

## THE EFFECT OF OIL AND NON-OIL EXPORTS ON ECONOMIC GROWTH IN NIGERIA

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### **Abstract**

*This study examined the effect of oil and non-oil exports on economic growth in Nigeria. Time series data were used for the study for the period of 1980 to 2019. The result of unit root test shows that data were stationary at level and first difference. The study therefore employed Ordinary Least Square (OLS), Autoregressive Distributed Lag (ARDL) to produce short-run and long-run coefficients and Granger Causality Test to achieve the objectives of the study. The result of Error Correction Mechanism (ECM) shows the speed of adjustment (short-run dynamics) indicated by the coefficient of the error correction terms. The coefficient of CointEq(-1) of the model was -0.197580. This shows that the speed of adjustment is approximately 82 percent. The result of the bounds test indicates the existence of a long-run relationship among the variables under study. The finding revealed that oil export and non-oil export has significant impact on economic growth in Nigeria. The study further revealed that there is causal relationship between oil exports and non-oil proceeds on Real Gross Product in Nigeria for the period under study. Based on the findings, the study concludes that both oil export and non-oil exports has significant impact on economic growth in Nigeria. Thus, recommends the need for government to promote the production and export of non-oil products because the overdependence on oil exports is negatively affecting economic growth. Government can supply funding and infrastructure that would accommodate and support the production of non-oil goods and services for domestic use and exports.*

**Keywords:** *Oil Exports, Non-Oil Exports, Economic Growth, Nigeria.*

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### **1. INTRODUCTION**

Exports of goods and services represent one of the most important sources of foreign exchange income that eases the pressure on a country's balance of payments and create employment

opportunities, Ruba and Thikraiat, (2014). Generally, export activities are said to stimulate economic growth in a number of ways such as: through production and demand linkages, and economies of scale due to larger international markets.

Export led Growth is said to be an economic development strategy in which export expansion play a central role in a country's economic growth. Although practical evidence in support of export led growth may not be universal, it is widely acknowledged that carefully managed openness to trade through an export led growth can be a mechanism for achieving rapid growth, Giles and Williams, (2000).

Nigeria like other developing countries in the world, has been grappling with the realities of slow developmental process politically, socially and also economically. In the 1960s, agriculture contributed 80% of the total export making agriculture the main stay of the Nigeria economy and the highest foreign exchange earner. By mid-1970, the situation changed in favor of oil which contributes 94% of total export, making oil the main stay and the highest foreign exchange earner of the Nigeria economy. Since the 70's, till the present year 2020, oil has been playing a leading role in the Nigerian economy as the major source of foreign exchange. This mono product nature of the economy makes Nigeria susceptible to the prevalent effects of oil price and exchange rate shocks.

The enormous oil wealth is expected to empower the government in the provision of basic infrastructural facilities, building of industrial estates and even increase in the ability of the government to grant tax incentives and other manufacturing/industrial incentives; which are essential to spurring the performance of the non-oil sector (Nwosa 2013). Expectedly, it is assumed that the phenomenal increase in oil revenue would translate into meaningful growth of the non-oil sector as was experienced in some economies such as Malaysia, Indonesia and even Dubai among others (Sanusi, 2003). Ironically, the unimpressive and progressively-steady decline of non-oil export amongst rising oil revenue has been the case in Nigeria.

The over reliance of the country on oil was manifested in the inability of the country to manage her economy as a result of fall in the price of oil globally towards the end of 2015 which now pushed the Nigeria economy into recession. Therefore, it is not just that export is important for the survival of an economy but also the composition of export (oil exports vs non-oil exports) is of paramount importance.

In recent times, the outbreak of Corona Virus Disease (COVID–19) pandemic and failure of OPEC and OPEC+ countries to reach an agreement on crude oil production cut has continued to impact businesses across the world, bringing up new realities faced by the country. This triggered a free fall in crude oil prices from a region of \$55 to \$20 in the month of March and April 2020. The falling oil prices in 2020 will negatively impact Nigeria's revenue, hence, the compelling need to control cost, avoid wastages and aggressively drive the diversification of exports from mainly oil to non-oil exports.

Crude oil is one of the main exporting products among the Organisation of the Petroleum Exporting Countries (OPEC). Thus, OPEC members can be considered as oil-dependent countries. Unfortunately, shock in the oil market will cause instability in prices and output either in the short or long run (De Santis, 2003).

Due to the vulnerability of the world oil market and its impact on prices and output, the non-oil exports have gained extra attention from the OPEC members to cushion their economies. In addition, exporting of non-oil products has also been used as an alternative source of growth of the OPEC members. Among 12 OPEC members in 2007, Iran was the second largest oil producer; it has approximately 11% of the world oil reserves and approximately 15% of the world gas reserves. In addition, Iran also has the second largest reserves of natural gas in the world at around 812 trillion cubic feet. Nevertheless, Stern (2007) forecast that there will be an oil crisis in Iran and exports of oil in Iran will approach zero in 2015 due to shortages in oil supply and the increase in domestic demand. There is no doubt that the Iranian economy today is still dominated by oil exporting products, while the contribution of non-oil exporting products on GDP has increased from time to time. For example, the non-oil exports to GDP ratio was 1%, 6.5% and 5.5% in 1980, 1994 and 2006, respectively.

Trade reforms in Nigeria fall within two distinct regimes (i) the period before the introduction of the SAP, and (ii) the period since SAP. Before SAP, trade policies relied on the use of custom tariffs to control imports, complemented by direct controls through foreign exchange controls. Export activities also experienced government intervention through the marketing boards. Although domestic output witnessed some measure of growth during this period, the level of growth was below expectations, owing to some identified factors such as, the neglect of the agricultural sector, lack of adequate incentives to farmers, etc. The growth in the manufacturing sector was hampered by inappropriate implementation of industrial policy, lack of technical know-how, etc.

Since the introduction of SAP, Nigeria's trade was liberalised and virtually privatized. Allocation of resources was left to the market forces of demand and supply. The productive sectors initially responded positively to the SAP policies, but encountered some constraints as the years progressed. Some of the constraints in the agricultural sector included, poor funding, high cost of production input in agriculture due to the depreciation of the naira, the predominance of small holder agricultural activities. etc. The manufacturing sector remained hampered by high external dependence of the manufacturing sector, low technological capability, low internal linkages among industries, decay of infrastructural facilities, etc.

Over the years, the Nigerian government introduced several policies to promote non-oil exports, which includes the following:

- The National Development Plan (1970-1974)
- National Accelerated Food Production Programme (NAFPP) (1972)
- Bilateral and Multilateral Trade Policy (1975)
- Export Guarantee Fund and Insurance Policy (1975)
- The National Development plan 1975-1980
- The National Development Plan (1980- 1985)
- Nigerian Export Promotion Council (NEPC) was established through the promulgation of the Nigerian Export Promotion Decree No. 26 of 1976 and formally inaugurated in 1977.
- Structural Adjustment Programme (SAP) (1986)
- Nigerian Export Promotion Council Amendment Decree No. 64 of 1992 was promulgated to enhance the performance of the Council by minimizing bureaucratic bottlenecks and increasing autonomy in dealing with members of the Organized Private sector.
- Customs and Tariff rates covering the period 1995-2001.
- Export pre-shipment inspection by private companies 1996.
- Calabar Export Processing Zone (EPZ) 1996
- Review of Trade Policy by WTO 1998
- Review of Trade Policy by WTO 2005
- Review of Trade Policy by WTO 2011
- Economic Recovery and Growth Plan for 2017-2020

The Nigerian Export Promotion Council (NEPC) was established through the promulgation of the Nigerian Export Promotion Decree No. 26 of 1976 and formally inaugurated in March, 1977. This act was amended by Decree No. 72 of 1979 and further amended by the Nigerian Export Promotion Decree No. 41 of 1988 and complimented by the Export (Incentives and Miscellaneous Provisions) Decree No. 18 of 1986. Furthermore, the Nigerian Export Promotion Council Amendment Decree No. 64 of 1992 was promulgated to enhance the performance of the Council by minimizing bureaucratic bottlenecks and increasing autonomy in dealing with members of the Organised Private sector. The Council has a governing Board drawn from both the Public and the Private sectors.

The export-led growth strategy involves the use of industrialization strategy to promote the export of domestically produced goods of which the country has a comparative advantage. The objective was to boost foreign exchange earnings and diversify the foreign exchange base of the economy. Several measures were implemented to ensure the success of the strategy in the promotion of non-oil export. These include the establishment of export processing zones; implementation of lower tariff structure designed to stimulate competition and efficiency; custom and port reforms; and adoption of the ECOWAS five-band common external tariff. These policy measures basically determine the level of trade in a country. Favorable trade policies also determine the importance of trade and also give a direction to the extent of a country's level of integration of the economy to the world (Yakubu 2019)

Therefore, the primary goal of this study is to investigate the impact of oil and non-oil exports on economic growth in the Nigerian economy. By differentiating the impact of exports into oil and non-oil, this study will be able to provide clearer growth policy recommendations for an open economy like Nigeria. Furthermore, it may also justify whether non-oil exports are the source of long-term economic growth for Nigeria.

## **2. HISTORY OF EXPORTS IN NIGERIA**

One of the notable polices adopted by Nigeria to boost non-oil exports in Nigeria was the Structural Adjustment Programme (SAP). Coupled with the traumatic economic crisis being witnessed by the Nigerian economy prior to July 1986, the Babangida administration introduced the economic recovery programme (SAP) in July 1986.

The history of Exports in Nigeria will be categorized into Pre-SAP, SAP and Post-SAP period.

### **The Structure of Non-Oil Export during the Pre-SAP Era (1955-1986)**

Until the mid-1950s, agricultural commodity exports mainly cocoa, groundnuts, palm oil, and palm kernels earned more than the cost of merchandise imports. The demand for imports remained limited by the country's low income, lack of industrialization, negligible use of foreign inputs in agriculture, and sterling bloc restrictions. Nigeria had continued to specialize in primary products (food, raw materials, minerals, and organic oils and fats) and to import secondary products, such as chemicals, machinery, transportation equipment, and manufactures, used in Nigeria's development. Primary commodities comprised 98 percent of exports and 21 percent of imports in 1955, 92 percent of exports and 19 percent of imports in 1975.

By the time Nigeria became politically independent in October 1960, agriculture was the dominant sector of the economy, contributing about 70% of the Gross Domestic Product (GDP), employing about the same percentage of the working population, and accounting for about 90% of foreign earnings and Federal Government revenue. The early period of post-independence up until mid-1970s saw a rapid growth of industrial capacity and output, as the contribution of the manufacturing sector to GDP rose from 4.8% to 8.2%. This pattern changed when oil suddenly became of strategic importance to the world economy through its supply-price nexus (Adedipe 2004).

