Sectoral Exports and Economic Growth Performance: Evidence from Nigeria

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Abstract

The paper seeks to investigate the contribution of key sectoral exports namely; Agricultural, Manufacturing and Services to the growth of Nigeria's economy using annual data from 1980 to 2021. The Autoregressive Distributed Lag (ARDL) model was employed to estimate the long and short run relationships. The result proved that the Agricultural exports do not contribute to growth of Nigeria's economy, thus the category of the primary exports from Nigeria may not be important in achieving economic growth of the country as compared to the Manufacturing and Service sectors which indicated a positive relationship in terms of contribution to growth in Gross Domestic Product (GDP). The study, however, suggests that; the Agricultural/primary Sector which provides food and raw materials could be more beneficial to the economy if utilized domestically to produce finished or semi-finished products for consequent exports; thus, government should provide more priority to infrastructural development to boost the development of the Manufacturing and Service Sectors. The Service Sector, if harnessed could have the potential of significantly generating foreign exchange earnings for the country through exported services to other countries and the development of domestic micro services companies.

Keywords: Gross Domestic Product, Agricultural export, Manufacturing export, Service export

1. Introduction

Primary products/commodities are regarded as sources of raw materials used in the production of semi-finished or finished goods. They also serve as subsistence means to families, communities and government in terms of provision of foods and export earnings in many developed and developing economies including Nigeria. However, it is notable that the prices of primary product exports over the years have been increasing and commodities have been volatile, with serious attendant implications for economic growth.

Prior to the discovery of crude oil, Nigeria's economy was to a larger extent described as an agricultural dependent economy having a lead contribution of about 70.0% to the country's Gross Domestic Product (GDP), providing employment, and accounting for about 90.0% of foreign earnings to Government, (Ogen, 2003). During this period, Nigeria was recorded to be the world's second largest producer and exporter of non-oil commodities such as: cocoa, cotton, coffee, palm products, cotton, groundnut, rubber, hides and skins amongst others, accounting for over 66.0 per cent of the total exports on the average. (Alkali, 1997), (Ogunkola et'al 2008).

But, over time, the situation began to change drastically, for instance, between the period; 1970–1974, Nigeria's agricultural exports in relation to total exports had dropped significantly from 43.0% to slightly over 7.0%. This development was attributed to the oil discovery leading to oil price shocks experienced in the country between the period. This culminated into receipts of huge foreign exchange earnings for the nation, thus leading to the continuous neglect of the agricultural sector. As exports from the agricultural sector began to shrink, it became obvious that the sector could no longer meet domestic food requirements, supply raw materials for industries (Bakare, 2011). Thus, making Nigeria a net importer of the basic food commodities hitherto exported from the country, leading to a decline in foreign exchange earnings from that sector.

Aligning with some development theories, most economies have now transited from agrarian to industrialization. Manufacturing has generally been ascribed as a sector that facilitates the acceleration of growth and development in nations of the world, (Olorunfemi, et. al 2011). Therefore, the importance of the sector to the growth and development of economies should not be over-emphasized. Countries' experiences, especially from the developed economies in terms of the significant role played by the manufacturing sector have indeed suggested that the manufacturing sector has remained the engine of growth. This is because expansion in domestic production invariably leads exportation to other economies, leading to export earnings.

In recent times, most economies, especially among the developed Nations have experienced the transition from the manufacturing economy to ultimately the service sector. This service industry has the potential to significantly contribute to long-term growth, especially in Sub-Saharan Africa (SSA). The service sector consists of activities in the banking, tourism, real estate, transport, telecoms, entertainment, information communication technology, amongst others.

The service sector is currently the fastest growing sector accounting for 72.0% of gross domestic product (GDP) in high-income countries, 53.0% in middle-income countries and 46.0% in low-income countries (ITC, 2016). It currently accounts for about 53.0% of Nigeria's GDP providing about 33.0% share of employment as compared 7.0% coming from the industry sector. The sector, if harnessed have potentials of significantly generating foreign exchange earnings for the country through services exported to other countries and the development of domestic micro services companies.

This Paper seeks to answer the question of whether the export-led growth strategy is beneficial to Nigeria as a country whose export sector is dominated by primary products especially the Agricultural, Oil & Gas sectors. Many developing countries are dependent on relatively small range of products, generally agricultural commodities, some in crude mineral resources or in general primary products, which account for larger percentage of their export earnings (Berhanu, 2003). For instance, Nigeria and Ghana export crude oil in its crudity form in which they do not have the technological capabilities to process, hence, they in turn end up importing same products in its finished form. Economists such as Prebisch (1950) suggested that there is a long-term tendency for primary product prices to decline as compared to those for manufactured or finished goods. Countries that import raw materials and export same as finished commodities gain more from trade as compared to countries who only export raw materials and eventually import the finished goods at an exorbitant prices or rates. The concerns that has been running through many stakeholders' minds is that: who benefits from this trading structure?

