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EMPIRICAL INVESTIGATION OF THE IMPACT OF EXPORTS ON ECONOMIC GROWTH: EVIDENCE FROM NIGERIA, 1980-2016

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ABSTRACT

This study investigated the nexus between exports and economic growth in Nigeria from 1980 to 2016. The methodology utilized for this study was the Autoregressive Distributed Lag Bounds testing technique to cointegration. The short-run and long-run results revealed that export exerted a negative and insignificant relationship with economic growth in Nigeria. However, openness to trade had a negative relationship with economic growth in both the short-run and long-run. This result implies that efforts by the government through the Economic Recovery and Growth Plan (ERGP), which is an export-led economic growth and development agenda and the National Industrial Revolution Plan (NIRP) meant to revive the industries and possibly make manufactured exports a reality are not yielding the desired results. The causality results showed a uni-directional causality running from non-oil exports to economic growth. However, no causality was found between exports of goods and services and economic growth. The study, therefore, recommends that the government needs to diversify her export composition by finding a viable alternative to crude oil export. The government should implement policies that promote non-oil exports with a view to growing the economy. Moreover, the government should invest in technologies for the processing of primary export commodities to ensure value addition. Besides, a conducive climate is needed in the export sector to attract investors. Furthermore, subsidies should be provided by the government to export-oriented producers such as smallholder farmers and Small and Medium Scale Enterprises that motivate the economy.

Contribution/ Originality: This study contributed to the existing literature through an evidence-based decision making for the sustenance/abolition of current export-driven economic growth and development policies in Nigeria. Again, it is one of the few studies that addressed the issue of endogeneity while examining the nexus between exports and economic growth in Nigeria.

1. INTRODUCTION

The association between exports and economic growth and how exports can effectively contribute to growth in developing countries has been at the centre of a long-standing debate among government planners, policymakers, academics, researchers of international organizations and development partners. There is a consensus among scholars of development economics that the relationship between exports and economic growth has become a

recurring topic in the development economics literature. There is a belief that it fosters economic growth in developing countries. Export is one of the main pillars of structural economic transformation that can be deployed by developing countries for the attainment of sustainable economic growth.

The eighth pillar of the Sustainable Development Goals (SDGs) is "to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (Osborn, Cutter, & Ullah, 2015). Similarly, the Economic Recovery and Growth Plan (ERGP), an export-led economic growth and development strategy of the current government aimed at revamping Nigeria's ailing economy is principally a medium-term economic growth and development agenda for driving exports in Nigeria. One way that countries of the world could attain the goal above is through the adoption of export development and diversification as their new engine of growth. In the light of the above, the success story of successful exporting countries, especially the experience and success story of successful exporting Asian economies that experienced substantial increases in exports, and particularly manufactured goods exports, and high growth rates of their Gross Domestic Product (GDP) needs to be emulated (Samen, 2010).

The propositions of leading theorists in the parlance of international trade such as Adam Smith and David Ricardo is that outward-orientation accelerates economic growth. This has made export an undeniable element in the discussion of the growth dynamics in developing countries. Export is a potential vehicle for driving economic growth through knowledge, efficiency in productivity, inter-industry competition, economies of scale and technology spill-overs. Exports influences investment, government revenue, producer's revenue, import capacity and serve as an important source of foreign exchange. In addition, it encourages industrial improvement domestically, institutional and technological upgrading (Nyasulu, 2013). There is a consensus among most development economists that export-led growth development agenda provides a win-win outcome for developing and developed economies. Hence, both developing and developed countries can improve their exports by adopting policies that encourage specialization and diversification in exports.

For the past fifty years, the impact of exports on economic growth on one hand and the impact of export diversification on economic growth, on the other hand, have received significant attention in the development economics literature. The prevailing development agenda in many developing countries and especially countries in Africa, South Asia and Latin American in the 1950s, 1960s, and 1970s was the paradigm of Import Substitution Industrialization (ISI) and widespread use of restrictive trade policies for economic diversification (Samen, 2010). Development policy thinking in the world and especially in Latin America was dominated by this paradigm thirty years after World War II. This was largely influenced by the pioneering works of Prebisch (1950) and Singer (1950) on the economic development of Latin America and its principal problems and the distributions of gains between investing and borrowing countries respectively. Influenced by the success stories of exporting countries of the East Asian Tigers, India and China, the export-led growth and outward-oriented paradigms rose to prominence in the 1980s, 1990s and early 2000s. However, anchored on comparative advantage, the international division of labour and specialization stirred by classic trade theories developed by Adam Smith and David Ricardo in 1776 and 1817 respectively, pro-free trade was the view that existed before the First World War.

Despite the departure from ISI paradigm to an outward-oriented economic development strategy in the mid-1980s, Nigeria has not attained the desired level of growth in terms of its exports, principally in terms of non-oil exports. Export diversification has been limited, and inadequate to enable the non-oil exports to contribute significantly to Gross Domestic Product (GDP) regardless of important policy changes. In addition, the performance of non-oil exports in Nigeria has been disappointing, even with beneficial market access situations thus posing the question of whether Nigeria is at a crossroad. This alarming development sends very little hope of economic development and growth for Nigeria with export as the engine of growth. The fluctuations in the international price of crude oil have affected the export earnings from crude oil thereby weakening the capacity of

exports to engineer growth in Nigeria. Nigeria exports have oscillated extensively over the years notwithstanding the existing trade policies and incentives.

Curiously, despite the theoretical affirmation of the relationship between trade and economic growth, some empirical studies that have been done in Nigeria and the rest of the world revealed mixed results. While some studies provide evidence of a positive relationship between exports and economic growth (Abual-Foul, 2004; Awokuse, 2006; Balassa, 1978a; Duru, 2013; Ekpo & Egwaikhide, 1994; Elbeydi, Hamada, & Gazda, 2010; Erfani, 1999; Fajana, 1979; Hailegiorgis, 2012; Jun, 2013; Kotil & Konur, 2010; Langley, 1968; Musonda, 2007; Olomola, 1998; Ozturk & Acaravcı, 2010; Ram, 1985; Ullah, Bedi-Uz-Zaman, Farooq, & Javid, 2009; Wong, 2008; Wong., 2007) others revealed a negative relationship between exports and economic growth (Afxentiou & Serletis, 1991b; Chang, Kaltani, & Loayza, 2005; Chimobi & Uche, 2010; Oladipo, 1998). This seemingly mixed and inconclusive evidence in the empirical literature regarding the association between exports and economic growth calls for further studies. The literature on the connection between exports and growth is also sparse for Nigeria. It is against this backdrop that this study is undertaken to contribute to the existing literature by examining the impact of exports on economic growth in the context of Nigeria from 1970 to 2016.

The research questions that come into play at this point are: Have exports contributed to the economic growth of Nigeria? Have non-oil exports contributed to increases in the economic growth of Nigeria? The main objective of this paper is to investigate empirically the association between exports and economic growth in the Nigerian context. Specifically, the paper will investigate the impact of non-oil exports on economic growth in Nigeria. The rest of the paper is organized as follows: The next section provides the empirical literature review and theoretical framework, followed by a discussion of the methodology in Section three. Section four dwells on data presentation and discussion of results while section five will focus on conclusion and policy recommendations.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Empirical Literature

2.1.1. Empirical Literature for the Rest of the World

There have been numerous studies on the relationship between exports and economic growth. For instance, Wong. (2007) investigated the relationship of exports, domestic demand and economic growth in the Middle East countries of Jordan, Syria, Saudi Arabia, Iran, Qatar, Oman and Bahrain. The results of the Granger causality test and Geweke (1982) decomposition of causality revealed a bi-directional relationship between exports and economic growth, consumption and economic growth and investment and economic growth. However, the results differ across countries in the region. When the ratio of openness to international trade is high in a country, exports exert a stronger impact on economic growth. Nevertheless, there is no strong evidence in support of investment or consumption having a stronger relationship with economic growth as a result of a higher ratio of consumption to GDP or investment to GDP in a country. In terms of relevance, consumption exerted more influence on economic growth when compared to investment.

