Article

The Impact of Export and Import on Economic Growth in Nigeria: Evidence from VAR Approach

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Abstract
The paper examines the impact of import and export on economic growth in Nigeria using Vector Autoregressive (VARs) technique through various types of structural analysis of Granger causality tests, impulse response functions, and forecast error variance decompositions to examine the dynamic effects of various shocks on macroeconomic variables. The results of VAR show that the predominant sources of Nigeria economic growth variation are due largely to "own shocks" and import-export trade innovations. While Johansen Cointegration results showed that there is a stable, long- run relationship between import-export and economic growth, but the magnitude is minimal. In conclusion, the study agreed that government should always embark on policies that will encourage exports with proper implementation of import control measures.

Keywords
Import, export, economic growth, exchange rate, inflation rate

Introduction

The move towards open trade policies in developing countries, after decades of protection, has generated intellectual discussions about its prudence in terms of timeliness and economic rationale. The proponents of open trading argued that an open market policy will lead to a permanent direct annual increase in Gross Domestic Product (GDP), in addition to the indirect benefits that accrue in the form of reduced regressive tax burden and positive dynamic externalities (Mankiw, Romer and Weil, 1992).

Historically, export trade in raw agriculture products in Nigeria dates back to the 16th century. This resulted to bilateral trade between Nigeria and Western World with Nigeria having comparative advantage over agricultural produce in exchange for finished goods and this broadened the Nigeria's foreign earnings through the export of palm oil, cocoa, palm kernel, etc. up to the late 60's as

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this constituted the mainstay of Nigerian economy contributing about 54.7 per cent to GDP (NTJ, 1967).

However, the detection of oil changed the composition and structure of export trade in Nigeria with a radical shift from agriculture, as our major export to oil exportation. The Nigerian economy expanded rapidly, as oil production and export rose phenomenally. During and some few years after SAP, the main manufactured exports were textiles, beer and stout, cocoa butter, plastic products, processed timber, tyres, bottled water, soap and detergents as well as iron rods. However, some of these products have disappeared from the export list owing to poor enabling environment (Export Import Bank, 2009).

More so, the growth of imports during this period is attributed to several factors. These include the need to pursue economic development, the expansion in crude oil export that considerably raised foreign earnings and the over-valuation of the local currency, which artificially cheapened imports in preference to local production (Ajayi, 1975). The astronomical expansion of domestic absorption is a key factor that should not be ignored. As a result part of the growth in domestic absorption had to be satisfied by imports.

Overall, the Nigerian economy is import dependent with very little non-oil exports. It relies heavily on crude oil and gas exports with other sectors trailing far behind. For example, in the recent time crude oil accounts for about 90 per cent of foreign exchange earned by the country while non-oil exports account for the balance. The economy is, therefore, susceptible to external shocks via the oil industry. In recent times, these shocks have been caused by either developments in the international crude oil market or the restiveness in the Niger Delta region of the country (CBN annual report, 2014).

From the foregoing there is need to examine the impact of trade import-export on economic growth in Nigeria. The remaining of this paper is divided into four sections. Section two reviews the literature, while section three deals with the methodology. Section four is presentation and interpretation of results and section five contains conclusion and recommendations.

Literature Review

International trade theories which are relevant to this study are classical theory and neo-classical theory, also called the modern theory, with its main variant dubbed the Heckscher-Ohlin theory. The proponents of these two theories argued that international trade plays important role in promoting economic growth of the nations. The theories also recognized that export trade is important for generating foreign exchanges that are needed for importation of goods that cannot be domestically produced. Both theories being based on the principle of comparative advantage, extol the virtue of specialization, division of labour and free trade. In fact, for those two theories, the advantage of

external trade is maximized when it is entirely free from natural and man-made encumbrances. Both theories emphasise the gains from external trade.

Ricardo (1817), in his famed theory of comparative advantage, showed that countries benefit by specializing in the production of those goods with the lowest opportunity cost and trading the surplus of production over domestic demand, taking as given appropriate exchange-rate regimes. Under this model, a country will quickly specialise in sectors in which it has a comparative advantage. The classical theory is easily couched in terms of comparative cost specifically; the theory states that a country will tend to export the commodity whose comparative cost is higher in pre-trade isolation. Given the assumption of constant cost, a country will specialise completely in the production of commodity in which it has comparative advantage.

