ANALYSING THE IMPACT OF FOREIGN DIRECT INVESTMENT (FDI) ON NIGERIA'S ECONOMIC GROWTH : A COINTEGRATION APPROACH

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Abstract

This study seeks to ascertain the extent at which growth in foreign direct investments (FDIs) influences economic growth in Nigeria in the long-run. The data used was annual time series of variables computed from natural logarithms of gross domestic product (GDP) at current prices, net inflow of Foreign Direct Investment (FDI), inflation rate and exchange rates. The study utilized the Ordinary Least Square, Unit root test to test for stationarity of the time series, the Johansen Cointegration test to test for the existence of long-run relationship among the variables. The Cointegration test using Johansen Cointegration test revealed that the variables were cointegrated and had a stable relationship in the long-run. The findings showed that there is a positive long-run relationship between FDI and GDP which was used as a proxy for economic growth. This must be of great interest to policy makers with regards to providing the enabling environment that will attract more FDIs and enhance the country's economic growth.

Keywords*: Nigeria, Foreign Direct Investment, Economic Growth, Cointegration and Long-run*

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1. Introduction

Foreign direct investment serves as a strong mechanism for the promotion and spread of business opportunities throughout the developing and industrialized economies. This

mechanism raises income levels and provides employment opportunities to the working classes of the host countries giving an overall boost to their economic situation. Host countries find themselves in an advantageous condition on account of foreign direct investment because they get the benefits of new (foreign) technology through licensing agreements, commencement, and competition for resources, employee's training, export spillovers and direct capital financing. Specially for a developing economy like Nigeria all these are certain crucial incentives that have tremendous effect on the major macroeconomic variables viz; domestic investment and savings, technology, employment generation and labour productivity, environment and export competitiveness. Some studies on the importance of inward FDI in host countries suggest that the foreign capital inflow augment the supply of funds for investment thus promoting capital formation in the host country. Inward FDI can also encourage local investment by increasing domestic investment through links in the production chain when foreign firms buy locally made inputs or when foreign firms supply source intermediate inputs to local firms. In addition, inward FDI can increase the host country's export capacity causing the developing country to increase its foreign exchange earning. There are some firm-level studies, on the other hand, however, do not lend support for the view that FDI necessarily promotes economic growth, for example the study conducted by as (Salz, 1992) which found a negative relationship between FDI and economic growth

In Nigeria, Foreign Direct Investment increased from less than US$ 1billion in 1990 to US$ 1.2billion in 2000, US$1.9 billion in 2004, US$ 2.3billion in 2005 and US$ 4.5 billion in 2006. Viewed as a percentage of GDP, there has been a remarkable increase in FDI in recent times. The portfolio investment has also followed in the same direction, growing from US$0.2 billion in 2003 to US$ 2.9 billion in 2005 and US$ 0.92 billion in 2006. Economic reforms and the resulting of macroeconomic stability have been adduced as reasons for this, all leading to high confidence in the Nigerian economy. Another factor that is increasingly contributing to the country's economic growth is home remittance. An estimated US$ 2.26 billion in home remittances came into the country in 2004 and in 2006, it was over US$7 billion in 2006 (Bello, 2006). The country experienced real GDP growth averaging 7.8 percent from 2004 to 2007, and 6.4 percent in 2007. This was higher than those of the low-income sub-Saharan (LI-SSA) countries with median (4.0 percent), the LI median (6.0 percent), and the rate in Indonesia (6.3 percent). Kenya however had a higher rate of 7.0 percent (see Figure 1.1). Prior to 2001 40 percent of GDP came mainly from oil which

changed from 2001 to 2006 – though in 2003—real growth in other sectors exceeded growth in the oil sector (IMF, 2008) Some notable sectors in this respect include telecommunications, wholesale and retail trade, and agriculture (Economist Intelligent Unit, 2008). Agricultures potentials are yet to be fully exploited.