In a related study, Musonda (2007) utilized Cointegration and Error Correction Modelling (ECM) methodologies to investigate the validity of the export-led growth (ELG) hypothesis for Zambia. Using annual time series data from 1970 to 2003, their results showed that the ELG hypothesis is valid for Zambia. A long-run relationship was also confirmed between exports and economic growth. Merza (2007) investigated the validity of the export-led growth (ELG) hypothesis for Kuwait over the period 1970-2004. Applying a number of econometric techniques: unit root test, cointegration test, ECM, VAR, impulse response function (IRF), and Granger Causality test, they confirmed a bidirectional causality between oil-exports and economic growth and a uni-directional causality from non-oil exports to economic growth in Kuwait. In addition, they confirmed the existence of a long run relationship among oil export, non-oil export and economic growth in Kuwait

Wong (2008) employed the Granger causality test methodology to investigate the importance of exports and domestic demand to economic growth in five Association of South East Asian Nations (ASEAN-5) of Thailand, the Philippines, Malaysia, Indonesia, and Singapore before Asia financial crisis of 1997-1998. The results revealed evidence of bi-directional causality between exports and economic growth and between private consumption and economic growth. The link between investment and economic growth and also between government consumption and economic growth was less conclusive. Based on the lack of strong empirical evidence, there was no suggestion that the ELG strategy was the main cause of the Asia financial crisis. Ullah et al. (2009) employed the Vector Error Correction Modelling (VECM) and Granger causality methodologies to validate the ELG hypothesis for Pakistan from 1970-2008. The results showed that export expansion leads to economic growth. Therefore, the ELG hypothesis was validated for Pakistan.

Likewise, the connection between exports and economic growth was investigated by Elbeydi et al. (2010) from 1980 to 2007 in Libya. Their results revealed a long-run bi-directional causality between exports and economic growth. Hence, the ELG and growth-led export (GLE) hypotheses are both valid for Libya. Furthermore, the results indicated that export promotion policy contributes to economic growth in Libya. Kotil and Konur (2010) utilized the Granger causality methodology to examine the relationship between GDP and foreign trade in Turkey from 1989-2007. The results revealed that export growth leads to GDP growth in Turkey. The results validated the ELG hypothesis for Turkey. Applying the Granger non-causality in the Vector autoregressive (VAR) model, Ozturk and Acaravcı (2010) examined the validity of the ELG hypothesis for Turkey by using quarterly data from 1989-2006. The results revealed a uni-directional causality from real exports to real GDP. Hence, based on empirical evidence, the ELG hypothesis was validated for Turkey.

On the same subject, Hailegiorgis (2012) used the Granger causality test methodology to analyze the association between exports and economic growth in Ethiopia from 1974-2009. The results showed that the stagnation and continuous decline in income in Ethiopia was occasioned by the alarming population growth coupled with the decline in economic growth in the country pre-reform period. The results of the study revealed that there is evidence of a uni-directional causality from exports to economic growth. In another similar study, Jun (2013) employed Cointegration and ECM methodologies to examine the link between exports and economic growth in China by using data from 1978 to 2011. The results showed that there is a long-run relationship between exports and GDP. In addition, the results revealed that exports had a positive impact on economic growth.

Using an extended generalized Cobb Douglas production function framework and the VECM methodology, Gilbert, Linyong, and Divine (2013) in a related study investigated the association between agricultural exports and economic growth in Cameroon using data from 1975 to 2009. The results revealed that agricultural exports had diverse effects on economic growth. Banana exports and coffee exports had a positive and significant relationship with economic growth. Nevertheless, cocoa export showed a negative and insignificant effect on economic growth. Similarly, Kaberuka, Rwakinanga, and Tibessigwa (2014) utilized the Cointegration and ECM methodologies to investigate the validity of the export-led growth under structural changes that took place in Uganda from 1960 to 2010 using annual time series data. The causal relationship between total labour force and exports was also tested in this study. The results revealed a uni-directional relationship from exports to economic growth in the long-run only in the post-trade liberalization period (1988-2010). In addition, the study showed that trade liberalization had a negative but insignificant effect on real GDP while causality runs from the total labour force to total exports in the post-trade liberalization era only.

Furthermore, Daoud and Basha (2015) used Cointegration and Granger causality estimation techniques to examine the ELG hypothesis for three Arab countries of Egypt, Kuwait and Jordan from 1976 to 2013. The results revealed a uni-directional causality from exports to GDP for Egypt and Kuwait. However, the results showed a bi-directional causality between exports and GDP for Jordan. In addition, Simon and Sheefeni (2016) in a related study

employed quarterly data for the period 1998 to 2014 and time-series econometric techniques of cointegration and Granger-causality test within the framework of Vector auto-regression (VAR) to investigate the causal link between primary commodities exports and economic growth in Namibia. The results showed a uni-directional causality from primary commodities export to economic growth in Namibia.

On the same subject and employing the Cointegration and ECM methodologies, Lam (2016) investigated the causality between real exports of goods and services and real GDP of the ASEAN-4 countries of Thailand, Philippines, Indonesia and Malaysia. The results of the short-run dynamics showed a bi-directional causality between exports and output growth for Thailand, Philippines and Malaysia. However, a uni-directional causality runs from GDP growth to exports growth for Indonesia. On the other hand, the results of the long-run relationship revealed a bi-directional causality between exports and GDP growth for Malaysia and Thailand; a uni-directional causality from GDP growth to exports growth for Indonesia and an inverse relationship exists between these two variables for the Philippines.

2.1.2. Empirical Literature from Nigeria

There have been some studies on export and economic growth in Nigeria with varying results and submissions. For instance, Okoh (2004) employed the Vector Error Correction Model to delineate the long run relationship between growth in non-oil exports, growth in import of capital inputs and global integration, which was proxied by the index of openness. Their results revealed that global integration though positive was not significant in explaining the behaviour of non-oil exports in the long run as well as in the short run. On the other hand, there was a positive relationship between growth in import of capital inputs and the growth of non-oil exports.

Some of the empirical work on export in Nigeria centred on the evaluation of the institutions and institutional framework for export promotion. For example, Alayande, Olayiwola, and Alayande (2002) undertook an evaluation of the institutions and institutional framework for export promotion in Nigeria and concluded that Nigerian Export-Import Bank (NEXIM), and Nigerian Export Promotion Council (NEPC) portend a mixed picture of ineffective export promotion institutions. The result also revealed that they are not free from political interference as reflected in the appointment of the head of these institutions, which rests on the government's decision. Their establishment rests on the government's initiative, and not on exporters' demand.

Onayemi and Akintoye (2009) employed a Vector Error Correction Model over the period of 1986 to 2004 to find out to what extent Nigerian export promotion strategies have been effective in diversifying the productive base of the Nigerian economy from crude oil as the major source of foreign exchange. The results revealed that non-oil exports, on the whole, have performed below expectations, thereby questioning the efficacy of the export promotion strategies in the Nigerian economy. The economy is still far from being diversified away from crude oil exports.

Chimobi and Uche (2010) employed the Granger Causality and Cointegration test to examine the relationship between export, domestic demand and economic growth in Nigeria. The results revealed that there is no long-run relationship between the variables. In addition, the results showed that causality runs from economic growth to both exports and domestic demand while causality runs from exports to domestic demand (proxied by government consumption). Using the Augmented Production Function (APF) and the Endogenous Growth Model (EGM), Onudugo, Ikpe, and Anowor (2013) examined the impact of non-oil exports on economic growth in Nigeria using data between 1981 and 2012. The results showed that non-oil exports exerted a very weak and infinitesimal impact on Nigeria's economic growth.

Verter and Becvarova (2016) utilized the Ordinary Least Squares, Granger causality, Impulse Response Function and Variance Decomposition techniques to examine the impact of agricultural exports on economic growth in Nigeria. Based on the OLS and Granger causality results, the hypothesis of agricultural exports-led economic growth was supported for Nigeria. However, the results revealed a negative relationship between the

agricultural degree of openness and economic growth in Nigeria. The Impulse Response Function depicted an upward and downward shock from agricultural exports to economic growth. Furthermore, the results of the Variance Decomposition test revealed that a shock to agricultural exports can contribute to the oscillation in the variance of economic growth in the long run.

Utilizing the Bound Testing technique, Eboreime and Umoru (2016) estimated Nigeria's exports competitiveness in the World market and concluded that Nigeria's exports are highly competitive in Canada, the United States and Japan but less competitive in the United Kingdom. The results further revealed that for Canada, Japan and the United States, exchange rate and the level of foreign income strongly influences Nigeria's exports.

