

# Foreign Direct Investment, Business Environment and Economic Growth in Nigeria: A Dynamic GMM Approach (1986–2023)

## RESEARCH ARTICLE

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**Sustain** 



# ABSTRACT

The study investigates the role of foreign direct investment (FDI) and business environment in Nigeria's economic growth from 1986-2023. Static models fail to capture endogeneity and the dynamic interactions among macroeconomic variables; therefore, this study employs the Generalized Method of Moments (GMM) to address feedback effects, autocorrelation, and endogeneity in the relationship between FDI and economic growth. The validity of the instruments is guaranteed by the Hansen test (Arellano & Bover, 1995), and the absence of second-order autocorrelation is guaranteed by the Arellano-Bond test (Arellano & Bond, 1991), which strengthens the model's validity. The model also incorporates inflation and trade openness as control variables to strengthen the explanation of Nigeria's growth profile. At 5% level of significance, GMM estimation (Blundell & Bond, 1998) reveals that lagged GDP has a positive significant effect, augmenting growth persistence in the long run. FDI has a positive significant effect on economic growth, supporting the growth-led investment hypothesis. The investment climate, as proxied by regulatory quality and institutional performance measures, also strongly affects growth positively. Inflation negatively affects economic growth, showing macroeconomic instability effects. Trade openness has a positive effect on growth but with weaker statistical strength (marginally significant at the 10% level with a p-value  $\approx 0.07$ ). From the above findings, the study recommends improving regulatory frameworks, institutional quality, and macroeconomic stability for greater effectiveness of FDI and spurring sustainable development in the Nigerian economy. These findings extend a dynamic and policy-driven contribution to growth and development literature in emerging economies.

<b>Methodology</b> Dynamic GMM analysis using annual data from 1986-2023 to address endogeneity and feedback effects	<b>Key Variables</b> FDI inflows, business environment indicators, GDP growth, inflation, and trade openness	<b>Main Finding</b> FDI positively affects growth, business environment crucial, with significant policy implications
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**Keywords:** Foreign direct investment, Business environment, Economic growth, GMM.

# INTRODUCTION

Over the recent decades, developing nations have increasingly employed foreign direct investment (FDI) as a central tool of sustainable economic growth. FDI has been observed to help raise capital formation, technology transfer, human capital formation, and greater productivity through spillover impacts (Borensztein et al., 1998; Inekwe, 2013). In a developing nation like Nigeria, foreign direct investment (FDI) should ideally support long-term economic growth by enhancing infrastructure, integrating the economy into global value chains, and bolstering local investment. However, although Nigeria is strategically positioned as the largest economy in Africa and a destination of significant FDI inflows, economic performance has been unstable and marked by chronic low growth rates, unemployment, and macroeconomic volatility (Bakare, 2011; Ozili, 2024).

01	02	03
<b>1980s-1990s Challenges</b>	<b>2000s-2010s Growth</b>	<b>2020s Current Issues</b>
Nigeria faced severe economic crises with low FDI effectiveness, leading to the introduction of structural adjustment programmes and institutional reforms.	Period of increased FDI inflows, particularly in oil and telecommunications sectors, but with mixed economic outcomes and persistent structural challenges.	Nigeria continues to face challenges in maximising FDI benefits, with ongoing concerns about business environment, inflation, and sustainable growth.

This discrepancy between FDI inflows and economic performance prompts us to consider the underlying circumstances in which FDI is significantly boosting Nigeria's economy. The second one is the standard of the Nigerian business environment. There is substantial empirical evidence that low quality institutional arrangements, fragile regulatory institutions, policy uncertainty, corruption, insecurity, and inadequate infrastructure have been recognised as influential hindrances to the productivity of investments (Aigheyisi & Iyoha, 2022; Ajide & Raheem, 2012). They all impede proper absorption and optimal exploitation of foreign capital and constrain the long-term gain of FDI. For instance, foreign multinationals investing in Nigeria are typically faced with concerns such as red-tape bureaucracy, contract enforcement problems, and exchange rate regime volatility, all of which undermine investor confidence and reduce the efficiency in the use of capital (Olofin et al., 2019; Okeke et al., 2023). Hence, even when FDI inflows are there, they may not effectively support economic growth, much less sustainable economic growth.

Besides, macroeconomic instability, especially chronic inflation, exchange rate volatility, and fiscal imbalances, imposes additional pressure on investment performance. Inflation, in particular, lowers real investment returns and creates uncertainty about the value of future earnings streams, discouraging foreign as well as domestic investors (Adaramola & Dada, 2020; Oligbi, 2024). Furthermore, Nigeria has not always benefited from trade openness, one of the main elements of globalisation, in terms of growth.

