Foreign Capital Inflows and Economic Growth in Nigeria: An Empirical Approach

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Abstract

Foreign capital inflows have been considered as focal to the process of economic development of any economy, especially the developing countries. As such, they resort to it as the primary means to achieving rapid economic growth. Despite the foreign inflows, the growth experience of the developing countries, Nigeria not excluded, have not been encouraging and they languish in external debt problem and in poverty. Hence, the study attempts to examine the nature of causality between foreign capital inflows components and real GDP(economic growth) and also, the impact of foreign capital inflows on economic growth in Nigeria. The reason for specific country case study is that pervious studies are cross-sectional in nature and each of the country has unique features which could hamper the result of the analysis. Thus, there is need to examine Nigeria's situation. The dynamic interaction among aid, remittance, FDI and external debt and growth of the Nigerian economy was examined using the concept of cointegration, variance decomposition and impulse response analysis and Block Exogeneity tests. The result of the cointegration revealed that causal relationship exist between foreign capital inflows and economic growth in Nigeria. The variance decomposition result supports that of cointegration analysis of causality which revealed that, causality runs from foreign aid, remittance(RMC), external debt(TED) and foreign direct investment(FDI) to real GDP(growth). Responses of the real GDP to one standard deviation innovations of the components of foreign capital inflows do appear to be very sensitive. The shocks appear to be very pronounced within the forecast period. However, the block of exogeneity tests shows that the granger causality runs from remittance(RMC) and external debt(TED) to real GDP(growth) only. Only remittance(RMC) and external debt(TED) are significant. But jointly they all enter the model. However, the result of the error correction model shows that there is a significant positive, negative, positive and negative effect of foreign aid, remittance, FDI and external debt on real GDP respectively. It takes some time before their impacts are manifested except FDI.

Key words: Foreign capital inflows, Foreign direct investment, Remittance, Aid, External debt, Growth and causality.

I. Introduction

The key components of the movement towards economic globalization or integration by the world economy is foreign capital flows. The need for foreign capital to complement domestic resources in the economic growth process has been welcomed as a catalyst of development, since it is considered as the central element of the process of economic growth. Its origin does not matter. In the face of resource deficiency in financing long term development, the capital-deficient economies have heavily resorted to foreign capital as the primary means to achieve rapid economic growth. Unfortunately, the growth experience of many of the economies has not been very satisfactory. Hence, they accumulate huge external debt in relation to gross domestic product and face with serious debt servicing problems in terms of foreign exchange flow and also walloping in abject poverty. Conversely, the experience of a small number of fast growing East-Asian newly industrialized nations has strengthened the belief that foreign capital is the central element of the process of economic development, since it could bridge the resource gap of these economies and avoid further build up of debt while tackling the causes of poverty directly.

The UNCTAD World Investment Report 2006 shows that Foreign Direct Investment (FDI) inflow to West Africa is mainly dominated by inflow to Nigeria, who received 70% of the sub-regional total and 11% of Africa's total. Out of this, Nigeria's oil sector alone received 90% of the FDI inflow. The Library of Congress-Federal Research Division report(2008) shows that 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. Most FDI is directed toward the energy sector. As at August 2007, World Bank assistance to Nigeria involved 23 active projects with a total commitment value of about US$2.67 billion. Since Nigeria joined the World Bank in 1961, the World Bank has assisted it on 123 projects. Also, in 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.

Foreign capital flows consist of the movement of financial resources from one country to another. In this context, capital flows is a broad term which includes different kinds of financial transactions such as; lending by governments, and international organizations; bank lending, short and long-term; investment in public or private bonds; investment in equities; and direct investment in productive capacity

(Obadan, 2004). Each of these has different effect on economic growth and expose capital market to risks. Generally, foreign capital inflows depends on a variety of features of the host economy which include among others; its market size, level of education, institutional environment, tax laws, and overall macroeconomic and political environment(Aurangzeb and UI Haq, 2012).

It is important to highlight that the relation of these variables (GDP, foreign capital flows) has a theoretical foundation. This was not discussed here. See Obadan(2004, P46-47) for the theoretical framework.

With this background, this paper attempted to analyze the nature of causalities between foreign capital inflows and economic growth and as well the impact of foreign capital inflows on economic growth in Nigeria during the sample period.

The paper proceeds as follows. Section II provides the related literature. Section III presents the methodology. Empirical results are discussed in section IV, and section V concludes.

2. Literature Review

Many studies have examined the direct effect of foreign capital inflows on economic growth. Some of the studies are reviewed in relation to our study. These studies disaggregated the foreign capital inflows into its components to ascertain the most influential component.

