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The Impact of Foreign Direct Investment on Nigeria Economic Growth (1970-2014)

Abubakar A. Kumo

***Abstract*—This paper estimates the impact of FDI on Nigeria economic growth using time series data during the period 1970-2014.The results show that FDI exerts a positive impact on Nigeria economy during the period under review affirming the *a priori* economic expectation of a positive correlation existing between FDI and growth. Also, most of the variables entered are found to be statistically significant and it is suggested that favourable exchange rate regime and contractionary monetary policy be implemented and sustained so as to attract FDI.**

***Keywords*—FDI; Economic Growth, Nigeria and Exchange Rate**

Introduction

Foreign Direct Investment (FDI) refers to a kind of management interest (usually 10% of voting stock) in a business enterprise operating abroad in a different country than that of the investor according to their destination (UNCTAD). Therefore, such investment could be in form of "greenfield" investment (otherwise called "motor and brick") which has to do with acquisition of current interest instead of new investment.

The neoclassical models of growth as well as endogenous growth models provide the basis for most of the empirical work on FDI- growth nexus and such relationship has been studied by explaining four main channels: (i) determinants of growth (ii) determinants of FDI (iii) role of multinational firms in most countries and (iv) direction of causality between FDI and economic growth. Consequently, the relationship between FDI and economic growth has motivated volumes of empirical literature that dwelt on both industrial and developing countries

There are several literatures on FDI-growth nexus. Ilhan, (2007) suggest that the overall findings on FDI-growth nexus is best described as mixed when he consider the importance of labor costs, openness, investment climate, developed and underdeveloped countries and fiscal incentives and conclude that most studies appear to support the conventional assumption that FDI impact positively on growth. The consensus has been reached among academia and practitioners that FDI tends to have significant effect on economic growth through multiple channels such as capital formation, technology transfer and spillover, human capital (knowledge and skills) enhancement, etc.

Interestingly, existing empirical evidence in contrast with more settled theoretical evidence, shows mixed results about the relationship between FDI and economic growth of the host countries and the determinants of FDI. Several reasons may be advanced to explain such disparity of empirical results. To mention a few, first, tests are traditionally conducted using data sets usually belonging to heterogeneous groups of countries. Second, empirical studies use a wide variety of theoretical models. Third, empirical studies have usually implemented a number of different econometric techniques in testing theoretical models. However, this disparity in results does not preclude the need for further investigation of the subject so long as it is clearly indicated that the analysis and the obtained results are not necessarily generalized to other cases.

Most African countries and Nigeria in particular since recent years, depend on the export of commodities like cocoa, coffee, rubber and mineral resources. However, efforts have been made to increase economic activity, incomes and general welfare with economic reforms largely being aimed at attracting FDI. Therefore, as part of the most African governments' effort to attract FDI, various policies and institutional structures have been developed in many countries such as Nigeria, for instance, the Structural Adjustment Program (SAP) undertaken by the Nigerian government since the mid-1980s through to the early 1990s was not just aimed at economic restructuring but also to promote FDI inflows.

In other words, FDI serves as a strong mechanism for the promotion and spread of business opportunities throughout the developing and industrialized economies of the world. Essentially, this mechanism raises income level and provides employment opportunities to the teeming labour of the host countries thereby boosting the existing economic situation. Ultimately, host countries find themselves in an advantage position considering the FDI in flow. Invariably, they can benefit from new technology through licensing agreements, commencement and competition for resources, employee's training, export spillovers and direct capital financing. And so, the governments of developing countries in particular have long realized that financial liberalization is essential for prosperity. Therefore, instead of discouraging foreign investors and designing rules to stop local capital from fleeing abroad, foreign investors were encouraged to open up in order to have access to global savings which can be invested to facilitate growth.

