Foreign Direct Investment, Export and Economic Growth in Nigeria

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Abstract

This study examines the possible impact and relationship between Foreign Direct Investment, and Economic Growth in Nigeria. Data used for this study were sourced from annual accounts and statistical bulletin of the Central Bank of Nigeria (CBN). The scope cover a period of 20 years (1987 – 2006) both years inclusive. Regression analysis of ordinary Least Square ((OLS) was used in analysing the data. The study concluded that there is a positive relationship between direct foreign investment and gross domestic product (GDP). The result further showed that one naira increase in the value of direct foreign investment (DFI) will lead to N104.749 increase in GDP. The value of co-efficient of determination ($r^2$) is 18.5%, showing that only 18.5% change in GDP has been explained by DFI while the remaining 81.5% is unexplained by the model. This supports a positive relationship between GDP and DFI.

Keywords: foreign direct investment, export, economic growth, gross domestic product.

** Acknowledgment
Nil
I. Introduction

Kumar (2007), described Direct Foreign Investment (DFI) in several ways. First and most likely it may involve parent enterprise injecting equity capital by purchasing shares in foreign affiliates. Second, it may take the form of reinvesting the affiliate’s earning. Third, it may entail short-or-long term foreign investment as a share of Gross Domestic Product has grown rapidly, becoming the largest source of capital moving from developed nations to developing nations.

However, GDP as a measure of economic output has its own defects especially in measuring final output. These defects include difficulties of distinguishing between final and intermediate products which may results in double counting. For this study GDP is adopted because it is the most reliable indicator of measuring economic growth in developing countries.

Export (Exp) as used in this study represents the quantities and values of goods that move out of a country. Empirical work on the linkages between Direct Foreign Investment and Export has not tried to establish causation, that is, to determine for example, whether inflows of Direct Foreign Investment cause export to be greater than what should be expected or whether expanding exports attract increased Direct Foreign Investment. The focus rather has been on the more modest goal of seeking to determine whether increase in Direct Foreign Investment (DFI) will increase export or vice versa.

II. Review of relevant literatures

Carkovic and Levin (2002) note that the economic rationale for offering special incentives to attract DFI frequently derives from the belief that foreign investment produces externalities in the form of technology transfers and spillovers. Curiously, the empirical evidence of these
benefits both at the firm level and at the national level remains ambiguous. DeGregorio (2003) while contributing to the debate on the importance of DFI, note that DFI may allow a country to bring in technologies and knowledge that are not readily available to domestic investors, and in this way increases productivity growth throughout the economy, DFI may also bring in expertise that country does not possess, and foreign investors may have access to global markets. In fact, DeGregorio (2003) found that increasing aggregate investment percentage point of GDP and increased economic (DFI) is associated with higher economic growth in some country, while this situation had also been seen as having higher incidence of economic crisis in some other countries.

Saggi (2002) observed that there are several important caveats to the expectation of positive contribution of direct foreign investment on host countries. He argued that a positive correlation exist between the extent of Direct Foreign Investment and Economic Growth in cross country, regression may simply reflect this fact that countries that are expected to grow in forester attract Direct foreign investment (DFI) because it yields higher returns there. This implied that the causation could run from growth to Direct Foreign Investment (DFI), suggesting the need to have a simultaneous equation system to resolve the issue of which one causes the other.

Oyeranti (2003) argued that Direct foreign investment (DFI) can not, and ought not to discriminate against both economic theory and recent empirical evidence, suggesting that DFI has likely potential positive impact in developing host countries.

Nunnenkamp and Spatz (2003) however, criticized the view that developing countries should draw on Direct Foreign Investment (DFI) to create economic development. They concluded that
the growth impacts of DFI are ambiguous because of highly aggregated DFI data. By disaggregating DFI on economic conditions prevailing in the host country, the positive growth effects of DFI are doubtful. Host country and industry characteristics as well as the interplay between both sets of characteristics determine the growth impact of DFI in developing nations.