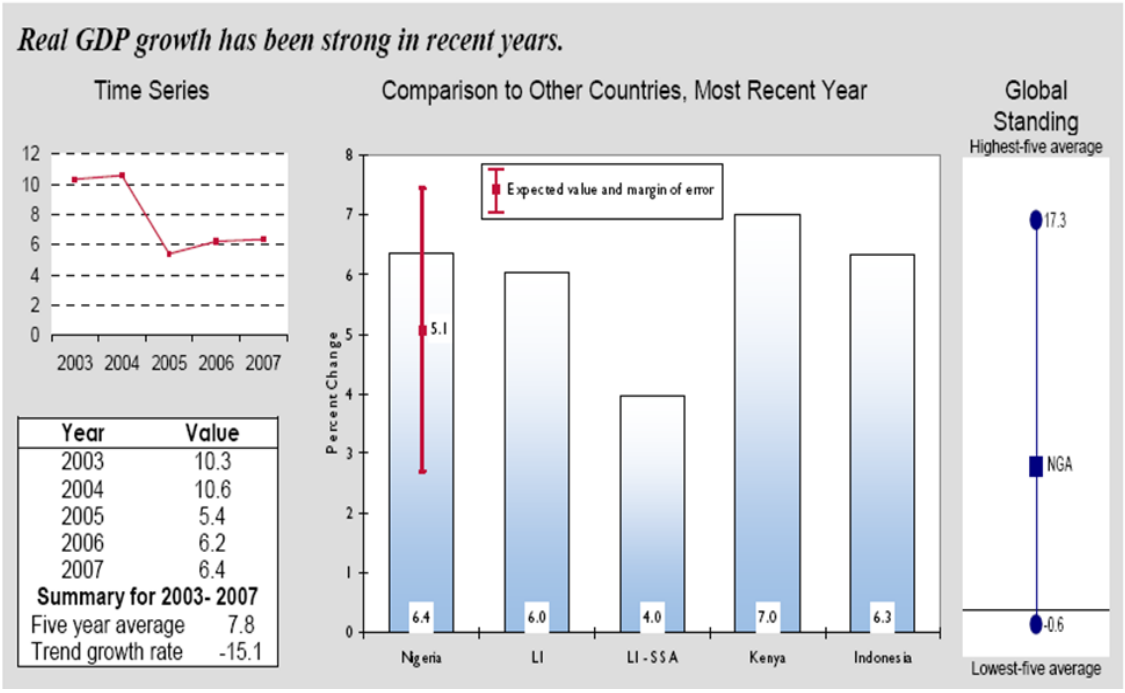
Nigeria has experienced high per capita GDP relative to GDP in other LI-SSA countries. In the year 2007, Nigeria had an estimated gross domestic product (GDP) of US$166.8 billion according to the official exchange rate and US$292.7 billion according to Purchasing Power Parity (PPP). GDP rose by 6.4 percent in real terms over the previous year. GDP per capita was about US$1,200 using the official exchange rate and US$2,000 using the PPP method. About 60 percent of the population lives on less than US$1 per day. Also during the same period (2007) the GDP was composed of the following sectors: agriculture, 17.6 percent; industry, 53.1 percent; and services, 29.3 percent. In 2006 Nigeria received a net inflow of US$5.4 billion of Foreign Direct Investment (FDI), much of which came from the United States. FDI constituted 74.8 percent of gross fixed capital formation, reflecting low levels of domestic investment. Almost all the FDI is directed toward the energy sector. Between 2008 and 2020, Nigeria hopes to attract US$600 billion of FDI to finance its Vision 2020 policy to transform the country's economy into one of the world's 20 largest, see figure 1.1 below (Library of Congress, 2008).

Table 1: Nigeria Macroeconomic Indicators, 1997 – 2006

	Indicators	**1999-01**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
1	Real GDP Growth Rate	2.7	5.4	3.1	1.5	10.9	6.1	6.9	6.2
2	Real Non-Oil GDP Growth Rate	3.9	2.6	3.7	8.0	4.6	7.4	8.2	7.0
3	Real Per Capita GDP Growth Rate	-0.1	2.9	0.7	-1.2	7.7	3.2	4.3	3.6
4	Inflation (%)	10.2	6.9	18.9	13.7	14.0	15.0	17.9	9.4
5	Investment Ratio (% of GDP)	23.1	20.3	24.1	26.2	23.9	22.4	20.9	21.1
6	Fiscal Balance (% of GDP)	-2.8	5.9	-4.9	-4.2	-1.3	7.7	9.9	17.5
7	Growth of Money Supply (%)	29.3	48.1	27.0	21.6	24.1	14.0	16.5	17.0
8	Export Growth, volume (%)	2.4	19.4	-4.7	-11.8	33.2	3.6	-1.1	2.5
9	Import Growth, volume (%)	8.4	-2.7	10.7	25.6	11.5	1.6	25.5	17.1
10	Terms of Trade (%)	10.9	53.2	-10.4	-0.5	2.5	20.5	37.8	8.9
11	Trade Balance (% of GDP)	15.8	30.3	18.9	8.7	17.5	26.9	32.8	33.1

12	Current Account ($billion)	0.6	5.4	2.2	-5.4	-1.6	3.3	12.4	16.5
13	Current Account (% of GDP)	0.8	11.7	4.5	-11.7	-2.7	4.9	14.7	18.4
14	Debt Service (% of Export)	10.7	6.9	10.3	5.9	6.7	4.9	17.0	2.0
15	Domestic Savings (% of GDP)	29.8	32.0	28.6	25.3	32.1	39.5	42.1	41.6
16	Reserves in months of imports	6.8	8.6	7.8	4.6	3.6	7.6	10.1	14.3
Source: ADB Statistics Division and IMF, 2007									

Figure 1: Nigeria: Real GDP 2003 - 2007



Source: IMF Article IV Nigeria, 2008 and IMF World Economic Outlook Database (April, 2008)

There has been a good number of study on FDI and economic growth in Nigeria but the existing empirical evidence on their long-run relationship has been inconclusive in relation to the period under review. The choice of 1981 to 2007 is to give way to political stability after the first civil rule of 1979. Then motivation for this work arose from the fact that for developing economies, and for Nigeria in particular, the issue of economic growth is an important one. It is thus, of interest to investigate if there has been a long-run relationship between these factors over the years.

