

## Impact of Non-Oil Export on Economic Growth In Nigeria

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### Abstract

Prompted by the worrisome negligence of the non-oil sector by the Nigerian government, despite the sector's huge potentials, this study attempted to examine the impact of Nigeria's non-oil exports on real GDP from 1981-2021 using the Auto Regressive Distributed Lag (ARDL) bound test and the CUSUM stability test techniques. The results of the study reveal that there exists a short-run and long-run relationship between the dependent and independent variables in both models. The Engel-Granger (ECM) analysis result revealed that non-oil export has positive impact on economic growth in Nigeria, while the ARDL bound test result revealed that non-oil export terms of trade has negative impact on economic growth in Nigeria. The CUSUM stability test shows that non-oil export has positive and stable impact on economic growth, while non-oil exports terms of trade has negative and unstable impact on economic growth in Nigeria. From the results of the study, it was concluded that on the average, non-oil export is a veritable economic tool that could be used in improving Nigeria's economy if the inherent potentials are optimally harnessed. The study recommends building of strategic bilateral trade agreements with other countries, especially countries that are net importers of Nigeria's non-oil exports goods.

*Key Words: Economic Growth, Non-oil Export, Nigeria*

*JEL Classification: F4, O19, O47*

### Introduction

Economic growth means sustained increase in Gross Domestic Product (GDP) of a country derived from greater amount of input productive efficiency, volume of trade (export, import and domestic trade), size of terms of trade, and aggregate economic stability. In order to increase a nation's GDP, its volume of trade (export, import and domestic trade), export revenue, size of terms of trade have to increase and trade stability have to be assured, which in turn result to increased international trade gain and aggregate economic growth. This premise summarily implies that economic growth largely depends on positive terms of trade, increased export revenue and trade stability, all things being equal. In practice, particularly for nations that are richly endowed in both oil and non-oil resources like Nigeria, their exports are expected to cut across oil and non-oil sectors alike (Anthony, 2014; Okpara, 2016). Nigeria's non-oil exports as classified by the Central Bank of Nigeria to include agricultural produce, mineral resources, semi-manufactured goods, manufactured products and non-traditional exports (CBN, 2020). Similarly, according to the foreign trade statistics of the National Bureau of Statistics (NBS) published quarterly, Nigeria's non-oil export consists of agricultural goods, raw material goods, solid minerals, energy and manufactured goods (NBS, 2018). The later classification is employed in this study because it is more detailed than that of the former.

Historically, available data show that before the discovery of oil in Nigeria in 1956, the non-oil sector and agricultural sector in particular, was the main driver of Nigeria's economy. However, the trend changed after the commencement of oil production in commercial quantity in the country from 1958, coupled with the then rise in the price of crude oil in the international market, in the late 1960s and early 1970s, oil took over from agriculture as the main stay of Nigeria's economy (Afolabi, 2017). Since the above referred period till date, the oil sector has and continues to receive better attention than the non-oil sector. Consequently, the non-oil sector contributes lesser than it used to before the discovery and exploitation of crude oil. Nevertheless, statistical evidence shows that the non-oil sector on aggregate has continued to contribute to Nigeria's economic growth, though in a volatile manner.

Furthermore, between 1981 and 1991 the average growth rate of Nigeria's real gross domestic product (GDP) stood at 2.2%. Within the same period, the growth rate of the country's total export stood at 38.3%, out of which oil export contributed about 95.4% while non-oil export contributed 4.5%. Between 1992 and 2020, the average

growth rate of Nigeria's real GDP increased from 2.2% to 3.8% while the average growth rate of the country's export increased to 48.6%, with oil export contributing about 97.4% against 95.4% previously recorded, and non-oil export contributed 2.5% against 4.5% previously recorded. Despite the relatively consistent increase in Nigeria's GDP over the years, the country recorded decrease in total export intermittently. Since oil export contributes about 95 percent of total export as against the paltry 5 percent of the non-oil sector, it implies that earnings from oil are volatile when compared to those of the non-oil sector; it also indicates that the non-oil sector holds a lot of potentials (CBN, 2022).

Despite the notion that the non-oil sector holds a lot of potentials for the Nigerian economy and Nigerians in particular, government does not seem to appreciate this view as it is. Juxtaposing the outcome of the investments made by the Nigerian government to revamp the non-oil sector with the level of efforts and resources committed towards achieving this, it clearly shows that there has not been remarkable progress in the sector. Diversification of the Nigerian economy has always been one of the most important and recurring steps taken by the government to alleviate the widespread poverty in the country. Efforts directed towards diversifying the Nigerian economy has led to the initiation of a number of policies including the rejuvenation of the non-oil sector. The diversification initiative brought about the establishment of the Nigerian Export Promotion Council (NEPC) in 1976; the agency was charged with the responsibility of promoting non-oil exports with the aim of spurring economic growth. Also, the Agricultural Credit Guarantee Scheme Fund (ACGSF) was introduced under the military government in 1977 with the sole purpose of providing guarantee to the loans granted by banks to farmers for agricultural purposes (CBN, 2021; Sasore, 2004). Similarly, to promote export of manufactured goods, the federal government of Nigeria introduced the Export Expansion Grant (EEG) scheme in 2007. The scheme focuses on assisting exporters of manufactured goods with the finances necessary for the expansion of their exportation business ventures. All these initiatives barely come close to restoring the non-oil sector to its place of glory before the dominance of the oil sector. From the factor endowment theory, it is believed that if a nation exports products in which it is advantaged in their production due to factor endowment, such nation will experience accelerated economic growth (Todaro & Smith, 2011). In the context of Nigeria, the nation is richly endowed in non-oil resources across various sectors such as the agricultural, mining and quarrying; yet, the country's economic performance is bedeviled by a number of encumbrances. Nigeria's poor economic performance as evidenced by available growth indices show that fluctuations in the country's non-oil export is partly responsible for the country's volatile economic growth.

From the forgoing, the fluctuations which Nigeria's economic growth experiences tend to demonstrate the depth of non-performance of non-oil exports on the country's economy. Recent policies in this direction such as vision 20:20:20 which projected to increase non-oil export by at least 2.5% on an annual basis, and the economic recovery and growth plan (ERGP) which projected to increase non-oil export by at least 4.5% over the three years period of the development plan seem not to have made much difference. A keen observation of these policies or economic plans reveals that these policies have not yielded expected results, perhaps because of improper implementation and the overriding influence of oil export. The challenge does not seem to be with the plans but with the understanding of the enormity of the potentials of this sector, which determines the seriousness with which initiated policies are implemented. The literature is replete with a number of works that tried to examine the impact of non-oil exports on economic growth of Nigeria. However, majority of these works that border on the subject matter, Nigeria, focused exclusively on the impact of aggregate non-oil export on Nigeria's economic growth (Orji, Ogbuabor & Nwosu, 2017; Idoko & Wada, 2017; Kawai, 2017; Kromtit, Kanadi, Ndingra & Lado, 2017; Augustine, 2018). Mgbemena and Kalu (2015) on the other hand, examined how the growth of total non-oil exports as a percentage of GDP affects the Nigerian economy.