Tang and Selvanathan (2008) explored the casual link between Direct Foreign Investment (DFI), domestic investment and economic growth in China between 1988-2003 using the multivariate VAR and ECM. Their results indicate that there is bi-directional casualty between domestic investment and economic growth. They concluded that there is a higher level of complementation between DFI and domestic resources.

Otepola (2002) examines the importance of direct foreign investment in Nigeria. The study empirically examined the impact of DFI on growth. He concluded that DFI contributes significantly to growth especially through exports. This study recommends a mixture of practical government policies to attract Direct Foreign Investment (DFI) to the priority sectors of the economy.

Zhang (2001) argued that Direct Foreign Investment has positive growth impact that is similar to domestic investment along with partly alleviating balance of payment deficit in the current account. He opined that via technology transfer and spillover efficiency, the inflow of direct foreign investment might be able to stimulate a country economic performance.

The literature reviews has therefore, shown the Direct Foreign Investment (DFI) is not as exploitative as shown by many authors, a situation which has created love – hate relationship between foreign investors and host countries instead, such direct foreign investment has not only
avoided creating an overhang of debts, but also facilitated the transfer of technology and managerial skills and hence, it is directly tied to productive investment in the country.

Many research works have shown that the contribution of DFI to growth is positive. Using different data and methodologies, many researchers have concluded that DFI has positive impact on growth. Loungari and Razin (2001), reported that of the three sources of capital flow to the developing countries (DFI, Portfolio investment and primary bank loans), DFI was discovered to be the most resilient during the global financial crises from 1997 – 1998 and also during the Latin American financial crises in the 1980s. Moses, Ramachandran and Shah (2005) had a similar conclusion in their study which focused on three countries in Africa, namely, Kenya, Tanzania, and Uganda. It was discovered that the percentage of export that was from multinational enterprises (MNEs) was far more than the one from local investors. This shows that Direct Foreign Investment (DFI) contributed more to GDP than local investment in the three countries.

Some research works agree that the DFI contribution to growth is positive but depend on some factors in the host country. Alfaro (2003) affirmed that the contribution of DFI to growth depends on the sector of the economy where the DFI operates. He claimed that DFI inflow to the primary sectors, tends to have a negative effect on growth, however as for the service sector, the effect of DFI inflow is not so clear.

Lall (2002) opined that DFI inflow affects many factors in the economy and these factors in turn affect economic growth. This review shows that the debate on the impact of DFI on economic growth is far from being conclusive. The role of DFI seems to be country specific and can be
positive, negative or insignificant, depending on the economic, institutional and technological conditions in the recipient countries.

Finally, the relationship between Direct Foreign Investment and growth is conditional on the macroeconomic dispensation the country in question is passing through. In fact Zhang asserts that “the extend to which Direct Foreign Investment contributes to growth depends on the economic, and social conditions or in short, the quality of the environment of the recipient country. In essence, the impact of Direct Foreign Investment on the growth of any economy may be country and period specific.

Considerable amount of empirical studies exist that examine the determinants of Direct Foreign investment and its impact on both the host and home country. One feature of these studies is the dominance of cross-country investigation using panel data approach (Nonnemberg and Mendonca, 2004; Dutoit, Moolman, Roux and Ross 2005; and Asiedu 2002). Further, the results of these studies are inconclusive (Ajayi 2006) although they all tend to use similar factors. Host country market size often proxy with Gross Domestic Product (GDP) is a major determinant of DFI and has been found to have significant positive relationship with DFI in some studies (Nonnembeg et al. 2004, and Prabirjit, 2007) and still some have reported absence of any significant relationship between host market potential and the flow of DFI (Asiedu, 2003; and Jenkins and Thomas, 2002).

Bevan and Estrin (2000) examined the determinants of Direct Foreign Investment (DFI) in transitional economies of Central and Eastern Europe. They found that DFIs are determined by host country risk rating, unit labour cost in host economy, host market size and gravity factors.
They also found the credit rating of the host country to be significantly influenced by private sector development, industrial development, government balance and the level of corruption.

