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Analytical Study of the Impact of Export Compositions on the Economic Growth of Nigeria (1975-2015)

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Abstract:
The paper examines the dynamic impact of the broad binary compositions of exports in Nigeria, that is, oil and non-oil exports using VAR based approach. Time series data set for the period 1975-2015 is put to empirical testing. Time series data from 1975 to 2015 was used in the paper. The variables used include: GDP, Oil exports, Non-oil exports, Gross fixed capital formation and Trade openness. The annual data were collected from the Central bank of Nigeria statistical bulletins of 2004, 2013 and 2015. Both the oil and non-oil exports variables were measured in monetary values of the commodities exported in a given year. In order to investigate the long-run relationship and the short run dynamics of oil exports and non-oil exports compositions, a restricted VAR approach, namely, the Vector Error Correction Model (VECM) has been used. However, the choice is premised on the outcome of the unit root test and cointegration analysis. It is therefore justified to impose restrictions on the cointegrating ranks found in the test. Findings from the paper indicate that the oil export composition has significantly greater impact on the Nigeria economic growth in the short run, while non-oil export composition has significantly positive long-run impact on the economy. Also, external shocks to both oil and non-oil compositions evoke positive response from the GDP. It is concluded that the nature of the export compositions matters in attaining the long run stability of Nigerian economy. Efforts towards diversifying the exports through non-oil exports promotion and trade liberalization policies are therefore recommended.

Keywords*: Economic growth, Nigeria, oil exports, non-oil exports, Trade openness*

1. Introduction

The role of exports in economic growth has been well documented in theoretical literature like export-led growth hypothesis and comparative advantage theory. There is also large body of empirical works on export-led growth. However, whether the compositions of exports matter in the process of growth is relatively scarcely explored in Nigeria. As Fosu (1990) notes that the beneficial effects of exports on aggregate output may not be invariant to the nature of the export sector, as some sectors have more backward and forward linkage effects than others. Also, theoretical propositions by Chenery (1979) postulate that change in the export composition are required for sustainable economic growth.

Nigeria, like many other resource-based countries, has an extremely unbalanced binary composition of export, that is, oil exports and non-oil exports components. Exports in totality have been a major contributor to the Nigerian economy. In 2012 exports contributed 33.3% of the GDP, it declined to 14.41% in 2013 and further declined to 8.61% in 2015 (NBS, 2015).

However, since 1970s the oil composition of exports has dominated the exports mix, accounting for 80% of the sources of government revenue by 2014.The non-oil exports continue to decline owing to the neglect of agricultural and manufacturing sectors from the period of oil boom. In 2011 the contribution of non-oil exports in the total exports declined to as low as 1.7% (CBN, 2012).

The policy concern over the years has therefore been to improve the non-oil composition of exports. Nwanne (2014) notes that the interest to promote non-oil exports was borne out of not just its huge potential for foreign exchange earnings, but also for its employment generation and poverty reduction capability through the extensive backward linkages it offers as well as the desire to diversify the country's production base. Some of the policies to improve non-oil export over the years, include; the establishment of the Nigerian Export Promotion council, NEPC (1976), Structural adjustment programme, SAP (1986), the Nigerian Export-Import (NEXIM) bank in 1990 and the Export Processing Zone (EPZ) of 1991.

Some of the empirical works on the roles of the two compositions of exports produce heterogeneous results. Studies like Nwanne (2014) finds evidence that the policies on non-oil products in the past did not sufficiently encourage non-oil export thus reduces their contribution to growth. So also, Adenugba and Dipo (2013) observe that non-oil exports have

performed below expectation in Nigeria especially from 1981 giving reason to doubt the effectiveness of the export promotion strategies that have been adopted in the Nigerian economy. Olayiwola and Okodua (2013), within the framework of export-led growth (ELG) hypothesis, find evidence that the FDI promote the non-oil export in Nigerian economy confirming the claim that most of the FDI in the country goes to the oil sector. Godwin (2015) finds that the oil export is significantly positively related to the Nigerian economic growth while the non-oil export is negative and insignificant.

