Are Exports the Engine of Growth? A Sectoral Investigation for Nigeria

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Abstract

This study was carried out to test the export–led hypothesis in Nigeria using VECM. It disaggregate the exports into various sectors like oil sector export, manufacturing sector export, agricultural sector export, and service sector export. The result shows a long run positive relationship between agricultural export and economic growth is positive. Also, there is a long run positive relationship between the manufacturing sector export and economic growth. However, there is an inverse relationship between the oil sector exports and economic growth in the long run. The paper concludes with the recommendation that there is a need to reduce the oil sector concentration of the country's export.

Key words: Export, Growth, VECM, Co-integration, Sectors

1.1 Background of the study

The importance of economic growth to every nation cannot be overemphasized. More importantly, its place in the economic development of developing countries is emphasized as it has become the focus of most developing countries. Economic growth helps reduces poverty, generate employment opportunities, and improve standard of living (Squire, 1993). However, for growth to be effective in achieving its aims, it must be high and sustainable (Esterly, 2002) Also, Kapsos (2004) estimated the growth requirement for poverty reduction, and found that The world's developing countries would need to grow at a 4.7% and 10.4% annual rate to reduce $1 working poverty and $2 working poverty respectively by halve. In view of this, many governments have adopted different measures aimed at achieving accelerated and sustainable. One of these policies is trade liberalization. As noted by Azam and Naeem (2009), the shift from trade restriction to trade liberalization by many countries is as a result of the fact that export increases economic growth.

Export of goods and service is a vital source of foreign earnings, employment opportunities, and intra-industry trade. It provides wide exposure opportunities to the world market so as take advantage of economies of scale, and the benefits that accrue from it. Also, Bbaale and Mutenyo(2011) noted that trade leads to efficiency in resource allocation, employment generation and provide foreign exchange needed to correct balance of payment disequilibrium. Abou-Strait (2005) also concluded that export is a channel necessary for the overall development of an economy. Palley (2011) noted also that technology transmission and knowledge spillovers which are needed for the growth of an economy are made possible through trade.

 The relationship between export and economic growth has long been investigated in the literatures. According to the classical school, led by Adam Smith, international trade helps to increase the world output growth. Adam Smith argued that international trade through specialization will help to increase the world output. He argued that free trade through exports and import of goods and services will serve to increase the standard of living of a country. According to him, countries should specialize in the production of goods and service in which it has absolute advantage over others, and export same. Also, countries should imports goods in which it has absolute disadvantage. This means that every country will gain from trade, as against the Mercantilism idea in which stronger countries gain at the expense of the weaker ones. He however did not explain how trade can still take place in situations in which a country has absolute advantage in production of both goods.

Explanation to this was later provided by Ricardo (1817) when he argued that what determines trade between two countries should be comparative advantage and not absolute advantage. According to him, a country does not need to have absolute advantage to benefit from trade. If a country has absolute advantage in both goods, the country should specialize in the good for which it has the greatest absolute advantage, and if a country has absolute disadvantage in both goods, it should specialize in the good for which it has the least absolute disadvantage. This means that each country should specialize in the productions of goods in which it has relative less labor cost compare to other goods. The positive role of export in economic growth has also been emphasized by various authors like Kormendi & Meguire (1985); Fosu (1990). The positive relationship between export and economic growth is embedded in what is known as the Export-led-growth hypothesis. It states that as a vital source of foreign earnings, and employment opportunities, exports is a major driver of economic growth. It is a strategy that aims to encourage producers by providing them with incentives to produce goods and services that are able to compete in the world market.

However, the impact of export on economic growth of developing countries has been a question of debates in the literature. This is because of the argument that specialization creates a bias in the world trade pattern. Developing countries' exports are characterized with primary products like agricultural goods that command little price in the world market, while developed countries export manufactured goods that command high prices. The implication of this is that free trade as promoted through specialization invariably makes developing countries to be confined in the production of primary products. This will eventually have a negative effect on developing economies in the long run. Hence, for trade or the ELG to benefit developing countries, stabilize export earnings, and increase economic growth, there is a need for diversification in the export pattern. Over the years, the pattern of trade has changed across the world with many developing countries moving away from the production of primary goods to manufactured ones. However, Africa region has remained predominantly a primary products exporter.

Aware of the role of export in the growth of an economy, the Nigerian government has adopted different policy strategies aimed at increasing the country's share of world export with emphasis on the promotion of non-oil export. The policies were designed to provide incentives to local firms to reduce cost of production, and increase production. This is to make the country's export cheaper and attractive to the world. This includes Currency Retention Scheme, Export Development Fund (EDF), Pioneer Status Scheme (PSS), Export Price Adjustment Fund (EPAF), Capital Asset Depreciation Allowance (CADA), Export Promotion Zone (EPZ) etc. However, this has yielded little or no significant result (Abogan, Akinola, and Baruwa, 2014).

In the 1960's, the Nigerian export was largely dominated by non-oil export like as groundnuts, palm kernel, palm oil, cocoa, rubber, cotton, tin ore, columbite, hides, and skin, and coffee, accounting for over 66% of total exports (Ogunkola et al., 2008). However, the discovery of oil caused a shift from non-oil export to oil export in the country. This continues to the extent that while oil export was growing, non-oil exports were declining making the dominance much more rapid and pervasive. For instance, Nigeria was a net exporter of agricultural products before the discovery of oil but became a large-scale importer of the same commodities during the period of 1973–1982 (Oyejide, 1986). This decline is not however due to improvement in the manufacturing sector contribution in the total export shares but a result of over-reliance on the oil sector. This has led the country to difficulties whenever there is volatility in the price of crude oil. This includes poor budget implementation, macroeconomic instability etc. There is therefore the need to diversify the export base of the country to increase the contribution of non oil export in the share of the country's export. To do this, understanding the relative impact of each sector's export on the growth of the economy will help policy makers to know the direction to follow. This is the focus of this work.