Interestingly Bende-Nabende (2002) found that direct long term impact of Direct Foreign Investment (DFI) on output is significant and positive for comparatively economically less advanced Philippines and Thailand, but negative in the more economically advanced Japan and Taiwan.

Direct Foreign Investment could be beneficial in the short term but not in the long term. Durharm (2004) for example, failed to establish a positive relationship between Direct Foreign Investment (DFI) and growth but instead suggests that the effects of Direct Foreign Investment (DFI) are contingent on the absorptive capability of host countries.

Obwona (2001) notes in his study of the determinants of Direct Foreign Investment DFI and their impact on growth in Uganda that macroeconomic and political stability and policy consistency are important parameters determining the inflow of Direct Foreign Investment (DFI) into Uganda and that Direct Foreign Investment (DFI) affects growth positively but insignificant.

Direct Foreign Investment (DFI) also contributes to economic growth via technology transfer. Transnational corporations and firms (TNCs) can transfer technology either directly (internally) to their foreign own enterprise (FOE) or indirectly (externally) to domestically owned and controlled firms in the host country (Blomstrom, et al., 2000; UNCTAD, 2000) spillovers of advanced technology from foreign owned enterprises can take any of four ways: vertical linkages between affiliates and domestic suppliers and consumers; horizontal linkages between the affiliates and firms in the same industry in the host country (Lim, 2001; Smarzynska, 2002);
labour turnover from affiliates to domestic firms; and internationalization of R & D (Hanson 2001). The pace of technological change in the economy as a whole will depend on the innovative and social capabilities of the host country, together with the absorptive capacity of other enterprises in the country (Carkovic et al; 2002).

Jerome and Ogunkola (2004) assessed the magnitude direction and prospects of Direct Foreign Investment DFI in Nigeria. They noted that while the DFI regime in Nigeria was generally improved, some serious deficiencies remain. These deficiencies are mainly in the area of the corporate environment and institution of uncertainty as well as the rule of law.

Ricardo, Hwang and Rodrick (2005) argued that Direct Foreign Investment (DFI) provide a path for emerging nations to export the products developed economies usually sell, in effect increasing their export sophistication. Many developing countries pursue DFI as a tool for export promotion, rather than production for the domestic economy. Typically foreign investors build plants in nations where they can produce goods for export at lower costs.

Alejandro (2010) explained that DFI plays an extraordinary and growing role in global business and economics. It can provide a firm with new markets and marketing channels, cheaper production facilities access to new technology products, skills and financing for a host country or the foreign firms which investment, it can provide a source of new technologies, capital processes products, organization technologies and management skills and other positive externalities and spillover that can provide a strong impetus to regional economic growth.

Vaknin (2007) explained that, several studies indicate that domestic investment projects have more beneficial trickle-down effects on local economies. Be that as it may, close to two-thirds of
DFI is among the rich countries and in the form of mergers and acquisitions. Direct Foreign Investment (DFI) constitutes a mere 2% of global Gross Domestic Product. DFI does not automatically translate to net foreign exchange inflows. However, crowding out is a more rare event and the benefit of DFI tends to be prevalent (Cotton and Remanchandran, 2001). The consensus in this literature appears that DFI spillovers depend on the host country’s capacity to absorb the foreign technology and the type of investment climate (Obwona, 2004).

Akinlo (2004) investigates the impact of Direct Foreign Investment (DFI) 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. Financial development, which he measured as M2/GDP has significant negative impact on growth. This he attributed to capital flight. Finally, the results showed that labour force and human capital have significant positive effort on growth. These findings suggest for labour force expansion and education policy to raise the stock of human capital in the country.