Kromtit, Kanadi, Ndangra, and Lado (2017) used the Auto-regressive Distributed Lag (ARDL) model to examine the link between non-oil exports and economic growth in Nigeria from 1985-2015. The results revealed a positive and significant relationship between non-oil exports and economic growth in Nigeria. Using annual time series data from 1980-2016 and the Engel Granger Model for cointegration methodology, Vincent (2017) in a related study investigated the association between non-oil exports and economic growth in Nigeria with a view to knowing whether they have been effective in diversifying the productive base of the Nigerian economy away from crude oil as the main source of foreign exchange. However, the results failed to support the assertion that non-oil exports drive economic growth in Nigeria.

It is evident from the review of the empirical literature that studies executed in the context of Nigeria are limited with mixed results. Though few studies have been carried out on exports and economic growth in Nigeria, the contradicting results of these empirical studies reveal a knowledge gap. Hence, the link between exports and economic growth is thus far undecided. Based on current evidence, the link between exports and economic growth may be country and period specific. Some of these studies did not include imports as one of the most important macroeconomic variables while pondering on the causal link between exports and economic growth. Esfahani (1991) validated the inclusion of both exports and imports as separate variables in the neoclassical production function used to model economic growth. The inclusion of imports as an independent variable in the growth model was premised on the ground that imports have a tendency to be correlated with exports (Esfahani, 1991). As observed by Esfahani (1991) the impact of exports would be overestimated if imports are excluded from the model. There is the additional problem of endogeneity, which has not been consciously tackled in previous studies in Nigeria. This study is different from previous studies in scope and in terms of addressing the issue of endogeneity. The number of years considered is long. Thus, this study intends to bridge these knowledge gaps by investigating the empirical association between exports and economic growth in Nigeria in isolation.

2.2. Theoretical Framework

There are numerous theories that underpin trade and others that have been developed to provide a theoretical foundation for the empirical analysis of the link between exports and economic growth. In other words, the possible channels through which exports can affect economic growth are emphasized in this framework. Some of these theories include the absolute advantage theory, comparative advantage theory, Heckscher-Ohlin (H-O) model, Harrod-Domar economic growth model, two-gap model, the Neo-Classical growth theory and the new growth theory or the endogenous growth theory. However, the neoclassical theory and the endogenous growth theory have received the greatest consideration in the development economics literature.

The absolute advantage and comparative advantage theories of international trade were developed as a result of the contributions of Smith (1776) and D Ricardo (1817) respectively. Heckscher (1919) and Ohlin (1933) developed the Factor Endowment or H-O Model. The Harrod-Domar model was developed by Harrod (1939) and Domar (1946). The earlier works on exports and economic growth were based on this post-Keynesian growth model. The development of the two-gap model is attributed to Chenery and Strout (1966). The Neo-classical theories were

advanced by Solow (1956). An investigation of Solow (1956); Solow. (1957) and Swan (1956) begins the neoclassical approach to economic growth and that is why the model is repeatedly regarded as the Solow-Swan growth model. The forerunners of the endogenous growth theory or the new growth theory are Romer (1986); Lucas (1988); Romer. (1990); Grossman and Helpman (1991a) and Barro and Sala-i-Martin (1995). They attempted to endogenize the rate of growth which was contemplated as exogenous by Solow (1956) model. Technological progress was endogenously determined as the engine of growth by Romer. (1990). On the other hand, human capital accumulation was endogenously determined by Lucas (1988) to sustain economic growth.

Under the absolute advantage theory of international trade, Smith stressed that if countries concentrate on the production of goods in which they have absolute advantage, it will be equally favourable for countries to trade with each other. Under this idea, a trade would be advantageous to both countries simultaneously in the context of absolute advantage model (Riaz, 2010). The comparative advantage model of trade emerged as a result of the fault identified by D Ricardo (1817) in the absolute advantage theory. The flaw is whether there will still be a benefit to trade and if trade will ever occur if a country has no absolute advantage in the production of any product. He noted that a country can specialize in the production of those items which it can produce comparatively better than the other country. He underscored that a country can specialize in the efficient production of goods through comparative advantage (Henderson, 1993). The Ricardian model dwells on the static gains from trade but not its impact on economic growth.

In the perspective of comparative advantage, specialization spearheads better living standards for all and sundry and increased global production in the real world. In the views of Lin and Chang (2009) the interesting thing about this theory is that it shows how a country without any absolute cost advantage in any sector can benefit from trade by specializing in industries at which it is least bad. Under the comparative advantage theory, markets are created by exports for producers where countries are able to expand their production and significantly increase their economies of scale as a result of their comparative advantage in certain areas of trade (Simon & Sheefeni, 2016). This economies of scale result from large scale production of a country at a very low cost in comparison to all other countries in the same region (Pandhi, 2007). Concisely and as observed by D. Ricardo (1821) if people and nations engage in those activities for which their advantages over others are the largest or their disadvantages are the smallest, total output will be higher. One of the criticisms of the comparative advantage model is the unrealistic assumption of labour as the only factor of production. The H-O or the Factor Endowment model emerged by resting the one input assumption of the Ricardian theory and assumed two inputs. This was an attempt to expand the Ricardian model and explain why certain countries have comparative advantages for certain goods (Riaz, 2010). As observed by the H-O model, the critical factor in determining comparative advantage was the international differences in factor endowments. In addition, this model noted that countries exports use intensively countries abundant factor. Furthermore and in the contention of Belayneh (2017) goods intensive in the use of a factor should be produced more cheaply by each country as a result of the abundance of the factor of production relative to its trading partner.

One popular framework used to justify the link between exports and economic growth in the early literature was the Harrod-Domar growth model. This is premised on the fact that investment is considered as the only factor determining growth. The model also assumes that investment is equal to savings. In the contention of this model, the low economic growth suffered by poor countries is as a result of the saving gap created when domestic savings are inadequate to finance the level of investment necessary to achieve the desired growth rate (Trinh, 2014). Export is thus expected to play a supportive role in stimulating growth by complementing domestic savings and filling up the gap. Countries are provided opportunities to earn foreign exchange and also increase their employment base as a result of exports. Furthermore, economic growth results in a country through increased local and foreign direct investment (FDI) made possible by exports. Based on the Harrod-Domar growth theory, the two-gap model made

an important contribution to the exports-growth literature by introducing the foreign exchange gap apart from the saving gap.

Besides domestic savings, the two-gap model opined that foreign exchange and international trade are critical to the development of an economy and that a gap between import requirements for a given level of production and foreign exchange earnings can reduce economic growth by constraining both imports and savings (Trinh, 2014). The dearth of foreign exchange cannot be overcome by the resources in developing countries and therefore exports evidently help to ease this constraint. One of the notable drawbacks of the Harrod-Domar and the two-gap models is that they do not allow the substitution of labour for capital and assume that the link between investment and growth is linear and stable. Ultimately, attempts have been made to resolve these criticisms through the development of additional growth theories that are also contributing to the literature on the evaluation of the impact of exports on economic growth.

The Solow Neoclassical growth theory emerged as a result of the contradictions of the Harrod-Domar growth theory and has been widely regarded as a substitute to it. This is because of the substitutability of capital for labour and their demonstration of diminishing return to scale. The position of capital accumulation in fostering economic growth has been established by this model. Exports are one way through which capital can be accumulated in any economy. The lack of a permanent causal link between investment and economic growth in this theory will serve as a limitation on the use of the basic neoclassical theory to study the association between exports and economic growth over the long-run. Another drawback of this theory observed by Brander (1987) is the unrealistic simplification of the model that results from the analysis of trade within the perfect competition setting.

This is because of the failure of the model to account for the presence of overhead costs, large start-up costs and learning by doing or Research and Development. In the contention of Easterly (2003) the new growth models or the endogenous growth models widely considered as an alternative to the neoclassical growth models considered a complex set of inputs apart from physical capital as factors of growth. These inputs are organizational capital, human capital, social capital, technology, institutional design and intermediate new goods. It has become a popular theoretical framework used to justify the nexus between exports and economic growth in the current literature. This is premised on the fact that it provides additional explanatory power and empirical relevance apart from remedying the inadequacies of the neoclassical growth models (Sakyi, 2011).

