



FOREIGN DIRECT INVESTMENT A CURSE OR BLESSING TO THE NIGERIAN ECONOMY: EVIDENCE FROM AN AUTOREGRESSIVE DISTRIBUTED LAG MODEL

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ABSTRACT

The study tested the argument on whether foreign direct investment inflow is a curse or blessing to the Nigerian economy between the period of 1981 and 2019. Real annual growth of real GDP was used as a proxy for economic growth while foreign direct investment inflows as a percentage of GDP was used as a proxy for foreign direct investment. Other control variables were included in the model. All the series were subjected to a stationarity test using the Augmented Dickey Fuller approach. The results indicated that the series in the model are integrated in different order meaning a mixture of $I(0)$ and $I(1)$. The finding from the Bounds co-integration test indicated strong evidence of a long-run relationship between foreign direct investment and economic growth in Nigeria. Also, in the long-run foreign direct investment is a curse to the Nigerian economy. Thus, the study concluded that Nigeria needs a minimum threshold of human capital and financial development needed where foreign direct investment inflows can leverage on and translate to economic growth. Therefore, the study strongly recommended that critical financial and economic analysis should be done in the area of foreign direct investment to avoid inflows of capital that can hamper the Nigerian economy.

Keywords: Economic Growth, Foreign Direct Investment, Auto Regressive Distributed Lag Model, Error Correction Model and Trade Openness.

INTRODUCTION

The literature identified that channels through which foreign direct investment can translate to economic growth can either be the direct or indirect mechanism. The total factor productivity (TFP) is the indirect mechanism and inputs accumulation channels are the direct mechanism (Makiela & Kamil, 2017). The inputs accumulation channel argued that the relationship between FDI and growth is direct. It was based on the assertion that foreign direct investment is necessary because of the input gaps in the host country and excess investment in the source country. Thus, the interplay between the demand for inputs (Labour and capital) and supply of these inputs by the source countries re-allocates resources for efficiency and thus increases both the productivity of capital and labour which can translate to economic growth. However, based on this channel of effect, the author argued that there is a minimum level of educated workers, trade openness, and financial development needed in the host countries to augment the inflows of capital from the source countries before a positive effect can be realized in the host economy (Borensztein, De Gregorio, & Lee, 1998). In contrast, total factor productivity relied on the argument that the inflow of capital creates access for the host country to managerial skills, technology transfer, and increased human capital that are necessary for economic growth (Makiela & Ouattara, 2017).



Mariela and Ouattara (2017) argued that the level of economic growth in any economy is highly influenced by the rate of capital formation in the country. The need for foreign capital inflows to augment domestic capital, particularly in developing countries where investment gaps do exist cannot be overemphasized. Foreign direct investment has a positive and significant influence on economic growth through various mechanisms ranging from competitiveness, knowledge transfer, and training of the local labour force but the magnitude of an effect is higher when the inflows of capital are complementary to the host economy rather than where the technological inputs inflows are substitute (Asongu & Odhiambo, 2019). The investors used innovation and production technology to penetrate foreign markets. However, foreign direct investment might be a curse to the host economy if certain thresholds of human capital and financial development do not exist in the host economy (Borensztein, De Gregorio, & Lee, 1998). Also, if policies are not in place in the host economy to regulate the inflows and outflows of capital, multinational companies may absorb the infant industries and thus results in a crowding-out effect. Foreign direct investment has passed through a business cycle in Nigeria and has risen from as low as 0.76% as share of GDP in 1981 to as high as 5.79 % as a share of GDP and now dropped to as low as 0.74% as a share of GDP in 2019. Also, economic growth in Nigeria has passed through various stages ranging from depression between 1981 and 1984, 1993 and 1995. The economy went into recession recently in 2016 while other periods witnessed boom. The historical data indicated that when the share of net inflows of FDI decreased from 4.28 in 1989 to 1.08%, economic growth increased from 1.92% to its peak of 11.78% (World Development Indicator, 2020). This conflicting result from the historical data and other findings from the empirical studies constituted the major motivation for this paper to check whether net inflows of foreign direct investment has a negative or positive influence on economic growth in Nigeria.