III. Methodology

The major type of data employed in this study is secondary; sourced from various publications of Central Bank of Nigeria, such as Statistical Bulletin, Annual Reports and Statement of Accounts. The models used in this study are estimated using annual Nigeria data on Direct Foreign Investment (DFI) and some macro-economic indicators, which includes: Gross Domestic Products (GDP) and Export (Exp) for the period 1987 – 2006.
The relationship between Direct Foreign Investment and each of the macro-economic variables such as the Gross Domestic Products and Export which can be stated as follows

\[ \text{GDP} = f (\text{DFI}) \]  

(1)

where \( \text{GDP} \) - Gross Domestic Product

\( \text{DFI} \) - Direct Foreign Investment

\( f \) - Functional notation

This model is in line with the works of Oloyede and Obamuyi (2000); they opined that Direct Foreign Investment is inevitable in economic growth of a nation.

\[ \text{EXP} = f (\text{DFI}) \]  

(2)

\( \text{EXP} \) - Export

\( \text{DFI} \) - Direct foreign Investment

\( f \) - Functional notation

The model is as a result of the proclamation of Zhang (2001) and Saggi (2002). They were of the opinions that direct foreign investment aids export in the recipient country, since the level of production will be high and demand for goods and services will be less than supply.

The simple regression analysis of the ordinary least square (OLS) is the estimation technique that is being employed in this study to determine the relationship between and impact of the dependent variable (Gross Domestic Product (GDP) and Export (EXP) and the independence variable (Direct Foreign Investment (DFI)).

The regression equation can be formulated as follow

\[ \text{GDP} = f (\text{DFI}) \]  

(3)
GDP = B_0 + B_1 DFI + U \quad (4)

Also, since \quad EXP = F(DFI) \quad (5)

EXP = B_0 + B_2 DFI + U \quad (6)

where;

GPD - Gross Domestic Product

EXP – Export

B_0 \quad - \quad Constant (Intercept of the equation)

U \quad - \quad Stochastic term

B_1, B_2 \quad Regression parameters

The expectation of this study regarding the variables is that there should be a positive relationship between gross domestic product and Direct Foreign Investment as postulated in some existing theories, that is:

\frac{d \text{DGP}}{d \text{DFI}} > 0

Also, it is expected that there should be a positive relationship between export of the country and Direct Foreign Investment as supported by some authors; that is:

\frac{d \text{EXP}}{d \text{DFI}} > 0

Moreover, in order to undertake a statistical evaluation of our analytical models, so as to determine the reliability of the result obtained and the coefficient of correlation (r) of the regression, co-efficient of determination (r^2), the student t-test and the t-statistic were employed. It is highly hoped and believed that the method of data analysis is capable of measuring the degree of relationship between the independent variable and dependent variables, at the same time, pinpoint the extent to which they affect each other.
Synthesized Hypotheses

For the purpose of this study, the hypotheses to be tested are (in null form only):

H₀₁: Direct Foreign Investment (DFI) does not statistically impact on Export

H₀₂: Direct Foreign Investment (DFI) does not statistically impact on Gross Domestic Product (GDP)