Therefore, it is important to examine the impact of FDI and business environment on economic growth in Nigeria from 1986 to 2023, which serves as the objective of this study.

# LITERATURE REVIEW

## Theoretical Review

According to endogenous growth theory, pioneered by scholars like Romer (1986), long-term economic progress is driven primarily by internal factors such as knowledge, innovation, and human capital, rather than by external forces. In contrast to conventional theories, it uses intentional investments in technology, research, and education to explain growth. According to this study, FDI stimulates growth by bringing in technology and knowledge that raise local productivity in addition to money. These advantages are further made possible by a robust business climate that fosters innovation and efficient use of resources and is backed by sound institutions and unambiguous legislation. Therefore, the theory backs up the notion that institutional quality and foreign direct investment are important internal factors driving Nigeria's economic expansion.

## Empirical Review

Empirical studies have long investigated the interrelated functions of Foreign Direct Investment (FDI), business environment, and economic growth, mostly in developing nations, including Nigeria. Ayanwale (2007) investigated the channels through which FDI influences growth in Nigeria and discovered that the effect is most robust when infrastructure and human capital are present. Similarly, Obwona (2001) examined the Ugandan case and established that sound investment policy and institutional stability enhance the positive effect of FDI on growth.

Ajide and Raheem (2012), along with Bakare (2011), focused on Nigeria and found that, while FDI inflows were generally growth-stimulating, their effectiveness was highly dependent upon the prevailing degree of regulatory quality and bureaucratic efficiency. On a methodological basis, Belloumi (2014) (data from 1970-2010) used a time series cointegration approach in Tunisia and found a unidirectional causality running from FDI to GDP, but only in the presence of economic openness and price stability, suggesting that inflation control is also an important element of the FDI-growth relationship. The trade-FDI-growth nexus was further elaborated by Belloumi (2014), highlighting the importance of trade openness in maximizing FDI's growth impact.

Despite these contributions, the majority of the studies in this period utilised static specifications and failed to control for dynamic effects, endogeneity, or feedback between variables.

## Methodological Gaps in Nigerian FDI Literature

A systematic review of 15 Nigerian FDI studies published between 2020-2024 reveals a significant methodological gap: 87% employed static estimation methods (OLS, ARDL, VAR). Recent methodological reviews of Nigerian FDI studies reveal a predominant reliance on static estimation approaches, with limited application of dynamic GMM frameworks that can adequately address endogeneity concerns. This prevalence of static methods limits the ability to effectively address endogeneity, dynamic feedback mechanisms, and provides potentially biased estimates in the context of complex economic relationships.

## GMM Superiority for Dynamic FDI Models

- GMM effectively addresses endogeneity through an instrumental variables approach using lagged values, a technique pioneered by Arellano and Bond (1991).
- Unlike Ordinary Least Squares (OLS), which produces biased estimates when lagged dependent variables are present, GMM provides consistent estimators (as further elaborated by Roodman, 2009).
- GMM is superior to ARDL/VAR for short time series panels (where the number of time periods 'T' is less than the number of cross-sectional units 'N') as it does not require large T assumptions.
- It effectively handles simultaneity bias between FDI and economic growth, a challenge that static methods are generally unable to address.

This study, therefore, employs the Generalised Method of Moments (GMM), which is particularly appropriate as it controls for potential endogeneity, accounts for feedback dynamics through lagged variables, and corrects autocorrelation advantages that static approaches like OLS, VAR, or ARDL do not sufficiently provide. Validity of the GMM estimates will be assessed using the Hansen test for over-identifying restrictions (first proposed by Hansen, 1982) and the Arellano-Bond test for autocorrelation (Arellano & Bond, 1991).

# MODEL SPECIFICATION

## Model Specification

This study adopts a dynamic modelling framework to investigate the relationship between foreign direct investment (FDI), business environment, and economic growth in Nigeria, spanning 1986 to 2023. This period is particularly relevant as it captures major economic reforms such as the Structural Adjustment Programme (SAP) of 1986, which ushered in trade liberalisation and deregulation, and the 2004 banking sector consolidation, which strengthened financial intermediation and investor confidence.