Crude oil was first discovered in commercial quantities in Nigeria in 1956, while actual production started in 1958. It became the dominant resource in the mid-1970s. On-shore oil exploration accounts for about 65% of total production and it is found mainly in the swampy areas of the Niger Delta, while the remaining 35% represents offshore production and involves drilling for oil in the deep waters of the continental shelf. Nigeria has proven reserves of about 32 billion barrels of predominantly low sulphur light crude, which at current rate of exploitation could last another 38 years. The intention is to expand the reserves to 40 billion barrels and production capacity to 4 million barrels per day (mbd).

Minerals (largely petroleum) accounted for an increasing proportion of exports through the 1970s, increasing from 13 percent in 1955 to 35 percent in 1965, to 93 percent in 1975, and then to 96 percent in 1985. The dependence on oil and a few other export commodities made Nigeria particularly vulnerable to world price fluctuations. Nigeria's overall commodity terms

of trade (price of exports divided by price of imports) fell substantially, from a base of 100 (1980) to 83.8 (1984) and 35.5 (1986). Meanwhile, export purchasing power (quantity of exports multiplied by the commodity terms of trade) declined from 100 (1980) to 48.3 (1984), 23.0 (1986).

Nigeria traded worldwide with about 100 countries, but the composition of trade by country had changed since the colonial period. During the colonial era, Britain was Nigeria's dominant trading partner. As late as 1955, 70 percent of Nigeria's exports were to Britain and 47 percent of its imports were from Britain. However, by 1976 Britain's share of Nigerian exports and imports dropped to 38 percent and 32 percent respectively. In the 1970s, Britain was replaced by the United States as Nigeria's chief trading partner. In 1988 the United States was Nigeria's best customer, buying more than 36 percent of its exports (primarily petroleum products); Britain was Nigeria's leading vendor, selling the nation more than 14 percent of its imports.

### **The Structure of Non-Oil Export during the SAP Era**

According to Itegebe (1989), between 1984 to September 1986, successive military administrations started giving serious consideration to the need to urgently find other methods of sourcing foreign exchange, in addition to measures adopted to conserve what was already earned.

This situation arose as a result of mounting obligation on the country to settle trade arrears and for debts servicing as well as to meet current trade bills. He further stated that by 1984, Nigeria had found herself in huge foreign debts in addition to being in serious arrears in settlement of foreign trade bills mainly on irrevocable letters of credit.

The Nigerian SAP was designed to fit the standard IMP-World Bank structural adjustment package. It was meant to effectively alter and restructure the consumption and production patterns of the Nigerian economy, and to eliminate price distortions and heavy dependence on the export of crude oil and imports of consumer and producer goods. It is a programme which combines a nexus of measures to promote economic efficiency and long-term growth, with stabilisation policies designed to restore balance of payments equilibrium and price stability. The overall aim was to totally revamp the Nigerian economy.

In implementing SAP, Nigeria adopted trade liberalisation policy, and the consequent competition for increased imports of inputs and manufactured items, put pressure on scarce

foreign exchange and led to increased costs of inputs of raw materials, spare parts, and manufactured goods. Increased costs of importation also led to higher service charges and poorer services. Shortages of inputs, such as spare parts for motor vehicles, inadequate supplies of chemicals in water schemes and drugs in hospitals, as well as books and other learning materials in educational institutions, resulted in deteriorating services and higher charges in the service sector.

Trade liberalisation also increased the exportation of most goods whose local supply was inadequate, thus creating local scarcity and hence inflation. This informed the rather belated ban on the exportation of certain food items in their raw form from 1991. Trade liberalisation, in the Nigerian scenario, will probably feed inflation both in the medium and long term, since efforts to encourage non-oil exports (one of the principal aims of the SAP policy) did not yield the expected dividends (Anyanwu 1992).

This was reflected in the fall of the contribution of non-oil exports to total exports from 8.84% in 1988 to 5.10% in 1989. Moreover, the volume of Nigeria's major export and revenue earner, oil, is determined by its OPEC quota, hence trade liberalisation is not expected to help matters in this respect.

Nigeria's overall commodity terms of trade (price of exports divided by price of imports) rose to 42.6 (1987) and then fell to 34.6 (1988). Meanwhile, export purchasing power (quantity of exports multiplied by the commodity terms of trade) declined from 100 (1980) to 48.3 (1984), 23.0 (1986), 23.1 (1987), and 20.4 (1988), a 79.6 percent reduction in the purchasing power of exports in eight years. The share of agriculture in non-oil also grew with an average of 74.6. The highest contribution was in 1998 with 92.8%. The agricultural export from the total exports also increased making about 4.5% within 1986 to 1988, which was an improvement of 2.5% in the pre-SAP period.

### **The Structure of Non-Oil Export during the Post SAP Era**

It is in the area of agriculture export that recent policy measures have produced the most visible impact so far. The growth rate of agriculture exports grew from negative figure apart from 1992 which was -10.8, all other years were positive.

In 1990 Nigeria had associate status, including some export preferences, with the European Economic Community (EEC). As a result, it had a number of major EEC trading partners,



including Germany, France, Italy, Spain, and the Netherlands. Nigeria also had an active trade relationship with some members of the Organisation for Economic Co-operation and Development, notably the United States, Canada, and Japan. Trade with African countries, mainly neighboring countries within the Economic Community of West Africa (ECOWAS-created in 1975), comprised only 3 to 4 percent of total trade. In the 1980s, trade with Eastern Europe and the Soviet Union constituted less than 1 percent of Nigeria's total.

### **3. TREND ANALYSIS**

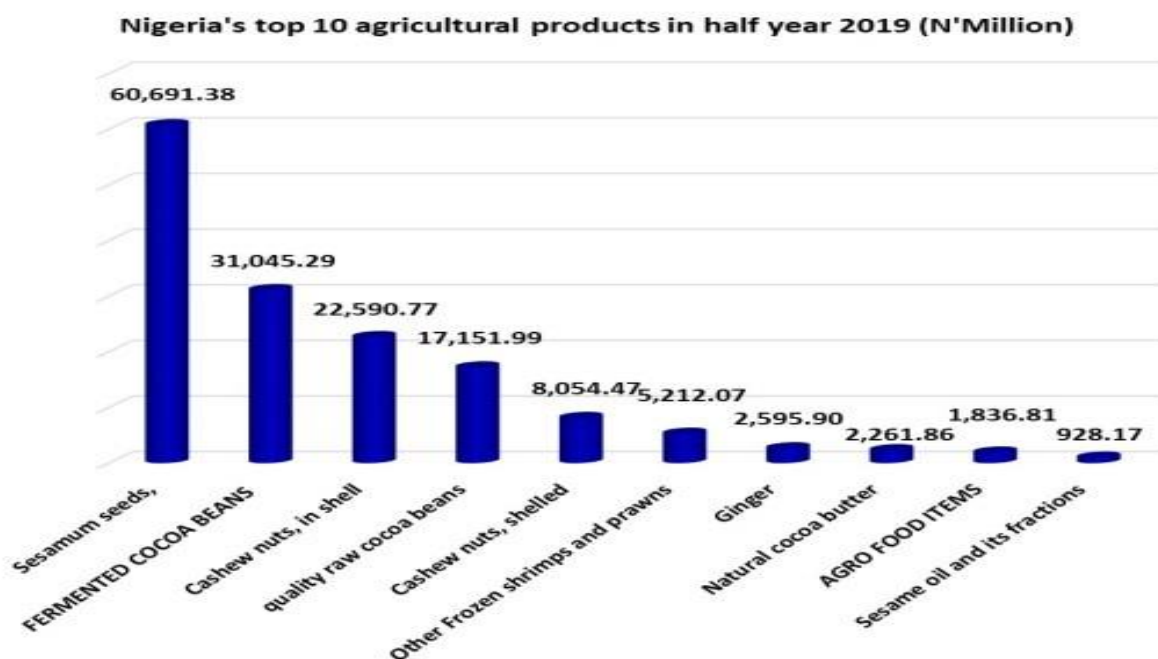
#### **Overview of non-Oil Export in Nigeria**

Nigeria was primarily an agricultural economy until oil became the major source of foreign exchange and government revenue in the seventies. At the same time, as total exports from Nigeria increased dramatically in absolute and relative terms (with respect to GDP) over the last two decades, the structure of exports went from a diversified and reasonably balanced agricultural base to one largely dominated by oil exports. Thus, in the early 60s over 80 percent of Nigeria's total exports was made up of agricultural commodities such as oil palm products (palm oil, palm kernels and palm kernel oil), groundnuts, cocoa, cotton, rubber, and timber; today more than 95 percent is accounted for by petroleum.

In the 1980s, non-oil exports consist mainly of agricultural products: cocoa beans, cocoa by-products (butter, cake, and powder), groundnut cake, palm kernel oil, rubber and palm kernels, of which cocoa beans was the only significant earner of foreign exchange. Later on exports of many other commodities such as groundnuts, palm oil and timber were banned.

The contribution of manufactured and semi-manufactured goods to the country's foreign exchange earnings was very negligible. There are virtually no recorded exports from industries such as textiles and cement which at one point seemed close to satisfying domestic demand and from which exports might have appeared to be a logical next step (World Bank Report 1982).

In the last decade (2010 - 2020), the composition of Nigeria's major agricultural exports have changed to include; Sesame seeds, cashew nuts, fermented cocoa beans, superior quality raw cocoa beans, frozen shrimps and prawns, ginger and natural cocoa butter and other agro-foods. The revenue received from non-oil exports is still very low compared to oil exports in Nigeria.