This study looks into the following objectives and their corresponding hypotheses as stated below:

- ✓ To ascertain the extent at which Foreign Direct Investment inflow influences economic growth in Nigeria.
- ✓ To establish whether there is a long-run relationship between economic growth and Foreign Direct Investments in Nigeria.

The hypotheses as stated in their null form include:

- ✓ Ho_1 Foreign Direct Investment inflow is not a major determinant of economic growth in Nigeria.
- ✓ Ho_2 There is no long-run relationship between and Foreign Direct Investments and economic growth in Nigeria.

This paper is divided into five sections. Section one is on introduction, section two reviews related literature in our topic. Section three looks at the implications of FDI on Economic growth in Nigeria. Section four presents the methodology and our analysis while five contains our findings and conclusion.

2. Review of Related Literature

Zhang (2001) has analysed data from 11 developing countries in Latin America and Asia using the co-integration and Granger causality test and found that foreign direct investment enhanced economic growth in only five of the eleven countries. Zhang also found that a key benefit of FDI to recipient countries is technology transfer and spillover efficiency. However, he indicated that this benefit does not automatically occur, but rather depends on the recipient countries' absorptive capabilities, which include a liberal trade policy, human capital development, and an export-oriented FDI policy.

Balasubramanyam et al (1996) analysed how foreign direct investment impacted on economic growth in developing countries using cross-section data and the Ordinary Least Square (OLS) regression method. They found that foreign direct investment has a positive impact on economic growth only in countries that have an export promotion strategy while no relationship was established for countries with an import substitution strategy. Similarly, Bengoa and Sanchez-Robes (2003) found that foreign direct investment has a significant positive impact on economic growth of developing countries but that the magnitude of the impact is also dependent on the conditions in and characteristics of the host country. De

Mello (1999) and Borensztein et al (1998) also found that where a relationship between foreign direct investment and economic growth exists, it tends to be because of the relevant host country characteristics such as human capital.

Also, in their study Blomström, Lipsey and Zejan (1994) found that foreign direct investment only promotes growth in higher-income developing countries. De Mello (1999) had used using both time series and panel data from a sample of 32 developed and developing countries to find weak indications of the causal relationship between foreign direct investment and economic growth. Harrison (1996) found that while foreign direct investment enhances productivity as compared to domestic investment, there is no indication of positive short run spill over. Harrison further explains that in the short run, foreign direct investment may unfavourably have an effect on domestic investment by "capturing" part of the market share which may lead to a reduction in capacity utilisation by the domestic firm.

The recent theoretical developments in the area of economic growth suggest that successful developing countries were able to grow in large part due to the "catch up" process in the level of technology Borenzstein et al (1998). One of the major channels of the access to advanced technologies is Foreign Direct Investment. Thus, an investigation of enhanced economic growth through the advanced in technology can be closely associated with modelling the relationship between growth and Foreign Direct Investment. Again, recent theoretical developments allow researchers to model and evaluate not only the short-run, but also the long-run impact of Foreign Direct Investment on growth. A closer examination of these previous studies reveals that conscious effort was not made to take care of the fact that more than 60% of the FDI inflows into Nigeria is made into the extractive (oil) industry.

There is conflicting evidence in the literature regarding the question as to how, and to what extent, FDI affects economic growth. FDI may affect economic growth directly because it contributes to capital accumulation, and the transfer of new technologies to the recipient country. In addition, FDI enhances economic growth indirectly where the direct transfer of technology augments the stock of knowledge in the recipient country through labour training and skill acquisition, new management practices and organizational arrangements (De Mello, 1999). Theoretically, however, in the context of either neo-classical or endogenous growth models, the effects of FDI on the economic growth of the receiving country differ in the recent growth models from their conventional counterparts. The conventional economic growth theories are being augmented by discussing growth in the context of an open rather than a closed economy, and the emergence of externality-based growth models. Even with

the inclusion of FDI in the model of economic growth, traditional growth theories confine the possible impact of FDI to the short-run level of income, when actually recent research has increasingly uncovered an endogenous long-run role of FDI in economic growth determination (De Mello, 1999). According to the neo-classical models, FDI can only affect growth in the short run because of diminishing returns of capital in the long run.