Interestingly, there are studies that have attempted to evaluate the impact of disaggregated non-oil export on Nigeria's economic growth, but with observed limitations. For instance, Adenugba and Dipo (2013) attempted a disaggregated approach, but their study is limited to impact of export of agricultural goods on Nigeria's economic growth. Oyefabi, Murtala and Saheed (2018) also attempted a disaggregated approach but their study is limited to growth impact of the agricultural, manufacturing and solid mineral components on Nigeria's economic growth. Despite the applauded disaggregated attempts by the referenced studies, they omitted some commodities and sub-sectors under the non-oil sector of the Nigerian economy as comprehensively captured by the National Bureau of Statistics (NBS, 2018). Trade stability is said to be one of the factors that assure increased international trade gain and aggregate economic growth. Previous studies also omitted to determine trade stability of non-oil export, especially in the Nigerian economy (Anthony-Orji et al., 2017; Idoko & Wada, 2017; Kawai, 2017; Kromtit, Kanadi, Ndingra & Lado, 2017; Augustine, 2018). It is in an attempt to effectively evaluate in detail the performance of Nigeria's non-oil sector vis-à-vis those of her trading partners, and to determine the potential benefits of the sector to the Nigerian economy by determining the stability of non-oil exports that this study has been embarked upon. The potential impact of individual export goods will help in

identifying the most promising non-oil export goods (Okpara, 2016). Many of these related studies, especially those that border on the Nigerian economy made emphasis exclusively on the impact of aggregate non-oil export. Notwithstanding the contribution of these studies to the literature, there are yet some issues unattended to. For instance, Nigeria exports non-oil resources in crude form and imports them in refined forms; this highlights the need to draw the dichotomy between oil and non-oil exports when making international trade comparisons among countries. Put differently, instead of lumping-up terms of trade when making international comparisons as done by previous studies, in this study only non-oil commodities will be considered in the terms of trade computation and onward comparison with other countries of the world.

The study broadly seeks to determine the impact of non-oil export on the economic growth in Nigeria; it particularly attempts to determine the impact of the export and terms of trade of agricultural goods, solid mineral goods, energy goods, and manufactured goods on real GDP in Nigeria. It also seeks to evaluate the impact of the instability of non-oil export on the country's real GDP. This study stands to validate the export-led growth hypothesis, highlights on the terms of trade of non-oil exports which is a departure from other related works that employed terms of trade in their efforts to evaluate the contribution of non-oil export to economic growth without creating demarcation between that of oil export and that of non-oil export. Furthermore, the findings of this work would be of huge benefit to the federal government of Nigeria in adjusting economic policies appropriately so as to explore the inherent opportunities in the non-oil export sector of the country. This study involves Nigeria and covers the period 1981 – 2021. It is the period following the decade Nigeria started the exploitation of its oil resources, with the attendant huge earnings at the time that was as a result of the sharp increase in the price of crude oil at the international market. With the decline in non-oil export that followed Nigeria's huge earnings from oil export, the chosen period of the study effectively captures dismal performance of the sector presently.

### Components of Nigeria's Non-oil Exports

**Agricultural Export Commodities:** This category of export products was once the major source of export earnings to Nigeria. That was from the period before and immediately after the nation's independence, to the oil boom period of late 1960s and 70s. At that time, each part of the country contributed unique export products. For example, in the northern region agricultural export products included groundnuts and cotton, in the west, there were cocoa and rubber, while in the eastern part there were palm oil and palm kernel products. In recent times, there have been other exportable agricultural products and commodities like cashew nut, sealer seed, and bean seed.

**Manufactured and Craft Export Commodities:** This is another component of non-oil exports. In Nigeria, the contribution of this category of export products has been dismal. According to Ikpeazu (2001), the problem of manufacturing sector are numerous and this has cost the country a great fortune from export of manufactured goods due to low quality and not meeting international standard. In the observation made by Manufacturing Association of Nigeria (MAN) in their 2002 general meeting, the government can help to revamp the sector by increasing capacity utilization primarily through infrastructure development programmes and financial assistance to the sector. There was boost in the craft and manufactured product export following the launching of the African growth and opportunity Act (AGROA) by the United States government in 2001, which allowed for increased export of African goods and commodity to US market. In 2004 it was reported by the Ministry of Commerce and Industry that Nigeria's exports to US under the AGROA programme increased greatly amounting to over 3.2 million dollars (Ministry of Commerce, 2004).

**Solid Mineral Export Commodities:** This is the third major category of the non-oil exports products as contained in the CBN Annual reports. Solid minerals contributed significantly to the export earnings of the country before the advent of oil. Solid mineral like coal, tin ore, columbite, limestone etc., were once the pride of the nation or at least in the regions where they were mined, like coal for Enugu, tin ore for Jos, limestone for Nkalagu etc. Their dwindling fortune could be attributed to the high dependence on oil which occasioned neglect of these sectors. More so, the quality of coal and tin had declined greatly over the years. But according to Nigeria's former Minister of Solid Minerals, Obiageli Ezekwesili, during her inaugural speech in Abuja said that the solid mineral holds the key to Nigeria's future and if well harnessed, the revenue from the sector can conveniently surpass that of the derivative products in the near future. Coal for example, is in high demand in Poland, Britain and other European countries as they have indicated their interests in importing the Nigerian coal which has been adjudged the best in the world as it was sulphur free (CBN, 2015).

### Other Non-oil Exports

In addition to the three major categories of non-oil exports products discussed, all other non-oil export products that are not captured under the major headings are classified as 'Other Exports' in the *CBN Annual Report* for various years. Accordingly, other exports refer to items other than agriculture, minerals and manufactured products. These include cement/ lime products, charcoal, fertilizer, petroleum by-products, urea, used/re-exported machinery, electricity and the like.

The value of Nigeria's non-oil exports in aggregate terms within the past four decades is presented in Table 1.

**Table 1: Aggregate Non-oil export in Nigeria**

Year	1981	1990	2000	2010	2015	2018
Non-Oil Export Earning (NOE) (₦' b)	0.343	3.330	24.823	711.0	660.7	1434.2
NOE as a percentage of Total Export Earnings (%)	3.12	2.97	1.28	5.92	7.47	7.44

Source: CBN (2020)

The data in Table 1 shows that the value of aggregate non-oil export rose from ₦0.0343 billion in 1981 to ₦1434.2 billion in 2018. Similarly, the contribution of non-oil exports to total exports increased to 7.47% in 2015 from 3.12% in 1981 but dropped to 7.44% in 2018. However, this is not so impressive since it means that the other about 92% of total exports is accounted for by oil exports. Judging from available data, non-oil export has contributed little or nothing to total exports of Nigeria as its percentage to total exports has been very low. For instance, between 1981 and 1990 the percentage of non-oil exports to total exports on the average was 4.67%; between 1991 and 2000, the percentage on the average was 2.48%; between 2001 and 2010, the value was 3.49%, whereas between 2011 and 2018 non-oil export contributed a meagre 6.83% on the average to Nigeria's total exports. Within the period under review, non-oil exports contributed the lowest to the volume of total exports by 1.28% in 2000 and highest by 8.84% in 1988, but in 2018 the share of non-oil export earnings in total export earnings stood at about 7.44% only.

### Non-oil Export Promotion Policies and Initiatives in Nigeria

As early as the 1970s, the government saw the need to diversify Nigeria's export base and therefore established various agencies and put various policies in place to improve the economic situation in the country by increasing the share of non-oil products in total exports. Some of these policies are examined hereafter.

**The Nigerian Export Promotion Council:** The Nigerian Export Promotion Council (NEPC) was established in 1976. According to Abebefe (1995), its mandates include to:

- (i) Spearhead national effort in export development and promotion by generating ideas, suggestions and measures designed to advance the course of Nigeria's export trade.
- (ii) Advise and assist the government in the identification of export oriented industries and to help stimulate the growth of non-traditional exports from Nigeria.
- (iii) Assist the government in the creation of the necessary infrastructures such as export incentives and trade information services.

