ASSESSMENT OF THE IMPACT OF NON-OIL EXPORT ON ECONOMIC GROWTH IN NIGERIA: 1990 – 2018

By

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Abstract

This study examined the impact of non-oil export on economic growth in Nigeria for the period of 1990 to 2018. The over reliance on oil sector as compared to the non-oil sector, which has resulted in growth instability, is the motivation for this study. The broad objective of the study is to examine the impact on non-oil sector on the Nigerian economic growth. The variables used were Agric export, solid mineral export, manufacturing export and economic growth. Time series data were collected on the variables in the model. The findings from the empirical analysis revealed that agricultural export has a positive and significant impact on economic growth in Nigeria. Manufacturing export has a positive and significant impact on economic growth in Nigeria. Solid Mineral export has a negative and significant impact on economic growth in Nigeria, which is attributed to exportation of large junk of extracted and unrefined minerals that are imported back to the country as finished goods at a high price far beyond what the country gets from her exportation. In line with the findings, the recommendations made, among other things, include encouraging government to, through its spending, invest more on agriculture, industry, exploration of solid minerals and manufacturing sector with to a view to enhancing production in these sectors which will in turn lead to increase in exportable goods and service.

Keywords: Agriculture export, Economic growth, Non-oil export, Solid mineral export

Jel. Classification: C22, F43, O11.

1.0 Introduction

A lingering problem in the Nigerian economic growth of today is the over reliance on its export, which allows the international market to dictate the tune and movement of economic growth. However, before the discovery of oil in commercial quantity in the 1970s, Nigerian's economic growth was not at any point based on by oil export and oil prices. Then, the non-oil export was booming: there was the groundnut pyramid in the north, cotton in central Nigeria, cocoa in the south-west, palm oil in both the south-west and south-east, timber in the east. These were the major pivots of the economic growth then.

Nevertheless, the past and present governments have been trying and striving hard to diversify the economy from over reliance on just one export product to multi-product, leveraging on the vast amount of mineral deposits in different parts of the country, coupled with the fertile soil and terrain for agricultural and agro-allied industries. Just of recent, government interventions have been put in place to salvage the country from mono-product economy. Are these interventions significant in making other sectors of the economy relevant to the economic growth of Nigeria? Apart from oil export, are there other sectors that are stable and superb in contributing to Nigerian's economic growth? Other sectors that have caught the attention of past and present government are, among others, solid minerals, agriculture, industry, transportation, communications and food stuff.

Baghebo (2012) and Ekaette (2009) observed that with the Nigeria's 'oil-dependent economy, there is the problem of economic growth without non-proportionate increase in job creation and poverty reduction. Bawa and

Mohammed (2007) and Baridam (2008) also shared the same worry in terms of economic growth amidst rising unemployment. The ready explanation to this economic paradox is that the oil sector that produces about 80% of export earnings is in the hands of less than one percent of the Nigerian population. Expatriates and members of the political class, who control production and the proceeds respectively, dominate it. Worse still, the sector is disconnected from other tiers and sectors of the economy and, thus, offers little or no linkage and multiplier effect to the economy as a whole. This is why the local-content approach of the formal President Goodluck Jonathan's administration should be applauded, if it would be driven with sincerity.

Going by the aforementioned problems, it is observed that Nigerians have been negligent over the non-oil products due to over reliance in oil and oil related products, making Nigeria to be more of a mono-economy. This, of course, reduces Nigeria's foreign reserves and worsens the employment situation and poverty level of the country. Therefore, there is need to examine the impact of non-oil export on the economic growth of Nigeria, which is the thrust of this paper. Specifically, this work investigated into the short-run and long-run impact of non-oil export on economic growth of Nigeria. Specifically, the objectives of this study, among other things, include to examine the impact of agricultural export on economic growth in Nigeria; examine the impact of solid mineral export on economic growth in Nigeria and assess the impact of manufacturing export on the economic growth in Nigeria.

The rest of this article is organized as follows: section two explained briefly the underlying theoretical backing of the work; section three showcased the methodology and model specification; section four analysed data collected and made interpretation of results; section five discussed the results and made policy implication of findings; and lastly, section six concluded the work and made recommendations.

2.0 Review of Related Literature

As rightly observed by Adejugbe (1997), non-oil export sectors are those sectors that exclude oil and gas sector of the economy. This means that the non-oil sectors are solid minerals sector such as gold, cassiterite, coal, columbite, charcoal, abestos, processed iron ore and marble, industrial sector, agriculture, transport and communication sectors.

Different theories have been propounded by scholars of economic growth, among whom are those of the Classical theorists who explained economic growth being achieved from economies of scale and specialization. This is followed by to the Keynesian theory that laid emphasis on demand side (aggregate demand) policy and to the Neo-Classical theory mostly from Solow/Swan model and Harrod-Domar model of savings and investment, who gave prominence to supply side factors. After Neo-Classical theorists came the new economic growth theory of endogenous growth model developed by Paul Romer and Robert Lucas that placed emphasis on increase in both capital and labour productivity.

The paper adopted the new endogenous growth theory as its theoretical framework since it explains that economic growth would be achieved if only there is increase in both capital and labour productivity in the economy. Endogenous growth theory or new growth theory was developed in the 1980s by Rebelo (1991) (quoted in Iwedi et.al. (2015)), among other economist, as a response to criticism of the neo-classical growth model. The endogenous growth theory holds that policy measures can have an impact on the long-run growth rate of an economy. The growth model is one in which the long-run growth rate is determined by variables within the model, not an exogenous rate of technological progress as in the Neo-Classical growth model. Jhingan (2006) explained that the endogenous growth model emphasises technical progress resulting from the rate of investment, the size of the capital stock and the stock of human capital.