Examining other variables that could explain the interaction between FDI and growth, (Olofsdotter, 1998) submits that the beneficiary effects of FDI are stronger in those countries with a higher level of institutional capability. He therefore emphasized the importance of bureaucratic efficiency in enabling FDI effects. The neoclassical economists argue that FDI influences economic growth by increasing the amount of capital per person. However, because of diminishing returns to capital, it does not influence long-run economic growth. Bengos and Sanchez-Robles (2003) asserts that even though FDI is positively correlated with economic growth, host countries require minimum human capital, economic stability and liberalized markets in order to benefit from long-term FDI inflows.

Choe (2003) used 80 countries in his study for the period of 1971 to 1995 by applying Granger Causality Test. He concluded that FDI is Granger cause of economic growth and economic growth is Granger cause of FDI. However, economic growth affects FDI growth more. Basu, Chakraborty and Reagle (2003) used 23 developing countries for the time period of 1978 to 1996 by the use of Unit Root Tests and Panel Cointegration Test. They ascertained that there is a steady state relationship between FDI and GDP growth in the long-run. Also Zhang (2001) by using 11 East Asia and Latin America countries for the period of 1957 – 1997 (different time periods among these years) with the use Granger Causality Test. Found that it is more possible for FDI to affect economic growth in export promoting countries than import substituting countries. On the other hand, the endogenous school of thought opines that FDI also influences long-run variables such as research and development (R&D) and human capital (Romer, 1986; Lucas, 1988). FDI could be beneficial in the short term but not in the long term. Durham (2004), for example, failed to establish a positive relationship between FDI and growth, but instead suggests that the effects of FDI are contingent on the "absorptive capability" of host countries. The ambiguity about the causal relationship between foreign direct investment and economic development resulted in suggestions by some scholars like Chowdhury and Mavrotas (2006), that country specific studies be carried to establish robust results.

3. The Implications of FDI on Economic Growth in Nigeria

Macroeconomic developments in recent years have been encouraging, with GDP growth averaging 6 per cent for 2000-05. After peaking at 10.2 per cent in 2003, growth slowed to 6.1 per cent in 2004. Growth in 2005, estimated at 4.4 per cent, a much lower rate than the government's figure, was broadly based, with the oil, agriculture, construction and telecommunications sectors performing particularly well. High world oil prices have provided a big boost to the oil sector in recent years. (African Economic Outlook, 2006)

In 2005, agricultural output increased by 7 per cent, up from 6.2 per cent in 2004, reflecting both favourable weather conditions and government efforts to increase farmers' access to credit and fertilizers. Construction was estimated by the government to grow by 10 per cent in 2005 as a result of booming real estate development. Nigeria's telecommunications sector grew by 12 per cent following its accelerated liberalization and privatisation, which led to the introduction and rapid spread of the global system for mobile communications (GSM) services. The number of mobile phone lines increased from 230,000 in 2001 to 8.3 million in 2004 while fixed land lines increased by an average of 20 per cent annually, from 600,000 to 1.03 million during the same period (African Economic Outlook, 2006)

Growth in the manufacturing sector, at 8 per cent in 2005, is lower than the 10 per cent recorded in 2004. Agriculture accounted for nearly one-third of GDP in 2004: mining (primarily oil) accounted for about 36 per cent of GDP. Crude petroleum production was estimated at 2.5 million barrels per day (mbd), about 2.05 mbd of which is destined for exports. At an estimated average price of $55 per barrel in 2005, the price of Nigeria's reference Bonny Light crude oil increased by about 11 per cent during the preceding year as a result of high world prices. Wholesale trade represented about 15 per cent of GDP in 2004, whereas the manufacturing sector accounted for only 5 per cent of GDP despite its recent strong growth (African Economic Outlook, 2006).

The sectoral developments mentioned above reflected strong growth in private consumption and private investment in both 2004 and 2005. In terms of the composition of demand, the main development was a surge in net exports demand to 18.8 per cent of GDP in 2005, compared with 8.2 per cent of GDP in 2003, and -0.9 per cent in 2002, also reflecting the oil price increases of recent years. Correspondingly, domestic consumption and

investment shares declined in 2003 and 2004, reflecting the increase in the share of exports in total demand, this can be seen from figure 2.1 ((African Economic Outlook, 2006).