Papanek (1973) in his work disaggregated foreign capital inflows into three principal components: foreign aid, foreign private investment and all other foreign. He examined 34 countries in 1950 and 51 countries in 1960 using a cross sectional data and found out that all the three flows had a statistically significant positive impact on growth. Among the components, foreign aid exhibited stronger effect on economic growth than other factors. Similarly, Burnside and Dollar (2000) estimated a model using a panel data of 56 countries. In estimating the model they employed TSLS method for growth, foreign aid and policy. By making assumptions about the separate effects of foreign aid and policy, they observed that foreign aid had a robust positive impact on economic growth. When they entered foreign aid directly into their model, it was not significant. However, it was significant when interacted with the policy index. Hansen and Tarp (2001) examined the relationship between foreign aid and economic growth in real GDP per capita. Average growth rate in 56 countries covering the year 1974-1993 in five period was regressed on several policy and institutional control variables and foreign aid. They observed that foreign aid increased the growth rate and was not conditional on good policy as suggested by Burnside and Dollar (2000).

Oyinlola (1995) disaggregated foreign capital into; foreign loans, direct foreign investments and export earnings. Using Chenery and Stout's two-gap model, he observed that FDI has a negative effect on economic development in Nigeria. In the same vein, Adelegan (2000) examined the impact of FDI on economic growth in Nigeria in a seemingly unrelated regression and found out that FDI is pro consumption and pro-import and negatively related to gross domestic investment. Akinlo (2004) in his study revealed that foreign capital has a small and not statistically significant effect on economic growth in Nigeria. Ayanwale (2007) also analysed the empirical relationship between non-extractive FDI and economic growth in Nigeria. Using OLS estimates, he observed that FDI has a positive link with economic growth but cautioned that the overall effect of FDI on economic growth may not be significant. Chakraborty and NunnenKamp, (2006) analyzed the effect of foreign direct investment and economic reforms in India. The study centered on industry specific FDI and its growth, by using Granger Causality and panel cointegration. Their results showed that the growth effects of FDI vary widely across different sectors. There was no casual relationship found in case of Primary sector. While only transitory effect of FDI on output was found in the service sector. These differences in FDI -Growth relation suggests that FDI is unlikely to make wonders in India if only regulations are relaxed and still more industries are opened up. Herzer et al (2006) employing a bivariate VAR modeling technique, observed a positive FDI-led growth relation for Nigeria, Sri Lanka, Tunisia, and Egypt. Based on weak exogeneity tests, a long-run causality between FDI and economic growth running in both directions was observed for the same set of countries. In a seemingly unrelated model, Okodua (2009) examined the sustainability of the FDI-growth relationship in Nigeria. Using the Johansen cointegration framework and a multivariate VAR within a vector error correction model. He observed a long-run equilibrium relationship between economic growth and FDI inflows. The study also revealed a unidirectional causality from FDI to economic growth. Duasa, (2007) analyzed the FDI- growth relation with respect to stability in Malaysia. Quarterly data from the first quarter of 1990 to fourth quarter 2002 is collected. GARCH and causality are applied to analyze the impact of FDI on the stability of economic growth, and causal relationship between FDI and growth respectively. The study reveled no strong causal relationship between FDI and economic growth. However it was found that flow of FDI contributes less to the volatility of economic growth and vice versa. Hence, Malaysia FDI does not cause economic growth but it does provide stability to economic growth. Tiwari and Mutascu (2011) also examined the relationship between economic growth and FDI for Asian countries using Panel data approach. The sample period comprises 1986 to 2008, and they analyzed data of 23 countries. Hence, they observed that both foreign

direct investment and exports enhances the growth process. Also that, labor and capital also play a significant role in economic growth.

Hameed et al, (2008) in their analysis examined the impact of external debt on economic and business growth in Pakistan for the period 1970-2003. They applied cointegration and error correction model on the annual data. Their results showed that debt servicing has a negative relation with labor and capital, hence affects economic growth adversely. It was also observed that a negative relationship exists between debt servicing and GDP, which reduces the debt servicing ability of the country in the long run. A short run and long run causal relation was also established running from debt to service to GDP. Malik et al, (2010) also examined the relationship between external debt and economic growth in Pakistan for the period of 1972-2005. A simple OLS model was used for the analysis. The results showed a negative and significant relation between external debt and economic growth. The relationship between debt servicing and economic growth also exhibited the same pattern.

Mohamed and Sidiropoulos(2010) in their study, analyzed the effect of workers remittance on economic growth. The data for this were sourced from the seven MENA countries for the period of 1975-2006. Both fixed effect and random effect models were used for empirical analysis. Their results showed support for fixed effect models, and revealed that remittances have a positive impact on economic growth both directly and indirectly via their interaction with financial and institutional channels.

Bowen(1998) carried out a study to measure the direct and indirect relation between foreign aid and economic growth using a cross-sectional data for 67 less-developed economies for the period, 1970-1988. He observed an indirect foreign aid-growth relationship through its interaction with domestic savings and was significant and negative. Similarly, Razzaque and Ahmed (2000) estimated a time-series relationship between foreign aid and domestic savings for Bangladeshi for the period, 1973-1998 using cointegration technique. They observed a negative relationship between domestic savings and foreign aid. The short-run relationship between these two variables was significantly negative. However, the estimated coefficient of foreign aid from different techniques varied. Furthermore, the empirical study of Hansen and Tarp(2000) which looked at the effects of foreign aid on savings, investment and growth was reviewed. In their study they classified 131 regression results. The explanatory variables included are identified measure of foreign aid in the first group with a total of 104 regressions and aggregate foreign inflow measures in the second group with a total of 27 regressions in which aid was not separated from the various aggregate foreign inflows measures. They observed that most of the studies revealed a significant positive effect of foreign aid and foreign resources inflows on economic growth and investment. In the case of savings, most of the empirical studies revealed a negative effect of foreign and foreign resources inflows on domestic savings.

