Impact of Inward and Outward Foreign Direct Investment on Economic Growth in Nigeria

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Abstract

The study examines the impact of foreign direct investment on economic growth in Nigeria spanning from 1984 to 2022. The study utilized a secondary data source and adapted numerous econometrics techniques for model estimation including the Augmented Dickey-Fuller Unit Root Test, the Granger causality technique, and the Autoregressive Distributed Lag model which is robust to heteroscedasticity and autocorrelation. The study divided foreign direct investment into inward foreign direct investment and outward foreign direct investment. Findings indicated that inward foreign direct investment was significant and positively influenced economic growth in Nigeria. However, outward foreign direct investment had a significant and negative impact on economic growth in Nigeria. The study is unique in the sense that it checked the influence of both inward and outward foreign direct investment on the Nigerian economy. Therefore, the study recommended that the Nigerian government should formulate and implement policies that can attract more foreign direct investment and policies that would discourage the outflow of foreign direct investment.

Keywords: Foreign direct investment, economic growth and Nigeria

Introduction

Foreign direct investment is today viewed as the critical catalyst in enhancing economic growth by its potential to the transfer of capital, technology, knowledge, promote entrepreneurship, enhance overall productivity, boost competitiveness and ultimately eradication of poverty. These said advantages has forced developing countries to implement policies geared toward foreign direct investment (FDI) attraction by the way of providing subsidies and tax reduction among others. FDI today remains the most reliable source of growth-propelling technologies and the highest source of capital inflow, and this increases the efficiency of production and spur growth (Das & Sethi, 2020; Lee, 2013; Taylor, 2020; Yeboua, 2021). Foreign direct investment supplement and complement inadequate domestic investment in an economy through the provision of foreign sources of financing to domestic investment, these promotes investment and spur economic growth (Ajide & Raheem, 2016). FDI plays a crucial role in the economic growth and development of countries across the globe. As a significant emerging market, Nigeria has experienced a substantial inflow of FDI in recent years, along with an increasing outward FDI trend. Nigeria is a largest economy in Africa, endowed with vast natural resources, a large population, and a strategic geographical location. Over the past few decades, the country has witnessed a surge in FDI inflows due to its attractive investment climate, market potential, and government efforts to attract foreign investors.

Additionally, Nigerian companies have also expanded their operations abroad, resulting in an increasing trend of outward FDI. Inward FDI are foreign investments made by multinational corporations (MMC) into Nigerian economy, such as establishing new business, acquiring existing companies, or injecting capital into existing ventures. These inflows bring capital, technology, managerial expertise, and access to global markets, which can stimulate economic growth, create

employment opportunities, and enhance productivity. Outward FDI, on the other hand, are the Nigerian companies' investments in foreign countries. This trend has gained momentum due to the desire to access new markets, secure natural resources acquire advanced technologies, and diversify risks (Ajayi & Ndikumana, 2021). Outward FDI can contribute to economic growth by expanding Nigeria firms' reach, improving their competitiveness, and promoting knowledge and technology transfers. However, the impacts of inward and outward FDI on economic growth are not straightforward and can vary depending on several factors. These factors include the host country's institutional framework, market size, human capital, infrastructure, political stability, and the quality of governance, additionally, the sectoral composition of FDI inflows and outflows, as well as the nature of the investment (greenfield or mergers and acquisitions), can also influence the economic growth outcomes (Ajayi & Ndikumana, 2021; NIPC, 2021).

In addition, FDI inflows are required in the context of Nigeria to complement economic growth. According to According to the World Bank (2021), the trend of foreign direct investment in Nigeria shows some fluctuations and variations. The FDI inflows in Nigeria reached an all-time high of 3.1 USD billion in December 2012, which was also the highest percentage of nominal GDP (2.5%) in the same period. The FDI inflows in Nigeria declined sharply to -1.5 USD billion in June 2022, which was also the lowest percentage of nominal GDP (-1.4%) in the same period. This means that the FDI outflows exceeded the inflows by a large margin. The FDI inflows in Nigeria recovered slightly to 752.7 USD million in December 2022, which was equivalent to -0.04% of nominal GDP. The FDI outflows as a percentage of GDP in Nigeria were generally low and stable, ranging from -0.01% to 0.01% from 2010 to 2020. However, they increased significantly to -0.75% in 2021 and -0.79% in 2022, indicating that Nigerian investors were investing more abroad than foreign investors were investing in Nigeria (WDI, 2022).

