EMPIRICAL ANALYSIS OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN NIGERIA

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Abstract

This study investigates the effect of Foreign Direct Investment (FDI) on economic growth in Nigeria using the Autoregressive Distributed Lag (ARDL) bounds testing approach over the period 1981–2023. Given the policy relevance of attracting foreign capital for economic development and growth makes the understanding of the nature and significance of FDI's impact very crucial and critical. The study employs Real Gross Domestic Product (RGDP) as a proxy for economic growth, while FDI, trade openness, government expenditure, inflation, and exchange rate serve as explanatory variables. Unit root tests reveal that the variables are integrated at different levels of I (0) and I (1) making the ARDL method appropriate for estimating both short-run dynamics and long-run relationships. The bounds test confirms the existence of a long-run relationship between FDI and economic growth. Empirical results indicate that FDI has a positive and statistically significant impact on Nigeria's economic growth in both the short and long run. Other control variables such as trade openness and government spending also contribute positively, while inflation and exchange rate instability exert a negative influence. The findings suggest that policies aimed at improving macroeconomic stability, strengthening institutions, and ensuring an investor-friendly environment are essential to maximizing the benefits of FDI. The study recommends targeted reforms to make Nigeria a more attractive destination for sustainable and growth-enhancing foreign investments.

Keywords: FDI Inflows, Trade openness, Economic growth, Nigeria, Bound Test

1. INTRODUCTION

Foreign Direct Investment (FDI) has long been considered a vital catalyst for economic growth, particularly in developing economies. It brings not only capital inflow but also technology transfer, managerial expertise, and access to global markets. For a developing country like Nigeria blessed with abundant natural resources but burdened with infrastructural deficits and economic instability. FDI presents an important avenue for growth and development. Despite Nigeria's efforts to attract foreign investment through economic liberalization, incentives, and reforms, the country has witnessed fluctuating FDI inflows and inconsistent economic performance. While some argue that FDI contributes to job creation, industrial development, and GDP growth, others contend that the benefits are undermined by weak institutions, corruption, and capital flight (Muhammad et al., 2021; Arvin, Pradhan & Nair, 2021; Djellouli et al., 2022; Appiah et al., 2023; Hoa et al., 2024).

There is a growing debate on whether FDI has actually contributed meaningfully to Nigeria's economic growth. Despite attracting billions of dollars in FDI, Nigeria still grapples with high unemployment, poor infrastructure, and volatile economic indicators. Past studies (Hobbs, Paparas & AboElsoud, 2021; Li, Lu & Huang, 2021; Murshed et al., 2022; Wei, Mohsin & Zhang, 2022; Kumari et al., 2023) have shown mixed and inconclusive results due to methodological limitations or data inconsistencies. Given these contrasting views, it becomes important to empirically assess the impact of FDI on economic growth in Nigeria, especially using modern econometric techniques that account for both short-run dynamics and long-run equilibrium. Thus, there is a need for a more robust and contemporary analysis using the ARDL bounds testing approach, which allows for a clearer understanding of both the short-run and long-run effects (Banday, Murugan & Maryam, 2021; Islam et al., 2021; Hamid et al., 2022; Leylian et al., 2022; Kanval et al., 2024).

The main objective of this study is to evaluate the effect of FDI on economic growth in Nigeria using the ARDL approach. Specifically, the study aims to examine the long-run and short-run dynamics relationship between FDI and economic growth and also identify the impact of other macroeconomic variables for example trade openness, inflation rate etc. on growth.

2. LITERATURE REVIEW

In this section, relevant literatures are reviewed empirically alongside with theories in line with numerous studies on the relationship of Foreign Direct Investment (FDI) and Economic Growth. Several studies have directly examined the relationship between FDI and Economic Growth across countries with significant research works from Huynh and Tran 2025; Hoa et al., 2024; Akhtar, Zaman and Khan, 2024; Kumari et al., 2023; Ennin and Wiafe, 2023; and so on.

Huynh and Tran 2025 empirically investigated how foreign direct investment (FDI) inflows affect the informal economy by using a panel data set of 63 provinces in Vietnam from 2006 to 2021. The results showed that FDI inflows reduce the informal economy through the channels of boosting economic growth and improving local governance quality. It was also found that the formal economy and the informal economy are substitutes while local governance quality reduces informal activities. In the global context, Hoa, et al; (2024) examined the nexus of innovation, foreign direct investment (FDI) inflows, economic growth, and renewable energy consumption in 60 countries from 1990- 2022 by using a dynamic analysis of unrestricted fixed and random effects with Granger Causality test. The study revealed that a bidirectional relationship between innovation, FDI inflows, economic growth and renewable energy consumption.