In decomposing foreign capital inflows into its various components, Aurangzeb and UI Haq(2012) examined the impact of foreign capital inflows on economic growth of Pakistan for the period of 1981-2010. A multiple regression analysis technique was used to identify the significance of different factors. Their results indicate that the three independent variables(remittances, external debt and foreign direct investment) are positive and have a significant relationship with economic growth (GDP). Also. They observed that the Granger-Causality test showed a bidirectional relationship between remittances and external debt, GDP and external debt, foreign direct investment and external debt, and foreign direct investment and remittances. On the other side the results revealed a unidirectional relationship from gross domestic production to foreign direct investment. Hence, they concluded that foreign capital inflows are very important for the growth of any economy.

Despite the large number of literatures on foreign capital inflows-growth relation, the issue is not clearly resolved. Some studies find evidence of positive and negative relationship between foreign capital inflows-growth respectively, while others finds such nexus subtle, and another group finds such relation dependent on domestic policies, country characteristics, economic and institutional environment and donors interest. Also most of the studies on foreign capital flows-growth are cross sectional, such results obtained by cross-country studies must be treated with great caution as they are subject to extreme limitations. Such limitations include; a common economic structure and similar production technology across different countries which appears not be accurate in reality. However, this study is an attempt to contribute to the existing literatures on foreign inflows and economic growth in Nigeria.

However, in specifying the relationship between foreign capital inflows and growth in Nigeria, the study anchors on the model built by Aurangzeb and UI Haq (2012) which disaggregated foreign capital inflows into various components. The studies that focus on Nigeria have not appreciably attempt to assess the contribution of various components of foreign capital inflows and among others to Nigeria's economic growth simultaneously. This gives right to an empirical investigation to know if there is any causal relationship between each of these components and economic growth in Nigeria. If there exist causal relationship, what role does each of these components plays in relation to economic growth? Also, decomposing foreign capital inflows enables policy makers in Nigeria to have a bearing when designing foreign inflows promotion policy and when negotiating the investment bilateral agreement and regime liberalization to allow foreign capital inflows and see how to embark on policy that attracts foreign capital inflows into the country.

3. Data and Methodology

This section focuses on the analytical procedure and the data adopted in this study. The data for this study were obtained from secondary sources. Specifically, annual time series data of the variables were obtained. The data include; gross domestic production as a dependent variable while foreign aid(official development aid), remittance, foreign direct investment and external debt are collected as independent variables for the period of 1981 to 2010. The data are sourced from Central Bank of Nigeria(CBN) statistical bulletin, OECD.Stat, Global Development Finance Statistics, International Development Statistics and Nigerian Capital Market Statistical Bulletin. Unlike Aurangzeb and UI Haq (2012), most of the data on the components of foreign capital inflows are not available in Nigeria except foreign direct investment and external debt and have no quarterly variation, hence foreign direct investment and external debt annual series are used for analysis.

In attempting to establish the relationship between foreign capital inflows components and growth, the study employed econometric techniques such as; cointegration test, this enables us establish a long-run relationship between the variables and growth and as a basis for causality(Engle and Granger ,1987; Hendry, 1986 and Granger, 1986). If variables are cointegrated it means causality exist (Granger, 1988, Miller and Russek, 1990). Error-Correction Modeling (ECM) is employed for analysis since it contains full information on causal relationships and the dynamic interactions among the cointegrating variables. However, Since most time series are prone to unit root problem, therefore, before carrying out cointegration test and ECM analysis, the unit root test is conducted on the series using Augmented Dickey-Fuller(ADF) and Philips Perron test. This enables us test for stationarity of the variables included in the model. Vector Autoregressive (VAR)(Impulse response functions and Variance Decompositions) is also employed. This is because the vital information contain in cointegrating variables is made clearer through variance decomposition and impulse response analysis. Also, multivariate granger causality test(block exogeneity test) is conducted through the Vector Autoregressive (VAR) technique. The rational for this test is to determine how the variables enter the model. It enables us know how the granger causality runs from these variables to growth.
Given the above discussion, the functional relationship between foreign capital inflows and economic growth of Nigeria are expressed in the following way:

Growth = f(AID,RMT, FDI, ED)……3.1

Where *Growth* represents economic growth (*real GDP*), and *AID, RMC, FDI, and TED,* represents foreign aid, remittance, foreign direct investment, and external debt

respectively. Equation (3.1) can only be estimated in its econometric form which is stated as follows:

$$Growth_t = \theta_0 + \gamma_1 AID_t + \gamma_2 RMC_t + \gamma_3 FDI_t + \gamma_4 TED_t + \varepsilon_t \quad \text{.....3.2}$$

θ_0 denotes the constant term, γ_1, γ_2, γ_3 and γ_4 are slope coefficients representing parameters to be estimated and ε_t is the disturbance term assumed to be purely random. On a priori expectation $\gamma_1 \gamma_2 \gamma_3 > 0$, $\gamma_4 \; >< 0$.