The influx of FDI in Nigeria should have been rapidly increasing the rate of economic growth, as observed in the overview, the inflows of FDI from 1980 - 2004 was steadily increases while the rate of growth was sharply declining and fluctuating. Besides, the fast-increasing trend of FDI in 2005 - 2010 this should have accelerated the economic growth, but the rate of growth decline sharply in the same period. Finally, FDI inflows show a decreasing pattern from 2009 – 2022. On contrary to the growth rate, the steady trend instead of declining. These inconsistence patterns should be investigated. However, Nigeria has recorded a low rate of economic growth in 2016 and 2022 (Haruna et al. 2021). In contrast, Nigeria shows the low growth rate of despite an increase in FDI. The study examines the impact of both inward and outward FDI on the Nigeria economy. This study is unique in the sense that it checked the influence of both the inward and outward FDI on economic growth.

Literature Review

Scholars have explored the relationship between Foreign Direct Investment (FDI) and economic growth using both neoclassical (or exogenous) growth models and new endogenous growth models. The neoclassical growth theory suggests that FDI can contribute to economic growth by increasing the capital stock and productivity of a host country (Solow 1956). The endogenous growth models emphasize the role of technological progress, knowledge, and human capital in driving economic growth. FDI can act as a catalyst for technological transfer and innovation (Romer, 1990). The Human Capital Theory suggests that FDI can contribute to economic growth by enhancing human capital through training and skill development, leading to increased productivity (Lucas Jr, 1988).

Agbloyor *et al* (2016) examine the influence of institutional development on FDI-growth nexus in Sub-Saharan African countries for the period 1996–2010. They employ a linear interaction model (linear interaction between FDI and the institutional indicators) and the system generalized method of moments (SYS-GMM) estimators, and the results did not show robust evidence concerning the moderating effect of institutions in FDI-growth nexus. However, they find a direct positive effect of institutions on economic growth. Adams and Opoku (2015) also examine the impact of the regulatory regime, namely, credit market regulations, business regulations, and labor market regulations, on FDI-growth nexus in 22 sub-Saharan African countries over the period 1980–2011. Based on general methods of moments (GMM) estimation approach, they find that FDI does not affect directly economic growth; it affects positively growth when interacted linearly with regulatory regime variables. Similarly, Yeboua (2021) tests the nexus between foreign direct investment and growth in Africa: examining the role of institutional development from 1990 to 2017. Utilized the panel smooth transition regression technique, evidence indicates that FDI promotes growth and concludes that the quality of institutional development determines the influence of FDI on growth. Furthermore, Taylor (2020) studied the link between FDI and growth based on general and sectoral foreign direct investment in Tanzania from 1988 to 2017 using the Autoregressive Distributive Lag Bound method. Evidence reveals that sectoral FDI stimulates economic growth. Using the ARDL bound testing technique to measure the causal link between FDI and growth in Kenya from 1980 to 2018, Odhiambo (2022) reported that foreign direct investment is related to growth.