Stern's (1991) investigation regarding endogenous growth theories revealed that although growth theory has contributed to understanding the determinants of growth in developed countries, it has not been able to determine some of the crucial issues affecting growth in less developed countries. It is necessary to pay careful attention to such factors as the role of management and organization, the improvement of infrastructure and sectoral transfer in less developed economies in order to make a real contribution to understanding of the determinants of

growth and to the designing of policy. There is pressing need to model these factors productively using careful applied studies.

Various studies have been conducted to examine the relationship between non-oil exports and economic growth in the literature. The results of these studies vary from one region to another, owing to the differences in methodologies and time frames as well as the variables captured in the models.

Akinmulegun and Oluwole (2018) stressed that the importance of manufacturing productive sector of any economy to its growth and survival cannot be overemphasized. In an attempt to rely on this, this study attempted the assessment of the contribution of manufacturing sector to economic growth in Nigeria in the era of globalization. Ordinary Least Square (OLS) econometric technique was used on time series data of relevant variables of manufacturing Output, Trade openness and Current Account Balance. The *apriori*expectation is that manufacturing output would increase as globalization strives. The study found that though Nigeria's manufacturing sector benefited from globalization process, the level of the development in the sector was found to be highly negligible. Meaning that globalization exerts little impact on economic growth via manufacturing sector of the economy.

Ezike and Ogege (2012) studied Nigeria foreign trade policy and its effect on non-oil export, employing correlation analysis and least square methods. It was revealed that there was an inverse association between trade policies and non-oil export in Nigeria. However, non-oil export and exchange rate have direct significant impact on the economic growth in Nigeria.

Also, in Nigeria, Enoma and Isiedu (2011) examined the effect of reforms in the financial sector on non-oil export using multiple regression tool. Their result showed that the non-oil price has the expected sign and highly significant at one percent level of significance, money supply was equally significant at one percent. While interest rate and exchange rate were significant at five percent.

Efobi and Osabuohien (2010) examined promotion of non-oil export in Nigeria, utilising Vector Auto-Regression (VAR) method. The result of the study revealed that there existed a long-run association between the non-oil export and agricultural credit guarantee scheme funds as well as political constraints in Nigeria. It further revealed that in the long-run, agricultural credit guarantee scheme, food crops as well as livestock exhibited a positive impact on the non-oil export value of Nigeria.

In a similar work on the Nigerian economy, Anthony and Somiara (2010) studied the impact of macroeconomic variables on non-oil export performance, from 1986 to 2010. Employing Ordinary Least Square technique (OLS), the result illustrated that exchange rate, government capital expenditure and government recurrent expenditure show an immense influence on non-oil export, while the agricultural sector, manufacturing sub-sector and interest rate could not heavily impact on non-oil export during the period of their study.

Imoughele and Ismaila (2015) conducted a study on the impact of exchange rate on Nigeria non-oil exports, between period 1986 and 2013, employing Johansen co-integration. Their result showed that appreciation of exchange rate has a negative effect on non-oil export and recommended that monetary authority should ensure exchange rate stability in order to stem inflation, which has adverse effect on non-oil exports. Using Auto regressive distributed lag (ARDL) estimation technique would have given a better result because it is a better technique when variables are stationary at different orders.

Onodugo, Marius and Oluchukwu (2013) conducted a study titled non-oil export and economic growth in Nigeria, using a time series econometric model. They used data from 1981 to 2012 and employed Johansen cointegration. The result showed that non-oil exports have an infinitesimal impact in influencing economic growth in Nigeria. The study was limited to the year 2012.

Akeem (2011) undertook a study titled non-oil export determinant and economic growth in Nigeria, within the period from 1989 to 2008. Using multi linear regression tool, he found that non-oil export for previous year and consumer price index positively affect GDP. Multi-linear regression was used in his study without carrying out a unit root test. This led him to application of the wrong model and hence, spurious result(s). This flaw calls for a better study on the topic.

Adenugba and Dipo (2013) examined non-oil exports and the economic growth of Nigeria: a study of agricultural and mineral resources. The study evaluated the performance of Nigeria's export promotion strategies as to whether they have been effective in diversifying the productive base of the Nigerian Economy from Crude oil as the major source of foreign exchange within the period of 1981 and 2010. Findings from the study revealed that non–oil exports have performed below expectations giving reason to doubt the effectiveness of the export promotion strategies that have been adopted in the Nigerian Economy.

2.1 Study Gap

From the studies conducted as regards non-oil sector in Nigerian such as Olurankinse and Bayo (2012), Ude and Agodi (2014) and Ifeacho, Omoniyi and Olufemi, (2014), it was found that non-oil export has a significant positive relationship with the economic growth of Nigeria, which indicates that the rise in the non-oil export leads to a significant improvement in the Nigerian level of economic development. Adenugba (2013) also found that non-oil exports have a positive effect on the economic growth of Nigeria, but it has performed below expectations. However, Akeem (2011) and Abogan, Akinola and Bawara (2014) concluded that the relationship between non-oil export and economic growth in Nigeria is positive and insignificant. Thus, there is need to further examine the impact of non-oil sector on the Nigerian economy.

Most studies reviewed did not disaggregate non-oil sector export in terms of sectorial contribution such as manufacturing, agriculture and solid minerals. This study disaggregated non-oil sector export to identify the performance of each sectorial output on economic growth. This gap is what the research study seeks to address. Also, this study was out to examine the time effect of non-oil export on economic growth using a dynamic model as against static model used by most of the previous studies.

