The Impact of Foreign Direct Investment on Economic Growth in Nigeria: New Empirical Evidence

Jonathan E. Ogbuabor[1*], Uchechukwu I. Ebo[2], Fidelia N. Onuigbo[3]

[1]Department of Economics, University of Nigeria, Nsukka, Enugu State, Nigeria

[2]Department of Economics, University of Nigeria, Nsukka, Enugu State, Nigeria

[3]Department of Economics, Enugu State University of Science and Technology, Enugu, Nigeria

Abstract: This study seeks to contribute to the ongoing investigation on the growth effect of foreign direct investment in Nigeria. The study utilized annual time series data for the period 1981-2016 and the OLS estimation technique. Apart from the long-run estimation, the study also captured the short-run dynamics using an error correction model. The findings show that the role of FDI remained muted both in the long-run and short-run. However, the study established that growth in gross fixed capital formation and the dynamics of the naira to U.S. dollar exchange rate play important roles in economic growth in Nigeria, at least in the long-run. The study therefore concludes that there is need for Nigerian government to evolve and implement policies that can drive the inflow of foreign direct investments into the productive sectors of the economy in order to enhance the productive capacity of the economy. Such policies should encourage a stable economic and political environment that will enhance the confidence in foreign investors in the domestic economy.

Keywords: Foreign direct investment; Economic growth; OLS Regression; Nigeria.

INTRODUCTION

Economic performance of any economy is affected by multiple factors. For all economies in general and developing economies in particular, foreign capital flows has been observed and argued as a significant factor for development [1]. Ajayi [2] highlighted that the crucial component of the movement towards economic integration in the world economy today is foreign capital movement, which is popularly known as foreign direct investment.

The urgency for foreign capital to support local resources in the economic growth procedure has been acknowledged as a crucial catalyst for economic development since it is considered to be the central element of the process of economic growth. In the face of resource deficiency in financing long-term development, the capital-deficient economies have heavily resorted to foreign capital as a major means to achieving rapid economic growth.

Tracing the history of foreign direct investment in the Nigeria economy, Macaulay [3] observed that Nigeria's foreign investment can be historically traced to the colonial era, when the colonials had the view of exploiting their colonies' resources for the development of their economy and for creation of new markets for their goods. There was little investment by these colonials in Nigeria and other of their colonies as at that time. But with the discovery of oil, they started investing but since then, Nigeria's foreign capital inflow has not been stable.

In recent years, the performance of Nigeria's economy has not been quite desirable. For instance, with growth figures showing that the economy contracted by 2.06% in the 2016Q2, the economy went into a recession. According to World Bank's World Development Indicators 2017, the annual GDP growth in 2016 was -1.62% while the annual GDP per capita growth was -4.16% in 2016 [4]. Clearly, these growth rates are insufficient to reduce in a significant way the level of poverty in the economy, which remains the primary goal of development policy in Nigeria. The savings rate in Nigeria is lower than that of most other developing countries and far lower than the required investments that can induce growth rates that are capable of alleviating poverty.

Recently, various studies such as Ayanwale [1], Nwankwo *et al*. [5] and many others have observed that foreign direct investment (FDI) is what is needed to curb the savings-investments gap that have being existing in Africa in general and Nigeria in particular. Prior to the 1970s, FDI was not evident as an instrument of economic development. Unfortunately, the growth experience of African economies with Nigeria as a special case in the intake of FDI has not

been satisfactory at all. These economies accumulate huge external debt in relation to gross domestic product and are faced with serious debt servicing problems in terms of foreign exchange flow and increasing abject poverty. Jin [6] explained that the experiences of a number of newly industrialized Asian economies like China and Hong Kong support the idea that foreign capital inflow is a vital and necessary ingredient in the process of economic development, since it could curb the resource gap and savings and investment gaps of these economies and avoid further build-up of debt, at the same time tackling the causes of poverty directly.

