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Abstract

This paper examines the relationship between Foreign Direct Investment and economic growth in Nigeria using time series data covering the period 1988-2018. The unit root test and stationarity test were used to test the statistical properties of the series. The ordinary least square regression method was used for the model estimation while the granger causality test was used to test the direction of causality. The diagnostic test conducted shows that the regression model is free from serial or auto correlation. Result shows that foreign direct investment, export and exchange rate has a positive impact on economic growth in Nigeria while showing a bi-directional relationship between FDI and exchange rate. The paper concludes by recommending an increase in the production of export crops by way of granting farmers loan, which will in turn increases FDI inflow into Nigeria.

Keywords: Foreign Direct Investment, Economic growth, Export, Exchange rate, Nigeria

Introduction

Most developing countries are faced with shortage of capital formation to finance the necessary investment for economic growth (Basem & Abeer, 2012). Capital is regarded as one of the principal obstacle to economic development. As a result, attracting foreign capital can be seen to augment the savings-investment gap. Foreign Direct Investment can be viewed as an important source bearing valuable technology which enhances linkages with local firms thereby helping to boost growth in an economy. This has led industrialized and developing countries to offer incentives to encourage foreign direct investments in their economies (Melnyk, Kubatko & Pysarenko, 2014).

In the 1970s, international trade grew more rapidly than FDI, and was by far the most important international economic activity. This situation changed dramatically in the mid-1980s, when world FDI started to increase sharply (Adelegan, 2000). This period saw the world FDI increase its importance by transferring technologies and establishing marketing and procuring networks for efficient production and sales internationally. Foreign investor's benefited from utilizing their assets and resources efficiently, while FDI recipients benefited from acquiring technologies and getting involved in international production and trade networks (Li & Liu, 2005).

Developing countries now see attracting FDI as an important element in their strategy for economic development. Globalization and regional integration arrangement can change the level and pattern of FDI and also it reduces the trade costs (Umoh J. O., Augustine O. J. & Chuku A. C. 2013). This is most probably because FDI is seen as an amalgamation of capital, technology, marketing and management. Khan (2007) observed that FDI

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has emerged as the most important source of external resource flows to developing countries over the years and has become a significant part of capital formation in these countries. It has also been widely recognized as a growth-enhancing factor in the developing countries. While global FDI flows increased by 25% from 1991-2011, developing countries as a group show an FDI increase of 22% at constant prices. FDI flows to poor countries increased to almost 5% of GDP (World Bank, 2012).

Adetayo (2012) also observed that Nigeria received a large quantum of FDI when compared to other African countries especially Economic Community of West African States (ECOWAS), where over 90% of FDI inflow to ECOWAS came to Nigeria especially in oil and gas and telecommunications sector. Nigeria attracts 29.4 per cent of total foreign direct investment resources meant for Africa, South Africa attracts 18.2 per cent while Equatorial Guinea attracts about 10 per cent (Olayiwola & Okodua, 2013). But where are those investments and how do they impact on the Nigerian economy?

The realization of the potential value of FDI by developing countries including Nigeria, led to liberalization of their investment regimes and engaged in investment promotion activities to attract investors. In Nigeria, this led to a series of radical and pragmatic economic reforms that started in the mid-1980s. The reforms were designed to increase the attractiveness of Nigeria’s investment opportunities and foster the growing confidence in the economy so as to encourage foreign investors to invest in the economy (Akinola, 2004). Olusanya (2014) argued that, the reforms resulted in the adoption of liberal and market-oriented economic policies, the stimulation of increased private sector participation and elimination of bureaucratic obstacles which hinders private sector investments and long-term profitable business operations in Nigeria.