2.1 Literatures Review

There have been various attempts by economists across the globe to study the relationship between export and economic growth. Using co-integration and multivariate Granger Causality techniques, Nasim and Turkhan (2004) investigated export-led growth hypothesis for Pakistan over the period 1960 to 2003.The results show a strong long-run relationship between export and output growth. The result also shows a unidirectional causality from export to output growth. In examining the export-led growth hypothesis, Boriss and Dierk (2005) examined the impact of manufactured and primary exports on the economic growth in Chile. The study employed the Toda and Yamamoto procedure for testing for Granger non-causality in Vector Autoregressive models. The research findings confirm the export-led growth hypothesis for the country. Also, Ugwuegbe. Ugochukwu, Uruakpa (2013) investigated the relationship between oil and non-oil exports and economic growth using ordinary least square and granger causality test techiniques from 1986-2011. The result shows that both oil exports and non-oil exports positively and significantly impact economic growth in Nigeria. Alimi (2012) also used co-integration and granger causality tests to examine the role of export in the economic growth process in Nigeria over the period 1970 to 2009. The results show that there is a of bi-directional causality running from export to economic growth in Nigeria. This work is different in that it uses sectoral level data. Most of the studies on export in Nigeria have been based on aggregate data. Analyzing the effect of various sectors' export on economic growth will help policymakers to know which sectors to prioritize in development policy formulation. This study fills this gap in the literatures

2.2 Export-Led Growth Hypothesis

The export-Led-Growth (ELG) hypothesis postulates that increase in export of a country is a catalyst to her economic growth. In order words, in order word, .the growth in export has capacity to influence the growth of the overall economy. According to the proponents of the ELG, export is the solution to economic backwardness especially in less developed economies

2.3 Trends in export in Nigeria
### 2.3.1 Oil export in Nigeria
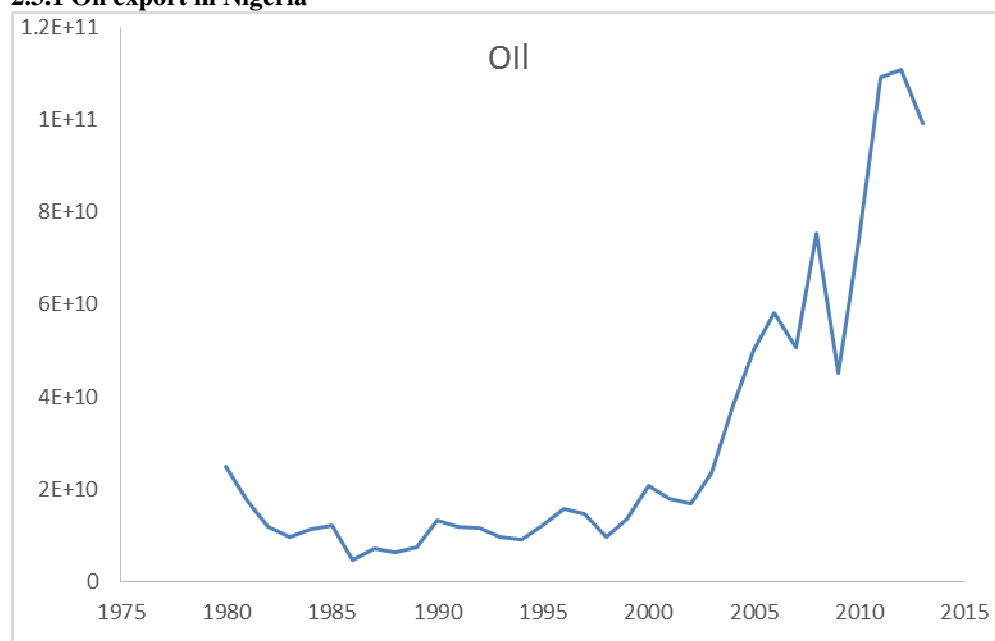
The export of oil began in Nigeria in 1958, and since then, it has been the mainstay of the economy. Between 1980 and 2002, the volume of oil export has been relatively steady, rising and falling. However, between 2003 and 2006, there was a spike in the oil export. It increased from US$23,524,569,580 in 2003 to US$58,098,293,645 in 2006. It however fell to US$50,763,681,369 in 2007. In year 2008, it increased to US$75,225,801,224, but latter declined in year 2009. It increased from US$73904989038 in 2010 to US$1.10732E+11 in 2012 but dropped to US$99285617191 in year 2013.

2.3.2 Agricultural Export in Nigeria
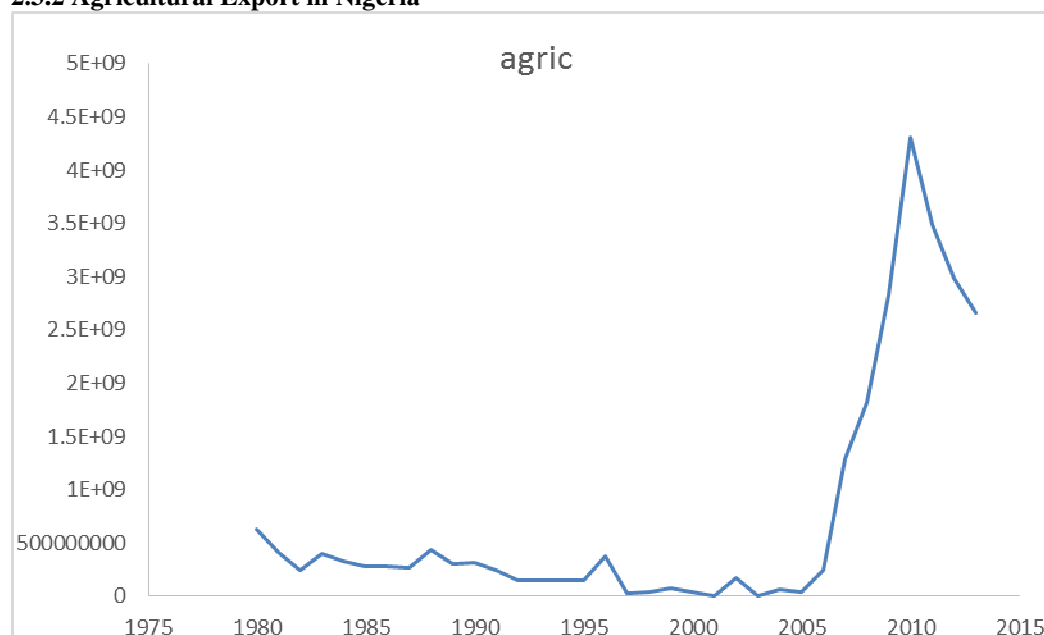
Since the discovery of oil, the agricultural sector has suffered a gradual neglect in Nigeria. The sector's export decreased from US$629,911,016 in 1980 to US$270,025,339 in 1987. This continued until 1995 as it stood at US$150,000,000, but increased in 1996 to US$373076544.. The year 2010 recorded the highest volume of agricultural export with US$4,303,184,675, and decreased continually afterwards.

