

Foreign Direct Investment and Economic Growth in Nigeria

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Most economic rationale for granting special incentives for attracting FDI is based on the belief that FDI bridges the 'idea gaps' between rich and the poor nations in addition to the generation of technological transfers and spillovers. Empirical literature however finds controversial, the effects of FDI on productivity growth. This paper contributes to the existing studies by applying the rho's rank correlation and causality test in exploring the possible links between FDI and economic growth in Nigeria. We determined the contributory factors to FDI and empirically tested the endogeneity theory of FDI. The study concluded that the link between FDI and economic growth in Nigeria is very weak. However, FDI is found to be related to export growth while human capacity building is found to be related to FDI flow. The endogeneity theory of FDI is found unrealistic in Nigeria. The study therefore recommends infrastructural development, human capacity building and strategic policies towards attracting FDI flow.

INTRODUCTION

Various classifications have been made of foreign direct investment (FDI). For instance, FDI has been described as investment made so as to acquire a lasting management interest (for instance, 10% of voting stocks) and at least 10% of equity shares in an enterprise operating in another country other than that of investors' country (Mwillima, 2003; World Bank, 2007). Policymakers believe that foreign direct investment (FDI) produces positive effects on host economies. Some of these benefits are in the form of externalities and the adoption of foreign technology. Externalities here can be in the form of licencing agreements, imitation, employee training and the introduction of new processes by the foreign firms (Alfaro, 2006). According to Tang, Selvanathan and Selvanathan (2008), multinational enterprises (MNEs) diffuse technology and management know-how to domestic firms. When FDI is undertaken in high risk areas or new industries, economic rents are created accruing to old technologies and traditional management styles. These are highly beneficial to the recipient economy. In addition, FDI helps in bridging the capital shortage gap and complement domestic investment especially when it flows to a high risk areas of new firms where domestic resource is limited (Noorzoy, 1979).

Nigeria is one of the economies with great demand for goods and services and has attracted some FDI over the years. The amount of FDI inflow into Nigeria has reached US\$2.23 billion in 2003 and it rose to US\$5.31 billion in 2004 (a 138 % increase) this figure rose again to US\$9.92 billion (a 87% increase) in 2005. The figure however declined slightly to US\$9.44 billion in 2006 (LOCOMonitor.com). The question that comes to mind is, do these FDIs actually contribute to economic growth in Nigeria? If FDI actually contributes to growth, then the sustainability of FDI is a worthwhile activity and a way of achieving its sustainability is by identifying the factors contributing to its growth with a view to ensuring its enhancement. Again, most studies on FDI and growth are cross-country studies. However, FDI and growth debates are country specific. Earlier studies (for instance, Otepola, 2002; Oyejide, 2005; Akinlo ;2004) examines only the importance of FDI on growth and the channels through which it may be benefiting the economy. This study however examines the contributions of FDI to growth. In addition, analyze the endogeneity case using the causality test. It also empirically investigates the determinants of FDI flow in Nigeria.

LITERATURE REVIEW

Romer (1993) argues that idea gaps exist between the rich and poor countries and foreign investment can ease the transfer of technology and business understanding of the poorer countries. Based on this view,

FDI can have a spillover on all firms thereby boost the productivity of the entire economy. Boyd and Smith (1992) however argued to the contrary. According to them, FDI can affect resource allocation and growth negatively where there is price distortion, financial, trade and other forms of distortions existing prior to FDI injections. Wheeler and Mody (1992) also supports the view of Boyd and Smith (1992). According to Wheeler and Mody (1992), infrastructure enhances FDI's contributions by reducing their operating costs and increasing the productivity of investments. In other words, the growth impact of FDI is not automatic but tied to certain levels of infrastructure and economic performance.