Given the strong debate on the nature of the link between foreign direct investment and economic growth in the literature. Some authors found a positive and significant relationship between FDI and growth (Abdouli, Mohamed, & Hammami, 2016; Asongu & Odhiambo, 2019; Osei & Kim, 2020), while other studies found a negative and significant association (Dritsakia and Stiakakis, 2014; Alvarado, Iñiguez, & Ponce, 2017), and other discovered neutrality effect (Alvarado, Iñiguez, & Ponce, 2017). This paper contributed to the existing literature to answer whether foreign direct investment is a curse or blessing to the Nigerian economy, as there is none or a few studies in Nigeria that have addressed this issue based on my understanding. Secondly, the study applied an autoregressive distributed lag (ADDL) model to address the problem of endogeneity and serial correlation. This method has advantages over other time series models because it can be applied whether the series are integrated of the same order or different orders or both. Also, it can be applied when the time-variant is small and lastly it gives efficient and unbiased estimates of coefficients (Pesaran et al, 2001). Furthermore, the study used an econometric method that captured both the long-run and short-run effects having tested for the stationarity of the series against the panel data estimation techniques especially the dynamic panel data estimation such as two-step system GMM and two-step dynamic GMM which are mostly used in the literature without confirming the unit root of the series and also vulnerable to an error of proliferation and many instruments (Albulescu, 2015; Makiela and Kamil, 2017; Alvarado, Iñiguez, & Ponce, 2017; Asongu & Odhiambo, 2019; Osei & Kim, 2020). Lastly, this paper contributed to the existing literature by addressing this economic issue using a time series model that accounts for individual country effects which are very scanty in the literature against panel data that avoid individual country effects especially when dynamic panel data is applied and which are common in the literature Albulescu, 2015; Makiela and Kamil, 2017; Alvarado, Iñiguez,



& Ponce, 2017; Asongu & Odhiambo, 2019; Osei & Kim , 2020)). Against this background, this study is motivated to answer the question of whether foreign direct investment is a blessing or curse to the Nigerian economy.

The rest of the paper is structured thus, the second section accounts for the literature review between the FDI and growth. section three addressed the methodology and sources of data used in this study while section four centred on empirical results and discussion while the last section concludes the paper with policy implications.

EMPIRICAL REVIEW

Lee (2013) employs a cointegration and fixed effect technique using panel data from 1971 to 2009 to examine the contribution of foreign direct investment to economic growth in G20 countries. The cointegration tests indicated the existence of a long-run equilibrium between foreign direct investment and economic growth. Also, the fixed effect which reveals the magnitude of the effect showed that it has a positive and significant effect on economic growth. It was argued that foreign direct investment not only augments domestic capital investments but also ensures economic efficiency through the supply and training of human capital in the host country, and strengthening of economic competitiveness. The study concluded that although foreign direct investment has a multiplier effect on economic growth and increased application and utilization of clean energy, it also contributes to CO₂ emission which might be detrimental to the health of host countries if not controlled.

Dritsakia and Stiakakis (2014) applied bounds testing to co-integration and ECM-ARDL model to examine the nexus between foreign direct investment and economic growth between 1994 and 2012 in Croatia. The results from the finding revealed an existence of a long-run relationship between economic growth, foreign direct investment, and other control variables in the model. Also, foreign direct investment has a negative and significant effect on economic growth in Croatia. The argument for the negative effect is based on the distortions in the trade and resource misallocation that can result from the trade. It was argued that both in the long run and the short run, foreign direct investment does not lead to economic growth in Croatia. It was concluded that domestic investment and exports constituted the major catalyst of economic growth and thus recommended that a significant reformation with a clear target and commitment are required to experience long-run and short-run growth. This finding is in line with the conclusion of Borensztein, De Gregorio, and Lee (1998) who examined the effect of foreign direct investment on economic growth and found a negative and significant relationship between the two variables. It was inferred from the findings that there is a minimum threshold of human capital development needed to augment the inflows of capital before the positive effects can be realized. And if a country has not attained such a threshold in terms of well-educated human capital, inflows of capital in terms of technology will hamper the growth economic through either inefficient or ineffective utilization of inputs.

Albulescu (2015) applied a two-step system GMM using panel data from 13 Central and Eastern European countries to answer the question of whether foreign direct investment and foreign portfolio investment had a long-term association with economic growth between 2005 and 2012. The study found that foreign direct investment has a significant influence on the economic growth of the region and thus argued that foreign direct investment helps to change the market structure of the host countries, triggers economic diversification with



employment effects. It was argued in the study that the substitution effects in the inputs resulted from diversification and employment effects of inputs is normally lower compared to income effects generated. Thus, both the host and source countries involve derive benefites and there is no deadweight loss but efficiency and equilibrium, especially when there is trade openness that allows the interplay between the demands for technological inputs and managerial skills, and the supply of technology and knowledge transfer regulates the market. The study further argued that foreign direct investment will only exact a positive effect on the host economy if the inflows of capital and labour are complementary rather than a perfect substitute. In the same year, Chisagiu (2015) used multiple ordinary least squares to examine the contribution of foreign direct investment to the Romanian economy between 1992 and 2012. The result from the findings regarded FDI as one of the major determinants of economic growth. It was argued that the effect of FDI on growth is multidimensional in nature ranging from increased domestic market competition, employment, and income generation to technological diffusion spillover effects.