2.3.3 Manufacturing Export in Nigeria
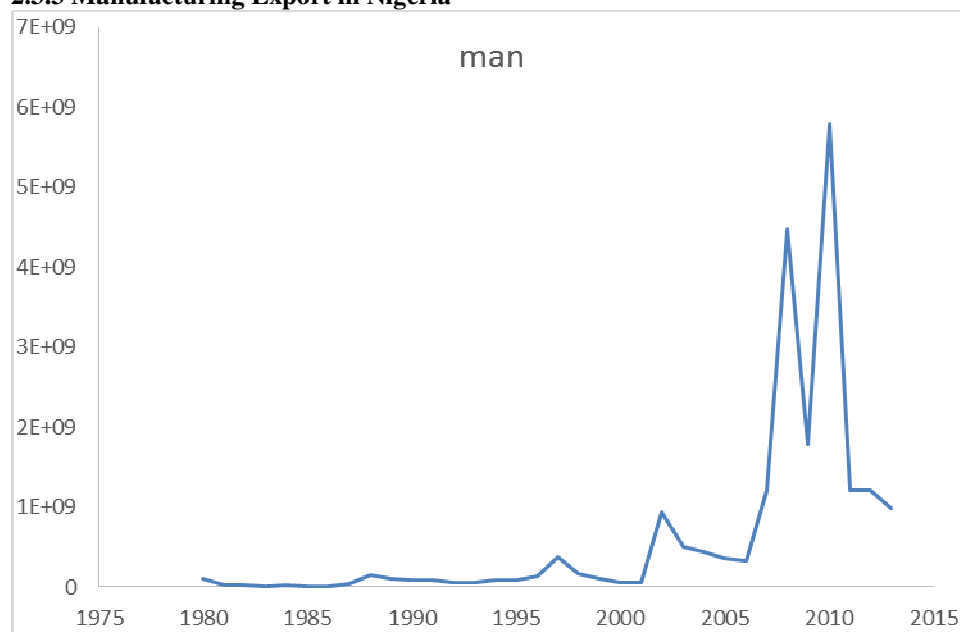
The manufacturing sector's export has also not been encouraging because the sector also suffers a neglect as a result of the oil discovery. Between 1980 and 2000, the sector's export was extremely low until late 2000s. In the year 2009, the manufacturing export was US$1,791,042,033 and increased to US$5,787,057,840 in 2010, but dropped to US$1,206,298,671 in 2011, US$1,211,607,828 in 2012 and US$980,010,605 in 2013.

2.3.4 Service export in Nigeria
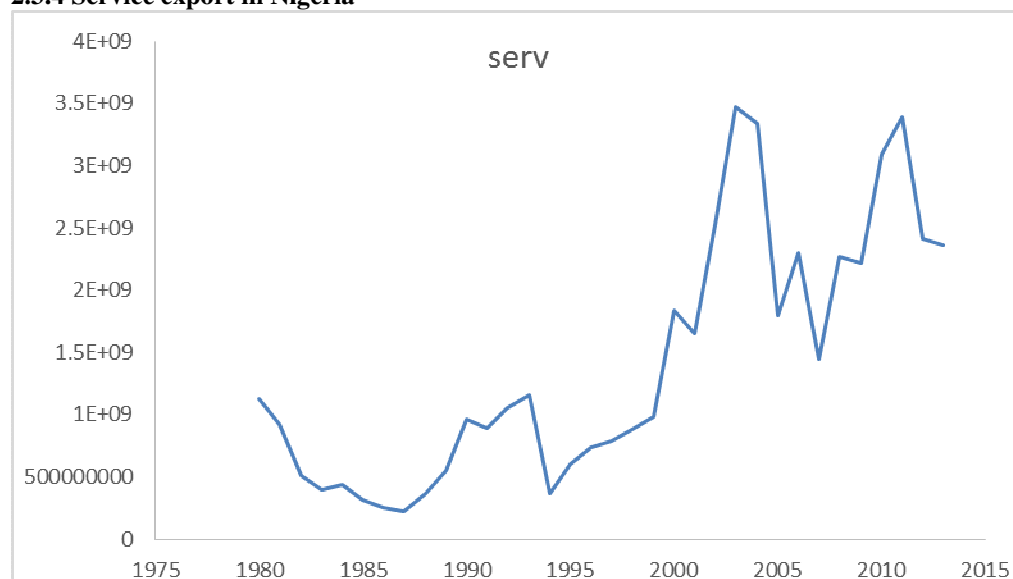
The export of the service sector decline from US$1126590000 in 1980 to US$224102000 in 1987. It increased from US$607,576,000 in 1995 to US$3,473,180,000 in 2003. Between 2012 and 2013, the service export stood at US$2,410,832,000 and US$2,362,088,559 respectively.