4. Results Analysis

As a necessary but not sufficient condition for cointegration, each of the variables has been examined to determine whether it is stationary and, its order of integration. To achieve this, two set of unit root tests for stationarity are applied and these include the Augmented Dickey-Fuller (ADF) and the Philips-Perron (PP) tests (Dickey and Fuller, 1979; Phillips and Perron, 1988). The results of the Augmented Dickey-Fuller (ADF) and Phillips-Peron (PP) unit roots test results are reported in Table 4.1 below.

Table 4.1: Results of Unit Root Stationarity Test

Variables		Augmented Dickey Fuller test(ADF)		Philips- Perron test(PP)	
		Level	First Difference	Level	First Difference
Growth		4.445400*	-7.923926*	0.364833	-6.468553*
AID		-6.146592*	-9.174521*	-2.869736***	-11.54895*
RMC		6.046511*	0.594601	0.225742	-4.051737*
FDI		3.766328*	-3.551563**	3.712584*	-3.770384*
TED		1.254445	-4.643677*	-1.412436***	-3.156648**
Critical values	1%	-3.689194	-3.689194	-3.679322	-3.689194
	5%	-2.971853	-2.971853	-2.967767	-2.971853
	10%	-2.625121	-2.625121	-2.622989	-2.625121

Notes: * indicates significant at one percent or a rejection of the null of no unit root at the one percent level

** indicates significant at five percent or a rejection of the null of no unit root at the five percent level

*** indicates significant at ten percent or a rejection of the null of no unit root at the ten percent level

MacKinnon (1996) one sided p-values

As shown in table 4.1 above, PP tests reveal that all variables are integrated of order one with intercept terms. Meaning that each series is first difference stationary using the PP test. This shows that the presence of a unit root in any of the variables under the PP tests cannot be rejected. However, the ADF test result is not as impressive as PP tests. In ADF test the remittance variable failed the differenced stationarity test. Therefore, this give more credence to the PP test because of its validity even if the disturbances are serially correlated and heterogeneous while the ADF tests require that the error term be serially uncorrelated and homogeneous. Given the unit-root properties of the variables, we proceeded to establish whether or not there is a long-run cointegrating relationship among the variables in equation (3.2) by using the Johansen full information maximum likelihood method (Johansen and Juselius, 1990).

Table 4.2: Results of the Johansen Co-integration Test

Panel A.		**TRACE TEST**		
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value (0.05)	Prob.**
None *	0.990300	202.5019	69.81889	0.0000
At most 1 *	0.790437	72.70459	47.85613	0.0001
At most 2	0.328178	28.94813	29.79707	0.0624
At most 3*	0.311149	17.81081	15.49471	0.0220
At most 4*	0.231542	7.374353	3.841466	0.0066
Panel B.		**MAXIMUM EIGENVALUE**		
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	Critical Value (0.05)	Prob.**
None *	0.990300	129.7973	33.87687	0.0000
At most 1 *	0.790437	43.75646	27.58434	0.0002
At most 2	0.328178	11.13733	21.13162	0.6336
At most 3	0.311149	10.43645	14.26460	0.1848
At most 4*	0.231542	7.374353	3.841466	0.0066

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Panel C. Normalized cointegrating coefficients

RGDP = 2413.5AID - 324.80RMC + 9.669FDI - 0.258TED
(69.7983)* (52.6811)* 2.44463)* (0.10218)*

Note: * indicates rejection of the null hypothesis at 5% significance level.
Standard error are in parentheses are in the parentheses below the coefficients.

The results of the cointegration test are reported in Table 4.2 above. The results reported the trace and maximum eigenvalue statistics. These results reveal that the null-hypothesis of no-cointegrating vector between real GDP(economic growth) and foreign capital inflows components is rejected at the 5% level of significance. The trace test statistics show that there is four cointegrating relationship. The maximal eigenvalue statistics reveal three cointegrating relationships among real GDP and foreign capital inflows components. Johansen and Juselius (1990) recommend the use of the trace statistics when there is a conflict between the trace statistics and maximal eigenvalue statistics. Since the trace statistics takes into account all of the smallest eigenvalues, it possesses more power than the maximal eigenvalue statistic (Serletis and King, 1997; and Kasa, 1990). The conclusion drawn from this result is that there exists a unique long-run relationship between real GDP(economic growth), AID, RMC, FDI and TED. An economic interpretation of the long-run function of the model(3.2) can be obtained by normalizing the estimates of the unconstrained cointegrating vector on the real GDP. The parameters (i.e., long-run estimates) of the cointegrating vector for the long-run equation are presented in Panel C of Table 4.2. Also, the results in Panel C of Table 4.2 show a positive and statistically significant relationship between real GDP(growth) and AID and FDI during this period. While the relationship between real GDP(growth) and RMC and TED is shown to be negative and statistically significant. This is not consistent with economic theories. However, the result in general is in line with previous studies(Aurangzeb and UI Haq, 2012, Malik et al, 2010). Without loosing focus, we bear in mind that the existence of cointegration clearly suggests, temporally the existence of a causal relationship between the cointegrating variables as revealed by the result in table 4.2. The full information on causation is revealed in the Error Correction Model (ECM). Hence, we proceed to examine the ECM.

