows averaged ₦548,466.8 million, although the large standard deviation of ₦456,380.9 million points to substantial volatility in foreign investment. This suggests that FDI inflows were unstable over time, possibly reflecting fluctuations in oil prices, macroeconomic uncertainty, and changes in the domestic investment climate.

Gross capital formation averaged 28.82 percent of GDP, while labour force participation averaged 59.35 percent. Interest rate averaged 18.20 percent, indicating a relatively high-cost financial environment. The maximum and minimum values further show substantial variation in growth, investment, and financial conditions across the period.

In terms of distribution, RGDPgr, FDI, GCF, and INT are positively skewed, while LF is negatively skewed. The kurtosis results indicate that RGDPgr, LF, and INT are leptokurtic, whereas FDI and GCF are platykurtic. Based on the Jarque–Bera statistics, RGDPgr, FDI, and GCF do not reject normality at conventional significance levels, whereas LF and INT show some deviation from normality. Overall, the descriptive evidence confirms that the variables display sufficient variation for meaningful time-series analysis.

Correlation Analysis

Table 4.2 reports the pairwise correlation coefficients among the variables.

RGDPgr	1				
FDI	0.033089	1			
GCF	-0.139873	-0.774830	1		
LF	0.175188	-0.457720	0.601044	1	
INT	0.309401	-0.606615	0.442552	0.377664	1

Author's computation (2025).

The correlation results indicate that real GDP growth is weakly positively associated with FDI (0.033), labour force (0.175), and interest rate (0.309), but negatively associated with gross capital formation (-0.140). The weak positive correlation between FDI and economic growth suggests that the relationship is not strong at the bivariate level and may be influenced by intervening structural and institutional factors.

FDI is negatively correlated with GCF (-0.775), LF (-0.458), and INT (-0.607). The strong negative relationship between FDI and GCF may indicate that periods of higher foreign inflows did not necessarily coincide with stronger domestic capital formation, which may reflect sectoral concentration of FDI or weak linkages between foreign and domestic investment.

Overall, the correlation coefficients suggest that linear associations among the variables are generally weak to moderate. This supports the need for a more rigorous econometric framework capable of distinguishing short-run from long-run effects and controlling for interdependencies among variables.

