

THE IMPACT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN NIGERIA (1986 – 2016)

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ABSTRACT

This research examines the impact of Foreign Direct Investment (FDI) on economic growth in Nigeria. The main objective is to see if there is any causal relationship between foreign direct investment and economic growth in Nigeria. The study employed the use of Vector Auto regression (VAR) and granger causality test on quarterly time series data covering the period of 1986-2016. Evidence from the analysis of sample data did not show the existence of causal relationship moving from foreign direct investment to economic growth. However, the study found evidence of causal relationship moving from real GDP to foreign direct investment. The results led to a conclusion that Foreign Direct Investment does not have any significant impact on economic growth in Nigeria. However, economic growth in Nigeria is seen to attract and or repel foreign direct investment in Nigeria.

Keywords: Foreign Direct Investment, Gross Domestic Product, Granger Causality, Real Exchange Rate, Trade Openness.

1. Introduction

Many countries especially developing countries like Nigeria see attracting foreign direct investment as an important element in their strategy for economic development. FDI has been given prominence by the past and present administrations. They consider FDI as an antidote for slow rate of economic growth which has been experienced in the country. To this end, Nigerian authorities have been trying to attract FDI via various reforms. The reforms included the deregulation of the economy, the new industrial policy of 1989, the establishment of the Nigerian Investment Promotion Commission (NIPC) in the early 1990s and the signing of Bilateral Investment Treaties (BITs) in the late 1990s. The oil sector in particular has witnessed increased level of FDI as evidenced by the increasing numbers and operations of oil multinational corporations in the country. Nigeria has offered generous incentives to attract FDI inflows. In addition, Nigeria has also undertaken macroeconomic reforms often under pressure from Bretton Woods's institution, all geared towards the same end which is, creating an investor-friendly environment.

Nigeria is one of the economies with great demand for goods and services and has attracted some FDI over the years. World Bank's WDI (2016) shows that Nigeria's FDI inflow has grown significantly. It was USD205million in 1970 and by 1997 it was USD1.539bn, and then it rose to over USD3bn in 2005 and up to USD8.8bn in 2011. However, Nigeria has been receiving low proportions of FDI inflows lately, despite being blessed with enormous human and natural resources. This is perhaps because the economy is perceived by investors as a high risk market for investment. Nigeria has been experiencing declining and fluctuating foreign investment inflows, from USD8.8bn in 2011 down to USD3.14bn in 2015.

The empirical linkage between foreign direct investment and economic growth in Nigeria is yet unclear, despite numerous studies that have examined the influence of foreign direct investment on Nigeria's economic growth with varying outcomes. Therefore, there is the need to revisit and make further studies on the impact of foreign direct investment on economic growth and the determinants of foreign direct investment. This study seeks to find out whether or not FDI has a significant impact on the growth of the economy. The rest of the paper follows thus; review of empirical literature, methodology, Econometric analysis and discussion of results and conclusion.

2. EMPIRICAL LITERATURE REVIEW

A wide range of studies are available in literature on the impact of Foreign Direct Investment on Nigeria's economic improvement and also on the determinant of Foreign Direct Investment. Ugochukwu, Okoro and Onoh (2013) in their study on the impact of foreign direct investment using the ordinary least square method and granger causality test reached a conclusion that Foreign Direct Investment has a positive and significant impact on economic growth. Interest rate was found to be positive and insignificant while exchange rate positively and significantly affects the growth of the Nigerian economy. Adeleke, Olowe and Oluwafolakemi (2014) also using the same methodology reached the conclusion that economic growth is directly related to inflow of Foreign Direct Investment.

Okon, Jacob and Chuku (2011) using single and simultaneous equation systems pointed out that foreign direct investment and economic growth are simultaneously determined in Nigeria and there is positive feedback from Foreign Direct Investment to growth and from growth to foreign direct investment. Anfofum, Gambo and Suleiman (2013) in their study on the impact of Foreign Direct Investment in Nigeria using ordinary least square equation which was disaggregated into five equations, a co-integration and granger causality techniques concluded that foreign direct investment is a positive measure of economic growth. Matthew and Johnson (2013) using ordinary least square (OLS) method in their paper “Accelerating Economic Growth in Nigeria, the Role of Foreign Direct Investment: A Reassessment” reached a result that foreign direct investment and domestic savings make significant contribution to the growth economy of Nigeria. In another study of theirs on the impact of Foreign Direct Investment on employment generation in Nigeria also using ordinary least square regression, granger test, Dickey-Fuller and Augmented Dickey-Fuller (ADF) unit root test ascertained that FDI has a positive impact on employment generation.