The aim of this study, therefore, is to investigate the contribution of Sectoral exports performance on the economic growth of Nigeria. The specific objectives are to examine the contributions of the Agriculture, Manufacturing & Service Sectors to the growth and development of the Nigerian economy. Thus, the paper employs the Auto Regressive Distributive Lag (ARDL) technique using yearly time series data in achieving the objectives. The contribution of the paper to the body of knowledge is that, not many studies within the Nigerian context have attempted to investigate the role of the 'service sector' exports in determining the growth and productivity of the Nigerian economy, thus the peculiarity of the paper.

The remainder of the paper is structured in the following order: Section 2.0 reviews relevant literature, while Section 3.0 discusses data presentation and methodology. Section 4.0 will present empirical findings and interpretations, while Section 5.0 summarizes and make recommendations.

2. Literature Review & Theoretical Backgrounds

2.1 Literature Review

International trade theories over time have portrayed positive relationships between trade and economic growth of nations which hinge on the classical theories of Absolute & Comparative advantage model (Adam Smith, 1776) and (David Ricardo, 1817), mercantilism, the neo-classical model of Hechsher and Ohlin to the contemporary endogenous growth models.

The Mercantilists ideology is anchored on the fact that, Countries can become wealthy and influential if they export more of goods than they import. Thus, this would invariably result to export surplus; accruing more inflows of earnings thereby prompting the government to continue exporting and discouraging imports.

However, since no two countries could have an export surplus of same goods at the same time, one country could only benefit at the expense of another. This, however, laid claims on the postulation of the Adam Smith's and David Ricardo's Classical theories of Absolute & Comparative Advantage. Adams Smith theory of international trade hinges on absolute 'cost difference' or 'absolute advantages' prescribing that, international trade can only take place when there are absolute cost differences between two countries with the existence of a country having production advantage in a particular commodity, while another country having advantage in producing another commodity. Moreover, according to Ricardo's theory, a country should focus on the production and eventual exportation of a product in which, there exist a comparative advantage, while at the same time importing items in which it does not have an absolute advantage in producing. This would result in specialization that benefits all participating nations.

An export-led growth strategy is a trade policy which a country adopts in increasing its engagements in trade with other economies. Trade policies, in essence assumes promoting development and growth in the long run, the positive externalities that are linked to capital accumulation, i.e., physical investment (Romer, 1986) and human capital accumulation (Lucas, 1988) also enable increases in the growth rate of output. Empirically, the nexus between export performance and economic growth has been an important issue among economists as many researchers have attempted to investigate these relationships.

There are many documented literatures on the nexus between exports and economic growth for different climes including Nigeria using different scopes and methodologies leading to different results and conclusions, but not many empirical studies have accounted for the composition of exports (sectoral exports) and its role in increasing countries' productivity and growth. It is important to factor in the composition or export mix in determining its consequences for economic growth. From the foregoing, the study shall present empirical reviews around a few relevant literatures conducted for Nigeria and other climes which may have produced some uniqueness in the literature.

In determining how viable the export-led growth hypothesis is, (Jun Ho Seok and Hanpil Moon, 2021) conducted a panel study to examine the effects of the agricultural exports on the growth of the agricultural sector of the OECD countries from 1997 to 2016. Their findings supported the claim that agricultural exports contributed more positively to agricultural growth, especially in the European Union subsample.

Among the few studies which accounted for sectoral exports is (Fosu 1990b) who estimated a production function in a panel study for 64 developing countries from the period 1960–1980, established the manufacturing share of exports as having a significant contribution to achieving economic growth, while, primary component contributed little or no effect to growth.

(Duc & Tram, 2011) conducted a study to investigate the relationship between Vietnam's fishery sector exports and economic growth from 1997 to 2008. Using cointegration tests and vector error correction models (VECM), the contribution of the fishery sector to the country output was established to be positive, implying that an increase in the value of its fishery exports would raise GDP by 7.00% in the long run.

(Faridi, 2012), employed the Johansen co-integration technique to examine the contribution of agricultural and non-agricultural sectoral exports to the economic growth of Pakistan from 1972 to 2008. His research found that agricultural exports have a negative and significant impact on growth. Furthermore, agricultural exports and real GDP have bidirectional causality. It was proposed that nonagricultural exports be encouraged to contribute more to output. This result is in contrasts with the findings of (Shida and Muhammed, 2008), who estimated three simultaneous equations to establish the links between agricultural exports and economic growth in Pakistan. Their findings confirmed the existence of a positive relationship between the variables. Similarly, the work of (Simasiku and Sheefeni, 2017) confirmed a positive, but insignificant relationship.

For Nigeria, (Gatawa, and Lawal, 2017) conducted a study on the impact of composite exports (Oil and non-oil exports) growth of the Nigeria's economy using the ARDL model on data spanning from 1980-2015. Their findings confirmed that oil exports positively contributed to the growth of the economy, while establishing non-contribution of the non-oil exports. They, however, found a long run relationship between the export components and output. Also same to (Esu and Udonwa, 2015).