**The Export Incentives and Miscellaneous Provisions Decree No. 18 of 1986:** This decree was promulgated on the 11th of July, 1986 and it led to the establishment of institutions and programmes geared towards the promotion of exports, particularly non-oil exports. The decree provided for the establishment of three funds: Export Development Fund, Export Expansion Grant Fund and Export Adjustment Scheme Fund (CBN, 2010).

**The Nigerian Export-import (NEXIM) Bank:** NEXIM was established in 1991 as an export credit agency with the broad objective of attaining overall export growth as well as structural balance and diversifying the composition and destination of Nigerian exports. The bank provides three main services, which are credit, risk-bearing, trade information and export advisory services.

**Export Processing Zones:** This was established by the decree no. 34 of 1991. An Export Processing Zone (EPZ) is a special enclave outside a nation's normal custom barriers where foreign and domestic firms may manufacture or assemble goods for export without being subjected to the normal customs duties on imported raw materials and finished products present in that economy. Firms operating within the zone are normally exempted from industrial regulation applying within the domestic economy, especially with regards to foreign ownership of firms, repatriation of profits, employments of nationals, access of foreign exchange, etc. (Afeikhana, 1996)

### Review of Related Literature

There are a couple of theories that argue that there exists a linkage between export and economic growth. The neoclassical growth theory argues that when production takes place under neoclassical conditions of variable proportions and constant returns to scale, there will be no opposition between natural and unwarranted rates of growth. The main innovation introduced by Solow was to allow for factor substitutability so that stable equilibrium growth could be achieved. (Koopmans, 1965; Mustafa, 2011) Factor endowment theory cropped up in international trade in attempt to intensely criticize the absolute and comparative advantage theories in 1919 by Eli Hecksher. In the theory, he argued that trade holds between nations as a result of different factor endowments regardless of their absolute or comparative advantage.

The Export-Led-Growth Hypothesis (EGH) stipulates that export expansion is one of the main determinants of growth. It holds that the overall growth of countries can be generated not only by increasing the amounts of labour and capital within the economy, but also by expanding exports. According to its advocates, exports can perform as a catalyst or an engine of growth. The relationship between exports and growth is often attributed to the possible positive externalities for the domestic economy arising from participation in world markets, for instance, the reallocation of existing resources, economies of scale and various labour training effects. Several studies have examined how non-oil exports affect economic growth in Nigeria and other countries. Abubakar, Magaji, Bawuro and Wajiga (2018) investigated the impact of agricultural export performance on economic growth of Nigeria for the period 1980 to 2016. Empirical test of the long run and short run relationship was carried out using time series econometric techniques of co-integration, error correction estimation and OLS Regression analysis. Findings indicate that there is a positive and significant link between agricultural export performance and economic growth in Nigeria. Oyefabi, Murtala and Saheed (2018) examined the extent to which non-oil has significantly impacted the growth of the Nigerian economy for a 36-year period spanning 1981 – 2016. They employed 2-stage least squares method to estimate the system of simultaneous equations and found that non-oil exports – disaggregated into agricultural products, manufactured goods, and solid minerals have positive and significant impact on the Nigerian economy.

Waziri, Nor, Mukhtar and Muktar (2017) investigated the long run relationship between export of agricultural raw materials, exchange rate and economic growth in Nigeria. Annual time series data for the period of 32 years from 1981 to 2013 were used, and autoregressive distributed lag (ARDL) co-integration approach was employed as method of analysis. The result revealed that agricultural raw material export and exchange rate have negative but statistically insignificant impact on GDP. Verter and Bečvařova (2016) examined the impact of agricultural exports on economic growth in Nigeria from 1980 to 2012. The study employed Ordinary Least Squares (OLS) regression, Granger causality, Impulse Response Function and Variance Decomposition approaches. Both the OLS regression and Granger causality results support the hypothesis of agricultural exports-led economic growth in Nigeria. The results, however, show an inverse relationship between the agricultural degree of openness and economic growth in the country. Impulse Response Function results reveal upward and downward shocks from agricultural export to economic growth in the country and the Variance Decomposition results indicate that a shock to agricultural exports can contribute to the fluctuation in the variance of economic growth in the long run.

Oyedele and Olunkwa (2016) examined the relationship between export diversification and economic growth in Nigeria. The study used annual time series data for the period 1981-2015, and employed ordinary least square (OLS) technique involving co-integration and error correction mechanism (ECM) methods of analysis. Johansen co-integration test revealed that the variables were co-integrated, which confirmed the existence of long-run equilibrium relationship between the variables. The results of the study reveal that contributions of agriculture and manufacturing sectors to export is negative, implying that export diversification has negative effects on Nigeria's economic growth. Ijirsha (2015) empirically analysed the effect of agricultural export on economic growth in Nigeria over the period 1970 to 2012. The data were analysed using Johansen cointegration and error correction mechanism (ECM) which revealed evidence of long-run relationship among the variables and that agricultural export has significantly contributed to the growth of the Nigerian economy respectively. But then, the shortcoming of the study is that it is narrow in scope because it focuses exclusively on agricultural export.

Adenugba and Dipo (2013) studied the growth impacts of agricultural and mineral resources exports in Nigeria for the period 1981 to 2010. The study estimated the model using (OLS) method because the variables are stationary. Findings of the study indicate that mineral resources export has contributed significantly to Nigeria's economic growth. Olaleye, Edun and Taiwo (2013) examined the impact of manufacturing exports on economic growth in Nigeria within the period 1983 to 2012. The study used Johansen co-integration and Pairwise Granger causality methods of analysis. Findings indicate that the share of manufactured goods export in total export has positive long-run impact on economic growth, but evidence was not convincing regarding whether manufactured goods export caused economic growth within the period of study.

## Research Methods

### Theoretical Framework

The opinion held in this study is forged from the arguments made in the following theories: the Neoclassical Growth Theory, the Export-led Growth Hypothesis (EGH), and the Prebisch-Singer commodity terms of trade (CTOT) Hypothesis. Recall that Solow's Neoclassical Growth model expanded on the Harrod-Domar formulation by introducing a third independent variable that is technology (A), to the growth equation which already had labour (L) and capital (K). This is given as

$$Y = f(L, K, A) \quad (1)$$

Where Y = Output, L = amount of labour utilized in the production process, K = amount of capital utilized in the production process, A = the state of technology (literally technological progress). Also recall that the export led growth hypothesis (EGH) by Kindelberger (1962) subsumed technology (A) into capital (K) and went further to recognise export as one of the catalysts of growth. This is given as

$$Y = f(L, C, EXP) \quad (2)$$

Where Y= economic growth, L = labour, C = Capital, and EXP = Export. Kindelberger's view ignored other export determinants that shock economic growth, hence, in order to improve this view, Dornbusch, Fischer and Samuelson 1980 added Exchange rate to Kindelberger's EGH. Therefore, equation (2) is transformed into

$$Y = f(L, C, EXP, EXH) \quad (3)$$

Where Y= economic growth, L = labour, C = Capital, EXP = Export, and EXH = exchange rate.

### Model Specification

Following the work of Onodugo, Ikpe and Anowor (2013), who modified neoclassical growth theory in their study of export and economic growth in Nigeria, this study modifies equation 3, firstly by decomposing export into oil and non-oil. Secondly, the function is narrowed to non-oil export and economic growth nexus, and finally, the non-oil exports are disaggregated into agricultural goods, raw material goods, solid mineral goods, energy goods and manufactured goods.