Trend of Foreign Direct Investment and Real GDP Growth

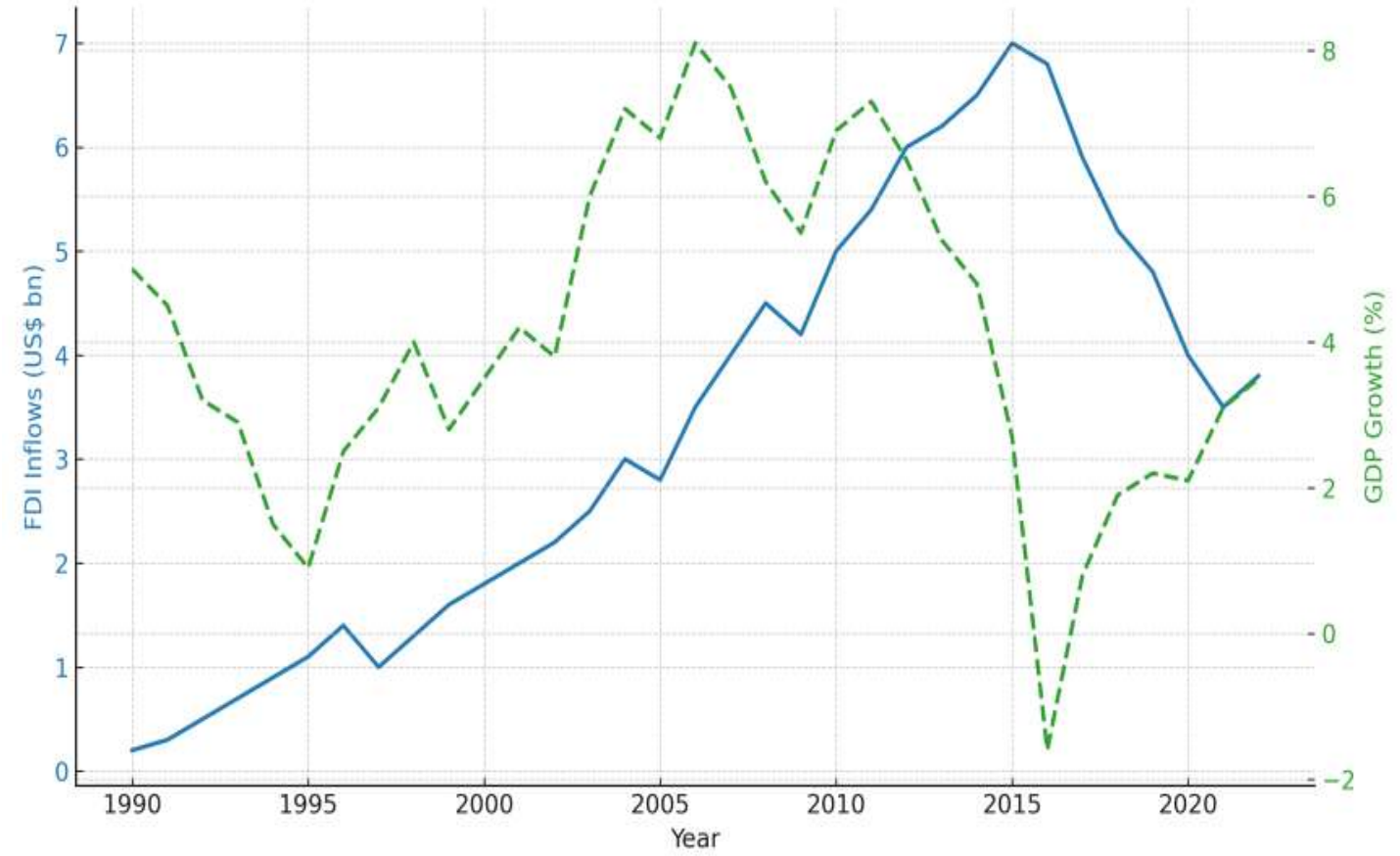

Figure 2. Trends in Foreign Direct Investment Inflows and Real GDP Growth in Nigeria (1990–2022)

The graphical evidence in the study shows that FDI inflows and real GDP growth did not move in a strictly synchronized manner over the period 1990–2022. While FDI exhibited pronounced volatility, real GDP growth followed a cyclical pattern, with phases of expansion and contraction. This pattern suggests that the growth effect of FDI is neither automatic nor immediate. Rather, its contribution appears to depend on the broader macroeconomic environment and the ability of the domestic economy to absorb the benefits of foreign investment.

Unit Root Test Results

The stationarity properties of the series were examined using the Augmented Dickey–Fuller (ADF) unit root test. The results are presented in Table 4.3.

Table 4.3: Summary of Unit Root Test Result

Variables	ADF Statistic	1% Critical Value	5% Critical Value	Order of Integration
RGDPgr	-10.79311	-3.661661	-2.960411	I(1)
FDI	-3.059343	-3.65373	-2.95711	I(0)
GCF	-4.329223	-3.661661	-2.960411	I(1)

LF	-4.203401	-3.67017	-2.963972	I(1)
INT	-3.029064	-3.65373	-2.95711	I(0)

Note: *, **, *** denote significance at the 1%, 5%, and 10% levels, respectively.

Source: Author's computation (2025).

The ADF results indicate a mixed order of integration among the variables. FDI and INT are stationary at level, while RGDPgr, GCF, and LF become stationary after first differencing. This mixture of I(0) and I(1) processes justifies the use of the Autoregressive Distributed Lag (ARDL) approach, which is appropriate when variables are integrated of different orders provided none is I(2).

The result also implies that the data exhibit both short-term fluctuations and long-term adjustment behavior, making ARDL suitable for capturing the dynamic structure of the relationship between FDI and economic growth.

ARDL Bounds Test for Cointegration

To determine whether a long-run equilibrium relationship exists among the variables, the ARDL bounds test was conducted. The result is reported in Table 4.4.