Olumuyiwa (2013) in his study on the impact of Foreign Direct Investment inflow on economic growth in a pre and post deregulated Nigeria economy covering the period 1970 to 2010 using Granger causality test ascertained that there is a causality relationship in the pre-deregulation era that is (1970-1986) from economic growth (GDP) to foreign direct investment inflow (FDI) which means GDP causes FDI, but there is no causality relationship in the post-deregulation era that is (1986-2010) between economic growth (GDP) and Foreign Direct Investment inflow (FDI) which means GDP does not cause FDI. However, studies from 1970 to 2010 shows that there is a causality relationship between economic growth (GDP) and Foreign Direct Investment inflow (FDI). That is, economic growth drives Foreign Direct Investment inflow in the country and vice versa. Onuoha and Oregwu (2013) using ordinary least square regression in their study on the determinant of Foreign Direct Investment and the Nigerian economy reached a result that GDP does not bring about foreign direct investment. Transport and communication exhibit positive relationship with FDI and the openness of trade is not significant.

Adaramolo and Obisesan (2015) in their study on the impact of Foreign Direct Investment on the Nigerian capital market development using ordinary least square, ADF unit root test, and Johansen co-integration test reached a conclusion that Foreign Direct Investment impact positively and significantly on market capitalization. Danja (2012) utilizing ordinary least square regression in his study on foreign direct investment revealed that FDI has a positive relationship with Gross Fixed Capital Formation and index of industrial production but FDI has not contributed much to the growth and development of the Nigerian economy. Akinlo (2004) investigates the impact of foreign direct investment on economic growth in Nigeria using data for the period 1970 to 2001. His error correction model (ECM) results show that both private capital and lagged foreign capital have small significant impact on export and economic growth.

Njogu (2013) in her study on foreign direct investment determinants in pre and deregulated Nigerian economy using multiple regression model, unit root test, co-integration and granger causality test in her analysis revealed that, exchange rate, inflation, and degree of openness in pre deregulated Nigerian economy had a negative and non-significant impact on foreign direct investment. Meanwhile, market size had a positive and non-significant impact on foreign direct investment. In deregulated Nigerian economy, exchange rate and degree of openness had a negative and non-significant impact on foreign direct investment. Inflation rate had a positive and non-significant impact and market size had a positive and significant impact on foreign direct investment in the Nigerian economy.

Osaghale and Amenkhieman (1987) in their research conducted to determine whether foreign capital inflows, oil revenues and foreign borrowing had any positive impact on the economic growth of Nigeria. They found out that there was increment in Nigeria's revenue from oil export between 1970 and 1982 and there was a substantial growth in her foreign debts and FDI. The result of the investigation made it known that there was a positive relationship between FDI and gross domestic product (GDP) and the conclusion of the study was of the view that the economy would perform better with greater inflow of FDI and it also recommended that less developed countries should create more a conducive environment for FDI. Isah (2012) examined the long term determinants of foreign direct investment in Nigeria covering a period of 1971 to 2009 using Vector Error Correction Mechanism (VECM). His results provided evidence which indicates that the size of Nigeria's domestic market, the liberalization policy and openness of the economy as well as stable domestic currency are significant in attracting FDI. He further recommended that Nigeria should strengthen its investment environment by reducing obstacles to doing business, improving Nigeria's economic management and export promotion schemes.

Nurudeen and Wafure (2010) in their research on the determinants of foreign direct investment in Nigeria reached a result that revealed that market size, deregulation, political instability and exchange rate depreciation are the main determinants of foreign direct investment in Nigeria. They made use of the error correction technique to analyze the relationship between foreign direct investment and its determinants. They recommended that further deregulation of the economy through privatization and reduction of government interference and strengthening of the political institutions will promote foreign direct investment.

3.0 Methodology

The data used in this study is from secondary sources covering the period of 1980q3 to 2016q2. The data is collected from the World Bank and Central Bank of Nigeria (CBN). The real GDP is used to proxy growth, FDI net inflow is used to proxy foreign direct investment. Meanwhile, trade openness (TOP), real exchange rate (RER) and socio-political risk (risk) are used as control variables given that they are very important in determining FDI inflow.