Based on the aforesaid, equation 3 is modified as thus,

$$Y = f(L, C, OX, NOX, EXH) \quad (4)$$

Since this study is not focusing on oil export, equation 4 is further narrowed to non-oil and economic growth functional relationship, and thus expressed as;

$$Y = f(L, C, NOX, EXH) \quad (5)$$

In view of the fact that non-oil export in Nigeria is disaggregated into agricultural goods, raw material goods, solid mineral goods, energy goods and manufactured goods, NOX in equation 5 is disaggregated into the aforementioned non-oil export sub-sectors, and equation 4 is stated as;

$$Y = f(L, C, AGRX, SLMX, ENGX, MNFX, EXR) \quad (6)$$

Equation 6 is empirically rewritten as

$$GDP = f(LFP, GCF, AGRX, SLMX, ENGX, MNFX, EXR) \quad (7)$$

Where GDP = Gross Domestic Product at 2010 constant prices (i.e., real GDP), LFP = Labour force population (proxy labour stock), GCF = Gross capital formation (proxy capital stock), AGRX = Agricultural goods export, SLMX = Solid mineral goods export, ENGX = Energy goods export, MNFX = Manufactured goods export, EXR = Exchange rate.

The econometric form of the model is specified as:

$$\text{GDP} = \beta_0 + \beta_1\text{LFP} + \beta_2\text{GCF} + \beta_3\text{AGR}X + \beta_4\text{SLMX} + \beta_5\text{ENGX} + \beta_6\text{MNF}X + \beta_7\text{EXR} + \mu_t \quad (8)$$

Since all the variables are not in the same base (some are in million, some in billion and some in rate), it is necessary to have all of them in a common base. This is achieved by expressing the variables in their natural log, thus:

$$\ln\text{GDP} = \alpha_0 + \alpha_1\ln\text{LFP} + \alpha_2\ln\text{GCF} + \alpha_3\ln\text{AGR}X + \alpha_4\ln\text{SLMX} + \alpha_5\ln\text{ENGX} + \alpha_6\ln\text{MNF}X + \alpha_7\ln\text{EXR} + \mu_t \quad (9)$$

The economic a priori expectations of the model (Model 10) are:  $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$  and  $\alpha_6 > 0, \alpha_7 < 0$ .

In order to capture objective two of this study, equation 7 is specified as;

$$Y = f(L, C, \text{TOTAGR}X, \text{TOTS}L\text{MX}, \text{TOTE}N\text{GX}, \text{TOTM}N\text{FX}) \quad (10)$$

Where GDP = Gross Domestic Product at 2010 constant prices (i.e., real GDP), LFP = Labour force population (proxy labour stock), GCF = Gross capital formation (proxy capital stock), TOTAGR $X$  = terms of trade agricultural export, TOTS $L$ MX = terms of trade solid mineral export, TOTE $N$ GX = terms of trade energy export, TOTM $N$ FX = terms of trade manufactured export. The econometrics form of the model 10 is specified as:

$$\text{GDP} = \beta_0 + \beta_1\text{LFP} + \beta_2\text{GCF} + \beta_3\text{TOTAGR}X + \beta_4\text{TOTS}L\text{MX} + \beta_5\text{TOTE}N\text{GX} + \beta_6\text{TOTM}N\text{FX} + \mu_t \quad (11)$$

The economic a priori expectations of the model (Model 11) are:  $\beta_1$  and  $\beta_2 > 0; \beta_3, \beta_4, \beta_5$  and  $\beta_6 < 0$ .

In order to capture objective three of this study, the researcher adopted a statistical stability test which will be expatiated in estimation techniques and procedures

### Data and Data Sources

The variables of the study were sourced from the *CBN Annual Statistical Bulletin*; they are defined as follows:

Gross Domestic Product measures the national output of an economy or the value of goods and services produced in a given year. The study will use GDP at 2010 constant prices, that is, real GDP. Real GDP takes inflation into account. In other words, real GDP measures the actual increase in goods and services and excludes the impact of rising prices, and the growth rate refers to the annual percentage change in GDP over time. Labour force population according to NBS (2019) and as used in this study, the labour force population covers all persons aged 15 to 64 years who are willing and able to work regardless of whether they have a job or not.

Gross (fixed) capital formation is a term used to describe the net capital accumulation during an accounting period for a particular country, and the term refers to additions of capital stock, such as equipment, tools, transportation assets and electricity. Countries need capital goods to replace the current assets that are used to produce goods and services, and if a country cannot replace capital goods, production declines. Generally, the higher the capital formation of an economy, the faster the economy can grow its aggregate income.

Agricultural goods export are export goods that come from the planting of crops and/ or rearing of animals. Solid mineral goods export are elements found in the earth. These are naturally organic substances that are solid like precious stones, kaolin etc. which are part of non-oil exports. Energy goods export only refer to exported fuel woods in logs, for example hard wood, char-coal, coniferous wood in chips or particles etc. Manufactured goods export are exported tangible goods created from the conversion of raw materials into consumable or useful products.

Exchange Rate as used in the study, exchange rate refers to the rate at which the Nigerian Naira exchanges with the US dollar. The study used quarterly average official exchange rate of Naira/ Dollar. The Central Bank of Nigeria sets and reviews the official exchange rate from time to time. An increase in the exchange rate means that the value of foreign exchange would be higher in local currency and that could increase the GDP since the latter is measured in the local currency. TOT is defined in respect of AGR $X$ , SLM $X$ , ENG $X$  and MNF $X$

### Estimation Techniques and Procedures

The models of this study were estimated using the Autoregressive Distributed Lag (ARDL) technique. However, the direct analyses of the data of the study without accounting for the descriptive and time series properties of the relevant data may result to spurious regression. It is widely known that meaningful economic policies can barely be generated from regression analysis involving data misalignment and non-stationary time series data. Hence, pre-test analyses such as the descriptive analysis, unit root test, cointegration test and error correction test were carried out.

Descriptive analysis is very important because if we simply present our raw data it would be hard to visualize what the data is showing, especially if there was a lot of it. Descriptive analysis is the type of analysis of data that helps describe, show or summarize data points in a constructive way such that patterns and measures that determine normal or non-normal distribution of the data set like skewness, kurtosis, mean, media, mode and standard deviation might emerge to show or fulfill every or part of the conditions of the data.

Unit root test is the first step of the estimation procedure via regression analysis. The test was conducted to determine the time series properties of study data. This is with a view to establishing whether there is presence of unit root in the series because when time series data are characterized by a unit root, or in other words are non-stationary, regression analysis conducted in a conventional way yields spurious regression results. The Augmented Dickey Fuller (ADF) method will be used to conduct the unit root test. The ADF equation is specified below as thus;

$$\Delta Y_t = \beta_0 + \beta_2 t + \psi Y_{t-1} + \alpha_1 \sum_{i=1}^p \Delta Y_{t-i} + \varepsilon_t \quad 10$$

After establishing the existence of stationarity and their order of integration identified, next is to determine if the dependent and independent variables are co-integrated for robust long-run analysis and this can only be achieved through co-integration test. The nature of co-integration test to be applied in a study is subject to stationarity test outcomes. For instance, if the data set for the study are integrated at purely order zero that is  $I(0)$  or purely order one that is  $I(1)$ , under such stationarity outcomes single co-integration tests such as Johansen or Engle-Granger respectively are appropriate for long-run analysis. On the contrary, if the variables are fractionally integrated at  $I(0)$  and  $I(1)$ , ARDL bound testing becomes more appropriate. To save space, this paper emphasized more on Engle-Granger and ARDL bound testing.