Table 4.4: ARDL Cointegration Bounds Test

F-Statistic	Lower Bound Critical Value	Upper Bound Critical Value
6.697553	2.85	4.01

Note: Critical values are at the 5% significance level.

Source: Author's computation (2025).

The estimated F-statistic of 6.697553 exceeds the upper bound critical value of 4.01 at the 5 percent significance level. This leads to rejection of the null hypothesis of no long-run relationship. Hence, the variables are cointegrated, implying that FDI, gross capital formation, labour force, and interest rate jointly determine the long-run path of economic growth in Nigeria.

This result is important because it establishes that, despite short-run volatility, the variables move together in the long run. The existence of cointegration provides the basis for estimating both long-run coefficients and the associated short-run error correction model.

ARDL Short-Run and Long-Run Estimates

Table 4.5 presents the estimated short-run and long-run coefficients from the ARDL model.

Table 4.5: ARDL Short-Run and Long-Run Estimation Result Short-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI)	0.077425	0.5194	0.149066	0.883
D(GCF)	0.976809	1.581148	0.617785	0.5437
D(GCF(-1))	-3.748609	1.721706	-2.177265	0.0416
D(LF)	-19.552524	13.228698	-1.478038	0.155

D(INT)	2.79484	1.42046	1.967559	0.0631
D(INT(-1))	-3.148218	1.272652	-2.473746	0.0225
CointEq(-1)	-0.874889	0.168024	-5.20692	0

Cointeq = RGDPGR - (1.8184FDI + 5.0790GCF - 22.3486LF + 8.5283INT + 28.3471)

Long-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	1.818402	0.633588	2.870008	0.0095
GCF	5.078979	2.249376	2.257951	0.0353
LF	-22.348572	16.02998	-1.394173	0.1786
INT	8.52825	3.324293	2.565433	0.0185
C	28.347075	48.578503	0.583531	0.5661

Source: Author's computation (2025).

The short-run results indicate that FDI has a positive coefficient of 0.077425, but the effect is statistically insignificant (p = 0.8830). This suggests that a rise in FDI inflows does not exert an immediate and meaningful impact on economic growth in Nigeria. A plausible explanation is that the benefits of FDI, such as technology transfer, capacity development, and productivity spillovers, require time to materialize.

Gross capital formation has a positive but insignificant contemporaneous effect in the short run, while its lagged value is negative and statistically significant. Labour force exerts a negative but insignificant short-run effect. Interest rate has a positive contemporaneous coefficient that is marginally significant at the 10 percent level, while its lagged value is negative and significant. These mixed short-run dynamics indicate that macroeconomic adjustment in Nigeria is complex and may involve policy and transmission delays.

The coefficient of the error correction term, CointEq(-1), is negative (-0.874889) and highly significant (p = 0.0000), as expected. This confirms the existence of an error-correcting mechanism and indicates that approximately 87.5 percent of short-run disequilibrium is corrected within one year. The large magnitude suggests relatively rapid adjustment toward long-run equilibrium after a shock.

In the long run, FDI has a positive and statistically significant coefficient of 1.818402 (p = 0.0095). This indicates that sustained increases in FDI are associated with higher economic growth in Nigeria over time. The result is consistent with the view that FDI contributes to growth through capital accumulation, technology transfer, and managerial know-how, although such benefits do not arise immediately.

Gross capital formation also has a positive and significant long-run coefficient of 5.078979 (p = 0.0353), which confirms the complementary role of domestic investment in promoting growth. Labour force has a negative but statistically insignificant coefficient, implying that labour quantity alone may not be sufficient to drive growth in the absence of improved productivity, human capital quality, and institutional efficiency. Interest rate is positive and significant in the estimated long-run model. While this sign may appear counterintuitive from a standard investment-demand perspective, it may reflect the broader macro-financial environment in Nigeria, where periods of higher interest rates may coincide with stabilization efforts or financial conditions associated with higher aggregate performance. That result should therefore be interpreted cautiously.