The neo-classical (modern) theory of international trade evolved in an attempt of modifying some unsatisfactory aspects of the classical theory. The neoclassical theory therefore, advanced a more satisfactory explanation for the existence of comparative cost differences between countries: introduced capital as a second factor of production and allowed for international differences in the pattern of demand. The introduction of a second factor of production proves very important. This makes approach of the classical theory and its main variant that is, Heckscher-Ohlin theory, to be successive in the handling of the relationship between factor allocation, income distribution and international trade.

The Heckscher-Ohlin theory postulates that trade arises from differences in comparative cost that in turn arise from inter-country differences in relative factor endowments (or relative factor abundance) are the most important single causes of international differences in price structures. According to the theory, a nation should produce and export a product for which the large amount of the relative abundance resources is used. Such country should import the commodity in which a great deal of its relative scarce and expensive factors is used.

Conclusively, from these theories, trade increase total world output because all countries gain from trade, which enables countries to secure capital and consumption of goods from other parts of the world. In this way, trade stimulates growth or serves as engine of growth.

Trade has been known to be a major contributor to the growth and development of economies. Domestic, national or international studies by economic historians have shown that in the progressive development of human society, from subsistence levels to modern economic system, the scale and level of trading is of crucial importance. Thus, while trade among the different regions or one country has its advantages and benefits, these are much smaller in scale than the potential gains derivable from participating in international trade.

Therefore, in assessing the linkage between external trade and economic growth, many factors must be taken into consideration. These include

economic, social and political factors. In addressing the problems of international trade among less developed countries, it is necessary to examine the structure of the economy itself. This, in turn, is rooted in colonial economic policy, which served as the foundation for the prevailing structure of external trade in these countries.

Much of these structures have not changed since the end of colonialism. In the case of Nigeria, the only change observable is with respect to the volume and value of tradable goods. In the main, foreign trade in Nigeria is still characterised by the export of primary goods and the importation of finished goods. The breakdown of Nigeria imports indicators is that the three main groups of items being imported are consumer goods, capital goods and raw materials. Manufacturing output has been in the decline in recent years due to poor growth in the agricultural sector. This throws some doubt on the impression that capital goods and raw materials were being imported to boost local manufacturing production.

One can, therefore, assume that most of the imported goods were finished goods. Statistics also shows that Nigeria's export consisted mainly of agricultural commodities and mineral products, thus confirming the economy's reliance on the export of primary goods, a common feature of the LDCs, which is regarded as the bane of the foreign earnings sector in these economies. Many see it as the major factor limiting their gains from external trade.

The literature is replete with various studies on the impact of export on economic growth, with particular reference to developing economies, while only a few studies have specifically examined the determinants of aggregate imports in Nigeria. For instance, the early researchers in this area of study, Darrat (1987) conducted a study in the countries of Asia using time series data from 1955-1982. The study showed that there is a significant statistical association between export and economic growth. Similarly, Kruger and Ito analysed the economic growth of East Asian countries from 1965-1991, and found that export enabled the countries' economy to grow at an annual average between 4-8%. In the same vein, Langley (1968), Onitiri (1981) and Ojo (1987) examined the effects of external trade on Nigeria's economic growth and the basic conclusion from these studies was that exports have been instrumental to the growth process. Since most of these studies used bivariate statistical and single equation regression techniques, they were naturally subject to the criticism of not allowing for feedback.

In taking care of this, Omoke and Ugwuanyi (2010) investigate the relationship between export, domestic demand and economic growth in Nigeria using Granger causality and cointegration tests. The study results from Trace and Maximum Eigen Value test conducted showed that the variables do not have long-run relationship, but the Pair-wise Granger Causality test showed that economic growth Granger causes both export and domestic demand, while a bilateral causality exists between export and domestic demand. In a related

study by Mohamed, Liew and Mzee (2012) on Tanzania using Vector Autoregressive (VAR) technique to analyse annual data from 1980 to 2009 to determine the long-run relationship between exports trade and economic growth. Their results also find no evidence for long-run relationship between export of goods and growth but suggest existence of a long-run nexus between export of services and economic growth in Tanzania.