However, Multinational Enterprises (MNEs) seek to invest in foreign countries with reasonable risk. African countries and Nigeria in particular is presume to be a high risk market for investment due to poor governance, unstable and inconsistent macroeconomic policies. Invariably, foreign direct investment (FDI) is adjudged a way out for the Sub Saharan African countries for the economic progress hence, Nigeria joined the rest of world seeking for FDI. The contribution of foreign direct investment (FDI) towards promoting economic growth has been the subject of debate among development specialists, researchers, aid donors as well as recipients in general and Nigeria in particular.

Turkcan et al. (2008) invoke the simultaneous equation system approach to test for endogenous relationship between

Abubakar A. Kumo
Department of Economics & Development Studies, Federal University, Kashere, Gombe-Nigeria.

FDI and economic growth using panel data set for 23 OECD countries ranged from 1975-2004. Economic growth and FDI are treated as endogenous variables and a two equation simultaneous equation system with Generalized Methods of Moments (GMM) for the OECD case were estimated. The result show that export growth rate is statistically significant a determinant of FDI and economic growth depicting an endogenous relationship between FDI and growth. They assert that the relationship between FDI and economic growth is unidirectional. However, economic growth stimulates growth rate of FDI inflows more than that the growth rate of FDI stimulates economic growth.

Moudatsou and Kyrkilis (2009) investigated the growth driven FDI and the FDI-led growth including the two-way causal link between them employing the heterogeneous panel analysis. They found that the result in the EU countries supports the hypothesis of GDP-FDI causality depicting growth driven FDI in the panel. But on the other hand two ASEAN countries namely; Indonesia and Thailand exhibit a two-way causality between GDP per capita and FDI while Singapore and the Philippines FDI is motivated by the host country GDP growth. The result suggests strong and positive relationship between economic growth in both developed and developing countries.

Further, (Roy & Mandal, 2012) undertook the empirical treatment using panel based econometric procedures called panel cointegration technique and panel estimation procedure to establish the relationship between FDI and economic growth while the random effect panel estimation procedure was applied to the panel cointegration relation. They use secondary data from 27 Asian countries for the period 1975 to 2010. The result show that FDI contributes positively to economic growth. The coefficients of human capital and infrastructure were statistically significant with FDI found to be growth enhancing in Asia. However, the impact of FDI depends on the threshold levels of absorptive capacities measured by the levels of human capital and infrastructure. They argue that some Asian countries do not satisfy the threshold education and infrastructure levels.

In a different study on the sectoral impact of oil and non-oil FDI on Nigeria economic growth, (Moses, 2011) observed that the non-oil FDI was more statistically significant and show greater effect on growth as compared to oil FDI. The contribution of the oil FDI to growth is less than that of the non-oil FDI. Perhaps this is due to capital flight from the extractive sub sector of the economy because their activities are basically extraction of raw material.

According to (Christopher, 2012), FDI has the potential to impact positively on the Nigerian economy; however its contribution to GDP was very low during the period under review. While (Adegbite & Ayadi, 2010) confirmed the beneficial role of FDI and conclude that its role on growth is limited by human capital. But (Danja, 2012) suggest that the contribution of FDI to the growth and development of Nigeria's economy has not been much. This is evident due to repatriation of profits, contract fees and interest payment on foreign loans.

Osinubi and Amaghionyeodiwe (2010) studied Foreign Private Investment (FPI) and Economic Growth in Nigeria and assert that FPI as opposed to contradicting outcomes in other developing nations has a positive and significant effect on growth rate of Nigeria. According to (Adeolu, 2007), for FDI to be sustained, it is necessary to identify the factors contributing to its growth with a view to enhance and sustain these factors. While (Adeniyi & Omisakin, 2012) are of the view that considering Nigerian situation, there is no evidence of any short-or-long-run causal relationship from FDI to growth regardless of the level of financial deepening.