IV. Data Presentation, Results and Discussion

Data presentation

The time series data on export, gross domestic product and foreign direct investment employed in the estimation of the earlier regression are presented in table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Export</th>
<th>GDP at current market price</th>
<th>FDI in flows</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>30360.6</td>
<td>203037.1</td>
<td>9993.6</td>
</tr>
<tr>
<td>1988</td>
<td>31192.8</td>
<td>275198.2</td>
<td>11339.2</td>
</tr>
<tr>
<td>1989</td>
<td>57971.2</td>
<td>403762.9</td>
<td>10899.6</td>
</tr>
<tr>
<td>1990</td>
<td>109886.1</td>
<td>497351.3</td>
<td>10436.1</td>
</tr>
<tr>
<td>1991</td>
<td>121525.4</td>
<td>574282.1</td>
<td>12243.5</td>
</tr>
<tr>
<td>1992</td>
<td>205611.7</td>
<td>909754.2</td>
<td>20512.7</td>
</tr>
<tr>
<td>1993</td>
<td>218770.1</td>
<td>1132181.2</td>
<td>66787.0</td>
</tr>
<tr>
<td>1994</td>
<td>206059.2</td>
<td>1457129.7</td>
<td>70714.6</td>
</tr>
<tr>
<td>1995</td>
<td>950661.4</td>
<td>2991941.7</td>
<td>119391.6</td>
</tr>
<tr>
<td>1996</td>
<td>1309543.4</td>
<td>4135813.6</td>
<td>122600.9</td>
</tr>
<tr>
<td>1997</td>
<td>1241662.7</td>
<td>4300209.0</td>
<td>128331.9</td>
</tr>
<tr>
<td>1998</td>
<td>751856.7</td>
<td>4101028.3</td>
<td>152410.9</td>
</tr>
<tr>
<td>1999</td>
<td>118896.8</td>
<td>4799966.0</td>
<td>154190.4</td>
</tr>
<tr>
<td>2000</td>
<td>1945724.3</td>
<td>6850228.8</td>
<td>157508.6</td>
</tr>
<tr>
<td>2001</td>
<td>1867953.9</td>
<td>7055331.0</td>
<td>161441.6</td>
</tr>
<tr>
<td>2002</td>
<td>1744177.7</td>
<td>7984385.3</td>
<td>166631.6</td>
</tr>
<tr>
<td>2003</td>
<td>3087886.4</td>
<td>10136364.0</td>
<td>178478.6</td>
</tr>
<tr>
<td>2004</td>
<td>4602781.5</td>
<td>11673602.0</td>
<td>249220.6</td>
</tr>
<tr>
<td>2005</td>
<td>637252.4</td>
<td>13220767.1</td>
<td>324656.7</td>
</tr>
<tr>
<td>2006</td>
<td>5752747.7</td>
<td>1337696.4</td>
<td>481239.1</td>
</tr>
</tbody>
</table>

Source: CBN Statistical Bulletin (Various Years)
Data analysis

Table 2: Results of the regression models

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Independent variable</th>
<th>Summary statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>DFI</td>
</tr>
<tr>
<td>GDP</td>
<td>-3462888</td>
<td>104.749</td>
</tr>
<tr>
<td>EXP</td>
<td>-351258.7</td>
<td>14.880</td>
</tr>
</tbody>
</table>

Expressing the result in regression model form, we have:

GDP = -3462888 + 104.746 DFI

Exp = -35128.7 + 14.880 DFI

Discussion of Results

The result in table 2 reveals that there is a positive relationship between the dependent variable (GDP) and independent variable (DFI). With this, a naira increase in DFI will cause GDP to increase by N104.749. If the parameter DFI remains in its zero level, the value of GDP will be N3,462,888. The coefficient of correlation (r) 0.430 (43.0%) shows that there is real positive relationship between the dependent variable (GDP) and independent variable (DFI). Co-efficiencies of determination ($r^2$) value of 0.185 implied that 18.5% variations in GDP can be accounted for by DFI while leaving the remaining 81.5% variations to be explained by exogenous variables. This also confirms the real positive relationship between the variable.

Also, the dependent variable export (Exp) relates positively with the independent variable, direct foreign investment (DFI). This relationship implies that a naira change in DFI will have a direct change in EXP, so that one naira increase in DFI will cause Exp to increase by N14.880. The coefficient of correlation (r) 0.925 (92.5%) shows a strong relationship between EXP and DFI;
while the value of coefficient of variation ($r^2$) reveals that 85.6% of the variation in EXP can be explained by DFI, leaving 14.4% variation to be accounted for by variables outside the model. This also confirms the strong positive relationship that exists between the variables.

**Hypothesis Testing – Individual Models**

At 95% significant level with two tailed test and degree of freedom N-K (with N= 20 and k = 2), the tabulated value of t is 2.101. This implies that $t_{tab}$ is either -2.101 or =2.101. The calculated t values are presented in table 3.