Makiela and Kamil (2017) examine how foreign direct investment transmits to economic growth in developing and developed countries between 1997 and 2007 using. The study applied Bayesian Stochastic Frontier Analysis to derive the factor input productivity through decomposition while a two-step system GMM in line with Arellano and Bover (1995) and Blundell and Bond (1998) was used to estimate the link between FDI and growth. The results indicated the existence of a positive and significant relationship between FDI and economic growth. it was argued based on the findings that the effect is through input accumulation rather than the total factor productivity growth mechanism. This study argued with strong evidence that foreign direct investment inflows is necessary for bridging the domestic investment gaps, particularly in developing countries where limited capital exists. In analyzing how FDI affects growth, they pointed out that those inflows of capital correspond with technological and knowledge transfer, job creation, and increased competitiveness which are the catalyst for economic growth. In line with this finding, Feeny, Iamsiraroj, and McGillivray (2014) used panel data from pacific island countries to explore the link between economic growth and foreign direct investment. The study found a positive and significant relationship between foreign direct investment and economic growth in the region and FDI is essential to economic efficiency.

Alvarado, Iñiguez, and Ponce (2017) used a two-step GMM panel data econometric method from 29 Latin American countries to examine the effect of foreign direct investment and economic growth. The aggregate robust results indicated foreign direct investment has an insignificant effect on economic growth. However, when the level of development was incorporated into the model by splitting the countries into developed and developing countries, it was inferred that foreign direct investment positively and significantly affected economic growth in the high-income countries but had an insignificant and uneven effect in high-middle income countries. Lastly, the effect was negative and statistically significant in lower-middle-income countries. The study concluded that although foreign direct investment might be necessary not a sufficient condition to accelerate economic growth in the region, excluding high-income- countries.

Abdouli, Mohamed, and Hammami (2016) employed vector autoregression (VAR) to examine the causality between foreign direct investment and economic growth using a panel of 17 countries from MENA countries. The evidence of a unidirectional relationship running from foreign direct investment to economic growth was found. The study argued that inflows



of capital have positive externalities and ripple effects on the economy through the cross-breeding of ideas, technological transfer, and incorporation of automation into the production process that increased labor-capital productivity gain.

Iamsiraroj (2016) investigated the link between foreign direct investment and economic growth using a panel of 124 countries between 1971 and 2020. The result from the simultaneous system of equation model revealed that there is a strong possibility of bidirectional causality between FDI and growth in the regions examined. Also, the overall estimation results supported a positive and significant association between FDI and growth. The study further argued that trade openness, economic freedom, and labour force act as a mediating role in strengthening the positive nexus between FDI and growth. the author postulated that FDI mobilizes financial resources to close the domestic investment gaps, created financial and macroeconomic stability, and gives access to the international market. Literature has also argued that exposing infant industries to international competition made resulted in a crowding-out effect on the economy. As infants' industries are normally immature to compete and have limited resources to employ some sophisticated inputs needed to produce the international standard products might lead to the elimination of industries in the host economy (O'Hearn, 1990).

Asongu & Odhiambo (2019) applied a two-step system GMM to examine the role of ICT in the effect of foreign direct investment on economic growth in 25 sub-Saharan Africa. The study found a positive and significant association between FDI and growth in the region and concluded that both internet penetration and mobile phone penetration moderate FDI to induce a positive effect on the three growth indicators. The study argued using preference utility maximizing function and asserted that foreign direct investment is corroborated with the increase in competitiveness that improved efficiency in the production process in the competitive market and individual utility is maximized from the produced goods.

Osei and Kim (2020) used a dynamic system GMM and a dynamic threshold regression to examine the linear and non-linear relationship between economic growth and foreign direct investment when financial development acts as the mediating role from 62 countries cutting across high-income and middle-income countries between the period of 1987 and 2016. The findings showed that although financial development is important its coefficient has an insignificant effect on growth. Also, the finding reveals that foreign direct investment act as a vehicle of economic growth and is subjected to the law of diminishing returns up to a point where financial development as a share of GDP exceeds 95.6%, the effect becomes negligible. The study argued that foreign direct investment has a vertical and horizontal ripple effect through forward and backward nexus between foreign and local industries, increased market and managerial skill for economic efficiency. Matsumoto (2021) in a more recent study on the association between foreign direct investment, foreign reserve accumulation, and economic growth using quantitative analysis revealed that although foreign direct investment has exact positive effects through various mechanisms. However, the study also revealed that most foreign direct investment ends up in acquiring domestic firms and laying off workers, especially semi and unskilled workers, and if the income generated is not re-invested in the host country can cause capital flight and deteriorate the long-run growth in the host economies.