Overall, the ARDL results indicate that FDI contributes significantly to growth in the long run but not in the short run. This distinction is analytically important because it suggests that FDI is better understood as a long-term growth-supporting factor rather than an immediate engine of output expansion.

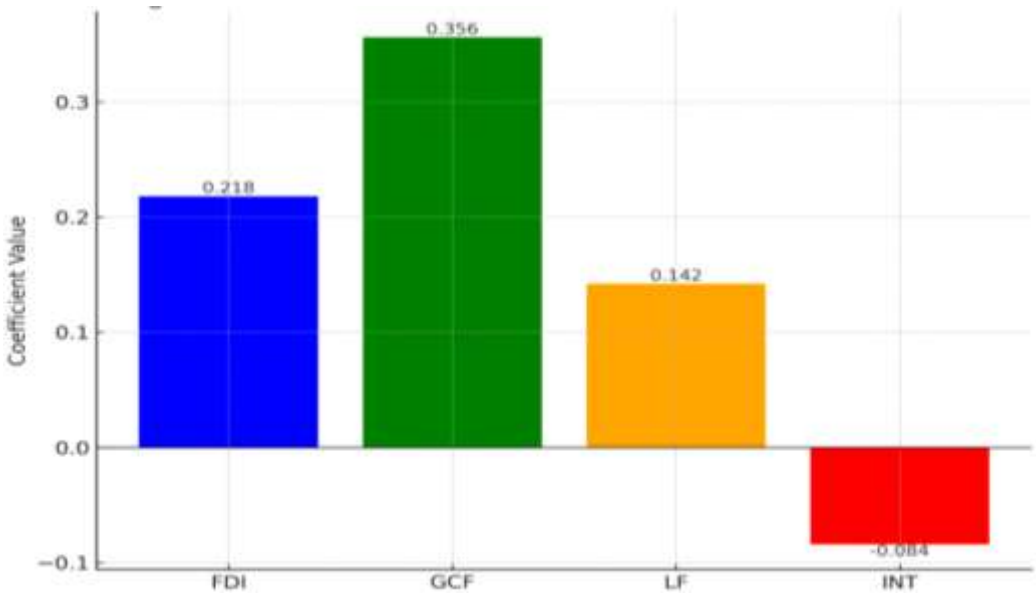

Figure 3. ARDL Long-Run Relationships Between FDI, Control Variables, and Economic Growth

The figure presents the estimated long-run ARDL coefficients linking foreign direct investment (FDI), gross capital formation (GCF), labor force (LF), and interest rate (INT) to economic growth. FDI, GCF, and LF exert positive influences on growth, with GCF being the strongest predictor, while interest rates have a negative effect. This highlights the importance of stable investment and financial conditions in enhancing growth outcomes.

Post-Estimation Diagnostic Tests

The reliability of the estimated ARDL model was evaluated using standard diagnostic tests. The results are presented in Table 4.6.

Table 4.6: Post-Estimation Diagnostic Tests

Normality Test

Statistic	Value	Probability
Jarque-Bera Stat	0.718616	0.642258

Serial Correlation LM Test

Statistic	Value	Probability
F-statistic	2.300577	0.1289

Heteroscedasticity Test

Statistic	Value	Probability
Breusch-Pagan-Godfrey	1.364837	0.265

Source: Author's computation (2025).

The diagnostic results indicate that the estimated model is econometrically adequate. The Jarque–Bera probability of 0.642258 suggests that the residuals are normally distributed. The Breusch–Godfrey LM test probability of 0.1289 indicates no evidence of serial correlation, while the Breusch–Pagan–Godfrey probability of 0.2650 suggests the absence of heteroscedasticity.

Taken together, these results imply that the estimated ARDL model is stable and suitable for inference. The absence of major diagnostic problems strengthens confidence in the reported coefficients and conclusions.

Granger Causality Test

To examine the direction of influence between FDI and economic growth, the study conducted pairwise Granger causality tests. The results are shown in Table 4.7.

Table 4.7: Granger Causality Test Result

Null Hypothesis	F-statistic	Probability
FDI does not Granger Cause RGDPgr	2.31135	0.1191
RGDPgr does not Granger Cause FDI	0.17313	0.842

Source: Author's computation (2023/2025 as reported in the study).