Empirical contributors to FDI debate include Borensztein, De Gregorio and Lee (1998). They examined the effect of FDI on economic growth using data on FDI flows from industrial countries to 69 developing countries over the last two decades. Their regression results suggest that FDI is an important tool for technology transfer and it has contributed to growth more than domestic investment. However, the higher productivity of FDI can be realized more when the host country has a minimum threshold stock of human capital. In addition, FDI has the potentials of increasing total investment more than one for one. The above points to the complementarity effect of FDI on domestic firms. In another similar study, Balasubramanyam, Salisu, and Sapsford (1999) found evidence in support of FDI and growth in countries with trade openness. Ogbekor (2005) examined the role of exports and FDI on the growth of Namibian economy from 1991 to 2001. Using a combination of bivariate and multivariate variables models, the study concludes that FDI and export aids in economic growth potential.

Nunnenkamp and Spatz (2003) however criticized the view that developing countries should draw on FDI to create economic development. They concluded that the growth impacts of FDI are ambiguous because of highly aggregated FDI data. By disaggregating FDI and considering the compatibility of different types of FDI on economic conditions prevailing in the host country, the positive growth effects of FDI are doubtful. Host country and industry characteristics as well as the interplay between both sets of characteristics determine the growth impact of FDI in developing nations. Alfaro *et. al.* (2006) analyzed the role of local financial markets in enabling FDI to promote growth through backward linkages. They asserted that to operate intermediate firms in the goods sector, the entrepreneurs require upfront capital investments. The more developed the local financial markets is, the easier it is for credit constrained firms to operate. The increase in the varieties and quantities of intermediate goods, leads to positive spillovers to the final goods sector. Due to this, the financial markets ensure the backward linkages between foreign and domestic firms to turn into FDI spillovers. Their calibration results indicate that holding foreign presence constant, financially well developed economies perform almost as twice as economies with poor financial markets in term of growth. FDI contributes more in an economy with well developed financial system than in an economy with less developed financial system. Lastly, local conditions such as market structure, human capital are also important to generate a positive effect of FDI on economic growth.

Tang, Selvanathan and Selvanathan (2008) explored the causal link between FDI, domestic investment and economic growth in China between 1988-2003 using the multivariate VAR and ECM. Their results indicate that there is a bi-directional causality between domestic investment and economic growth, while there is a single-directional causality from FDI to domestic investment and to economic growth. They concluded that there is a higher level of complementarity between FDI and domestic resources. Studies on FDI-growth issues in Nigeria include Oyejide (2005) which provided conceptual framework for the analysis of the macroeconomic effects of volatile capital flows. It concluded that capital flows have their pros and cons. This however depends on the initial conditions of the developing economy concerned. It can stimulate growth of the real sectors when the initial conditions are right. It could retard growth however, due to macroeconomic shocks that could undermine the stability of real sector and impose higher adjustment cost on the economy. The paper therefore recommends capacity building as a way of maximizing benefits and minimizing risks from capital flows. Otepolo (2002) examines the importance of foreign direct investment in Nigeria. The study empirically examined the impact of FDI on growth. He concluded that FDI contributes significantly to growth especially through exports. This study

recommends a mixture of practical government policies to attract FDI to the priority sectors of the economy.

Akinlo (2004) investigates the impact of FDI 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 and insignificant impact on economic growth. This study however established the positive and significant impact of export on growth. Financial development which he measured as M_2/GDP has significant negative impact on growth. This he attributed to capital flight. In another manner, labour force and human capital were found to have significant positive effect on growth.