**Source: NBS/Naira metrics**

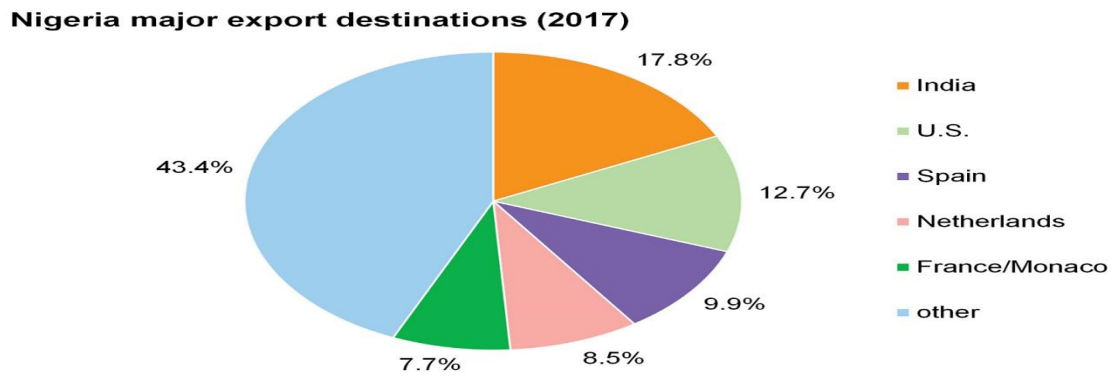
The export led growth theories have been largely adopted by developing countries like Nigeria, because they are characterized by large domestic market driven by large population size. However, the supportive measures and incentives are not available to encourage producers to explore the export market. This policy strategy was adopted by developing Countries in the context of declining world markets for their primary commodities and rising balance of payments deficits issues (Olorunshola 2001).

Till present day, Nigeria has failed to diversify its economy from mainly oil exports to non-oil exports like other developing nations in the world. An overview of the economy of Guyana for instance, shows receipts from oil was used to diversify the economy. In the 2017 to 2019 report of the Economic Commission for Latin America and the Caribbean (ECLAC), the Guyanese economy continued to post robust growth estimated at 4.0% during the first half of 2019. The construction sector made the largest contribution to growth, reflecting an increase in both private investment and government expenditure on construction activities. The mining and quarrying sector continued to recover, as gold mining expanded in response to improved road conditions and favourable international prices. Even the non-oil growth rate is expected to reach 4.8%, owing to a spillover effect of oil production on other sectors.

The illustrations below give vivid picture of export trade in Nigeria from 1960 till date:

Nigeria’s major export destinations are illustrated in fig.1 below. Nigerian borders are Benin, Cameroon, Niger and Chad by land and Ghana, Equatorial Guinea and Sao Tome and Principe by sea.

**Fig 1: Nigeria’s Major Export Destinations**



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**Fig. 2 Exports (Nigeria): % of Goods Exports: Food**

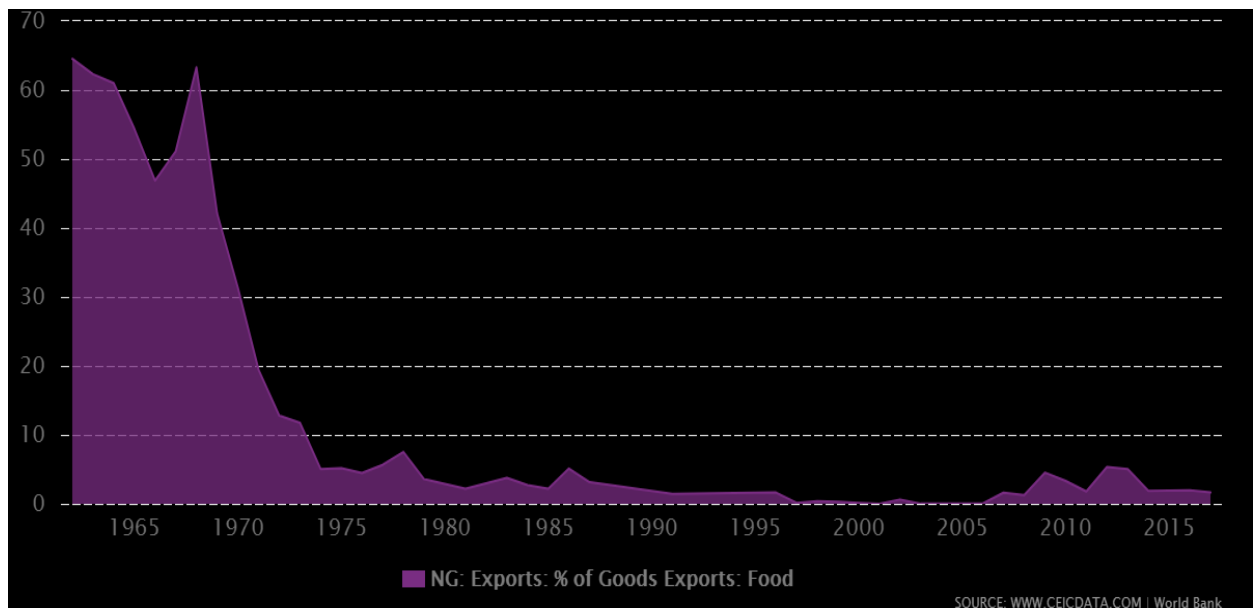
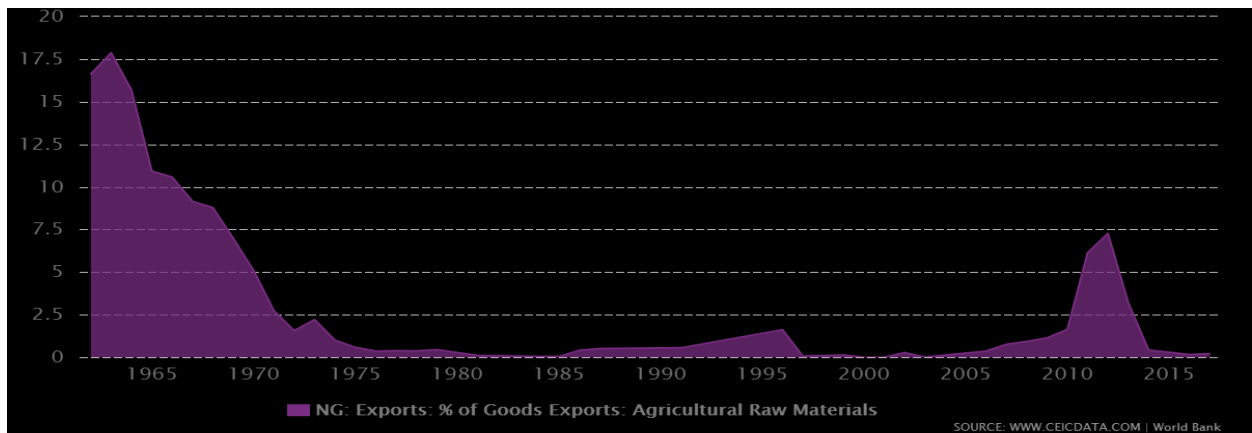


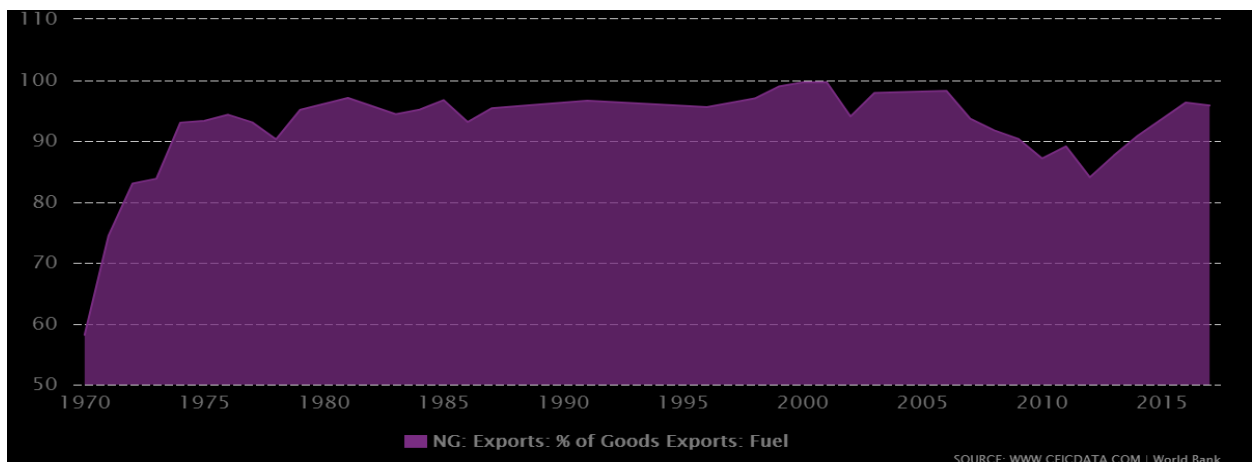
Fig 2: Food related exports were at a peak from the 1960s and commenced a sharp decline in the mid-1970s as a result of over reliance on crude oil and gas exports.

**Fig. 3 Exports (Nigeria): % of Goods Export: Agricultural Products**



**Fig. 3:** Agricultural exports were at a peak from the 1960s and commenced a sharp decline in the mid-1970s as a result of a shift to exports of crude oil and gas

**Fig. 4 Exports (Nigeria): % of Goods Exports (Oil)**

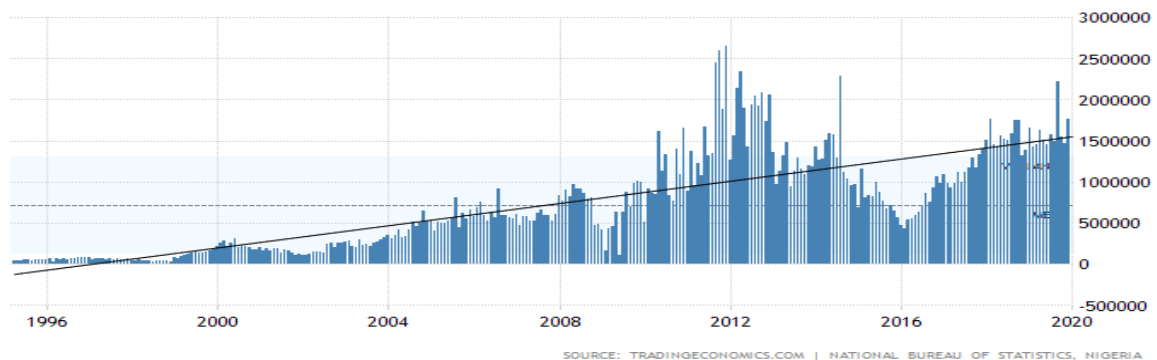


**Fig 4:** Fuel (Oil and Gas) has been the mainstay of the Nigerian economy from the mid-1970s to 2015

### Nigerian Export Data

Export in Nigeria averaged 455,508.94 NGN Millions from 1981 until 2019, reaching an all-time high of 2,648,881.76 NGN Millions in December of 2011 and a record low of 322.93

NGN Millions in February of 1983. Fig. 5 below shows total value of exports from 1996 to 2020.