In their own study on international trade and its effects on economic growth in China, Sun and Heshmati (2010) applied both econometric and non-parametric approaches based on a 6-year balanced panel data of 31 provinces of China from 2002 to 2007. The study demonstrates that increasing participation in the global trade helps China reap the static and dynamic benefits, stimulating rapid national economic growth.

As in the case of Safdari, Mehrizi and Dehqan-Niri (2012), they examined the long-run relationship between foreign trade and economic growth in Iran between 1975 and 2008 using a VAR method of analysis. The results from their study showed that total population, trade volume, gross capital formation and tariffs have positive effect on economic growth.

Similarly, Adesuyi and Odeloye (2013) investigate foreign trade and economic growth in Nigeria between 1980 and 2010 using the Ordinary Least Square method to analyse the data. The result shows that Non-oil export value, Non-oil import value and Oil export value are positively related to GDP for the period under the study.

Also, Arodoye and Iyoha (2014) examined foreign trade-economic growth nexus with evidence from Nigeria using VAR model to analyze quarterly time-series data for 1981Q1 through 2010Q4. The results show that there is a stable, long-run relationship between foreign trade and economic growth. Also, the variance decomposition results show that the predominant sources of Nigeria economic growth variation are due largely to "own shocks" and foreign trade innovations.

In addition, Hashim and Masih (2014) examined the relationship between trade and economic growth in Malaysia with emphasis on both the role of exports and imports using Granger causality test. The results confirm the bi-directional long run relationships between the economic growth and exports, and economic growth and imports.

In their most recent study, Albiman and Suleiman (2016) investigate the relationship among Export, Import, Capital Formation and Economic Growth in Malaysia using time series data from 1967-2010 and VAR analysis. Cointegration test results revealed no long run relationship among the variables. For causality analysis, export ratio and economic growth granger cause domestic investment. The impulse response function show that, the economic growth responds both positive and negative way depending on time period, due to the shock of domestic investment, import and export.

This study builds on the more recent time series data to examine the impact of export and import on economic growth in Nigeria.

Methodology

The study used the data collected from the annual reports and statistical bulletin of the Central Bank of Nigeria (CBN) from 1981–2015. Augmented Dickey-Fuller (ADF) tests were performed to examine the degree of integration of the time series data for stationarity tests because many macroeconomic series are non-stationary at level and this can lead to spurious results if OLS technique is applied. So, this study analysed the collected data by using VAR models which have been demonstrated by Sims (1986) to be powerful tools for investigating the inter-relationships among non-stationary time-series variables and for obtaining reliable forecasts. VAR models are good techniques in terms of addressing the relative importance and the dynamic effects of various shocks on macroeconomic variables (Van Den Berg and Schmidt, 1994).

Using econometric method of analysis the study examined the impact of import, export, inflation rate and exchange rate (*IMP*, *EXP*, *INFLR* and *EXR*) on economic growth in Nigeria.

Model Specification

This study adopts Mohamed, Liew and Mzee (2012) and Albiman and Suleiman (2016) models to examine the impact of import and export on economic growth in Nigeria.

The VAR model specified is:

$$V_t = a + \sum_{k=1}^{\infty} A_i V_{t-1} + \mu_t \quad (1)$$

α = intercepts of autonomous variables
A_i = matrix of coefficients of all the variables in the model.
V_{t-1} = vector of the lagged variables.
μ_t = vector of the stochastic error terms

In fact, both growth theories including neoclassical and endogenous theories have shown that, domestic investment, export and imports reinforce each other in determining the economic growth. Furthermore, the growth theories, especially endogenous growth theory show that, export, imports and domestic investment have long run equilibrium relationship with the economic growth. Therefore, the import-export-led growth model can be expressed in the form of multivariate linear model as here under:

$$RGDPC_t = \alpha 0 + \alpha 1 IMP_t - \alpha EXP_t + \mu_t \quad (2)$$

In addition, theoretically, rise of imports especially of capital goods and inputs foreign technology would enhance domestic investments which would

result into expansion of exports and higher economic growth. The increase in exports would result to increase the accumulation of foreign exchange, which in turn will increase imports and accelerate economic growth. Since there are many variables that exist in growth models that can be relevant to this analysis and for the fact that the VAR in multivariate systems requires sufficient number of observations, so, we include two additional variables in the model.