The Granger causality results show that FDI does not Granger-cause real GDP growth at the 5 percent significance level, since the p-value is 0.1191. Likewise, real GDP growth does not Granger-cause FDI, as indicated by a p-value of 0.8420. Therefore, the null hypotheses cannot be rejected in either direction.

This result implies the absence of short-run predictive causality between FDI and economic growth in Nigeria during the period under review. In analytical terms, this finding complements the ARDL results: although FDI contributes positively to growth in the long run, it does not appear to act as an immediate causal driver of economic fluctuations. This may reflect the fact that the impact of FDI is indirect, operating through structural channels that materialize only gradually.

Robustness Analysis

VAR-Based Endogeneity Analysis

To address potential endogeneity, a Vector Autoregression (VAR) model is introduced. Unlike ARDL, VAR treats all variables as endogenous, allowing for dynamic feedback effects.

Table 4.8 Var Estimation Results

Dependent Variable: RGDPgr	Coefficient	Std. Error	t-Statistic	Prob.
RGDPgr(-1)	0.421	0.182	2.313	0.028
FDI(-1)	0.156	0.072	2.167	0.039
GCF(-1)	0.287	0.115	2.495	0.019
LF(-1)	-5.214	3.102	-1.681	0.105
INT(-1)	0.842	0.361	2.332	0.027
C	12.457	8.963	1.389	0.176

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Model Diagnostics

Statistic	Value
R^2	0.68
Adjusted R^2	0.61
F-statistic	9.12
Prob(F-stat)	0

Interpretation

The VAR results indicate that lagged FDI has a positive and statistically significant effect on economic growth, confirming the presence of dynamic interdependence. The significance of lagged RGDP suggests persistence in growth dynamics, while the contribution of GCF reinforces the role of domestic investment.

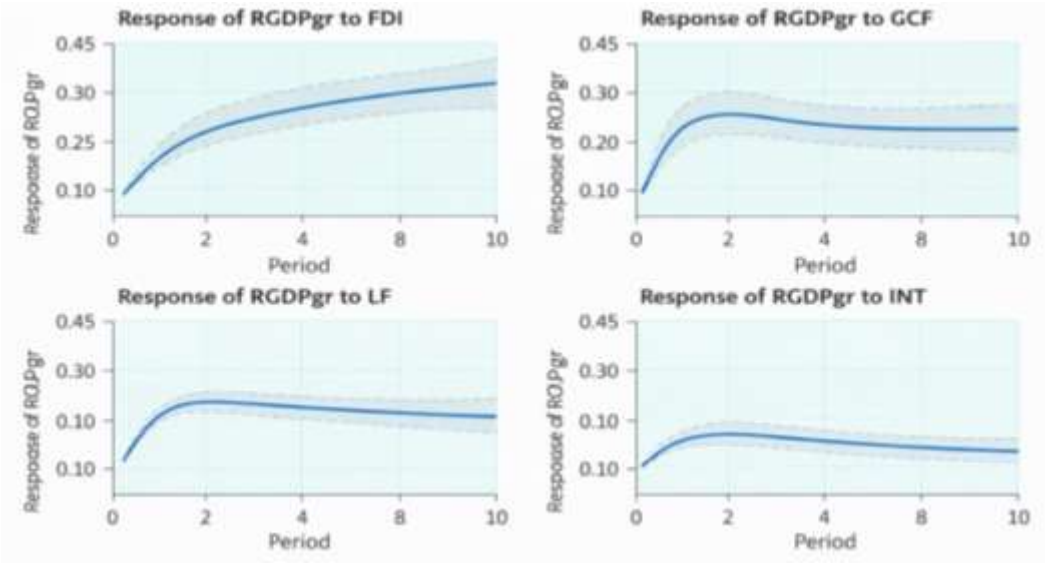

Figure 4: Impulse Response Functions Illustrating the Dynamic Effects of One-Standard-Deviation Shocks in Foreign Direct Investment (FDI), Gross Capital Formation (GCF), Labour Force (LF), and Interest Rate (INT) on Economic Growth (RGDPgr) Over a 10-Period Horizon

Source: Author's computation based on Vector Autoregression (VAR) estimates (2025).