The integration of Nigeria's economy with the world economy improved sharply in the 1990s with the changing economic policies and lowering of barriers to trade and investment due to globalization. This has led to an increase of foreign capital inflows in the form of foreign direct investment (FDI), among others. These inflows of FDI were expected to result in improved economic growth through development of trade and investment. Over the years, the inflow of foreign capital to Nigeria has increased tremendously. It rose from N542.3million in 1981 to N2.01 billion in 2005 and to N6.4 billion in 2016, with the average growth rate of FDI inflows being 5.78% between 2000 and 2016 [7]. Despite the phenomenal inflow of foreign capital to Nigeria over the years, the growth of the economy has been epileptic. This can be illustrated with the recent recession of 2016 in Nigeria.

Primarily, economic recessions occur due to a general fall in aggregate demand, owing to a number of factors, including financial crisis, credit crunch caused by high interest rate, reduced purchasing power arising from high inflation, low income, declines in assets prices as well as uncertainty and weak consumers and business confidence relating to general economic conditions [8]. In the case of Nigeria, the latest recession episode has been attributed mainly to a drop in Nigeria's foreign revenues, following the fall in oil prices, which is Nigeria's main export. An ironical observation during this period is the increase in the flow of foreign direct investment from $3,128,591,679 in 2015 to $4,448,730,000 in 2016. Despite this increase, the economy has not responded positively, rather, it has experienced a negative growth of about 2.06% in 2016Q2 and consequently plunged into a recession. This suggests that the Nigerian economy is yet to tap into the possible benefits of an increased inflow of foreign direct investment.

The Nigerian governments have now recognized the importance of FDI in enhancing economic growth and development and various strategies involving incentives and regulatory measures have been deployed to promote the inflow of FDI into the country. Also, privatization among other measures has been adopted to also encourage foreign investments in Nigeria. This involved transfer of state-owned enterprises (manufacturing, agricultural production, public utility services such as telecommunication, transportation, electricity and water supply) to companies that are completely or partly owned by or managed by private individuals. Shiro [9] noted that since the enthronement of democracy in 1999, the government of Nigeria has taken a number of policies necessary to bring foreign investors into Nigeria. These policies include enacting laws that serve as fertile grounds to foreign investment growth, promulgation of investment laws, various overseas trips for image laundering by the federal and state governments, among others. This study therefore provides new empirical evidence on the impact of FDI on economic growth in Nigeria following these policy efforts.

AN OVERVIEW OF THE LITERATURE
Various theoretical arguments on foreign direct investment and economic growth are relevant in this study. The two-gap model posits that most developing countries face either a shortage of domestic savings to match investment opportunities or a shortage of foreign exchange to finance needed imports of capital and intermediate goods. Foreign financial flows help to fill either of these gaps. The classical growth theory explains that capital accumulation is the key driver of economic growth in every economy. The Solow Growth model suggests that capital formation and accumulation through saving and investment plays a crucial role on the output growth of any economy. The Cobb Douglas production function, which is extended to include other significant variables, is used to model the impact of foreign direct investment on economic growth.

A review of the empirical literature indicates that there is no consensus yet on the impact of FDI on economic growth in Nigeria. Some studies established that FDI impacts positively on economic growth while others documented otherwise. Onuoha [10] investigated the impact of foreign direct investment (FDI) on gross domestic product (GDP) growth in Nigeria from 1990 to 2014. The study used multiple regression technique and found a positive and significant relationship between FDI and GDP growth. Solomon and Eka [12] examined the relationship between FDI and economic growth in the Nigerian economy over the period 1981-2009. The study used annual time series data and the OLS regression method. The results indicate that FDI has a positive but insignificant impact on economic growth. Nwankwo *et al.* [5] explored the impact of globalization on foreign direct investment in Nigeria, since the world has become a global village. The methodology used was purely descriptive and narrative and the data used was obtained from secondary sources. The study documented that FDI has been of increased benefit to Nigeria in the areas of employment, transfer of technology, encouragement of local enterprises, among others. Otepola [11] also studied the importance of direct foreign investment in Nigeria. The study empirically examined the impact of FDI on growth and concluded that FDI contributes significantly to growth especially through exports.

Ozekhome [13] used the Generalized Method of Moments (GMM) estimation techniques on annual time series data covering the period from 1981 to 2015 in the study of the relationship between democratic institutions, FDI and economic growth in Nigeria. The empirical findings reveal that democratic institutions and foreign direct investment are significant variables influencing economic growth in Nigeria. Specifically, the results show that weak institutions have a destabilizing impact on growth and that the impact of FDI on the other hand is found to be positive and significant. Other studies that also established that FDI impacts positively on growth in Nigeria include Nnadozie and Njuguna [14], Obinna [15], and Ariyo [16].