Capital formation is considered as one of the major economic constraint of developing nations to meet their investment needs. Hence FDI bridges the gap. FDI fosters economic growth through three different channels. First is to augment domestic savings in the process of capital accumulation. Second, technology spill overs for increased factor productivity and efficient utilization of resources. Third, increase exports as a result of increased capacity and competitiveness in domestic production. However, this linkage is often said to depend on “absorptive capacity”, which includes the level of human capital development, type of trade regimes and degree of openness (Ajayi, 2006; Borensztein, E., J. De Gregorio & J-W. Lee (1998). There exist various studies to prove the impact of Foreign Direct Investment on economic growth. Some are based on region, while some are country specific and some others are specifically on Nigeria. However, Basem & Abeer (2012); Asiedu (2001); De Mello (1997), argued that the relationship between FDI and economic growth may be country and period specific as is evident in Nigeria. Inflow of FDI has been on a decline as the country is currently experiencing some economic, political and security challenges.

The major objective of this study is to ascertain the impact of FDI on economic growth in Nigeria. However, the study has two specific objectives which are to investigate the causal relationship between FDI and economic growth in Nigeria; and to determine the trend of FDI inflow in Nigeria. The research questions are: What is the impact of FDI on economic growth in Nigeria? What is the level of inflow of FDI in Nigeria? The hypothesis is stated in null format thus: H₁: Foreign direct investment has no impact on economic growth in Nigeria. H₂: The magnitude of FDI in Nigeria cannot be determined.
Foreign Direct Investments

Todaro and Smith (2003) defined foreign direct investments (FDI) as overseas investments by private multinational corporations. In other words, foreign direct Investments are multinational investments abroad. It is important to identify the conceptual relationship between multinational corporations and foreign direct investments. It is generally accepted that a multinational or transnational enterprise is one that engage in foreign direct investments in more than one country. The above definition is generally accepted in academic and business circles including data collecting agencies such as the Organization for Economic Co-operation and Development (OECD), The United Nations Centre for Transnational Corporations (UNCTC) and by many national governments (Otto 2004).

Economic Growth

Economic growth for Schumpeter (2012) can be referred to as a long run gradual and steady change which leads to a gradual increase in the rate of savings and population. Economic growth can also imply more output in an economy. This increase in output may be as a result of an increased input as well as efficiency. In the context of this research work, GDP will be used as a measure of economic output because it is the most reliable effect used in most developing countries.

Theoretical Framework

Studies have used Outward-Oriented growth hypothesis essentially to motivate an empirical exercise on the likely impact that FDI inflow may have on growth. The theoretical rationale for this hypothesis hinges on a number of arguments which include the following: first, that the foreign capital may generate positive externalities through more efficient management styles and improved production techniques (Feder, 1982). Second, foreign capital expansion will increase productivity by offering potential for scale economies (Helpman & Krugman, 1985; Krugman 1997). Third, foreign capital is likely to alleviate foreign exchange constraints and can thereby provide greater access to international markets (Esfahani, 1991). These arguments have recently been extended by the literature on “endogenous” growth theory which emphasizes the role of foreign capital on long-run growth via a higher rate of technological innovation and dynamic learning from abroad (Lucas 1988; Romer 1986, 1989; Grossman & Helpman 1995).

There are a number of ways through which export flows and FDI can be linked. Goldberg & Klein, (1998) asserted that FDI may encourage export promotion, import substitution, or greater trade in intermediate inputs which often exist between parent and affiliate producers.

This study is therefore hinged on the basic neoclassical framework of the Cobb-Douglas production function.

Methodology

The data for this study were obtained largely from Central Bank of Nigeria (CBN) Statistical Bulletins and National Bureau of Statistics with support from World Bank development indicators and International Monetary Fund (International Financial Statistics).

This research study is similar to that of Oyatoye E. O, Arogundade K. K, Adebesi S. O. & Oluwakayode, E. F. (2011), but it is a build up because it covers a longer period of time 1988 – 2018 and additional variables such as export and a dummy were introduced into the model. Thus the model of this study is as stated below.

\[ GDP_t = \beta_0 + \beta_1FDI + \beta_2EXPT + \beta_3EXR + \beta_4INF + \beta_5DUM + U_t \]  

3.1

where GDP is the gross domestic product at current basic prices; FDI is foreign direct investment; EXPT is export; EXR is exchange rate; INF is inflation; DUM is dummy variable.
investment; EXPT is exports; EXR is exchange rate; INF is inflation; and DUM is a dummy variable used to capture political climate between democracy and military rule (1 stand for democracy and 0 stand for military rule period); $U_t$ is the error term.