3.0 METHODOLOGY

3.1 Model Specification

Specification of econometric model is based on economic theory and on any valuable information relating to the phenomenon being studied. Thus, the relationship between non-oil export and economic growth in Nigeria was modeled based on the exogenous growth model as well as the adaptation of the model used by (Matthew, Charles, Ndangra& Suleiman, 2016). Their model is given as:

$$GDP = f(AE, ME) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where

GDP is Gross Domestic Product

AE is Agricultural Export

ME is Manufacturing Export

Solid Mineral Export was added to their model to adequately capture the objectives of the study. Thus, the model is re-specified as follows:

$$GDPGR = f(AE, SME, ME) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The econometric form is stated as:

$$GDPGR = \beta_0 + \beta_1 AE + \beta_2 SME + \beta_3 ME + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where;
GDPGR is Gross Domestic Product Growth rate
AE is Agric Export
SME is Solid Mineral Export
ME is Manufacturing Export
μ is the stochastic variable which expresses other influential variables not explicitly captured in the specified model.
β_0 is the intercept parameter
β_1 *to* β_3 are slope parameters which measures the impacts of the explanatory variables on the dependent variable.

A Priori Expectation

The a priori expectations are determined by the principles of economic theory guiding the economic relationship of variables under study. It defines the theoretical expectation about the sign or magnitude of the parameters in the model specified for study. When AE, SME and ME increase, the economy will have more income and so, gross domestic product will increase, thereby, increasing the growth rate, *ceteris paribus.* In essence, AE, SME and ME would have direct impact on GDPGR. So, summarily, the *a priori* expectations are $\beta_1 > 0$; $\beta_2 > 0, \beta_3 > 0$

3.2 Sources of Data

In order to empirically examine the impact of non-oil export on economic growth, the study uses secondary data in the analysis. The data series were sourced from the Central Bank of Nigeria (CBN), the National Bureau of statistics (NBS) and the World Bank. The data employed covered a period of twenty-nine years (1990 to 2018).

3.3 Estimation Procedure

3.3.1 Pre-Estimation Test

Unit Root Test

The first step in any empirical analysis is to examine the nature of the variables in the study with the aim of knowing their order of integration (stationarity level). This is because a non-stationary time series has a different mean at different points in time, and its variance increases with the sample size (Harris &Sollis, 2003). Therefore, any linear combinations of these time series make spurious regression (Alimi, 2014). The consequences of this is that t-statistic values of the coefficients will be highly significant and f-statistic value will not be significant. Also, the coefficient of determination (R^2) will be very low and greater than Durbin Watson (DW) statistic, which frequently lead investigators to commit a high frequency of Type 1 errors (Granger & Newbold, 1974). As a result, the results of the estimation of the coefficient became biased. Therefore, it is imperative to identify the existence of stationarity or non-stationarity in the series in order to avoid the issue of spurious regression. However, Dickey and Fuller (1979) and Phillips and Perron (1988) tests have been used widely in order to find out the order of integration, but due to their poor size and power properties, both tests are not reliable for small sample data set (DeJong et.al., 1992). These tests seem to over-reject the null hypotheses when it is true and accept the null hypotheses when it is false. Hence, this study employed the Dicky-Fuller generalized least square (DF-GLS) (Elliot et al., 1996), and Ng-Perron (Ng &Perron, 2001) method of unit root test.

3.3.2 Estimation Test

A. ARDL Cointegration Approach

To test the long run relationship among the variables, this study deviated from the well-known Engle and Granger (1987) and Johansen and Juselius (1990) approaches to co-integration and made use of a new and advanced approach known as autoregressive distributive lag model (ARDL) bounds testing approach developed by Pesaran et al. (2001) to test whether long run relationship exist between the variables or not. This method is recently embraced because it is valid if the variables of interest have vague order of integration i.e. purely I(0), purely I(1) or I(0) / I(1) which is not acceptable in previous approaches. Also, as maintained by Haug (2002), ARDL bounds testing

approach is more appropriate and gives better results for small sample size while the short and long-run parameters can be estimated simultaneously. Hence, the ARDL representation of equation 3.2 can be presented as thus:

$$\Delta GDPGR_t = \beta_0 + \beta_1 GDPGR_{t-1} + \beta_2 AE_{t-1} + \beta_3 SME_{t-1} + \beta_4 ME + \beta_5 \Delta GDPGR_{t-i} + \beta_6 \Delta AE_{t-i} + \beta_7 \Delta SME_{t-i} + \beta_8 \Delta ME_{t-i} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where, Δ is the first-difference operator, and β's shows the long run coefficients and short run coefficients. Hence, the null hypothesis (H_0) of no cointegration states that,

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = 0$$

and the alternative hypothesis (H_1) of existence of co-integration state that:

$$H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8 \neq 0.$$

The above hypothesis is tested by comparing the calculated F-statistic with critical values from Narayan (2005), which were produced for small sample sizes of between 30 and 80 observations on the assumption that all variables in the model are I(0) in one side and that all the variables are I(1) on the other side. Following the norms of hypothesis testing, if the calculated F-statistic exceeds the upper critical bounds value, then the H_0 is rejected and we accept H_1, while if the F-statistic falls within the bounds then the test is inconclusive and, lastly, if the F-statistic falls below the lower critical bounds value, it implies that there is no co-integration.