**Table 3: Summary of t-test**

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Regression coefficient</th>
<th>Calculated TC</th>
<th>Tabulated TC</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>DFI</td>
<td>10.343</td>
<td>2.101</td>
<td>Reject</td>
</tr>
<tr>
<td>EXP</td>
<td>DFI</td>
<td>2.022</td>
<td>2.101</td>
<td>Accept</td>
</tr>
</tbody>
</table>

From the hypothesis testing table, it can be infer that DFI is not statistically significantly at 95% confidence level for GDP, because the t-calculated is lower than t-tabulated. This means that the alternative hypothesis ($H_1$) is rejected while accepting the null hypothesis ($H_0$).

The test of hypothesis also revealed that the estimator DFI is statistically significant for EXP, because the t-calculated is greater than the t-tabulated which means that the alternative hypothesis ($H_1$) is accepted and the null hypothesis ($H_0$) is rejected.

Furthermore, conducting an F-test at 95% confidence level and (k-1, N-k) degree of freedom, the calculated F-value for GDP was 4.087 as against the table value 4.14. Hence, the null hypothesis
is accepted. With respect to export, the calculated $F$ value was 106.986 as against a tabulated value of 4.41. Thus, the null hypothesis was rejected and the alternative hypothesis accepted. The summary result is presented in table 4.

Table 4: The summary of $F$-statistic

<table>
<thead>
<tr>
<th>Models</th>
<th>$F$-calculated</th>
<th>$f$-tabulated</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP = $F$ (DFI)</td>
<td>4.087</td>
<td>4.14</td>
<td>Accept</td>
</tr>
<tr>
<td>Exp = $F$ (DFI)</td>
<td>106.986</td>
<td>4.41</td>
<td>Reject</td>
</tr>
</tbody>
</table>

The table above shows that model GDP = $F$ (DFI) is not statistically significant since the $F$-calculated value is lower than the $F$-tabulated value. This indicates that the model is not a good fit. However, the model Exp = $F$ (DFI) is statistically significant since the $F$-calculated value is greater than the $F$-tabulated value, thus indicating a good fit.

V. Findings and Policy Recommendation

Findings and Implication

Having done a critical analysis of the data collected for this research work, it was discovered that there is a positive relationship between direct foreign investment and gross domestic product (GDP). The result further shows that one naira increase in the value of direct foreign investment (DFI) will lead to N104.749 increase in GDP. The value of coefficient of determination ($r^2$) was 18.5%, showing that only 18.5% change in GDP has been explained by DFI while the remaining 81.5% was unexplained by the model. This supports a positive relationship between GDP and DFI.
The parameter estimate is statistically insignificant, as t-calculated was lower than t-tabulated (i.e. $2.022 < 2.101$) at 95% confidence level. The whole model was statistically insignificant as its $f$-calculated value of 4.087 was lower than the $f$-tabulated value of 4.41 at 95% confidence level and degree of freedom (1, 18).

Assessing Export and FDI, the correlation coefficient ($r$) was 0.925 (92.5%) showing a very strong positive relationship between export and direct foreign investment. The regression result showed that a naira increase in DFI will increase (EXP) by N14.880. The coefficient of determination ($r^2$) was 85.6% meaning that 85.6% variation in exports was explained by direct foreign investment while the remaining 14.4% unexplained, can be accounted for by other variables outside the model. The finding goes along with the apriori expectation which expects that there is a positive relationship between DFI and EXP. The $F$-calculated and $t$-calculated were both higher than the $F$-tabulated and $t$-tabulated and hence, the null hypothesis in each of the two test was rejected whereas the alternative hypothesis was accepted. Therefore, it can be concluded that direct foreign investment has led to increase in export in Nigeria.

Finally, it can be seen clearly from the study that direct foreign investment has positive impact on the economic growth in Nigeria by increasing the level of export (EXP) and Gross Domestic Product (GDP).

**Policy Recommendation**

To this end, government should encourage steady flow of FDI so as to enhance exportation of goods and hence improve the national GDP for a better economic growth.
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