With this model and its feature of increasing returns to capital, the long-term impact of exports on economic growth can be estimated. In addition and contrary to the neoclassical growth model's assumption of lack of a permanent causal link between investment and economic growth, this model assumes a non-linear link between these two variables thereby leading to the measurement of the "the quality of investment" and the quality of exports. Building on this model, the impact of exports on economic growth can be appraised through other factors besides capital accumulation. Furthermore, the critical role of human capital in the growth process is highlighted in the endogenous growth model. This justifies the role of exports as a source of foreign exchange required for building up human capital in developing countries. According to the new trade theory, and cited in Kebede (2002) "international trade is better than interventionism since interventionism in trade leads to non-market failures that could hurt growth". The significance of the endogenous growth theory lies in effectively separating the factors of economic growth. Undeniably, exports promote production and human capacity building. Therefore, this study adopts the endogenous growth theory as a working theoretical framework.

3. METHODOLOGY

3.1. Sources of Data

This paper employed time series data over the period of 1980 to 2016 see Table 9 in the appendix. The data needs were identified on the basis of the objectives of the study. The data were drawn from World Bank's (WB),

World Development Indicators (WDI) database, National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN), and United Nations Conference on Trade and Development (UNCTAD) database see Table 1. The developments in the Nigerian economy informed the choice of the period. As was stated in the background, ISI policy was implemented before 1980 because it was the prevailing development agenda in many developing countries and particularly in Africa, South Asia and Latin American in the 1950s, 1960s, and 1970s respectively. On the other hand, export-oriented industrialization strategy was implemented in the post-1980 period. Hence, the year of 1980 can be regarded as a milestone in the annals of Nigeria's trade policy. The implementation of the export-oriented industrialization strategy coincided with the introduction of the Structural Adjustment Programme (SAP) in 1986. SAP has the promotion of exports as one of its cardinal objectives. Therefore, the periods of export-oriented industrialization agenda is covered by the scope of this study.

Table-1. Variable definitions, measures and sources of data.

Variable	Description	Source of Data
Dependent Variable		
GDP per capita growth rate	Annual percentage growth rate of GDP per capita (%) (Constant 2010 US$)	WB, WDI
Independent Variables		
Export growth rate	Annual percentage growth rate of exports of goods and services (Constant 2010 US$)	WB, WDI
Imports of goods and services	Imports of goods and services (% of GDP)	WB, WDI
Gross fixed capital formation	Gross fixed capital formation (% of GDP)	WB, WDI
Non-oil exports	Non-oil exports as a percentage of total exports	NBS and CBN
Population growth rate	Annual population growth rate (%)	WB, WDI
Degree of openness to trade	Exports plus imports divided by GDP (Exports + Imports/GDP)	UNCTAD
Exports of goods and services	Exports of goods and services (% of GDP)	WB, WDI
Foreign direct investment	Foreign direct investment, net inflows (% of GDP)	WB, WDI

3.2. Model Specification

This study builds on Kaberuka et al. (2014) augmented growth model for the investigation of the short-run and long-run relationships between exports and economic growth in Nigeria. Besides the conventional inputs, they included exports as variables that affect economic growth. However, this study added other variables that may have a significant effect on export-economic growth nexus in Nigeria. The variables added were non-oil exports, oil exports, gross fixed capital formation, foreign direct investment and export growth rate. The variables discarded were gross capital formation and a dummy variable for trade liberalization. The augmented neoclassical Cobb-Douglas production function provided the theoretical foundation for the building of the model adapted in this study. Based on the endogenous growth framework employed for this work, technology was postulated to be an important factor in economic growth. The analytical framework for examining the impact of export diversification on economic growth specifies technology and other conventional determinants of economic growth proposed in the growth literature. The analytical framework for estimating the exports-economic growth nexus is based on the Cobb-Douglas production function below:

$$Y = AL^{a}K^{b} \tag{1}$$

In Equation 1, Y denotes the output, A is technological knowledge or the efficiency of production, L denotes labour input (measured by labour force of the country), and K is the capital input. α and β represent the input elasticity. The productivity parameter and its inputs of labour and capital determine output. GDP per capita growth rate denotes aggregate output (Y), total labour force represents the labour input (L) whereas gross fixed capital formation is the proxy for the capital stock (K). Based on the objective of this study, the model was modified to incorporate exports and other variables that may exert a significant influence on economic growth.

Assuming that the production function will take a linear form, the general form of the model estimated in this study is depicted in Equation 2 and it has the following form:

$$Growth\ Rate\ of\ GDP = \propto_t + \beta X_t + \varepsilon_t \quad (2)$$

Where X is a set of independent variables which affect the Real Gross Domestic Product (RGDP). t is the period from 1980-2016 and ε is the stochastic disturbance term.

Based on the insights provided by Kaberuka et al. (2014) with reference to the expected relationship between exports and economic growth, a general empirical model of exports on Nigeria's economic growth can be put as:

$$GDPPCGR_t = \propto_0 + \propto_1 EXPGR_t + \propto_2 IMPGS_t + \propto_3 GFCF_t + \propto_4 NONOILEXP_t + \propto_5 \text{AGRPOP} + \propto_6 OPEN_t + \propto_7 EXPGS_t + \propto_8 FDI_t + \varepsilon_t \quad (3)$$

Where:

$\propto_0, \propto_1, \propto_2, \ldots, \propto_8$ = *Parameters in the model*

$GDPPCGR_t$ = *Real GDP per capita growth rate*

$EXPGR_t$ = *Growth rate of exports*

$IMPGS_t$ = *Imports of goods and services*

$GFCF_t$ = *Gross fixed capital formation*

$NONOILEXP_t$ = *Non − oil exports*

$AGRPOP_t$ = *Population growth rate*

$OPEN_t$ = *Degree of openness to trade*

$EXPGS_t$ = *Exports of goods and services*

FDI_t = *Foreign direct investment*

ε_t = *Stochastic disturbance term*

A priori: $\propto_1 > 0; \propto_2 < 0; \propto_3 > 0; \propto_4 < 0; \propto_5 < 0; \propto_6 > 0; \propto_7 > 0;$ *and* $\propto_8 > 0$

As postulated by economic theories, the coefficients of openness to trade, foreign direct investment, exports of goods and services, gross fixed capital formation, and growth rate of exports, and non-oil exports are expected to have a positive link with economic growth. However, a negative relationship is expected between imports, population growth rate and economic growth theoretically. Nevertheless, in practice, the variables above may exert a positive or negative or even zero effect with economic growth. Hence, at the end of the day, the relationship between non-oil exports, oil-exports, exports of goods and services, the openness of the economy and growth rate of exports and economic growth is an empirical matter and is period and country-specific. But in this research, the regression coefficients are expected to exhibit the signs stated above.

The frequency of citations of these variables in previous theoretical and applied economics research informed their selection in this study. The time series properties of the data were checked for stationarity through the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests before estimating the growth equation. In order to ascertain the goodness of fit and model adequacy, our specification was also subjected to diagnostic and stability tests. The autoregressive distributed lag (ARDL) bounds test to cointegration proposed first by Pesaran and Shin (1999) and advocated by Pesaran., Shin, and Smith (2001) were employed for the estimation of the growth equations. This is based on the premise that it shows the short-run and long-run dynamics of the variables for estimation. Version 9 of the E-views econometric software facilitated the computation of the above statistical techniques.