However, an important fact about FDI and growth debate is the endogeneity case in which FDI is theorized to impact positively on economic growth and consequently, lead to greater market which in turn attracts further FDI as well (market size hypothesis). Market size hypothesis states that markets with rapidly expanding economic growth tend to give multinational firms more opportunities to make more sales and profits and therefore become more attractive to FDI. This study will therefore make its contributions by examining the contributions of FDI to growth. In addition, analyze the reality or otherwise of endogeneity theory, then determine the contributory variables to FDI flow in Nigeria

THEORETICAL FRAMEWORK

Lipsey and Chrystal (2003) observed that FDI is often undertaken by domestic firms which have accumulated some advantages in the local market. Such advantages include patents and know-how that bestowed on them advantages when they enter into foreign markets. According to Lipsey and Chrystal (2003), FDI often generates somewhat higher-paying jobs than might otherwise be available to local citizens. Secondly, it generates investment that may not be possible with the local resources only. Thirdly, it links the recipient economy into the world economy in manners that would be hard to achieve by new firms of a purely local origin. Fourthly, by working with large firms linked with the global market, FDI provides training in workers and management. Fifthly, it can provide advanced technology that is not easily transferable outside the firms and are already in use by foreign firms.

According to Lipsey and Chrystal (2003), the FDI works through the following mechanism. “By altering a country’s comparative advantages and improving its competitiveness through technology transfer and the effects of myriad externalities, foreign as well as domestic investment can alter a country’s volume and pattern of trade in many income enhancing directions.” Dunning (1977) also proposes the eclectic theory of FDI which states that firm must possess some ownership advantages over other firms in the area of the firm’s specific intangible assets like technology and trademarks. These intangible assets are optimized only if they are used by the firm rather than selling or leasing them. More importantly, these intangible assets are most beneficial when combined with factor inputs abroad thus, providing a justification for FDI. How practicable these theories are, call for further empirical analysis.

DESCRIPTION OF THE MODELS

All data for this analysis were obtained from the economist intelligence unit, countrydata-annual time series (1980-2007). The variables of the models and their relationships are defined thus; FDI, FDI/GDP ratio or FDI growth rate (FDIGRO) is assumed to be caused by – labour productivity growth (LPGROW), real gross fixed investment (RGFINVBN), government size (GOVSIZE) measured as the ratio of government consumption to GDP (Ayanwale, 2007), trade openness (TRADOPEN) measured as import plus export over RGDP. Other determinant includes exports (EXPBN). In order to measure the linear relationship between measures of growth and that of FDI we utilized the Spearman’s rho. Spearman’s rho is given as:

$$\text{Spearman's rho} = \rho = r_s = \frac{\sum_{i=1}^n (R_{xi} - \bar{R}_x)(R_{yi} - \bar{R}_y)}{\sqrt{\sum_{i=1}^n (R_{xi} - \bar{R}_x)^2 \sum_{i=1}^n (R_{yi} - \bar{R}_y)^2}} \quad (1)$$

Where:

R_{xi} denotes the rank of A_i and R_{yi} denotes the rank of B_i . \bar{R}_{xi} denotes the mean of the rank of A_i and \bar{R}_{yi} denotes the mean of the rank of B_i .

Conover (1980, 456), Hollander and Woffe (1999, 732) Sheskin (2000,962) give tables of critical values of rhos that can be used to test the null hypothesis of independence between A and B. An alternative is to employ the t-statistic of the following equation (Steven and Nagaraj, 2000, 535).

$$t = \frac{r}{\sqrt{\frac{1-r^2}{n-2}}} \quad (2)$$

This t tests the null hypothesis that the population correlation ρ is equal to zero. The above equation follows a student's t-distribution with n-2 degrees of freedom (Sheskin; 2000, 766; Zar: 1999, 381). The t-statistic provides a good approximation as long as the sample size is greater than 10 (Sheskin: 2000, 868). The main advantage of the above approach is that measurements are based on ranks and are therefore not as sensitive to outlier values as Pearson product moment correlation coefficient (Steven and Nggara 200, 534).

