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Effect of Foreign Direct Investment on Economic Growth: The Nigeria Perspective

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Abstract
This study examined the effect of foreign direct investment on economic growth with specific reference in the Nigerian economy with exchange rate as an additional explanatory variable, among others. Multiple regression analysis technique was employed in estimating the model. The data used for the study were extracted from the Central Bank of Nigeria statistical bulletin from 1980 – 2012. The results of the study revealed that foreign direct investment has a positive relationship with Nigerian economic growth. The same positive relationship also exists between exchange rate and Nigerian economic growth. It was recommended among other things that the aspect of foreign direct investment which encourages transfer of technology be encouraged into the country.

Keywords: Foreign Direct Investment, Exchange rate, Economic Growth, Nigeria

Introduction
Mwilima (2003) describes FDI as investment made to acquire a lasting management interest (usually at least 10% of voting stock) and acquiring at least 10% of equity share in an enterprise operating in a country other than the home country of the investor.

Foreign direct investment (FDI) is often seen as a means of boosting the host economy. This is because FDI disseminates advanced technological and managerial practices to the host country, thereby exhibiting greater positive externalities compared with foreign portfolio investment which may not involve the transfer of real capital but merely involves the transfer of money capital which entitles the investors a claim on the receiving economy. In addition, available data suggest that FDI inflows tend to be more stable compared to foreign portfolio investment (Lipsey, 1999). This is because of the liquidity of foreign portfolio investment and the short time horizon associated with such investments. Also, FDI inflows can be less affected by changes in national exchange rates as compared to foreign portfolio investment. However, a balanced combination of the two, taking into consideration the unique characteristics of the recipient economy will bring about the required effects on the economy (Tokunbo and Lloyd 2010).

The main thrust of this research is to take an objective assessment of the controversy surrounding the role of foreign direct investment in the economic progress of a country in terms of Nigeria. More specifically, it seeks to evaluate the performance of foreign direct investment and its contribution to economic growth in Nigeria.

LITERATURE REVIEW
Foreign direct investment is an investment by multinational corporations in foreign countries in order to control assets and manage production activities in those countries. (Dutse 2008). Policy makers and scholars are divided on the benefits and costs of FDI to the host countries. Some argue that there may be evidence of benefits in the short run but in the long run the cost may be far more enormous than the supposed benefits. On the other hand, those who are in favour of FDI tend to argue that it sets an economy on the path to development. The pro-FDI argument is based on the opportunity FDI offers the host countries to fill the gaps between domestic savings, foreign exchange, government revenue, skills and the planned levels of these resources necessary to achieve development targets. Based on the Harrod-Domar development model a nation whose rate of savings falls short of the level sufficient to enable it achieve a planned level of investment can fill the gap with foreign capital. To the neo-classical, this will make the nation achieve its target rate of growth. Therefore, FDI contributes to a nation’s development by filling the gap between targeted or desired investment and locally mobilized savings.

Another role played by foreign (direct) investment is its contribution to filling the gap between target foreign exchange requirements and those derived from net export earnings. This foreign exchange or trade gap, it is argued, can be filled by an inflow of foreign capital. If the multinational enterprise is able to generate net positive export earnings, the deficit incurred by the host country can be removed over time. This is the basis of arguing that the operations of multinational corporations (MNCs) leave a positive effect on the balance of payments of the host nation. Again, by taxing multinational corporations’ profits pro-FDI scholars argue that the
government of the host nation mobilizes sufficient funds for development projects. One other advantage that FDI confers on the host country is a whole lot of packages such as management, entrepreneurship, technology and skills. Multinational corporations not only provide circulating capital but also new factories and sophisticated technological knowledge which can be transferred to their local counterparts by means of training programmes and the process of learning by doing. Apart from this, the activities of multinational corporations also generate employment opportunities to LDCs with surplus labour and provide incomes for them.

The foreign exchange rate or exchange rate is the rate at which one currency is exchanged for another. It is the price of one currency in terms of another currency. It is customary to define the exchange rate as the price of one unit of the foreign currency in terms of the domestic currency. The exchange rate between the Naira and the dollar is expressed as N158=$1 i.e. the number of Naira required to get one dollar. The exchange rate of $2.50 = €1 will be maintained in the world foreign exchange market by arbitrage. Arbitrage refers to the purchase of a foreign currency in a market where its price is low and sells it in some other market where its price is high. Thus a depreciation of the dollar against the pound is the same thing as the appreciation of the pound against the dollar, and vice versa (Jhingan 2012).