Based on our conceptual framework calibration of some economic variables and the theoretical arguments, we specify our equation based on extension of the works of Mohamed, Liew and Mzee (2012) and Albiman and Suleiman (2016) assertion on model building by including exports, imports, and to accommodate our investigation we also include inflation rate and exchange rates as the case may be.

The general form of the model can be stated as:

$$K_t = Y_i M_t + \varepsilon_t \quad (3)$$

where

$Kt = RGDP$
$Mt = (EXP, IMP, INF, EXR)$
Yi = coefficients of each independent variables

The VAR model can, therefore, be expressed as:

$$K_t = \alpha + \beta_i K_{t-1} \ldots\ldots\ldots\ldots + \beta_p K_{t-p} + \varepsilon_t \quad (4)$$

ε_t is a white noise

The reduced form VAR is given as

$$K_t = \alpha + \sum_{i=1}^{n} \beta_i K_{t-p} + \varepsilon_t \quad (5)$$

where α is a vector of constant, p denotes the maximum lag length, β_i are n × n parameter coefficients and ε_t is a vector of error terms.

The model in its explicit form can be rendered as:

$$RGDP_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i} dGDP_{t-1} + \sum_{i=1}^{n} \alpha_{2i} dEXP_{t-1} + \sum_{i=1}^{n} \alpha_{3i} dIMP_{t-1} + \sum_{i=1}^{n} \alpha_{4i} dINFL_{t-1} + \sum_{i=1}^{n} \alpha_{5i} dEXR_{t-1} + \varepsilon_t \quad (6)$$

where

$RGDP_t$ = Real Gross Domestic Product
EXP_{t-1} = Export
IMP_{t-1} = Import
$INFLR_{t-1}$ = Inflation Rate
EXR_{t-1} = Exchange Rate

Apriori Expectation
a_1 is expected to be positive i.e. $\alpha_1 > 0$ which implies that, as the volume of export increases there will be increase in economic growth, α_2 is expected to be negative i.e. $\alpha_2 < 0$ because import is regarded as a withdrawal from the economy., α_3 is expected to be negative i.e. $\alpha_3 < 0$ and a_4 is expected to be negative or positive i.e. $\alpha_4 <$ or > 0 because when exchange rate increases worth of the local currency is expected to decrease, this will bring about inflation and eventually reduces GDP and vice versa.

Discussion of Findings

The analysis for this study is econometric method in nature and presents the results of equation.

Analysis of Regression Results

(a) Augmented Dickey Fuller (ADF) unit root test

Table 1: ADF Unit Root Test

Variables	Level	First Difference
$Exch_t$	0.3311	-5.1961*
$Exp01_t$	-0.6697	-3.1464**
Gdp_t	3.3328	-3.9991*
Imp_t	1.5022	-4.9218*
$Inflation_t$	-2.7967	-5.5767*

1% = -3.6463, 5% = -2.9540, 10% = -2.6158. *, **, *** significant at 1%, 5% and 10% respectively
Source: Author's Compilation (2017)

The Augmented Dickey Fuller (ADF) unit root test results in Table 1 above show that all the variables: GDP, exports, imports, exchange rate and inflation rate are not stationary at level but at first difference. In other words, all series under the study, are integrated at order one, i.e. I(1). This means that mean and variance are not constant.

(b) Analysis of Johansen Cointegration Results

Table 2: Johansen's multivariate cointegration test results

Hypothesized No. of CE(s)	Eigen value	Trace statistic	Critical Value	**P value**	Max-eigen statistic	Critical value	**P value**
None *	0.7675	68.1742	47.8561	0.0002	48.1394	27.5843	0.0000
At most 1	0.3993	20.0345	29.7971	0.4205	16.8186	21.1316	0.1807
At most 2	0.0895	3.2159	15.4947	0.9562	3.0924	14.2646	0.9404
At most 3	0.0037	0.1235	3.8415	0.7252	0.1235	3.8415	0.7252

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
*denotes rejection of H0 at 5% significant level, ** denotes p-values
Source: Author's data Analysis (2007)

The results of Johansen's multivariate cointegration test in table 2 above shows that there exists one cointegration equation amongst the variables and both the trace statistic and maximum Eigen value statistic exceeded the critical values at 5% level. This confirms the existence of co-integrating among the variables and follows a common long run path. Since the variables are co-integrated, the existence of a long-run relationship between the real GDP, exports, imports, inflation and exchange rate is confirmed. Thus, long-run relationship indicates that all explanatory variables are elastic and their variations will bring about more than proportionate change in the level of GDP. The policy implication that can be inferred from the findings is that there is need to diversify the export base and reduce importation of raw materials in Nigeria.