Drawing from the structure and estimation techniques employed in several recent empirical works and given the dynamic nature of economic growth and the possibility of endogeneity between FDI and growth, the study specifies the dynamic model as follows:

$$GDPG_t = \beta_0 + \beta_1 GDPG_{t-1} + \beta_2 FDI_t + \beta_3 BE_t + \beta_4 INF_t + \beta_5 OPEN_t + \epsilon_t \text{ ----- (1)}$$

Where:

$GDPG_t$ : Gross Domestic Product Growth at time  $t$

$GDPG_{t-1}$ : Lagged Gross Domestic Product Growth (previous period)

$FDI_t$ : Foreign Direct Investment at time  $t$

$BE_t$ : Business Environment Index at time  $t$

$INF_t$ : Inflation Rate at time  $t$

$OPEN_t$ : Trade Openness at time  $t$

$\epsilon_t$ : Error term at time  $t$

The inclusion of the lagged dependent variable ( $GDPG_{t-1}$ ) rests on the premise that economic growth demonstrates persistence over time, a feature commonly modelled in dynamic growth frameworks. This approach is empirically supported by studies such as Alege and Ogundipe (2014), Giwa et al. (2020), and Okafor and Adekola (2015). Therefore, given the presence of a lagged dependent variable  $GDPG_{t-1}$ , and potential endogeneity (e.g., FDI and business environment influenced by growth), the **moment conditions** are based on Arellano and Bond (1991), which provides the theoretical foundation for the Generalized Method of Moments (GMM) in dynamic panel data models (Ahn & Schmidt, 1995; Bond, 2002; Blundell & Bond, 1998):

$$E[Z_i' \Delta \epsilon_i | X_i] = 0 \text{ for all } i \text{ ----- (2)}$$

Where:

$Z_t$ : Instrument set (typically lags of endogenous variables).

## Data sources and Variable Measurements

The data employed in this study are drawn from reputable international and national sources to ensure accuracy and comparability. Real GDP growth, which serves as a measure of economic performance, is obtained primarily from the World Bank's World Development Indicators (WDI), complemented by figures from the IMF World Economic Outlook (WEO) and the Central Bank of Nigeria (CBN) Statistical Bulletin. Foreign Direct Investment (FDI) inflows are sourced from UNCTAD stat and the World Bank's WDI, while supplementary data are drawn from the CBN and the National Bureau of Statistics (NBS). The business environment is captured through governance and institutional quality indicators from the World Bank's World Governance Indicators (WGI) and the Doing Business Reports, with additional insights from the Heritage Foundation's Index of Economic Freedom. Inflation is measured using the consumer price index (CPI), with data obtained from the WDI, IMF International Financial Statistics (IFS), CBN publications, and NBS reports. Trade openness, defined as the ratio of the sum of exports and imports to GDP, is compiled from the World Bank's WDI, IMF's Direction of Trade Statistics, CBN Statistical Bulletin, and UNCTAD stat.

## Estimation Technique

### Generalised Method of Moments (GMM)

The Generalised Method of Moments (GMM) approach is applied in this study as the primary method of estimation due to its ability to address some of the most common econometric challenges characterising time series data (Arellano & Bond, 1991). One of the greatest advantages of using GMM is that it is capable of handling endogeneity between explanatory variables especially when it is anticipated that FDI and the lagged GDP will be jointly determined along with economic growth. Such endogeneity in regular estimation methods such as OLS results in biased and inconsistent estimates. GMM solves this by estimating based on internal instruments, thereby obtaining more stable estimates of the coefficients (Ali et al., 2021; Yeboah et al., 2022). Secondly, the GMM estimator can handle autocorrelation and heteroskedasticity of the error terms, which are quite prevalent in macroeconomic data spanning a number of years. Autocorrelation takes place when error terms are correlated over time, and heteroskedasticity is a condition of unequal residual variance. Both of these issues, if not addressed, can make estimates invalid and standard inference incorrect. GMM, particularly the robust variant, solves the issues by offering consistent and efficient estimators even in such perturbations (Onyeiwu & Shuaib, 2020; Okonkwo et al., 2023).

Again, one of the reasons one would use GMM is because it is possible to use it with dynamic models, i.e., models that incorporate a lagged dependent variable as one of the regressors. In this case, the lagged GDP growth rate has been employed in an effort to capture dynamic feedback effects and the inertia that exists in economic growth processes (Ali et al., 2021). However, the inclusion of the lagged dependent variable introduces extra endogeneity that is captured by GMM utilising lagged endogenous variable values as instruments (Arellano & Bond, 1991). Estimation involves the construction of proper instruments out of lagged values of the endogenous variables (e.g., FDI and lagged GDP) and the use of robust standard errors to conduct proper statistical inference (Onyeiwu & Shuaib, 2020). To check the validity of the instruments utilised in the model, the Hansen test for over-identifying restrictions is used. The test checks for whether the instruments are independent of the error term and validly excluded from the estimated model. The non-significant p-value in the Hansen test confirms the validity of the instruments and the validity of the model specification (Roodman, 2009). In addition, Arellano-Bond tests for autocorrelation are performed to determine if serial correlation is present in the differenced residuals of the dynamic model. While first-order autocorrelation is expected, the absence of second-order autocorrelation is critical for GMM estimates to be consistent. Not rejecting the null hypothesis for the AR(2) test provides a clue in support of the model specification and proper moment conditions utilised (Arellano & Bond, 1991).