3.0 Research Methodology

3.1 Data Type and Sources

The study makes use of annual data from 1980 to 2013. The data were obtained from World Bank data bank, and World Trade Organization. The data used in this work is in current U.S dollar. The data will be collected on variables like GDP, exchange rate, and various sectorial exports. The sectors examined include the Oil sector,

the Agricultural sector, the Service sector, and the Manufacturing sectors. These sectors are of high importance to the economic growth of the country.

3.2 Model Specification

This work uses the augmented Cobb–Douglas production model, which is modified in line with the objective of this work, and presented below:

$$Y_t = (E_t, X_t) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ 3.1$$

Where Y, E, and X are gross domestic product and exchange rate, and index of sectorial exports respectively. The empirical VECM is specified below:

$$\Delta lnY_t = c_1 + \sum_{i=1}^{p} \pi_{11}^i \Delta lnY_{t-i} + \sum_{k=1}^{p} \pi_{12}^k \Delta lnE_{t-k} + \sum_{m=1}^{p} \pi_{13}^m \Delta lnSer_{t-m} + \sum_{n=1}^{p} \pi_{14}^n \Delta lnOil_{t-n} +$$
$$\sum_{w=1}^{p} \pi_{15}^w \Delta lnMan_{t-w} + \sum_{g=1}^{p} \pi_{16}^g \Delta lnAgric_{t-g} + \emptyset_1 ECM_{1t-1} + \varepsilon_{1t}$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.2$$

$$\Delta lnE_t = c_3 + \sum_{i=1}^{p} \pi_{31}^i \Delta lnE_{t-i} + \sum_{j=1}^{p} \pi_{32}^j \Delta lnY_{1t-j} + \sum_{m=1}^{p} \pi_{33}^m \Delta lnSer_{t-m} + \sum_{n=1}^{p} \pi_{34}^n \Delta lnOil_{t-n} +$$
$$\sum_{w=1}^{p} \pi_{35}^w \Delta lnMan_{t-w} + \sum_{g=1}^{p} \pi_{36}^g \Delta lnAgric_{t-g} + \emptyset_3 ECM_{3t-1} + \varepsilon_{3t}$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.3$$

$$\Delta lnSer_t = c_4 + \sum_{i=1}^{p} \pi_{41}^i \Delta lnSer_{t-i} + \sum_{j=1}^{p} \pi_{42}^j \Delta lnY_{1t-j} + \sum_{m=1}^{p} \pi_{43}^m \Delta lnE_{t-m} + \sum_{n=1}^{p} \pi_{44}^n \Delta lnOil_{t-n} +$$
$$\sum_{w=1}^{p} \pi_{45}^w \Delta lnMan_{t-w} + \sum_{g=1}^{p} \pi_{46}^g \Delta lnAgric_{t-g} + \emptyset_4 ECM_{4t-1} + \varepsilon_{4t}$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.4$$

$$\Delta lnOil_t = c_5 + \sum_{i=1}^{p} \pi_{51}^i \Delta lnOil_{t-i} + \sum_{j=1}^{p} \pi_{52}^j \Delta lnY_{1t-j} + \sum_{m=1}^{p} \pi_{53}^m \Delta lnE_{t-m} + \sum_{n=1}^{p} \pi_{54}^n \Delta lnSer_{t-n} +$$
$$\sum_{w=1}^{p} \pi_{55}^w \Delta lnMan_{t-w} + \sum_{g=1}^{p} \pi_{56}^g \Delta lnAgric_{t-g} + \emptyset_5 ECM_{5t-1} + \varepsilon_{5t}$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ 3.5$$

$$\Delta lnMan_t = c_6 + \sum_{i=1}^{p} \pi_{61}^i \Delta lnMan_{t-i} + \sum_{j=1}^{p} \pi_{62}^j \Delta lnY_{1t-j} + \sum_{m=1}^{p} \pi_{63}^m \Delta lnE_{t-m} + \sum_{n=1}^{p} \pi_{64}^n \Delta lnSer_{t-n} +$$
$$\sum_{w=1}^{p} \pi_{65}^w \Delta lnOil_{t-w} + \sum_{g=1}^{p} \pi_{66}^g \Delta lnAgric_{t-g} + \emptyset_6 ECM_{6t-1} + \varepsilon_{6t}$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ 3.6$$

