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Foreign Direct Investment and Economic Growth in Nigeria: A Disaggregated Approach

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Abstract: This study examined the impact of sectoral foreign direct investment inflow on growth in Nigeria. Data for the study were extracted from Central Bank of Nigeria bulletin and the UN statistics. The estimation is done by cointegration technique. The study found FDI inflow to the agricultural sector to have an insignificant positive effect on economic growth in Nigeria whereas FDI inflow to the manufacturing sector has positive and significant effect on economic growth in Nigeria. The study therefore recommends that policies aimed at attracting FDI inflow to the other sectors other than the agricultural and extractive sectors be entrenched.

Key words: Sectoral FDI inflow, economic growth, cointegration approach, absorptive capacity, Nigeria

INTRODUCTION

In economic literature, international investments are identified as long-term international capital movements which are categorized into portfolio and direct investment. International movement in the form of portfolio investment is the purchase of a stock or bond issued in a foreign currency that involves investment whose primary aim is to get future return but not to acquire control of a firm. Foreign Direct Investment (FDI) on the other hand is an investment made to acquire a lasting management in an enterprise operating in a country other than that of the investor. For ease of appreciation, it is an investment which includes at least a 10% ownership of an enterprise. It could be the purchase of a new plant and equipment or to buy an ownership position in an existing firm. FDI may involve the establishment of a new enterprise in another country; expansion of existing overseas branch or subsidiary and the acquisition of an overseas business enterprise or its assets (Titarenko, 2005).

In recent times, developing countries, especially in Nigeria see the role of foreign direct investment as crucial to their development. FDI is seen as an engine of growth as it provides the much needed capital for investment, increases competition in the host country industries and aids local firms to become more productive by adopting more efficient technology or by investing in human and/or physical capital. Foreign direct investment contributes to growth in a substantial manner because it is more stable than other forms of capital flows. The benefits of FDI include serving as a source of capital, employment generation, facilitating access to foreign markets and generating both technological and efficiency spillover to local firms (Ajayi, 2001).

However, the empirical studies have left us with no direction on the empirical impact of foreign direct investment inflow on recipient countries. Blomstrom *et al.* (1994) opined that FDI exerts a positive effect on economic growth but that there seems to be a threshold level of income above which FDI has positive effect on economic growth and below which it does not. The intuition was that only those countries that have reached a certain income level can absorb new technologies and benefit from technology diffusion and thus reap the extra advantages that FDI can offer. Earlier studies suggest human capital as one of the reasons for the differential response to FDI at different levels of income. This is because it takes a well-educated population to understand and spread the benefits of new innovations to the whole economy.

Borensztein *et al.* (1998) also found that the interaction between FDI and human capital had important effect on economic growth and suggest that the differences in the technological absorptive ability may explain the variation in growth effects of FDI across countries. The study suggests further that countries may need a minimum threshold stock of human capital in order to experience positive effects of FDI.

Tang *et al.* (2008) analyzed the dynamic linkages between foreign direct investment, domestic investment and economic growth in China between 1988 to 2003 using the multivariate variance autoregressive and Error

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Correction Mechanism Methods. The study showed that there is bi-directional casualty between domestic investment and economic growth. However, it was concluded that there is a higher level of complementation between FDI and domestic resources.

Otepola (2002) examined the importance of foreign direct investment in Nigeria. The study empirically examined the effect of FDI on growth. It was concluded that FDI contributes significantly to growth especially via exports channel. The study recommends a combination of practical government policies to attract foreign direct investment to the priority sectors of the economy. Akinlo (2004) investigates the impact of foreign investment on economic growth in Nigeria using data for the period 1970 to 2001. The error correction technique was used and the results indicate that both private capital and lagged foreign capital have small significant impact on export and economic growth. Financial development, proxied by M2/GDP was found to have a significantly negative impact on growth. This was 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.