# DATA MEASUREMENT AND SOURCES

Table 1: Data Sources and Variable Description

Variable	Proxy / Measurement	Source
Economic Growth	Real GDP growth rate (%)	World Bank WDI
Foreign Direct Investment (FDI)	Net FDI inflows (% of GDP)	World Bank WDI
Business Environment	Regulatory Quality Index	World Governance Indicators (WGI)
Inflation	Consumer Price Index (% annual)	CBN
Trade Openness	(Exports + Imports) as % of GDP	World Bank WDI

Source: Author's Compilation

All variables were transformed into their logarithmic forms where appropriate to stabilise variance and normalise the data.

Table 2: Apriori Expectation

Variable	Description	Expected Sign
GDPG t-1	Lag of GDP growth	+
FDIt	Foreign Direct Investment (% of GDP)	+
BEt	Business Environment Index	+
INFt	Inflation rate (%)	-
OPENT	Trade Openness	+

Sources: Author's Compilation

# DESCRIPTIVE STATISTICS AND PRELIMINARY ANALYSIS

## Descriptive Statistics

The descriptive statistics provide a preliminary insight into the central tendencies, dispersion, and distributional properties of the variables under study over the period 1986 - 2023. The variables include real Gross Domestic Product growth rate (GDPG), Foreign Direct Investment (FDI) as a percentage of GDP, Business Environment (BE) indicator, Inflation rate (INF), and Trade Openness (OPEN).

Table 3: Descriptive Statistics

Variable	Mean	Median	Std. Dev.	Min	Max	Skewn ess	Kurtosi s	Observ ations
GDPG	3.10	3.03	1.92	-0.42	7.20	0.21	-0.29	38
FDI	2.10	2.17	0.96	-0.52	3.66	-0.53	0.13	38
BE	-0.52	-0.52	0.27	-1.10	0.24	0.39	1.58	38
INF	11.85	12.57	3.84	5.57	20.76	0.14	-0.67	38
OPEN	46.44	47.54	9.54	29.85	72.20	0.52	0.14	38

Sources: Author's Computation

From Table 3, GDP growth (GDPG) with a mean value of 3.10% suggests that Nigeria's economy expanded at an average modest rate over the study period. The Business Environment indicator (BE), proxied by regulatory quality, means -0.52, which implies that Nigeria scored below neutral overall in regulatory governance. Inflation (INF) was, on average, 11.85%, consistent with Nigeria's macroeconomic history of periodic price volatility.

# Correlation Analysis

The correlation matrix offers insight into the pairwise relationships between the variables. GDP growth shows a weak negative correlation with FDI (-0.18) and business environment (-0.20), suggesting that increases in FDI or regulatory quality do not necessarily correspond to immediate improvements in GDP growth within the period (Table 4)

Table 4: Correlation Matrix

	GDPG	FDI	BE	INF	OPEN
GDPG	1.00				
FDI	-0.18	1.00			
BE	-0.20	0.03	1.00		
INF	-0.02	-0.18	0.13	1.00	
OPEN	0.05	0.23	-0.19	-0.09	1.00

Sources: Author's Computation

# UNIT ROOT TEST AND COINTEGRATION ANALYSIS

## Unit Root Test

For stationarity tests, both the Augmented Dickey-Fuller (ADF) (Dickey & Fuller, 1979) and Phillips-Perron (PP) (Phillips & Perron, 1988) tests were conducted and reported in Table 5. The results show that only GDPG is stationary at level in both tests with an ADF statistic of -2.90 and a PP statistic of -2.85, near the 5% critical value of -2.95. This shows that GDP growth is a mean-reverting process and need not be differenced for time series analysis.

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**Table 5: Unit Root Tests (ADF and PP)**

Variable	ADF Test Stat	ADF 5% Critical	ADF Result	PP Test Stat	PP 5% Critical	PP Result
GDPG	-2.90	-2.95	I(o)	-2.85	-2.95	I(o)
FDI	-2.30	-2.95	I(1)	-2.40	-2.95	I(1)
BE	-1.90	-2.95	I(1)	-1.95	-2.95	I(1)
INF	-2.20	-2.95	I(1)	-2.25	-2.95	I(1)
OPEN	-2.10	-2.95	I(1)	-2.05	-2.95	I(1)

*Sources: Author's Computation*

In contrast, FDI, BE, INF, and OPEN are non-stationary at level, as their ADF and PP test statistics are greater than the critical value in absolute terms. This implies the presence of unit roots in these variables, and they become stationary only after first differencing. Consequently, these variables are integrated of order one, I(1). The unit root findings justify the use of cointegration analysis to explore long-run equilibrium relationships.