Table 2: Demand Composition (percentage of GDP)

	1997	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Gross capital formation	17.1	26.2	23.9	22.4	22.5	23.8	25.6
Public	5.4	10.0	9.7	9.1	8.9	9.0	9.3
Private	11.7	16.2	14.2	13.2	13.5	14.7	16.3
Consumption	74.9	74.6	67.9	60.4	58.8	60.8	63.0
Public	7.1	24.2	23.7	22.1	22.0	22.1	22.1
Private	67.7	50.4	44.2	38.3	36.7	38.7	40.9
External sector	8.0	-0.9	8.2	17.2	18.8	15.3	11.4
Exports	47.4	40.8	49.7	54.6	53.9	51.3	48.3
Imports	-39.3	-41.6	-41.5	-37.4	-35.8	-36.8	-36.9
Source: Domestic authorities and IMF data							

The year 2007 was an eventful one in Nigeria, both politically and economically. Growth slowed in the face of continued turmoil in the oil-producing Niger Delta, but medium-term economic prospects are supported by high oil prices and prudent macroeconomic policies. The National Economic Empowerment and Development Strategy (NEEDS), which is targeted at accelerating economic growth, reducing poverty, and achieving the Millennium Development Goals (MDGs), remains the guiding framework for economic reforms. Oil revenues have been managed carefully, with "excess" revenues saved under the oil price fiscal rule. Nigeria successfully completed a two-year Policy Support Instrument (PSI) with the IMF in mid-October 2007. Economic performance was mixed in 2007; real GDP growth slowed to an estimated 3.2 per cent and inflation remained in single digits at 6.7 per cent.

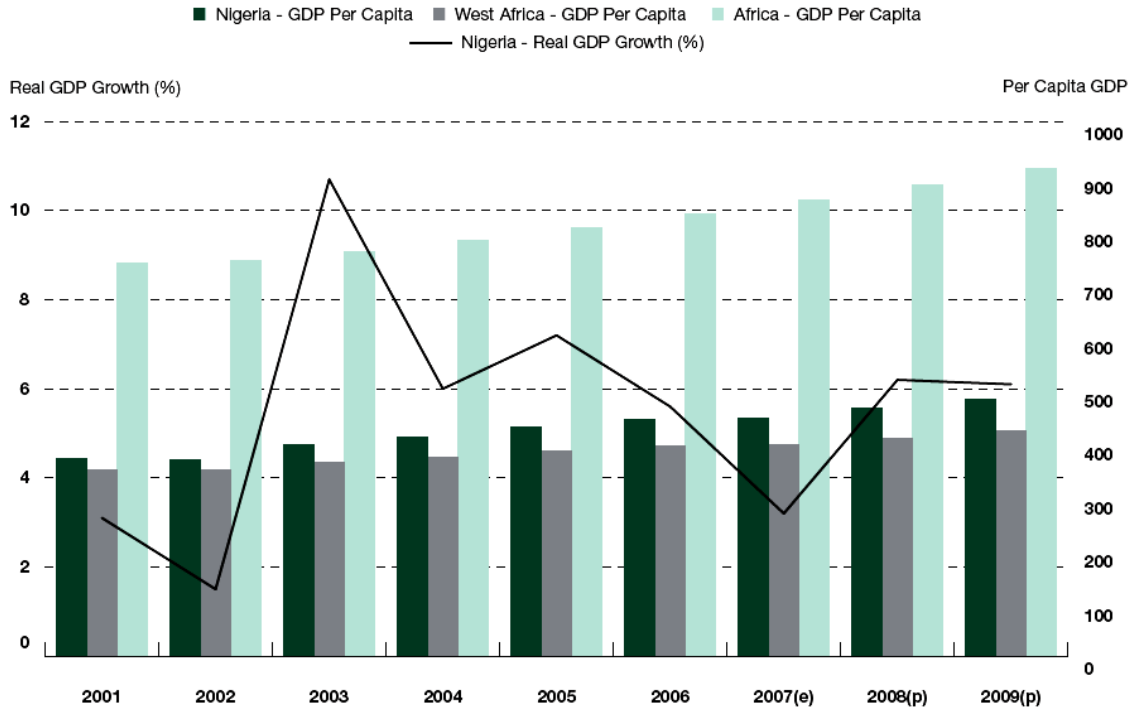
In addition, progress was registered in the financial sector, debt management, foreign reserves management, exchange rate stability and the fight against corruption. Fiscal prudence was institutionalised through enactment of the National Procurement and the Fiscal Responsibility Acts. Nevertheless, the Nigerian economy is still characterised by dismal infrastructure, widespread insecurity, high levels of poverty, and simmering political and

ethnic tensions, notably in the oil-producing areas. (AfDB/OECD , 2008). NEEDS is successfully spear-heading efforts to address structural and institutional weaknesses of the economy, tackle corruption and overhaul public expenditure management. Following the completion of the first phase (2004-07), an enhanced programme with more ambitious targets is at the final stage of approval, having undergone several reviews. Similarly, the government is continuing to improve governance and transparency, notably through the Nigerian Extractive Industries Transparency Initiative (NEITI) for the oil and gas industry. All these efforts are intended to improve the investment climate.