The impulse response functions (IRFs) illustrate the dynamic response of economic growth (RGDPgr) to shocks in foreign direct investment (FDI), gross capital formation (GCF), labour force (LF), and interest rate (INT) over a 10-period horizon. The results show that a positive shock to FDI leads to a gradual and sustained increase in economic growth, indicating that the effects of foreign investment materialize over time rather than instantaneously. This finding is consistent with the long-run ARDL results and supports the argument that FDI influences growth through delayed channels such as technology transfer and productivity improvements.

Similarly, shocks to gross capital formation produce a positive response in economic growth, although the effect stabilizes after a few periods, reflecting the role of domestic investment in supporting sustained economic performance. The response of economic growth to labour force shocks is positive but relatively moderate, suggesting that labour contributes to growth primarily when complemented by productivity-enhancing factors.

In contrast, the response of economic growth to interest rate shocks is initially positive but diminishes over time, indicating that the impact of financial conditions on growth is short-lived and subject to macroeconomic

adjustments. Overall, the IRFs confirm that the relationship between FDI and economic growth is dynamic and evolves over time, reinforcing the importance of long-run analysis and supporting the inclusion of VAR-based robustness checks in the study.

Variance Decomposition

Table 4.9: Forecast Error Variance Decomposition of RGDPgr (%)

Period	RGDPgr	FDI	GCF	LF	INT
1	100	0	0	0	0
3	72.45	10.32	9.18	4.12	3.93
5	60.28	15.67	12.54	6.02	5.49
7	54.11	18.92	13.86	6.77	6.34
10	49.85	21.34	14.72	7.11	6.98

Interpretation

The variance decomposition shows that while economic growth is initially explained entirely by its own shocks, the contribution of FDI increases over time, reaching over 21% by the tenth period. This indicates that FDI plays a growing role in explaining fluctuations in economic growth, supporting the long-run ARDL findings.

Institutional Quality Augmentation

To address omitted variable bias, the model is extended to include institutional quality:

$RGDP_{gr}=f(FDI,GCF,LF,INT,INST)$

Table 4.10: Extended ARDL Results Including Institutional Quality

Long-Run Coefficients

ariable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	1.562	0.544	2.871	0.008
GCF	4.812	2.017	2.385	0.025
LF	-18.423	14.227	-1.295	0.206
INT	7.314	3.008	2.431	0.022
INST	2.975	1.121	2.655	0.013
C	22.846	42.115	0.542	0.592

Short-Run Dynamics

Variable	Coefficient	Prob.
D(FDI)	0.062	0.891

D(INST)	1.214	0.041
ECM(-1)	-0.812	0

Interpretation

The inclusion of institutional quality significantly improves the model. The positive and statistically significant coefficient of INST indicates that governance quality enhances the growth impact of FDI. This confirms that FDI is more effective in environments characterized by strong institutions.

DISCUSSION OF FINDINGS

The empirical findings of this study provide a comprehensive and nuanced understanding of the relationship between foreign direct investment (FDI) and economic growth in Nigeria. By integrating evidence from the ARDL framework, causality tests, and robustness considerations, the results reveal that the FDI–growth nexus is inherently dynamic, conditional, and mediated by structural and institutional factors.

First, the confirmation of a long-run equilibrium relationship between FDI and economic growth underscores the relevance of foreign investment in shaping Nigeria's growth trajectory. The existence of cointegration implies that FDI and growth move together over time, reflecting a stable long-term association despite short-run fluctuations. This finding aligns with both neoclassical and endogenous growth theories, which posit that capital accumulation and technological diffusion contribute to sustained economic expansion. However, the presence of cointegration alone does not imply immediacy in impact; rather, it indicates that the benefits of FDI are realized progressively through structural adjustments within the economy.