Similarly, Akhtar, Zaman and Khan, 2024 examined the influence of governance indicators with inflow FDI on environmental sustainability in Pakistan using data from 1996 to 2022. The findings revealed that FDI has a detrimental impact on environmental sustainability, supporting the pollution haven theory. In the same manner, Kumari, et al, 2023 investigated the long-term and causal relationship among foreign direct investment (FDI) inflows, trade openness and India's economic growth from 1985–2018 using the Johansen cointegration and vector autoregression (VAR) model. The study showed that there is no long-term relationship among variables but there is Granger causality from FDI to economic growth and vice versa meaning that both causes each other (bi-directional causality). It was suggested that the government could take the decisions related to foreign investment after adopting more trade openness for the country based on the

findings. However, study in Nigera is reveiwed as Ugonna, 2022 examined the impact of foreign direct investment on the economic growth from 1980 to 2018. The study revealed that about 80% change in RGDP, is explained by Foreign direct investment and employment level for the period reviewed. This indicated that FDI is important for the nation's growth.

Thus, linkages between FDI and growth have been established by these various researchers across the world based on their findings. However, there is need for investigating of FDI inflows on specified nation's context such as Nigeria in order to profound unique and peculiar long-term policies for sustainable growth of the country. Hence, evaluating and analyzing the outcome of FDI on the nation's growth (Nigeria) for dynamic policy suggestion makes this research to have a distinct aim and method as contributions to knowledge.

3. METHODOLOGY

This section presents and analyzes the data collected on Foreign Direct Investment (FDI) and other independent variables on economic growth in Nigeria. The descriptive analysis of the data series used is presented in Table 1; where the mean and median values, for all the variables, are between their maximum and minimum values, which show a good consistency level of the data series. The skewness reveals that three variables (exchange rate, inflation rate, FDI, government recurrent and capital expenditures) are positive while GDP and Trade openness are negative. The kurtosis of trade openness is flat (platykurtic) since kurtosis is less than 3 implying that its distributions are flatter compared to normal distribution. On the other hand, the kurtosis of GDP, FDI, exchange rate, inflation rate, government recurrent and capital expenditures exceed 3 which means that the series is peaked (leptokurtic), compared to normal (mesokurtic) distribution.

Table 1: Descriptive Statistics

	GDP	EXR	TOP	FDI	INFR	GREX	GCEX
Mean	3.042141	146.3098	45.91530	1.221208	20.95366	2297.675	703.3185
Median	3.251681	101.4399	47.01671	1.069539	11.11892	696.8000	351.2500
Maximum	15.32916	536.9108	65.66353	4.282088	219.0028	14287.56	4486.206
Minimum	-13.12788	49.77629	24.92418	-0.039522	0.686099	4.750800	4.100100
Std. Dev.	5.255826	113.1157	11.88659	0.945848	33.94017	3311.916	938.7777
Skewness	-0.839215	2.010376	-0.203334	0.946818	4.870144	1.891844	2.192102
Kurtosis	4.845801	6.355965	1.770743	3.760713	28.45741	6.279030	8.227677
Jarue-Bera	11.15153	49.14353	3.003645	7.461467	1331.124	44.91410	83.40182
Probability	0.003789	0.000000	0.222724	0.023975	0.000000	0.000000	0.000000
Sum	130.8121	6291.320	1974.358	52.51194	901.0074	98800.02	30242.69
Sum Sq Dev.	1160.196	537396.6	5934.222	37.57441	48381.29	4.61E+08	3701474
Observations	43	43	43	43	43	43	43

Source: Author's Computation, 2025.

The data used in this study covers the period 1981 to 2023, obtained from the World Bank, Central Bank of Nigeria (CBN), and National Bureau of Statistics (NBS). Key variables are: Gross Domestic Product (GDP) – proxy for economic growth (dependent variable); Foreign Direct Investment (FDI) – measured as net inflows (% of GDP), Exchange Rate (EXR) – naira to USD, Inflation Rate (INF) – consumer price index (CPI), Trade Openness (TOP) – total trade as a % of GDP, capital and recurrent Government Expenditure (GCEX and GREX) – government

expenditure as a % of GDP. Hence, to examine both the short-run and long-run relationships among the variables the prerequisite test will be carried out to ascertain the use of the Autoregressive Distributed Lag (ARDL) approach. Thus, the linear model used in this study is stated as:

$$GDP_t = \beta_0 + \beta_1 FDI_t + \beta_2 INF_t + \beta_3 TO_t + \beta_4 EXR_t + \beta_5 GCEX_t + \beta_6 GREX_t + U_t$$

Where β_1, β_2, β_3, β_4, β_5 and β_6 are parameters, and U_t represents the error term.