(c) Analysis of Pairwise Granger Causality Tests

Table 3: Pairwise Granger Causality Tests

Null Hypothesis	**Obs**	**F-Statistic**	**Prob.**
EXCH does not Granger Cause GDP	33	3.55835	0.0420
EXP01 does not Granger Cause GDP GDP does not Granger Cause EXP01	33	11.0679 12.0164	0.0003 0.0002
IMP does not Granger Cause GDP GDP does not Granger Cause IMP	33	10.8782 5.66797	0.0003 0.0086
EXCH does not Granger Cause EXP01	33	3.21548	0.0553
EXP01 does not Granger Cause IMP	33	3.62979	0.0397

Source: Author's Compilation

These results of granger causality tests in table 3 show that the exchange rate (EXCH) granger cause economic growth (GDP), exchange rate (EXCH) granger cause exports (EXP01) and exports (EXP01) granger cause imports (IMP), so they have uni-direction causality. Also, there is bi-directional causality between exports (EXP01) and economic growth (GDP), and between imports (IMP) and economic growth (GDP). But, no direct causal links between inflation rate and other variables. Therefore, exports, imports and exchange rate granger cause real GDP in Nigeria. The implication of these results is that there is need for trade and exchange rate policies in favour of export expansion because exports drive economic growth.

(d) Vector Auto-regression estimates

All coefficient estimates in the results in Table 4 below are elasticity. Examination of these results shows that the single most important determinant of each variable is its own one-period lagged value. The elasticity of real GDP with respect to its lagged value is 0.82; the elasticity of exchange rate with respect to its lagged value is 0.88; the elasticity of export with respect to its lagged value is 0.74; the elasticity of imports with respect to its lagged value is 0.73 and the elasticity of inflation with respect to its lagged value is 0.69. Also, GDP is an important determinant of import (the elasticity of import to lag of GDP is 0.13), imports is a determinant of export (the elasticity of export to lag import is 0.3. Thus, that the explanatory variables are elastic indicating that their variations will bring about more than proportionate change in the level of GDP. The important policy implication that can be inferred is that to significantly boost GDP in Nigeria, export expansion with favourable exchange rate will yield satisfactory outcome on GDP. These findings are very germane given the need to diversify the export base.

Table 4: Vector Autoregression Estimates

Standard errors in ( ) & t-statistics in [ ]

	GDP	EXCH	EXP01	IMP	INFLATION
GDP(-1)	0.818359			0.132932	
	(0.18691)			(0.02608)	
	[4.37832]			[5.09689]	
GDP(-2)	-0.460541		-0.247857	-0.166196	
	(0.19842)		(0.05005)	(0.02769)	
	[-2.32110]		[-4.95243]	[-6.00289]	
EXCH(-1)		0.881962			
		(0.21991)			
		[4.01052]			
EXP01(-1)	-2.309760		0.739318	-0.304238	
	(0.91570)		(0.23097)	(0.12777)	
	[-2.52241]		[3.20091]	[-2.38109]	
EXP01(-2)	2.862412			0.696556	
	(0.92719)			(0.12938)	
	[3.08720]			[5.38396]	
IMP(-1)				0.728291	
				(0.19638)	
				[3.70853]	
IMP(-2)			1.182589		
			(0.38516)		
			[3.07041]		
INFLATION(-1)					0.685237
					(0.19675)
					[3.48277]

Source: Author's data Analysis (2017)

(e) Results of Forecast Error Variance Decompositions

The forecast error variance decomposition was used to estimate the short run dynamic properties of each of the variable originating from shocks in the system. It is the proportion of forecast error variance for each variable that is attributable to its own innovation and to innovations in the other endogenous variables. The ordering of the variables in the variance decomposition is stated in Table 5a - d below over the same forecasting horizon for a period of ten years (10).