**Fig. 5 Total value of exports from 1996 to 2020**

Nigeria is the 49th largest export economy in the world and the 124th most complex economy according to the Economic Complexity Index (ECI). The top exports of Nigeria are Crude Petroleum (\$35.6B), Petroleum Gas (\$6.47B), Refined Petroleum (\$774M), Cocoa Beans (\$660M) and Rough Wood (\$321M), using the 1992 revision of the HS (Harmonized System) classification. Its top imports are Refined Petroleum (\$6.27B), Passenger and Cargo Ships (\$1.73B), Wheat (\$1.35B), Cars (\$944M) and Raw Sugar (\$549M) (OEC website).

The top export destinations of Nigeria are India (\$8.25B), the United States (\$6.68B), Spain (\$4.54B), France (\$2.81B) and the Netherlands (\$2.3B). The top import origins are China (\$9.6B), Belgium-Luxembourg (\$3.03B), the Netherlands (\$2.83B), South Korea (\$2.18B) and the United States (\$2.04B) (OEC website).

In 2019, the value of crude oil exports decreased by 3.78%, as non-crude oil exports rose by over 30% in value between 2018 and 2019. The total value of exports grew by 2.5% to hit N14.4 trillion as at third quarter 2019 while total value of imports in 2019, as at the third quarter stood at N11.6 trillion, compared to N9.6 trillion as at third quarter of 2018.

In the third quarter of 2024, crude oil exports were valued at ₦13,406.37 billion, representing 65.44% of total exports while non-crude oil exports stood at ₦7,080.02 billion, accounting for 34.56% of total exports (National Bureau of Statistics 2024).

In summary, there are serious implications of neglecting the non-oil sectors in Nigeria (Liberty 2019). It is obvious that the neglect of non-oil sectors, especially agriculture and manufacturing

sectors, of the Nigerian economy has resulted into a number of socioeconomic problems like increasing unemployment and crime rate, vulnerability and volatility of macroeconomic variables, increasing debt profile, and overall backward and under-developed economy.

#### **4. OBJECTIVES**

The main objective of this research is to investigate the effect of oil and non-oil exports on economic growth in Nigeria. The specific objectives are:

- i. Examine the impact of oil and non-oil exports on Economic growth in Nigeria.
- i. Determine the long-run relationship between oil exports and non-oil exports in Nigeria in the period 1980 – 2019
- ii. Ascertain the causal relationship between oil exports and non-oil proceeds in Nigeria.

#### **5. HYPOTHESIS**

**H<sub>0</sub>:** Oil and Non-Oil Exports have no impact on economic growth

**H<sub>1</sub>:** Oil and Non-Oil Exports have impact on economic growth

#### **6. LITERATURE REVIEW**

##### **Theoretical Literature Review**

The starting point of the discussion on the link between a country's economic performance and its exports can be traced back to the founding fathers of modern economic thought. Classical economists Adam Smith and David Ricardo laid emphasis on the significance of foreign trade for a country's economic progress. They highlighted that a country could advantage considerably if it is expert in a certain product and then exported it to the international countries that lacked this product.

In the early 1900s, the Heckscher–Ohlin theory of international trade was developed by two Swedish economists, Eli Heckscher and Bertil Ohlin. This theory has subsequently become known as the Heckscher–Ohlin model (H–O model). The results of the H–O model are that the pattern of international trade is determined by differences in factor endowments. It

predicts that countries will export those goods that make intensive use of locally abundant factors and will import goods that make intensive use of factors that are locally scarce.

The H–O model makes the following core assumptions:

- Labor and capital flow freely between sectors equalising factor prices across sectors within a country.
- The amount of labor and capital in two countries differ (difference in endowments)
- Technology is the same among countries (a long-term assumption)
- Tastes are the same upon countries

The Heckscher-Ohlin Theory is based on a country's production factors—land, labor, and capital, which provide the funds for investment in plants and equipment. They determined that the cost of any factor or resource was a function of supply and demand. Factors that were in great supply relative to demand would be cheaper; factors in great demand relative to supply would be more expensive. Their theory, also called the factor proportions theory, stated that countries would produce and export goods that required resources or factors that were in great supply and, therefore, cheaper production factors. In contrast, countries would import goods that required resources that were in short supply, but higher demand. For example, China and India are home to cheap, large pools of labor, hence these countries have become the optimal locations for labor-intensive industries like textiles and garments.

Nigeria is blessed with abundant labour, land and natural resources (both oil and non-oil). Exports should not be skewed in favour of oil alone. Also, Nigeria should refine its crude oil locally instead of relying on importation which leads to loss of revenue. Nigerians still consume imported basic food products which is in abundant supply in-country. Nigeria needs to diversify its exports in order to develop its economy like the UAE, Singapore etc.

According to Bhagwati (2002), theoretical models of the effects of trade and growth, whether in steady state (i.e. long-run) or out (i.e. short-term), lead to several different possibilities. Thus, in the Harrod-Domar model, if labor remains slack permanently and trade affects only efficiency in the use of resources, the growth rate will be permanently enhanced because of the lasting decline in the marginal capital-output ratio. On the other hand, if we turn to the Solow

(1956) economy, trade has no permanent effect and the steady state growth is independent of it.

### **Empirical Literature Review**

Several researchers have studied the relationship between export and economic growth. Most of the analysis was on differentiated basis, some focused their study on the impact of oil exports on economic growth while other studies were focused on the relationship between non-oil exports and economic growth. Very few studies analyzed the effect of both oil and non-oil exports collectively on economic growth.

It is also pertinent to note that a lot of research has been carried out in the area of oil and non-oil exports worldwide but there still remains a paucity of literature with reference to Nigeria.

The aim of this paper is to add to the body of knowledge by analyzing the effect of oil and non-oil exports in Nigeria as well as extending the data analysis from 1980 to 2019. The limitation of the study is that consistent data could not be found for Nigerian oil and non-oil exports for the period 1960 to 1980.

Table 1: below shows some summarized relevant empirical findings in literature concerning the chosen study:



AUTHOR	COUNTRY	INVESTIGATIONS	MAIN RESULT	CONCLUSION
Maizels (1968)	16 Countries	Relationship between exports and economic growth	Data series was analysed from sixteen developing economies that found a negative relationship between export instability and economic growth pointing out that the negative effect that instability in exports has on output, was through the creation of uncertainty in longterm planning coupled with imported input shortages	The study found no strong relationship between export and the economic growth of the various countries and concluded that policy implications of the study were doubtful because the data series on developing countries in the sample of countries was inordinately short and defective
Massel and Fitch (2002) extended the study of Maizels (1968)	11 countries in Latin America	Relationship between exports and economic growth in some sixteen developing economies	Data series was analysed from eleven countries across Latin America using simple equation model	The study found that export earnings had a remarkable impact on the growth of GDP in the various countries considered
Javad et.al (2014),	Iran	The relationship between exports and economic growth in the industrial sector in Iran	The hypothesis of a positive impact of increased exports on the growth of the industrial sector in Iran is to be accepted	Given the results from this study, the impact of industrial export on value-added growth of Nine Sigma industry during the period of study was positive and significant. This result is totally in consistent with the results from the other studies.
Ilegbinosa et al (2012)	Nigeria	Impact of macroeconomic variables on Nigeria's economic performance	The study incorporated non-oil export, agricultural sector, manufacturing sub-sector and gross domestic product as the dependent variables that exchange rate, government capital expenditure and government recurrent expenditure positively influenced non-oil export, agricultural sector, manufacturing sub-sector and gross domestic product, while interest rate negatively influenced the dependent variables.	They therefore called for more investment in non-oil exports to boost the performance of the Nigerian economy.
Abogan et.al (2014)	Nigeria	The impact of non-oil export on economic growth in Nigeria between 1980 and 2010	Ordinary Least Square Methods involving Error correction mechanism, over-parametization and parsimonious were adopted. In testing for the time series properties, the evidence from estimated economic models suggests that all the variables examined are stationary at first difference I(1s) using the Augmented Dickey- Fuller (ADF) and PhillipsPerron. Besides, Johansen Co integration test reveals that the variables are co integrated which confirms the existence of long-run equilibrium relationship between the variables. Thus, this suggests that all the variables tend to move together in the long run.	The study reveals that the impact of non-oil export on the economic growth was moderate and not all that heartening as a unit increase in non-oil export impacted positively by 26% on the productive capacity of goods and services in Nigeria during the period. This was evident in the study that the policies on non-oil sectors during the period in Nigerian do not sufficiently encourage non-oil export, thus reduce their contributions to growth. This study therefore predicts an imminent collapse of the Nigerian non-oil sector in the nearest future if immediate remedial measures are not taken to strengthen the sector.
Adenugba and Dipo (2013)	Nigeria	Non-Oil Exports in the Economic Growth of Nigeria: A Study of Agricultural and Mineral Resources	Descriptive and inferential statistic tools were used for analysis of the data gathered. Frequency distribution and simple percentages were used for the descriptive analysis and least squares (LS) regression was used for the inferential statistics. The study runs from 1981-2010.	Findings from the study reveal 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. The study reveals that the Nigerian Economy is still far from diversifying from crude oil export and as such the crude oil sub – sector continues to be the single most important sector of the economy.
Shujaat (2012)	Nigeria	The causal relationship between GDP and exports for the period of 1975 to 2011	The aim of the study is to check affectivity of export promotion policy adopted by Pakistan during 1990s. Johansen test of Co-integration and Granger Causality employed to determine short run and long run causality. The result of Cointegration reveals existence of one positive co-integrating equation. The result of Causality test show short run and long run causality run from GDP to oil and non-oil exports.	The result concludes that both in short and long run only growth in production cause exports growth.
Safdari and Zaroki (2012)	Iran	The effect of exports on economic growth (industry & mining sector, services and agriculture)	The data were collected from 1961-2006 and were analyzed using Ordinary Least Squares (OLS) model.	The results of this study show that each section export growth has a positive effect on the growth of value added in the same section. But the effect of export growth on the value added in industry and mining sector is more than other sectors.
Udude and Okulegu (2012)	Nigeria	The relationship between exports and economic growth in Nigeria.	It also tries to evaluate significant impact of exports on the economic growth in Nigeria.	It was found that there exist a long-run relationship with economic growth and export in Nigeria. Having integrated the short run dynamics and long run equilibrium, Imports (IMP) and Exchange Rate were positively correlated with GDP while Exports (EXC) was negatively related with GDP. The short-run dynamics adjusts to the long-run equilibrium at the rate of 0.866% per annum.