METHODOLOGY

The study utilized the data sourced from the World Development Indicators spanning from 1981 to 2019 based on the availability of data. The variable included in this study includes the real gross national income annual growth rate, foreign direct investment inflows as a percentage of GDP, External reserve as a percentage of GDP, Gross capital formation as a percentage of GDP, trade openness, and real exchange rate. This study modified the model of Dritsakia and Stiakakis (2014) in examining the nexus between economic growth and foreign direct investment in Nigeria. To address the problem of serial correlation, endogeneity, and multicollinearity in justifying whether foreign direct investment is a curse or blessing to the Nigerian Economy, certain important control variables were incorporated into the model, and while other variables tested in the existing literature and found to have an insignificant effect on growth were substituted. The model that captured the objectives of this study is specified thus:

$$GDP_t = \beta_0 + \beta_{FDI}FDI_t + \beta_{EXTR}EXTR_t + \beta_{GCF}GCF_t + \beta_{RER}RER_t + \beta_{TOP}TOP_t + \varepsilon_t \quad \dots (3.1)$$

Where;

β_{FDI} , β_{EXTR} , β_{GCF} , β_{RER} and β_{TOP} are the parameters of the independent variables to be estimated using and ARDL model. Where other variables and how they are measured can be found in section (3.1.1) under the table for description of variables. The justification for the application of control variables and how both dependent and independent variables can be measured are depicted in Table 3.1 below. The study carefully incorporated variables that have confirmed from empirical and theoretical literature with either long-run or short-run effects or both. Also, all the control variables were considered to have either direct or indirect effects on economic growth, thus necessitating being incorporated into the growth model. The model relied on a more realistic assumption of open economies; thus, most international macroeconomic variables were included in the model.

Table 1: Description of Variables

Variable	Description	Expected sign	Justification
RGDP	Annual growth rate of real GDP		Dritsakia and Stiakakis (2014)
FDI	Foreign direct investment inflows as a percentage of GDP	+	Dritsakia and Stiakakis (2014)
EXTR	External reserve as a percentage of GDP	+	Johnny and Johnnywalker, (2018)
GCF	Gross capital formation as a percentage of GDP	+	Osei and Kim, (2020)
RER	Nominal exchange rate minus expected rate of inflation	—	Matsumoto (2021)
TOP	Summation of Exports and Import as a percentage of GDP	+	Abdouli, et al., (2016) and, Osei and Kim, (2020)

AUTOREGRESSIVE DISTRIBUTED LAG

The study employed an autoregressive distributed lag model to address the problem of endogeneity and serial correlation in the model. The model has an advantage over other time series econometric models as it can be applied whether the series are stationary at level or first difference or both. The model gives an unbiased and efficient estimate of the coefficient where the time-variant in the sample is small (Pesaran, Shin, & Smith, 2001). The autoregressive distributed lag model for this study is specified as

$$\begin{aligned} \Delta RGDP_t = & \alpha_0 + \sum_{j=1}^p \beta_i \Delta RGDP_{t-j} + \sum_{j=0}^q \delta_i \Delta FDI_{t-j} + \sum_{j=0}^q \theta_i \Delta EXTR_{t-j} \\ & + \sum_{j=0}^p \vartheta_i \Delta GCF_{t-j} + \sum_{j=0}^p \varphi_i \Delta RER_{t-j} + \sum_{j=0}^p \omega_i \Delta TOP_{t-j} + \gamma_1 FDI_t + \gamma_2 EXTR_t \\ & + \gamma_3 GCF_t + \gamma_4 RER_t + \gamma_1 \end{aligned} \quad \dots\dots\dots 3.2$$

Where, Δ is the change operator, while p and q are optimal lag length to be estimated using lag length criterion.

ERROR CORRECTION MODEL

Literature have argued that when series are integrated at both level and first difference, there is a necessity to estimate both the long-run and the short-run dynamics (Pesaran, Shin, & Smith, 2001)). This model was introduced to capture the short-run effect of foreign direct investment on economic growth in Nigeria. The estimate of the error correction term helps to know the speed of adjustment that measures the rate at which any disequilibrium in the short run is restored back to equilibrium. The short-run error correction model in this study can be specified thus:

$$\begin{aligned} \Delta RGDP_t = & \alpha_0 + \sum_{j=1}^p \beta_i \Delta RGDP_{t-j} + \sum_{j=0}^q \delta_i \Delta FDI_{t-j} + \sum_{j=0}^q \theta_i \Delta EXTR_{t-j} \\ & + \sum_{j=0}^p \vartheta_i \Delta GCF_{t-j} + \sum_{j=0}^p \varphi_i \Delta RER_{t-j} + \sum_{j=0}^p \omega_i \Delta TOP_{t-j} + \nabla ECT + \epsilon_t \end{aligned} \quad (3.3)$$

Where ∇ which is the coefficient of the error correction term is expected to be negatively signed and statistically significant for the existence of convergence.