In investigating the export-growth relationship at disaggregating countries' level of exports in terms of composition and diversification of 65 countries from 1965–2005, (Anwesha and Rajat, 2011) revealed that both diversification and composition of exports are important determinants of economic growth, while controlling for the impact of other variables such as lagged Investment, income and infrastructure.

For Thailand economy, (Juthathip, 2020) examined the linkage between export diversification, export margins and economic growth at the industry level for the period 2002–2016. Their findings indicated that export diversification's effects and margins on economic growth vary among industries as expected. Additionally, export diversification promotes growth only in certain industries, like the automobile, electronics, chemical, and rubber sectors, as opposed to the processed food and textiles sectors.

(Kashif and Zanib, 2018) categorized diversification of exports into horizontal and vertical perspectives and investigated its likely impact on economic growth of economies of India, Bangladesh, Pakistan and Sri Lanka. The study employed annual data ranging from 1990 to 2013 and established that, diversification of exports impact significantly on economic growth at the initial stage, after which, horizontal export no longer benefit growth after threshold level.

(Oyelami and Alege, 2018) examined the effects of trade diversification on macroeconomic performance in Nigeria using bounds test for the period 1965-2015, the study confirmed that,

sectoral trade diversification can propel economic growth in the country, and also minimized exchange rate fluctuations. Other studies have provided empirical validation of the view that growth performance is more satisfactory under export promotion, for example see; (Ayomide, 2011), (Basher, 2012), (Adekunle, 2012), (Adeloye, 2012) and (Egwakhide, 2012).

Using the ARDL methodology and Nigerian data ranging from 1962 to 2016, Philip et' al (2019) investigated the link between diversification of exports and growth. Their findings, however, posited export diversification to be more beneficial, but insignificant to the country's output.

Kashif & Zanib (2018) conducted a panel study to investigate the possible impact of export composition (diversification/specialization) on economic growth of South Asian countries, namely; India, Bangladesh, Pakistan and Sri Lanka between 1990 to 2013. With horizontal and vertical export diversification, Cobb-Douglas production function used in the model, incorporated the square term of exports horizontal, vertical and Herfindahl index export diversification. The study confirmed that increasing diversification of export will tend to boost economic growth at first, but after a certain point, export specialization begins to have little effect on growth of the economic. However, while the introduction of additional industries boosts economic growth after a certain threshold level is reached, horizontal export diversification, initially does not improve growth. The relationship between vertical export diversification and economic growth is insignificant and U-shaped.

In summary, the literature reviewed have indicated that most of the studies conducted in Nigeria and other climes employed various methodologies such as the Panel Analysis, Vector Error Correction Model (VECM), the Johansen Cointegration Techniques, Auto Regressive Distributive lag (ARDL) among others. This paper also employed the ARDL Methodology as used in the works of (Gatawa & Lawal, 2017) and (Oyelami & Alege, 2018).

Broadly, most of the studies have established a positive nexus between exports and growth, however, the findings were based on the hypothesis that, it is not exports in totality that matters but the different components in which exports are disaggregated influence economic growth. Most of the studies have disaggregated exports into different sectors or components such as Agriculture, Manufacture, oil and non-oil among others, and had established its connections with economic growth. Their outcomes, are however, mixed varying from one country to another.

From the abovementioned, it can however, be concluded that, there were no many literatures on the contributions of the service sector on economic growth, majority had focused on the agriculture, manufacturing/processing and other sectors of the economy, thus filling the Literature Gap.

2.2 Theoretical Framework

The theoretical framework for examining the relationship between exports and economic growth is anchored on the Cobb Douglas production function as employed in the works of (Damilola and Ayooluwa, 2019); and (Philip et' al, 2019). The function identifies the contributions of the components of export such as primary goods, industrial/intermediate

goods and services activities to economic growth. The theory holds that labor input, capital investment, and multi-factor productivity growth all affect countries' overall output. The expression of the production function is stated below:

$$Y = A_t K_t^{\propto} L_t^{\beta} \ , \propto, \beta > 0 \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 1$$

Where:

Y is the output (productivity) represented by the growth in GDP

K is the production factor capital

L is the production Labour

A, $\propto$ and β are the constants

The constant A_t represents the total efficiency of factors of production (factor productivity), while K_t and L_t represents inputs such as: physical, human development and capital etc. required in for optimal productivity. the parameters $\propto$ and β measure the proportion of total production that is generated by capital and labour.

3. Data and Methodology

3.1 Data

Annual time series data from 1980 to 2021 were used in this study. The data was extracted from the IMF's World Development Indicators (WDI), the National Bureau of Statistics (NBS), and the Central Bank of Nigeria (CBN). The variables used include percentages of Agriculture and Manufacturing exports, Service exports. Others are Real GDP growth rate, Access to electricity, Population of Labour force. The 'service exports' was transformed into logarithm values for uniformity.