$$\Delta lnAgric_t = c_7 + \sum_{i=1}^{p} \pi_{71}^i \Delta lnAgric_{t-i} + \sum_{j=1}^{p} \pi_{72}^j \Delta lnY_{1t-j} + \sum_{m=1}^{p} \pi_{73}^m \Delta lnE_{t-m} + \sum_{n=1}^{p} \pi_{74}^n \Delta lnSer_{t-n} +$$
$$\sum_{w=1}^{p} \pi_{75}^w \Delta lnOil_{t-w} + \sum_{g=1}^{p} \pi_{76}^g \Delta lMan_{t-g} + \emptyset_7 ECM_{7t-1} + \varepsilon_{7t}$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..\dots\dots\dots \ 3.7$$
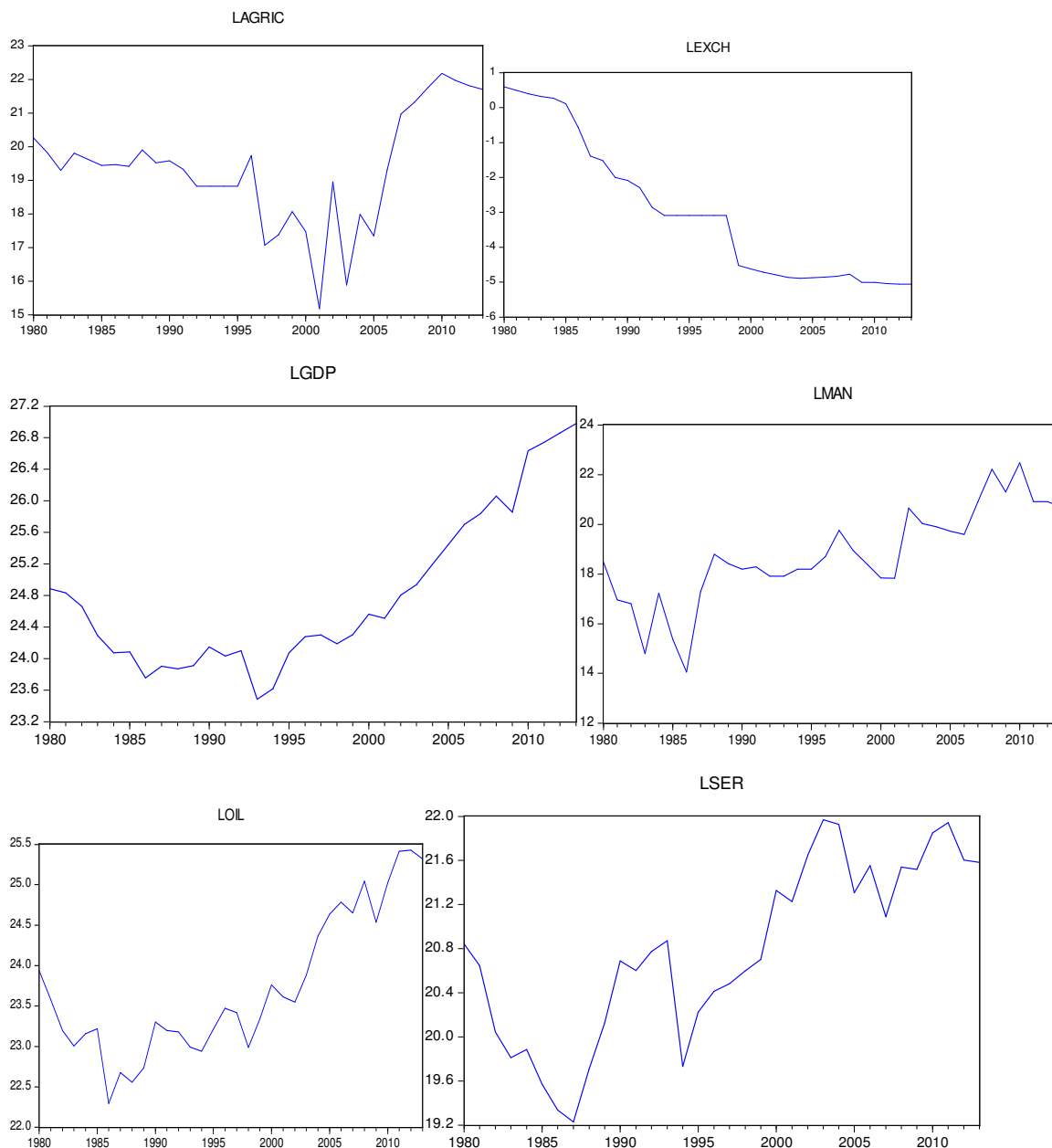
Where Ser, service sector export, Oil, oil sector export, Man, manufacturing sector export, Agric, the export of the agric sector. Y, E, are as previously defined.

4.0 Results Presentation and Discussion

4.1 Unit root test

 In this work, the unit root test will first be done through a graphical presentation. This will then be followed by the Augmented Dickey Fuller test (ADF).

Figure 4.1 **Movement of the Variable throughout the Period under Review**

From the graphical plot of the variables namely service sector export, oil sector export, manufacturing sector export, export of the agricultural sector, real exchange rate, and GDP used in the model show the non-stationary processes behaving as random walk with drift. This shows that the variables deviate from the true mean with time. This is further confirmed through the ADF unit root test. The result is presented in table 4.1 below

Table 4.1: ADF Unit Root Test

Variables	At level				At First Difference				Order of Integration
	Intercept		Intercept and Trend		Intercept		Intercept and Trend		
	T-Stat	Prob.	T-Stat	Prob.	T-Stat	Prob.	T-Stat	Prob.	
LAGRIC	-0.800779	0.8054	-0.982172	0.9326	-10.04051*	0.0000	-10.32113*	0.0000	I(1)
LEXCH	-1.765700	0.3902	-0.805537	0.9549	-4.877039*	0.0004	-5.234801*	0.0009	I(1)
LGDP	-1.051879	0.9962	-1.771559	0.6955	-5.168777*	0.0002	-6.888231*	0.0000	I(1)
LMAN	-1.727372	0.4087	-3.529618	0.1252	-6.974025*	0.0000	-6.974025*	0.0000	I(1)
LOIL	-0.318707	0.9115	-3.167672	0.1083	-4.920396*	0.0004	-5.425756*	0.0006	I(1)
LSERV	-1.174383	0.6736	-3.291391	0.1853	-5.871201*	0.0000	-5.833320*	0.0002	I(1)

* indicates rejection of the null hypothesis at 1 percent level of significance

The results show that all the variables are not stationary at 1% and 5% levels of significance. However, by first-differencing series, in all cases, the null hypothesis of non-stationary process is rejected at 1% level of significance. Thus the results indicate that all variables are integrated of order one. This is also confirmed by the plot of the firs-differencing of the variables in figure 4.2 below:

Figure 4.2
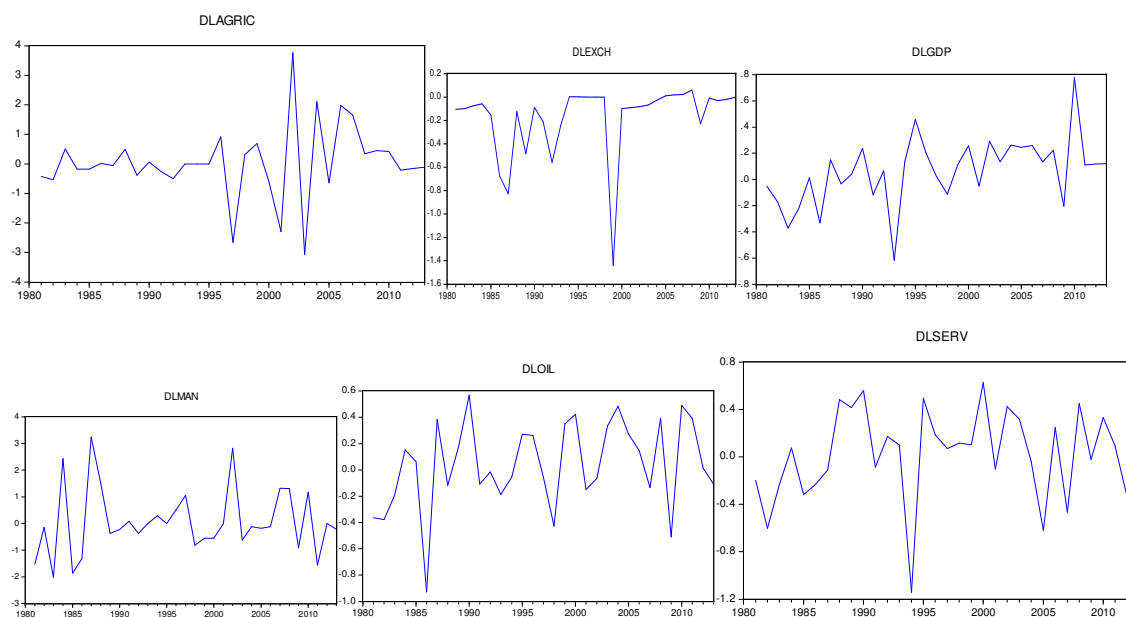
Next, we examine their co-integration vectors to determine if they have long run relationship.

4.2 Co-integration Test

We check the co-integration using Johansen test. The result is presented in the table 4.2 below

Table 4.2 Johansen Co-integration test

Hypothesized No. of CE(s)	Trace Statistics	Max Engen Statistics	Critical Values (5%)		Critical Values (5%)	
			Trace	**P-value**	**Max-Eigen**	**P-Value**
r = 0*	99.11456	32.31577	95.75366	0.0288	40.07757	0.2860
r ≤ 1	66.79879	25.97861	69.81889	0.0850	33.87687	0.3221
r ≤ 2	40.82018	20.55218	47.85613	0.1945	27.58434	0.3042
r ≤ 3	20.26800	13.90947	29.79707	0.4049	21.13162	0.3725
r ≤ 4	6.358524	5.596225	15.49471	0.6531	14.26460	0.6654
r ≤ 5	0.762298	0.762298	3.841466	0.3826	3.841466	0.3826

Note: * denotes significant at 1% significance levels

The result of the co-integration test shows that the Trace test reveals at least one co-integrating equation. Based on the Trace test, we conclude that there is long run relationship among the variables. The presence of co-integration means that the variables are related to each other in the long term. With the discovery of co-integration in the model, we analyze the VECM.

4.3 Vector Error Correction Model

The VECM allows us to separate the short run and long run effects of the variables. The results are presented in table 4.3a and table 4.3b below.

Table 4.3a **Normalized Long-run Co-integration Coefficients**

Variable	Coefficient	Standard error	t-statistic
Constant			
LGDP	1.000000		
LAGRIC	0.002822	0.02319	0.12166
LEXCH	-0.210663	0.02853	-7.38353
LMAN	0.044647	0.03337	1.33795
LOIL	-1.602039	0.07298	-21.9530
LSERV	-0.091687	0.07913	1.15869

The result shows that the long run relationship between agricultural export and economic growth is positive, A 1% increase in agricultural sector export will increase economic growth by 0.0028%. Also, there is a long run positive relationship between the manufacturing sector export and economic growth. However, there is an inverse relationship between the oil sector exports and economic growth in the long run. A 1% increase in oil export leads to 1.6% decrease in economic growth in the long run. Also, there is an inverse relationship between the exchange rate and economic growth in the long run. The negative relationship between oil export and economic growth in the long run may be due to export concentrations which do impact negatively on economic growth as a result of external shocks. Both the Oil sector export and exchange rate are statistically significant in influencing economic growth in the long run. As noted by Foxley (2009), a country's exposure to external economic shocks generally depends on its reliance on exports because export earnings finance imports and also contribute directly to investment and growth. Production structures primarily oriented towards export-led growth expose countries to external shocks more than production structures reliant on domestic demand. The impact of an economic shock is typically registered through losses in export earnings. The size of impact (i.e., the magnitude of trade loss) depends on each country's mix of exports. By all accounts, higher degrees of export concentration are strongly correlated with greater volatility in export earnings and economic growth rates. The finding is also in line with that of Dawe, (1996), who found out that export instability affects investment negatively and this is transformed onto economic growth that results to difficult poverty alleviation

Table 4.3b Short Run Result

| Variable	Coefficient	Standard error	t-statistic
LGDP	-0.554570	0.37719	-1.47026
LAGRIC	0.085387	0.04867	1.75437
LEXCH	0.299990	(0.22669	1.32336
LMAN	-0.050188	(0.05004	-1.00302
LOIL	0.710593	0.38202	1.86011
LSERV	-0.162529	0.16843	-0.96499

The short run result shows that there is positive relationship between economic growth and agricultural sector export in the short run. A 1% increase in the export of agricultural sector increases economic growth by 0.08%. However, for Oil sector. A 1% increase in oil export increases economic growth by 0.7%. Exchange rate also improves the country's growth in the short run. As the country's currency appreciates, economic growth also appreciates by 0.29%. However, manufacturing sector export exerts a negative relationship on economic growth in the short run. This, however, is against the expected sign. However, it could be explained that export is used to buy imports. Nigerian manufacturing sector depends on import for their raw materials like equipment. By using their exports to buy import, through exchange rate and transportation cost, we have imported inflation in the country. This invariably impact negatively on economic growth in the short run. The result is further explained through the variance decomposition and impulse response function. The coefficient of adjustment shows 55% adjustment process to equilibrium annually.