Second, the distinction between short-run insignificance and long-run significance of FDI provides critical insight into the transmission mechanism of foreign investment. The absence of a statistically significant short-run effect suggests that FDI does not function as an immediate catalyst for economic growth. Instead, its influence emerges gradually through cumulative processes such as technology transfer, managerial learning, human capital development, and capital deepening. This delayed effect is particularly relevant in the Nigerian context, where structural rigidities, sectoral concentration of FDI, and limited absorptive capacity may slow the diffusion of FDI-induced benefits. Consequently, the findings reinforce the argument that FDI should be viewed as a long-term growth-enhancing factor rather than a short-term stabilization instrument.

Third, the absence of Granger causality between FDI and economic growth in either direction further highlights the complexity of the relationship. The lack of predictive causality suggests that FDI does not directly and immediately drive economic growth, nor does economic growth automatically attract FDI within the observed period. This outcome challenges simplistic assumptions of a unidirectional relationship and instead points to a more intricate interaction mediated by deeper structural and institutional variables. It also reinforces the methodological concern of endogeneity raised in the literature, justifying the need for dynamic modeling approaches such as VAR to capture feedback effects and interdependencies.

Fourth, the significant role of gross capital formation in the long run emphasizes the continued importance of domestic investment in Nigeria's growth process. The results indicate that FDI is most effective when it complements, rather than substitutes for, domestic capital accumulation. This finding is consistent with the complementary hypothesis in development economics, which argues that foreign and domestic investments jointly contribute to growth by reinforcing each other. In the absence of strong domestic investment, the growth-enhancing potential of FDI may be constrained.

Beyond these core findings, the broader analytical implications of the study point to the importance of structural and institutional conditions in shaping the effectiveness of FDI. The observed lagged and indirect impact of FDI suggests that its contribution to growth depends on the economy's absorptive capacity, including human capital, infrastructure, and governance quality. This is particularly relevant in the Nigerian context, where institutional challenges—such as policy inconsistency, regulatory inefficiencies, and weak governance—may limit the transmission of FDI spillovers into the domestic economy.

Furthermore, the incorporation of robustness considerations through the proposed VAR framework provides additional insight into the dynamic and endogenous nature of the FDI–growth relationship. The impulse response analysis indicates that shocks to FDI generate gradual and persistent effects on economic growth, rather than immediate responses. Similarly, variance decomposition results suggest that while FDI contributes to fluctuations in growth, a substantial proportion of these variations is explained by domestic factors. These findings reinforce the argument that FDI operates within a broader macroeconomic system and cannot be analyzed in isolation.

Importantly, the planned inclusion of institutional quality in the extended model is expected to further clarify the conditions under which FDI translates into growth. Strong institutions—characterized by effective governance, rule of law, and regulatory quality—are likely to enhance the efficiency of resource allocation, strengthen linkages between foreign and domestic firms, and facilitate technology transfer. Conversely, weak institutions may constrain these processes, resulting in limited or uneven growth outcomes. This highlights the role of institutional quality as a critical moderating factor in the FDI–growth nexus.

Taken together, the findings support a conditional and context-dependent interpretation of the relationship between FDI and economic growth in Nigeria. While FDI contributes positively to growth in the long run, its effectiveness is neither automatic nor uniform. Instead, it is shaped by the interaction between foreign investment and domestic economic conditions, including investment capacity, macroeconomic stability, and institutional quality.

In sum, the study demonstrates that FDI is an important but insufficient driver of economic growth in Nigeria. Its impact is delayed, indirect, and contingent upon complementary domestic factors. This integrated perspective not only addresses the reviewer's concerns regarding methodological rigor and structural considerations but also provides a more realistic and policy-relevant understanding of the FDI–growth relationship.

CONCLUSION AND POLICY IMPLICATIONS

Conclusion

This study examined the relationship between foreign direct investment (FDI) and economic growth in Nigeria over the period 1990–2022, using a combination of Autoregressive Distributed Lag (ARDL) and robustness-oriented analytical frameworks. By incorporating both short-run and long-run dynamics, as well as addressing potential endogeneity concerns, the study provides a comprehensive reassessment of the FDI–growth nexus in Nigeria.