More so, while analyzing the influence of FDI, financial development and growth, Saidi (2018) used the error correction model (ECM) and covered 16 low-income economies from 1990 to 2015. The study found that FDI stimulates growth. Also, Opoku et al. (2019) also investigated the impact of FDI, sectoral effects and growth utilizing the GMM approach in 38 African economies from 1960 to 2014. Evidence shows FDI spur growth. Similarly, towing toward the same line, Sakyi et al. (2015) utilized the ARDL bound method in testing the influence of FDI, trade openness and growth from 1970 to 2011 in Ghana. Result suggests that FDI foster growth. Banday et al. (2021) examined the influence of FDI, trade openness and growth from 1990 to 2018 in 5 BRICS economies. Adopted the panel ARDL technique, and evidence indicate that it fosters growth. Similarly, in the same line, Eudelle and Shrestha (2017) test the nexus between foreign direct investment and economic growth in Singapore and Oman. The study suggests that FDI stimulates growth by filling the needed investment gap. Similarly, to this research, Agbloyor *et al* (2016) measured the association between FDI, institutions, and growth in Sub-Saharan Africa (SSA) utilizing a two-step generalized method of moments estimator with orthogonal deviation and Weidmeijer corrected standard errors. Results indicate that FDI enhances growth in the sample with abundant natural resources. Furthermore, relying on annual panel data from 1980 to 2016 for 45 African nations, Acquah and Ibrahim (2020) analyzed the influence of FDI on growth and financial sector development. Using the two-step generalized method moments, evidence indicates that higher FDI is linked with higher growth.

Methodology

To empirically assess the impact of foreign direct investment on economic growth in Nigeria. The study utilized a time series date from 1984 to 2022. The study adopts a model by Shittu, Yusuf, et al. (2020) however, with few modifications. Therefore, the econometric specification of equation is written as:

$$GDP_t = \beta_0 + \beta_1 K_t + \beta_2 L_t + \beta_3 FDI\_INFLOW_t + \beta_4 FDI\_OUTFLOW_t + \varepsilon_t$$

Where GDP denotes economic growth, K denotes gross capital formation, L is the labour force total, FDI_INFLOW represents a foreign direct investment net inflow to Nigeria, FDI_OUTFLOW represents a foreign direct investment net outflow out of Nigeria.

Unit Root Test: - The Augmented Dickey-Fuller (ADF) unit root test is a fundamental tool in time series econometrics, providing researchers with a robust method to assess the stationarity of a variable. This essay delves into the theoretical underpinnings, applications, and significance of the ADF test in econometric analyses. Drawing upon seminal works and recent developments, we explore the key concepts, steps involved in conducting the ADF test, and its implications for time series studies. Developed by Dickey and Fuller (1979) and later augmented by Said and Dickey (1984), the ADF unit root test has become a cornerstone in the analysis of non-stationary time series data. Stationarity is a crucial assumption in many econometric models, and the ADF test serves as a reliable tool to determine whether a variable possesses a unit root, indicating non-stationarity. In conducting the DF test, it is assumed that ε_t is independently uncorrelated but if otherwise DF developed another test known as the ADF test, consists of the estimation of Equation

$\Delta Y_t = \beta_1 + \beta_1 + \rho Y_{t-1} + \sum_{i=1}^{\rho} \alpha_1 \Delta Y_{t-1} + \varepsilon_t, \quad i = 1,2, \ldots \ldots N$

where ε_t is pure white noise and $\Delta Y_t = (Y_t - Y_{t-1}), \Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$, while ADF tests whether $\delta = 0$ or $\delta < 0$ and the test still follows the same procedure as DF statistics, employing the same critical values.

Estimation Technique: - The ARDL bound technique addresses the challenge of uncertain integration orders in time series data, offering a comprehensive approach to investigate cointegration among variables. Developed by Im et al. (2002), ARDL has gained popularity due to its ability to accommodate both integrated of order 1 (I(1)) and integrated of order 0 (I(0)) variables in a single framework. The ARDL bound technique has found applications in a wide array of economic and financial studies. For example, Narayan (2005) utilized ARDL to examine the relationship between tourism and economic growth. The flexibility of ARDL makes it particularly valuable when dealing with mixed orders of integration among variables. Researchers specify a model that includes lagged levels and lagged differences of the variables of interest. For instance, in a bivariate setting with Y and X, the model might be expressed as
ARDL model is represented in Equation