*The effect of oil and non-oil exports on economic growth in Nigeria*

<b>AUTHOR</b>	<b>COUNTRY</b>	<b>INVESTIGATIONS</b>	<b>MAIN RESULT</b>	<b>CONCLUSION</b>
Noula et.al (2013)	Cameroon	The contribution of agricultural exports to economic growth in Cameroon.	The study employed an extended generalized Cobb Douglas production function model, using food and agricultural organization data and World Bank Data from 1975 to 2009.	The findings showed that the agricultural exports have mixed effect on economic growth in Cameroon. Coffee export and banana export has a positive and significant relationship with economic growth. On the other hand, cocoa export was found to have a negative and insignificant effect on economic growth.
Ruba and Thikraiat (2014)	Jordan	The causal relationship between economic growth and exports in Jordan	The study used the Granger methodology in order to determine the direction of the relationship between the two variables during the period 2000-2012.	The study found that there is a causal relationship going from the economic growth to Export, and not vice versa.
Turan and Bernard (2014)	Albania	The relationship between export, import and Gross Domestic Product (GDP) in Albania by using annual data for the period between 1984 and 2012	Different empirical researches and macro econometric models indicates that there is an equilibrium relationship between exports, imports and GDP in the long term.	Based on the study done, the imports have negative relationship with GDP while exports have a significant positive relationship with GDP.
Mohsen (2015)	Syria	The role of oil and non-oil exports in the Syrian economy over the period of 1975-2010	The cointegration test indicates that GDP is positively and significantly related to oil and non-oil exports. The Granger causality test indicates bidirectional short-run causality relationships between GDP, oil exports and non-oil exports. There are also bidirectional long-run causality relationship between non-oil exports to GDP, and unidirectional long-run causality relationship running from oil exports to GDP..	The study result indicates that oil exports have the biggest effect on the GDP
Syed et.al (2015)	Pakistan	The relationship between Gross domestic product (GDP) and agricultural and non-agricultural exports for Pakistan	The study employed the Johansen co-integration technique by using secondary data for the period 1972-2008.	It was found that agricultural exports have a negative relationship with economic growth of Pakistan while non-agricultural exports have positive relation with economic growth
Istaiteyeh and Ismail (2015)	Jordan	The relationship between foreign direct investment, economic growth and exports in Jordan	The co-integration method and vector error correction model were applied. The results confirm the existence of long-term causal links between variables studied.	The results show a positive impact of export on GDP, rather foreign direct investment has no effect on GDP.
Mehrshad (2016)	Pakistan	The effect of oil and non-oil exports on economic growth: a case study of Iran	This study attempts to re-investigate the role of oil and non-oil exports in economic growth in Iran using the multivariate cointegration and Granger causality method using annual data from 1970 to 2008. The empirical results indicate that the variables are cointegrated and the Granger causality test reveals evidence of uni-directional causality from oil and non-oil exports to economic growth.	The study confirms that the export-led growth hypothesis is valid in Iran. However, results show that oil export has an inverse effect on economic growth, thus we suggest encouraging non-oil export activities in order to stimulate long-term economic growth in Iran.
Udoidem (2017)	Nigeria	The relationship between free trade, export expansion and Economic Growth in Nigeria for the period spanning 1981 and 2015	Ordinary Least Square (OLS) regression technique was employed and the study revealed the existence of a positive and significant relationship between foreign exchange rate and economic growth; a negative non-significant relationship between total import and economic growth; a positive non-significant relationship between total export and economic growth and finally a negative non-significant relationship between inflation rate and economic growth.	There is a positive non-significant relationship between total export and economic growth
Sidi, C.P. (2019)	Nigeria	Impact of Trade Liberalization on the Export of Non-Oil Sector in the Nigeria Economy	Using time series data generated from secondary sources, Unit root ADF was conducted to test the stationarity of the variables and it was found that Non-oil sector which is the dependent variable, Export, Inflation, Exchange rate were found to be stationary at first difference, while only Trade openness which is a proxy for trade liberalization was found to be stationary at level. This justifies the adoption of Autoregressive distributed lag model (ARDL) for the analysis.	The ARDL results affirmed that EXT, INF, EXG had a positive and significance relationship with Non-Oil sector and therefore recommends the diversification of the economy from oil to nonoil sector.

In summary, Maizel (1968), Massel (2002), Safdari (2012), Udedu and Okulegu (2012), Safdari (2012), Javad (2014), Rub and Thikraiat (2014), Turan and Bernard (2014) and Udoidem (2017) studied the relationship between export and economic growth.

Some researchers adopted a different approach and focused their study on the impact of non-oil exports on economic growth, they include; Safdari and Zakari (2012), Noula (2013), Adenugba (2013), Abogan (2014), Syed (2015) and Sidi (2019).

This study adopts the research done by Modisen (2015) and Mehrshad (2016) on the effect of both oil and non-oil exports on economic growth with case study of Syria and Iran respectively.

Different econometrics tests were adopted by all the researchers which includes; Ordinary Least Square (OLS), Cobb Douglas Production Function, Unit Root Tests for Stationarity (Augmented Dicker Fuller –ADF and Phillip Perron –PP), Johansen Co-integration, Granger Casuality and Autoregressive Distributive Lag (ARDL) Model. Out of these tests the study adopted Ordinary Least Square (OLS) method, Autoregressive Distributive Lag (ARDL) and Granger causality tests in analysing the effect of oil and non-oil exports in Nigeria.

## **7. RESEARCH METHODOLOGY AND DATA**

The theoretical linkage between oil export, non-oil export and economic growth in this study is anchored on the Heckscher-Ohlin model. The Heckscher-Ohlin model (H-O model) is a general equilibrium mathematical model of international trade, developed by Eli Heckscher and Bertil Ohlin at the Stockholm School of Economics. It is built on David Ricardo's theory of comparative advantage by predicting patterns of trade and production based on factor endowments of a trading region. According to the theory, in a two-factor world comprising of capital and labour as the only factors of production, capital-abundant countries will specialize in the production of capital intensive goods while labour-abundant countries will specialize in the production of labour intensive goods. In other words, a capital abundant country will tend to specialize in capital intensive goods and will export those goods in exchange for labour intensive goods. The Hecker-Ohlin model of general equilibrium of mathematical model postulated certain assumptions that; there are two factors of production; two sectors: Capital intensive and labour intensive Shoes and Computers Labour intensive; two countries: Nigeria and America; Computer is capital intensive and shoe production is labour intensive, since it requires more labour per unit of capital.

The H – O model can be stated as follows:  $L_s/K_s > L_c/K_c$ ..... (1)

Optimal use of L and K in the shoe industry can be represented thus:

At optimum:

$$w = PS \cdot MPLS \text{ and } r = PS \cdot MPKS \dots\dots\dots (2)$$

This implies:

$$w / r = MPLS / MPKS \dots\dots\dots (3)$$

Where:  $MPLS / MPKS$  depends primarily on  $KS / LS$ ..... (4)

The production function of Shoe now becomes:

$$\text{Shoe: } Y_s = a_s L_s^{1-\alpha} K_s^\alpha \quad \text{with } \alpha > 0 \dots\dots\dots (5)$$

$$\text{MPL in Shoes: } MPL_s = (1 - \alpha) a_s (K_s/L_s)^\alpha \dots\dots\dots (6)$$

$$\text{MPK in Shoes: } MPK_s = \alpha a_s (L_s/K_s)^{1-\alpha} \dots\dots\dots (7)$$

$$w = P_s \cdot MPL_s \text{ and } r = P_s \cdot MPK_s \dots\dots\dots (8)$$

$$r/w = MPK_s/MPL_s = \alpha/1-\alpha \cdot L_s/K_s = K_s/L_s = \alpha/1-\alpha (r/w)^{-1} \dots\dots\dots (9)$$

Optimal use of L and K in the computer industry can be represented thus:

$$\text{Computer: } Y_c = a_c L_c^{1-\beta} K_c^\beta \dots\dots\dots (10)$$

$$\text{MPK in Computers: } MPK_c = \beta a_c (L_c/K_c)^{1-\beta} \dots\dots\dots (11)$$

$$MPK_c \text{ implies, } r/w = MPK_c/MPL_c = \beta/1-\beta \cdot L_c/K_c \dots\dots\dots (12)$$

Hence from equation (10) and (11) a linear form is given as follows:

$$Y_t = \beta_0 + \beta_1 L_{t-1} + \beta_2 K_{t-1} \dots\dots\dots (13)$$

In recognition of the above, the dynamics model is specifying as follows:

The model is specified in a functional form:

$$RGDP = f(OX, NOX, OM, RGOVEX, REX, INF, ).....$$

(14)

The model is specify in a Mathematical form:

$$RGDP = \beta_0 + \beta_1OX_t + \beta_2NOX_t + \beta_3OM_t + \beta_4RGOVEX_t + \beta_5REX_t + \beta_6INF_t.....$$

(15)

The Econometric model is given as:

$$\ln RGDP = \beta_0 + \beta_1 \ln OX_t + \beta_2 \ln NOX_t + \beta_3 \ln OM_t + \beta_4 \ln RGOVEX_t + \beta_5 \ln REX_t + \beta_6 \ln INF_t + \mu .....$$

(16)

Where:

RGDP = Real Gross Domestic Product proxy for economic growth

OX = Exchange Rate

NOX= Real Interest Rate

OM = Broad Money Supply

RGOVEX = Real Government Expenditure

REX = Real Exchange

INF = Inflation

$\mu$  = Error term measuring errors outside the model which is assumed to be normally distributed that is,  $N(\mu, \sigma^2)$ .

**A priori expectation**

$\beta_1 > 0, \beta_2 > 0, \beta_3 < 0, \beta_4 < 0, \beta_5 > 0, \beta_6 < 0,$

## Method of Data Analysis

This study starts it's analysis with the Unit root test. The knowledge of the behavior of the data used is of great important as it gives clue on the kind of result to be expected. Before the analysis is carried

out, it is important to understand how the data behaves over the study period, from 1980 - 2019. The behavior of the data if studied carefully gives a clue on the kind of effect that should be expected between the variables, hence, apriori expectation.

Then diagnostic tests will be carried out so as to meet the objective of the study. These includes test for stationarity, normality test, Heteroskedasticity and Multicollinearity. This is to ensure compliance with the classical assumption of the model of the study in general. For the purpose of this paper, the objective is to examine the impact of oil and non-oil exports on Economic growth in Nigeria; to determine the long-run relationship between oil exports and non-oil exports in Nigeria in the period and to ascertain the causal relationship between oil exports and non-oil proceeds in Nigeria.