B. ARDL Error-Correction Model (ARDL-ECM) Approach

With co-integrated variables, causal relations among variables can be examined within the framework of ECM (Granger, 1988). This presents both the short run and long run relationship among the variables. The individual coefficients of the lagged terms explain the short run dynamics in the model, while the error correction term (ECT) presents the information of long run relationship. In the same vein, the significance of lagged explanatory variable depicts short run causality while a negative and statistically significant ECT is assumed to signify long run relationship and speed of convergence to equilibrium. The short-run causality model from the ARDL model is presented in equation 3.5;

$$\Delta GDPGR_t = \beta_0 + \beta_1 \Delta GDPGR_{t-i} + \beta_2 \Delta AE_{t-i} + \beta_3 \Delta SME_{t-i} + \beta_4 \Delta ME_{t-i} + \rho ECM_{t-1} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Where Δ is the difference operator, ECM represents the Error Correction Term (ECT) derived from the long-run co-integrating relation from specified ARDL models equation 3.3. In equation 3.4, ρ should exhibit a negative and significant sign for causality to exist in the long run.

3.3.3 Post-Estimation Test

3.3.3.1. Diagnostic Tests.

In order to determine the goodness of the fit of the ARDL models, diagnostics was conducted. Diagnostics tests show whether the model does not suffer from problems associated with non-normality of errors, serially correlated errors, heteroscedasticity and functional form misspecification.

A. Heteroskedasticity Test

This test will be employed to find out if the error term exhibits constant variance. It can arise because of the presence of outliers, incorrect data transformation, incorrect functional form, and incorrect specification of the regression model. Least square (LS) estimates are consistent in the presence of heteroskedasticity, but the conventional computed standard errors are no longer valid. The test for heteroscedasticity will be conducted using autoregressive conditional heteroscedasticity (ARCH) test to examine whether the residuals have constant variance.

The ARCH test is a Lagrange multiplier (LM) test for autoregressive conditional heteroskedasticity (ARCH) in the residuals (Engle, 1982). This particular heteroskedasticity specification was motivated by the observation that in many financial time series, the magnitude of residuals appeared to be related to the magnitude of recent residuals.

The ARCH LM test statistic is computed from an auxiliary test regression. To test the null hypothesis that there is no ARCH up to order q in the residuals, we run the regression:

$e_t^2 = \beta_0 + \sum_{s=1}^{q} \beta_s e_{t-1}^2 + \quad + \mu t$

$$e_t^2 = \quad _0 + \left(\sum_{s=1}^{q} \quad _s e_{t-s}^2 \right) + \ ^3 _t \quad ---------- (31)$$

Where; e is the residual and it is a regression of the squared residuals on a constant and lagged squared residuals up to order q.

The heteroskedasticityfollows i^2 (chi-square) distribution. This can be given as follows:

$H_0 : b = 0$ (Homoskedastic)

$H_1 : b \neq 0$ (Heteroskedastic)

Decision Rule: The Probability Value (PV) was also used to determine the level of significance. If the calculated PV is greater than the level of significance (that is, if PV is > 0.05), it implies that the variance of the error term is homoskedastic at 5% level; otherwise, it is heteroskedastic.

B. Serial Correlation Test

The successive values of the error term are assumed to be temporary independent; that is, the value, which each error term assumes in any one period, is independent of the value which it assumed in any previous period. If the values of the error terms are serially correlated, the predictions based on the regression estimates will be inefficient. Empirical results are usually biased and inconsistent when the explanatory variables also include lagged dependent variables.

There are different ways of detecting autocorrelation such as Durbin –Watson (DW), Breusch Godfrey test etc. We can correct the presence of serial correlation by including the missing variable, correction of the mathematical form of the model and improvement of the accuracy of the data.

Therefore, the null and alternative hypotheses of serial correlation test are:

$\boldsymbol{H_0}$: $\ll = 0$ (There is no serial correlation problem in the model)

$\boldsymbol{H_1}$: $\ll \neq 0$ (There is a serial correlation problem in the model)

Decision Rule: The Probability Value (PV) will be used to either accept or reject the null hypothesis. If the PV is greater than 0.05 (that is, PV > 0.05), the study will accept the null hypothesis and thus implies that serial correlation does not exist in the estimated model at 5% significance level, otherwise, it does exist at that level.

C. Normality Test

Another assumption of the error term is that they are normally distributed. However, if this assumption is violated, our regression estimates will not have the minimum variance property in the class of unbiased estimators. Therefore, we need to conduct the Jarque-Bera test to examine whether the error term fulfils the normality assumption. The test statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution.

D. Functional Form (Ramsey RASSET)

To test if the model is the correct model that captures the non-oil sector on economic growth, the Ramsey's RESET Test (Residual Specification Error Test) would be conducted to test if the model was mis-specified. To test for model misspecification,
The test follows the F distribution and the formula is given as:

$$\frac{(R^2_{new} - R^2_{old}) \,/\, \text{number of new regressors}}{(1 - R^2_{new}) \,/\, (n - \text{number of parameters in the new model})}$$

N is number of observation or sample size, R^2_{new} is the coefficient of determination in the test model, R^2_{old} is the coefficient of determination the stated model. Number of new regressors and number of parameters in the new model.
The hypothesis to be tested is stated as;
H_0: the model is correctly specified
H_1: the model is miss-specified
If the computed F statistics is less than the critical value, we accept the null Hypothesis or if the P-value of the computed F-statistics is more than 0.05 we accept the null hypothesis and otherwise.