Contrary to the above studies, Alfaro *et al*. [17] studied the various links among FDI, financial markets, and economic growth. The study explored whether countries with better financial systems can exploit FDI more efficiently. The study used cross-country data between 1975 and 1995, and shows that FDI alone plays an ambiguous role in contributing to economic growth. However, countries with well-developed financial markets gain significantly from FDI. The results are robust to different measures of financial market development, the inclusion of other determinants of economic growth, and consideration of endogeneity. Durharm [18] failed to establish a positive relationship between FDI and growth but instead suggests that the effects of FDI are contingent on the absorptive capability of host countries.

Akinlo [19] controlled for the oil and non-oil FDI dichotomy in Nigeria while investigating the impact of FDI on economic growth in Nigeria using an error correction model. The results indicate that both private capital and lagged foreign capital have small but statistically insignificant effect on economic growth. The results specifically show that extractive FDI has not been growth enhancing relative to manufacturing FDI. Adelegan [20] used a seemingly unrelated regression model (SUR) to examine the impact of FDI on economic growth in Nigeria and found that FDI is pro-consumption and pro-import but negatively related to gross domestic investment. Jerome and Ogunkola [21] examined the causal relationship between FDI and economic growth in Nigeria using the Toda-Yamamoto test for causality and the ARDL bounds testing procedure. The study used time-series data for the period 1981- 2013 and found that there is no strong evidence of a bi-directional causality and long-run relationship between FDI and economic growth. Clearly, the lack of consensus on the relationship between FDI and economic growth in Nigeria means that further investigations are required to better and more comprehensively understand this relationship. This study contributes to this ongoing investigation. Oyinlola [22] also conceptualized foreign capital to include foreign loans, foreign direct investments and export earnings. The study used the Chenery and Stout's two-gap model to establish that FDI has a negative effect on economic development in Nigeria [23].

DATA AND METHODOLOGY

This study employed annual time series data from 1981 to 2016. The entire data were taken from the World Bank's 2017 World Development Indicators. This study adopted the OLS regression method, which has been widely used in the literature because of its best linear unbiased estimator (BLUE) property. For the empirical analysis, the econometric model for this study is specified as follows:

$$RGDP_t = \beta_0 + \beta_1 FDI_t + \beta_2 TOPEN_t + \beta_3 GFCF_t + \beta_4 EXDT_t + \beta_5 EXCH_t + \varepsilon_t \quad (1)$$

where: RGDP = real GDP growth (proxy for economic growth); FDI = foreign direct investment; TOPEN = trade openness (measured as total trade in percentage of GDP); GFCF = gross fixed capital formation; EXDT = external debt; EXCH = exchange rate; ε_t= error term; and t = time measured yearly. $\beta_0, \beta_1, \ldots, \beta_5$ are the parameters or coefficients to be estimated. All the variables were logged prior to estimation. The descriptive statistics of the variables are shown in Table 1.

The descriptive statistics in Table 1 indicate that all the variables are normally distributed as shown by the Jarque-Bera statistics. The statistics further indicate that all the variable exhibit substantial variation, especially the exchange rate and trade openness variables. This is seen from the standard deviations. All the variables did not show any evidence of outliers. Apart from the trade openness data which is expressed in percentage of GDP and the exchange rate data, all the variables were logged prior to estimation.

EMPIRICAL RESULTS AND DISCUSSION

This empirical analysis began by examining the time series properties of the data since most economic time series are known to exhibit stochastic or deterministic trend, and hence nonstationary. Thus, we conducted the Augmented Dickey-Fuller (ADF) unit test with the lag length selected automatically by Schwarz Information Criteria, while controlling for trend and intercept in the test equations. The results indicate that all the variables are integrated of order one, that is, they all became stationary after first differencing. This suggests that there may be a stable long-run or equilibrium relationship between the variables since the variables have the same order of integration. Of course, econometric theory suggests that even though the series are nonstationary, there may be a stable long-run relationship

between them. To test for the existence of this long-run relationship, we conducted the Johansen co-integration test. The results of this test are shown in Table 2.