The foreign exchange market is the market in which different currencies are bought and sold for one another. For example, dollars are traded for marks, marks for francs, francs for yens or yens for dollars. Thus the national currencies of all countries are the stock-in-trade of the foreign exchange market. As such, it is the largest market to be found around the world which functions in every country. The principle participants in the foreign exchange market are banks, foreign exchange dealers, brokers, firms and central bank. For instance in Nigeria the central bank of Nigeria authorizes banks and other financial institutions to transact foreign exchange business. They are called Authorized Dealers. There are also Authorized Money Changers who are issued licenses to transact foreign business of issuing and cashing travelers’ cheques and foreign currencies.

The theory of benefits from trade was at the core of the classical theory of international trade. According to Adam Smith, the gains from trade resulted from the advantages of division of labor and specialization both at the national and international level. They were due to the existence of absolute differences in costs. For Ricardo, the gain from trade consisted in the saving of cost resulting from obtaining the imported gods through trade instead of domestic production. J. S. Mill analyzed the gains from international trade in terms of his theory of reciprocal demand which depends upon the terms of trade (Jhingan 2012). Jacob Viner points out that the classical economists followed three different methods or criteria for measuring the gains from international trade: 1. Differences in comparative costs; 2. Increase in the level of national income; and 3. the terms of trade. But they often intermixed these methods without specifying them clearly. It is, however, the terms of trade method that has been in vogue to measure the gains from trade since Mill (Jhingan 2012).

Economic growth means the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income. Economic growth could be said to comprise three component; capital accumulation, growth in population and eventual growth in the labor force, and technological progress. Capital accumulation results when some proposition of personal income is saved and invested in order to augment future output and income. Capital accumulation involves a trade-off between present and Future consumption, giving up a little now so that more can be had later. Population growth, and the associated increase in the labor force, has traditionally been considered a positive factor in stimulating economic growth. A larger labor force means more productive workers, and a large overall population increases the potential size of domestic markets. Technological progress results from new and improved ways of accomplishing traditional tasks. Technological progress could be neutral, labor-saving, and capital-saving. Neutral technological progress occurs when higher output levels are achieved with the same quantity and combinations of factor inputs. Computers, the internet, tractors, mechanical ploughs and many other kinds of modern machinery and equipment can be classified as products of labor-saving technological progress (Usman 2011).

It expanded on the Harrod-Domar formulation by adding a second factor, labor and introducing a third variable, technology, to the growth equation. Solow’s neoclassical growth model exhibited diminishing returns to labor and capital separately and constant returns to both factors jointly. Technological progress because the residual factor explaining long term growth, and its level was assumed by slow and other neoclassical growth theorists to be determined exogenously, that is, independently of all other factors. According to traditional neoclassical growth theory, output growth results from one or more of three factors; increase in labor quantity and quality (through population growth and education), increase in capital (through and investment), and improvements in technology. Closed economies with lower saving rates (other things being equal) grow more slowly in short run than those with high savings rates and tend to converge to lower per capita income levels. Open economies, however, experience income convergence at higher levels as capital flows from rich countries where capital-labor ratios are lower and thus returns on investments are higher. Consequently, by impeding the inflow of foreign investment, the heavy-handedness of less developing countries governments, according to the neoclassical growth theory, will retard growth in the economics of the developing world. In addition, openness is
said to encourage greater access to foreign production ideas that can raise the rate of technological progress (Usman, 2011).

Endogenous growth economists believed that improvements in productivity can be linked directly to a faster pace of innovation and extra investment in human capital. They stress the need for government and private sector institutions which successfully nurture innovation, and provide the right incentives for individuals and businesses to be inventive. There is also a central role for the accumulation of knowledge as a determinant of growth. Supporters of endogenous growth theory believed that there are positive externalities to be exploited from the development of a high value-added knowledge economy which is able to develop and maintain a competitive advantage in fast-growth industries within the global and maintain a competitive advantage in fast-growth industries within the global economy. The main points of the endogenous growth theory are as follows:

Grossman and Helpman (1991) demonstrated the importance of imports of foreign technology in the growth process of a country. He explained that the importation of foreign equipment creates a more efficient production system, increases productive capacity, global output, technological capacity development and economic growth. International trade also impacts the economic growth of countries through the attraction of foreign direct investment (FDI). According to Lall (2000) and TeVelde (2001), the main channels through which FDI contributes to economic growth are technology transfer, capital accumulation, access to international market, job creation and managerial and marketing practices; and Blomstrom and Kokko (2003) added that trade and FDI can only facilitate growth after the minimum level of human capital, infrastructure and technology have been met (Karbasi et al, 2005).