Restating Equation 3 into the ARDL model form, we have:

$$\begin{aligned}&\Delta GDPPCGR_t \\ &= \propto_0 + \sum_{i=1}^{n} \propto_{1,i} \Delta GDPPCGR_{t-i} + \sum_{i=1}^{n} \propto_{2,i} \Delta EXPGR_{t-i} + \sum_{i=1}^{n} \propto_{3,i} \Delta IMPGS_{t-i} \\ &+ \sum_{i=1}^{n} \propto_{4,i} \Delta GFCF_{t-i} + \sum_{i=1}^{n} \propto_{5,i} \Delta NONOILEXP_{t-i} + \sum_{i=1}^{n} \propto_{6,i} \Delta AGRPOP_{t-i} \\ &+ \sum_{i=1}^{n} \propto_{7,i} \Delta OPEN_{t-i} + \sum_{i=1}^{n} \propto_{8,i} \Delta EXPGS_{t-i} + \sum_{i=1}^{n} \propto_{9,i} \Delta FDI_{t-i} + \propto_{10} GDPPCGR_{t-1} \\ &+ \propto_{11} EXPGR_{t-1} + \propto_{12} IMPGS_{t-1} + \propto_{13} GFCF_{t-1} + \propto_{14} NONOILEXP_{t-1} \\ &+ \propto_{15} AGRPOP_{t-1} + \propto_{16} OPEN_{t-1} + \propto_{17} EXPGS_{t-1} + \propto_{18} FDI_{t-1} \\ &+ \varepsilon_t \end{aligned} \quad (4)$$

Where Δ denotes the difference operator, α_0 is the drift, ε_t is the error term, α_1, α_2, α_3, α_4, α_5, α_6, α_7, α_8, α_9 are coefficients of short-run dynamics while α_{10}, α_{11}, α_{12}, α_{13}, α_{14}, α_{15}, α_{16}, α_{17}, α_{18} are parameters of the long-run relationship. The trend characteristics were eliminated through differencing. The lag lengths for each of the variables is represented by n. Hence, the base equation for estimating the short-run and long-run relationship among variables is 4.

The bounds test was employed to examine the existence of a level relationship between GDPPCGR, EXPGR, IMPGS, GFCF, NONOILEXP, AGRPOP, OPEN, EXPGS, OILEXP and FDI. The existence of a long-run relationship among the variables is empirically realized through an F-test employing OLS. This is simply a test of the hypothesis of no cointegration among the variables against the existence of cointegration among the variables. The coefficients to be tested in Equation 4 are:

$$H_0: \propto_{10} = \propto_{11} = \propto_{12} = \propto_{13} = \propto_{14} = \propto_{15} = \propto_{16} = \propto_{17} = \propto_{18} = 0$$

(absence of cointegration among the variables)
against the coefficients:

$$H_0: \propto_{10} \neq \propto_{11} \neq \propto_{12} \neq \propto_{13} \neq \propto_{14} \neq \propto_{15} \neq \propto_{16} \neq \propto_{17} \neq \propto_{18} \neq 0$$

(presence of cointegration among the variables)

The asymptotic critical value bounds of the F-statistic proposed by Pesaran. et al. (2001) is used for ascertaining the existence or absence of cointegration among the variables. If the computed F–statistic is less than the lower bounds of the critical values of the F-statistic, the absence of cointegration will be confirmed since we cannot reject the null hypothesis. However, if the computed F–statistic is greater than the upper bounds of the critical values, the alternative hypothesis of cointegration will be accepted among the variables in the model, implying the presence of cointegration between the variables. Furthermore, if the F–statistic falls between these bounds, the test is inconclusive.

If the bounds test revealed the absence of cointegration among the variables, the procedure terminates. Nevertheless, if the presence of cointegration was concluded among the variables in the model, the short-run and long-run parameters, depicting the short-run and long-run impacts of each variable on economic growth respectively can be evaluated. Based on Equation 5, the long-run elasticities can be computed using OLS.

$$\begin{aligned} GDPPCGR_t = \propto_0 + \sum_{i=1}^{n} \propto_{1,i} GDPPCGR_{t-i} + \sum_{i=1}^{n} \propto_{2,i} EXPGR_{t-i} + \sum_{i=1}^{n} \propto_{3,i} IMPGS_{t-i} \\ + \sum_{i=1}^{n} \propto_{4,i} GFCF_{t-i} + \sum_{i=1}^{n} \propto_{5,i} NONOILEXP_{t-i} + \sum_{i=1}^{n} \propto_{6,i} AGRPOP_{t-i} \\ + \sum_{i=1}^{n} \propto_{7,i} OPEN_{t-i} + \sum_{i=1}^{n} \propto_{8,i} EXPGS_{t-i} + \sum_{i=1}^{n} \propto_{9,i} FDI_{t-1} \\ + \varepsilon_t \end{aligned} \quad (5)$$

The estimation of short-run elasticities will be the final step. An error correction model associated with the long-run estimates was estimated to find the parameters of short-run dynamics. In this case, causality is established using an error correction model associated with the long run estimates as described in Equation 6.

$$\begin{aligned} \Delta GDPPCGR_t \\ = \propto_0 + \sum_{i=1}^{n} \propto_{1,i} \Delta GDPPCGR_{t-i} + \sum_{i=1}^{n} \propto_{2,i} \Delta EXPGR_{t-i} \\ + \sum_{i=1}^{n} \propto_{3,i} \Delta IMPGS_{t-i} + \sum_{i=1}^{n} \propto_{4,i} \Delta GFCF_{t-i} + \sum_{i=1}^{n} \propto_{5,i} \Delta NONOILEXP_{t-i} \\ + \sum_{i=1}^{n} \propto_{6,i} \Delta AGRPOP_{t-i} + \sum_{i=1}^{n} \propto_{7,i} \Delta OPEN_{t-i} + \sum_{i=1}^{n} \propto_{8,i} \Delta EXPGS_{t-i} \\ + \sum_{i=1}^{n} \propto_9 \Delta FDI_{t-1} + \pi ecm_{t-1} \\ + \varepsilon_t \end{aligned} \quad (6)$$

Where α_1, α_2, α_3, α_4, α_5, α_6, α_7, α_8, α_9 are the parameters of the short-run dynamics, π is the speed of adjustment to long-run equilibrium following a shock to the system and ecm_{t-1} is the error correction term. The parameter π is expected to be negative and significant to confirm the long-run relationship among the variables. The significance

of the coefficient of the lagged error correction term and joint significance of the coefficients of the lagged differences of the right-hand side variables using the F–test are the basis for determining causality (Manwa, 2015).

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

4.1. Results of Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) Unit Root Tests on Series

Table-2. Summary of unit root test results.

Variable	Augmented Dickey-Fuller (ADF)			Phillips-Perron (PP)		
	Level	First Difference	I(d)	Level	First Difference	I(d)
GDPPCGR	-4.5311 (-2.9458)	-	I (0)	-4.5359 (-2.9458)	-	I (0)
EXPGR	-8.1567 (-2.9458)	-	I (0)	-8.4252 (-2.9458)	-	I (0)
IMPGS	-2.7547 (-2.9458)	-8.3084 (-2.9484)	I (1)	-2.6956 (-2.9458)	-11.1363 (-2.9484)	I (1)
GFCF	-3.2643 (-2.9458)	-	I (0)	-3.4323 (-2.9458)	-	I (0)
NONOILEXP	-2.1425 (-2.9458)	-7.5365 (-2.9484)	I (1)	-2.1425 (-2.9458)	-7.5357 (-2.9484)	I (1)
AGRPOP	-6.2305 (-2.9719)	-	I (0)	-3.5956 (-2.9458)	-	I (0)
OPEN	-1.1212 (-2.9458)	-5.0944 (-2.9484)	I (1)	-1.3030 (-2.9458)	-5.1310 (-2.9484)	I (1)
EXPGS	-2.4341 (-2.9458)	-8.7782 (-2.9484)	I (1)	-2.3576 (-2.9458)	-8.8229 (-2.9484)	I (1)
FDI	-3.6769 (-2.9458)	-	I (0)	-3.6473 (-2.9458)	-	I (0)

Note: Numbers in parenthesis are 5% critical values based on the MacKinnon (1996).

The ADF and PP tests results of the variables included in the export-economic growth model are depicted in Table 2. Based on the results, the variables are either I(0) or I(1) justifying the application of the ARDL methodology to our model.

4.2. Results of Diagnostic Tests for ARDL Model

Table-3. Diagnostic results for ARDL model.