5. Dynamic Specification of the Model

5.1 Error Correction Model

In the short-run, deviations from the long-run relationship established in panel C of table 4.2 could occur due to shocks to any of the variables. In addition, the dynamics governing the short-run behavior of the model are different from those in the long-run. Due to this difference, the short-run interactions and the adjustments to long-run equilibrium are important because of the policy implications.

Table 5.1: Estimates of the Error-Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	8875.101	2891.413	3.0695	0.0083
$\Delta Growth_{t-1}$	0.3466	0.1267	2.7358	0.0161
$\Delta Growth_{t-3}$	-0.0551	0.0497	-1.1094	0.2860
ΔAid_{t-1}	31.2651	9.7524	3.2059	0.0063
ΔAid_{t-2}	16.7458	5.4967	3.0465	0.0087
ΔAid_{t-3}	58.0378	14.4812	4.0078	0.0013
ΔRmc_{t-1}	-16.6488	5.0909	-3.2703	0.0056
ΔRmc_{t-2}	-21.7391	6.9479	-3.1289	0.0074
ΔFdi	0.4149	0.1289	3.2195	0.0062
ΔTed_{t-1}	-0.0097	0.0065	-1.4885	0.1588
ΔTed_{t-3}	0.0237	0.0052	4.5696	0.0004
ECT_{t-1}	-0.2741	0.0853	-3.2145	0.0062

Diagnostic Statistics:
Adj R^2 =0.8111, F-statistic=10.7611(0.0001), BG=0.2090(0.8143), ARCH(2)=0.8154(0.3759), RESET=1.6823(0.2172), JB [χ^2 (2)]=0.3093(0.8567), All variables are in first differences (denoted by Δ) except the lagged error correction term (ECT_{t-1}).
Notes: ARCH: Engle's test for conditional heteroskedasticity; BG: Breusch-Godfrey LM (4) test for serial correlation; JB: Jarque-Bera test for normality of residuals; RESET: Ramsey's test for specification error. [Probability values are in the squared brackets].

The results of the parsimonious short-run dynamic of the model and the various diagnostic tests are presented in Table 5.1 above. As expected, the error correction term *(ECT_{t-1})* is of the expected negative sign and highly significant. This result substantiates the finding of cointegration among the variables reported earlier, but more importantly, it suggests that one cannot overlook the cointegrating relationship among variables in the model; otherwise, this could introduce misspecification in the underlying dynamic structure. The error correction term for changes in real GDP is highly significant even at the one percent level. What this means is that a long-run causality running from AID, RMC, FDI and TED to real GDP(growth) exist in Nigeria during the sample period. The result shows that there is a significant positive, negative, positive and negative effect of foreign aid, remittance, FDI and external debt on real GDP respectively. This takes some time before their impact are manifested except FDI.

The diagnostic tests reported in Table 5.1 above show that there is no evidence of diagnostic problem with the model. The coefficient of determination (adjusted R2) used in measuring the goodness-of-fit of the estimated model, indicates that the model

is reasonably accurate in prediction. Looking at the probability value of the Jarque-Bera (JB), which is given in the bracket, the null hypothesis of normally distributed residuals cannot be rejected. The Lagrange Multiplier (LM) test of no error autocorrelation suggests that the residuals are not serially correlated. The Autoregressive Conditional Heteoskedasticity tests [ARCH (4)] reveal that the disturbance term in the equation is homoskedastic. The Ramsey RESET test result shows that the calculated F-value is less than the critical value at the five percent level of significance. This is an indication that there is no specification error.

5.2 Impulse Response Analysis

The impulse response functions is presented in figure I below.