i) Variance Decomposition of GDP

Table 5a: Variance Decomposition of GDP

Period	S.E	GDP	EXCH	EXP01	IMP	INFLATION
1	3350.769	100.0000	0.000000	0.000000	0.000000	0.000000
2	4596.513	77.15771	12.23303	7.229645	2.806634	0.572980
6	9044.799	61.60479	8.439815	19.04244	9.381386	1.531566
10	15664.29	25.58935	13.40933	50.12602	9.905758	0.969545

The variance decomposition of economic growth (GDP) shows that the high level of the variation experienced by GDP is attributed to its own shock at 100% in the first period and falls to 25.59 at the end of the 10-period horizon. The contribution of the other 4 variables is quite marginal. The highest is by export (EXP01), which contributes 50.13% in the tenth period.

ii) Variance Decomposition of EXCH

Table 5b: Variance Decomposition of EXCH

Period	S.E	GDP	EXCH	EXP01	IMP	INFLATION
1	14.88132	10.20798	89.79202	0.000000	0.000000	0.000000
2	21.50967	9.932061	85.44828	2.886753	1.529602	0.203308
9	51.14555	4.788662	75.94881	12.30410	1.119987	5.838436
10	54.23882	5.981687	74.94009	12.57459	1.109514	5.394113

The exchange rate (EXCH) displayed a similar pattern where its own shocks account for a disproportionate share of the total variation. The contribution of its own shock is 89.79% in the first period and falls to 74.94% in the tenth period. The contribution of the other 4 variables is marginal with export (EXP01) accounting for 12.57% of the variation.

iii) Variance Decomposition of INFLATION

Table 5c: Variance Decomposition of INFLATION

Period	S.E	GDP	EXCH	EXP01	IMP	INFLATION
1	15.18254	0.988028	3.444111	0.678046	5.300788	89.58903
2	18.66302	1.333556	5.968400	0.459665	5.109182	87.12920
9	19.53698	2.418301	9.706164	0.580964	5.036180	82.25839
10	19.69361	2.827105	10.50462	0.596004	4.958590	81.11368

The variance decomposition of inflation also has a similar pattern of high level of variation. The contribution of its own shock is 89.59% in the first period and falls to 81.11% in the tenth period. The contribution of the other 4 variables is marginal with exchange rate (EXCH) accounting for 10.50% of the variation in the tenth period.

iv) Variance Decomposition of EXP01

Table 5d: Variance Decomposition of EXP0

Period	S.E	GDP	EXCH	EXP01	IMP	INFLATION
1	845.1851	26.44229	3.435489	70.12222	0.000000	0.000000
2	1108.292	32.18997	2.313176	65.29177	0.190812	0.014272
9	3827.327	36.10167	18.75280	37.18197	3.929814	4.033738
10	4507.871	43.05387	21.54841	27.37446	2.840244	5.183009

Export (EXPO01) shows a different pattern. Although the shocks of exports account for 70.12% of total variation in the first period, its contribution falls drastically to 27.37% in the tenth period. In the tenth period, shocks in the GDP account for 43.05% of the variation while shocks in exchange rate (EXCH) account for 21.55% of the variation.

v) Variance Decomposition of IMP

Table 5e: Variance Decomposition of EXP01

Period	S.E	GDP	EXCH	EXP01	IMP	INFLATION
1	467.5534	57.09421	0.257702	9.565085	33.08300	0.000000
2	765.3560	67.09407	8.408708	5.644511	18.85148	0.001228
9	2052.066	23.53818	20.66112	45.29227	8.560023	1.948404
10	2439.088	30.07438	21.28235	39.83020	6.059660	2.753411

The pattern of variance decomposition of import (IMP) is rather similar to that of export (EXP01). Import (IMP) own shocks account for 33.08% of the variation in the first period, its contribution falls sharply to 6.06% in the last period while export (EXP01) and economic growth (GDP) shocks account for 39.83% and 30.07% of the variation respectively.

In conclusion, the predominant sources of variation in the rate of economic growth are due largely to own shocks and innovations in exports which is in line with the submission of Arodoye and Iyoha (2014) while the predominant sources of variation in exchange rate are due mainly to own shocks and innovations in exports. Also, the predominant sources of variation in inflation are due mainly to own shocks and innovations in exchange rate. Similarly, the predominant sources of variation in exports are due largely to own shocks and innovations in the GDP and exchange rate while the predominant sources of variation in imports are due mainly to own shocks and innovations in exports and GDP.