Test	Test Statistic	P-value	Null Hypothesis	Conclusion
Breusch-Godfrey Serial Correlation LM Test	3.157814	0.0738	H_o: No serial correlation	Cannot reject H_o
Ramsey RESET test	2.113271	0.0517	H_o: Correctly specified	Cannot reject H_o
Jarque-Bera normality test	2.226337	0.322011	H_o: Normal distribution	Cannot reject H_o
Heteroskedasticity Test: ARCH	0.514765	0.9119	H_o: Homoskedasticity	Cannot reject H_o

The diagnostic tests results were depicted in Table 3. Based on the diagnostic tests used to establish the goodness of fit and model adequacy, Equation 4 passed the diagnostic test. In case of the Ramsey Regression Equation Specification Error Test (RESET) model, Jarque-Bera normality test, heteroskedasticity test ARCH and Breusch-Godfrey Serial Correlation LM Test, it is evident that the rejection of the null hypothesis at the 95% confidence level is not possible. The results showed that the model is linear or correctly specified. This is evident from the Ramsey RESET result that revealed a p-value of 0.0517 which is equal to the chosen 5% level of significance. We concluded that the series was normally distributed since, for the normality test, the null hypothesis of normality was tested against the alternative hypothesis of non-normality. All the variables were normally

distributed based on the Jarque-Bera p-value of 0.3220 that was greater than the 5% level of significance see Figure 1. The Breusch-Pagan-Godfrey test was employed to test for autocorrelation. Based on the null hypothesis of no autocorrelation, the probability value of 0.0738 exhibited by the Chi-Square statistic for the serial correlation LM test was greater than 5%. Based on this result, we accepted the null hypothesis and concluded that autocorrelation was absent in our model. The test for heteroskedasticity in our model was conducted through the ARCH test. Based on the null hypothesis there is no ARCH effect, the probability value of 0.9119 revealed by the Chi-Square statistic for the ARCH test was greater than the 5% level of significance. Hence, we concluded that heteroskedasticity was absent in our model as a result of the non-rejection of the null hypothesis that there is no ARCH effect.

4.3. Results of the Bounds Test for Cointegration

Table-4. Bounds tests for the existence of cointegration.

Test Statistic	Value	Lag	Significance Level	Bound Critical Values* Lower Bound	Upper Bound
F-statistic	10.40229	2		I(0)	I(1)
			1%	3.15	4.43
			5%	2.55	3.68
			10%	2.26	3.34

Note: Critical value bounds for the F-statistic at 95% confidence level from Pesaran. et al. (2001).

Table 4 depicts the results of the bounds tests for the presence of cointegration between economic growth and its causal variables. Based on the results, the computed *F*-statistic for the joint test of the coefficients α_{10}, α_{11}, α_{12}, α_{13}, α_{14}, α_{15}, α_{16}, α_{17}, and α_{18} was 10.40229. At the 95 per cent level of significance, the critical value bounds were 2.55 and 3.68. The null hypothesis of no cointegration between the variables in the model cannot be accepted since the computed *F*-statistic is above the 95 per cent upper bound I(1) of the critical value band computed by Narayan (2004) and Pesaran. et al. (2001). The rejection of the null hypothesis shows the existence of a long run relationship among the variables in our model. The establishment of a long-run relationship among the variables in the model justifies the estimation of the long-run and short-run coefficients of the growth equation through the ARDL cointegration method.

4.4. Results of the Long-Run Relationship

Table-5. Results for estimated long-run coefficients.

Dependent Variable: GDPpc				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	268.041780	80.629739	-3.324354***	0.0043
EXPGR	0.034431	0.028817	1.194794	0.2496
IMPGS	0.136875	0.180021	0.760330	0.4581
GFCF	-0.393091	0.345288	-1.138445	0.2717
NONOILEXP	1.573695	0.622602	2.527612**	0.0224
AGRPOP	100.359341	32.629109	3.075761***	0.0072
OPEN	-0.000383	0.000117	-3.276473***	0.0047
EXPGS	-0.223014	0.120943	-1.843963*	0.0838
FDI	0.239598	0.285698	0.838638	0.4140

Note: ***, ** and * denote significance at 1%, 5% and 10% respectively.

Based on the results in Table 5, the results for some of the variables were in line with theoretical expectations. Exports growth rate exerted a positive and insignificant relationship with the real GDP growth rate. This means that a unit increase in exports growth rate would increase economic growth by 0.03 per cent. This finding concurs with the studies of Mosley, Hudson, and Horrell (1987); Reichel (1995); Bowen (1998) and Lloyd, Morrissey, and

Osei (2001). Imports of goods and services exerted a positive and insignificant relationship with real GDP per capita growth rate contrary to expectation. This implies that a unit increase in imports of goods and services would increase growth by 0.14 per cent. The plausible reason for this is that the goods imported into the country are producer goods which are productive in promoting economic growth as well as contributing to capital generation. The implication of this result is that imports of goods and services lead to an increase in the growth rate of real GDP per capita. This result is contrary to the submissions of Musonda (2007); Kagnew (2007) and Duru (2013) but in line with the findings of Kaberuka et al. (2014).

One more petrifying long-run result which defies expectation is the relationship between gross fixed capital formation and economic growth. Gross fixed capital formation, utilized as a proxy for investment exerted a negative and insignificant relationship with real GDP per capita growth rate. This implies that investment does not encourage growth in Nigeria. The plausible reason for this may be the unconducive investment climate in Nigeria caused by Boko Haram activities in the North, youth restiveness in the Niger Delta and lack of basic infrastructures like energy, telecommunications, water supply, road and security needed to make the business environment attractive. This result suggests that a unit reduction in gross fixed capital formation would increase economic growth by 0.39 per cent. This finding is not consistent with the submissions of Musonda (2007); Kagnew (2007) and Duru and Ehidiamhen (2018). Another interesting result is the impact of non-oil exports on real GDP per capita growth rate. This is because crude oil export constitutes the bulk of Nigeria's exports. The non-oil export variable revealed an unconventional result. Curiously, non-oil exports had a positive and significant relationship with the real GDP growth rate contrary to expectation. This implies that a unit increase in non-oil exports would increase growth by 1.57 per cent. This finding suggests that non-oil exports have translated significantly to a meaningful increase in real GDP per capita growth rate. This result shows that the efforts of the Federal Government of Nigeria in shifting the revenue base of the economy away from crude oil through diversification is yielding the desired result. This finding is contrary to the submissions of Duru (2013).

The annual growth rate of the population exerted a positive and significant relationship with the real GDP per capita growth rate. This implies that a 1 per cent increase in the growth rate of the population would lead to 100.36 per cent increase in economic growth. The plausible reason for this is that in Nigeria, an economy that is basically agro-based, the real GDP growth rate would be determined by the productivity of labour which depends on the growth rate of the population used to proxy the growth rate of the labour force. This is premised on the fact that the agricultural sector depends heavily on a large population of smallholder farmers. Because of the low levels of mechanization in agriculture, the bulk of the country's agricultural output would be produced through manual labour. Hence, an increase in the growth rate of population would imply an increase in the labour force of smallholder farmers and this will affect the population of smallholder farmers and agricultural output respectively. Therefore, in line with the neoclassical theory of economic growth, an increase in the input of labour would affect the national output positively leading the economic growth. This finding finds an advocate in Durevall and Mussa (2010).

Surprisingly, openness to trade exerted a negative and significant relationship with real GDP per capita growth rate contrary to expectation. This result shows that trade does not contribute to the economic growth of Nigeria, especially crude oil sales. The finding showed that a 1 per cent increase in openness to trade could reduce growth by 0.00 per cent. This result is consistent with the submissions of Ayanwale (2007); Dollar (1992); Sachs and Warner (1995); Boakye (2008) and Duru and Ehidiamhen (2018) but contrary to the submissions of Asiedu (2001); Li and Liu (2004); Chang et al. (2005) and Flexner (2000). This shows that the various attempts by the government through trade liberalization to ensure that international trade contributes to economic growth through better access to the market is not yielding the desired result.

Exports of goods and services exerted a negative and significant relationship with real GDP per capita growth rate contrary to expectation. The plausible reason for this is declining terms of trade occasioned by exports of primary products. This implies that a unit increase in exports of goods and services would decrease economic growth by 0.22 per cent. This suggests that exports of goods and services do not contribute to real GDP per capita growth rate. This result is in line with the submissions of Atoyebi, Jubril, Felix, and Edun (2012) but contrary to the findings of Adelegan (2000); Chanthunya (1992); Matemvu (1997) and Njikam (2003).