Taking natural logarithms, the above equation will be transformed as follows:

$$
\ln \text{GDP}_t = \beta_0 + \beta_1 \ln \text{FDI} + \beta_2 \ln \text{EXPT} + \beta_3 \ln \text{EXR} + \beta_4 \ln \text{INF} + \beta_5 \text{DUM} + U_t \tag{3.2}
$$

Above is the model to be estimated in the study and it covers a period of 1988 – 2018

The apriori expectation will be such that $\beta_1$, $\beta_2$, $\beta_3 > 0$ (expected to be positive); $\beta_4 < 0$ (expected to be negative).

**Technique of Analysis**

**Unit Root Test of Stationarity**

Unit root test was implemented by Fuller (1976) and Dickey and Fuller (1979) to test the null hypothesis of different stationaries. Using the Philips Perron (PP) test, the data will be identified whether it is consistent with an I(1) process with a stochastic trend, or it is consistent with an I(0) process; whether it is stationary or non-stationary with a deterministic trend. In unit root test, the stationary model required differencing to get stationarity and the processes are also known as integration of order 1, I(1) (Walters and Hassler, 2006). Basically, the unit root test is carried out to test the stationarity of the data employed in the model estimation.

**Johansen Cointegration Test**

The Johansen Juselius Cointegration test was proposed by Johansen (1998) as a general framework to test the possibility of multiple cointegrating vectors. The test is of two types, the trace test and the eigenvalue test. Both cointegration tests differ a little in inferences.

**Granger Causality Test**

If the variables are found to be co-integrated, the Granger causality can be applied. In order to explain Granger Causality Test, assume $Y_t$ and $X_t$ are the series to predict the causal relationship between the variables. For example, $X_t$ causes $Y_t$ if the previous value of $X_t$ can predict the current value of $Y_t$, and considering other related and relevant information in the past (Granger, 1979).

**Results**

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF</th>
<th>1% critical level</th>
<th>5% critical level</th>
<th>10% critical level</th>
<th>Prob.</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG GDP</td>
<td>-4.957727</td>
<td>-3.711457</td>
<td>-2.981038</td>
<td>-2.629906</td>
<td>0.0005</td>
<td>1(1)</td>
</tr>
<tr>
<td>LOGFDI</td>
<td>-7.831094</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-2.622989</td>
<td>0.0000</td>
<td>1(1)</td>
</tr>
<tr>
<td>LOGEXP</td>
<td>-5.261332</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-2.622989</td>
<td>0.0002</td>
<td>1(1)</td>
</tr>
<tr>
<td>LOGEXR</td>
<td>-11.63997</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-2.622989</td>
<td>0.0000</td>
<td>1(1)</td>
</tr>
<tr>
<td>LOGINF</td>
<td>-5.708328</td>
<td>-3.699871</td>
<td>-2.976263</td>
<td>-2.627420</td>
<td>0.0001</td>
<td>1(1)</td>
</tr>
<tr>
<td>DUMMY</td>
<td>-7.915630</td>
<td>-3.679322</td>
<td>-2.967767</td>
<td>-2.622989</td>
<td>0.0000</td>
<td>1(1)</td>
</tr>
</tbody>
</table>

Note: (*) (**) (***)) denotes statistically significant at 1%; 5% and 10% level respectively.

Source: Authors’ Computation (2020)

Table 1 presents result of unit root test. Using 5% level of significance to accept or reject the hypothesis based on the Dickey Fuller test statistic distribution. The results show that Gross Domestic Product (GDP), Foreign Direct Investment (FDI), Export (EXP), Exchange rate (EXR), Inflation (INF) and the Dummy variables are found to reject the null hypothesis of no stationary at level and this
implies that the time series variables are relatively stable and integrated of order one. Since, the incorporated variables in this study are of the same order of integration; we assume the same level of stability in the data distribution pattern i.e. the same order of integration for the subsequent tests.