3.3.3.2 Parameter Stability Test: CUSUM and CUSUMSQ

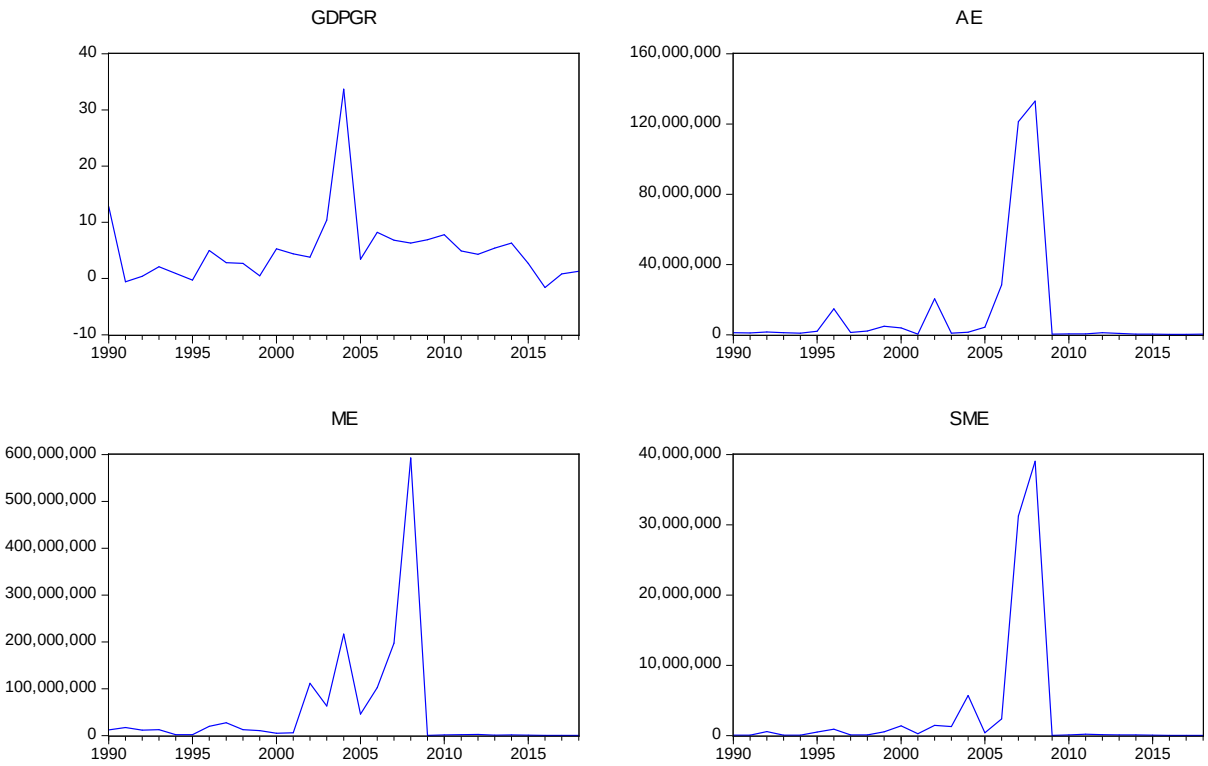
In order to test for long-run parameter stability, Pesaran (1997) suggested applying the cumulative sum (CUSUM) and the cumulative sum of square (CUSUMSQ) tests proposed by (Brown, Durbin, & Evans, 1975) to the residuals of the estimated ARDL models to test for parameter constancy.In both CUSUM and CUSUMSQ, the related null hypothesis is that all parameters are stable. The CUSUM test uses the cumulative sum of recursive residuals based on the first observations and is updated recursively and plotted against the time trend. The CUSUM stability test is more suitable for detecting systematic changes in the regression coefficients.

The CUSUMSQ makes use of the squared recursive residuals and follows the same procedure. Also, it is more useful in situations where the departure from the constancy of the regression coefficients is haphazard and sudden. If the plot of the CUSUM and CUSUMSQ stays within the 5% critical bounds, the null hypothesis that all parameters are stable cannot be rejected. Thus, the parameters of the model do not suffer from any structural instability.As with the CUSUM test, movement outside the critical lines (red lines) is suggestive of parameter or variance instability. The cumulative sum of squares is generally within the 5% significance lines, implying that the residual variance is somewhat stable.

4.0 Results/Findings

4.1 Data Presentation and Trend Analysis

For the purpose of this study, an empirical analysis of the impact of non-oil export on economic growth covering the period of 1990 to 2018 was analysed.



Source: Author's Extract from E-Views 10.0, 2020.
Figure 4.1: Trend Analysis

The trend analysis of the behaviour of these variables are shown in figure 4.1, which implies that except for GDPGR, all the variables show presence of trend.

4.2 Descriptive Analysis

Table 4.2: Descriptive Analysis Result

	GDPGR	**LAE**	**LME**	**LSME**
Mean	5.115455	14.55389	15.25569	13.51116
Median	4.450500	14.05590	14.75328	13.02212
Maximum	33.70000	18.70561	19.35546	18.70213
Minimum	-1.600000	12.14073	12.85547	12.15142
Std. Dev.	6.745459	1.956563	1.975446	1.921212
Skewness	3.266598	0.865433	0.695431	0.834329
Kurtosis	14.13299	2.567650	2.444538	2.646504
Jarque-Bera	153.4578	2.676447	2.055656	2.656758

Probability	0.000000	0.2722235	0.353235	0.211289
Sum	130.5430	319.4655	336.5437	319.4431
Sum Sq. Dev.	963.4545	81.56595	81.56547	81.32543
Observations	29	29	29	29

Source: Author's Extract from E-Views 10.0, 2019.