Table-1: Descriptive statistics of the variables

Variables	RGDP	EXCH	EXDT	FDI	GFCF	TOPEN
Mean	24.9202	74.5198	23.8854	18.8361	22.8344	50.4237
Median	24.5354	57.2018	24.0809	19.3778	22.1730	52.9122
Maximum	27.1398	192.4405	24.4096	21.3147	25.2940	81.8129
Minimum	23.4826	0.6177	22.9763	13.6659	21.4249	20.1042
Std. Dev.	1.1040	67.8508	0.3838	2.1773	1.2870	16.8946
Skewness	0.7855	0.1942	-0.8127	-0.9315	0.7838	-0.1880
Kurtosis	2.3065	1.3552	2.4662	2.7870	2.1566	2.0006
Jarque-Bera	4.4237	4.2842	4.3898	5.2737	4.7534	1.7103
Probability	0.1095	0.1174	0.1114	0.0716	0.0929	0.4252
Sum	897.1277	2682.7120	859.8726	678.1006	822.0392	1815.2540
Sum Sq. Dev.	42.6614	161130.3000	5.1544	165.9293	57.9702	9989.9080
Observations	36	36	36	36	36	36

Source: Authors' computation. Note: The notations for the variables are consistent with equation (1).

Table-2: Johansen cointegration test results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5% Critical Value	P-value
None *	0.6685	98.3333	95.7537	0.0328
At most 1	0.5156	60.7918	69.8189	0.2118
At most 2	0.4274	36.1483	47.8561	0.3889
At most 3	0.2971	17.1936	29.7971	0.6257
At most 4	0.1415	5.2094	15.4947	0.7862
At most 5	0.0007	0.0228	3.8415	0.8800

Source: Authors' computations. Notes: * denotes significance at 5% level.

The result of the Johansen cointegration test in Table 2 indicates the existence of at least one cointegrating equation. This means that a stable long-run relationship exists between the variables. Thus, we estimated the long-run relationship using the OLS estimation technique, and the result of this estimation is reported in Table 3. We also accounted for the short-run dynamics by estimating an error correction model form of equation (1), and the results are shown in Table 4. To conserve space, we do not report the serial correlation and heteroskedasticity test results for this second estimation since these problems are not present at the 5% level. In what follows, we discuss the results of these estimations.

Table-3: Long-run OLS regression results (Dependent variable = RGDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant**	13.4309	4.4218	3.0374	0.0049
FDI	0.0109	0.0281	0.3884	0.7004
EXCH**	0.0055	0.0010	5.2322	0.0000
EXDT	-0.0949	0.1387	-0.6845	0.4989
GFCF**	0.5798	0.0739	7.8467	0.0000
TOPEN	-0.0020	0.0034	-0.5675	0.5746
Diagnostic checks				
Adj. R-squared	0.9575			
F-statistic	158.7353			
Prob(F-Stat)**	0.0000			
DW-stat	1.9312			

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.444788	Prob. F(2,28)	0.6454
Obs*R-squared	1.108523	Prob. Chi-Square(2)	0.5745
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.264317	Prob. F(5,30)	0.9290
Obs*R-squared	1.518986	Prob. Chi-Square(5)	0.9109
Scaled explained SS	2.039897	Prob. Chi-Square(5)	0.8436

Source: Authors' computation. Note: ** denotes significance at 5% level

Table-4: Short-run OLS regression results [Dependent variable = D(RGDP)]

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.0370	0.0340	1.0896	0.2852
D(FDI)	0.0091	0.0230	0.3952	0.6957
D(EXCH)	0.0037	0.0024	1.5759	0.1263
D(EXDT)	-0.1741	0.1515	-1.1489	0.2603
D(GFCF)**	0.2031	0.0992	2.0474	0.0501
D(TOPEN)	0.0021	0.0028	0.7644	0.4510
ECM(-1)**	-0.8265	0.1645	-5.0234	0.0000
Diagnostic checks				
Adj. R-squared	0.4584			
F-statistic	5.7968			
Prob(F-Stat)**	0.0005			
DW-stat	1.5268			

Source: Authors' computation. Note: ** denotes significance at 5% level.