The data used for this work was purely secondary data as it was drawn from the publication of Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics and World Development indicator between the periods 1980 to 2019. The data collected includes; real gross domestic product, oil export, non-oil export, oil import, real government expenditure, real exchange rate and real inflation rate. The study used Autoregressive Distributive Lag (ARDL) estimation technique based on the Stationarity of the data.

An Autoregressive Distributive Lag (ARDL) Model was used as estimation technique for this study. Unit root test was carried out to check for the stationarity of the variables and this was done using both Augmented Dickey-Fuller Test (ADF) and Phillip Perron Test. The unit test conducted on the variables revealed that the Variables are I(0) and I(1). Generally, time series seem to be integral of order I (1) and when this is the case, the Johansen and Juselius approach becomes more appropriate. But in the case where the series are I (1) and I (0), then the Johansen technique will no more be efficient, and consequently the better option to handle is the ARDL. ARDL provides a definite test by the presence of unique co-integration vector instead of assuming one, while it considered the possibilities of reverse causality (the lack of weak exogeneity of the regressors), thus ensuring that the parameter estimate is effective and subsequently valid (Peseran and Smith, 2000). The ARDL model is an appropriate technique for this study because its model is dynamic that states economic growth proxy by Gross Domestic Product is the function of oil export and non-oil export.

To “investigate the effect of oil and non-oil exports on economic growth in Nigeria.” short run and long run ARDL model for this study is defined as follows:

$$\begin{aligned} \ln RGDP_t = & \alpha_0 + \alpha_1 \sum_{i=1}^n \Delta \ln OX_{t-i} + \alpha_2 \sum_{i=1}^n \Delta \ln NOX_{t-i} + \alpha_3 \sum_{i=1}^n \Delta \ln OM_{t-i} + \\ & \alpha_4 \sum_{i=1}^n \Delta \ln RGOVEX_{t-i} + \alpha_5 \sum_{i=1}^n \Delta \ln REX_{t-i} + \alpha_6 \sum_{i=1}^n \Delta \ln INF_{t-i} + \beta_1 \sum_{i=1}^n \ln OX_{t-i} + \\ & \beta_2 \sum_{i=1}^n \ln NOX_{t-i} + \beta_3 \sum_{i=1}^n \ln OM_{t-i} + \beta_4 \sum_{i=1}^n \ln RGOVEX_{t-i} + \beta_5 \sum_{i=1}^n \ln REX_{t-i} + \\ & \beta_6 \sum_{i=1}^n \ln INF_{t-i} \dots\dots\dots \end{aligned}$$

(17)

Where

- $RGDP_t$  = Real Gross Domestic Product
- $\sum_{i=1}^n OX_{t-i}$  = Oil Export
- $\sum_{i=1}^n NOX_{t-i}$  = Non-oil Export
- $\sum_{i=1}^n OM_{t-i}$  = Oil Import
- $\sum_{i=1}^n RGOVEX_{t-i}$  = Real Government Expenditure
- $\sum_{i=1}^n REX_{t-i}$  = Real Exchange Rate
- $\sum_{i=1}^n INF_{t-i}$  = Inflation

- $\alpha_0$  = constant
- $\alpha_1 - \alpha_6$  = short- run coefficients
- $\beta_1 - \beta_6$  = long-run coefficients
- $\sum_{i=1}^n \varepsilon_{t-i}$  = error terms,

The last stage in ARDL test approach to co-integration is in evaluating the coefficients of long run co-integrating relationship and the corresponding error correction term (ECT) as follows:

$$\begin{aligned} RGDP_t = & \varpi_0 + \varpi_1 \sum_{i=1}^n \ln OX_{t-i} + \varpi_2 \sum_{i=1}^n \ln NOX_{t-i} + \varpi_3 \sum_{i=1}^n \ln OM_{t-i} + \\ & \varpi_4 \sum_{i=1}^n \ln RGOVEX_{t-i} + \varpi_5 \sum_{i=1}^n \ln REX_{t-i} + \varpi_6 \sum_{i=1}^n \ln INF_{t-i} + \theta ECM_{t-i} \dots\dots\dots \end{aligned}$$

(18)

- Where  $\varpi_0$  = constant of ECM mode
- $\varpi_1 - \varpi_6$  = magnitudes of error correction
- $L$  = Long term
- $\theta$  = Error Correction Mechanism (ECM) which is speed of adjustment to long-run equilibrium

ECM measures speed of adjustment from short run disequilibrium into the equilibrium in the long run.

The Granger causality test was employed to determine the causal relationship between oil exports and non-oil proceeds in Nigeria whether one time series is useful in forecasting another. A time series data (oil export “X”) is said to have Granger cause (non-oil export “Y”) if it can be shown that those oil export (X) values provide statistically significant information about future value of non-oil export (Y). This was achieved by employed Granger Causality test:

$$Y_t = \sum_{i=1}^p \alpha_i X_{t-i} + \sum_{j=1}^p \beta_j Y_{t-j} + \varepsilon_{1t} \dots\dots\dots$$

(19)

$$X_t = \sum_{i=1}^p \delta X_{t-i} + \sum_{j=1}^p \theta_j Y_{t-j} + \varepsilon_{2t} \dots\dots\dots$$

(20)

In this study,  $Y_t$  and  $X_t$  will assume any of the variable as the study intends to test for the causality between oil export and non-oil export. Where the error terms ( $\varepsilon_{1t}$  and  $\varepsilon_{2t}$ ) are assume to be uncorrelated. From equation (20), X is said to granger cause Y if the coefficient of the lagged values of X as a group is significantly different from zero, based on standard F-test. The reverse will be the case if it is significantly different from zero in equation (20). Feedback relationship or bi-directional causality exists if  $X_t$  granger causes  $Y_t$  and  $Y_t$  granger causes  $X_t$ .



## Empirical Result/Research Findings

### Time Series properties Analysis

**Table 1: Unit Root Test of Stationarity; H<sub>0</sub>: The Series has a Unit Root**

Variables	ADF with trend				PP with trend				Remarks
	Test Statistic				Test Statistic				
	At level	Critical Value	1 <sup>st</sup> difference	Critical Value	At level	Critical Value	1 <sup>st</sup> difference	Critical Value	
LRGDP	-3.209240	-3.533083	-4.404851	-3.533083	0,256361	-2.938987	-4.519233	-3.536601	I(1)
LOX	-1.226819	-3.529758	-5.0872778	-3.536601	-1.226819	-3.529758	-6.481542	-3.533083	I(1)
LNOX	-2.826062	-3.529758	-6.615392	-3.533083	-2.826062	-3.529758	-8.903385	-3.533085	I(1)
LOM	--1.752565	-3.529758	-7.970296	-3.533083	-1.54169	-3.529758	-10.61183	-3.533083	I(1)
LRGOVEX	--0.409788	-3.533083	-7.512183	-3.533083	-1.024698	-3.529758	-7.370727	-3.533083	I(1)
LREX	-2.018382	-2.938987	-5.271731	-2.941145	-1.212767	-3.529758	-5.642336	-3.533083	I(1)
LINF	-4.033563	-3.533083	-6.467658	-3.536601	-3.392968	-3.529758	-13.36355	-3.533083	I(0)

*ADF and PP represents the Augmented Dickey Fuller and Phillip Perron tests for stationary with trend at level and first difference.*

Table 1 reports the result of the unit root test based on the Augmented Dickey Fuller Test and Phillips Perron. The results showed that inflation was stationary at level all, but others variables have unit root in their level for ADF and PP test, since their statistics values were lesser than the test critical values in absolute term. Besides, p-values for all series were not significant. Based on these estimated results, we failed to reject the null hypothesis of unit roots at all level. However, when we performed the unit root test at first difference, the results showed that the remaining variables were stationary at first difference since the ADF and PP statistics values exceeded the test Critical values in absolute terms at 5 percent,. This means that after we have taken the first difference of others variables, we discovered that there is no evidence of the existence of unit roots in ADF and PP test. Interestingly, however, first differencing of the remaining variables shows stationarity under these tests. Thus, the shocks have been removed from the model as the time series data is confirmed stationary to run the ARDL model.

The impact of oil export and non-oil exports on Economic growth in Nigeria using Real Gross Domestic Product (RGDP) as a dependent variable while oil export (OX), non-oil export (NOX), oil import (OM), Real Government expenditure (RGOVEX), real exchange rate (REX) and inflation (INF) served as the independent variables.

**Table 2: The Impact of Oil and Non-Oil Exports on Economic Growth in Nigeria**

Dependent Variable: LRGDP

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.113998	0.284810	32.00028	0.0000
LOX	-0.138012	0.062837	-2.196341	0.0352
LNOX	0.242064	0.040959	5.909923	0.0000
LOM	-0.104799	0.040605	-2.580907	0.0145
LRGOVEX	0.308348	0.092871	3.320173	0.0022
LREX	-0.057086	0.057683	-0.989642	0.3296
LINF	0.017765	0.034186	0.519663	0.6068
R-squared	0.961200	F-statistic	136.2541	
Adjusted R-squared	0.954146	Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.089502	Akaike info criterion	-1.181347	

*Source: E-views 9 Output: Author's Computation, 2020*

Table 2 shows that the coefficient of non-oil export is positive and statistically significant on Real Gross Domestic Product, the coefficient of real government expenditure is positive and statistically significant on Real Gross Domestic Product and the coefficient of inflation is positive and statistically insignificant on Real Gross Domestic Product. On the other hand, the coefficient of oil export is negative and statistically significant on Real Gross Domestic Product, the coefficient of oil import is negative and statistically significant on Real Gross Domestic Product and the coefficient of real exchange rate is negative and statistically insignificant on Real Gross Domestic Product. Precisely, a unit change in real government expenditure would result in about 0.53% increase on Gross Domestic Product over the period of study and it is statistically significant at 5 percent. This result did not conform to a priori expectation of negative relationship between real government expenditure and Real Gross Domestic Product. A unit change in non-oil export would result in about 0.24% increase on Real Gross Domestic Product over the period under study and it is statistically significant at 1 percent. This finding conforms to a priori expectation of positive relationship between non-oil export and Real Gross Domestic Product. A unit change in inflation would result in about -

0.01% increase on Real Gross Domestic Product over the period of study and it is statistically insignificant at all level. This result did not conform to a priori expectation of negative relationship between inflation and Real Gross Domestic Product. Furthermore, a unit change in oil import would result in about --0.10% decrease on Real Gross Domestic Product over the period under study and it is statistically significant at 1 percent. In the same vein, it was also revealed that a unit change in oil export would result in about -0.13% increase on Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent. This result did not conform to a priori expectation of positive relationship between oil export and Real Gross Domestic Product. A unit change in real exchange rate would result in about -0.05% decrease on Real Gross Domestic Product over the period under study and it is statistically insignificant at all level. This result did not conform to a priori expectation of positive relationship between exchange rate and Real Gross Domestic Product.