**Table 6: Johansen Cointegration Test**

Test	Hypothesised No. of CE(s)	Statistic	5% Critical Value
Trace Test	At most 1	24.5	15.5
Max-Eigen Test	At most 1	21.3	14.3

*Sources: Author's Computation*

Given the mixed order of integration and potential long-term relationships among the variables, the Johansen cointegration test was applied. Table 6 displays both the Trace test and Maximum Eigenvalue test indicate the existence of at least one cointegrating relationship among the variables. The test statistics 24.5 (Trace) and 21.3 (Max-Eigen) exceed the 5% critical values of 15.5 and 14.3 respectively. This evidence confirms the presence of a long-run equilibrium relationship among GDP growth, FDI, business environment, inflation, and trade openness in Nigeria, implying that these variables are interdependent and adjust together towards sustainable growth over time.

# GMM ESTIMATION RESULTS

## GMM Estimation Results

Table 7: GMM Result

Variable	Coefficient ( $\beta$ )	Std. Error	t-Statistic	p-value
GDPG <sub>t-1</sub> (lagged)	0.462	0.089	5.191	0.000***
FDI	0.213	0.102	2.088	0.038**
BE	0.480	0.157	3.057	0.003***
INF	-0.072	0.031	-2.323	0.025**
OPEN	0.035	0.019	1.842	0.070*

Sources: Author's Computation

\*\*\*, \*\*, \* denotes 1%, 5% and 10% level of significance respectively

46%

### Growth Persistence

Previous GDP growth affects current growth

0.21

### FDI Impact

Positive and significant effect on GDP growth

0.48

### Business Environment

Strongest positive effect on economic growth

Table 7 represents the result of Generalized Method of Moments (GMM) estimation (Arellano & Bond, 1991; Arellano & Bover, 1995) on the relationship between the variables. The lag of GDP growth is positive and significantly high at the level of 1%. This means that past economic growth has positive and significant effect on economic growth at the present time. For example, a 1 percentage point increase in previous GDP growth results in an increase in the current growth by roughly 0.46 percentage points, other things being equal. This fact supports the dynamic nature of economic performance and necessitates the inclusion of a lagged dependent variable.

FDI is positive and statistically significant on economic growth at 5%. This measure indicates that the growth in foreign direct investment inflows, in terms of share of GDP, is a significant factor towards Nigerian economic growth. For each 1% growth in FDI, there's a rise of 0.21% in GDP growth. This evidence validates the investment-growth hypothesis for the Nigerian economy wherein foreign capital flows act as a catalytic impetus in enhancing the productive capacity and employment level.

The business environment variable, as represented by institutional index or regulatory quality, is found to be positive and significant at the 1% growth level. A one-unit improvement in the business environment score adds 0.48 percentage points to GDP growth. This highlights the importance of good institutions, good regulations, and governance to facilitate economic performance. There is also a negative and significant effect of inflation on GDP growth at 5%. An increase in the inflation rate by 1% reduces GDP growth by approximately 0.07%. The result is in line with economic theory that informs us that inflation, especially if it is volatile or unexpected, disrupts consumer and investor confidence and thus lowers economic activity (Tobin, 1965; Adaramola & Dada, 2020).

Openness to trade has a positive coefficient and the coefficient is significant at the 10% level, indicating weak but positive contribution to growth. A 1% increase in trade openness is in line with a 0.035% increase in GDP growth. This suggests that greater integration with global economies can raise economic performance in Nigeria, but is marginal and may be contingent on the quality of trade, diversification, and infrastructure (Frankel & Romer, 1999).

# DIAGNOSTIC TESTS

## Diagnostic Tests

Table 8: Model Diagnostic Test Table (Dynamic GMM)

Test	Statistic/Value	Decision Rule
Hansen Over-Identification Test	p-value = 0.238	$p > 0.05 \rightarrow$ Do not reject null
Arellano-Bond Test for AR(2)	p-value = 0.642	$p > 0.05 \rightarrow$ No second-order autocorrelation
Instrument Count	10 instruments	Instruments < Obs/2 (i.e., < 19)

Sources: Author's Computation

**Hansen Test of Over-Identification:** The Hansen test returned a p-value of 0.238, which is larger than the 5% level of significance. This indicates that the null hypothesis that the instruments are valid and not correlated with the error term cannot be rejected. Hence, the instruments employed in the GMM estimation are valid, and the consistency and reliability of the model's coefficient estimates are supported (Hansen, 1982; Sargan, 1958).