3.2 Model Specification

Estimating an augmented Cobb-Douglas production function stated in equation (1), we express the functional equation of our model as written below:

$$\text{GDPgrwth} = f(\text{Agricexp, Manuexp, logServexp, laboforc, Acesselec})\dots\dots\dots\dots\dots.2$$

The estimable function is derived from equation (2) and expressed as:

$$\text{GDPgrwth}_t = \alpha o + \alpha_1 \text{Agricexp}_t + \alpha_2 \text{Manuexp}_t + \alpha_3 \text{logServexp}_t + \alpha_4 \text{laboforc}_t + \alpha_5 \text{Acesselec}_t +$$

$$\mu_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.3$$

Which is the long-run equilibrium relationship amongst the variables, while the coefficients represent the elasticity of the variables with respect to the dependent variable (See Table 1 for definition of variables).

3.2.1 Autoregressive Distributed Lag (ARDL) Methodology

This paper employed the Autoregressive Distributive Lag (ARDL) bounds test approach developed by (Pesaran, Shin and Smith, 2001) on equation (3) to test the existence of cointegration of the variables. The ARDL specification is expressed below:

$$\mathrm{gdpgrw}t_{it} =$$

$$\alpha_o + \sum\alpha_{1i}\Delta\mathrm{gdpgrw}t_{it} + \sum\alpha_{2i}\Delta\mathrm{Agricex}p_{it} + \sum\alpha_{3i}\Delta\mathrm{Manuex}p_{it} + \sum\alpha_{4i}\Delta\mathrm{logservex}p_{it} +$$

$$\sum\alpha_{5i}\Delta\mathrm{laboforc}_{it} + \sum\alpha_{6i}\Delta Acesselec_{i_t} + \beta_1\mathrm{gdpgrw}t_{it-1} + \beta_2\mathrm{Agricex}p_{it-1} +$$

$$\beta_3\mathrm{Manuex}p_{it-1} + \beta_4\mathrm{logservex}p_{it-1} + \beta_5\mathrm{laboforc}_{it-1} + \beta_6 Acesselec_{it-1} +$$

$$\mu_t \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 4$$

Where; α0…………intercept,

β1-β6,………………long run multipliers;

and; μt……………..disturbance term.

The foundation for the judgment criteria used to determine whether there is a long-term relationship between the variables is known as the "F-test" of the joint significance of the coefficients. In accordance with (Pesaran, Shina, and Smith, 2001), the F-test is a test of hypothesis where the alternative shows the presence of cointegration, and the null reflects no cointegration among variables. The alternative hypothesis is accepted if the F-statistic exceeds the upper bound. In contrast, if the F-statistics is between the upper and lower bounds, the result is regarded as inconclusive and the null hypothesis of no cointegration is accepted.

Once long-run cointegration is established, the error correction model is calculated to derive the short run dynamics and long run adjustment parameter. The specified error correction model is as follows:

$$\mathrm{gdpgrw}t_{it} =$$

$$\alpha_o + \sum\alpha_{1i}\Delta\mathrm{gdpgrw}t_{t-i} + \sum\alpha_{2i}\Delta\mathrm{Agricex}p_{it-i} +$$

$$\sum\alpha_{3i}\Delta\mathrm{Manuex}p_{t-i} + \sum\alpha_{4i}\Delta\mathrm{logservex}p_{t-i} + \sum\alpha_{5i}\Delta\mathrm{laboforc}_{t-i} +$$

$$\sum\alpha_{6i}\Delta Acesselec_{t-i} + \theta ECM_{t-i} +$$

$$\mu_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 5$$

Where, Δ represent first difference operator,

α0 signifies the intercept and

α1-α6,……… coefficient of short run dynamic,

while, θ…….. equilibrium adjustment rate.

Table 1. Variables used in the Model and A Priori Expectations Variables Notation Measurement A priori expectation

Variables	Variable Notation	Measurement	A Priori Expectation
Real Gross Domestic product growth	GDPgrwth	Percentage	+ve/-ve
Agricultural export (% of merchandise exp)	AgricExp	Percentage	+ve
Manufacture export (% of merchandise exp)	ManuExp	Percentage	+ve
Log of Service exports	logservexp	Absolute	+ve
Access to electricity (% of population)	AcessElec	Percentage	+ve
Labor force Rate (% of population ages 15-64)	Labourforc	Percentage	+ve

Author's compilation

For sectoral exports to impact on economic growth of countries, we expect a positive relationship between agriculture, manufacture, service export and GDP growth. Manpower, they say, is the platform for industrial progress, even if the machineries are in abundance, if there is no manpower behind it, is it almost futile. A good percentage of working population (working population) that are skillful and knowledgeable are necessary requirement to increase the production capacities of a nation. Therefore, a positive contribution to the growth of countries' economies is anticipated. A smooth and efficient production requires some basic infrastructures such as electricity and power. When this is made available, a lot of producers increase their productivity as a result. Most developing economies, especially within the sub-Saharan African suffer mostly from these infrastructural challenges, which have resulted to low productivities.