Maintaining the exchange rate at a constant level or preventing sharp depreciation is equivalent to maintaining growth McKinnon and Schnabel (2004).

RESEARCH METHODOLOGY

A research design is a blueprint that guides the researcher in his or her investigation and analyses (Onwumere, 2005). The research design adopted in this study is the ex post facto; this is because this research relies on historical data.

Using the ex post facto research design, the study used time series data sourced from the Central Bank of Nigeria Statistical Bulletin from 1990 to 2015.

Model Specification

The econometrics model specifies FDI as a function of total value of trade, exchange rate and economic openness. The model is based on the methodology adopted by Jude and Pop-Silaghi (2008) for Romania and Karbasi, Mohamadi and Ghofrani (2005) for 42 developing countries with some slight adjustments based on relevance to Nigeria and availability of data. The technique of analysis is the ordinary least square (OLS) regression method.

The dependent variable in this model is economic growth which is proxied by Gross Domestic Product. The explanatory variables include foreign trade which is measured by the sum of total foreign direct investment, exchange rates and economic openness. Economic openness is used as one of the variables to represent trade intensity and this shows the extent to which goods and services are allowed in a particular economy. Since naira is not used everywhere and transactions is made with different countries, there is the need to include Foreign exchange rate as one of the variables in the model.

Thus, \[ RGDP = \beta_0 + \beta_1X + \beta_2M + \beta_3OPEN + \beta_4FX + \beta_5FDI + e \]

Where \( \beta \)'s are the parameters to be estimated and X, M, OPEN, FX and FDI stand for exports, imports, openness of the economy, foreign exchange and foreign direct investment respectively.

Measurement of Variables

Multiple regressions are used to analyze the data based on three criteria identified by Kutsoyiannis, (1977). They are;

APriori Expectations of Variables Used

From the study parameter. RGDP is expected to be positive if export is positive, import negative, with economic openness being positive alongside reduction in exchange rate and increase in foreign direct investment. On the other hand, if exchange rate increases (positive) and economic openness is negative, then RGDP will be negative because increased exchange rate will result in diminished currency value at the international market while negative economic openness means import is higher than export which sap national fund.

The expected signs of the coefficient of the explanatory variable are, \( \beta_0 > 0, \beta_1 > 0, \beta_2 < 0, \beta_3 > 0, \beta_4 > 0, \beta_5 < 0, \beta_6 > 0 \).

\( \beta_0 \) is expected to be positive because there are other factors that determine the GDP aside from the ones stated in the model.

\( \beta_1 \) is expected to be positive because in macroeconomic theory, export is regarded as an injection in the economy.

\( \beta_2 \) is expected to be negative because in macroeconomic theory, import is regarded as a withdrawal from economy.
\( \beta_3 \) is expected to be either positive or negative depending on the value of export, import and the gross domestic product. If the values of export and GDP outweigh the value of import then, economic openness would affect economic growth positively and if the values of import and GDP outweigh the value of export then, economic openness would affect economic growth negatively.

\( \beta_4 \) when foreign exchange rate increase, worth of the local currency is expected to decrease, this will bring about inflation and eventually reduces RGDP and vice versa. This will lie between 0 and 1.

\( \beta_5 \) is expected to be positive because an increase in foreign direct investment is expected to lead loan increase in RGDP and vice versa.

**Statistical Criteria**

The statistical criteria are determined by statistical theory as stated below and are aimed at evaluating parameters of the model.

They are;

- **Coefficient of determination (R\(^2\))**
  It measures the proportion of the total variation in the dependent variable that is jointly explained by the linear influence of the explanatory variable. The value of R\(^2\) lies between zero and one, that is, 0 < R\(^2\) < 1

- **Standard Error (SE)**
  This will enable one to test for the overall significance of the estimated regression, the higher the value of the F-statistics, the greater the overall significance of the estimated regression. If F-calculated is greater than the F-tabulated, the F-statistics shows a higher degree of association between the dependent variables.

**Econometric Criteria**

The econometric criteria determine the reliability of the statistical criteria, and in particular the standard errors of the parameter estimates.

**Definition and Justification of Variables**

**Dependent Variables Gross Domestic Product**

Real gross domestic product is mainly the key dependent variable for the study. In line with the work of Uremaid (2011), Falki (2009), Saibu, et al. (2011), this empirical study adopt the measure as a proxy for economic growth. Saibu, et al. (2011) point that real gross domestic product is calculated by dividing the gross domestic output by the consumer price index.