Causality

In order to determine whether changes in one variable are a cause of changes in another, we employed the Granger (1969) causality test. Granger (1969) causality method of investigating whether A causes B is to see how much of current B can be explained by past values of B and then to see whether by including lagged values of A we can improve the explanation of B. B is said to be Granger-caused by variable A if A helps in the prediction of B, or if the coefficients on the lagged A's are statistically significant (Eviews User's Guide 1994-1997). The main idea of causality is quite simple, if A causes B, then changes in A should precede changes in B (Pindyck and Rubinfeld, 1998). This characteristic makes causality test an important one in the test of endogeneity.

If A causes B, then A should help to predict B. in other words, in a regression of B against past values of B, the addition of past values of A as explanatory variables should contribute significantly to the explanatory power of the regression. To test the null hypothesis of "A does not cause B", we regress B against its lagged values and the lagged values of A (unrestricted regression) and then regress B only against lagged value of B (the restricted regression) as follows:

Unrestricted regression:

$$B = \sum_{i=1}^m \alpha_i B_{t-i} + B \sum_{i=1}^m \beta_i A_{t-i} + \epsilon_t \quad (3)$$

Restricted regression:

$$B = \sum_{i=1}^m \alpha_i B_{t-i} + \epsilon_t \quad (4)$$

Where the number of lags in our case is 2. From the above, a simple F-test which uses the sum of squared residuals (ESS) from equation (3) and (4) is then computed using the following formular:

$$F_{(q, N-K)} = (N - K) \frac{ESS_{Restricted} - ESS_{Unrestricted}}{q(ESS_{Unrestricted})} \quad (5)$$

Where N is the number of observations, K is the number of estimated parameters in the unrestricted regression and q is the number of parameter restrictions.

The resultant F is then used to determine whether or not the lagged values of A contribute significantly to the explanatory power of the unrestricted regression. If they do, we can reject the hypothesis of “A causes B” and conclude that the data are consistent with A causing B (Pindyck and Rubinfeld, 1998).

ANALYTICAL SOLUTIONS

Spearman’s results of table 1 indicate that the correlation between GDP and FDI measured as FDI inflow/GDP ratio is highly positive and significant. However, measuring growth as the growth rate of GDP, there is a very low positive and insignificant relationship between growth and FDI. Comparing the growth rate of GDP with the FDI growth rate however, there is negative and insignificant relationship indicating that FDI cannot be said to have contributed significantly to growth in Nigeria.

Table 1: Spearman’s rho’s result

Variables	Rho Value	t-statistic
GDP versus FDI/GDP ratio	0.73	5.6*
GDP growth rate versus FDI/GDP ratio	0.21	1.07
GDP growth rate versus FDI growth rate	-0.22	-1.13

- means significant at 1% level

Table 2: Pairwise Granger Causality Tests of growth and FDI (Sample: 1980 to 2007). Lags = 2

Null Hypothesis:	Obs	F-Statistic	Probability
OUTPGRO does not Granger Cause FDIGRO	25	0.49787	0.61516
FDIGRO does not Granger Cause OUTPGRO		1.28532	0.29844
FDIGDP does not Granger Cause OUTPGRO	25	0.29396	0.74847
OUTPGRO does not Granger Cause FDIGDP		0.15498	0.85745
PCFDI does not Granger Cause OUTPGRO	25	0.23973	0.78907
OUTPGRO does not Granger Cause PCFDI		0.95920	0.40014

Table 3: Pairwise Granger Causality Tests of FDI and its determinants (1980 to 2007). Lags = 2

Null Hypothesis:	Obs	F-Statistic	Probability
FDIGRO does not Granger Cause TRADOPEN	25	0.00014	0.99986
TRADOPEN does not Granger Cause FDIGRO		1.25677	0.30610
FDIGRO does not Granger Cause GOVSIZE	25	3.84360**	0.03868
GOVSIZE does not Granger Cause FDIGRO		0.11957	0.88794
LPGROW does not Granger Cause FDIGRO	14	0.01449	0.98564
FDIGRO does not Granger Cause LPGROW		0.78060	0.48683
RGFINVBN does not Granger Cause FDIGRO	25	0.62903	0.54333
FDIGRO does not Granger Cause RGFINVBN		0.31604	0.73261
EXPBN does not Granger Cause FDIGRO	25	0.98988	0.38911
FDIGRO does not Granger Cause EXPBN		0.00498	0.99504
FDIGDP does not Granger Cause TRADOPEN	26	4.52296**	0.02326
TRADOPEN does not Granger Cause FDIGDP		2.80397***	0.08331
FDIGDP does not Granger Cause GOVSIZE	26	0.10087	0.90448

