

Research article

# THE IMPACT OF EXPORT TRADING ON ECONOMIC GROWTH IN NIGERIA

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## ABSTRACT

The paper employed OLS to determine the impact of oil and non-oil export on economic growth while granger causality test was employed to determine the direction of causality between the variables under consideration. Correlation analysis was also deployed to determine the degree of relationship between the variables and the result showed that all the variables are highly correlated. The study uses annual time series data from 1986-2011, obtained from the Central Bank of Nigeria (CBN) statistical bulletin. The study reveals that oil export has a positive and significant impact on economic growth in Nigeria proxied by GDP. Non-oil export was also found to be positively and significantly impacting to economic growth in Nigeria proxied by GDP. Foreign reserve also has a positive and significant impact on economic growth. The result shows that the overall regression was statistically significant at both 99% and 95% level of confidence. The result of  $R^2$  (0.99) shows that the line of best fit was highly fitted. The result of the granger causality test shows that GDP granger causes OEXP and FRESV, and OEXP granger causes NOEXP, while NOEXP also granger causes FRESV. The study finds that, growth-led-export hypothesis is valid in Nigeria context. We therefore recommend among other things, that the government should take urgent steps to restructure the oil sector so as to improve their contribution to the growth of Nigerian economy. The government should introduce more policies and program that will adequately boost the non-oil sector of the Nigeria economy so that it will impact more meaningfully on economic growth of the country; other programs that encourages increase in foreign reserve should also be adopted in other to increase the growth of the economy. **Copyright © IJEBF, all rights reserved.**

**Key words:** Oil-Export, Non-oil Export, Economic Growth, Foreign Reserve,

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## 1.0 INTRODUCTION

Growing the economy has become the target of most government in the developing economies of the world. Over the years, these governments have adopted a number of measures aimed at accelerating growth and development in their domestic economy. The need to improve the living standard of the citizenry, reduce unemployment, increase capacity utilization which leads to increased productivity, as well as increase in Foreign Exchange Earnings etc, has led to the introduction of vibrant economic policies in Nigeria and other developing nations of the world. According to Azam (2009) the drift from trade restricted economy to trade liberalization is attributed to positive relationship that exists between export and economic growth.

Bhagwati (1973) noted that for efficient utilization of available scarce resources and for expanding global trade volume, freer trade in goods and services is highly beneficial. And so, to enjoy the advantage of this free trade, Nigeria has adopted trade liberalization policy with a view to increase export of goods and services which increases capacity utilization as well as foreign exchange earnings. Economists often assert that trade liberalization improves social welfare and alleviates poverty, because it generates job opportunities, fosters economic growth and improves consumer choice and living standard of the societies. Reacting to this Fouad (2005) noted that exports of goods and services represent one of the most important sources of foreign exchange income that ease the pressure on the balance of payments and create employment opportunities, increase productivity and enhance the living standard of the citizenry. Exporting is associated with static gains that include access to larger outside markets, hence exploiting economies of scale. There are also dynamic gains that include efficiency advances as a result of knowledge and technological spillovers from exporting experience. Exporting is also associated with efficiency in resource allocation, employment generation, and relaxing the foreign exchange constraints (Bbaale and Mutenyio 2011).

The present literature presents several plausible theoretical arguments supporting the view that exporting activities and overall economic growth are positively associated. On the one hand, exporting implies that a country gains access to the wider external demand, which acts as a stimulus to domestic output and hence economic growth. Second, it is frequently argued that small domestic markets may not grow continuously and that any positive economic shock leading to the expansion of the domestic market is more likely to decay quickly. On the other hand, large external markets do not always encompass growth restrictions on the demand side, and this leads to the exploitation of economies of scale (Bbaale and Mutenyio, 2011).

Therefore, export expansion can be argued to be a stimulus of economic growth (Agosin, 1999; Giles and Williams, 2000; Grossman and Helpman, 1991). Additionally, Verdoorn (1949) dwells on the argument that export growth may generate specialization in the production of export commodities. By extension, specialization is argued to lead to efficiency gains in the export sector owing to the rise in skills due to learning-by-doing. Consequently, resources would flow from the relatively less productive and non-trade sector to the highly productive exports sector, leading to economic growth. On the same vein, Futher, Chenery and Strout (1966), Balassa (1978), Buffie, (1992) and Riezman (1996), dwell on an indirect argument linking exporting to economic growth. They argue that exporting activities generate foreign exchange that is required to import capital goods. Increase in capital goods imports in turn stimulate a country's capacity to produce. This is more pronounced in developing countries that have an extreme disadvantage in the production of capital goods. In the same line of argument, it is suggested that the most up-to-date knowledge and technology is embodied in the capital goods (plants and equipments) imported from technologically advanced countries. This knowledge transfer through international trade may increase productivity and, by extension, lead to economic growth and development (Hart, 1983 and Chuang, 1998).

There exists enormous Empirical evidence on the relationship between exports and economic growth tested in a number of countries, employing time series techniques. It is noteworthy that the evidence generated does not translate into a consensus on the direction of causality of the two series. For that matter, the relationship between exporting and economic growth remains controversial issue for both researchers and academics alike (Bbaale and Mutenyio, 2011). Some authors have argued that export growth precedes economic growth hence giving a stance to the export-led-growth (ELG) hypothesis (Arnade et al., 1995; Fosu 1996; Thornton 1996). On the other hand, others have provided evidence in support of the growth-led-export hypothesis (GLE) by arguing that economic growth