4.4 Impulse response function

The impulse response functions trace the effects of a shock to one endogenous variable that is due to shock in other variables in the VECM. Only the impulse responses of economic growth owing to one standard deviation shock in the innovations of the independent variables will be presented in this work. This is presented in figure 4.3 below.

Figure 4.3 Response of LGDP to Shock in Independent Variables

Response of LGDP to LSER
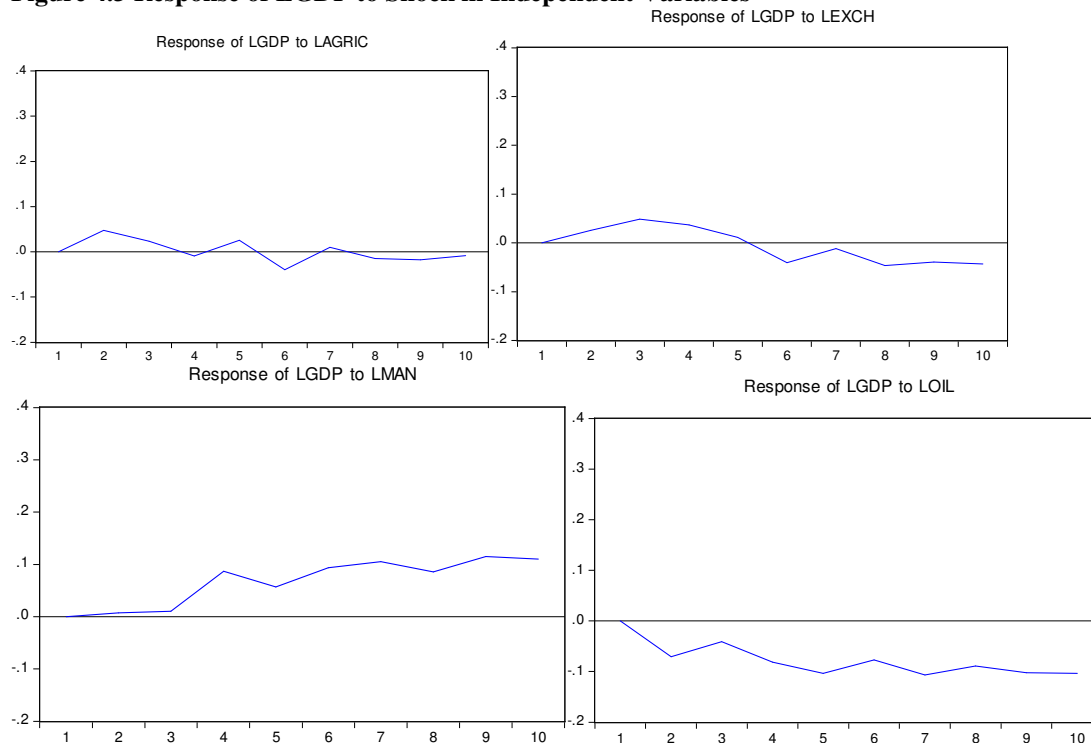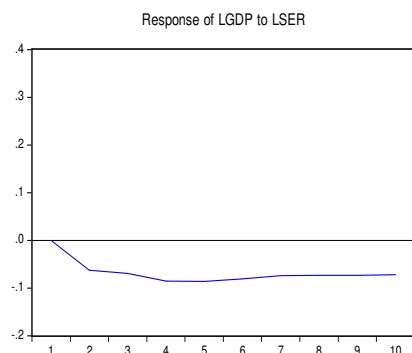
In general, economic growth positively to shock in agric sector export in the second period. This response becomes negative after period 5, but this was marginal and insignificant, but it tends to die out with time. The response of economic growth to shock in exchange rate was initially positive, and pronounced, but became negative after the fifth period, and remains so. The response of GDP to shock in manufacturing export was stable marginally till the third period, and later become positively pronounced afterword. The response of economic growth to oil export also shows that it was initially stable and positive in period one, and became negative afterword. The response of economic growth to service export also shows initial positive and stable relationship in period one, but became negative afterward The results confirm the results of the VECM.

4.5 Variance decomposition analysis

The forecast error variance employed in this work is that of Sim's Recursive Cholesky decomposition method. The forecast error variance decomposition provides complementary information for a better understanding of the relationships between the variables in the VEC model. Only the variance decomposition of LGDP is presented in this work. The result is presented in table 4.4 below.

Table 4.4 variance decomposition of LGDP

Period	S.E.	LGDP	LAGRIC	LEXCH	LMAN	LOIL	LSER
1	0.247549	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.418104	93.19341	1.303099	0.370865	0.029163	2.861025	2.242435
3	0.545660	92.81621	0.952431	1.015357	0.056448	2.236844	2.922712
4	0.679254	90.38330	0.631111	0.951883	1.692044	2.878316	3.463344
5	0.796066	89.50159	0.565076	0.712645	1.743775	3.786044	3.690866
6	0.893807	88.61744	0.643758	0.772430	2.484117	3.745937	3.736323
7	0.987080	87.77328	0.538097	0.647802	3.180309	4.231976	3.628537
8	1.061745	87.39529	0.484193	0.751186	3.400196	4.361620	3.607520
9	1.141510	86.71322	0.442318	0.767440	3.961845	4.577534	3.537639
10	1.209728	86.12179	0.398309	0.809061	4.361105	4.808876	3.500860

The result depicts that the largest source of variations in GDP forecast error is attributable to its own shocks. The innovations of agricultural export to GDP, exchange rate, manufacturing sector output, oil sector output, and service sector output are other important sources of the forecast error variance of GDP. In all, the oil sector export contributed the largest variation to GDP. This is followed by the service sector export. The agricultural sector contributed the least to the forecast error variance.