Figure I: Impulse Response Function

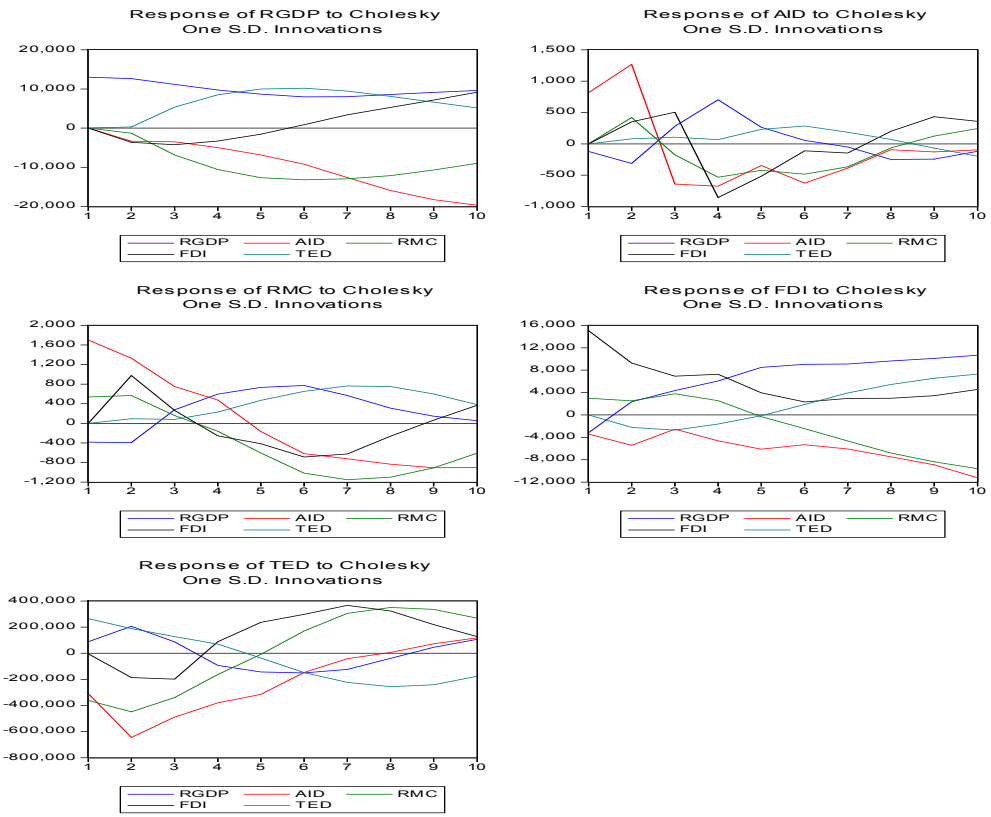

Figure I above reveals the effects of one standard deviation shocks on each of the variables over time horizon. As shown by the results the impulse responses do appear to be very sensitive to the ordering of variables. Given the signs of the responses, innovations to real GDP(growth) produced somewhat constant positive response from the four variables under consideration. Similar explanations are applicable to the others in variables.

5.3 Decomposition of Variance Analysis

Here, the sensitivity of the variables are considered. In doing this we employ a ten year forecasting (in-sample forecast) time horizon and observed the relevance of the variable over time horizon. However, only variance decomposition of real GDP(growth) is shown because of space.

Table 5.2: Variance Decomposition of Real GDP(Growth)

Period	S.E.	RGDP	AID	RMC	FDI	TED
1	13009.53	100.0000	0.000000	0.000000	0.000000	0.000000
2	18846.68	92.69764	3.130188	0.491790	3.657561	0.022822
3	24214.23	77.44000	3.973926	8.339640	5.294436	4.952002
4	30019.02	60.96389	5.311500	17.81222	4.649620	11.26277
5	35860.85	48.59304	7.387589	24.90645	3.439974	15.67294
6	41397.00	40.20753	10.49583	28.83077	2.627304	17.83857
7	46977.73	34.15628	15.38642	29.97261	2.570005	17.91468
8	52679.21	29.82934	21.35800	29.12836	3.050330	16.63398
9	58324.46	26.78048	27.22591	27.13907	3.994192	14.86034
10	63826.84	24.63117	32.25055	24.64832	5.410353	13.05961

Cholesky Ordering: RealGDP FDI RMC AID TED

Table above gives the fraction of the forecast error variance for each variable that is attributed to its own innovation and to innovations in another variable. The own shocks of the real GDP(growth) constitute a significant source of variation in growth forecast error in the time horizon, ranging from 100% to 25%. Ten years after, variation in growth are accounted by aid(32%), remittance(25%) and external debt (13%) shock while that of foreign direct investment(5%) is relatively small in Nigeria over the sample period. The salient feature of this, is that the predominant sources of variation in growth are aid and remittance. Similar explanations hold for the variations in growth in the other forecast periods. This shows that the granger causality runs

from aid, remittance(RMC), external debt(TED) and foreign direct investment(FDI) to real GDP(growth).

5.4 Block Exogeneity Tests

Block Exogeneity tests are used to determine how the variables enter the model. It is a multivariate generalization of the granger causality tests.

Table 5.3: VAR Granger Causality/Block Exogeneity Wald Tests

Included observations: 28

Dependent variable: RGDP

Excluded	Chi-sq	Df	Prob.
FDI	1.724817	2	0.4221
AID	2.387897	2	0.3030
RMC	5.216808	2	0.0737
TED	9.503242	2	0.0086
All	19.84651	8	0.0109

The block of Exogeneity tests in table 5.3 reveal that remittance and external debt(TED) should enter the model at two lags. This shows that the granger causality runs from remittance(RMC) and external debt(TED) to real GDP(growth), which opposes theory and empirical study in terms of FDI and Aid. Only remittance(RMC) and external debt(TED) are significant in the model. But jointly they all enter the model.