3.1 Econometric Method

The study makes use of Vector Autoregression (VAR) model. The use of VAR is only possible when series do not contain unit root otherwise they are stationary. Non-stationary series will have to be differenced in order to avoid fitting a spurious VAR model. Engle and Granger (1987) note that when two or more time series have unit root, it is likely that they might be co-integrated.

For a k-variable VAR model with p lag order, we have;

$$Y_t = v + A_1 y_{t-1} + \dots + A_p y_{t-p} + u_t$$

Where u_t is iid and normally distributed over time. Y_t is an (n x 1) vector of dependent variable(s) and y_{t-p} is an (n x n) vector of lagged independent variables. A_p is a vector of parameters and v is a vector of constants while u_t is an (n x 1) vector of serially uncorrelated error term with a constant variance.

In Econometrics method, VAR models tend to be sensitive to lag orders included in the estimation. Including too many lags may lead to correlation of independent variables (multicollinearity). Therefore, the study uses Bayesian Information Criterion (BIC) for lag order selection. Again the Augmented Dickey-Fuller test is used to determine the presence or otherwise of unit root in series. The impulse response is used to determine the time path that the dependent variable(s) follow when impacted by a unit shock in the error term.

3.2 Granger Causality test

Granger (1969) proposed two types of causal relationship tests. The first test is through the use of lagged variables specifically when the parameters of the variables are all statistically significant. The second test is used when variables are cointegrated (have long run relationship).

We use the first test which is stated as:

$$Y_t = \alpha_1 + \sum_{i=1}^n a_{2i} Y_{t-i} + \sum_{j=1}^n a_{3j} X_{t-j} + \mu_{1t} \quad (1)$$

$$X_t = \beta_1 + \sum_{i=1}^n \beta_{2i} Y_{t-i} + \sum_{j=1}^n \beta_{3j} X_{t-j} + \mu_{2t} \quad (2)$$

In equation 1 above, X_t is said to Granger-cause Y_t , provided a_{3j} is greater or less than (but not equal to) zero. Similarly, in equation 2, Y_t is said to Granger-cause X_t if and only if β_{2i} is greater or less than (but not equal to) zero. If both of those significances occur, the relationship is called bidirectional causality. The significance of those parameters is tested with joint hypothesis $\alpha_{3j} = \beta_{2i} = 0$.

4. EMPIRICAL ANALYSIS AND DISCUSSION OF RESULTS

4.1 Test for Unit Root Using Augmented Dickey-Fuller (ADF) Test

The study used the ADF test with the null hypothesis that series are non-stationary and the alternative hypothesis that series are stationary. The results as presented in table 4.1 below

shows that real GDP, FDI net inflow and trade openness were stationary only when first-differenced. Real exchange rate and socio-political risk were stationary at levels.

Table 4.1: Augmented Dick-Fuller Test for Unit Root

Variables	ADF at Levels		ADF at 1 st Diff	Order of integration
	Lag order	p-value	p-value	
Real GDP	1	0.483	0.000	I(1)
FDI net inflow	1	0.746	0.000	I(1)
Trade openness	6	0.118	0.000	I(1)
Real Exchange rate	6	0.020	0.000	I(0)
Socio-political risk	3	0.000	0.000	I(0)

Source: Authors' computation using stata 14

4.2 VAR and Granger Causality Wald Test

VAR is then applied with first differenced values of real GDP, FDI inflow and trade openness since they were non-stationary at levels. Meanwhile the level values of real exchange rate and socio-political risk were used. This is necessary so that spurious regression will be avoided. After fitting a VAR, the study applied the Granger causality test as shown in table 4.2 below. A variable, such as FDI inflow, is said to Granger-cause another variable such as real GDP, if and only if given the past values of real GDP, past value of FDI inflow are useful for predicting real GDP (see Granger, 1969).