4.6 Diagnostic Checks

To validate the assumptions of the model, diagnostics checks are conducted. This will help validate the findings of this work. If there is a problem in the residuals from the estimated model, the model is not efficient and the estimated parameters will be biased, and cannot be used for policy inference. The main residual checks conducted are the heteroscedasticity test, this was tested using White's test with no cross terms, Jarque-Bera's normality test, and the serial correlation test which was tested using the Langrage multiplier (LM) test. The Diagnostic test results are shown in Table 4.6 below;

Table 4.6 Diagnostics Checks

TEST	Null Hypothesis	t-Statistic	Probability
White (Chi-sq.)	No conditional heteroscedasticity	552.6567	0.4126
Jarque-Bera	There is normal distribution	17.49939	0.1318
Langrage Multiplier (LM)	No Serial Correlation	40.29383	0.2860

The Autocorrelation LM test shows that the null hypothesis of no serial correlation fails to be rejected confirming no presence of serial correlation. The White Heteroscedasticity test results fail to reject the null hypothesis and shows that there is no Heteroscedasticity. The Jarque-Bera test shows that the residuals are normally distributed.

The VECM was also tested for AR Roots test and serial correlation and the results are indicated in figure 4.2

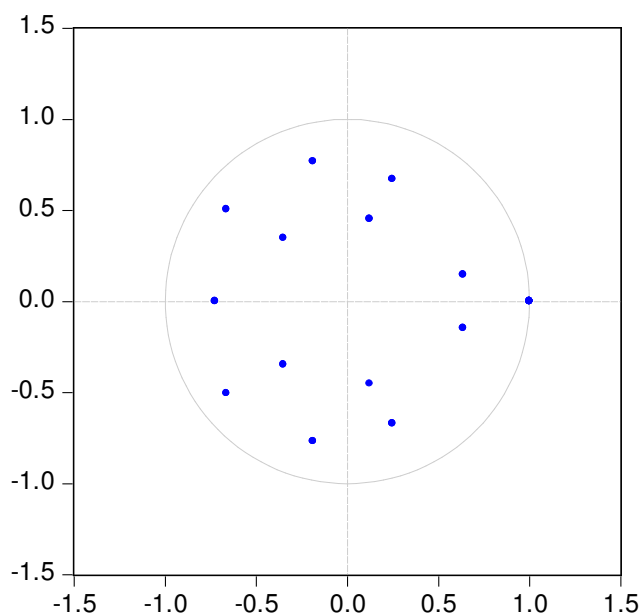Inverse Roots of AR Characteristic Polynomial

Figure 4.2

The AR Roots Graph reports the inverse roots of the characteristic AR polynomial. The estimated VECM is stable (stationary) if all roots lie inside the unit circle. Figure 4.2 shows that all roots lie inside the unit circle which is an indication that the VECM model is stable

4.7 Granger Causality Test

The result of the granger causality test is presented in table below

Table 4.7: Results of the VEC Granger Causality/Block Exogeneity Wald Tests.

VARIABLE	LGDP	LAGRIC	LEXCH	LMAN	LOIL	LSERV
LGDP		0.81890 (0.4516)	6.36404 (0.0054)	2.94356 (0.0698)	2.99836 (0.0417)	1.60775 (0.2189)
LAGRIC	2.44635 (0.1056)		0.72020 (0.4958)	0.63117 (0.5396)	2.74214 (0.0824)	1.74343 (0.1940)
LEXCH	0.58331 (0.5649)	0.39094 (0.6802)		0.42715 (0.6567)	2.69873 (0.0854	0.71619 (0.4977)
LMAN	0.39293 (0.6789)	0.27350 (0.7628)	5.56361 (0.0095)		1.16543 (0.3270)	0.32229 (0.7272)
LOIL	1.31599 (0.2849)	0.99779 (0.3819)	5.19163 (0.0124)	3.80361 (0.0350)		2.08897 (0.1434)
LSERV	3.07669 (0.0626)	0.05754 (0.9442)	8.59862 (0.0013)	4.16427 (0.0265)	0.19991 (0.8200)	

NB: The numbers in parenthesis show the P-values for the corresponding

The result of the Granger causality shows a uni-directional causality running from economic growth to service export, and not the reverse. Also, there is a uni-directional causality from exchange rate to economic growth, and from exchange rate to manufacturing sector output, and from exchange rate to service sector export. The causality between exchange rate and oil sector export is bi-directional. Also, there is a uni-directional causality running from manufacturing sector export to economic growth. There is also a uni directional causality running from the manufacturing export to oil sector export. This also applies to service sector export. There is also a unidirectional causality from the oil sector export to agric sector export, and economic growth. The service sector and the agric sector exports do not granger cause any of the other variables in the model.

5.0 Conclusions and Policy Recommendations
5.1 Summary of the Main Findings
This study was carried out to test the export –led hypothesis in Nigeria. It disaggregate the export into various sectors like oil sector export, manufacturing sector export, agricultural sector export, and service sector export. The result shows a long run positive relationship between agricultural export and economic growth is positive. Also, there is a long run positive relationship between the manufacturing sector export and economic growth. However, there is an inverse relationship between the oil sector exports and economic growth in the long run. Also, there is an inverse relationship between the exchange rate and economic growth in the long run.
5.2 Policy Implications and Recommendations
The findings of this work are very important for policy purpose. The negative relationship between the oil export and economic growth means that excessive concentration of the country on the oil sector has adverse effect on economic growth in the country. The negative effect of manufacturing sector's export in the short run calls for the need to source raw materials needed in the sector domestically. The agricultural sector's export has not contributed immensely to economic growth in the country. Though the effect of the sector's export in both the short run and long run were positive, they were however, insignificant. The relationship between exchange rate and economic growth also has some policy implications. The appreciation of exchange rate in the short run leads to increased economic growth in the short-run. However, in the long-run, appreciation in exchange rate impairs economic growth. This is because Nigerian economy is import dependent. Given the findings of this work, we conclude with the following recommendations:

- There is a need to reduce the oil sector concentration of the country's export

- Efforts must be made to increase the non-oil sector components of the country's export

- There is a need to diversify the country's export with a focus on developing the manufacturing sector of the economy.

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