3.3 Results and Discussion

3.3.1 Unit Root Test

To empirically investigate the connection between sectoral exports performance and growth in Nigeria, it is imperative to examine if there is the existence or otherwise of unit roots. The Augmented Dickey Fuller (ADF), and the Philip Peron (PP) statistical techniques are used to test for unit root with intercept and trend.

The hypothesis that a unit root exists is tested using a 5% significant level by comparing the 't' values to the Mackinnon critical values. Table 2 shows the test results. The theory is stated as thus:

-Ho: $\theta = 1$; non-stationary

-H1: $\theta < 1$; Stationary.

Table 2. Result of Unit Root Test (Augmented Dickey-Fuller (ADF and Philips-Perron)

Variable	ADF			PP		
	Level	First Diff.	Order of Integration	Level	First Diff.	Order of Integration
GDPgrwth	0.3445	0.0000**	I(I)	0.0116**	0.0000**	I(0)
AgricExp	0.0181**	0.0000**	I(0)	0.3634	0.0000**	I(I)
ManuExp	0.5805	0.0000**	I(I)	0.0006**	0.0000**	I(0)
logservexp	0.0519	0.0021**	I(1)	0.1424	0.0021**	I(I)
AcessElec	0.7198	0.0000**	I(I)	0.7039	0.0000**	I(I)
Laborforc	0.0056**	0.1033	I(0)	0.5174	0.0507**	I(I)
** 5 Per cent significance						

The two-unit root techniques used (ADF and PP) confirmed that, the variables used in the model have mixed order of integration. As some were stationary at levels I(0), other were stationary at a first difference I(1). This, however justified the use of the ARDL (Bound Test). See table 2.

3.4 Bounds Tests for Cointegration

To establish the presence of cointegration among the variables in model, the Bounds Test (ARDL) is adopted and the results are shown in table 3.

Table 3. Result of Bound Test (Cointgration)

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	7.012267	10%	1.81	2.93
k	5	5%	2.14	3.34
		2.5%	2.44	3.71
		1%	2.82	4.21

The bounds test result as shown in table 3, revealed evidence of a long-run relationship between the variables when compared with the (Pesaran et' al, 2001) critical value at the I(0) lower and upper I(1) bounds. This indicates that, the F-statistic is greater than the critical values for both the lower and upper boundaries at a 5% level of significance. Therefore, it can be deduced that the model's variables have a long-term relationship, consequently, the equation is estimated for the long run using the ARDL co-integration technique.

3.5 Results of Long-Run Regression Estimates

Results from the ARDL estimation in Table 4, revealed that, the Agricexp indicated a negative coefficient of (-5.696891) which is statistically significant. This, however, implies that, Agricultural/primary exports do not contribute to growth of Nigeria's economy, thus this category of the exports from Nigeria is not important in achieving economic advancement of the country. This can, however, allude to the fact that, exporters of primary commodities may not necessarily benefit the exporting nation, but rather, the importing

nation who then utilizes the raw materials into finished/semi goods and exports it back to the originating country for more gains.

However, the logservexp and Manuexp showed a positive relationship with gdpgrwth which correspond with the a priori expectation, though not significant. This means, increasing the exportation of both variables will result or translate to increased productivity and growth of the Nigerian economy. The service sector, on the other hand is also regarded as the new sector that promotes and adds value to other sectors which in no distance can boost the economy of nations.

Table 4. Estimated Long-Run Coefficients ARDL (4, 4, 1, 1, 3, 4)

Variable	Coeff.	Std. Error	t-Stat	Prob.
AGRICEXP	-5.696891	1.969626	-2.892371	0.0106
LOGSERVEXP	2.096643	2.050741	1.022383	0.3218
MANUEXP	0.726814	0.573519	1.267287	0.2232
ACESELEC	-0.160043	0.210105	-0.761729	0.4573
LABOFORC	-0.059249	0.221412	-0.267599	0.7924

Source: Authors Compilation from e-views

However, the insignificance of the variables can be attributed to the fact that domestic production capacity of the country is still underdeveloped due to some constraints and challenges, such as power, electricity road network etc. Thus, leveraging on exportation of the manufacturing and the service sectors have the potentials to transform the country's output. More so, Nigeria is still regarded as a 'net exporter' of services such as Education, Financial Institutions, insurance and more and yet to be expanded. Aceselec and Laborforc depicted a negative relationship which is quite at variance with the aprior expectations. This could also be attributed to power infrastructural development in Nigeria, thus affecting productive capacity of industries. Factors, that affect labour outputs is also subject to the required percentage of the population having standard level of education, available vacancies to absorb large labour population among others.

3.6 Estimating the ARDL Error Correction

The estimation of an error correction model linked to the long-run estimations produced the short-run dynamic parameters. The ARDL Error Correction Regression's output, shown in Table 5, indicated that the ECM's coefficient is (-0.90) which is negative and highly significant at 1.00%.