The  $R^2$  estimation shows that variables in the estimated model are approximately 96 percent explained within the model. This shows that dependent variable of Real Gross Domestic Product has been adequately explained by the independent variables. Adjusted  $R^2$  is satisfactory. R-square ( $R^2$ ) is approximately 96 percent, implying that 96 percent variation in Real Gross Domestic Product is explained by oil export, non-oil export, oil import, Real Government expenditure, real exchange rate and inflation. This is the goodness-of-fit, reflected in the adjusted coefficient of determination shows that the estimated model can be used for prediction. The F-statistic 136.2541 and its associated probability value of 0.000000, indicate joint significance of the variables used in the model, suggesting that the independent variables are jointly significant on influencing the variation in the dependent variable. Durbin-Watson (1.089502) statistics from the regression result indicate the absent of positive serial correlation in the residual.

### **Test of Hypothesis**

The hypothesis states that oil export and non-oil Exports have no impact on economic growth. The variables used in capturing the impact on economic growth for this study include oil export and non-oil export among others variables. Given from regression result in Table 2 on the impact of oil and non-oil exports on economic growth in Nigeria overall p-value 0.000000 is less than 0.01 level of significance. Oil export and non-oil export had shown to be statistically significant and the overall probability is statistically significant, it suggests that the null

hypothesis be rejected and the conclusion be drawn that oil export and non-oil Exports have impact on economic growth in Nigeria.

### **The Long-Run Relationship between Oil Exports and Non-Oil Exports in Nigeria**

**Table 3: ARDL Bounds test Result**

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	33.96991	6

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

**Source: E-views 9 Output: Author's Computation, 2020**

From the decision rule, if the computed  $F$ -statistic is smaller than the lower bound value, then the null hypothesis is not rejected and it concludes that there is no long-run relationship between the components of oil export (OX), non-oil export (NOX), and oil import (OM), Real Government expenditure (RGOVEX), real exchange rate (REX), inflation (INF) and Real Gross Domestic Product (RGDP). Conversely, if the computed  $F$ -statistic is greater than the upper bound value, then the components of Gross Domestic Product, and independent variables oil export, non-oil export, oil import, Real Government expenditure, real exchange rate and inflation share a long-run level relationship. On the other hand, if the computed  $F$ -statistic falls between the lower and upper bound values, then the results are inconclusive. Table 2 shows the results of computed  $F$ -statistic of 33.96991 is greater than the lower and upper critical bound value at 10%, 5% and 1%, respectively, thus indicating the existence of a long-run relationship among the variables under study.

### **Long-Run Estimation Coefficients**

Having confirmed the existence of long-run relationship among the variables, the study went further to estimate the long-run parameters of the ARDL model.

**Table 4: ARDL Long Run Estimate**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOX	0.311577	0.093481	3.333063	0.0035
LNOX	0.413837	0.033431	12.378966	0.0000
LOM	-0.267979	0.039537	-6.777948	0.0000
LRGOVEX	-0.535452	0.151708	-3.529477	0.0022
LREX	0.338985	0.071825	4.719560	0.0001
LINF	-0.113996	0.051068	-2.232224	0.0378
C	10.592261	0.335996	31.524928	0.0000

*Source: E-views 9 Output: Author's Computation, 2020*

The result in Table 4 shows the long-run relationship between the dependent variable Real Gross Domestic Product and the other regressors. The long run coefficient of oil export is positive and statistically significant, long run coefficient of non-oil export is positive and statistically significant on Real Gross Domestic Product and long run coefficient of real exchange rate is positive and statistically significant on Real Gross Domestic Product. On the other hand, the long run coefficient of oil import is negative and statistically significant on Real Gross Domestic Product, long run coefficient of real government expenditure is negative and statistically significant on Real Gross Domestic Product and long run coefficient of inflation is negative and statistically significant on Real Gross Domestic Product. In the same vein, a unit change in oil export would result in about 0.31% increase on Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent. A unit change in non-oil export would result in about 0.41% increase on Real Gross Domestic Product over the period under study and it is statistically significant at 1 percent. A unit change in real exchange rate would result in about 0.33% increase on Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent. Furthermore, a unit change in oil import would result in about -0.26% decrease on Real Gross Domestic Product over the period under study and it is statistically significant at 1 percent. Similarly, it was also revealed that a unit change in real government expenditure would result in about -0.53% decrease in Gross Domestic Product over the period of study and it is statistically significant at 5 percent. A unit change in inflation would result in about -0.11% decrease on Real Gross Domestic Product over the period of study and it is statistically significant at 5 percent.

**Table 5: Estimated Error Correction Model (ECM)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOX(-2))	-0.019166	0.007872	-2.434557	0.0249
D(LNOX)	0.055056	0.008255	6.669122	0.0000
D(LOM)	-0.025848	0.005950	-4.344108	0.0003
D(LRGOVEX)	-0.046207	0.020863	-2.214758	0.0392
D(LINF)	-0.024298	0.005624	-4.320611	0.0004
D(LINF(-1))	0.013483	0.005860	2.300887	0.0329
D(LINF(-2))	0.012459	0.005617	2.218017	0.0389
CointEq(-1)	-0.197580	0.023591	-8.375157	0.0000

$$\text{Cointeq} = \text{LRGDP} - (0.3116*\text{LOX} + 0.4138*\text{LNOX} - 0.2680*\text{LOM} - 0.5355 * \text{LRGOVEX} + 0.3390*\text{LREX} - 0.1140*\text{LINF} + 10.5923)$$

Source: E-views 9 Output: Author’s Computation, 2020

Table 5 shows the speed of adjustment (short run dynamics) indicated by the coefficient of the error correction terms. The coefficient of CointEq(-1) is -0.197580. This shows that the speed of adjustment is approximately 20 percent. The implication is that, if there is a deviation from s corrected equilibrium only 20 percent in one year as the variables move toward restoring equilibrium. The speed of adjustment coefficient has correct sign (negative) and statistically significant with probability of 1%. The negative coefficient of ECT term means that there is an adjustment in the system if any disequilibrium occurs. Therefore, disequilibrium in the dependent variable Real Gross Domestic Product in the previous year is automatically corrected in the current year at speed of 20 percent.

**Table 6: ARDL Model of Short-Run Estimate**

Dependent Variable: LRGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LRGDP(-1)	0.802420	0.023591	34.01345	0.0000
LOX(-1)	0.027063	0.012739	2.124380	0.0470
LOX(-3)	0.019166	0.007872	2.434557	0.0249
LNOX	0.055056	0.008255	6.669122	0.0000
LNOX(-1)	0.026710	0.008379	3.187753	0.0048
LOM	-0.025848	0.005950	-4.344108	0.0003
LOM(-1)	-0.027099	0.005696	-4.757797	0.0001
LRGOVEX	-0.046207	0.020863	-2.214758	0.0392
LRGOVEX(-1)	-0.059588	0.017643	-3.377474	0.0032

LREX(-1)	0.054415	0.017464	3.115930	0.0057
LINF	-0.024298	0.005624	-4.320611	0.0004
LINF(-1)	0.027717	0.005434	5.100171	0.0001
LINF(-2)	-0.013483	0.005860	-2.300887	0.0329
LINF(-3)	-0.012459	0.005617	-2.218017	0.0389
C	2.092823	0.214869	9.740008	0.0000

**Source: E-views 9 Output: Author's Computation, 2020**

Table 6 show the short-run relationship between dependent variable Real Gross Domestic Product (GDP) and independent variables oil export (OX), non-oil export (NOX), oil import (OM), Real Government expenditure (RGOVEX), real exchange rate (REX) and inflation (INF) within the period of the study. The result reveal that real Gross Domestic Product at lag 1, oil export at lag 1 and lag 3, non-oil export at lag 1, real exchange rate at lag 1 and inflation rate at lag 1 had positive and significant relationship with the Real Gross Domestic Product while oil import at lag 1, real government expenditure at lag 1, inflation at lag 2 and lag 3 had negative and significant relationship with the Real Gross Domestic Product. Precisely, a unit change in Real Gross Domestic Product at lag 1 would result in about 0.80% on itself over the period under study and it is statistically significant at 1 percent. In the same vein, a unit change in oil export at lag 1 and lag 3 would result in about 0.027% and 0.019% increase on Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent respectively. A unit change in non-oil export and at lag 1 would result in about 0.055% and 0.026% increase on Real Gross Domestic Product over the period under study and it is statistically significant at 1 percent and 5 percent respectively. A unit change in real exchange rate at lag 1 would result in about 0.054% increase in Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent. In a similar vein, a unit change in inflation would result in about 0.027% increase on Gross Domestic Product over the period under study and it is statistically significant at 5 percent.

Furthermore, a unit change in oil import and at lag 1 would result in about 0.025% and 0.027% decrease on Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent respectively. In the same vein, a unit change in real government expenditure and at lag 1 would result in about -0.046% and -0.059% decrease in Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent respectively. A unit change in inflation at lag 2, and lag 3 would result in about -0.024%, -0.013% and -0.012% decrease on Real Gross Domestic Product over the period under study and it is statistically significant at 5 percent respectively. The co-efficient of constant found to

have a positive and statistically significant with Real Gross Domestic Product in Nigeria. This implies that when factor such as oil export, non-oil export, oil import, Real Government expenditure, real exchange rate and inflation are set to be zero Real Gross Domestic Product would be constant. The finding clearly reveals those factors mentioned are good predictors of Real Gross Domestic Product. However, the overall result of the model shows that, independent variables have a significant impact on Real Gross Domestic Product in Nigeria.

**The Causal Relationship between Oil Exports and Non-Oil Proceeds in Nigeria**

The Granger Causality test will further determine if the historical values of one variable can forecast relationships among others variables. The null hypotheses were subjected to F-test at 5 percent significant level. The causality is presented in Table 6 below.