The paper examines the relative roles of oil and non-oil exports compositions in the economic growth of Nigeria using an *atheoretic* VAR based approach. Two reasons motivated the study. One, most of the reviewed studies on the relationship between exports and economic growth used theoretically based models and came up with heterogeneous results. Two, there is theoretical contention that the roles different export compositions play in an economy is not invariant, owing to their differences in "linkages effects" (Fosu, 1990). The paper is organized in five sections. Section two presents the literature review, section three explains the methods employed section four presents and discuss the results and section five conclude and offer policy recommendation.

2. Literature Review

2.1. Empirical Literature

2.1.1. Nigeria's Studies

Empirical works like Awe and Ajayi (2009) Ifenyi Cris and Ndibe (2015) and Uzonwanne (2015) all find that export, both oil and non-oil components, is favourable to Nigerian economic growth, by using Cointegration tests and Error correction mechanism to investigate the relationship. In similar fashion, Adenuga and Dipo (2013), Moses (2011) and Usman (2009) employed OLS and error correction model and confirmed the earlier findings of strong relationship between the non-oil component of export and per capita income in Nigeria.

In Sharp contrast to their findings, Esu and Udonwa (2015) using OLS method of estimation find an insignificant result for the impact of non-oil export on the economic growth in Nigeria, while the oil export responds significantly positively to the economy. Uzowanne (2015) found evidence of positive relationship between growth and diversification in Nigeria and argues that huge investment to concentration of resources to agriculture will speed up the growth process of the country.

Olaleye, Olasode, Edun, Femi, Taiwo, and Babatunde (2013) use Granger Causality test and explored the nature of the relationship between export and Nigerian Economic growth, covering a period of 30 years. The findings confirm bi-directional causal effects between agricultural output and income per capita, which is suggestive of the relevance of the non-oil sector to the growth process of the country.

Empirical study by Dode (2012) on the problems and prospects of Nigeria's mono-product economy succinctly pointed out the vulnerability of mono-economy to recession. The paper observes that for Nigeria to stand recessionary shocks that emanate from global market, policy makers must take aggressive measures toward achieving diversification by bolstering private firms that shoulder part of the responsibility of employing labor.

Adenugba and Dipo. (2013) observe that non-oil exports have performed below expectation in Nigeria especially from 1981 giving reason to doubt the effectiveness of the export promotion strategies that have been adopted in the Nigerian economy. In similar fashion, Abogan, Akinola and Baruwa (2014) had earlier argued that for maximum contribution to the economic growth of Nigeria, the economy must be diversified to non-oil sectors. The findings are based on the econometric results that suggest such variables as non-oil export and GDP growth move in the same direction in the long run.

Odi (2015) tested a model comprising; agricultural sector, manufacturing components and solid mineral component of non-oil export using both Ordinary least squares (OLS) and error correction mechanism (ECM). The results show that shift in these sectors account for around 68% of the total variation of the Nigerian economic growth, and also show that a unit increase in non-oil export product impacted positively by 38% on the productive capacity of goods and services in Nigeria during the period, while the non-oil sector did not show significance. It therefore points to a moderate implication of the diversification on growth, which is a little different from other findings.

A close result is also found by Onodugo, Marius, and Oluchukwu (2013). Using the conventional test of mean reversion and cointegration, the findings show a weak and infinitesimal impact of non-oil export in influencing the level of economic growth in Nigeria, statistically positive though.

Olayiwola and Okodua (2007) examined the applicability of export-led growth hypothesis, by disaggregating the export data into oil export and nonoil export and tested the model using impulse response function and variance decomposition. Although the findings failed to support the export-led growth hypothesis, non-oil component of export is found to be significant in accounting for the total variation of GDP.