Table 2: Johansen Co-integration Rank Test

<table>
<thead>
<tr>
<th>Eigen value</th>
<th>Trace Statistics</th>
<th>5% Critical Ratio</th>
<th>Prob**</th>
<th>Hypothesized No. Of CE(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.150648</td>
<td>4.245318</td>
<td>3.841466</td>
<td>0.0393</td>
<td>None</td>
</tr>
<tr>
<td>0.577867</td>
<td>66.07055</td>
<td>69.81889</td>
<td>0.0960</td>
<td>At most 1 *</td>
</tr>
<tr>
<td>0.526283</td>
<td>43.64725</td>
<td>47.85613</td>
<td>0.1176</td>
<td>At most 2 **</td>
</tr>
<tr>
<td>0.464382</td>
<td>24.22150</td>
<td>29.79707</td>
<td>0.1912</td>
<td>At most 3 **</td>
</tr>
<tr>
<td>0.148605</td>
<td>7.988802</td>
<td>15.49471</td>
<td>0.4666</td>
<td>At most 4</td>
</tr>
<tr>
<td>0.136173</td>
<td>3.805942</td>
<td>3.841466</td>
<td>0.0511</td>
<td>At most 5</td>
</tr>
</tbody>
</table>

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Authors computation (2020)

Table (2) shows the result of Johanson co-integrating tests. It shows that the validity of the variables maintain a long run equilibrium relationship. The regression equation have Trace Statistics Eigen values greater than the p-value at 5 % significant level.

This result shows that the variables can be used in regression without fear of obtaining spurious result.

Table 3: Pairwise Granger Causality Tests

<table>
<thead>
<tr>
<th>Null Hypothesis:</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGFDI does not Granger Cause LOGEXP</td>
<td>26</td>
<td>1.69126</td>
<td>0.2055</td>
</tr>
<tr>
<td>LOGEXP does not Granger Cause LOGFDI</td>
<td>1</td>
<td>1.9501</td>
<td>0.3201</td>
</tr>
<tr>
<td>LOGEXP does not Granger Cause LOGGDP</td>
<td>26</td>
<td>0.14309</td>
<td>0.8675</td>
</tr>
<tr>
<td>LOGGDP does not Granger Cause LOGEXP</td>
<td>30</td>
<td>38.8880</td>
<td>6.E-07</td>
</tr>
<tr>
<td>LOGINF does not Granger Cause LOGGDP</td>
<td>24</td>
<td>4.33726</td>
<td>0.0281</td>
</tr>
<tr>
<td>LOGGDP does not Granger Cause LOGINF</td>
<td>22</td>
<td>3.29107</td>
<td>0.1284</td>
</tr>
<tr>
<td>DUMMY does not Granger Cause LOGGDP</td>
<td>26</td>
<td>3.16146</td>
<td>0.0631</td>
</tr>
<tr>
<td>LOGGDP does not Granger Cause DUMMY</td>
<td>1</td>
<td>1.33287</td>
<td>0.2851</td>
</tr>
<tr>
<td>LOGEXR does not Granger Cause LOGFDI</td>
<td>26</td>
<td>1.46284</td>
<td>0.2515</td>
</tr>
<tr>
<td>LOGFDI does not Granger Cause LOGEXR</td>
<td>0</td>
<td>0.17356</td>
<td>0.8417</td>
</tr>
</tbody>
</table>

The result of the Pairwise Granger Causality test in table 3 gives a clear indication that FDI Granger Cause economic growth in Nigeria over the period reviewed. It shows a one-way causality running from FDI to GDP. The result also shows a bi-directional causality between EXR and FDI over the period reviewed.
Breusch-Godfrey Serial Correlation LM Test:

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Prob. F(2,21)</th>
<th>Value</th>
<th>Prob. Chi-Square(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>3.844873</td>
<td>0.0378</td>
<td>Obs*R-squared</td>
<td>7.772904</td>
</tr>
</tbody>
</table>

The Breusch-Godfrey Serial Correlation LM test result clearly shows that the estimated model is free from serial or auto correlation judging from the Probability. Chi-Square value of 0.9748 which is statistically not significant at the 5% level of significance. This point is further authenticated by the Cumulative Sum of Recursive Residual stability (CUSUM) test as shown in figure 1 below.