However, (Otepola, 2002 & Akinlo, 2004) focused on only the importance of FDI on growth and the ways through which it may benefit the economy. According to (Ayanwale, 2007), various studies carried out on the linkages between FDI and economic growth in Nigeria did not yield unanimous submissions. Therefore, looking at the previous studies on the influence of FDI on Nigeria economic growth reveals that more than 60 per cent of the FDI inflows were channeled into the extractive sector industry. Invariably, these outcomes were based on a model testing the influence of natural resources on Nigeria economic growth. In addition, the effect of FDI on growth is rather contentious in empirical than theoretical analysis which requires investigating the relationship between FDI and economic growth.

Therefore, looking at the contributions of FDI to Nigeria economic growth and if FDI actually contributes to economic growth, then what is the empirical relationship between FDI and the growth rate of Nigeria's GDP? Also, do all these FDIs really contribute to the growth of Nigeria economy?

Methodology

In this section we employ the econometric technique of analysis conducting our test using Eviews. Our mathematical model will take the form; GDPG= (EXR, FDI, GEX, IR, M2, TRD). Where, EXR represents exchange rate, FDI Stands for foreign direct investment, GEX is government expenditure on education, IR is the interest rate, M2 denote money supply while TRD is total trade and GDPG represents the growth of GDP.

Growth Model

Our mathematical model above is estimated thus;

$$dloggdpg_t = 0.24_0 - 1.48dlogexr + 0.36dlogfdi_2 - 0.51dloggex_3 + 0.09dlogir - 0.79dlogm2_5 - 0.03dlogtrd$$

TABLE I Dependent Variable: DLOG (GDPG)
Method: Least Squares
Date: 09/13/15 Time: 17:44
Sample (adjusted): 1972 2014
Included observations: 10 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.242421	0.051877	4.673001	0.0185
DLOG(EXR)	-1.482202	0.425591	-3.482690	0.0400
DLOG(FDI)	0.363107	0.096131	3.777223	0.0325
DLOG(GEX)	-0.511279	0.213959	-2.389611	0.0968
DLOG(IR)	0.086375	0.035207	2.453327	0.0914
DLOG(M2)	-0.797413	0.177042	-4.504094	0.0204
DLOG(TRD)	-0.032296	0.122916	-0.262747	0.8098
R-squared	0.920756	Mean dependent var		0.041827
Adjusted R-squared	0.762267	S.D. dependent var		0.081148
S.E. of regression	0.039566	Akaike info criterion		-3.425671
Sum squared resid	0.004696	Schwarz criterion		-3.213862
Log likelihood	24.12836	Hannan-Quinn criter.		-3.658026
F-statistic	5.809604	Durbin-Watson stat		3.243488
Prob(F-statistic)	0.088578			

Source: Computer by the researcher

Analysis of Results

The results show that most of the variables entered into the regression equation are statistically significant based on their t-statistics and standard error. However, considering the probability values, Exchange Rate, FDI and Money Supply are most significant among the explanatory variables denoting that the value of the coefficients did not just happened by chance and that most of the variables entered are statistically significant. Also, the high R^2 of about 92% signify that the model fits the data well showing that about 92 % of the variation in GDP is explained by the model. Therefore, as the Akaike and Schwartz shows that the model is parsimonious, the Durbin Watson statistic is about 3.2 revealing that there is absence of multi-collinearity among the variables. Further, the F-statistics of greater than 2.0 shows the absence of autocorrelation among the variables and on the whole, based on our regression results, the Growth model is perfectly fit. Therefore, our growth regression model shows that a unit increase in the real exchange rate will lead to about 14% decrease in Nigeria's real GDP but a unit increase in FDI will lead about 36% increase in level of GDP. However, a similar one unit the increase in expenditure on education decreases the level of GDP by about 51% at the same time a unit increase in interest rate raises GDP by 8 % but an increase in both money supply and trade tend to reduce Nigeria's GDP respectively. However, half of the variables are statistically significant in explaining the variation in GDP.