2.1.2. Other Case-country Studies

Chigusiwa, et al (2011) examined whether different compositions matter in the impact of exports on the economy of Zimbabwe using ARDL cointegration approach. The study tested two models; one using exports in totality and in the other exports are disaggregated in to primary goods and manufactured goods. The empirical results show that primary goods exports had greater influence on the economy than manufactured goods exports.

Forgha, Sama and Atangana (2014) investigated the relationship between export diversification and economic growth of Cameroun, using a VAR based approach. Using different composition of exports, the findings show that export diversification favors economic growth. In contrast study, conducted in some selected developing economies by Fosu (1990) revealed that the primary exports of the exports composition exhibit no effects on GDP growth in LDCs. His study is based on two compositions of exports i.e. manufacturing export composition and primary export compositions.

Mudenda, Choga and Chigamba (2014) examined the role of export diversification in South Africa, using Vector Error Correction model. Using data from 14 export lines, the study found that export diversification and trade liberalization are positively significant in determining the economic growth of South Africa.

Mohsen (2015) studied the effects of oil and Non-oil exports on the economic growth of Syria using granger causality test and impulse response function. The results show that oil export has the biggest positive impact on the GDP in both short run and long run analysis.

2.1.3. Theoretical Literature

A lot of theories have discussed how exports entered and played role in a production function. David Ricardo, early introduced the concept of comparative advantage to show how countries can achieve greater output by producing goods with the lower opportunity cost and engaged in international trade. Subsequent theoretical proposition by Hecksherand Ohlin (1933) sought to show that the comparative advantage is influenced by interaction between nations resources. The Hecksher-Ohlin model demonstrates that less developed countries should specialize in the production of primary goods and import intensive goods. Endogenous growth in the 20th century focuses on the advantage of dynamic export sector, through total factor productivity. In his model, Romer (1990) considers export diversification along the line of Adam Smith, that is, as a factor for increasing labor productivity and human capital. Some other models like Matsuyama (1992) put much emphasis on the importance of manufacturing sector for sustained economic growth.

2.1.4. The AK Growth Model

The first model of endogenous growth theory was the AK model which is on the basis of learning by doing. The AK model assumes that when people accumulate capital, learning by doing generates technological progress that tends to raise the marginal product of capital, thus on-setting the tendency for the marginal product to diminish when technology is unchanged.

The model results in a production function of the form;

$Y = AK$..... (2.1)

Where A is a positive constant that affects level of technology, K is capital (to include human capital). Y =AK, output per capita and the average and marginal product are constant at the level A>0.

The AK model is specifically used as the theoretical framework for this paper. It is considered most appropriate for some reasons. One is for its simplicity and the fact that it establishes the role of factor productivity in growth through technological progress which is assumed to be constant positive. Feasel, Kim & Smith (2005) noted that there are various ways to endogenize improvements in technology, notably through "learning by doing". In the development literature, such learning by doing can potentially be gained either through exporting due to interactions with technologically more advanced foreign firms, or through investing, due to the use of better quality foreign technology. Thus, one way to proxy this learning effect is through investment and export levels.

3. Methodology

3.1. Data Sources and Measurement of Variables

Time series data, readily published from 1975 to 2015 is used in the paper. The variables are; GDP, Oil exports, Non-oil exports, Gross fixed capital formation and Trade openness. Annual data on GDP at basic prices and gross fixed capital formation were collected from the Central bank of Nigeria statistical bulletins of 2004, 2013 and 2015, for the years covered. It is used in millions of Naira. Both the oil and non-oil exports variables are also measured in monetary values of the commodities exported in a given year. Their annual data were sourced from the CBN statistical bulletins of 2012 (golden jubilee), 2013 and 2015 for the covered period. Trade openness is measured as an index which represents the ratio of total exports plus imports to GDP. The index for each year, is calculated using annual data on GDP, total exports and import, sourced from the CBN statistical bulletins.