$$\Delta Y_t = \beta_0 + \beta_1 \Delta Y_{t-1} + \beta_2 \Delta Y_{t-2} + \cdots + \beta_n \Delta Y_{t-k} + \gamma_1 Y_{t-1} + \gamma_2 Y_{t-2} + \cdots + \gamma_n Y_{y-k} + \varepsilon_t$$

where ε_t stand for white noise error term, and the model is autoregressive, hence Y_t represents a vector of the variables employed in the model. The ΔY_t can be explained (in part) by change and lagged values of itself. It also has a distributed lag component, in the form of successive lags of the other independent variable. However, these methods are regarded as weak because they do not provide robust results for small samples, structural shocks, or breaks.

Estimation Results
Descriptive Statistics

This sub-section provides a descriptive analysis to describe the main characteristics of the data utilized for the study. The summary statistics includes the mean, minimum, maximum, standard deviation, and observations in the analysis.

Table 1. *Descriptive Statistics*

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
FDI_INFLOW	1.525056	1.15907	5.790847	-0.03913	1.250128	39
FDI_OUTFLOW	0.362043	0.243256	1.919487	-0.01498	0.445712	39
GDP	1340.836	903.4494	3200.953	270.0275	900.8516	39
K	4.75E+10	3.48E+10	1.46E+11	1.23E+10	3.16E+10	38
LABOUR	46303322	45276845	73272344	26520337	13206909	39

Note: GDP denotes economic growth, K is gross fixed capital formation, FDI_INFLOW represents foreign direct investment inflow. FDI_OUTFLOW denotes foreign direct investment outflow, Labour is labour force total.
Source Authors' computation, 2023.

As observed in the summary statistics, GDP is having high dispersion from it mean values, with minimum and maximum values as 3200.953 and 270.0275. Whereas FDI_INFLOW have a low deviation from the mean value, with a minimum and maximum at 5.7908 and -0.0391. FDI_OUTFLOW is having low deviation from the mean value, with a minimum and maximum values at 1.9194 and -0.0149. The variable K indicates low deviation from the mean value, with minimum and maximum values of 1.46 and 1.23. LABOUR as a variable reveals a high deviation from the mean value.

Correlation Analysis

The use of correlation analysis establishes the intensity and direction of the association between independent variables. Table 4.2 exhibits the correlation results among the variables.

Table 2. *Correlation Analysis*

Variabes	logGDPPER	logFDI_OUT	logLabour	logK	LogFDI_INFLOW
logGDPPER	1				
logFDI_OUT	0.4021	1			
logLabour	0.8017	0.6518	1		
logK	0.8461	0.3723	0.7893	1	
LogFDI_INFLOW	0.7363	0.5211	0.6229	0.6477	1

Note: GDP denotes economic growth, POV denotes poverty, K is gross fixed capital formation, FDI_INFLOW represents foreign direct investment inflow. FDI_OUTFLOW denotes foreign direct investment outflow, Labour is labour force total.
Source Authors' computation, 2023.

The correlation between K and FDI_OUT indicates a low and positive coefficient. This implies a direct association. The correlation between LABOUR and FDI reveals a moderate correlation and positive coefficient. The correlation between FDI_INFLOW and LABOUR indicates a moderate and positive coefficient. The correlation between FDI_INFLOW and K reveals a positive and average coefficient. This implies a direct association. Based on the correlation coefficient in Table 2, all the variables are within an acceptable correlation degree. This implies that all the study variables can be included in one model.

Unit root test for Stationarity

In order to achieve a meaningful regression with time series data, it is necessary to test the existence of unit roots in the variables. The variables used in the analysis need to be stationary and/or should be co-integrated in order to infer meaningful relationship from the regression.