4. ANALYSIS AND DISCUSSION

Before applying the ARDL model, the stationarity of the variables is tested using the Augmented Dickey-Fuller **(**ADF) and Phillip- Perron (PP) test. The results are summarized in Table 2.

Table 2: Stationarity Test

Variables	Order of integration
GDP	I (1)
FDI	I (0)
INF	I (0)
TO	I (1)
EXR	I (1)
GCEX	I (0)
GREX	I (0)

Source: Author's Computation

Table 2 shows that the variables are integrated at I (0) and I (1), therefore the ARDL approach is appropriate for the estimation of long and short relationship, and it is suitable for small sample sizes of over 30years. Hence, to test for the existence of a long-run relationship between FDI and economic growth, the ARDL bounds test is conducted, based on these hypotheses: H_0: No long-run relationship exists and H_1: A long-run relationship exists.

Table 3: Bound Test

F-Statistic	Lower Bound I (0)	Upper Bound I (1)	Decision
6.494822	3.505	5.121	Reject H_0 at 5% that is Co-integration exists

Source: Author's Computation

Table 3 shows that the F-statistic exceeds the upper bound, indicating a long-run relationship between FDI and economic growth. Thus, the long-run Coefficients for the model estimation is presented in Table 3 where FDI is significant and has positive effect on economic growth in the long run. Exchange rate and inflation have negative and significant effects, while trade openness also significantly boosts economic growth.

Table 4: Long Run Coefficients

Variables	Coefficients	T-Statistic	Prob.
C	2.510	3.51	0.001

FDI	0.187	3.02	0.005***
INF	-0.011	-2.75	0.010***
TO	0.096	3.00	0.044**
EXR	-0.014	-2.33	0.025**
GCEX	0.0047	9.86	0.061*
GREX	-0.0027	-3.06	0.007***

Source: Author's Computation

Furthermore, the short-run dynamics was estimated by Error Correction Model (ECM) and presented in Table 5. Table 5 shows the error correction term (ECT) is negative and statistically significant, confirming the presence of a stable long-run equilibrium. The speed of adjustment is 96.6%, meaning any short-term deviation will be corrected within less than two years.

Table 5: Short Run Coefficients

Variables	**Coefficients**	**T-Statistic**	**Prob.**
ECT (-1)	-0.9662	-11.9535	0.000***
D(FDI)	1.7377	6.9428	0.002***
D(INF)	-0.0498	-3.6280	0.022**
D(TO)	-0.0543	-1.2564	0.277
D(EXR)	0.0134	2.9220	0.043**
D(GREX)	-0.0043	-5.3061	0.006***
D(GCEX)	0.0091	8.986	0.000***

Source: Author's Computation

However, diagnostic tests are carried out for the model estimated to ensure the validity and reliability of the estimated results. The tests are presented in Table 6, Figure 1 and 2.

Table 6: Diagnostic Tests

Test	**Results**
Serial Correlation	No autocorrelation
Normality Test	Residuals are normally distributed
Heteroskedasticity	No heteroscedasticity
Ramsey RESET	Model is correctly specified
CUSUM and CUSUMSQ	Parameters are stable over time