Single co-integration tests, precisely Engle-Granger co-integration test is appropriate if the data set for the study are integrated at purely  $I(1)$ . The Engle-Granger co-integration test equation is stated as:

$$\Delta Y_t = \beta_0 + \beta_1 \Delta x_{t1} + \dots + \beta_p \Delta x_{tp} + \varepsilon_t \quad 11$$

If two or more variables are co-integrated, that is, there is a long-run or equilibrium relationship between the variables. Of course, in the short-run there may be disequilibrium. Therefore, the error term in the short-run equation is treated as equilibrium error. Correction of such error is the major import of Error Correction Mechanism or Model (ECM), we can use this error term to tie the short-run behaviour of the dependent variable (Gujarati. 2004).

This Augmented Engle-Granger Error Correction Model test was carried out to correct maybe equilibrium error (disequilibrium) in the short-run, such that the error term in the short-run equation can be tied to the short-run behaviour of the dependent variable. The short-run equation is as stated below:

$$\Delta Y_t = \beta_0 + \beta_1 \Delta x_{t1} + \dots + \beta_p \Delta x_{tp} + \beta_2 \text{ECM}(-1) + \varepsilon_t \quad 12$$

$\beta_2$  decides how quickly equilibrium is restored in the short-run and  $\beta_2$  is expected to be negative.

Unlike single co-integration tests which are applicable if time series are serially integrated, that is purely  $I(0)$  and  $I(1)$ , ARDL bounds testing co-integration is applicable if the variables are fractionally integrated at  $I(0)$  and  $I(1)$ . Long-run and short-run unrestricted ARDL bounds testing approach developed in 2001 by Pesaran, shin and Smith (Pesaran, shin & Smith, 2001) is specified below as;

$$\Delta \ln Y_t = \beta_0 + \beta_1 \ln Z_{t-1} + \sum_{i=1}^k \alpha_1 \Delta \ln Y_{t-i} + \sum_{i=1}^k \alpha_2 \Delta \ln Z_{t-i} + \mu_t \quad 13$$

Where  $\mu_t$  is the white noise or error term, the first part of the right hand side of equation 11 with parameter  $\beta_1$  represents the long-run parameter of the models and the second part with parameter,  $\alpha_2$  represents the short-run of the models.

Recall that one of the objectives of this study is to determine the stability of the non-oil export with respect to Nigeria's economic growth. Therefore, the Cumulative Sum (CUSUM) tests were adopted for this purpose. The choice of the CUSUM test is based on Pesaran and Pesaran (1997) who argued that it is instructive to test the constancy of the long-run coefficients by conducting stability tests using the CUSUM and CUSUMQ which have been provided by Brown et al (1975). The CUSUM tests provide a business cycle kind of diagram that it utilizes to analyze the stability of independent variable with respect to the dependent variable (that question or probing how stable the independent variable(s) in order to influence the dependent variable).

## Result Presentation and Analyses

**Table 2: Descriptive Analysis for Variables in Model One**

	RGDP	LFP	GCF	AGRX	SLMX	ENGX	MNFX	EXR
Mean	17.60728	13.20567	607.8894	2238038	1.136708	74.75046	5.811873	4046206
Median	7.774980	7.158590	440.1000	123747.9	1.097808	21.89000	6.131667	485313.4
Maximum	62.28666	41.52444	1981.500	11815129	1.773408	365.7930	11.06417	19909751
Minimum	0.088924	0.196657	1.200000	1.580869	5.467479	0.550000	0.316667	885.6680
Std. Dev.	19.67376	13.39493	588.8380	3908904.	3.370642	94.03491	2.790050	3864237
Skewness	0.636974	0.497489	0.741029	1.482367	0.165111	1.271783	-0.075018	1.270352
Kurtosis	1.962180	1.742625	2.383800	3.368616	1.692628	4.015382	2.011259	3.284155
Jarque-Bera	5.625034	5.356193	5.367085	18.59484	3.788059	15.62652	2.083583	13.61651
Probability	0.060054	0.068694	0.068321	0.000092	0.150464	0.000404	0.352822	0.001105
Sum	880.3640	660.2837	30394.47	1.128908	5.640909	3737.523	290.5936	2.027608
Sum Sq. Dev.	18965.79	8791.778	16989777	7.490914	7.212316	433285.6	381.4347	1.690015
Observations	37	37	37	37	37	37	37	37

Source: Researcher's Computation using E-views 9

From Table 2, it could be observed from the mean, median and maximum (mode) values of RGDP, LFP, IMPMG, GCF, AGRX, SLMX, ENGX, MNFX and EXR that the data of the variables consist of both the set of values that hover around the mean values and the set of data that do not. Also, values of standard deviation of RGDP, LFP, AGRX, SLMX and ENGX tend to be greater than their mean, indicating further that the aforesaid variables are not normally distributed. On the other hand, the standard deviation values of GCF and MNFX are less than their mean, indicating that GCF and MNFX follow normal distribution in this regard.

The skewness result shows that RGDP, LFP, GCF and SLMX follow normal distribution of positive low skewness, having obtained the following values 0.636974, 0.497489, 0.741029, and 0.165111 respectively, whereas AGRX follows normal distribution of positive moderate skewness having obtained a value of 1.482367. MNFX follows normal distribution of negative low skewness with a value of -0.075018. In summary, with regards to skewness all the variables are said to follow normal distribution. On the backdrop of kurtosis, the result shows that RGDP, LFP, GCF, SLMX and MNFX are platykurtic (non-normally distributed of low outliers), having obtained the following values 1.962180, 1.742625, 2.383800, 1.692628, and 2.011259 respectively. Again the result shows that ENGX is leptokurtic (4.015382) indicating a non-normal distribution with high outliers. However, AGRX is mesokurtic (3.368616), indicating a normal distribution. Furthermore, given the hypothesis of the Jarque Bera test which states that "the variables are not normally distributed for  $H_0$  and the variables are normally distributed for  $H_1$ ." Decision rule: reject  $H_0$  if P-value < 0.05; do not reject  $H_0$  if P-value > 0.05. The result obtained indicates that RGDP, GCF, SLMX and MNFX are not normally distributed, while LFP, AGRX, and ENGX follow normal distribution.

## Unit Root Test

**Table 3: Augmented Dickey-Fuller (ADF) unit root test**

VARIABLES	ADF	Critical 5%	Order	Remarks
<b>Dependent variable for model one and two</b>				
RGDP	-4.258469	-2.536601	I(1)	Reject H <sub>0</sub>
<b>Independent variables for model one</b>				
LFP	-5.577441	-3.536601	I(1)	Reject H <sub>0</sub>
GCF	-6.697611	-3.536601	I(1)	Reject H <sub>0</sub>
AGRX	-5.518021	-3.540328	I(1)	Reject H <sub>0</sub>
SLMX	-6.440677	-3.544284	I(1)	Reject H <sub>0</sub>
ENGX	-8.279498	-3.540328	I(1)	Reject H <sub>0</sub>
MNFX	-7.481304	-3.540328	I(1)	Reject H <sub>0</sub>
EXR	-4.782042	-3.536601	I(1)	Reject H <sub>0</sub>
<b>Independent variables for model two</b>				
LFE	-5.577441	-3.536601	I(1)	Reject H <sub>0</sub>
GCF	-6.697611	-3.536601	I(1)	Reject H <sub>0</sub>
TOTAGRX	-7.663413	-3.536601	I(1)	Reject H <sub>0</sub>
TOTSLMX	-6.489730	-3.533083	I(0)	Reject H <sub>0</sub>
TOTENGX	-3.963419	-3.533083	I(0)	Reject H <sub>0</sub>
TOTMNFX	-7.351569	-3.540328	I(1)	Reject H <sub>0</sub>

Source: Researcher's Computation using E-views 9

From unit root test, it is obvious that all the variables in the model are stationary at order I(I), we therefore reject H<sub>0</sub> across all the variables and models, and then conclude that the variables are stationary (the variables have no unit root) in all the models specified. Since all the variables are stationary at order I (I), this study therefore adopted Engel-Granger two stage co-integration test. First stage of E-G co-integration test states that residual is a level stationary variable and second stage states that there should be at least one co-integrated variable in the equation.