Figure 1.

Source: Authors computation (2020)

Table 5: Regression Analysis Dependent variable LOGGDP

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1.805101</td>
<td>1.101105</td>
<td>1.639354</td>
<td>0.1147</td>
</tr>
<tr>
<td>LOGFDI</td>
<td>0.161970</td>
<td>0.083754</td>
<td>1.933884</td>
<td>0.0655</td>
</tr>
<tr>
<td>LOGEXP</td>
<td>0.095147</td>
<td>0.078816</td>
<td>1.207200</td>
<td>0.2396</td>
</tr>
<tr>
<td>LOGEXR</td>
<td>1.397104</td>
<td>0.256905</td>
<td>5.438207</td>
<td>0.0000</td>
</tr>
<tr>
<td>LOGINF</td>
<td>-0.129958</td>
<td>0.177832</td>
<td>-0.730792</td>
<td>0.4723</td>
</tr>
<tr>
<td>DUMMY</td>
<td>-0.929709</td>
<td>0.472509</td>
<td>-1.967602</td>
<td>0.0613</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.935133</td>
<td>Mean dependent var</td>
<td>9.403648</td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.921032</td>
<td>S.D. dependent var</td>
<td>1.849593</td>
<td></td>
</tr>
<tr>
<td>S.E. of regression</td>
<td>0.519759</td>
<td>Akaike info criterion</td>
<td>1.711090</td>
<td></td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>6.213443</td>
<td>Schwarz criterion</td>
<td>1.993978</td>
<td></td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-18.81080</td>
<td>Hannan-Quinn criter.</td>
<td>1.799687</td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>66.31462</td>
<td>Durbin-Watson stat</td>
<td>0.767615</td>
<td></td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s computation from E-View 9.0 (2020)
The result shows that all the variables were correctly signed. This is in line with the apriori expectation. Further, the result shows that for every 1% change in FDI, GDP will increase by 16% while holding other variables constant. Also, for every 1% change in export, GDP will increase by 9% while holding other variables constant. Again, for every 1% change in exchange rate, GDP will increase by 139% while holding other variables constant. Meanwhile 1% decrease in inflation will lead to a decrease in GDP by 12% while holding other variables constant.

The R-squared (R²) known as coefficient of determination is 0.935133. This implies that 94 percent variation in gross domestic product (proxy for Nigeria economic growth) is explained by the selected independent variable within the period under investigation. This implies that the model has a good fit for prediction and policy purpose while the remaining 6 percent variation are explained by other variables that are not captured in the model. For the F-test, this test is also carried out using fair level of 5 percent level of significance, to test for overall significance of the model. We reject the null hypothesis of the tabulated F-value, since the computed F-value is greater than the tabulated F-value.

The conclusion reached in this study is;

a. Foreign direct investment has a positive but insignificant relationship with economic growth in Nigeria.

b. Export has a positive and significant relationship with economic growth in Nigeria.

c. Exchange rate has a positive and significant relationship with economic growth in Nigeria.

(d). There is a bi-directional relationship between foreign direct investment and exchange rate in Nigeria.

e. Foreign direct investment granger causes economic growth in Nigeria.

Recommendations

Therefore, based on the findings of the study, the following recommendations were made.

There is the need for government and the private sector to increase the production of export crops in the country by way of making credit facilities available to farmers at very low interest rates. This in turn will attract FDI into the country while enhancing the growth of the economy. Also the federal government and the various state governments should as a matter of priority, increase capital stock of the country by way of building durable and world class infrastructure that will improve the business environment and also lower the costs of production. This without doubt would attract more FDI into the country as well as enhance the growth of the economy. There is an urgent need for the government to put in place business friendly policies devoid of bottlenecks that hinders investment and growth in the economy.

References