Finally, foreign direct investment (FDI) had a positive relationship with the real GDP growth rate as expected. This implies that FDI contributes to economic growth in Nigeria. This implies that a unit increase in FDI would increase growth by 0.24 per cent. The non-significance of the FDI variable indicates the need for measures to be put in place to check the unpatriotic and exploitative modes of operation and negative impact of dumping activities of foreign direct investors. This claim finds an advocate in Obwona (2004); Dees (1998); Lensink and Morrissey (2006); Ngeny and Mutuku (2014) and is reinforced by the results of this study.

4.5. Results of the Short-run Dynamic Model

Table-6. Results of estimated short-run error correction model.

Dependent Variable: GDPpc				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(GDPPCGR(-1))	0.187408	0.115468	1.623030	0.1241
D(EXPGR)	0.048070	0.0404444	1.188555	0.2520
D(IMPGS)	0.322104	0.170520	1.888948*	0.0772
D(IMPGS(-1))	0.303644	0.150893	2.012315*	0.0613
D(GFCF)	-0.548802	0.483779	-1.134406	0.2733
D(NONOILEXP)	-0.897618	0.338320	-2.653161**	0.0174
D(NONOILEXP(-1))	-4.818559	0.731114	-6.590708***	0.0000
D(AGRPOP)	494.590307	119.080952	4.153396***	0.0007
D(AGRPOP(-1))	384.605802	92.219554	-4.170545***	0.0007
D(OPEN)	-0.000198	0.000126	-1.575458	0.1347
D(EXPGS)	-0.311353	0.164744	-1.889917*	0.0770
D(FDI)	0.334506	0.399186	0.837970	0.4144
ECM_{t-1}	-1.396117	0.164198	-8.502629***	0.0000
ECM = GDPPCGR − 0.0344*EXPGR + 0.1369*IMPGS − 0.3931*GFCF + 1.5737*NONOILEXP + 100.3593*AGRPOP − 0.0004*OPEN - 0.2230*EXPGS + 0.2396*FDI − 268.0418*C + 1.4189*D				

Note: ***, ** and * denote significance at 1%, 5% and 10% respectively.

Table 6 showed that the model performed satisfactorily with some of the explanatory variables having the expected sign with real GDP per capita growth rate. Some of the variables were significant. Some of the results were in line with theoretical expectations. Change in real GDP per capita growth rate has a positive and insignificant relationship with real GDP per capita growth rate in the short-run implying that development in the economy causes real output growth. Impact of the growth rate of export of the previous year on the rate of growth of real output was positive and significant in the short-run. This means that economic growth would increase by 0.08 per cent, should the growth rate of exports be increased by 1 per cent. This is consistent with the result of the long run growth equation.

However, change in export growth rate had a positive and insignificant impact on real GDP per capita growth rate as in the long-run equation. The result suggests that if export growth rate goes up by 1 per cent, real GDP per capita growth rate will increase by 0.05%. The short-run impact of imports of goods and services of the previous year on real GDP per capita growth rate was positive and significant. The result means that if imports go up by 1 per cent, real GDP per capita growth rate will increase by 0.32%. Gross fixed capital formation of the previous year exerted a negative and insignificant relationship with economic growth in the short run.

Change in non-oil exports had a negative and significant relationship with economic growth contrary to the result of the long-run equation whereas the annual growth rate of the population of the previous year maintained a positive and significant relationship with real GDP per capita growth rate in the short-run consistent with the long-run results. The openness to trade parameter in the dynamic growth equation maintained its negative relationship with economic growth as in the long-run growth equation. In addition, the change in exports of goods and services maintained its negative and significant relationship with economic growth in the short-run consistent with the long-run results. This implies that economic growth would increase by 0.31% per cent, should exports of goods and services be increased by 1 per cent. Change in foreign direct investment exerted a positive effect on real GDP per capita growth rate in the short-run in line with results of the long-run growth equation.

It is evident from the coefficient of the error correction term that 140% of the past deviation in real GDP per capita growth rate from equilibrium is corrected by it within one year. The speed of adjustment in the growth of output towards the long-run equilibrium level is relatively high. However, the high significance value of the speed of adjustment in the view of Granger (1988) implies that a long-run Granger causality runs from the explanatory variables to the explained variable. In addition, the presence of a long-run relationship between real GDP per capita growth rate and the explanatory variables is further confirmed through the negative sign and high significance of the speed of adjustment to a long-run stable equilibrium.

4.6. The Results of Toda and Yamamoto Multivariate Causality Test

Table-7a. Results of the granger causality test (TY augmented lags methods).

	Sources of Causation	
Country/Dependent Variable	**GDPPCGR χ^2**	**NONOILEXP χ^2**
NONOILEXP	5.466920*	-
GDPPCGR	-	0.018236

Note: * Indicate significance at the 10 per cent level of significance.

Table-7b. Results of the granger causality test (TY augmented lags methods).

	Sources of Causation	
Countr□/Dependent Variable	**GDPPCGR χ^2**	**EXPGS χ^2**
EXPGS	4.312854	-
GDP□CGR	-	4.062□36

The Toda and Yamamoto (TY) estimation results are depicted in Tables 7a and 7b respectively. The results revealed the existence of a uni-directional causality from non-oil exports to real GDP per capita growth rate for Nigeria as shown in Table 8. This means that non-oil exports support real GDP per capita growth rate in Nigeria. In addition, no causality was revealed between exports of goods and services and real GDP per capita growth rate for Nigeria. This suggests that the implementation of policies that promote non-oil exports will be an appropriate strategy for Nigeria to grow.

Table-8. The Granger causality results among RGDP per capita growth rate, exports of goods and services, and non-oil exports.

NONOILEXP	→	GDPPCGR
GDPPCGR	—	NONOILEXP
EXPGS	—	GDPPCGR
GDPPCGR	—	EXPGS

Note: Arrows indicate the direction of Granger Causality between the variables.

5. CONCLUSION AND RECOMMENDATIONS

This study investigated the nexus between export and economic growth in Nigeria from 1980-2016. The empirical analysis was estimated using the ARDL Bounds testing approach to cointegration. The results of the

long-run and short-run dynamics showed that export exerted a negative and significant relationship with economic growth in Nigeria. This implies that exports do not contribute to economic growth in Nigeria. One major conclusion of this study is that the attempts by the government through the Economic Recovery and Growth Plan (ERGP), which is an export-led economic growth and development agenda and the National Industrial Revolution Plan (NIRP) meant to revive the industries and create mass decent jobs are not yielding the desired results. The results of the causality test revealed a uni-directional causality from non-oil exports to real GDP per capita growth rate. However, no causality was found between exports of goods and services and economic growth. The recommendations that can be drawn from this study are as follows:

There is a need for the diversification of the exports basket to enable the non-oil sectors of the economy to play a meaningful role through export. This is premised on the fact that the bulk of Nigeria's exports is from crude oil. Hence, there is a heavy reliance on crude oil exports that suffers from volatilities in the international export price for crude oil. With the quest for alternative sources of energy by countries of the world, relying on crude oil export as the main avenue to foster and sustain economic growth will be a risky decision that the country cannot afford to take. The Nigerian government needs to diversify her export composition by finding a viable alternative to crude oil export. The solid mineral sector could be a viable alternative. In order to boost its export quality and revenues, the government should invest in technologies for the processing of primary export commodities to ensure value addition.

In addition, since value addition is hinged on a dependable power supply system, there is a need for investment in the power sector. Furthermore, there is a need to create a conducive investment climate in the export sector for the attraction of foreign investors. To promote exports, the government should ensure that the value of its domestic currency is lower relative to foreign currencies. This makes imports expensive but makes exports cheaper in the international market. Subsidies should be provided by the government to export-oriented producers such as smallholder farmers and Small and Medium Scale Enterprises (SMEs) that motivate the economy. The government should promote productive imports as an alternative avenue for achieving economic growth. In addition, restrictive trade policies should be put in place to discourage non-productive imports. The government should adopt a labour-intensive economic growth agenda through the export sector for the attainment of economic growth. This was informed by the positive and statistically significant relationship between annual population growth rate and economic growth. The government should create an enabling business environment for the attraction of foreign direct investment.