Table 4.2 Granger Causality Wald Tests

Equation	Excluded	chi2	Df	Prob > chi2
d_gdp	d_fdi	0.23623	1	0.627
d_gdp	d_top	0.0995	1	0.752
d_gdp	risk	0.33277	1	0.564
d_gdp	rer	1.8052	1	0.179
d_gdp	ALL	2.1794	4	0.703
d_fdi	d_gdp	6.3474	1	0.012
d_fdi	d_top	0.17391	1	0.677
d_fdi	risk	0.15093	1	0.698
d_fdi	rer	0.87302	1	0.35
d_fdi	ALL	9.721	4	0.045
d_top	d_gdp	2.365	1	0.124
d_top	d_fdi	3.6741	1	0.055
d_top	risk	1.6282	1	0.202
d_top	rer	5.0141	1	0.025
d_top	ALL	10.834	4	0.028
risk	d_gdp	0.04495	1	0.832
risk	d_fdi	0.14169	1	0.707
risk	d_top	0.26573	1	0.606
risk	rer	0.68841	1	0.407
risk	ALL	1.6721	4	0.796
rer	d_gdp	1.3268	1	0.249
rer	d_fdi	2.9952	1	0.084
rer	d_top	1.8745	1	0.171
rer	risk	2.1335	1	0.144
rer	ALL	11.116	4	0.025

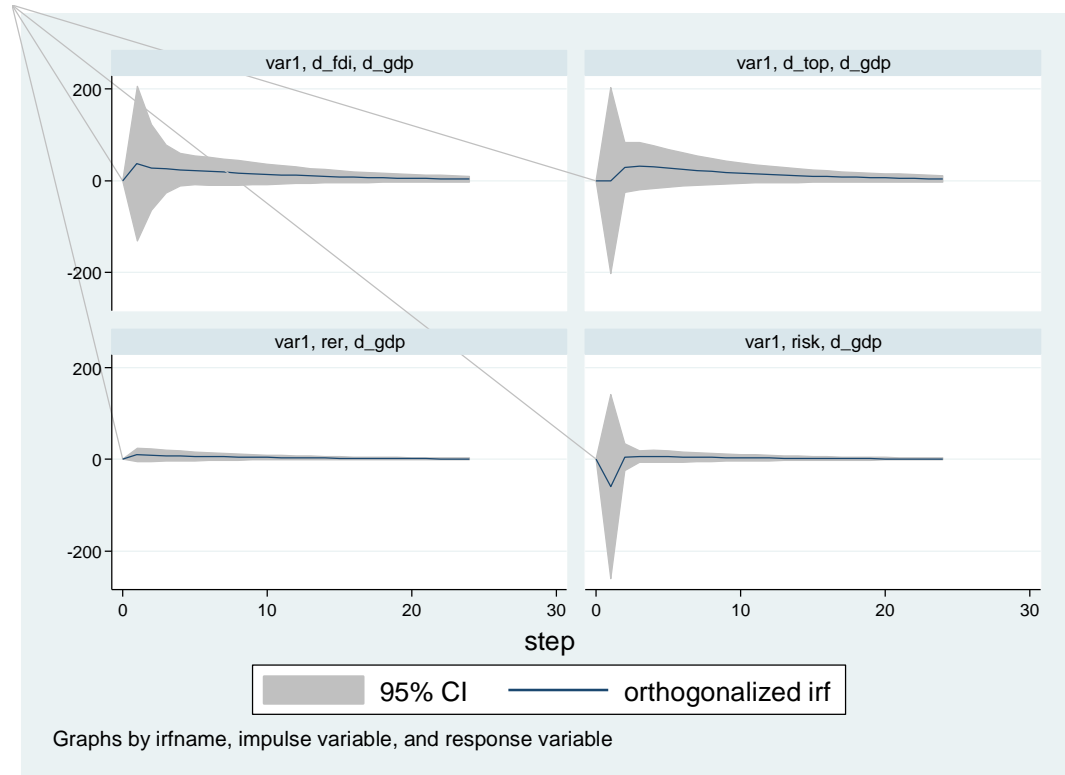
Source: Authors' computation using stata 14

The null hypothesis is set that there is no causal relationship while the alternative hypothesis is set that causal relationship exists. The null hypothesis is rejected if the p-value is less than or equal to 0.05. The results in table 4.2 above, does not give any evidence of causality moving either from FDI net inflow to real GDP. We see that the p-value is 0.627 which is greater than 0.05, hence, the null hypothesis of no causality is failed to be rejected. However, the result shows evidence of causality moving from real GDP to FDI inflow. Given the p-value of 0.012 which is less than 0.05, the null hypothesis is rejected and the conclusion is that real GDP Granger causes FDI inflow. It is also found that all the other variables combined Granger cause FDI inflow, trade openness and real exchange rate accordingly. Lastly, the result reveals evidence of causality moving from real exchange rate to trade openness.

4.3 Impulse Response Function

The impulse response is used to determine the time path dependent variable(s) follow when ignited by a unit shock in the error term.