Table 4.2 shows the descriptive statistics of GDPGR, LAE, LSME and LME. It can be shown that the variables contained 29 observations with LME having the highest mean value followed by LSME and LAE respectively. The table also revealed that only is negatively skewed to the left. The LAE, LME and LSME are platykurtic as the value of their kurtosis are less than three, while GDPGR are mesokurtic in nature as the value of their kurtosis are greaterthan three. The probability of the Jarque-Bera shows that all the variables except GDPGR were normally distributed.

Table 4.3: Unit Root Test Result

Phillip-Perron Unit-Root Test Statistics (At Level)									
Variables	**With Constant**			**With Constant & Trend**			**Without Constant & Trend**		
	t-statistic	**Prob.**	**Level**	**t-statistic**	**Prob.**	**Level**	**t-statistic**	**Prob.**	**Level**
GDPGR	-3.3964**	0.0137	I(0)	-5.2310***	0.0043	I(0)	-2.4323**	0.0151	I(0)
LAE	-1.3124	0.5829	NS	-2.3453	0.1343	NS	-0.7432	0.3884	NS
LSME	-2.1212	0.1212	NS	-2.8434	0.1443	NS	-0.7423	0.3888	NS
LME	-2.3321	0.1510	NS	-2.8432	0.1443	NS	-0.7443	0.3938	NS
Phillip-Perron Unit-Root Test Statistics (At First Difference)									
	t-statistic	**Prob.**	**Level**	**t-statistic**	**Prob.**	**Level**	**t-statistic**	**Prob.**	**Level**
D(GDPGR)	-9.1443	0.0001	I(0)	-9.1493	0.0000	I(0)	-9.2322	0.0000	I(0)
D(LAE)	-9.1432***	0.0000	I(1)	-9.1211***	0.0000	I(1)	-9.2430***	0.0000	I(1)
D(LSME)	-9.1543**	0.0002	I(1)	-9.1332***	0.0000	I(1)	-9.2489***	0.0000	I(1)

	*								
D(LME)	-9.1554***	0.0000	I(1)	-9.1221***	0.0000	I(1)	-9.2033***	0.0000	I(1)

Source: Author's Extract from E-Views 10.0, 2020.

Table 4.3 depicts the unit root test result using Phillip-Perron unit root test is constant, constant and trend and without constant and trend forms. The table revealed that only GDPGR is stationary at level and is said to be integrated of order zero I(0), making it necessary for other variables to be differenced. At first difference, LAE, LSME and LME became stationary and they are said to be integrated of order one I(1) as recorded by the test in the different form.

Table 4.4: ARDL Bounds Test Result

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	6.384924	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Author's Extract from E-Views 10.0, 2019.

ARDL bounds F test results as reported in Table 4.4 shows that the result confirms the presence of a long run relationship between Agric Export (AE), Soild Mineral Export (SME), Manufacturing Export (ME) and economic growth for the period under consideration in Nigeria. This is because the calculated F statistics is 6.384924 is greater than upper critical values(4.01 and5.06) at 5% and 1% significance level, and, thus, inferring that there exists a co-integrating relationship among the time series in the level form, without considering whether they are I(0) or I(1). In other words, the Null hypothesis of no cointegration can be rejected at the 5% and 1% significance levels because F test statistic is greater than their critical upper bounds value I(1).

4.3 Short Run Dynamics and Error Correction Representation of ARDL Cointegration.

The result presented in Table 4.5 suggests that the sign of the coefficient associated with each variable does not differ in the long and in the short-run. The result indicated that a unit increase in agricultural export will lead to 0.002111 decrease in economic growth in the short run. This result is significant as indicated by the probability value of 0.0009. A unit increase in manufacturing export will lead to 0.008123 increase in economic growth in the short run. This result is significant as indicated by the probability value of 0.0009. A unit increase in Solid mineral export will lead to 0.000351 increase in economic growth in the short run. This result is significant as indicated by the probability value of 0.0009.

Table 4.5 Estimated Short Run Dynamics and Error Correction

Representation of ARDL (1, 2, 2, 2) Selected based on Akaike info criterion (AIC)				
Dependent variable is GDPGR				
Regressor	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
D(LAE)	-0.002111	0.000000	-3.991889	0.0009***
D(LME)	0.008123	0.000000	4.151167	0.0007***
D(LSME)	0.000351	0.000001	2.725729	0.0144**
D(LSME(-1))	-0.000983	0.000000	-2.146242	0.0466**
CointEq(-1)	-0.915849	0.152641	-7.965392	0.0000***
Diagnostic Tests				
Test Statistics		**LM Version**		
A. Serial Correlation		X^2_{auto} = 0.305871 (0.9181)		
B. Functional Form (Ramsey Reset)		X^2_{RESET} = 1.320081 (0.1231)		
C. Normality		X^2_{Norm} = 1.090121 (0.5791)		
D. Heteroscedasticity		X^2_{Het} = 9.156371 (0.4230)		

Source: Author's computation from E-Views 10.0, 2019.

Note: ** and * indicate significance at 1% and 5% level of significances. Figures in parenthesis are probability values. A is Breusch-Godfrey Serial Correlation LM Test, B is Ramsey's RESET test, C is Normality Test, D is Heteroscedasticity test.

Also, the outcome of this result tested using some diagnostic tests such Breusch-Godfrey Serial Correlation LM Test, Ramsey's RESET test, Normality Test and Heteroscedasticity test is not different from what is recorded in the long-run estimation. The result of these tests as presented in table 4.5 shows that the model passes all the diagnostic tests. The diagnostic tests applied to the model pointed out that there is no evidence of serial correlation, heteroscedasticity, the RESET test implies the correctly specified ARDL model and the result of the normality test showed that the residuals are normally distributed.