Ayanwale (2007) empirical analyzed the relationship between non-extractive FDI and economic growth in Nigeria. Using OLS estimates, he found that FDI has a positive link with economic growth but cautioned that the overall effect of FDI on economic growth may not be significant. Okodua (2009) also examined the sustainability of the FDI-growth relationship in Nigeria. Using the Johansen cointegration framework and a multivariate variance autoregressive approach within a Vector Error Correction Model found evidence of a long-run equilibrium relationship between economic growth and FDI inflows. The study also revealed a unidirectional causality from FDI to economic growth.

Some empirical studies argue that the foreign direct investment contribution to growth is positive but depend on some factors in the host country. For instance, Alfaro (2003) confirmed that the contribution of FDI to growth depends on the sector of the economy where the FDI operates. The study claimed that FDI inflow to the primary sectors, tends to have negative effect on growth however as for the service sector, the effect of FDI inflow is not so clear. It is against this backdrop that this present study intends to contribute to the FDI Growth nexus by examining the effect of sectoral FDI inflow on economic growth in Nigeria.

MATERIALS AND METHODS

Model specification: Following Akinlo (2004), researchers specify the empirical model as follows: The model in a Eq. 1 thus:

$$rgdpc = f(kst, fdia, fdib, fdic, fdid, fdie, fdif, fdig) \quad (1)$$

The model in an linear form is thus:

$$rgdpct = \psi_0 + \psi_1 kst_t + \psi_2 fdia_t + \psi_3 fdib_t + \psi_4 fdic_t + \psi_5 fdid_t + \psi_6 fdie_t + \psi_7 fdif_t + \psi_8 fdigt + \mu_t \quad (2)$$

The error correction specification is thus:

$$\Delta rgdpc_t = \psi_{00} + \psi_{11}\Delta kst_t + \psi_{12}\Delta fdia_t + \psi_{13}\Delta fdib_t + \psi_{14}\Delta fdic_t + \psi_{15}\Delta fdid_t + \psi_{16}\Delta fdie_t + \psi_{17}\Delta fdif_t + \psi_{18}\Delta fdig_t + \psi_{19} ecm_{t-1} \quad (3)$$

Data definition: In developing an empirical model for estimation, one of the cardinal steps is to consider the variables of interest to the study. Consequently are the variables employed in this study are given:

- rgdpc = Economic growth
- kst = Gross fixed capital formation
- fdia = FDI into agricultural sector
- fdib = FDI into manufacturing sector
- fdic = FDI into mining and extractive sector
- fdid = FDI into transport and commerce
- fdie = FDI into building and construction
- fdif = FDI into the banking sector
- fdig = FDI into miscellaneous service sector
- μ = Stochastic error term
- ecm = Error correction variable
- Δ = Change
- t = End of period
- Lower case indicates log of the variables

Data source and analysis: Data for the study covering the period 1980 to 2009 were extracted from United Nations Statistical Database and the Central Bank of Nigeria Statistical Bulletin. The recent Cointegration Method of Analysis is employed for the analysis.

RESULTS AND DISCUSSION

Unit root results: The analysis begins by conducting stationarity test to establish the stationarity or otherwise of the variables and the appropriateness of the specification of the Error Correction Model. Thus, both the Augmented Dicky Fuller (ADF) and the Philips Perron (PP) tests are employed. The ADF and PP-test are reported in Table 1.

Table 1: Unit root test results

	Different unit root tests			
	Augmented Dickey Fuller test		Philips Perron test	
Variables	Level	1st Diff.	Level	1st diff.
rgdpc	2.255	-15.193*	-2.742	-11.051*
fdia	1.070	-3.124**	0.676	-3.116**
fdib	3.381	-0.559	-0.124	-3.174*
fdic	-0.732	-4.908*	-0.659	-5.389*
kst	-2.712	-3.759*	-2.793	--3.851*
fdid	1.222	-2.705	3.338	-6.369*
fdie	3.739	-3.195*	0.035	-3.121*
fdif	1.935	-3.260*	-0.298	-3.331
fdig	0.894	-5.342*	2.281	-5.342*

*and**Indicate 1 and 5% level of significance, respectively

The results in Table 1 show that the variables were non-stationary in their levels. The variables only became stationary after first difference. This is confirmed by both the ADF and PP-test statistics in Table 1. Since, the variables follow order one [I (1)] process, the next step is to test if there exists a long run relationship (cointegration) among the variables.