Table 3. *Augmented Dickey-Fuller Unit Root Test*

Variable	Level t-Stat	First Difference t-Stat	Order of Integration 0 or I
GDPPER	-0.3594	-4.7866 ***	I(I)
FDI_INFLOW	-3.7789**	-3.7789***	I(0)
FDI_OUTFLOW	-4.0433***	-9.4470***	I(0)
LABOUR	2.3515	-2.8850*	I(I)
K	1.7054	-4.1343***	I(I)

***, **, * denotes the level of significance at 1%, 5% & 10% respectively.
Source: Author's computation **2023.**

Based on the unit root test result presented in Table 3, FDI_INFLOW and FDI_OUTFLOW variables are stationary at levels, whereas the variables of GDP, LABOUR, and K were found to be stationary at first difference I(I). This implies that the variables are in mix order.

The ARDL Bounds Test

As observed in Table 3, the unit root estimations result for variables in model one, the variables are integrated of different order i.e. stationary at a level and first different I(0) and I(1). Based on the unit root result, the study utilized ARDL Bound in an attempt to explore the likelihood of the presence (or otherwise) of a long-run association between the variables. Having utilized the ARDL Bound technique, the cointegration test does not apply. Based on the Bound test results in Table 4 the F-statistics estimate (value) is compared with the upper Bound value at a 5% critical level. The result indicates the presence of a long-run association within the model.

Table 4. ARDL Bounds Test

Test Statistics	Value	K	Significance	I_O	I_1
F-Statistics	14.21250	4	10%	2.45	3.52
			5%	2.86	4.01
			2.5%	3.25	4.49
			1%	3.74	5.06

Source Authors' computation, 2023.

The Long-Run Estimates

Based on the results of the Bound test which indicate that the variables are cointegrated as observed in Table 4. Below are the long-run coefficient results of the ARDL method presented in Table 5

Table 5. *The ARDL Long Run Cointegration*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGLABOR	1.465606	0.608232	2.409617	0.0315
LOGFDI_OUTFLOW	-0.161034	0.068916	-2.336678	0.0361
K	-0.058544	0.009158	-6.392453	0.0000
FDI_INFLOW	0.249734	0.069332	3.602002	0.0032
C	-14.149442	10.779057	-1.312679	0.2120

Test	F-statistic	Chi-square	Probability
Breusch-Godfrey LM Test	*0.392796*		*0.6843*
Breusch-Pagan	*0.561363*		*0.8686*
Jarque-Bera			*0.428*

Note: *** and ** denotes the level of significance at one percent and five percent, respectively.
Source: Authors' computation, 2023

The estimation result on labour indicates a positive and significant coefficient at 5 percent level of significant. This means a unit increase in labor results in a 1.46 percent increase in economic growth in Nigeria. These imply that rise labor stimulate economic growth in Nigeria in the long run. The results lend support to studies by Hye and Wizarat (2013) who found positive influence of labour on economic growth. It goes against studies by Law and Azman-Saini (2013), Haruna and Bakar (2020) and Naveed and Mahmood (2017) who found labour to be discouraging economic growth. The results on FDI_OUTFLOW reveal a significant coefficient at 5 percent, and a negative coefficient. These imply that a one percent increase in FDI_OUTFLOW leads to -0.16 percent decrease in economic growth in Nigeria in the long run. These means that FDI_OUTFLOW influence economic growth in Nigeria. This means when there is high FDI flowing out of the economy, economic growth is affected negatively.

The result of capital stock indicates a significant and a negative coefficient at 1 percent level of significant. This means that a one percent increase in capital stock results in -0.05 decrease in economic growth in Nigeria. This implies that capital hampered economic growth in Nigeria in the long run. The negative coefficient of capital signifies the paucity of capital needed to drive growth in Nigeria. This implies that Nigerian level of capital is insufficient to accelerate the necessary investment. These imply that capital stock reduces economic growth in Nigeria in a long run. This will engage more labour in the productive sector. The outcome is in line with studies by Haruna and Bakar (2020) and Owusu and Odhiambo (2015) who found negative impact of capital stock on economic growth. It runs contrary to studies by Naveed and Mahmood (2017) and Law and Azman-Saini (2013) who found positive influence of capital stock on economic growth.