**Explanatory variables**

**Exchange Rate**

According to Samson Ogege and Mojekwu (2012), Exchange rate refers to the rate the Naira is exchange with other currencies. The study used the Nominal exchange rate of Naira per dollar to capture the effect of exchange rate on the performance of the economic growth. For low income African countries, therefore, the relationship between exchange rate and the performance of the economy is in conclusive.

**Economic openness**

According to Lãcrémioara (2006) economic openness refers to trade relations with reduced or eliminated tariffs and non-tariff trade barriers. The openness variable measured as exports plus imports divided by GDP (X + M / GDP) is used as proxy for the level of trade between the economy and the rest of the world, it is expected to positively impact on growth as drawn from various works earlier reviewed (Harrison, 1991 and Sachs and Warner, 1997).

**PRESENTATION OF RESULT**

This section is the analysis of the panel data and the analysis was done using the panel data shown in Table 1, which contains data on Foreign Direct Investment, Real Gross Domestic Product and Real Exchange Rate. Hypotheses in section one were tested here, using the techniques of analysis described in section three which is ordinary least square regression analysis.

**Presentation of Data**

The table below consists of variables; Real Gross Domestic Variable (RGDP), Foreign Direct Investment (FDI), Real Exchange Rate (REXRT).
Dependent Variable: RGDP  
Method: Least Squares  
Sample: 1990 - 2015  
Included observations: 26

<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>41565.27</td>
<td>7142.036</td>
<td>5.819807</td>
<td>0.0001</td>
</tr>
<tr>
<td>EXCH</td>
<td>201.3528</td>
<td>24.35243</td>
<td>8.268283</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

R-squared 0.862610  
Mean dependent var 36095.70  
S.D. dependent var 17039.52  
Akaike info criteri on 20.60800  
Schwarz criterion 20.80155  
Hannan-Quinn criter. 20.66373  
Durbin-Watson stat 1.08462  
Prob(F-statistic) 0.000001

Source: Authors’ Computation using E-Views  
From the result of the analysis presented above, Exchange Rate (EXCH) has a positive effect Growth (GDP).  
This is shown by a regression coefficient of 201.3528 and is statistically significant at 1%. This shows that exchange rate has a positive impact on growth as measured with GDP.  
Conclusively, the table above shows the relationship existing between the dependent and independent variables is stated thus:  
GDP = 41565.27 + 201.3528*EXCH + 589.9270*EXP - 220.2108*IMP  
From the equation above, it can be observed that Exchange rates and Export conform to our a priori expectations as their coefficients of 201.3528 and 589.9270 indicates that a unit increase in Exchange rate will have an increase of 201.3528 units on GDP. Also a unit increase in Export will contribute 589.9270 units on GDP.  
• The R-squared value of 86% indicates that the model is nicely fitted and the independent variables jointly explain the dependent variable to a tune of 86%.  
• The adjusted R-Squared value of 84% supports the fact that the model is nicely fitted and the Prob (F-statistic) value of 0.00001 indicates that the regression model is significant at 1%.  
• The durbin-Watson figure of 1.084622 shows that there is no incidence of auto correlation.

Test of Hypothesis

Hypothesis 1

\( H_0: \text{Exchange rate does not have positive impact on the Nigerian economic growth.} \)

In the output of our regression analysis, we can observe that exchange rate has a positive impact on GDP and also it’s statistically significant. Hence we reject the null hypothesis and accept the alternative as stated as thus; Exchange rates have a positive impact on the Nigerian economic growth.
Heteroskedasticity Test: Breusch-Pagan-Godfrey

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>0.472600</th>
<th>Prob. F(3,22)</th>
<th>0.0045</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orbs*R-squared</td>
<td>1.574135</td>
<td>Prob. Chi-Square(3)</td>
<td>0.0353</td>
</tr>
<tr>
<td>Scaled explained SS</td>
<td>0.750416</td>
<td>Prob. Chi-Square(3)</td>
<td>0.0513</td>
</tr>
</tbody>
</table>

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Sample: 1990 – 2015
Included observations: 26

<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>14824902</td>
<td>49473677</td>
<td>0.299652</td>
<td>0.7673</td>
</tr>
<tr>
<td>EXCH</td>
<td>163609.6</td>
<td>168692.0</td>
<td>0.969871</td>
<td>0.3427</td>
</tr>
</tbody>
</table>

R-squared | 0.060544 | Mean dependent var | 38356263 |
Adjusted R-squared | -0.067564 | S.D. dependent var | 45138662 |
S.E. of regression | 46638615 | Akaike info criterion | 38.29439 |
Sum squared resid | 4.79E+16 | Schwarz criterion | 38.48795 |
Log likelihood | -493.8271 | Hannan-Quinn criter. | 38.35013 |
F-statistic | 0.472600 | Durbin-Watson stat | 2.474406 |
Prob(F-statistic) | 0.704487 | |

The probability of chi-square statistics is significant at 5% level of significance, indicating that the model is free from the problem of heteroscedasticity as indicated in the table above.