Cointegration test result: To establish a long run relationship among the variables, researchers employed the Johansen Maximum-likelihood approach. The number of cointegrating relations from all the models on the basis of trace statistics and the maximal eigenvalue statistics using critical values at 5% are shown in Table 2.

The results of the maximal eigenvalue and the trace statistics in Table 2 shows that the hypothesis of no cointegration among the variables can be rejected for Nigeria. The trace statistics results revealed that at least six cointegrating vectors exist among the variables of interest while maximal eigenvalue statistics results showed that at least five cointegrating vectors exist among the variables. Considering the establishment of long run equilibrium relationship among the variables as shown in Table 2, the analysis employs the error correction technique. Present is the result of the parsimonious error correction result.

Error correction estimation result: As a result of the non-stationarity associated with the variables at level and the discovery by the unit test that all the variables are order one [I (1)], the variables are now in the short run and the need to establish long run relationship which has been done by the Johansen Cointegration test, researchers the proceed to estimation the parsimonious Error Correction Model selected based on akaike information criteria and the Schwartz criteria as shown in Table 3.

Table 2: Johansen Cointegration test result

Rank	Trace statistics	Max eigen value
r≤0	749.72*	267.36*
r≤1	482.36*	161.33*
r≤2	321.03*	98.92*
r≤3	222.11*	86.83*
r≤4	135.28*	71.03*
r≤5	63.25*	34.07*
r≤6	30.19*	17.87
r≤7	12.31	10.47
r≤8	1.84	1.84

*Denotes 5% level of significance

Table 3: Parsimonious error correction result

Variables	Coefficient	SE	t-statistic	Prob.
C	0.021731	0.021802	0.996725	0.3449
d (log(rgdpc(-1)))	0.015560	0.006681	2.329003	0.0402
d (log(kst))	0.021196	0.052372	0.404724	0.6951
d (log(fdia))	0.035797	0.100595	0.355856	0.7301
d (log(fdia(-1)))	-0.161651	0.144030	-1.122339	0.2908
d (log(fdib))	0.216494	0.086232	2.510576	0.0110
d (log(fdib(-1)))	0.302996	0.125081	2.422390	0.0240
d (log(fdic))	-0.012303	0.023654	-0.520126	0.6155
d (log(fdid))	0.130007	0.056825	2.287828	0.0479
d (log(fdid(-1)))	0.048294	0.053525	0.902263	0.3904
d (log(fdie))	0.083196	0.057899	1.436916	0.1846
d (log(fdie(-1)))	0.024178	0.020067	1.204855	0.2590
d (log(fdif))	0.128421	0.087916	1.460713	0.1781
d (log(fdif(-1)))	0.097116	0.043519	2.231564	0.0526
d (log(fdig))	0.061829	0.067937	0.910092	0.3865
ecm (-1)	-0.082112	0.033919	-2.241221	0.0514

R^2 = 0.776179; Adjusted R^2 = 0.583144; SE of regression = 0.040932; Sum squared residue = 0.015079; Log likelihood = 57.19304; Durbin-Watson Stat. = 1.866614; Mean dependent Var. = 0.018121; SD dependent Var. = 0.052982; Akaike info criterion = -3.295443; Schwarz criterion = -2.515363; F-statistic = 5.080712; Prob. (F-statistic) = 0.054242; Dependent variable: d (log(rgdpc))

The R^2 value of 0.77 from Table 3 shows that about 77% of the variation of economic growth is explained by the explanatory variables. The f-statistics value of 5.08 which is significant at 5% level also implies that there exists a considerable harmony between economic growth and the explanatory variables put together. The Durbin Watson statistics value of 1.87 shows that this econometrics result is devoid of serious econometrics problems as it implies that there is no serial correlation problem associated with the result.