Considering specifically the short run dynamics, it is shown that economic growth is positively influenced by the previous year increase in growth rate of gross domestic product and non-oil export as well as degree of openness. The estimated coefficient of the error correction term is highly significant, thus confirming the previous results that there is a long-run relationship between the variables. Furthermore, the magnitude of the estimated coefficient of the error correction term suggests a relatively high speed of adjustment to any disequilibrium in the short run. In other words, the estimated ECT_{t-1} is equal to 0.91 which states that the departure from the equilibrium is adjusted by 91% per year.

4.4.3 Estimated ARDL Model

The ARDL long run estimation of the impact of Agric Export (AE), Soild Mineral Export (SME), Manufacturing Export (ME) and growth rate of gross domestic product (GDPGR) is presented in Table 4.5

Table 4.5 Estimated Long Run Coefficients Using the ARDL Approach

Estimated Long Run Coefficients Using the ARDL Approach ARDL (1, 1, 2, 2, 2) Selected based on Akaike info criterion (AIC)				
Dependent variable is LGDPGR				
Regressor	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
GDPGR(-1)	-0.215849	0.152641	-1.414093	0.1754
LAE	4.981107	1.251107	3.991889	0.0009***
LME	7.081108	1.713208	4.151167	0.0007***
LME(-1)	8.061108	2.021108	3.989554	0.0009***
LSME	1.452106	5.332107	2.725729	0.0144**
LSME(-1)	1.344306	2.871107	4.663072	0.0002***
LSME(-2)	-2.111107	0.9.8408	-2.146242	0.0466**
Constant	0.961676	2.410290	0.398988	0.6949
R Squared	0.767964			
Adjusted R-Squared	0.645121			
S.E. of Regression	3.823919			
F-statistic (Prob.)	6.251602 (0.000621)			
Diagnostic Tests				
Test Statistics	**LM Version**			
A. Serial Correlation	X^2_{auto} = 0.305871 (0.9181)			
B. Functional Form (Ramsey Reset)	X^2_{RESET} = 1.320081 (0.1231)			
C. Normality	X^2_{Norm} = 1.090121 (0.5791)			
D. Heteroscedasticity	X^2_{Het} = 9.156371 (0.4230)			

Source: **Author's Extract from E-Views 10.0, 2019.**

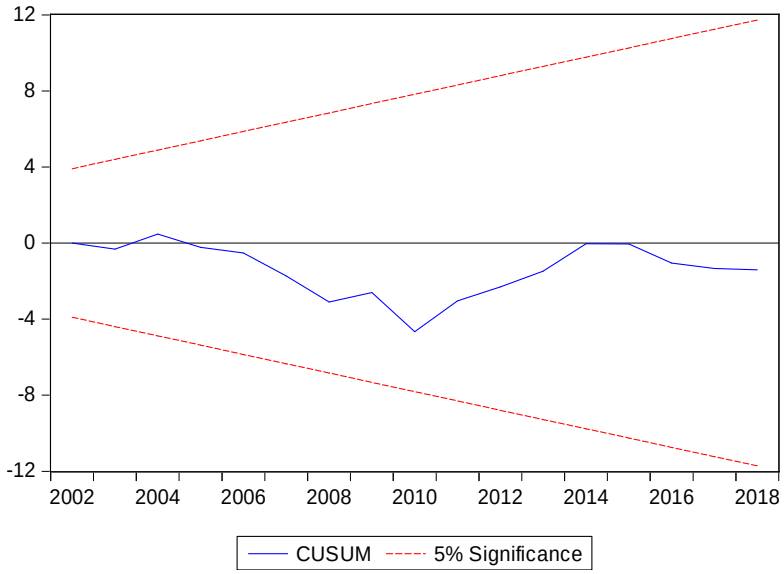
Note: ***, ** and * indicate significance at 1%, 5% and 10% level of significances. Figures in parenthesis are probability values. A is Breusch-Godfrey Serial Correlation LM Test, B is Ramsey's RESET test, C is Normality Test, D is Heteroscedasticity test.

The result presented in Table 4.5 shows the estimated long-run model of the impact of non-oil export on economic growth in Nigeria. The result revealed that Agric export and its two period lags, manufacturing export and its two period lags and Solid mineral leads to 4.981, 7.081, 8.061, 1.452, 1.344 and 1.344 increase in economic growth. These results are significant as indicated by their low probability values. The results are in line with the *a priori* expectation, while solid mineral export in its second period la showed a negative and significant impact on economic growth where its leads to 2.11 decrease in economic growth. This relationship contradicts the prediction of the theory.

In the same vein, the coefficient of determination (R^2) shows that 76% of the variations in economic growth is explained by the explanatory variables in the model, which is above 50%, and even after taking into consideration the degree of freedom, the adjusted coefficient of determination (adjusted R^2) still shows that 64% variation in the economic growth is explained by the explanatory variables. The F-statistics 6.251602 (0.000621) confirmed the fitness of the coefficient of model and showed an overall significant level of the explanatory variables jointly in explaining economic growth. Also, the outcome of this result was tested using some diagnostic tests such Breusch-Godfrey Serial Correlation LM Test, Ramsey's RESET test, Normality Test and Heteroscedasticity test. The result of these tests as presented in table 4.4 shows that the model passed all the diagnostic tests.The diagnostic tests applied to the model pointed out that there is no evidence of serial correlation, heteroscedasticity, while the RESET test confirmed a well specified model and the result of the normality test showed that the residuals are normally distributed.