3.2. Estimation Techniques

In order to investigate the long-run relationship and the short run dynamics of oil exports and non-oil exports compositions, a restricted VAR approach, namely, the Vector error correction model (VECM) has been used. However, the choice is premised on the outcome of the unit root test and cointegration analysis. It is therefore justified to impose restrictions on the cointegrating ranks found in the test.

In general, VAR approach is an *atheoretic* method that endogenizes all the variables in a given model. It is therefore employed to address the main failings of the structural models by allowing data to speak by itself. As Gujarati (2004) noted, if there is suspicion of true simultaneity among the independent variables, VAR method is the appropriate.

The general form of the VECM is given as:

$Yt = \alpha_0 + \Sigma\alpha_1 \Delta Y_{t-1} + \ldots\ldots\ldots\ldots + \Sigma\alpha_{p-1}\Delta Y_{t-p+1} + \Sigma\alpha_p ECM_{p-l}$ ……………………… (3.1)

In addition to the VECM, a battery of impulse response function (IRF) and Variance decomposition are employed. While impulse response traces the impact of a shock to one endogenous variable onto the other variables in the VAR, variance decomposition separates the variation in an endogenous variable into the component shocks to the VAR.

3.3. Model Specification

The paper begins with the AK growth model which endogenizes technological change through the effects of "learning by doing". Such learning can be gained from exporting, due to interactions with more advanced foreign firms or through investing, due to use of better quality foreign technology. It is given as;

$Y_t = A_t K_t^b$……………………………………………………………………… (3.2)

Where Y is the output, K is the capital stock and A stands for the total factor productivity (TFP). This form of production function is proven useful in many empirical works (Forgha, Sama and Atangana, 2014; Hammouda et al 2006; Herzer 2011)

it is assumed that the productivity perimeter can be expressed as a function of exports, X_t ***and*** trade openness.

$A_t = f(X_t) = X_t^b$……………………………………………………………………………(3.3)

And because the interest is the compositions of exports, assuming the effects of exports on aggregate output depend on the nature of the export sector, we disaggregate the exports X_t into oil and non-oil export;

$A_t = f(X_{oil}, X_{noil})$ …………………………………………………………………… (3.4)

Combining equations (2.1) and (2.3) and taking the natural logarithms yields

$Ln(Y_t) = b_1 \ln(K_t) + b_2\ln(X_{oilt}) + b_3 \ln(X_{noilt}) + b_4\ln(Open_t)$………………………… (3.5)

The econometric model put to empirical testing is given as;

$lnY_t = \beta_0 + \beta_1 lnK_t + \beta_2 lnOX_t + \beta_3 lnNX_t + \beta_4 lnOPEN_t + \varepsilon_t$……………………………………………(3.6)

Where Y represents GDP per capita, OX represents Oil exports, NX stands for non-oil exports and OPEN refers to the index of trade openness.

For the short-run dynamics, **the Vector error correction model (VECM)** estimated is specified as;

$\Delta Y_t = \alpha_0 + \Sigma\alpha_1\Delta Y_{t-i} + \Sigma\alpha_2\Delta K_{t-i} + \Sigma\alpha_3\Delta OX_{t-i} + \Sigma\alpha_4\Delta NX_{t-i} + \Sigma\alpha_5\Delta OPEN_{t-i} + \Sigma\alpha_6 ECM_{j-t} + V_t$….. (3.7)

Where;

Δ = the first difference of a variable

ECM_{j-t} = Error correction factor

α_6 = coefficient of the error correction factor which is expected to be negative.

V_t = the new error term

4. Results and Discussion

Unit root test is conducted to determine the stationarity of the data and the order of integration. The Augmented Dickey Fuller and Phillip-Perron methods of unit root test are employed in the Study.