The results in Tables 3 and 4 indicate that FDI impacts positively on economic growth both in the long-run and short-run, respectively. This is consistent with economic expectation because an increase in inflow of FDI is expected to increase investment and output, and invariably, economic growth. Thus, the Nigerian economy will benefit a lot from policies that can attract increased FDI inflows into the economy. However, the impact of FDI on growth is not statistically significant both in the long-run and short-run. This suggests that either the volume of FDI inflow into the economy is not adequate to make the desired significant impact or that the FDI inflows are not going to the productive sectors (such as the industrial and agricultural sectors) where the desired impact can be felt. Government and policy makers should consider these issues critically so that appropriate policy measures can be designed to ensure that FDI drives growth significantly in Nigeria.

The results in Tables 3 and 4 also indicate that exchange rate exacts positive impact on economic growth in Nigeria. The observed effect is statistically significant only in the long-run at the 5% level of significance. This is contrary to economic expectation since deterioration or depreciation in the exchange rate is expected to retard growth, at least in the short-run. The results however indicate that the role of exchange rate in Nigeria's growth process cannot be over stressed. The Nigerian government and policymakers are therefore encouraged to monitor the foreign exchange market to ensure stability, reduce uncertainty and retain investor confidence.

The results also indicate that trade openness is not contributing significantly to growth, both in the long-run and short-run. This is contrary to the traditional trade theories, which conceived specialization and trade liberalization as catalysts for expansion of domestic production and markets, which would in turn lead to economic growth. In the case of gross fixed capital formation, the results show that its impact on economic growth is positive and significant at the 5% level in both the long-run and short-run. This is consistent with economic expectation and implies that increase in the gross fixed capital formation will be beneficial to economic growth in Nigeria in the long-run and short-run. We find that the effect of external debt on growth remained consistently negative and insignificant, both in the long-run and short-run. This is contrary to economic expectation because an increase in external debt is expected to increase investment and production in the domestic economy, thereby leading to increase in economic growth. However, this result is consistent with the reality of the Nigerian economy in which has witnessed increasing levels of both domestic and external debts in recent years without commensurate increase in the productive capacity of the economy.

The results of the Breusch-Godfrey serial correlation test and the Breusch-Pagan-Godfrey heteroskedasticity test reported in Table 3 indicate that the regression results are free from the problems of autocorrelation and heteroskedasticity. This means that the regression results are valid for inference, and can therefore inform policy. The adjusted R-squared of 96% indicates that the regressors have substantially explained the variations in output growth. The DW-statistic of 1.93, which is approximately equal to 2, further suggests that the results are free from the problem of autocorrelation. The F-statistic is statistically significant even at the 1% level, indicating that the model as a whole is statistically significant. Overall, the diagnostic checks indicate that the key underlying assumptions of the OLS estimation procedure adopted for this study have been adequately satisfied by the underlying model in this study.

CONCLUSION AND POLICY IMPLICATIONS

This study contributes to the ongoing investigation on the growth effect of FDI in Nigeria. The study employed time series data from 1981 to 2016, and OLS estimation technique. In the main, the study finds that FDI is not contributing significantly to growth in Nigeria, both in the long-run and short-run. However, the study finds that growth in gross fixed capital formation and the dynamics of the naira to U.S. dollar exchange rate play important roles in

economic growth in Nigeria, at least in the long-run. Based on these findings, the study recommends that the Nigerian government should implements policies that would create a stable economic and political environment to instill confidence in foreign investors. Such policies could be implemented through good governance with fiscal and monetary accountability as well as transparency. Indeed, policies that can drive the inflow of FDI into the productive sectors of the economy will not only enhance the productive capacity of the economy but will ultimately ensure greater economic growth.