Breusch-Godfrey Serial Correlation LM Test:

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>5.200590</th>
<th>Prob. F(2,20)</th>
<th>0.0152</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs*R-squared</td>
<td>8.895401</td>
<td>Prob. Chi-Square(2)</td>
<td>0.0117</td>
</tr>
</tbody>
</table>

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Sample: 1990 - 2015
Included observations: 26
Presample missing value lagged residuals set to zero.

<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>-11308.38</td>
<td>7219.939</td>
<td>-1.566271</td>
<td>0.1330</td>
</tr>
<tr>
<td>EXCH</td>
<td>9.955495</td>
<td>21.04726</td>
<td>0.473007</td>
<td>0.6413</td>
</tr>
<tr>
<td>RESID(-1)</td>
<td>0.700524</td>
<td>0.252489</td>
<td>2.774475</td>
<td>0.0117</td>
</tr>
<tr>
<td>RESID(-2)</td>
<td>0.099868</td>
<td>0.239730</td>
<td>0.416583</td>
<td>0.6814</td>
</tr>
</tbody>
</table>

R-squared | 0.342131 | Mean dependent var | -2.82E-12 |
Adjusted R-squared | 0.177664 | S.D. dependent var | 6315.894 |
S.E. of regression | 5727.427 | Akaike info criterion | 20.34309 |
Sum squared resid | 6.56E+08 | Schwarz criterion | 20.63342 |
Log likelihood | -258.4602 | Hannan-Quinn criter. | 20.42670 |
F-statistic | 2.080236 | Durbin-Watson stat | 1.774042 |
Prob (F-statistic) | 0.110501 | |

In testing for autocorrelation in the model, the Breusch-Godfrey serial correlation tested was applied as seen in the table above and from our observations we see that the p-value reflects the acceptance of the null
The Augmented Dickey-Fuller (ADF) test was conducted to test for unit root and to check for the stationary of the variables. From our observation, all the variables were greater than the critical values at 5% first difference at intercept and trend and intercept. Hence we accept the null thus; all the variables are stationary at first difference at the 5% level of significance and integrated.

**Summary of Findings**

From the above it is seen that:

1) Foreign direct investment has an impact on the Nigerian economic growth
2) Exchange rates have a positive impact on the Nigerian economic growth

**Conclusion**

Economic growth is the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income. This study in its entirety, from the perspective of Nigeria has examined the effect of foreign direct investment on economic growth, and therefore concluded that, foreign direct investment has an impact on the Nigerian economic growth and as such, conscious efforts should be made by government to fine-tune the various macroeconomic variables in order to provide an enabling environment to stimulate foreign trade.

**Recommendation**

Based on the findings of this research work, it was recommended that the technological knowhow should be imported by direct buying or indirectly through foreign direct investment. However, the domestic absorptive ability in Nigeria is very weak. Therefore, Nigeria’s government should try to import appropriate technology which can easily be absorbed and acquired by domestic firms with their corresponding capability. It is equally important to develop strong domestic sector of competitive firms that can assimilate and disseminate imported technologies and to improve their own innovative capacities.
For now, devaluation of the naira should be deemphasized. Much as the low exchange value of the naira would promote export and discourage import, it should be noted that not until the nation’s exports become those industrial goods and services whose foreign demand and domestic supply are elastic, the nation’s economy stand little chance of gaining from an unguided exchange rate deregulation policy. This remains true so long as the economy depends on primary products whose foreign demand and domestic supply are inelastic.

The service industry should be explored as well. This gives a clarion call for educational development to boost the nation’s technological base.

Serious surveillance and supervisory efforts should be stepped up to curb dumping activities of some foreigners and unpatriotic Nigerians who assist them. The role of NAFDAC and other law enforcement agencies in this battle is commendable and should be sustained.

Democratic ideals should be encouraged so as to reduce the spate of instability in the general body polity. This is inherent in the fact that foreign investors are least attracted to a politically unstable economy.

Nigeria is rich both in terms of resources and agricultural produce and as such, the locally based sources of raw materials should be strengthened to avoid the use of relatively expensive foreign raw materials.

Finally, Nigeria government should focus on the catch up strategy by establishing a national innovation system which includes proper education, finance and industrial policy, which could promote openness and enhancing domestic absorptive capability, thereby increasing productivity of the economy.

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