RESULTS AND DISCUSSION

This chapter presents the econometric analysis of the significant effect of foreign direct investment on economic growth in Nigeria. All the hypotheses formulated to capture the objectives of the study were properly tested. The first section of this chapter presents the descriptive statistics of the variables in the model followed by pre-econometric tests (Stationarity and Bounds Co-integration) and finally the long-run effect, error correction model and causality results were presented, interpreted, and discussed.



Descriptive Statistic

Descriptive statistics is one of the pre-econometric analyses to be carried out while dealing with time series data. This gives the central tendency, variability, and normality of the series in the model. The results of descriptive statistics were presented in Table 2.

Table 2: Descriptive Statistics

	RGDP	EXTR	FDI	GCF	RER	TOP
Mean	3.5783	22.8811	1.5852	34.9908	144.1981	32.6723
Median	4.2130	22.7610	1.2666	32.5177	100.2595	34.1033
Maximum	15.3292	24.7048	5.7908	85.9339	536.8050	53.2780
Minimum	-10.9241	20.6539	0.2574	14.9039	49.7363	9.1358
Std. Dev.	4.8322	1.4148	1.2334	17.1734	116.7193	12.3484
Skewness	-0.5127	-0.1067	1.7338	0.9257	2.0425	-0.4344
Kurtosis	4.3686	1.4433	6.0273	3.7057	6.3846	2.3550
Jarque-Bera	4.6306	3.9089	33.5494	6.2153	44.5584	1.8536
Probability	0.0987	0.1416	0.0000	0.0447	0.0000	0.3958
Sum	135.9751	869.4818	60.2377	1329.6490	5479.5270	1241.5480
Sum Sq. Dev.	863.9687	74.0643	56.2846	10912.1900	504065.4000	5641.8610
Observations	38	38	38	38	38	38

Source: Authors' computation from EVIEWS

The descriptive statistic results for the series in the model are reported in table 2. The result shows an average growth of 3.57 % and 22.88 for economic growth and the external reserves in Nigeria. It is also evident from the result that there is consistency in the mean value of the series in the model as their mean and median are within the maximum and the minimum values. Also, the standard deviation that measures the variability and dispersion of the variable from the mean indicated a relatively low value indicating low volatility except that of the real exchange rate which has a high value because of the volatility in the forex market and non-diversification of the economy. As for the distribution of skewness, the series is nearly equal to zero for all the series. Importantly, external reserves, gross capital formation, and trade openness exhibit platykurtic distribution is given their kurtosis values of less than three. However, real GDP, foreign direct investment, and real exchange rate are leptokurtic in distribution. Finally, the Jarque-Bera that gives the formal measure of normality indicated that only external reserves and trade openness are normally distributed while economic growth, gross capital formation, real exchange rate, and foreign direct investment are not normally distributed given the validity of the significance values. However, since the mean and median of the series are within the maximum and minimum values indicated from the analysis depicted in Table 2, the study concluded that there is strong evidence of consistency in the series and thus can be subjected to further econometric testing. This paper thus proceeded to test the hypothesis on the existence of unit root by applying Augmented Dickey fuller approach.

Unit Root Test

An econometric model was necessitated to verify the stationarity properties of the variable included prior to multivariate co-integration analysis of time series data. This is important because econometric analysis of non-stationary variables may lead to the adoption of an inappropriate econometric method and result in wrong policy formulation (spurious

results). The study adopted the Augmented Dickey-Fuller unit roots test at both level and first differences for variables. The ADF results are presented in table 3 respectively.

Table 3: Stationarity Test

Variable	ADF @ LEVEL		ADF @ FIRST DIFFERENCE		
	ADF-STAT	P-value	ADF-STAT	P-value	Remark
RGDP	-3.95919	0.0042***	- 9.65915	0.0000***	I(0)
EXTR	-0.73934	0.8245	- 5.56048	0.0000***	I(1)
FDI	-3.93339	0.0043***	-8.0198	0.0000***	I(0)
GCF	-3.63235	0.0096***	- 3.35308	0.0198**	I(0)
TOP	-2.3082	0.1747	- 7.47769	0.0000***	I(1)
RER	-2.97633	0.0465**	-4.6545	0.0006***	I(0)

Source: Authors' compilation from EViews

*Note: *, ** and *** indicate 10%, 5% and 1% level of significance respectively*

The ADF unit roots test presented in Table 3 shows that at level, we reject the null hypothesis on the non-stationarity of RGDP, FDI, GCF, and RER. However, the null hypothesis of the unit root test applied to the variables in their first differences is rejected for all the variables indicating that they are integrated of order one I (I). To carry out the long-run relationship among the variables in the model, the study proceeds to adopt autoregressive distributed lagged (ARDL) Bounds test of co-integration as the series are integrated of a different order, meaning I(0) and I(1). The results of the bounds approach co-integration are presented in Table 4