A cursory look at the table shows that gross fixed capital formation has positive though insignificant effect on economic growth. Foreign direct investment inflow into the agricultural sector was found to have an insignificant positive effect on economic growth and this is not surprising because most of the agrarian economies are the low performing economies. However, FDI inflow to manufacturing was found to have positive and significant impact on economic growth in Nigeria. This is an indication that the manufacturing sector impact growth better. This is confirmed by both the coefficients of the

contemporary and lag FDI inflow into the manufacturing sector that are significant. The coefficient of FDI into mining and extractive sector is also found to have an insignificant effect on growth and the reason is not far from the dutse disease effect. The coefficient of the transport and commerce sector had a positive and significant impact on growth which is an indication. The coefficient of FDI inflow to the banking sector was found to have positive impact on growth in Nigeria however it was only the lag value that was significant.

The error correction variable had the expected features it was negative, <1 and significant which implies that it can act to correct about 8% of any deviation of economic growth from its longrun value in this model.

CONCLUSION

An attempt is made to examine the impact of sector foreign direct investment inflow on growth in Nigeria. Data for the study were extracted from Central Bank of Nigeria bulletin and the UN statistics. The estimation is done by cointegration technique. The study found FDI inflow to the agricultural sector to have an insignificant positive effect on economic growth in Nigeria whereas FDI inflow to the manufacturing sector has positive and significant effect on economic growth in Nigeria. The FDI into the transport and banking sectors were also found to boast economic growth in Nigeria. The study therefore, recommends that policies aimed at attracting FDI inflow to the other sectors other than the agricultural and extractive sectors be put in place. This is because significant amount of FDI goes to the agricultural and extractive sectors that are having insignificant effect instead of the manufacturing sector. Hence, the study recommends a target approach that screening and attract FDI to sectors that are beneficial to the economy.

REFERENCES

Ajayi, S.I., 2001. What Africa needs to do to benefit from globalization. Finance Dev., 38: 6-8.

Akinlo, A.E., 2004. Foreign direct investment and growth in Nigeria: An empirical investigation. J. Policy Model., 26: 627-639.

Alfaro, L., 2003. Foreign direct investment and growth: Does the sector matter? Harvard Business School, Boston, MA., USA. http://www.people.hbs.edu/lalfaro/fdisectorial.pdf.

Ayanwale, A.B., 2007. FDI and economic growth: Evidence from Nigeria. AERC Research Paper 165, African Economic Research Consortium, Nairobi, Kenya. http://www.aercafrica.org/documents/rp_165.pdf.

Blomstrom, M., R.E. Lipsey and M. Zejan, 1994. What explains developing country growth? NBER Working Paper No. 4132. National Bureau for Economic Research, Cambridge, Massachusetts.

Borensztein, E., J. De Gregorio and J.W. Lee, 1998. How does foreign direct investment affect economic growth? J. Int. Econ., 45: 115-135.

Okodua, H., 2009. Foreign direct investment and economic growth: Co-integration and causality analysis of Nigeria. Afr. Fin. J., 11: 54-73.

Otepola, A., 2002. Foreign direct investment as a factor of economic growth in Nigeria. Africa Institute for Economic Development and Planning (IDEP), Dakar, Senegal.

Tang, S., E.A. Selvanathan and S. Selvanathan, 2008. Foreign direct investment, domestic investment and economic growth in China: A time series analysis. UNU-WIDER Research Paper No. 2008/19, February 2008.

Titarenko, D., 2005. The Influence of foreign direct investment on domestic investment processes in Latvia. Transport Telecommun., 7: 76-83.