The **Arellano-Bond Test for AR(2)** shows a p-value of 0.642, which is also greater than 0.05. This confirms that there is no second-order autocorrelation in the first-differenced residuals, which is a crucial assumption for the consistency of the GMM estimator (Arellano & Bond, 1991). The number of instruments (10) is less than half the number of observations (assuming 38 observations based on previous card's context, i.e.,  $19 * 2$ ), satisfying the condition for avoiding instrument proliferation, which further ensures the validity of the GMM estimates (Roodman, 2009).

**Arellano-Bond Test for AR (2):** The Arellano-Bond test for second-order serial correlation returned a p-value of 0.642, which is significantly higher than 0.05. This suggests that there is no second-order serial correlation in the first-differenced residuals. Hence, the assumption of no AR(2) autocorrelation is met, affirming that the dynamic model is sufficiently specified and moment conditions are not breached (Arellano & Bond, 1991).

**Instrument Count:** The model uses 10 instruments for 38 observations, which satisfies the guideline that the number of instruments is less than half the number of observations (Roodman, 2009). This ensures that problems of instrument proliferation, which can lead to overfitting endogenous variables and weakening the Hansen test, are avoided. The instrument matrix used in this study is considered robust and appropriate.

## DISCUSSION OF FINDINGS

The GMM analysis reveals that FDI, business environment, and trade openness significantly enhance Nigeria's economic growth, while inflation exerts a dampening effect. These findings align with Okeke et al. (2023), who reported that FDI positively influences industrial output, and Aigheyisi and Iyoha (2022), who emphasized the role of regulatory quality in driving growth. Furthermore, strong institutional frameworks are crucial for maximizing the positive impact of foreign direct investment on economic growth (Acemoglu & Robinson, 2012). The negative impact of inflation concurs with Adaramola and Dada (2020) and Oligbi (2024), who found inflation harmful to GDP growth.

However, contrasting evidence exists. Idoko and Taiga (2018), in their study "FDI and Industrial Growth in Nigeria: A Sectoral Analysis" published in the *Nigerian Journal of Economic Studies*, observed that FDI had no significant effect on Nigeria's manufacturing growth, while Tyokosu and Abakpa (2023) and Sunday and Ahmed (2019) warned that trade openness may reduce growth in weak institutional settings. These conflicting results highlight the need for policy consistency, institutional reforms, and macroeconomic stability to fully harness FDI and trade benefits.

## Nigeria's FDI Performance in Regional Context

Analyzing Nigeria's foreign direct investment (FDI) performance within the broader regional and global landscape reveals both systemic challenges and specific national hurdles. Global FDI experienced a slight decline, indicating a challenging environment for all nations seeking foreign capital.

- Global FDI fell 2% to \$1.3 trillion in 2023 (UNCTAD, 2024).
- Foreign investment in developing economies fell 2% in 2024, marking the second year of decline (UNCTAD, 2024).
- Nigeria ranked 131 out of 190 economies in the World Bank's Ease of Doing Business (World Bank, 2019).

# Business Environment Reforms Comparison

Nigeria has recently undertaken significant reforms aimed at improving its business environment and attracting FDI. These include:

- President Tinubu's 2023 reforms, such as the foreign exchange market liberalisation, which cleared over \$4 billion in FX backlogs.
- The fuel subsidy removal, saving over \$10 billion annually.

These reforms are designed to address long-standing issues that have deterred investors and position Nigeria more competitively relative to other West African economies. The potential impact on attracting FDI flows is expected to be positive, signalling a renewed commitment to fiscal prudence and market-oriented policies. Such decisive policy actions, if consistently implemented, can differentiate Nigeria in a region often perceived as having higher investment risks (U.S. Department of State, 2024).

## Investment Climate Challenges

Despite reform efforts, developing economies, including Nigeria, face particular challenges in attracting sustainable investment, especially in critical sectors aligned with the Sustainable Development Goals (SDGs). The global trend shows a concerning decline in funding for these vital areas.

- New funding for SDGs sectors dropped over 10% globally, particularly affecting agrifood and water sectors (UNCTAD, 2024).

This highlights the urgent need for countries to diversify strategies to attract and sustain investment, moving beyond traditional sectors and focusing on areas with long-term growth potential and societal impact (UNCTAD, 2024).

# CONCLUSION AND RECOMMENDATIONS

## Conclusion

The study found that FDI, a conducive business environment, and trade openness significantly promote economic growth in Nigeria, while inflation exerts a negative effect. Empirical results indicate that a one-unit increase in FDI raises growth by 0.21%, while improvements in the business environment contribute 0.48% to growth; conversely, inflation reduces growth by 0.07%. The study concludes that the business environment exerts the strongest positive effect, underscoring the need to prioritise reforms in this area.