(f) Impulse Response Function Analysis

Figure 1: Impulse Response Function Graph

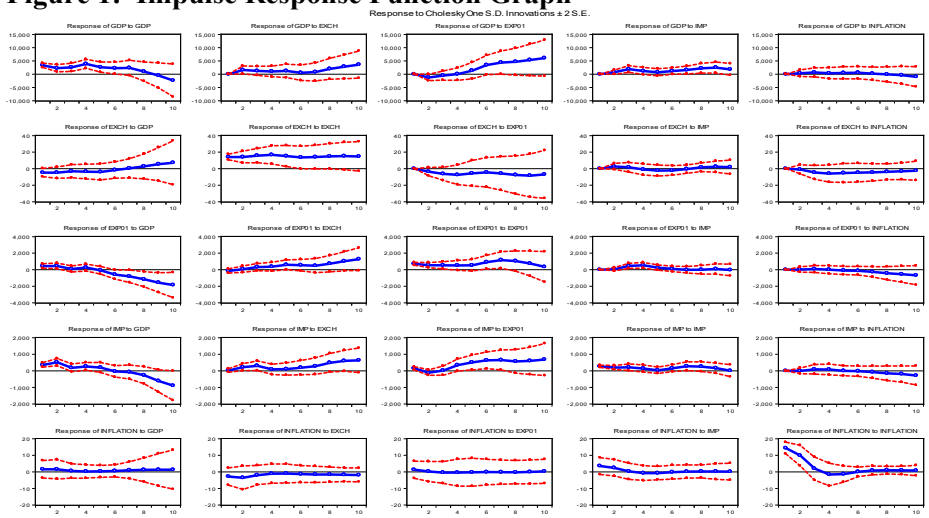

Figure 1 illustrates the results of IRF analysis of economic growth and exchange rate, export, import and inflation in the VAR system to one standard deviation of shock. When there are positive shocks to the economic growth, the exchange rate, export, import and inflation are found to respond negatively but insignificant from the period one to the fifth period. Beyond the fifth period (i.e. year five), the negative effects of the shocks became significant until the ninth period. On the other hand, when there are positive shocks to exchange rate, export, import and inflation, the economic growth also shows significant negative responses. The effect begins contemporaneously and lasts after four periods beyond which, it becomes insignificant. The results imply that the sudden increase in economic growth rate and exchange rate, export, import and inflation will contribute to the adverse effect to the other. The estimated generalized impulse response functions (IRFs) results showed that economic growth responds both positive and negative way depending on time period, due to the shock of EXCH, EXPO01, IMP and INFLATION.

From the findings and being Nigeria an open economy, in order to ensure effective utilization of domestic resources, there is need for new policies to ensure that import and export re enforce each other in promoting economic growth over long run.

Conclusion and Recommendations

Conclusion

The study examined the impact of export and import on economic growth in Nigeria using time series data from 1981-2017 and VAR analysis. The results of Johansen Cointegration test showed that there is a long run relationship between the variables but with minimal magnitude. The results of Granger causality tests show that there is bi-directional causality between exports and economic growth and between imports and economic growth but import does not granger cause export. Also, there is uni-direction from exchange rate to exports and from exports to imports. But, no direct causal links between inflation and any other variables were found in the results. The results of the forecast error variance decomposition analysis showed that innovations in the variables are mostly explained by their own shocks. While the impulse responses of gross domestic product, exchange rate, export, import and inflation with respect to the identified shocks (innovations) are consistent with the results of variance decomposition analysis. Based on the results obtained, it implies that there is a positive relationship between export-import and economic growth in Nigeria. In conclusion, Major policies have to be reformed to ensure long run impact of export and import to economic growth.

Recommendations

On the basis of the empirical analysis, the following policy recommendations are made:

- Appropriate trade and foreign exchange policies in favor of export expansion should be encouraged because exports drive economic growth. Nominal exchange rate also revealed itself as a strategic and versatile variable for influencing economic growth.
- Proper implementation of import control measures that will certainly sharpen the understanding of the determinants of import behaviour.

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