Source: Author's Computation

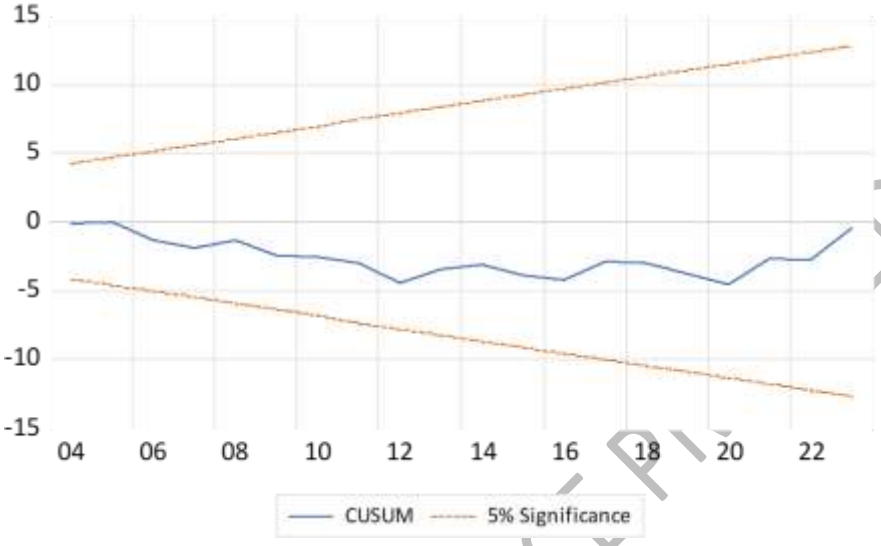

Figure 1: CUSUM Parameters

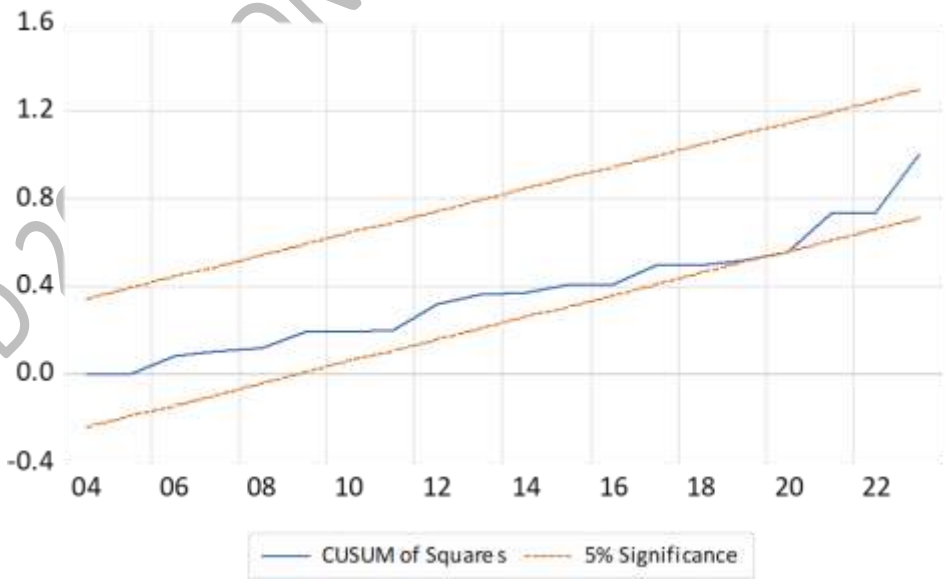

Figure 2: CUSUMSQ Parameters

The findings corroborate the hypothesis that FDI significantly contributes to economic growth in Nigeria. Though, macroeconomic variables like inflation and exchange rate negatively impact

growth. The results highlight the importance of maintaining macroeconomic stability and creating a favorable investment climate to maximize the benefits of FDI.

1. CONCLUSION AND RECOMMENDATIONS

This study discovered that there is a statistically significant and positive relationship between FDI and economic growth in Nigeria. Hence, concludes that while Foreign Direct Investment has a meaningful and positive impact on Nigeria's economic growth, the overall benefits are constrained by systemic challenges within the economy. FDI can serve as a critical engine for development, but its effectiveness depends heavily on the domestic environment in which it operates. Nigeria must take deliberate steps to ensure that foreign investments are not only attracted but also retained and integrated into its broader development goals. Furthermore, based on the findings and conclusion of the study, the following policy recommendations are given:

a. Nigeria should actively promote FDI in non-oil sectors such as agriculture, manufacturing, ICT, and renewable energy. This will reduce the country's vulnerability to oil price shocks and promote inclusive growth.

b. Significant investment in infrastructure is essential to reduce the cost of doing business. Modernizing transport, energy, and communication systems will make Nigeria more attractive to foreign investors.

c. Align educational and vocational training programs with industrial needs to improve the local labor force and reduce overreliance on expatriate workers.

d. Mandate strategic partnerships between foreign investors and local firms to facilitate knowledge and technology spillovers.

2. LIMITATIONS AND FURTHER STUDIES

- The analysis was limited to Nigeria, so the findings may not be directly applicable to other countries with different economic structures.
- The data used were aggregate and annual, which may not capture sectoral or quarterly variations.
- The study used FDI as a whole without separating between greenfield and portfolio investment components.

AUTHOR DECLARATIONS

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