Table 5. The ECM Estimates of the ARDL Model

Dependent Variable: D(GDPGRWTH)

Selected Model: ARDL(4, 4, 1, 1, 3, 4)

Variable	Coeff	Std. Error	t-Statistic	Prob.
D(GDPGRWTH(-1))	-0.159269	0.134483	-1.184309	0.2536
D(GDPGRWTH(-2))	0.088203	0.145911	0.604498	0.5540
D(GDPGRWTH(-3))	0.290297	0.114361	2.538432	0.0219
D(AGRICEXP)	-0.330678	0.595304	-0.555478	0.5863
D(AGRICEXP(-1))	4.783507	1.429037	3.347364	0.0041
D(AGRICEXP(-2))	6.120089	1.285174	4.762071	0.0002
D(AGRICEXP(-3))	1.744617	0.972833	1.793337	0.0918
D(LOGSERVEXP)	9.286370	2.720855	3.413034	0.0036
D(MANUEXP)	-0.080004	0.245542	-0.325827	0.7488
D(ACESELEC)	-0.697616	0.223909	-3.115622	0.0067
D(ACESELEC(-1))	-0.964682	0.235518	-4.095992	0.0008
D(ACESELEC(-2))	-1.032140	0.248301	-4.156812	0.0007
D(LABOFORC)	-3.188287	1.972599	-1.616287	0.1256
D(LABOFORC(-1))	0.303832	2.412336	0.125949	0.9013
D(LABOFORC(-2))	-7.461116	2.210909	-3.374682	0.0039
D(LABOFORC(-3))	-2.888234	2.030149	-1.422671	0.1740
CointEq(-1)*	-0.907186	0.122079	-7.431124	0.0000

R-squared   0.825372   Adjusted R-squared 0.692321

Du Durbin-Watson stat 2.28   AIC 2.63

The coefficient satisfies the requirement of the error correction term and is consistent. The Error Correction Term (ECT) indicates the rate at which the system changes from its initial state of disequilibrium to a long-term equilibrium path. This implies that the disequilibrium of gdpgrwth caused by a shock in the preceding period would be corrected by 90.0 percent in the following period to achieve long-run equilibrium.

3.7 Model diagnostic Test

3.7.1 Normality Test

The normality test shows that, the Jarque-Bera test statistics is 1.54, which is larger than 5%,

(0.05) see Figure 6. This means the residuals are normally distributed. Furthermore, the Kurtosis is 2.76, which falls within -3 to +3 which represent the acceptable range.
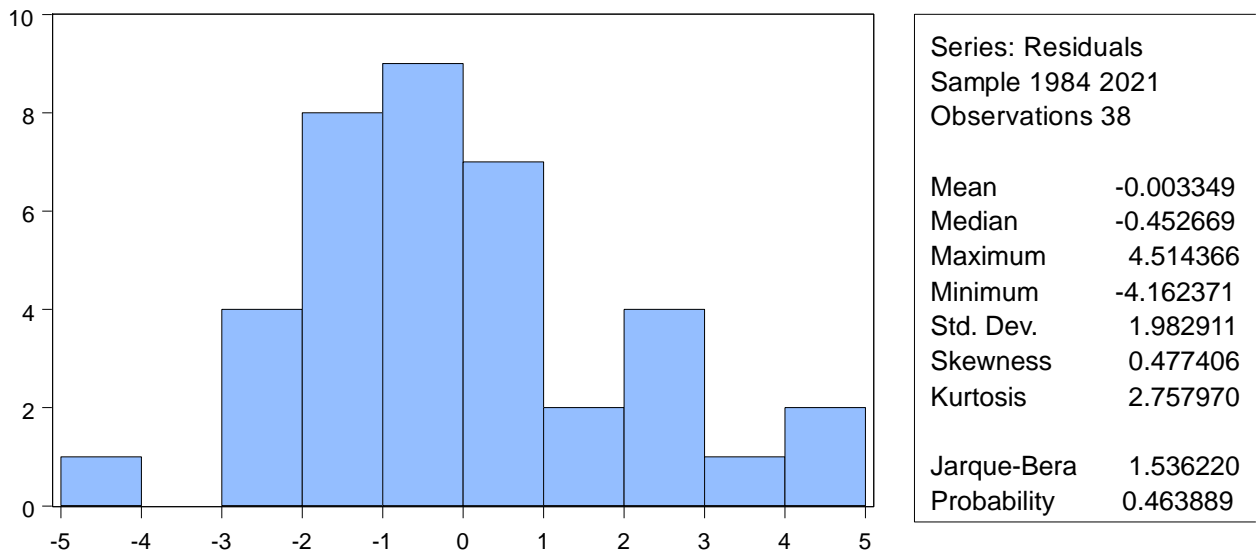

Series: Residuals
Sample 1984 2021
Observations 38

Mean	-0.003349
Median	-0.452669
Maximum	4.514366
Minimum	-4.162371
Std. Dev.	1.982911
Skewness	0.477406
Kurtosis	2.757970
Jarque-Bera	1.536220
Probability	0.463889