**Table 4: Residual Unit Root Test**

<b>Model one</b>				
VARIABLE	ADF	Critical 5%	Order	Remarks
Resid01	-4.321595	-3.533083	I(0)	Reject H <sub>0</sub>

Source: Researcher's Computation using E-views 9

**Table 5: Engel-Granger co-integration test model one**

Variables	tau-statistic	Prob.*	z-statistic	Prob.*
RGDP	-4.444387	0.0010**	-26.80686	0.0043**
LFP	-4.121601	0.0099**	-20.62453	0.0008**
GCF	-5.002311	0.0519**	-31.52472	0.0040**
AGRX	-5.136894	0.0584**	-28.82255	0.0071**
SLMX	-4.384642	0.0129**	158.2343	0.9999
ENGX	-7.908438	0.0008**	-138.0325	0.0000**
MNFX	-5.517792	0.0399**	-68.39065	0.0000**

EXR	-1.213244	0.9998	-0.474811	0.9997
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\*\* denote co-integration

Source: Researcher's Computation using E-views 9

Table 4 shows that residual series in model one is a stationary variable while table 5 indicates that the time series in the same model is co-integrated, as we observed more than one co-integrated variables. Table 5 indicates that the dependent and independent variables specified in model one of this study are co-integrated since the residuals are integrated at order zero, and we had at least one co-integrating variable in the model. This indicates that there exist long run relationship between the dependent and independent variables in the model specified in this study. Meanwhile, since we have more than one co-integrating variables in the model specified, we will reject  $H_0$  which states that there is no single co-integrating variable in the models at 5% level of significance and accept  $H_1$ .

### Engel-Granger Error Correction Model

**Table 6 Error Correction Test**

Error correction test				
Model one				
Variable	Coefficient	t-statistic	Prob.*	
ECM01(-1)	-0.161930	-4.337327	0.0015	

Source: Researcher's Computation using E-views 9

Table 6 reveals that there exists short-run disequilibrium in model one of the study. The negative coefficients imply that for short-run disequilibrium in model one to be corrected in the long run, it will require 16.1% speed of adjustment. Given the ECM results, the analysis of this study relied on short run analysis.

### Data/ Result Analysis

**Table 7: Engel-Granger ECM (Short-run) Result for Model One**

Dependent Variable	RGDP			
	independent Variables			
Variable	Coefficient	t-Statistic	Probability	
LFP	1.966705	0.638477	0.5282	
GCF	0.100700	3.007488	0.0054	
AGRX	1.217434	2.294073	0.0008	
SLMX	0.810961	4.597672	0.0047	
ENGX	2.186171	0.629812	0.5337	
MNFX	2.406141	4.612306	0.0007	
EXR	-2.036543	1.635743	0.1127	
ECM01(-1)	-0.161930	-4.337327	0.0015	
Other test statistic				
Variables	Values			
R-squared	0.536123			
Adjusted R-squared	0.452985			
F-statistic and Prob(F-statistic)	5.835351 (0.000646)			
Durbin-Watson stat	1.806552			

Source: Researcher's Computation using E-views 9

Economically, the above short-run result reveals firstly among others that a unit increase in labour and capital (LFP and GCF) in Nigeria will increase Nigeria's real gross domestic product (RGDP) by 1.96 and 0.100 units

respectively. Secondly, a unit increase in Nigeria's agricultural export (AGRX), solid mineral export (SLMX), energy export (ENGX) and manufacturing export (MNFX) will increase RGDP by approximately 1.22, 0.81, 2.19, and 2.41 units respectively. Thirdly, a unit increase in Naira-dollar exchange will increase RGDP by approximately 2.04. On the other hand, t-test statistics shows that GCF, AGRX, SLMX and MNFX have positive significant impact on RGDP, while LFP, ENGX and EXR have positive insignificant impact on RGDP. F-test shows that overall test statistics is positive and statistically significant.

For the model two, given the unit root result in tables 3 and 4, precisely at the segment of **independent variables for model two**, we will reject  $H_0$  which states that the variables have unit root (not stationary) and accept  $H_1$  which states that the variables have no unit root (stationary). This is because the ADF statistic values are greater than critical value in absolute terms at 5% level of significance, with all the variables been fractionally integrated at order one (that is I(1) and order zero (that is I(0)). Since the variables are fractionally integrated, this study therefore adopted ARDL bound test for co-integration test for model two.

**Table 8: ARDL Bounds Test (Co-integration Test)**

Model one		
Test- statistic	Value	K
F-statistic	6.237036	7
Critical Value Bounds		
Significance	I(0)	I(1)
5%	2.32	3.50
K = number of parameters		

Source: Researcher's Computation using E-views 9

From table 8, it was observed that the F-statistic values fall above the upper critical bounds at 5% level of significance, hence we reject  $H_0$  which states that the variables are not co-integrated and accept  $H_1$  which states that the variables are co-integrated. As a result we then conclude that the variables specified in models two are co-integrated, the result implies that there exist long run relationship between the dependent and independent variables in the model specified in this study. Next is to ascertain the short run relationship through the residual, according to Gujarati, Porter and Gunasekar (2012) the unit root of the residual is expected to be stationary at level indicating a short run relationship.

**Table 9 Augmented Dickey-Fuller (ADF) unit root test for the residual of Model two**

Variables	ADF test statistic	Critical 5%	Order	Remarks
Resid02	-6.967056	-3.533083	I(0)	Reject $H_0$

Source: Researcher's Computation using E-views 9

From table 9, it was observed that the residual in model two is a level stationary variable that is I(0), hence, we will then conclude that there exist a short-run relationship between the dependent and independent variable in the model. Furthermore, we will then conclude that the  $ecm_{t-1}$  in our equation will adjust to equilibrium level in the short-run, given the dependent and independent variables in the model. As a result of the above outcome, our study analysis will rely on short run results because of the advantages short-run results have over long-run results. Short-run results have the following advantages over long-run results (a) short run results give multiplier effect of the independent variables on the dependent variable (b) short-run is a convenient model that corrects disequilibrium in the short-run into long-run (c) Short-run results resolve the problem of spurious regression by taking into account the lag of error correction model (ECM) which eliminates trends from the model (d). ECM fits into both general and specific approaches to econometric model (e), the error term in Short-run result is a stationary variable (Gujarati, 2004).