6. Conclusion

This study examined the causal relationship between foreign capital inflows and economic growth and as well the impact of foreign capital inflows on economic growth in Nigeria during the sample period. A causality analysis of the foreign capital inflows(FDI, AID, Remittance and Total external debt) and economic growth(real GDP) was undertaken in order to verify the relevance of the foreign capital inflows-led growth hypothesis in the Nigerian economy. The results from the analysis revealed that causal relationship exist between foreign capital inflows and economic growth in Nigeria, which supports the foreign capital inflows-led economic growth hypothesis.

Besides, the dynamic interaction among foreign capital inflows and economic growth of the Nigerian economy was also analyzed using the variance decomposition and impulse response analysis. The result of the variance decomposition supports the result of the cointegration analysis which showed that, a causality runs from aid, remittance(RMC), external debt(TED) and foreign direct investment(FDI) to real GDP(growth). Responses of the real GDP to one standard deviation innovations of the components of foreign capital inflows do appear to be very sensitive. The shocks appear to be very pronounced in the forecast period. However, the block of Exogeneity tests shows that the granger causality runs from remittance(RMC) and external debt(TED) to real GDP(growth) only. Only remittance(RMC) and external debt(TED) are significant. But jointly they all enter the model. However, the result of the error correction model shows that there is a significant positive, negative, positive and negative effect of foreign aid, remittance, FDI and external debt on real GDP respectively. This takes some time before their impact are manifested except FDI.

References

Adelegan, J.O. (2000): "Foreign direct investment and economic growth in Nigeria: A Seemingly Unrelated Model",African Review of Money, Finance and Banking, Supplementary issue of "Savings and Development", Milan. pp.5–25.

Alfaro, Laura, Sebnem Kalemli-Ozcan, and Vadym Volosovych (2008): "Why doesn't capital flow from rich to poor countries? An empirical investigation," Review of Economics and Statistics, 90(2), 347-368.

Akinlo, A.E. (2004): "Foreign direct investment and Growth in Nigeria: An empirical Investigation", Journal of Policy Modeling, 26, pp. 627–39.

Atique, Z., M. H. Ahmad, and U. Azhae (2004). "The impact of FDI on Economic Growth under Foreign Trade Regimes: A Case Study of Pakistan", The Pakistan Development Review, 43 (4), Pp 707-718.

Aurangzeb and A. UI Haq(2012): 'Impact of Foreign Capital Inflows on Economic Growth in Pakistan", European Journal of Economics, Finance and Administrative Sciences, issue 46

Ayanwale, A. B. (2007): "FDI and Economic Growth: Evidence from Nigeria". AERC Research Paper 165. African Economic Research Consortium, Nairobi.

Balasubramanyam, V.N. , Salisu, M. and Sapsford, D. (1996): "Foreign Direct Investment and Growth in EP and IS Countries", The Economic Journal, Vol.106, Pp 92-105.

Barrell, R. and N. Pain (1997): "Foreign Direct Investment, Technological Change, and Economic Growth within Europe", The Economic Journal, Vol.107, Pp 1770-1786.

Bessler, D. and J. Kling, (1985). "A Note on Tests of Granger Causality", Applied Econometrics, Vol.16, Pp 335-342.

Bhalla, S.S(1991): "Economic Policies, Foreign Aid and Economic Development in Sri-Lanka", Lele and Nabi, Pp95-124

Borensztein, E., J. Gregorio, and J. Lee (1998): "How does foreign direct investment affect Economic Growth?" Journal of International Economics, 45 (1), pp. 115-135.

Bowen, J.L(1998): "Foreign Aid and Economic Growth: A Theoretical and Empirical Investigation", Aldershot, Asghate Publishing.

Blomström, M. (1986): "Foreign Investment and Productive Efficiency: The Case of Mexico", Journal of Industrial Economics, Vol.15, Pp 97-110.

Burnside,C. and D. Dollar(2000): "Aid, Policies and Growth",The American Economic Review, Vol.90, No.4, Pp 847-868

CBN (2009): Statistical Bulletin. Central Bank of Nigeria

Chakraborty, C., & Nunnenkamp, P. (2006)."Economic Reforms, Foreign Direct Investment and Its Economic Effects in India", Kiel working papers , 1272, 1-45.

Chenery, H. B. and Stout, A. (1966): "Foreign Assistance and Economic Development", The American Economic Review, Vol. 55, pp.679-733

Cuadros, V. Orts and M.T. Alguacil (2001): "Openness and Growth: Re-Examining Foreign Direct Investment, Trade and Output Linkages in Latin America", Centre for Research in Economic Development and International Trade, CREDIT Research Paper No. 01/04

De Gregorio, Jose. (2003): "The role of Foreign Direct Investment and Natural Resources in Economic Development". Working Paper No 196. Central Bank of Chile, Santiago.