Figure 1. Normality Test

3.7.2 Model Stability Test

The CUSUM and CUSUMSQ tests created by (Brown et al., 1975) were used, the result indicated that, the statistics are within the 5% critical boundaries, indicating that the model's coefficient is stable.
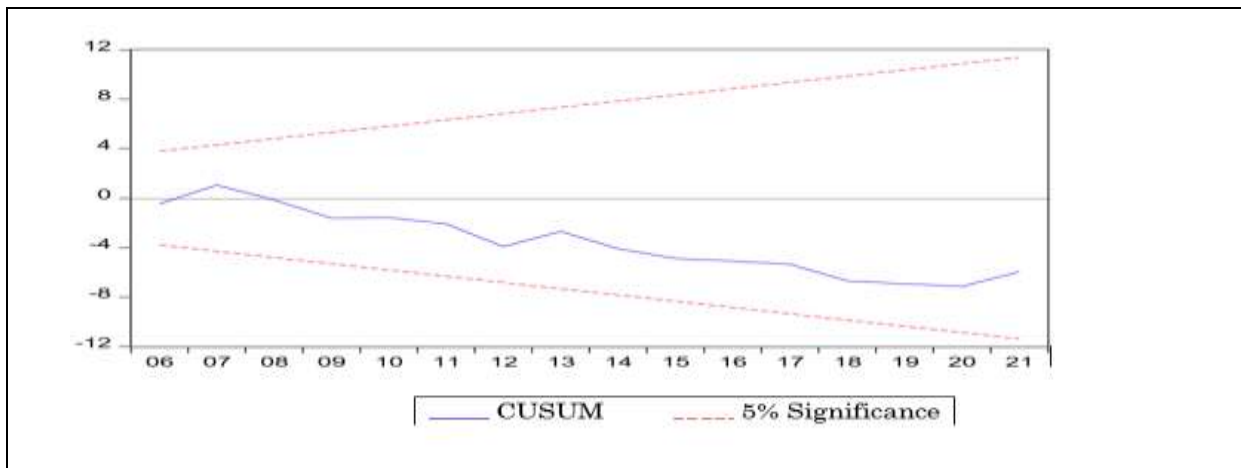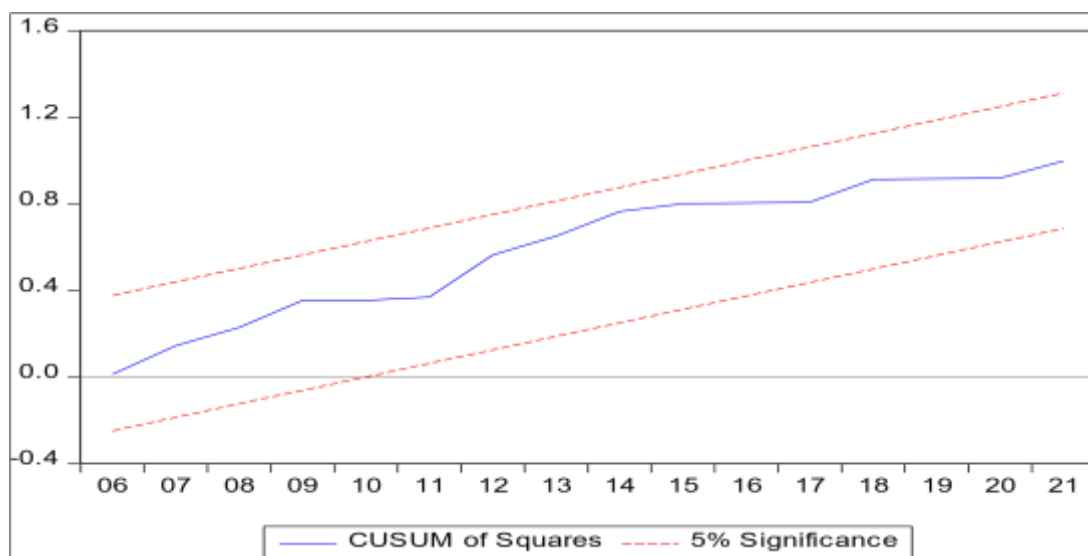

Figure 2. Cusum test

Figure 3. Cusum Square Test

Serial correlation test

The serial correlation test reveals that, the model is free of autocorrelations. This is because the F-statistics is not significant at 0.60, so therefore, the null hypothesis is rejected based on that basis.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.523724	Prob. F(2,14)	0.6035
		Prob. ChiObs*R-squared	
2.645167 Square(2)			0.2664

Heteroscedasticity Test

Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.151167	Prob. F (22,15)	0.3968
		Prob. Chi-	
Obs*R-squared	23.86508	Square (22)	0.3543
Scaled explained		Prob. Chi-	
SS	3.712013	Square (22)	1.0000

4. Conclusion and Recommendations

4.1 Conclusion

The aim of this study is to assess how responsive economic growth is to changes in exports

of key priority sectors of the Nigeria economy using annual data ranging from 1980 to 2021. The study utilized the ARDL model in estimating the long run and the short run estimates. The result shows that, the Agricultural sector exports do not contribute to growth of the Nigerian economy, thus the category of the primary exports from Nigeria may not be important in achieving economic growth of the country as compared to the industry and service sectors of the economy which indicated a positive relationship in terms of contribution to growth in Gross Domestic Product (GDP), though not statistically significant. This meaning, increasing the exportation of both variables will result or translate to increased productivity and growth of the economy.