In recent years Nigeria has made significant progress towards sustainable growth and macroeconomic stability, taking advantage of high world prices of oil to undertake bold economic reforms. Real GDP growth averaged 6.5 per cent during the period 2003-07, but has slowed from a high of 10.7 per cent in 2003 to 7.2 per cent in 2005, 5.6 per cent in 2006 and an estimated 3.2 per cent in 2007, largely because of the disruptions in oil production in the Niger Delta. Real oil output contracted by 4.5 per cent in 2006, after very weak growth of 0.5 per cent in 2005.Oil output is estimated to have contracted further by 5.6 per cent in 2007. On the other hand, non-oil sector performance has been very encouraging, with growth of 8.6 per cent in 2005, 9.4 per cent in 2006, and an estimated 9.8 per cent in 2007. With the relative stability in the Niger Delta following negotiations between the government and local militants, along with increased offshore investments in the oil sector, oil production is projected to respond gradually in the short term.

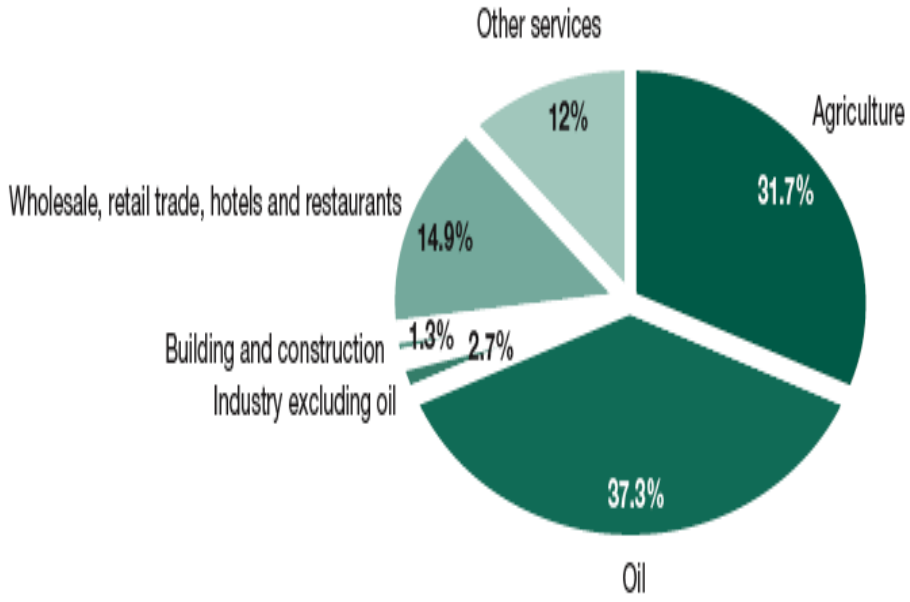
Consequently, real GDP is projected to grow by 6.2 per cent in 2008 and 6.1 per cent in 2009. The leading non-oil sectors were telecommunications, general commerce, manufacturing and agriculture. Agriculture, constituting 31.7 per cent of GDP, grew by an estimated 7.7 per cent in 2007 compared to 7.4 per cent growth in 2006. Manufacturing grew by 9.9 per cent in 2007, though it constitutes only about 4 per cent of real GDP. The rapid growth of the communication sector continued in 2007 with a growth rate of 32.9 per cent following 28.4 per cent and 34.5 per cent in 2005 and 2006 respectively. Total investment is estimated to have increased by 15.2 per cent in 2007 with a projection of 12.2 per cent and 7.2 per cent growth in 2008 and 2009 respectively. Private investment and private consumption remain the key drivers of real GDP, contributing 3.2 per cent and 4.4 per cent to real GDP growth in 2007. The weak growth of the oil sector continued to dampen the contribution of the external account to growth. These explanations can be seen in the figure 2.2 and 2.3 below.

Figure 2 - Real GDP growth and Per Capita GDP ($US at constant 2000 prices)



Source: African Economic Outlook, 2008

Figure 3 - GDP by Sector in 2006 (percentage)



Source: African Economic Outlook, 2008

4. Research Methodology and Analysis

In line with similar studies on FDI and economic growth especially across countries, the study used a linear regression approach in determining the influence and relationship which Foreign Direct Investment has in Nigeria's economic growth. It looked at Foreign Direct Investment (FDI) and economic growth in relationship with other macroeconomic variable like exchange rate, and inflation rate. The statistical methods used include the Ordinary Least Squares Method (OLS), Unit root test and Cointegration Test.