Variables	ADF test statistics	PP test Statistic	*Critical Value 5%	*P*-Value		Order of Integration
				ADF	PP	
lnGDP	-1.656706	-1.721091	-2.936942	0.4450	0.4132	*I*(1)
lnK	0.586974	0.553349	-2.936942	0.9876	0.9865	*I*(1)
lnOX	-0.953060	-0.960712	-2.936942	0.7605	0.7579	*I*(1)
lnNX	-0.301522	-0.308117	-2.936942	0.9157	0.9147	*I*(1)
lnOPEN	-2.149521	-0.960712	-2.936942	0.2273	0.7579	*I*(1)

Table 1: Unit root test results

Source: Authors estimations using Eviews

*Mackinnon critical values at 5% level of significance for rejection of hypothesis of unit root.

*Akaike Info Criterion used in the choice of optimal lagged length

The results from the two tests arrived at similar conclusion. That is all the variables are non-stationary at levels. Stationary is achieved at first difference, which technically means all the variables are integrated of order one.

The Implication of such finding is that an unrestricted VAR approach cannot be used for estimation. Appropriately a restricted VAR model would be employed, designed for series that are integrated of the same order (Greene 2012; Gujarati 2004)

4.1. Johansen Cointegration Test

Cointegration analysis is used to determine the long run relationship between variables. The Johansen Test for cointegration is employed to determine the number and estimates of cointegrating vectors. The Johansen Test is a VAR based cointegration test that examines the linear combination of variables for unit roots based on the eigenvalues of transformation of the data.

Series: LOGK LOGNONEXP LOGOILEXP LOGOPEN LOGGDP

TRACE TEST				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value 5%	Prob**
None *	0.741437	98.78083	69.81889	0.0001
At most 1 *	0.545356	47.38143	47.85613	0.0554
At most 2	0.265620	17.42826	29.79707	0.6084
MAXIMUM EIGEN VALUE TEST				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	Critical Value 5%	Prob**
None *	0.741437	51.39941	33.87687	0.0002
At most 1 *	0.545356	29.95317	27.58434	0.0244
At most 2	0.265620	11.73167	21.13162	0.5743
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level. Max - eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level.				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values *Source: Author's estimations using Eviews*				

Table 2: Cointegration Tests Results

From table 2, the trace test indicates one cointegrating equation. Null hypothesis is rejected at 5% level of significance (0.0001). While the Maximum Eigen value test shows that there are two cointegrating equations. The Null hypothesis that there is no cointegrating was rejected at 5% level of significance, (0.0002 and 0.024 *p*-values) maximizing the eigen statistics at 51.39941 and 29.95317 respectively. The results show that there is long run relationship between the GDP and the exports compositions.

4.2. Vector Error Correction Model (VECM)

The existence of long run relationship by itself does not imply which variable adjust to equilibrium and does not, neither does it tell whether any adjustment is slow or fast. The study proceeded to estimate the VECM to get such information. That is, to determine the short run dynamics of oil and non-oil export composition in the economy.

Variable	**Short-run coefficients**	**S.E**	**t-statistic**	**ECM coefficients**		**S.E**	**t-statistics**
ΔlogGDP(-1)	-0.572327	0.34553	-1.65636	**ΔlogGDP**	**-0.069561**	0.03220	-2.16128
ΔlogGDP(-2)	-0.473161	0.39522	-1-19721	**ΔlogNX**	**-0.284362**	0.07521	-3.78073
ΔlogNX(-1)	0.112482	0.17962	0.62622	**ΔlogOX**	**0.045233**	0.08523	0.53073
ΔlogNX(-2)	0.135706	0.18174	0.74670				
ΔlogOX(-1)	0.383835	0.17091	2.24589				
ΔlogOX(-2)	0.104647	0.18677	0.56031				
Constant = 0.264253 (S.E = 0.10160 and *t*-statistic = 2.60088)							
R-Squared = 0.625162 Sum sq. resids = 2.478043 *F*-statistic = 1.138888 Akaike AIC = 0.739339							

Table 3: Short run Results
Sources: Authors estimation using Eviews

Note: The choice of lag is based on the Akaike information criterion. Also the model is selected after the residuals in the cointegration test have passed LM autocorrelation test and Heteroscedasticity test. Results for the diagnostics are reserved for the appendix section, for space reason.