## Data/Result Analysis

**Table 10: ARDL Estimated Result for Model Two**

Dependent Variable	RGDP
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Independent Variables			
Variable	Coefficient	t-Statistic	Probability
LFE	1.660005	3.168757	0.00s72
GCF	-0.000141	3.771699	0.0468
TOTAGRX	-1.652806	-2.729280	0.0048
TOTSLMX	-2.721039	-1.113599	0.2749
TOTENGX	-0.201054	-3.745121	0.0419
TOTMNFx	-2.042441	-1.864281	0.0728
ECM02(-1)	-0.052434	-3.765215	0.0505
RGDP(-1)	0.317767	-2.365650	0.0252
Other test statistic			
Variables		Values	
R-squared		0.589929	
F-statistic and Prob(F-statistic)		6.237036 (0.004029)	

Source: Researcher's Computation using E-views 9

Economically, the result in table 10 shows that as LFP increase by a unit, Nigeria's RGDP increases by 1.66 units. Again, a unit increase in previous RGDP (that is RGDP (-1)) increases the present RGDP by 0.32 unit. Furthermore, a unit increase in GCF, TOTAGRX, TOTSLMX TOTENGX and TOTMNFx decreases RGDP by -0.000141, -1.652806, -2.721039, -0.201054, and -2.042441 respectively. The ECM02 (-1) indicates that about 5.2% speed of adjustment is required for the dependent and independent variables to adjust to equilibrium in the short run. The R-squared shows that there is about 58.9% goodness of fit between the dependent and independent variables in the specified model. Statistically, the t-test shows that the impact of LFP and GCF on RGDP are positively significant, while the impact of TOTAGRX, TOTENGX, and RGDP (-1) on RGDP are negatively significant and the impact of TOTSLMX and TOTMNFx on RGDP are negatively insignificant.

### Evaluation of Estimate

Estimated results are evaluated based on economic criteria (a priori expectations).

**Table 11: Economic Criteria (a-priori expectation)**

Independent variables	Model one RGDP dependent variable		
	Expected	obtained	Remark
LFP	$+\alpha_1$	1.966705	Conformed to a-priori
GCF	$+\alpha_2$	0.100700	Conformed to a-priori
AGRx	$+\alpha_3$	1.217434	Conformed to a-priori
SLMX	$+\alpha_4$	0.810961	Conformed to a-priori
ENGX	$+\alpha_5$	2.186171	Conformed to a-priori
MNFx	$+\alpha_5$	2.406141	Conformed to a-priori
EXR	$-\alpha_7$	-2.036543	Conformed to a-priori

Source: Researcher's Computation using E-views 9

**Table 12: Economic Criteria (a-priori expectation)**

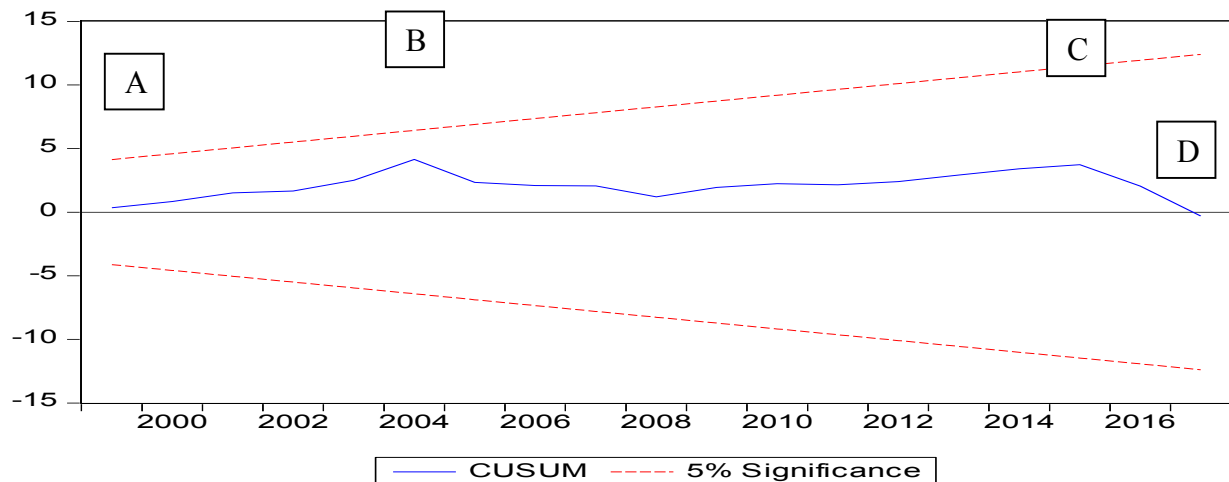
Independent variables	Model two RGDP dependent variable		
	Expected	obtained	Remark
LFP	$+\beta_1$	1.660005	Conformed to a-priori
GCF	$+\beta_2$	-0.000141	Did not conformed to a-priori
TOTAGRx	$+\beta_3$	-1.652806	Conformed to a-priori

TOTSLMX	$+\beta_4$	-2.721039	Conformed to a-priori
TOTENGX	$+\beta_5$	-0.201054	Conformed to a-priori
TOTMNFx	$+\beta_6$	-2.042441	Conformed to a-priori

Source: Researcher's Computation using E-views 9

For objective three:

**Figure 1: CUSUM stability test of aggregate non-oil export and economic growth from 1981 – 2019**



The CUSUM stability test above shows that non-oil export and economic growth nexus in Nigeria is relatively and positively stable with a huge sign of negative stability. Taking critical review of figure 1, from point A to B, non-oil export and economic growth nexus in Nigeria gained positive stable, but declined from point B to C, though positive still. But point C to D indicates that there may be huge negative stability in the future

### Discussion of Findings

The economic criteria result of model one of this work which aims at examining the impact of export of agricultural goods (AGRX), solid mineral goods (SLMX), energy goods (ENGX) and manufactured goods (MNFx) on Nigeria's economic growth shows that AGRX, SLMX, ENGX and MNFX have positive impact on Nigeria's economic growth within the period of this study to the tune of approximately 1.22, 0.81, 2.19 and 2.41 respectively. This result relatively aligns with the theoretical stance adopted in the study such as the Heckscher-Ohlin factor endowment theory, and the theory of availability and export-led growth hypothesis (EGH). Nigeria as a naturally endowed country in terms of non-oil resources is expected to produce and export non-oil products based on the proposition of the aforementioned theories.

Theoretically, according to factor endowment theory, for trade to spur economic growth in all trading countries, the countries that are rich in capital should produce and export capital-intensive goods and the countries, which have much labour, should produce and export labour intensive goods. Following this premise, Nigeria as a naturally endowed country in terms of non-oil resources is expected to produce and export non-oil products. Hence, the result obtained in model one of this work conforms to the factor endowment theory. According to the theory of availability, countries should produce and exports those goods that are available at home and which can be processed and developed by its innovators and entrepreneurs. The theory further opined that the composition of commodity of trade is determined primarily by 'availability' which will lead to continuous supply and economic growth. With the state of non-oil resources available in Nigeria coupled with human, material and capital resources, Nigeria is in the position to export both crude non-oil and refined non-oil products with no recourse to non-oil importation. On this backdrop, the result obtained in model one of this work conforms to the theory of availability. The EGH postulates that export expansion is one of the main determinants of growth. It further holds that the overall growth of countries can be occasioned not only by increasing the amounts of labour and capital within the economy, but also by expanding exports. According to

its advocates, exports can perform as a catalyst or an engine of growth. On this backdrop, the result obtained in model one of this work conforms to EGH postulates.

The economic criteria result of model two of this work which intends to determine the impact of terms of trade of agricultural goods (TOTAGR), solid mineral goods (TOTSLM), energy goods (TOTENG) and manufactured goods (TOTMNF) on Nigeria's economic growth shows that TOTAGR, TOTSLM, TOTENG and TOTMNF have the following level of impact on RGDP: -0.000141, -1.652806, -2.721039, -0.201054 and -2.042441 respectively.