**Table 7: Granger Causality Test**

Pairwise Granger Causality Tests				
Null Hypothesis:	Obs	F-Statistic	Prob.	
LOX does not Granger Cause LRGDP	38	4.4226 2	0.0199	Unidirectiona
LRGDP does not Granger Cause LOX		0.3030 0	0.7406	
LNOX does not Granger Cause LRGDP	38	5.2655 3	0.0104	Unidirectiona
LRGDP does not Granger Cause LNOX		0.2744 2	0.7617	
LOM does not Granger Cause LRGDP	38	4.1181 2	0.0253	Unidirectiona
LRGDP does not Granger Cause LOM		0.5142 1	0.6027	
LNOX does not Granger Cause LOX	38	0.3341 7	0.7183	None
LOX does not Granger Cause LNOX		0.8633 1	0.4311	
LOM does not Granger Cause LOX	38	6.6926 1	0.0036	Unidirectiona



LOX does not Granger Cause LOM		0.3138 8	0.7328	
LOM does not Granger Cause LNOX	38	2.8583 7	0.0716	Unidirectiona
LNOX does not Granger Cause LOM		1.3711 4	0.2679	

*Source: E-views 9 Output: Author's Computation, 2020*

Table 7 shows a unidirectional causation from oil export (LOX) to Real Gross Domestic Product (LRGDP) and causation running from non-oil export (LNOX) to Real Gross Domestic Product; unidirectional causation from oil import (LOM) to Real Gross Domestic Product. The unidirectional causation running from oil import to oil export. In a similar vein, causation running from oil import to non-oil export. The result further revealed none causality between oil export and non-oil export in Nigeria under the period of the study.

### Post Estimation Test

This requires verifying whether the estimates from the OLS and ARDL models are reliable. The most relevant post-estimation tests for dynamic model include Linearity Test (using Ramsey Reset Test), Multicollinearity test (using Heteroskedasticity Test Breusch-Pagan-Godfrey and Heteroskedasticity Test ARCH) Serial Correlation test (using the LM test and Correlogram-Q-Statistics) and Normality Test (using Histogram). These tests are all residual based and they are performed on the preferred model.

**Table 8: Diagnostic Test Results**

Test	Results	Prob
<b>Ramsey RESET Test</b>	0.103194	0.7517
<b>Heteroskedasticity Test Breusch-Pagan-Godfrey</b>	2.037367	0.0681
<b>Heteroskedasticity Test ARCH</b>	0.848598	0.3634
<b>Breusch-Godfrey LM Test</b>	1.055424	0.3698

*Source: Author's computation using E-view 9*

The essence of Ramsey Reset Test is to find out if there is a linear relationship between the dependent variable and the independent variables. The null hypothesis is that the model under consideration is linear or correctly specified. The null hypothesis for linearity cannot be rejected since the test statistics (t-statistic) are not statistically significant. The Breusch-Pagan-

Godfrey and Heteroskedasticity test ARCH for Heteroskedasticity indicates no evidence of Heteroskedasticity. To find out if our specification exhibits autocorrelation problem. The Breusch-Godfrey LM test and Correlogram-Q-Statistics was used. The null hypothesis is that there is no serial correlation. Both statistics indicate that there is no presence of serial correlation in the model.

The Correlogram-Q-Statistics used to ascertain the validity or otherwise of the estimates from the regression estimates.

**Table 9: Correlogram-Q-Statistics**

Q-statistic probabilities adjusted for 1 dynamic regressor

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*	
.* .	.* .	1	-0.205	-0.205	1.6796	0.195
. .	.* .	2	-0.045	-0.090	1.7614	0.414
** .	** .	3	-0.236	-0.278	4.1299	0.248
. .	.* .	4	0.001	-0.139	4.1299	0.389
. .	.* .	5	-0.052	-0.158	4.2536	0.514
. .	.* .	6	-0.016	-0.182	4.2655	0.641
. * .	. .	7	0.116	-0.003	4.9114	0.671
.* .	.* .	8	-0.100	-0.179	5.4065	0.713
. .	. .	9	0.064	-0.065	5.6157	0.778
. .	. .	10	0.071	0.070	5.8842	0.825
. .	.* .	11	-0.047	-0.085	6.0073	0.873
.* .	** .	12	-0.180	-0.229	7.8686	0.795

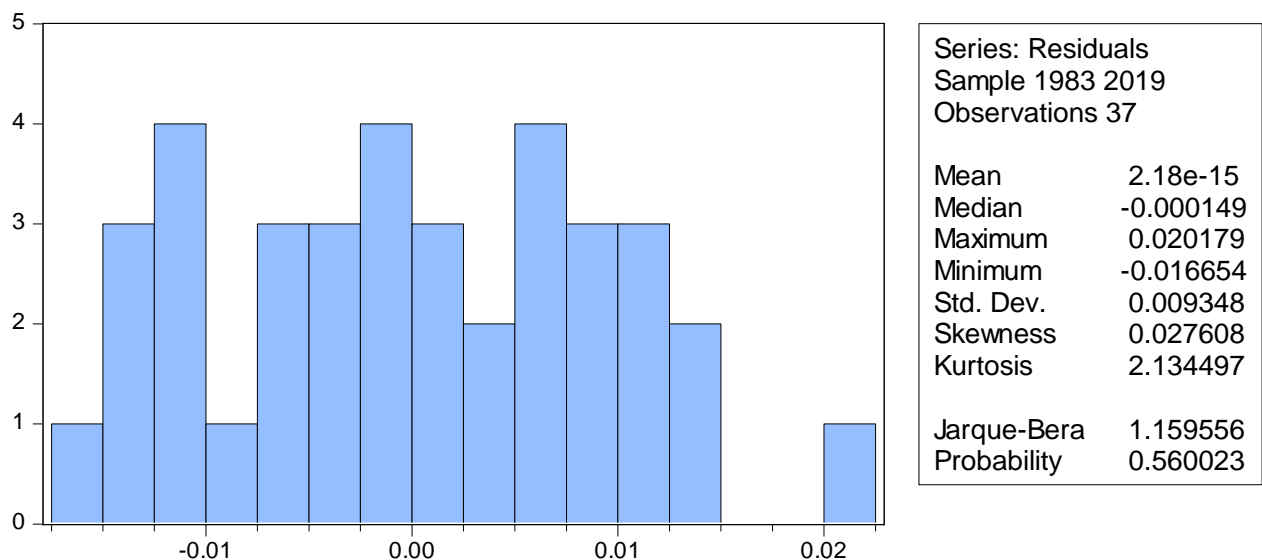
. .	.* .	13	0.012	-0.113	7.8770	0.852
. *.	. .	14	0.157	0.032	9.4236	0.803
.* .	.* .	15	-0.069	-0.152	9.7373	0.836
. .	.* .	16	0.041	-0.084	9.8538	0.874

**Source: Author's computation using E-view 9**

As shown in Table 9 above an Autocorrelation and Partial autocorrelation functions of the residuals as well as Ljung-Box Q-statistics for high-order serial correlation. If there is no serial correlation, then, all the Q-statistics should be insignificant. In other words, there is serial correlation, if the p-values are less than 0.10 The Table shows that all the Q-statistics are insignificant.

**Normality Test**

The data needs to follow a normal distribution in order for most analyses to work properly. Even in situations where normality is not required if normality exists it will make for a stronger assessment. There are two aspects to normality of a distribution, skewness and kurtosis, and both must be tested before normality can be established.



**Figure 5: Histogram of Normality Test**

The result of skewness is 0.027608; it indicated that the data is normally skewed. Also, the Kurtosis describes how “peaked” or “flat” a distribution is. If too many or all of the scores are piled up on the or around the mean then the distribution is too peaked and it is not normal, vice versa for when a distribution is too flat. Based on this result, kurtosis is 2.134497 closed to 3 this can be inferred that the data is normally distributed.

The empirical findings of the study revealed that non-oil export, real government expenditure and inflation had positive relationship with the Real Gross Domestic Product. On the other hand, oil export, oil import and real exchange rate had negative relationship with the Gross Domestic Product in Nigeria. Precisely, a unit changes in non-oil export, real government expenditure and inflation would increase in Real Gross Domestic Product in turn translates to economic growth. The study found that oil export proceed supposed to be the pillar of economic growth but in this study turn be negative this could be as result of fluctuation in the world crude oil price at the international market for the period under study.

This study agrees with Massel and Fitch (2002); Javad, et al 2014); Ilegbinosa et al (2012); Abogan et al (2014); Adenugba and Dipo (2013); Safdari and Zaroki (2012); Turan and Benard (2014) and Mohsen (2015). The study further confirms the long-run relationship among the variables. Both oil export and non-oil export had long-run relationship on Real Gross Domestic Product in Nigeria. The result of this study is in line with the finding of Udedu and Okulegu (2012) who found a long-run relationship between oil export and non-oil on economic growth. The study also revealed that oil export and non-oil export granger cause Real Gross Domestic Product in Nigeria but oil export and non-oil export does not granger cause each other. This conforms with Ruba and Thikraiat (2014) who found a causal relationship between oil export and non-oil export on Gross Domestic product. The finding of this study was contrary to that of Shujaat (2012) on causal relationship between oil export and non-oil export on economic growth.

## **8. CONCLUSION**

Using the annual data from 1980 to 2019, this study attempts to examine the effect of oil and non-oil exports for economic growth in Nigeria via Ordinary Least Square (OLS) method, Autoregressive Distributive Lag (ARDL) and Granger causality tests. The Ordinary Least Square method revealed the impact of oil export and non-oil exports on Economic growth in Nigeria. Autoregressive Distributive Lag reveals long-run relationship between oil export and

non-oil export on Real Gross Domestic Product in Nigeria. This implies that there is a stable long-run relationship between economic growth, export of oil products, export of non-oil products and other determinants. The Granger causality results reveal that export of oil and non-oil products Granger cause economic growth, but there is no evidence of reverse causation. This indicates that the export-led growth hypothesis is valid in Nigeria.

### **Policy Recommendations**

This study recommends the following policy recommendations:

- The Nigerian government should aggressively promote the growth of the non-oil exports because the over reliance on oil exports is negatively affecting economic growth.
- The industrial, agricultural and manufacturing sectors therefore, have been identified as necessary engines that would stimulate growth in non-oil export in Nigeria. Massive public and private expenditure and investment should be channeled to develop these non-oil sectors.
- It is therefore expedient that the government create an enabling environment that will ensure these sectors thrive successfully. Provision of infrastructure (water supply, constant power supply, mechanized agricultural inputs, good transport system, processing and storage facilities and telecommunication) will create an inflationary effect on the economy and boost economic growth.
- Government should supply adequate funding that would support the production of goods and services for domestic use as well as exports exports.
- Relevant agencies overseeing the non-oil sectors should be strengthened and mechanisms put in place to institute corporate governance and efficiency.
- Diversification of the economy is of paramount importance to avert the lingering negative effects of oil price fluctuations currently experienced in Nigeria and globally.

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