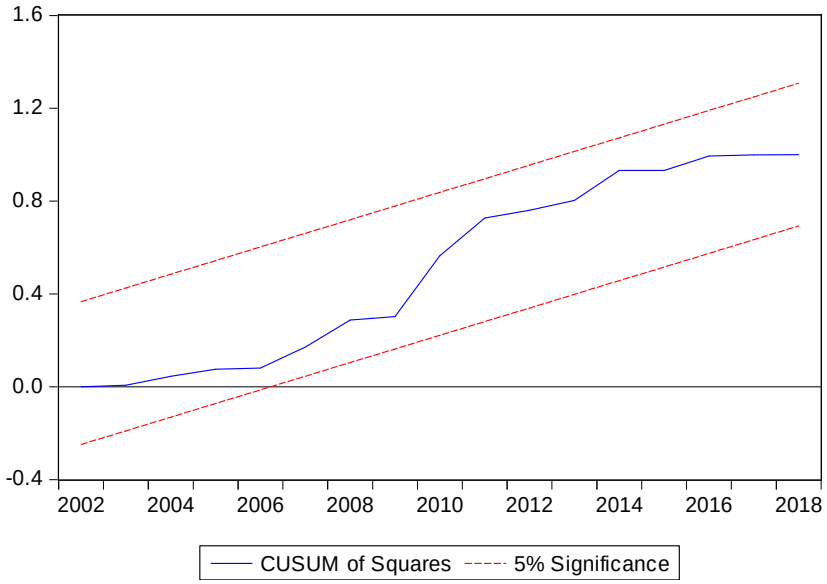
4.4.4 Result of Stability Test.

The stability of the regression coefficients is tested using the cumulative sum (CUSUM) and CUSUM of Squares of the recursive residual test for structural stability.



Source: **Author's Extract from E-Views 10.0, 2019.**
Figure 4.2:**Stability (CUSUM) Tests.**

Plots of the CUSUM and CUSUM of Square show that the regression equation seems stable given that the CUSUM and CUSUM of Squares tests statistics did not exceed the 5% level of significance boundary. Also, parameters are stable and do not suddenly change over time. This is indicative of the blue lines being within the red stripes in both figures 4.2 and 4.3.



Source: **Author's Extract from E-Views 10.0, 2019.**
Figure 4.3: Stability (CUSUMSQ) Tests.

5.0 Discussion of Results and Implication of Findings.

Three hypotheses were formulated in chapter one in line with the specific objectives of the study. The test of hypothesis is based on the result in table 4.7 of the ARDL long-run result. Hence, as deduced from the empirical analyses, the null hypothesis, which states that Agric Export does not have significant impact on economic growth in Nigeria can be rejected given the t-statistics value that is greater than 2 and its probability value less than 0.05 at 5% level of significance. Hence, we will conclude that Agric Export has significant impact on the economic growth in Nigeria within the period of study.

In the same vein, the second hypothesis which states that solid mineral export does not have significant impact on economic growth in Nigeria can be rejected given the t-statistics value that is greater than 2 and the probability value that is less than 0.05 at 5% level of significant study, hence; we conclude that solid mineral export have significant impact on economic growth.

The third hypothesis which states that manufacturing export does not have significant impact on economic growth in Nigeria can also be rejected with the value of t-statistics and its probability value which is greater than 2 and less than 5% respectively and conclude that manufacturing export have significant impact on economic growth.

On a general note, F-statistics is used in testing the overall significant of all the explanatory variables in the model. The value which stood at 6.251602 with its probability value of 0.000621 showed that the hypothesis that all the explanatory variables in the model are not jointly significant in explaining the dependent variable can be rejected and we conclude that all the explanatory variables jointly and significantly influenced the dependent variables.

The implication of the findings from this study is that, non-oil export has the capacity of improving the growth of the economy through enhancing the performance of the agricultural sector, solid mineral and manufacturing sector. This is so significant in the midst of over reliance of the economy on mono-economic product, which, therefore, calls for diversification of the economy. However, solid minerals export showed a negative impact contrary to the preposition of the theory, which can be attributed to exportation of large chunk of extracted and unrefined minerals, which are imported back to the country as finished goods at a higher price far beyond what the country gets from her exportation.

6.0 Conclusion and Recommendations

Based on the findings from this study, we can conclude that non-oil export has the capacity of improving the growth of the economy through enhancing the performance of the agricultural sector, solid minerals and manufacturing sector. This is very significant in the midst of over reliance of the economy on mono-economic product, which, therefore, calls for diversification of the economy. The impact of Non-oil export on the Nigeria economy cannot be overemphasized; the share of non-oil export in the country's total earnings has remained low. The policy has been to expand non-oil export in a bid to diversify the nation's export base. The diversification of the Nigerian economy is necessary for important reasons such as the volatility of the international oil market with the attendant volatility of government for diversification of exports and the fact that crude oil is an exhaustible asset makes it unreliable for sustainable development of the Nigerian economy.

In line with the findings and conclusion from this study, below are some of the recommendations from this study;

i. Government should, through its spending, invest more on agricultural, industrial, exploration of solid minerals and manufacturing sector, so as to enhance the production in these sectors which will in turn lead to increase in exportable goods and services.
ii. Government should enforce non-oil export policies towards resuscitating the failing non-oil export industry, review policies and practices that are not favorable to the exporters, and apply a national export programme that will inculcate the export culture in the country.
iii. Government should promote export-friendly environment, which entails creating political stability, effective and efficient public administration, increased trade openness and good governance characterized by reduction of corruption to the barest minimum, security of lives and property, etc. to sustain oil and non-oil export.

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