Bounds Test for Co-integration

Having established that the series are integrated of a different order, the study proceeds to employ an ARDL bounds test approach to co-integration as developed by Pesaran, Shin, and Smith (2001) to determine if they exist a long-run relationship among variables. Under this approach of co-integration, it is assumed that the model comprises both I(1) and I(0) series and two levels of critical values are determined. The first level is calculated on the assumption that all variables included in the ARDL model are integrated in order of zero, while the second assumption is based on the series being integrated in an order of I(1). The results of the existence of long-run relationship from the bounds test are presented in Table 4.

Table 4: Bound Test Results for Co-integration

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	4.224789	10%	2.26	3.35
K	5	5%	2.62	3.79**
		1%	3.41	4.68



Note: * indicates 5% level of significance**

Source: Authors' Computation from EVIEWS

The result of bounds tests co-integration presented in table 4 indicates the null hypothesis of is rejected at 5% level and concluded that there is an existence of a unique co-integrating relationship among the variables in the model and that the long-run forcing variables are a foreign direct investment, external reserve, real exchange rate, capital, trade openness and economic growth. When economic growth is adopted as a dependent variable, the calculated F_{RGDP} is 4.22 which higher than the upper bound critical value of 3.79 at the 5% level. The study concluded that foreign direct investment, external reserve, real exchange rate, capital, trade openness, and economic growth move together in the long run. This finding corroborated with the result of Dritsakia and Stiakakis (2014) who examined the nexus between economic growth and FDI in Croatia.

ARDL Results Showing Long Run Relationship

Having established the existence of co-integration, the study proceeds to employ ARDL to estimate the significant effect of foreign direct investment on economic growth in Nigeria. The results of the long run estimate are presented in Table 5.

Table 5: Long Run Relationship between External Reserve and Economic Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEXTR	1.95767	1.443106	1.356568	0.1875
FDI	-2.49063	1.038424	-2.39847	0.0246**
GCF	0.202269	0.151998	1.330737	0.1958
RER	-0.04766	0.017957	-2.65425	0.0139**
TOP	0.088546	0.090703	0.976218	0.3387

Source : Author's Computation From E-VIEWS 10

Note: *, ** and * denotes 10%, 5% and 1% respectively**

The long-run results are presented in Table 5. on the long-run effect of foreign direct investment on economic growth in Nigeria. The coefficient of foreign direct investment is -2.49 meaning that foreign direct investment has a negative and significant effect on economic growth in Nigeria. Also, the coefficient indicates that a unit increase in foreign direct investment holding all other exogenous variables fixed would decrease economic growth by 2.49. This result is in line with (Olokoyo, 2012) who asserted that the level of FDI attracted by Nigeria is mediocre compared with the potential need and resources base. The reason might due to macroeconomic problems such as rising unemployment, incessant insecurity, inflation, and low economic growth that discourage inflows of resources into the economy from potential foreign investors. The study thus recommended that government and the Central Bank of Nigeria should initiate policies that can enhance infrastructural development and a sustainable and reliable financial system that would create positive externalities in economic growth and other macroeconomic variables. External reserves have a positive but insignificant effect on economic growth. This implies that holding all other variables constant, a dollar increase in external reserve would lead to a 1.95% increase in economic growth, *ceteris paribus*. This is in line with the findings of Akinboyo, Omotosho, Oladunni, and Owolabi (2016) and Johnny and Johnnywalker (2018) who also found a positive relationship between external reserves and economic growth in Nigeria and concluded that external reserves help to maintain the international value of the domestic currency and thus



drive drives economic growth both in the long run and the short run. The insignificant effect might be because of macroeconomic instability, corruption, and low-value chain in the productive sectors of the economy. The study thus recommended that the Central Bank of Nigeria and the federal government should ensure the development of the capital market which is the supplier of loanable funds to investors as this will create business enabling environment for both local and foreign investors and improve the condition of external reserves in Nigeria.

The GCF has a coefficient of 0.22 indicating that investment has a positive but insignificant effect on economic growth in Nigeria. Meaning that a unit increase in capital accumulation would induce economic growth by 0.22%. The finding followed the conclusion of (Sachirarwe & Chidoko, 2015) who stated that a high rate of capital formation led to a high rate of productivity and sustainable economic growth. But contrary to (Onyinye, Idenyi, & Ifeyinwa, 2017) who found a negative and significant relationship between gross capital formation and economic growth and gave justification for the depreciation of capital and the law of diminishing return on the accumulation of capital.