GOVSIZE does not Granger Cause FDIGDP		0.59014	0.56318
FDIGDP does not Granger Cause LPGROW	14	0.80581	0.47651
LPGROW does not Granger Cause FDIGDP		3.15973***	0.09131
EXPBN does not Granger Cause FDIGDP	26	0.89964	0.42182
FDIGDP does not Granger Cause EXPBN		0.54221	0.58939
PCFDI does not Granger Cause EXPBN	26	3.25935***	0.05851
EXPBN does not Granger Cause PCFDI		0.04288	0.95811
EXPBN does not Granger Cause GOVSIZE	26	3.10477***	0.06588
GOVSIZE does not Granger Cause EXPBN		0.09104	0.91334
EXPBN does not Granger Cause TRADOPEN	26	5.86369*	0.00948
TRADOPEN does not Granger Cause EXPBN		0.55965	0.57970
PCFDI does not Granger Cause TRADOPEN	26	7.31828*	0.00388
TRADOPEN does not Granger Cause PCFDI		0.51831	0.60295
RGFINVBN does not Granger Cause TRADOPEN	26	4.13199**	0.03068
TRADOPEN does not Granger Cause RGFINVBN		0.47534	0.62820

* means significant at 1% level; ** means significant at 5% level; ***means significant at 10% level

The result of table 2 shows that growth rate of output does not cause growth rate of FDI. That means that the assertion that initial level of productivity is essential for FDI to grow is unfounded. In the same manner, FDI growth does not cause productivity growth. This indicates that FDI has not contributed significantly to the explanation of output growth in Nigeria. However the FDI and growth are measured, there is no causality relationship between them and the lack of a bi-directional causality between growth and FDI points to the unrealistic of market size hypothesis or endogenous theory of FDI in Nigeria. The causality results for the FDI show that FDI growth granger causes government size. In effect, as FDI grows, government expenditure increases. There is a two-way causality between FDI and trade openness. Labour productivity growth granger causes FDI. This confirms the importance of human capital development to foreign direct investment's attraction in Nigeria. Per capita direct investment (PCFDI) actually causes exports of goods and services in Nigeria. Export of goods and services causes government size. This means that export led to greater government expenditure. Exports of goods and services also cause trade openness. Lastly, per capita foreign direct investment causes trade openness and real gross investments granger causes trade openness.

CONCLUSIONS AND IMPLICATIONS

FDI has been acknowledged as a major propellant of growth through transfer of technology, technological innovations, and other externalities. However, the study found out that FDI has not contributed significantly to output growth in Nigeria. The efficacy of FDI in generating the desired growth may be limited by the level of infrastructural development in Nigeria. Foreign direct investment however has been found to exert some level of influence on exports of goods and services (similar to Sun's conclusion, 1998). This shows the beneficial impact of FDI on growth. The market size hypothesis or endogenous theory of FDI which states that FDI exerts beneficial impact on growth leading to greater markets which in turn attracts further FDI is found unrealistic in Nigeria. This study found out that human factor is an important factor in FDI-growth debate in Nigeria. The implication of this is that if Nigeria put sufficient investment into high levels of human capital, she can exploit the technological spillovers associated with foreign direct investment. While this study recognizes that creating the necessary environment is critical to the attraction of FDI, Nigerian government as well as those of the developing countries must not blindly reduce taxes, wages, and change regulations so as to attract FDI.

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