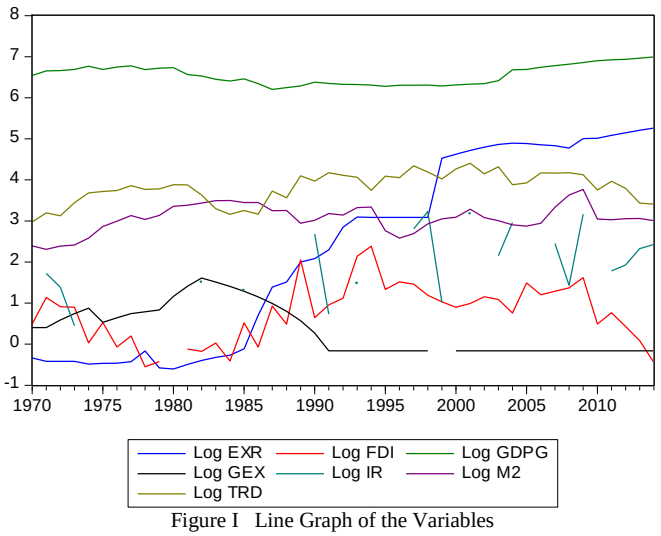

Figure I Line Graph of the Variables

TABLE III: Stationarity Test

VARIABLE9S)	LEVEL		FIRST DIFF	
	ADF	*PP*	*ADF*	*PP*
EXR	-1.39	-1.39	-6.45	-6.45
FDI	-3.64	-3.56	-6.06	-20.99
GDPG	-0.05	-0.26	-6.49	-6.48
GEX	-2.49	-2.07	-4.54	-4.51
M2	-3.20	-2.35	-5.91	-6.81
TRD	-2.37	-2,15	-9.18	-9.30

Source: Computed by the researcher

Most of the macroeconomic data are characterized by a stochastic trend for if not properly treated the statistical behavior of the estimators is influenced by such trend. Therefore, in this study to check the stochastic behaviour we differentiated the data to determine the stationarity of the data using the ADF and PP tests as depicted in table III. The estimation is with constant and trend which yields the results presented in Table 1. The results show that all the series in log form are non-stationary at level at 5 percent under both ADF and PP test. Taking the variables in their first difference, results show that all are I (1) at 1% and 5% percent level of significance level respectively. For consistency, therefore, all the series were considered as I (1) and taken at their first difference in the analysis.

Test for Stationary under Structural Breaks

The research employ Andrew and Zivot (1992) to test for structural breaks in the series and the table below is the summary of the test at 1%, 5% and 10% significant level respectively.

TABLE II : Structural Breaks

VARISBLES	T-TEST	LAGS	BREAK	P-VALUE
EXR	-8.21	0.00	1999	0.00
FDI	-5.55	0.00	1989	0.00
GDPG	-3.72	0.00	1995	0.63
GEX	-3.17	2.00	1987	0.02
M2	-4.46	1.00	1987	0.01
IR	-8.39	0.00	1997	0.01
TRD	-2.96	1.00	2000	0.11

Source: Computed by the researcher

The result shows that the variables at 5% level are statistically significant, but the breaks occurred at different periods, with only two variables that have the same break dates i.e.) GEX and M2) in 1987 respectively. This gives us the opportunity to develop DUMMY variables in order to test for the long run equilibrium relationship among the variables

Conclusions

This study examined the impact of FDI on Nigeria economy and the result show that FDI, exchange rate and money supply are most significant. The high coefficient of determination indicates that the regression line fits the data. Therefore, there is need for government to encourage FDI inflow through good polices that attract FDI such adhering to the incentives tied to Export Processing Zones (EPZs). Also, favorable exchange rate regime and contractionary monetary policy should be maintain to facilitate the purchase of locally produced raw materials for prospective foreign investors to be able to set up businesses in the country since our empirical result show that increase in the value of the domestic currency discourages FDI.

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