REFERENCES
1. Ayanwale, A.B., (2007). *FDI and Economic Growth: Evidence from Nigeria*. AERC Research Paper 165, African Economic Research Consortium, Nairobi.
2. Ajayi, S.I., (2006). The Determinants of Foreign Direct Investment in Africa: A Survey of the Evidence. In: Ajayi, S.I., (Ed.), *Foreign Direct Investment in Sub- Saharan Africa: Origins, Targets and Potential*. AERC, Nairobi.
3. Macaulay, E.D. (2012). Foreign direct investment and the performance of the Nigerian economy. Proceedings of the 1st International Technology, Education and Environment Conference. 629 -633.
4. World Bank (2017). World Development Indicators. Available at: https://data.worldbank.org/products/wdi (Accessed: 29 April 2018).
5. Nwankwo, O.G, Ademola, O. and Kehinde, O. (2013). Effects of Globalization on Foreign Direct Investment in Nigeria. *Lorem Journal of Business and Economics (LJBE),* **1**(1), 11-17.
6. Jin, J. (2000). Openness and Growth: An Interpretation of empirical evidence from East Asian Countries. *Journal of International Trade and Economic Development,* **9**(1), 5-17.
7. CBN (2016). *CBN Statistical Bulletin*. Abuja: Central Bank of Nigeria Press.
8. Hassen, A. (2011). Effectiveness of foreign aid in Sub Saharan Africa: Does disaggregating aid into bilateral and multilateral components make a difference? *Journal of Economics and international finance*. **3**(16), 801-817.
9. Shiro, A. A. (2009). The Impact of FDI on the Nigerian Economy. Paper delivered at the 2nd National Conference organized by the Department of Finance, University of Lagos, Lagos State. Available at: www.unilag.edu.ng/researchview (Accessed: 19 July 2018)
10. Onuoha, M. (2015). Foreign direct investment and economic growth: the neoclassical approach. *World Development*. **36**(4): 189-219.
11. Otepola, A. (2002). FDI as a Factor of Economic Growth in Nigeria. African Institute for Economic Development and Planning (IDEP), Dakar, Senegal. May. Available at: http://www.unidep.org (Accessed: 10 December 2018).
12. Solomon, H.C and Eka, O.O (2013). Impact of foreign direct investment on telecommunication sector of Nigerian economy. *International Journal of Modern Social Sciences*. **2**(3), 195-215.
13. Ozekhome, H.O. (2017). Does democratic institutions and foreign direct investment affect economic growth? Evidence from Nigeria. *Oradea Journal of Business and Economics*. **2**(2), 27 – 36.
14. Nnadozie, E. and Njuguna, A. (2014). *Investment Climate & Foreign Direct Investment in Africa*. 6th African Economics Conference.
15. Obinna, O.E. (2015). Diversification of Nigeria's external finances through strategic foreign direct investment. Nigerian Economic Society Annual Conference Proceedings, JOS, 13-16th May.
16. Ariyo, A., (2015). Investment and Nigeria's economic growth. In: *Investment in the Growth Process*: Proceedings of the Nigerian Economic Society Conference, Ibadan, Nigeria, pp: 329-349.
17. Alfaro, L., Chanda, A., Kalemi-Ozean, S. and Sayek, S. (2004). FDI and economic growth: The role of local financial markets. *Journal of International Economics*. **64**(1), 89 – 112, https://doi.org/10.1016/S0022-1996(03)00081-3
18. Durham, J.B. (2004). Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth. *European Economic Review*, 48, (2): 285 –306.
19. Akinlo, A.E., (2004). The stability of money demand in Nigeria: An autoregressive distributed lag approach. *J. Policy Modeling*. **28**, 445-452.
20. Adelegan, J. O. (2000). Foreign Direct Investment and Economic Growth in Nigeria: A Seemingly unrelated model. African Review of money, finance and banking. Supplementary issues of "*Savings and Development*" 2000, pp. 5-25, Milan, Italy.
21. Jerome, A. and Ogunkola, J. (2004). *Foreign Direct Investment in Nigeria: Magnitude, Direction and Prospects*. Paper presented to the African Economic Research Consortium Special Seminar Series, Nairobi, April.
22. Oyinlola, O. (1995). External capital and economic development in Nigeria (1970-1991). *The Nigerian Journal of Economic and Social Studies*. **37** (2&3), 205-222.
23. Chenery, H. B. and Stout, A. (1966). Foreign Assistance and Economic Development. *American Economic Review*. 55, 679-733.