$$InGDP = \gamma_0 + \sum_{i=1}^{k+d} \alpha_{1i} InGDP_{t-1} + \sum_{i=1}^{k+d} \beta_{1i} InFDI_{t-1} + \sum_{i=1}^{k+d} \lambda_{1i} InEXRATE_{t-1} + \sum_{i=1}^{k+d} \delta_{1i} InINFRATE_{t-1} + \varepsilon_{1t} \quad \text{.....(i)}$$

$$InFDI = \psi_0 + \sum_{i=1}^{k+d} \kappa_{1i} InFDI_{t-1} + \sum_{i=1}^{k+d} \mu_{1i} InGDP_{t-1} + \sum_{i=1}^{k+d} \eta_{1i} InEXRATE_{t-1} + \sum_{i=1}^{k+d} \rho_{1i} InINFRATE_{t-1} + \varepsilon_{2t} \quad \text{.....(ii)}$$

where ln*GDPGR* and ln*FDI* are, the natural logarithm of GDP growth (proxy for economic growth) and of foreign direct investment respectively, and INFL and EXCO represent inflation rate and exchange rate that is macroeconomic stability. *k* is the optimal lag order, *d* is the maximal order of integration of the variables in the system and ε_1 and ε_2 are error terms that are assumed to be white noise. Each variable is regressed on each other variable lagged from one (1) to the $k+d_{max}$ lags in the SUR system, and the restriction that the lagged variables of interest are equal to zero is tested. Finally, in order to determine the direction of causality between this two variables; FDI and economic growth, the Granger no-causality test is applied.

Hypothesis 1

To test hypothesis One, we restate it in null and alternate forms as -

Ho: Growth in foreign direct investment is not a major determinant of economic growth in Nigeria.

H_A: Growth in foreign direct investment is a major determinant of economic growth in Nigeria.

Results

From our findings, we were able to ascertain that foreign direct investment inflow into Nigeria for the period under review is a major determinant of economic growth in the country.

Table 3: OLS Regression

Dependent Variable: GDP

Method: Least Squares

Sample: 1981 2007

Included observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	898800.1	1002023.	0.896986	0.3783
FDI	258.1693	51.68672	4.994887	0.0000
R-squared	0.499488	Mean dependent var		3825390.
Adjusted R-squared	0.479468	S.D. dependent var		5854329.
S.E. of regression	4223775.	Akaike info criterion		33.42154
Sum squared resid	4.46E+14	Schwarz criterion		33.51753
Log likelihood	-449.1908	F-statistic		24.94890
Durbin-Watson stat	1.066784	Prob(F-statistic)		0.000038

Estimation Command:

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LS GDP C FDI

Estimation Equation:

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GDP = C(1) + C(2)*FDI

Substituted Coefficients:

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GDP = 898800.0969 + 258.1693386*FDI

Looking at table 3 above, we can see that the probability value 0.0000 is lower than 0.5 which suggest the rejection of the null hypothesis for a two tailed test at 5% significance level. It can also be seen that the calculated t-value of 4.994 for FDI is equally significant at the 5% level of significance. By this, the null hypothesis that growth in foreign direct investment is not a major determinant of economic growth in Nigeria is rejected, thereby accepting the alternate hypothesis that the growth in foreign direct investment is a major determinant of economic growth in Nigeria. This implies that it is foreign direct investment that drives economic growth in Nigeria, showing that economic growth which has been experienced in Nigeria for the period under review has a lot to do with the inflow of foreign direct investment into the country.

Hypothesis 2

To test hypothesis Two, we restate it in null and alternate forms as -

Ho: There is no long-run relationship between FDI and economic growth in Nigeria.

H_A: There is a long-run relationship between FDI and economic growth in Nigeria.

Results

In checking for long-run relationship between the said variables, that is GDP, FDI, EXRATE and INFRATE, the Johansen cointegration test was employed in our modified model. From table 4 below, the trace statistics which tests the null hypothesis of cointegrating relations against the alternative hypothesis (124.4197 and 40.2176 at none and at most 1 respectively) is greater than the critical value of 47.21/54.46 and 29.68/35.65 at 5% and 1% levels respectively. This denotes the rejection of the null hypothesis at 5% and 1% level of significance, showing that there is a cointegrating relationship between the variables GDP, FDI, EXRATR and INFRATE. This indicates that there is a long-run relationship between GDP which was used as a proxy for economic growth and other variables. The result also shows that despite being individually non-stationary, linear combinations of the variables are cointegrated. From these findings, we reject the null hypothesis which states that there is no long-run relationship between FDI and economic growth in Nigeria and therefore accept the alternate hypothesis that there is a long-run relationship between FDI and economic growth in Nigeria.