The findings further showed that, the percentage of the population having access to electricity and percentage of working population (labour force) in the country is not sufficient to induce growth in the economy. These developments could also be attributed to poor power infrastructural development and low level of education in Nigeria, thus affecting productive capacity of industries.

4.2 Recommendation

Based on the findings, the following recommendations are made:

- The Agricultural sector/primary sector which provides food and raw materials should be financed through fiscal and monetary intervention to increase output that will enhance economic growth.

- The resources from the primary sector where Nigeria have a comparative advantage should be harnessed and utilized domestically to produce finished or semi-finished products for subsequent exports.

- Government should focus on setting up micro industries to boost local production and consequently exporting same for earnings to the economy.

- Infrastructural development should be the priority of government, thus improving the development of the manufacturing sector and service sector to boost production and exports.

- Government should increase spending on the Human Capital Development (HCD) to boost productivity in the manufacturing sector.

- Government should establish more companies and develop more Small and Medium Enterprises through granting of financing to potential investors.

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Appendix 1

Data used for the Analysis

Period	GDPgrwth	Agricexp	Manuexp	LogServexp	Laboforc	Aceselec
1980	4.204831	0.116690	0.129188	9.051767	62.593	-0.4347
1981	-13.127880	0.116690	0.129188	8.966613	62.456	2.5508
1982	-6.803389	0.116690	0.027942	8.705713	62.319	5.5364
1983	-10.924085	0.076946	0.025330	8.603909	62.182	8.5220
1984	-1.115623	0.045199	0.022718	8.636610	62.045	11.5076
1985	5.913027	0.044902	0.037871	8.499021	61.908	14.4932
1986	0.060945	0.409406	0.024477	8.398305	61.771	17.4787
1987	3.200125	0.519733	0.435364	8.350445	61.634	20.4643
1988	7.334025	0.630060	0.846251	8.560718	61.497	23.4499
1989	1.919381	0.740387	1.257138	8.741797	61.360	26.4355
1990	11.776886	0.850714	1.668026	8.984594	61.210	27.3000
1991	0.3583526	0.961040	2.078913	8.947586	61.120	35.2346
1992	4.6311929	1.071367	2.489800	9.022258	60.920	36.0995
1993	-2.0351188	1.181694	2.900687	9.065428	60.820	36.9636
1994	-1.8149245	1.292021	3.311574	8.569240	60.720	37.8265
1995	-0.0726648	1.402347	3.722461	8.276605	60.580	38.6873
1996	4.195924	1.622144	1.162231	8.360881	60.440	39.5453
1997	2.9370994	0.079966	3.417200	8.380012	60.320	40.4000
1998	2.5812541	0.099477	2.470007	8.401055	60.210	41.2506
1999	0.5841269	0.134313	0.604080	8.991056	60.170	44.9000
2000	5.0159348	0.005946	0.206996	9.263150	60.070	43.1215
2001	5.9176847	0.006176	0.308841	9.218343	60.050	43.8807
2002	15.329156	0.281333	5.014464	9.402050	59.880	44.6323
2003	7.347195	0.009263	2.067628	9.540719	59.850	52.2000
2004	9.2505582	-0.262808	-0.879207	9.523227	59.810	46.1222
2005	6.4385165	-0.534878	-3.826042	9.253480	59.820	46.8652
2006	6.059428	0.361642	1.337960	9.361470	59.890	47.6100
2007	6.5911304	0.762280	2.240304	9.159307	59.940	50.1309
2008	6.7644728	0.928697	5.462761	9.354693	59.990	50.3000
2009	8.0369251	1.137224	3.586798	9.345995	59.990	49.8825
2010	8.0056559	1.631811	6.684992	9.488626	59.980	48.0000
2011	5.3079242	6.129512	2.548101	9.529755	60.020	55.9000
2012	4.2300612	7.268343	2.871459	9.380259	57.560	53.2312
2013	6.6713354	3.205081	3.387904	9.379516	55.110	55.6000
2014	6.3097187	0.434799	6.466048	9.299148	54.800	54.0482
2015	2.6526933	0.309646	8.585843	9.499691	54.400	52.5000
2016	-1.6168689	0.160180	0.955692	9.573295	53.910	59.3000
2017	0.8058866	0.232204	1.767538	9.701611	54.880	54.4000
2018	1.9227573	0.133974	3.460180	9.682847	55.810	56.5000
2019	2.2084293	0.114395	10.747526	9.694533	56.660	55.4000
2020	-1.7942531	0.155382	7.853278	9.601301	57.510	55.4000
2021	3.6471865	0.264813	6.394357	9.508069	58.360	55.4000

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