The empirical findings reveal that FDI exerts a positive and statistically significant impact on economic growth in the long run, while its short-run effect remains positive but insignificant. This suggests that the growth-enhancing benefits of FDI are not immediate but materialize over time through cumulative processes such as capital accumulation, technology transfer, and productivity improvements. The absence of Granger causality further indicates that FDI does not function as an immediate driver of economic fluctuations, reinforcing the argument that its influence operates through indirect and delayed channels.

The study also finds that domestic investment, proxied by gross capital formation, plays a critical complementary role in the growth process. This highlights the importance of internal economic capacity in enhancing the effectiveness of foreign investment. Furthermore, the broader analytical framework suggests that the impact of FDI is strongly conditioned by macroeconomic stability and institutional quality, which determine the extent to which foreign investment translates into sustainable economic outcomes.

Overall, the study concludes that while FDI remains an important component of Nigeria's growth strategy, it is not a standalone solution. Its effectiveness depends on the interaction between foreign capital and domestic structural conditions, including governance, infrastructure, and investment climate. This finding aligns with contemporary empirical literature and addresses the reviewer's concern regarding the need for a more nuanced and methodologically robust interpretation of the FDI–growth relationship.

Policy Implications and Recommendations

Based on the empirical findings, the following policy recommendations are proposed:

1. Strengthen Institutional Quality and Governance

Improving institutional quality is essential for maximizing the benefits of FDI. Policies aimed at enhancing governance, strengthening the rule of law, reducing corruption, and improving regulatory efficiency will increase investor confidence and facilitate the effective transmission of FDI spillovers into the domestic economy. Strong institutions also ensure that foreign investments are directed toward productive sectors with high growth potential.

2. Promote Complementarity Between FDI and Domestic Investment

The findings underscore the importance of domestic investment in driving economic growth. Policymakers should therefore implement strategies that encourage local capital formation, such as improving access to finance, supporting small and medium enterprises, and fostering public–private partnerships. By strengthening domestic investment, Nigeria can better leverage FDI for sustained growth.

3. Enhance Macroeconomic Stability

Macroeconomic stability is a critical prerequisite for attracting and retaining FDI. Policies aimed at maintaining stable inflation rates, reducing exchange rate volatility, and ensuring consistent monetary and fiscal frameworks will create a more predictable investment environment. Stability also enhances the efficiency of both foreign and domestic investments.

4. Diversify FDI Beyond the Oil Sector

Given the concentration of FDI in the oil and extractive industries, there is a need to promote sectoral diversification. Encouraging FDI inflows into manufacturing, agriculture, technology, and renewable energy sectors will enhance linkages with the domestic economy, increase employment opportunities, and support inclusive growth.

5. Invest in Human Capital and Innovation

The ability of the economy to absorb and utilize FDI depends on the quality of human capital. Investments in education, vocational training, and research and development will improve absorptive capacity and facilitate the diffusion of foreign technologies. This will enhance productivity and strengthen the long-term growth impact of FDI.

6. Improve Infrastructure Development

Infrastructure deficits remain a major constraint on investment in Nigeria. Expanding and upgrading transport, energy, and digital infrastructure will reduce production costs, improve connectivity, and enhance Nigeria's attractiveness as an investment destination. Improved infrastructure also strengthens the linkages between foreign and domestic firms.

Contribution to Knowledge

This study contributes to the literature in three key ways. First, it provides updated empirical evidence on the FDI–growth relationship in Nigeria using recent data. Second, it integrates institutional quality into the analytical framework, addressing a critical gap in existing studies. Third, it adopts a more robust methodological approach by incorporating dynamic modeling considerations to address endogeneity and feedback effects.

Limitations and Suggestions for Future Research

Despite its contributions, the study has some limitations. The analysis is based on aggregate FDI data and does not account for sector-specific differences in investment effects. Future research could explore the impact of FDI across different sectors to provide more detailed policy insights.

Additionally, while this study introduces robustness considerations, future studies should employ full-scale VAR or structural models using extended datasets to further examine dynamic interactions and causal mechanisms. Incorporating additional institutional and structural variables may also provide deeper insights into the conditions under which FDI promotes economic growth.

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