Table 4: Result of Johansen cointegration test

Sample(adjusted): 1984 - 2007				
Included observations: 19				
Excluded observations: 5 after adjusting endpoints				
Trend assumption: Linear deterministic trend				
Series: IN_GDP IN_FDI IN_EXRATE IN_INFRATE				
Lags interval (in first differences): 1 to 2				
Unrestricted Cointegration Rank Test				
Hypothesized		Trace	5 Percent	1 Percent
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Critical Value
None **	0.988106	124.4197	47.21	54.46
At most 1 **	0.865360	40.21760	29.68	35.65
At most 2	0.081476	2.119745	15.41	20.04
At most 3	0.026228	0.504985	3.76	6.65
*(**) denotes rejection of the hypothesis at the 5%(1%) level				
Trace test indicates 2 cointegrating equation(s) at both 5% and 1% levels				
Hypothesized		Max-Eigen	5 Percent	1 Percent
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Critical Value
None **	0.988106	84.20215	27.07	32.24
At most 1 **	0.865360	38.09786	20.97	25.52
At most 2	0.081476	1.614761	14.07	18.63
At most 3	0.026228	0.504985	3.76	6.65
*(**) denotes rejection of the hypothesis at the 5%(1%) level				
Max-eigenvalue test indicates 2 cointegrating equation(s) at both 5% and 1% levels				
Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):				
IN_GDP	IN_FDI	IN_EXRATE	IN_INFRATE	
5.320715	-2.014583	-4.296426	1.985489	
-2.427806	0.284648	1.942140	-3.348116	

1.114231	-2.497838	0.232472	3.343278	
2.767251	-2.167853	-0.911008	2.765554	
Unrestricted Adjustment Coefficients (alpha):				
D(IN_GDP)	-0.146835	-0.048866	-0.012257	-0.007700
D(IN_FDI)	-0.533662	0.552181	0.007598	0.025069
D(IN_EXRATE)	0.102663	-0.048821	0.045735	-0.026874
D(IN_INFRATE)	-0.252865	0.121526	0.021275	0.045121
1 Cointegrating Equation(s):		Log likelihood	29.91075	
Normalized cointegrating coefficients (std.err. in parentheses)				
IN_GDP	IN_FDI	IN_EXRATE	IN_INFRATE	
1.000000	-0.378630	-0.807490	0.373162	
	(0.01629)	(0.01078)	(0.02478)	
Adjustment coefficients (std.err. in parentheses)				
D(IN_GDP)	-0.781267			
	(0.14969)			
D(IN_FDI)	-2.839464			
	(1.09394)			
D(IN_EXRATE)	0.546242			
	(0.42004)			
D(IN_INFRATE)	-1.345422			
	(0.56369)			
2 Cointegrating Equation(s):		Log likelihood	48.95968	
Normalized cointegrating coefficients (std.err. in parentheses)				
IN_GDP	IN_FDI	IN_EXRATE	IN_INFRATE	
1.000000	0.000000	-0.796578	1.830272	
		(0.05173)	(0.22433)	
0.000000	1.000000	0.028822	3.848374	
		(0.13762)	(0.59676)	
Adjustment coefficients (std.err. in parentheses)				

D(IN_GDP)	-0.662629	0.281902		
	(0.13415)	(0.04667)		
D(IN_FDI)	-4.180053	1.232284		
	(0.53580)	(0.18640)		
D(IN_EXRATE)	0.664769	-0.220720		
	(0.45178)	(0.15717)		
D(IN_INFRATE)	-1.640464	0.544009		
	(0.57251)	(0.19917)		
3 Cointegrating Equation(s):		Log likelihood	49.76706	
Normalized cointegrating coefficients (std.err. in parentheses)				
IN_GDP	IN_FDI	IN_EXRATE	IN_INFRATE	
1.000000	0.000000	0.000000	9.125249	
			(2.08564)	
0.000000	1.000000	0.000000	3.584425	
			(0.50074)	
0.000000	0.000000	1.000000	9.157898	
			(2.51938)	
Adjustment coefficients (std.err. in parentheses)				
D(IN_GDP)	-0.676287	0.312519	0.533111	
	(0.13438)	(0.07272)	(0.10655)	
D(IN_FDI)	-4.171586	1.213304	3.367019	
	(0.54523)	(0.29503)	(0.43232)	
D(IN_EXRATE)	0.715728	-0.334958	-0.525270	
	(0.45087)	(0.24397)	(0.35750)	
D(IN_INFRATE)	-1.616758	0.490867	1.327382	
	(0.58128)	(0.31454)	(0.46090)	

5. Findings and Conclusion

The analysis revealed that the inflow of foreign direct investment is one of the major determinant of economic growth and development in Nigeria for the period under review. Also, the study revealed that the variables (GDP, FDI, EXRATE and INFRATE) that were

used for the study were cointegrated and have a stable relationship in the long-run. A major implication of this study is that policy makers must devise policies that would create environment to attract foreign direct investments (FDIs). This is in line with the suggestion of (Egbo, 2010), that the government needs to better its effort in checking the incidence of corruption and moreover increase their quest in further liberalization of other sectors of the economy which will be good to the Nigerian economy as a whole. This is necessary because of the ability of foreign direct investments (FDIs) to enhance long run sustainable economic growth.

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