Table 3 shows that the error correction coefficient of the GDP is approximately 0.07 implying a slow speed of adjustment. In other words, the disequilibrium in the GDP is corrected by 0.07% annually. The slow speed of adjustment of the GDP may reflect the fact that other variables greatly affect the GDP. From another equation, the lagged error correction term for non-oil export is significantly negative representing the necessary feedback required to adjust to the equilibrium. It also shows a reasonably fast speed of adjustment as 28% of disequilibrium is corrected each year by changes in individual non-oil export. However, the short run coefficients for non-oil export are not significant in both first and second lagged values, while

for the oil export is significant and positive. The coefficient of trade openness index is also significantly positive in the first difference, which points to the dynamic role of trade liberalization in the economy.

The implication from the result is that non-oil exports adjust more quickly to restore an imbalance between itself and the GDP than the other way round. The oil export on the other hand, is an influential determinant in the short run. The slow speed of adjustment of the GDP implies the role of other variables in accounting for its variation.

4.4. Impulse Response function

Impulse response function is generated and graphed to illustrate how a one-unit change in the Oil and non-oil compositions of exports evokes response from the economic growth (GDP). Cholesky decomposition is used to show the impact of a unit change in the log difference of Oil export, non-oil export, index of trade openness and capital on GDP for a short term, ten-year focus horizon. The Cholesky is chosen in order to have orthogonalized IRF and overcome the problem of correlated shocks. Because GDP is the focal variable to measure the response, the Cholesky ordering of the variables is specified as **logGDP, logNX, logOX, logOPEN, logK.**

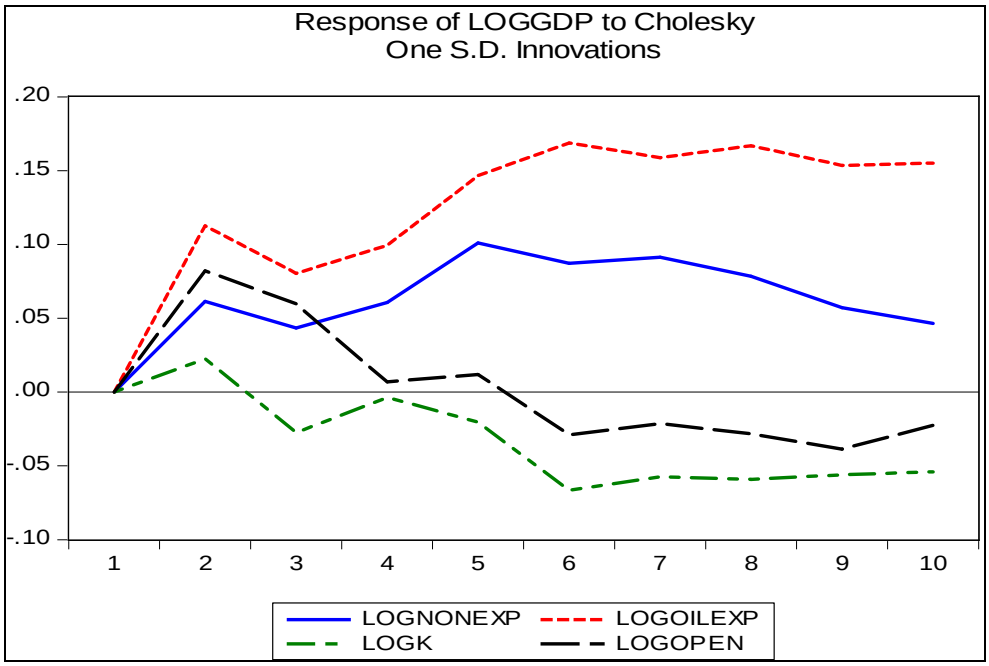

Figure 1: Combined Impulse Response Graph
Source: Authors plot using Eviews

Figure 1 shows that the response of GDP to a unit shocks in both oil export and non-oil export has been positive up to the tenth year. In the second year GDP responded by 0.6% and 0.11% changes to 1% shocks in non-oil and oil export respectively. Both responses declined and pick up again in the third period. But while the response of GDP to shocks in oil export maintain steady increase up to the tenth period, the response of GDP to non-oil export has continued to decline from the fifth year.