One way that the business environment can be improved is through the deliberate provision of essential infrastructures with a view to lowering the cost of doing business in Nigeria. In addition, the government should promote policies that encourage domestic investment. Furthermore, the government should reduce the interest rate with a view to restoring investors' confidence in the economy. Based on our results, openness to trade exerted a negative relationship with real GDP per capita growth rate. Consequently, the government should through its appropriate agencies adopt suitable fiscal and monetary policies to boost export-led growth and allow the inflow of foreign direct investment through stability in the foreign exchange rate. Furthermore, the government needs to provide domestic credits to export-oriented industries more especially Small and Medium Scale Enterprises (SMEs). This funding to export-oriented industries can be done by State-owned development banks. The capability of the Nigerian Export Promotion Council (NEPC) and other institutions supporting trade should be enhanced by the government through capacity building programmes in partnership with regional and international trade bodies such as Economic Community of West African States (ECOWAS) and World Trade Organization (WTO) individually for officers of these organizations. This would ensure that these institutions are abreast with current happenings in international export markets.

6. LIMITATIONS OF THE STUDY

The data utilized for this study was extracted from WDI database and were only available up to 2016. Data on some of the variables were available for 2017 while others were not available. This prevented us from extending the study to 2019.

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APPENDICES

Appendix 1: Data Set

Table-9. Data used for the study.

Year	GDPPCGR	EXPGR	IMPGS	GFCF	NONOILEXP	AGRPOP	OPEN	EXPGS	FDI
1980	1.2693165	9.758958	19.19614	33.5873	3.90788555	2.857502294	27071	29.375174	-1.1508558
1981	-15.45478	-9.063015	26.1058	35.22126	3.10977656	2.715063416	18771	22.187518	0.88794765
1982	-3.595227	-10.45493438	19.91466	31.95333	2.4761162	2.602675793	12657	17.833838	0.83780646
1983	-7.427551	-7.67112528	12.50101	23.0065	4.01599467	2.535411776	10758	14.536161	1.0279788
1984	-4.468617	10.2742601	7.90345	14.22397	2.72227113	2.529287163	12289	15.705433	0.6637171
1985	5.5820749	8.464986864	8.51486	11.96524	4.24117808	2.562732082	13430	17.385204	1.68172648
1986	-11.09884	-8.910255257	10.40073	15.15382	6.18904558	2.603202593	5335	13.316029	0.93243691
1987	-13.06454	5.412286982	14.70481	13.60753	7.08813396	2.62563875	7784	26.941856	2.53412583
1988	4.7500479	3.010678507	12.45735	11.87108	8.83986048	2.630930675	7239	22.854625	1.62712475
1989	3.7218425	29.82911065	16.41044	11.74232	5.09632369	2.61241489	8423	43.981317	7.77614051
1990	9.8949143	-4.445080121	17.68597	14.25014	2.96634424	2.579037234	14550	35.34425	1.91137473
1991	-3.115805	8.062910711	23.17552	13.73268	3.84850834	2.545610982	13140	41.701081	2.6005779
1992	-2.066797	-26.51852813	23.5216	12.74817	2.05620595	2.521241552	12844	37.509377	3.06011478
1993	-0.433201	18.64819641	24.27999	13.55003	2.2815275	2.502971046	11073	33.829862	8.52092132
1994	-1.574814	2.261425951	17.99864	11.16543	2.59585595	2.492995639	9830	24.310228	10.8325582
1995	-2.758613	-8.576271221	24.00634	7.065756	2.42947699	2.489434694	12342	35.761493	3.78068839
1996	2.4133166	-10.8780464	25.45243	7.289924	1.78134608	2.488365242	16850	32.238568	4.55430844
1997	0.2759086	47.90398511	35.08539	8.356764	2.34872965	2.488182965	15994	41.774597	4.29744569
1998	0.1888747	2.086616698	36.48173	8.60161	4.53147521	2.490724415	9855	29.69152	3.28492081
1999	-2.002377	-10.75269182	21.97686	6.994108	1.63947814	2.495813034	13856	33.869533	2.80149011
2000	2.7142907	13.25301708	19.65017	7.017881	1.27576722	2.50339744	20965	51.730361	2.45799871
2001	1.8217275	-23.61955065	36.36478	7.579868	1.49942673	2.511214371	19645	45.448071	2.6974915
2002	1.200834	11.6273847	27.41795	7.009923	5.43131586	2.521106402	18137	35.965691	3.17011279
2003	7.5898866	31.3612108	35.431	9.904054	3.06929685	2.536840002	27449	39.7879	2.96405208
2004	30.356582	-0.954719321	18.28738	7.39337	2.46175926	2.559239258	38102	30.160752	2.13336208
2005	0.8046647	12.37453996	19.09139	5.458996	1.46215954	2.585221806	56994	31.656971	4.43884814
2006	5.422785	60.21777684	21.49798	8.265865	1.82390071	2.610391076	59233	43.11133	3.33793703
2007	4.0537147	-17.65217788	30.73439	9.249637	2.08998287	2.631653992	67494	33.728521	3.62630063
2008	3.4921574	28.76530983	25.08984	8.323477	0.96492501	2.648967087	88024	39.883129	3.93891762
2009	4.1261868	-30.70184232	31.03424	12.08816	3.46025918	2.661221335	58385	30.768616	5.04760102
2010	4.9998333	53.5236436	17.38727	16.5552	3.59174137	2.668746857	82699	25.264116	1.6328488
2011	2.1190936	25.7927163	21.4643	15.53394	3.36983141	2.674754962	102438	31.329805	2.14723652
2012	1.5240856	-3.588971903	12.94139	14.16254	3.23084127	2.677659222	98524	31.438748	1.53376188
2013	2.6146256	-21.7365175	12.99895	14.16873	4.77672886	2.672918606	99419	18.049907	1.08024035

2014	3.5196242	24.0850306	12.45007	15.08353	7.35696925	2.659550701	83903	18.435126	0.81820134
2015	-0.022235	-0.268911012	10.66634	14.82718	29.0158397	2.640357135	50079	10.631935	0.65215952
2016	-4.160107	11.90806	11.50441	14.95536	17.9521453	2.619033526	38312	14.533531	1.09849818

Source: World Bank, World Development Indicators, National Bureau of Statistics, Central Bank of Nigeria, and United Nations Conference on Trade and Development Database (Various Years).

.

Appendix 2: Graph of Diagnostic Tests

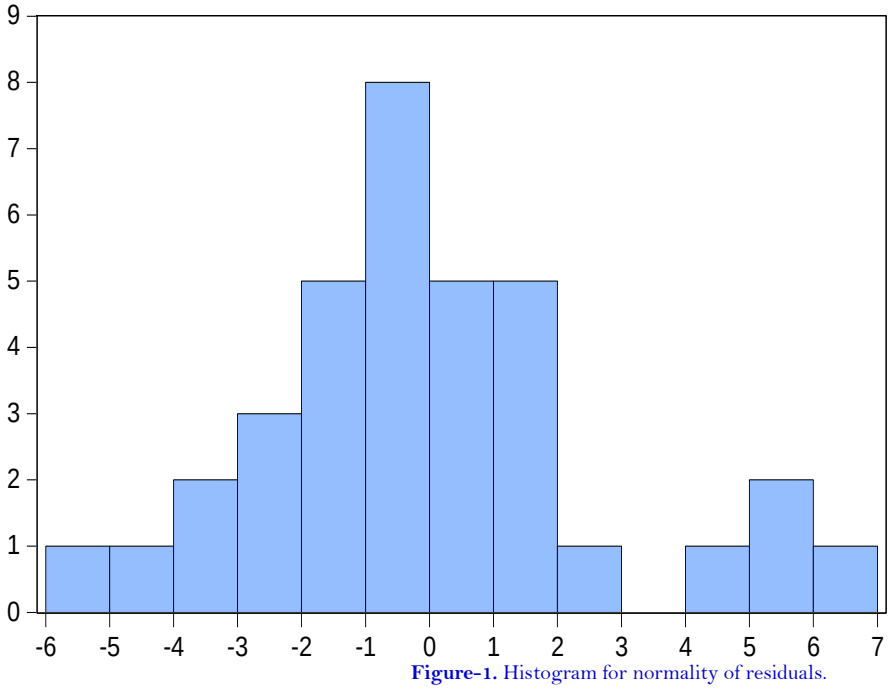

Figure-1. Histogram for normality of residuals.