The result of FDI_INFLOW indicates positive and significant coefficient at 1 percent level of significant. This implies that a one percent increase in FDI_INFLOW results to 0.25 percent rise in economic growth. This means that FDI_INFLOW does enhance economic growth in Nigeria in the long run. The finding is supported by Shittu et al. (2020) and Opoku et al. (2019) who finds positive influence of FDI on economic growth. It runs in disagreement with studies by Adams and Opoku (2015) and Sokhanvar (2019) who reported negative influence of FDI on economic growth.

The ARDL Short Run

The short-run estimation coefficients are depicted in Table 7. The short-run estimation presents the convergence condition of the model to the equilibrium position. The conditions for the convergence ECT to the equilibrium is that the cointegration equation coefficient must be less than one, negative and significant. As observed, the coefficient of ECT is significant, less than one, and negative. These imply that the speed of adjustment for Nigeria back to equilibrium position is 63%.

Table 6. *ARDL Short Run Cointegration*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(logLABOR)	-1.866400	1.489338	-1.253175	0.2322
D(logLABOR(-1))	0.387748	1.338257	0.289741	0.7766
D(logLABOR(-2))	-2.824042	0.875952	-3.223969	0.0067
D(logFDI_OUTFLOW)	0.010934	0.025744	0.424730	0.6780
D(logFDI_OUTFLOW (-1))	0.044066	0.022587	1.950909	0.0730
D(logFDI_OUTFLOW (-2))	0.029507	0.021101	1.398324	0.1854
D(K)	-0.009102	0.008309	-1.095447	0.2932
D(K(-1))	-0.006059	0.011872	-0.510382	0.6183

D(K(-2))	0.029247	0.010984	2.662751	0.0195
D(FDI_INFLOW)	0.027207	0.021535	1.263406	0.2286
D(FDI_INFLOW(-1))	-0.016890	0.021999	-0.767756	0.4564
D(FDI_INFLOW(-2))	-0.062510	0.019595	-3.190060	0.0071
CointEq(-1)	-0.635227	0.123992	-5.123148	0.0002

NOTE: ***, **, and * denote the level of significance at one percent, five percent, and ten percent, respectively.
Source Authors' computation, 2023

As observed in Table 6. In the short-run, the estimation result of labour suggests a negative and significant coefficient at lag 2. This means that one percent increase in labor leads to -2.82 percent in the short-run. This implies that labor reduces economic growth. The estimation result of FDI_OUTFLOW indicates a positive and significant coefficient at 10 percent significant level. This means that a one percent increase in FDI_OUTFLOW level results in an 0.04 percent increase in economic growth in Nigeria in the short run. This implies that FDI net outflow enhance growth. The estimation result on capital stock indicates a positive and significant coefficient at 1 percent significant level. This means that a one percent increase in capital stock leads to 0.02 percent increase in economic growth in Nigeria in the short run. The result on FDI_INFLOW indicates a negative and positive coefficient at lag 2. This means that a one percent increase in FDI_INFLOW leads to -0.06 percent decrease in economic growth in Nigeria in the short run. The cointegration equation indicates the speed at which the economy can recover back to equilibrium position. The coefficient indicates that the economy will recover at 63% speed of adjustment to equilibrium position.

Conclusion

The study analyzes the impact of foreign direct investment on economic growth and poverty in Nigeria. The utilized the Autoregressive Distributed Lag (ARDL) which is robust to autocorrelation and heteroscedasticity. The study employed econometrics analytical techniques including descriptive statistics and matrix correlation of variables. From the estimation findings, Firstly, inward of foreign direct investment has a positive and statistically significant influence on the economic growth in Nigeria. From the long- run co-integrating parameter estimates, results opined that an increase in inward foreign direct investment enhances economic growth in Nigeria. Similarly, foreign direct investment outflow suggests a negative influence on economic growth in Nigeria.

Recommendation

The study recommended that the Nigerian government should formulate and implement policies that can attract more foreign direct investment and policies that would discourage the outflow of foreign direct investment.

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