The RER has a coefficient of -0.047 meaning that the exchange rate has a positive and significant effect on economic growth in Nigeria. The finding implies, holding all other variables fixed, a unit increase in the real exchange rate would decrease economic growth by 0.04%. This is in line with the economic theory and current situation in Nigeria. The negative effect implies that Nigeria is an import-dependent country with a high appetite for imported goods and services, thus depreciation in the naira would increase the price of imported goods and services with a high-income effect and scale effect which would increase the cost of production, reduction in the purchasing power of consumers in the domestic country, retrenchment of worker and lead to low output (Keyne, 1956).

Error Correction Model Result for Short Run Estimates

The existence of integration from the bounds test necessitated the estimation of both long-run and short-run effects of foreign direct investment and other control variables on economic growth in Nigeria. The absolute value of ECT which measures the speed of adjustment and decide how quickly equilibrium is restored in the long run and is expected to be negative and statistically significant. Table 6 presents the result of ECM showing the short-run estimates.

Table 6 Short Run Relationship between External Reserve and Economic Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-29.5509	5.258337	-5.61981	0.0000***
D(GCF)	-0.27157	0.1117	-2.43123	0.0229**
D(GCF(-1))	-0.24137	0.12583	-1.91821	0.0671*
D(GCF(-2))	-0.4892	0.113938	-4.29356	0.0003***
D(RER)	-0.01091	0.009685	-1.12607	0.2713
D(TOP)	-0.05785	0.05718	-1.01168	0.3218
ECT(-1)*	-0.69998	0.126477	-5.53441	0.0000***
R-squared	0.704314	Mean dependent var		0.364792
Adjusted R-squared	0.643138	S.D. dependent var		4.745708
F-statistic	11.51286	Durbin-Watson stat		2.30959
Prob(F-statistic)	0.000001			

Source: Author's Computation from E-views 10

Table 6 presents ECM results showing error correction term and short run estimates, found ECT (first lagged) to be negative and statistically significant (-0.70). This term indicates the speed of the adjustment process to restore equilibrium following a shock in the long-run equilibrium relationship. A negative and significant error correction term implies how quickly variables return to equilibrium. A relatively high adjustment coefficient (in absolute terms) indicates a faster adjustment process. For instance, this result implies that about 70% of the disequilibrium in the previous year's shock is corrected back to the long equilibrium in the current year. The F-statistic that measures the overall significance of independent variables in the model has a value of 11.52 with a probability value of 0.0000. Thus, concluded that since the calculated F-stat value is high with a very low probability value of 0.00001 lower than 0.05 level of significance, the study rejected the null hypothesis that foreign direct investment gross capital formation, real exchange rate, trade openness, and external reserve are jointly good determinants of economic growth in Nigeria. This further validates the existence of co-integration results obtained earlier. The Adjusted R² measures the variation in economic growth that is explained by the determinants in the model and has a value of 0.64. This implies that about 64% of the variation in economic growth is explained by foreign direct, trade openness, real exchange rate, external reserve, and gross capital formation, while the remaining 36% remained explained because of the stochastic error terms. All the short-run coefficients of gross capital formation (both current, a year, and two years lagged value) indicated a negative and significant effect on economic growth in Nigeria. The result followed the finding of (Onyinye, Idenyi, & Ifeyinwa, 2017) who found a negative and significant impact of gross capital formation on economic growth. The reason might due to volatility in the economy and the law of diminishing marginal productivity of capital. Thus, the study recommended that government should implement policies that can stabilize the macroeconomic variables such as inflation, interest rate, and balance of payment and critical analysis of public investment should be done to determine the viability and profitability of investment before committing funds into any project in the economy.

Robustness Check

It is expedient to carry out some diagnostic tests in determining the reliability and efficiency of the results obtained from ARDL and ECM. For this reason, series of diagnostic and stability test were conducted. The test examined, serial correlation, heteroskedasticity, normality and CUSUM and CUSUMSQ. The resulted reported in Table 7, Figure 1 and 2 indicated absence of serial correlation, heteroskedasticity and existence of normality in the distribution of error term. Also, the plot of CUSUM and CUSUMSQ indicates that the model is stable as the graphs lies within the 5% level of upper and lower bound