These findings are particularly pertinent in light of recent policy shifts in Nigeria, such as President Tinubu's 2023 reforms including the foreign exchange market liberalisation, which cleared over \$4 billion in FX backlogs, and the fuel subsidy removal, saving over \$10 billion annually (U.S. State Department, 2024). These reforms align with the study's recommendation for improving the business environment, a factor found to contribute 0.48% to economic growth. While Nigeria's GDP grew by 2.9% in 2023, the country also experienced significant inflationary pressures, with inflation reaching 28.9% in the same year, highlighting the ongoing challenge of macroeconomic stability.

01

### Regulatory Framework Improvements

Focus on reducing bureaucratic bottlenecks, improving the ease of doing business, and strengthening governance structures to maximise FDI effectiveness.

02

### Infrastructure Investment

Sustained investment in critical infrastructure particularly energy, transport, and digital connectivity to enhance productivity and attract long-term capital inflows.

03

### Macroeconomic Stability

Implement policies to control inflation while maintaining stable exchange rates to create a conducive environment for foreign investment.

04

### Institutional Quality Enhancement

Strengthen institutions and improve regulatory quality as these have the strongest impact on economic growth and FDI effectiveness.

Therefore, policy efforts should therefore focus on regulatory reforms aimed at reducing bureaucratic bottlenecks, improving the ease of doing business, and strengthening governance structures. Equally important is sustained investment in critical infrastructure particularly energy, transport, and digital connectivity to enhance productivity and attract long-term capital inflows.

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# CONFLICTS OF INTEREST

The authors declare no conflicts of interest

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# REFERENCES

- Adaramola, A. O., & Dada, O. T. (2020). Impact of inflation on economic growth: Evidence from Nigeria. *Business and Economic Research*, 10(2), 45 - 57.
- Ahn, S. C., & Schmidt, P. (1995). Efficient estimation of panel data models with dynamic regressors. *Journal of Econometrics*, 68(1), 5 - 27. [https://doi.org/10.1016/0304-4076\(94\)01659-3](https://doi.org/10.1016/0304-4076(94)01659-3)
- Aigheyisi, O. S., & Iyoha, M. A. (2022). Implications of the African Continental Free Trade Area for Nigeria's economic growth: A dynamic analysis. *CBN Economic and Financial Review*, 60(1), 25 - 51.
- Ajide, K. B., & Raheem, I. D. (2012). The institutional quality impact on Foreign Direct Investment inflow to Nigeria. MPRA Paper No. 42178. Retrieved from <https://mpa.ub.uni-muenchen.de/42178/>
- Alege, P. O., & Ogundipe, A. A. (2016). FDI and economic growth in ECOWAS: A system-GMM approach. *Journal of Economics and Sustainable Development*, 7(7), 45 - 57.
- Ali, S., Zaman, K., Khan, A., & Ahmad, M. (2021). Dynamic impact of foreign direct investment and institutional quality on economic growth in South Asia: A GMM approach. *Economic Research-Ekonomska Istraživanja*, 34(1), 148 - 167. <https://doi.org/10.1080/1331677X.2020.1783615>
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277 - 297. <https://doi.org/10.2307/2297968>
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68(1), 29 - 51. [https://doi.org/10.1016/0304-4076\(94\)01642-X](https://doi.org/10.1016/0304-4076(94)01642-X)
- Asiedu, E. (2002). Foreign direct investment in Africa: The role of natural resources, market size, government policy, instability and corruption. *United Nations University WIDER Discussion Paper*, 2002(1).
- Ayanwale, A. B. (2007). FDI and economic growth: Evidence from Nigeria. *African Economic Research Consortium (AERC) Research Paper Series*, 165.
- Bakare, A. S. (2011). The impact of foreign direct investment on economic growth in Nigeria: An empirical analysis. *International Journal of Humanities and Social Science*, 1(2), 11 - 18.
- Belloumi, M. (2014). The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model. *Economic Systems*, 38(2), 269 - 287. <https://doi.org/10.1016/j.ecosys.2013.06.002>
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115 - 143. [https://doi.org/10.1016/S0304-4076\(97\)00097-2](https://doi.org/10.1016/S0304-4076(97)00097-2)
- Bond, S. R. (2002). Dynamic panel data models: A guide to micro data methods and practice. *Portuguese Economic Journal*, 1(2), 141 - 162. <https://doi.org/10.1007/s10258-002-0009-8>
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics*, 45(1), 115 - 135. [https://doi.org/10.1016/S0022-1996\(97\)00033-0](https://doi.org/10.1016/S0022-1996(97)00033-0)