The above result supports the Prebisch-Singer commodity terms of trade (CTOT) Hypothesis adopted in the research work. The Prebisch-Singer CTOT Hypothesis focused on the economic implication of exportation of primary products from LDC's into DC's, and importation of manufactured products from DC's into LDC's. CTOT is the simplest TOT for measurement of international trade efficiency or trade gain. CTOT for any country is defined as the price of that country's export divided by the price of its import or the ratio of a country's export to her import or the gap between a country's export and her import; CTOT is represented as  $(P_X/P_M)$  or  $((P_X/P_M)-1)$ . Economic interpretation of the CTOT is that, as the price of export rises relative to the price of imports, the price gap between export and import should be large enough to purchase a larger quantity of import and bring higher utility and welfare to the citizens of the importing country, which will further lead to economic growth and development and vice versa. However, for Prebisch-Singer, CTOT will always be negative for developing countries and will always contribute negatively to her economic growth even in the long run, because demand pressure of manufactured products outstrips the demand pressure of primary products. By implication, manufactured products conduct higher prices than primary products. From the result obtained in the model two of the study, the researcher can affirm that the result confirms to Prebisch-Singer CTOT Hypothesis for Nigeria within the period of this study. This is because TOTAGR, TOTSLM, TOTENG and TOTMNF have negative impact on Nigeria's economic growth as obtained in table 11.

In the third model which intends to determine stability of non-oil export in relation with Nigeria's economic growth, the result obtained with the CUSUM stability test reveals that on aggregate, non-oil export and economic growth nexus in Nigeria is relatively and positively stable with a huge sign of negative stability; see Figure 1 and points A, B, C and D.

From point A to B, non-oil export and economic growth nexus in Nigeria gained positive stability, but declined from point B to C, though still positive; while point C to D indicates that there may be huge negative stability in the future.

### Conclusion

This study borders on the impact of non-oil export on Nigeria's economic growth from 1981 to 2019; it is anchored on both theoretical and empirical premises. The theories adapted in the work are theories that are relevant in expatiating partly the relationship between non-oil resource exports and economic growth. For instance Factor Endowment theory by Hecksher-Ohlin is of the opinion that countries rich in labour intensive resources should export the same and import capital intensive resources and vice versa. In the Nigerian context, the country is rich in oil and other non-oil resources.

In order to bridge the identified gaps, this study attempted to achieve the following objectives; to examine the impact of export of agricultural goods, solid mineral goods, energy goods and manufactured goods on Nigeria's economic growth, to determine the impact of terms of trade of agricultural goods, solid mineral goods, energy goods and manufactured goods on Nigeria's economic growth, and to determine stability of non-oil export in relation to Nigeria's economic growth within the period, 1981 to 2019. In that light, the appropriate method of analysis was identified and the required data collected; the data sets were subjected to statistical pre-test in order to ascertain the robustness of the variables, in which the researcher adopted Engel-Granger test statistic for the first model (objective one) and ARDL bound testing for the second model (objective two), and CUSUM stability test for the third objective.

The Engel-Granger statistical test revealed that there exist both long and short-run relationship between export of agricultural goods, solid mineral goods, energy goods and manufactured goods and Nigeria's economic growth. Hence, the statistical and economic analysis of the objective one of the present study is based on short run results, as shown in Table 4.7. The result obtained from model one shows that AGR, SLM, ENG and MNF impacted positively on Nigeria's economic growth within the period of this study to the tune of approximately 1.22, 0.81, 2.19 and 2.41 respectively.

From model two (objective two), the ARDL bound testing revealed that there exist both long and short-run relationship between terms of trade of agricultural goods, solid mineral goods, energy goods and manufactured goods and Nigeria's economic growth. Therefore the statistical and economic analysis of the objective two of this study is based on short run results as shown in Table 4.12. The result obtained from model two shows that TOTAGR<sub>X</sub>, TOTSLM<sub>X</sub>, TOTENG<sub>X</sub> and TOTMNF<sub>X</sub> impacted negatively to Nigeria's economic growth to the tune of -0.000141, -1.652806, -2.721039, -0.201054 and -2.042441 respectively. In respect of the third objective, CUSUM trend was above the stability line showing positive stability and good performance. However, the CUSUM stability test of term of trade of aggregate non-oil export and economic growth nexus in Nigeria is negative and unstable with a huge sign of further negative instability.

Summarily, the observed result shows non-oil exports (supply side only) is stable and have positive impact on Nigeria's economic growth, while non-oil terms of trade which factors-in supply and demand sides shows that non-oil terms of trade in Nigeria is unstable and has negative impact on Nigeria's economic growth. The above results show the importance of subjecting theories to empirical test. Because following the outcome of the supply side (non-oil exports) it appears that Nigeria's economy is doing well, but the non-oil terms of trade which factors-in supply and demand sides, shows that non-oil import exceeds the non-oil exports. And this is in tandem with Prebisch-Singer CTOT hypothesis. This study evaluated the impact of non-oil export on Nigeria's economic growth from 1981 to 2019. Relevant growth and trade theories were reviewed; the reasons for the adoption of these theories were stated and the assumptions, proponents, critiques of the theories were highlighted on. Related empirical literatures were reviewed to further give a more robust outlook to the research work from which research gaps were drawn. Methods of analysis relevant to capture the study's objectives were adopted.

From the study, empirical findings reveal that AGR<sub>X</sub>, SLM<sub>X</sub>, ENG<sub>X</sub> and MNF<sub>X</sub> in model one and TOTAGR<sub>X</sub>, TOTSLM<sub>X</sub>, TOTENG<sub>X</sub> and TOTMNF<sub>X</sub> in model one conformed to a priori theoretical expectation. However, to be more specific, on the average, the results revealed that non-oil imports out-weigh non-oil exports within the period of this study. Evidence to that effect is the negative impact of the non-oil terms of trade on Nigeria's economic growth. Nevertheless, the export variables have positive impact on Nigeria's economic growth. Subsequently, from the stability test, evidence shows that at equilibrium (that is terms of trade which factors export and import), Nigeria's non-oil trade is unstable negatively, despite the fact that stability test of non-oil export (supply side only) reveals that non-oil export in Nigeria is stable positively. Following the results obtained from Engle-Granger estimation, ARDL bound testing and CUSUM stability test, the researcher concludes that: (a) non-oil exports still stand the chance of improving Nigeria's economy if inherent potentials are properly harnessed (b) on the average, Nigeria's non-oil trade expected benefits is altered by greater than proportionate import of non-oil resources as shown in the non-oil terms of trade (c) stability of non-oil export in Nigeria is surrounded with doubt as the stability of non-oil terms of trade shows a negative sign.

Based on the findings and conclusions of this study, the following recommendations have been made:

- (i) Implementation of policies that will lead to proper utilization of benefits accruable from non-oil export should be prioritized by the Nigerian government. Some of these policies include the components of the terms of reference for the establishment of the Export Promotion Council.
- (ii) Tariff and non-tariff policies that would help reduce importation of non-oil commodities that can be produced domestically should be introduced by Nigeria's Ministry of Finance, in order to provide marginal advantage to domestic production and improve her non-oil terms of trade.
- (iii) Beyond multilateral trade agreements such as the African Continental Free Trade Area (AfCFTA), the Nigerian Government should forge bilateral trade agreements with countries which are net importers of the country's non-oil produce like cashew nut, hibiscus flower, vegetables, animal protein such as beef and pork, timber, among others, to boost its total non-oil exports. Bilateral trade agreements tend to be more binding.

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