The conclusion is that changes whether by policy or abrupt in the compositions of both oil and non-oil exports can affect the Nigerian economic growth in significant ways, with the oil exports having more pronounced effects, at least in the short-term forecast horizon. But with trade openness eliciting negative responses, it points to, at least in the short-term focus horizon, the inimical outcome from changes in liberalization policies.

4.5. Variance Decomposition

While impulse response functions trace the effects of a shock to one endogenous variable onto the other variables in the VAR. variance decomposition separates the variation in an endogenous variable into the component shocks to the VAR (Eviews 8). The Variance decomposition for 10-year forecast horizon is applied in this study to observe the relative importance of each random innovation in the short run forecast horizon.

Variance decomposition of GDP non-oil export and oil export is presented below.

Period	S.E.	LOGGDP	LOGNX	LOGOX	LOGOPEN	LOGK
1	0.314434	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.411986	86.04165	2.223211	7.466912	4.171519	0.096712
3	0.499426	85.42839	2.265969	7.673024	4.100173	0.532439
4	0.577676	85.02618	2.799434	8.693331	3.077105	0.403954
5	0.644465	80.20426	4.703327	12.16026	2.493661	0.438491
6	0.723757	76.40604	5.182818	15.07650	2.230650	1.103993
7	0.779940	73.55228	5.833813	17.12583	2.048042	1.440036
8	0.829881	71.08521	6.045443	19.16352	1.986503	1.719323
9	0.880117	70.22584	5.798176	20.08089	2.026697	1.868398
10	0.924211	69.52874	5.510480	21.02769	1.933638	1.999457

Table 4: Variance Decomposition of GDP
Source: Authors estimation using Eviews

The result from table 4 shows that own shock of the GDP dominates the variation in the short term of 10-year forecast horizon. But the fact that both oil and non-oil exports gain more influence of the variation over the 10 years point to their role in the economic growth in the long run. In the second year of the forecast horizon, shocks in the GDP controlled 86% of the total variation in the GDP while both Oil and non-oil exports combined controlled less than 10%, but after ten years the total export controlled the variation in GDP by about 27%. In the two compositions, the oil export dominates non-oil exports in the control of variation of the GDP over the 10-year forecast horizon. In the second-year non-oil export controls 2% while oil export controlled about 8%. After six years, oil export accounted for 20% of the variation in GDP while Non-oil export accounted for 5% of the total variation in GDP.

The result is therefore indicative of the decreasing performance of the non-oil export in the economic growth of Nigeria, at least, in the chosen forecast horizon. In spite of the fact that both the compositions (oil and non-oil) of export exhibited increasing influence in accounting for the variation of GDP, the result shows a widening gap over the years, between the oil and non-oil exports control of the variation in GDP.

Period	S.E.	LOGGDP	LOGNX	LOGOX	LOGOPEN	LOGK
1	0.379955	7.770237	92.22976	0.000000	0.000000	0.000000
2	0.584010	3.296047	81.69971	4.651011	0.001491	10.35174
3	0.771093	1.941368	77.57269	2.887633	6.846549	10.75176
4	0.926048	1.486114	69.53006	4.594438	11.50928	12.88011
5	1.026819	1.508240	68.49810	4.700565	14.13650	11.15660
6	1.081509	1.764541	67.30623	4.584758	15.06402	11.28045
7	1.129377	2.145876	66.32306	4.308779	14.75565	12.46663
8	1.170457	2.008612	64.43587	4.068232	14.42307	15.06422
9	1.207989	1.933052	63.45254	4.008514	13.84942	16.75648
10	1.241873	1.844396	63.16187	3.852713	13.16191	17.97911