Duasa, J. (2007). "Malaysian Foreign Direct Investment and Growth: Does Stability Matters?", Journal of Economic Corporation , 28 (2), 83-98.

Erjavec, N. and B. Cota (2003): "Macroeconomic Granger-Causal Dynamics in Croatia: Evidence Based on a Vector Error-Correction Modeling Analysis". Ekonomskpregled, 54 (1-2) 139-156

Falki, N. (2009): "Impact of Foreign Direct Investment on Economic Growth in Pakistan", International Review of Business Research Papers. , 5 (5), 110-120.

Fortanier, F. (2007): "Foreign Direct investment and Host Country Economic Growth: Does the investor country of origin Play's a role?", Transitional Corporations, 16 (2), 41-76

Gourinchas, Pierre-Olivier and Olivier Jeanne (2009): "Capital Flows to Developing Countries: The Allocation Puzzle," Peterson Institute Working Paper Series No. 09-12.

Hameed, A., Ashraf, H., & Chaudhary, M. A. (2008): "External Debt and its Impact on Economic and Business Growth in Pakistan", International Research Journal Of Finance and Economics. , I (20), 132-140.

Hansen, H and F. Tarp(2001): "Aid and Growth Regression", Journal of development Economics, Vol.64, No.2, Pp567-570

Herzer, D., Klasen, S., Nowak-Lehmann, D. F. (2006): "In search of FDI-led growth in developing countries: The way forward". Iber American Institute for Economic Research.

Johansen, S. and K. Juselius(1990): "Maximum Likelihood Estimation and Inference on Cointegration with Application to Demand for Money," Oxford Bulletin of Economics and Statistics, 52, Pp 169-210.

Kasa, K(1990): "Common Stochastic Trends in International Stock Markets", Journal of Monetary Economics, 29, 95-124.

Library of Congress-Federal Reserve Division (2008): Country Profile: Nigeria, July.

Malik, S., Hayat, M. U., & Hayat, M. K. (2010): "External Debt and Economic Growth: Empirical Evidence from Pakistan, International Research Journal of Finance And Economics, (44), 88-97.

Miller, S. and F. Russek (1990): "Cointegration and Error Correction Models: The Temporal Causality Between Government Taxes and Spending', Southern Economic Journal, 57, 221-229.

Mohamed, S. E., and M.G. Sidiropoulos (2010): "Do Worker's Remittance Affect Growth: Evidence from Seven MENA Labor Exporting Countries", International Research Journal of Finance and Economics. , I (46), 181-194

OECD (1998): Foreign Direct Investment and Economic Development: Lessons from Six

Emerging Economies. Paris.
Okodua, H (2009): "Foreign Direct Investment and Economic Growth: Co-Integration and Causality Analysis of Nigeria", The African Finance Journal, Vol. 11, Part 1.
Otepola, A. (2002): "FDI as a Factor of Economic Growth in Nigeria. Dakar, Senega". African Institute for Economic Development and Planning (IDEP), May.
Oyinlola, O. (1995): "External Capital and Economic Development in Nigeria (1970–1991)", The Nigerian Journal of Economic and Social Studies, 37(2&3), pp. 205–22.
Papanek, G.F(1973): "Aid, Foreign Private Investment, Savings and Growth in LDC", Journal of Political Economy, vol. 81, No.1, Pp 120-130
Rachdi, H. and H. Saidi (2011): "The Impact of Foreign Direct Investment and Portfolio Investment on Economic Growth in Developing and Developed Economies'. Interdisciplinary Journal of Research in Business. , I (6), 10-17.
Razzaque, A and N. Ahmed (2000): "A Re-examination of Domestic savings, foreign aid, relationship in the context of Bangladesh", The Bangladesh Development Studies, Vol.26. No.4, Pp 1-37
Serletis, A., and M. King(197): "Common Trends and Convergence in European Stock Markets", The Manchester School of Economics and Social Studies, 65, Pp 44-57.
Tiwari, A. K., and M. Mutascu (2011): "Economic Growth and FDI in Asia: A Panel Data Approach", Economic Analysis and Policy. , 41 (2), 173-188
Trevino, Len J. and K. P. Upadhyaya (2003): "Foreign aid, FDI and economic growth: Evidence from Asian countries," Transnational Corporations, 12 (2), pp.119-135.
UNCTAD(2006): World investment report, United Nations, New York
Waheed, A.(2003): "Aid-Saving Nexus in Pakistan: Cointegration, Causality and Error Correction Modeling Approach," Paper Presented in the Fourth Spring Study Meeting of the Japan Society for International Development(JASID), Tokyo, June 14th.
Waheed, A.(2004): "Foreign Capital Inflows and Economic Growth of Developing Countries: A Critical Survey of Selected Empirical Studies", Journal of Economic Cooperation, Vol. 25, No.1, Pp 1-36.
Yousuf, M. M., Hussain, Z., & Ahmad, N. (2008): "Economic Evaluation of Foreign Direct Investment in Pakistan", Pakistan Economic and Social Review , 46 (1), 37-56