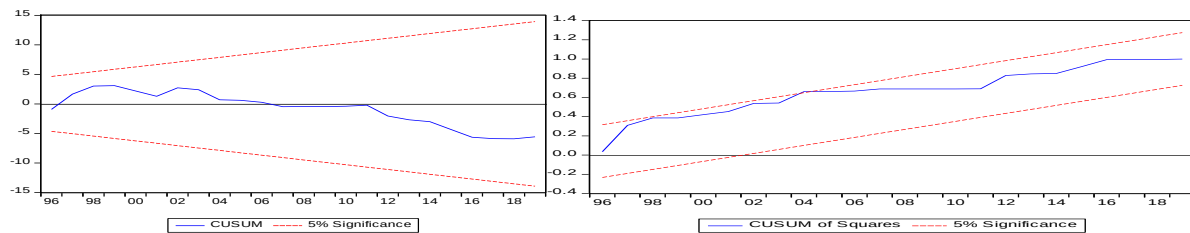


Figure 1: CUSUM and CUSUMSQR Stability Graph

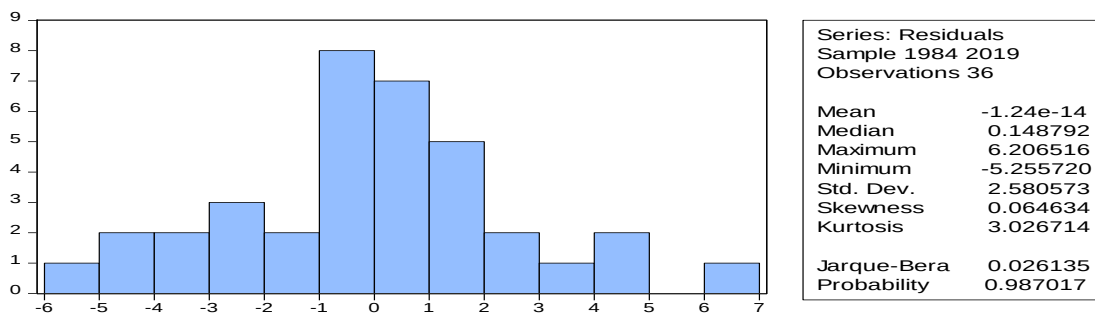


Figure 2: Normality Test

Table 7: Diagnostic Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.029186	Prob. F(2,22)	0.3739
Obs*R-squared	3.080068	Prob. Chi-Square(2)	0.2144
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.244816	Prob. F(11,24)	0.3126
Obs*R-squared	13.07796	Prob. Chi-Square(11)	0.2883
Scaled explained SS	5.890062	Prob. Chi-Square(11)	0.8806

Source: Author's Computation

Granger Causality

In order to understand direction of causality between economic growth and foreign direct investment in Nigeria, the study applied bivariate causality test. The results from the findings are presented in Table 8 below.

Table 8: Granger Causality Results

Null Hypothesis:	Obs	F-Statistic	Prob.
RGDP does not Granger Cause GCF		3.08563	0.088
RGDP does not Granger Cause RER		9.90181	0.0034
TOP does not Granger Cause RGDP	37	4.03734	0.0525
RGDP does not Granger Cause TOP		3.08838	0.0879
GCF does not Granger Cause EXTR	38	9.50806	0.004
RER does not Granger Cause FDI	38	4.91960	0.0331
GCF does not Granger Cause RER		2.90485	0.0972
RER does not Granger Cause TOP		5.59675	0.0237

Source: Authors' computation from E-views

The granger causality result reported in Table 8 shows that foreign direct investment does not appear to granger cause economic growth in Nigeria. This is contrary to the finding of; Abdouli, et al., (2016) employed VAR from panel data to examine the causality between economic growth and foreign direct investment running from FDI to growth in the region. However, there is clear evidence of unidirectional causality between economic growth and capital accumulation, economic growth, and real exchange rate. Also, the existence of a bi-directional relationship between trade openness and economic growth. Among the independent variable, there is the existence of a unidirectional causal relationship running from GCF to EXTR, RER to FDI, GCF to RER, and RER to TOP. (Akinboyo, Omotosho, Oladunni, & Owolabi, 2016).

CONCLUSION

The study aimed at examining the effect of foreign direct investment on economic growth in Nigeria from 1981 to 2019. An autoregressive distributed lag (ARDL) model was used to address the problems of serial correlation, autocorrelation, and endogeneity. The results from the finding revealed that there is strong evidence of co-integration between foreign direct investment and economic growth in Nigeria. Also, in the long run, foreign direct investment has a negative and significant effect on economic growth in Nigeria. One of the policy implications of this finding, although inflows of capital act as a catalyst for economic growth, if necessary, a threshold of financial, and human capital in terms of quality and trade openness does not exist in the host economy, FDI will affect economic growth negatively. The inverse relationship is via taking over of domestic firms and laying off unskilled and semi-skilled labour. The study also agreed that inflows of capital inputs are a perfect substitute rather than complementing the existing capital in Nigeria and thus led to the crowding-out effect. The study recommends that policymakers in Nigeria should conduct financial and economic analysis on each capital inflow to avoid the negative effect of foreign direct investment on economic growth. Secondly, the policy that enhances re-investment profit generated by the multinational companies in the host country should encourage rather than transferring to source countries which can result in capital flight.



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