Table 5: Variance Decomposition of Non-Oil Exports
Source: Authors estimation using E-Views

Table 5 above indicates that shocks in the non-oil export accounts for its own variation dominantly in the 10-year forecast horizon. However, it decreases from 92% in the first year to 63% in the tenth year. This happens as the trade openness index gained increasing influence on the variation of the non-oil export, from 0% to 13% within ten years, while the relative importance of oil export is little and virtually constant over the years. It therefore points to the role of trade liberalization in controlling the non-oil export fluctuations at least, in the short-term period.

Period	S.E.	LOGGDP	LOGNX	LOGOX	LOGOPEN	LOGK
1	0.441417	39.85214	25.77657	34.37129	0.000000	0.000000
2	0.604354	44.65597	23.32340	31.27941	0.227255	0.513972
3	0.715710	34.08811	33.77005	30.99020	0.162740	0.988907
4	0.833397	27.41040	39.38682	31.79059	0.682396	0.729785
5	0.969239	22.98940	41.18748	31.98947	3.269381	0.564275
6	1.085124	19.19426	41.39406	34.28815	4.560225	0.563301
7	1.175171	17.03253	41.00053	35.35475	5.630039	0.982151
8	1.236409	15.87380	40.78757	36.21755	6.102217	1.018873
9	1.285484	15.28416	40.63127	36.77597	6.318454	0.990144
10	1.330237	15.38510	40.07817	37.22405	6.359686	0.952996

Table 6: Variance Decomposition of Oil Exports
Source: Author's estimations using Eviews

Table 6 above shows the variance decomposition for oil exports in the 10-year forecast horizon. In contrast to the non-oil export, variation in the oil export is caused by the proportionate shares of GDP, non-oil export and the own shock of the oil export.

Conclusively, from the three tables (7, 8 & 9), we can infer that fluctuations in the GDP is, for the most part the forecast horizon, accounted for by it is own shocks. Oil and non-oil exports both play some degree of control of the variation of GDP while trade openness index and capital have much inconsequential control. It therefore points to the fact that exports compositions are important determinants of the Nigerian economic growth.

5. Conclusion and Policy Recommendations

The paper examined the relative role of the two components of exports; oil and non-oil by using VAR based approach. From the results, some conclusions can be drawn. First, export in general is positively related to the economic growth of Nigeria. However, the relative contributions of the two broad compositions of exports, that is, oil and non-oil exports to the economy differ. Oil exports have significant dynamic impact. Non-oil exports do not seem to make impact in the economy in the short-run, but appears to be significant in restoring imbalances in its long run relationship with other the GDP and other variables.

Secondly, although GDP responds positively to shocks in both oil and non-oil exports, the oil export component elicits more response than the non-oil export at least in the short-term forecast horizon term. Thus, we are inclined to say that changes whether by policy or abrupt in the oil exports will have much more immediate impact on the economy. This has shed light on the possible policy direction. Thus, policy actions centered on diversifying the economy by promoting non-oil export are likely to have long run effects.

It is therefore recommended that the existing efforts by government to diversify the economy through non-oil export should be sustained and strengthened. This is owing to the two facts; one, the non-oil exports have long run impact on stabilizing the economy, and two the economic growth has shown positive response to external shock from the non-oil export component. Intuitively, it conforms to the idea of "linkages effect" the non-oil exports may have with the agricultural and manufacturing sectors

It is also critical that policy actions should point to the direction of trade liberalization and increase in productivity. The trade openness index has shown positive dynamic impact on the economic growth. Also through Research and Development productivity in the non-oil sector can be improved.

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