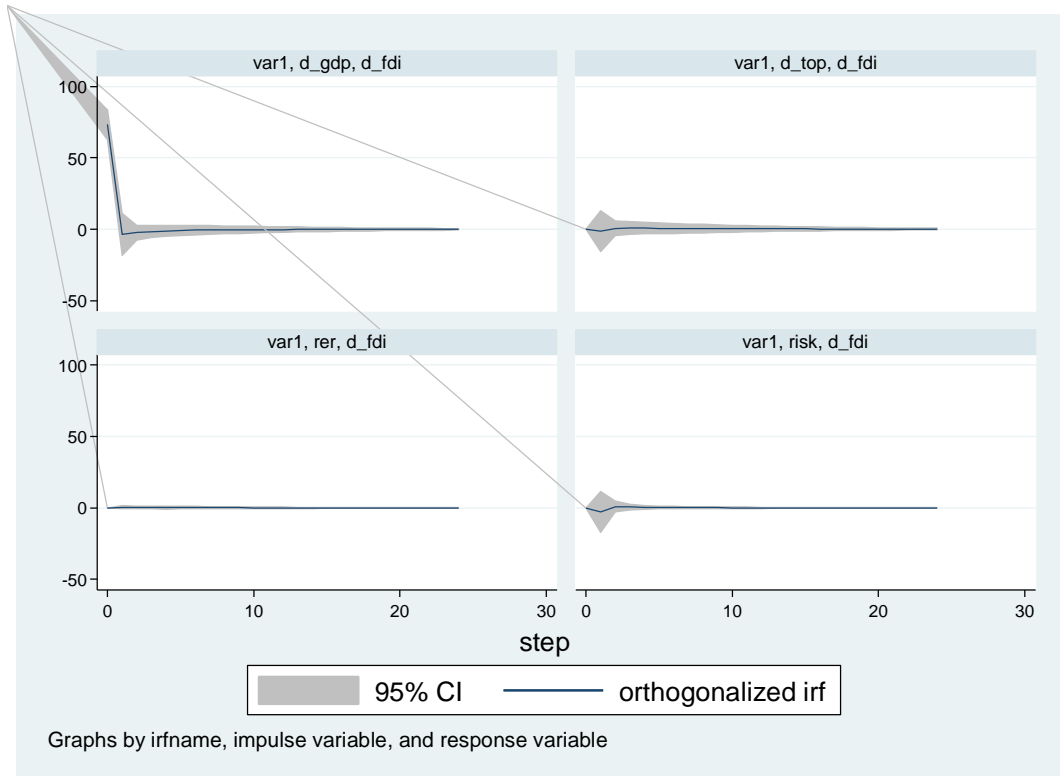
Figure 4.1 Impulse response when real GDP is the response variable



Source: Authors' computation using stata 14

Figure 4.1 shows that a unit shock in FDI inflow will in the short run cause positive response but fluctuating response from inflation in the short run. The positive response however, quickly dies out in the medium and long run. An orthogonal shock in real exchange rate and trade openness also generates a positive response from real GDP only in the short run. Meanwhile, a unit short in socio-political risk receives a negative response from real GDP in the short run. These responses are all seen to die out in the medium and long run.

Figure 4.2 Impulse Response when FDI is the response variable



Source: Authors' computation using stata 14

The result in figure 4.2 reveals that an orthogonal shock in real GDP causes a sharp decline in foreign direct investment net-flow in the short term. The response quickly becomes transitory in the medium and long runs. Meanwhile, a unit shock in trade openness and socio-political risk causes an initial negative response from foreign direct investment inflow. This response quickly returns towards zero and becomes transitory in the long run. Lastly, a unit shock in real exchange rate causes a slight positive response in FDI in the short run. However, the positive response quickly returns to zero and dies out during the medium and long runs.

5. Conclusion

The primary objective of the study is to uncover the causal impact of foreign direct investment net-flow on economic growth in Nigeria. The empirical part of the research attempted to verify the mixed results of earlier empirical studies on Foreign Direct Investment by using a different estimation technique (Granger Causality). Evidence from the analysis of sample data did not show the existence of causal relationship moving from foreign direct investment to economic growth. However, the study found evidence of causal relationship moving from real GDP to foreign direct investment. The results led to a conclusion that Foreign Direct Investment does not have any significant impact on economic growth in Nigeria. However, economic growth in Nigeria is seen to attract and or repel foreign direct investment in Nigeria.

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