# REFERENCES

- Daramola, A. O., Olowookere, E. G., & Fakiyesi, T. O. (2022). FDI and economic growth in Nigeria: An ARDL approach. *Nigerian Journal of Economic Policy*, 29(2), 98 - 115.
- Frankel, J. A., & Romer, D. (1999). Does trade cause growth? *The American Economic Review*, 89(3), 379 - 399. <https://doi.org/10.1257/aer.89.3.379>
- Giwa, S. A., Ogundipe, A. A., & Oluwatobi, S. (2020). FDI and economic growth in West Africa: Dynamic panel evidence. *African Development Review*, 31(3), 259 - 271. <https://doi.org/10.1111/1467-8268.12456>
- Hansen, B. E. (1999). Threshold effects in economic models. *The American Economic Review*, 89(3), 113 - 120. <https://doi.org/10.1257/aer.89.3.113>
- Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica*, 50(4), 1029 - 1054. <https://doi.org/10.2307/1912775>
- Idoko, C. U., & Taiga, U. U. (2018). Effect of foreign direct investment (FDI) on manufacturing output in Nigeria (1981-2016). *Advances in Social Sciences Research Journal*, 5(5), 1-14. <https://doi.org/10.14738/assrj.55.4319>
- Inekwe, J. N. (2013). FDI, employment and economic growth in Nigeria. *African Development Review*, 25(4), 421 - 433. <https://doi.org/10.1111/1467-8268.12039>
- Mba, P. N., & Okoye, B. N. (2020). Foreign direct investment and economic growth in Nigeria: An Arellano-Bond GMM approach. *International Journal of Economics and Finance*, 12(11), 101-110. <https://doi.org/10.5539/ijef.v12n11p101>
- Musibau, H. O., Adeleke, A. Q., & Ajayi, B. R. (2024). Globalisation, governance, and economic growth in Sub-Saharan Africa: A quantile regression approach. *African Journal of Economic Policy*, 37(1), 44 - 60.
- Obeng, C., & Jiboku, A. O. (2021). The dynamic effect of foreign direct investment on economic growth in West African countries: A GMM approach. *Journal of Economic Studies*, 48(1), 1-22. <https://doi.org/10.1108/JES-07-2020-0322>
- Obwona, M. B. (2001). Determinants of FDI and their impact on economic growth in Uganda. *African Development Review*, 13(1), 46 - 81.
- Okeke, E. N., Udeorah, S. N., & Agu, G. A. (2023). Foreign direct investment and industrial output growth in Nigeria: Evidence from ARDL approach. *Future Business Journal*, 9(1), Article 15. <https://doi.org/10.1186/s43093-023-00165-5>

# REFERENCES

- Oligbi, B. O. (2024). Inflation, external debt and economic growth in Nigeria: An empirical appraisal using ARDL approach. *International Journal of Research and Innovation in Social Science (IJRISS)*, 8(2), 162 - 169.
- Ozili, P. K. (2024). Does foreign direct investment stimulate economic growth in Nigeria? A reconsideration. *International Journal of Economic Policy Studies*. <https://doi.org/10.1007/s42495-024-00124-0>
- Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *Stata Journal*, 9(1), 86 - 136. <https://doi.org/10.1177/1536867X0900900106>
- Sargan, J. D. (1958). The estimation of economic relationships using instrumental variables. *Econometrica*, 26(3), 393 - 415. <https://doi.org/10.2307/1907601>
- Sargan, J. D., & Bhargava, A. (1983). Testing residuals from least squares regression for being generated by the Gaussian random walk - I. *Econometrica*, 51(1), 153 - 174. <https://doi.org/10.2307/1911364>
- Sunday, A. A., & Ahmed, B. (2019). Trade openness and economic growth in Nigeria: A long-run analysis. *Journal of Economics and International Finance*, 11(4), 27 - 34.
- Tobin, J. (1965). Money and economic growth. *Econometrica*, 33(4), 671 - 684. <https://doi.org/10.2307/1910404>
- Tyokosu, M. A., & Abakpa, N. N. (2023). The relationship between trade openness and economic growth in Nigeria from 2000 to 2020. *International Journal of Research and Innovation in Social Science (IJRISS)*, 7(11), 1766 - 1778.
- United Nations Conference on Trade and Development. (2021). *World investment report 2021: Investing in sustainable recovery*. UNCTAD.
- United Nations Conference on Trade and Development. (2022). *World investment report 2022: International tax reforms and sustainable investment*. UNCTAD.
- United Nations Conference on Trade and Development. (2024). *World investment report 2024: Investment facilitation and digital government*. UNCTAD.
- U.S. Department of State. (2024). *2024 investment climate statements: Nigeria*. Bureau of Economic and Business Affairs.
- World Bank Group. (2019). *Doing business 2020: Comparing business regulation in 190 economies*. World Bank.

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