precedes export growth (Lancaster, 1980; Krugman, 1984; Henriques and Sadorsky 1996; Al-Yousif 1999; Kemal et al., 2002). The stance of this argument is such that economic growth leads to knowledge and technological development in the various sectors of an economy through the learning-by-doing effect. This effect on the economy becomes a vehicle for export growth especially in those commodities where the country enjoys a comparative advantage. Other authors argue that there is a feedback relationship between export growth and economic growth (Helpman and Krugman, 1985; Dutt and Ghosh, 1994; Thornton 1996; Shan and Sun 1998a; Anwar et al., 2000;). The arguments presented along these lines are that exports may arise from the economies of scale effects of economic growth. At the same time, export expansion may propel further cost reductions leading to efficiency gains, and by extension, leading to economic growth. At an extreme end, some authors find no causal relationship between the two series (Mutairi, 1993; Anwar et al., 2000). So many researchers have looked at single country effect of export on economic growth, while there are also substantial authors who have examined cross-country empirical literature on the effects of exports on growth (Voivodas, 1973; Michaely, 1977; Balassa, 1978; Fajana, 1979; Fosu 1990; Lussier 1993; Greenaway and Sapsford, 1994; and Sala-i-Martin, 1997).

In this work the author seeks to evaluate export-led-growth with a particular reference to Nigeria. However, it is important to note that most of the recent and earlier literature on exports and economic growth concentrated on „aggregate exports“ only. The major deficiency of this approach is that it limits our understanding of the important differences between dissimilar export components and their influence on economic growth. It is argued that even if there is a growth-enhancing or growth-limiting effect of a particular export component, it may not be reflected at the aggregate level, and this may lead to unauthentic conclusions and implications for policy (Ghatak et al., 1997 in Bbaale and Mutenyo, 2011). All the cross-country studies cited above do not explicitly investigate the effect of disaggregated exports on economic growth.

However, there is quite scanty literature investigating the role of export composition on economic growth (Feder, 1983; Fosu, 1990; Ghatak et al., 1997; Hussain, 1998; Greenaway et al., 1999; Srinivasan et al., 2001; Herzer et al., 2004; Giles and Williams (2000); Bbaale and Mutenyo, 2011; and Wörz (2005). Additionally, the literature addressing the subject, apart from Fosu (1990), and Bbaale and Mutenyo, 2011 is overly concentrated on Asia, Latin America, and Europe. This leaves a huge knowledge gap for Africa and Nigeria in particular and this gap is what this paper seeks to fill. This paper tests the hypothesis that not only the aggregate exports per se matter, but that different export components have a differential influence on economic growth in Nigeria. The author believes that the impact that oil export will have on the economy will be different from that of non-oil export. In other words, the type of products (oil and non-oil) that Nigeria exports to other countries of the world really matters for the growth of Nigerian economy.

This is connected to the argument documented by Feder (1983) and Wörz (2005) that efficiency, knowledge spillover, and economies of scale are different across different export components. This, in turn, implies that their growth stimulating power is obviously different. Therefore, the question of interest from the policy perspective extends beyond the influence of aggregate exports on growth and dwells on whether export components have a differential stimulating power on economic growth in Nigeria. Gaining insights on the differential impact of export components on growth is a key to successful policy formulation, analysis, and advocacy. This paper is structured as follows: after this introduction, section two will review the related literature, section three will consider the methodology that was adopted for the analysis of this work, section four will present the interpretation of data analysis, and section five will look at the conclusion and recommendations of the study.

## **2.0 REVIEW OF RELATED LITERATURES**

### **2.1 THEORETICAL REVIEW**

The literature on international trade which suggests that exports have a positive impact on economic growth is known as the Export-led-growth (Giles & Williams, 2000). Different reasons have been proposed for explaining the evidence found in previous studies dealing with this issue on export-led growth. The simplest explanation is that, as

the contribution to growth made by domestic consumption is limited to the size of regional (or national) markets, sales to foreign markets represents an additional consumption demand which increases the amount of real output produced in the economy (Giles & Williams, 2000). Another more elaborated explanation is that exporting is associated with more productive firms (Bernard & Jensen, 1999; Bernard & Wagner, 1997), and thus export-led growth at aggregate level may be the result of both the accumulation of within-firm productivity gains from export participation, or the reallocation of resources from comparatively less productive non-exporters to more productive exporters (Bernard & Jensen, 2004; Roberts & Tybout, 1991).

According to Uche (2009), the relevance of exports in boosting economic growth and prosperity is captured in the theoretical justification for international trade. In the mercantilist economic thought, for instance, foreign trade is seen as an indispensable engine of economic growth and prosperity (Roll, 1953; Bhatia, 1978). Indeed, foreign trade under mercantilism is considered to be profitable only when there is positive balance of trade thus implying that exports are the most crucial aspect of international trade. But as pointed out by Ozughalu and Ajayi (2004), if every country ensures that it gets a surplus in international trade, there will be high degree of protectionism and many barriers to the flow of foreign trade; and these are incompatible with the essence of globalization. A highly robust theoretical underpinning for international trade lies in the classical economic theory of comparative cost advantage. The theory of comparative cost advantage states that global output will reach its optimum level if every country specializes in the production of the commodity (or commodities) in which it has comparative cost advantage over others; this is seen as the basis for profitable trade (Ozughalu and Ajayi, 2004). In contemporary economics, the dominant model of comparative cost advantage is known as Heckscher – Ohlin model.

As pointed out by Sodersten and Reed(1994), this is a theory of long-term general equilibrium in which two factors of production – labour and capital – are both mobile between sectors. The Heckscher – Ohlin theory postulates that international trade – of which exports are expected to constitute the major component – will significantly reduce the gap between the rich and poor countries. The theory contends that inter-country differences in factor endowments are the basis for foreign trade. Comparative cost advantage comes as a result of different factor intensities in the production of various commodities (Sodersten and Reed, 1994).

The Heckscher-Ohlin theory also implies that free trade specialization in production based on relative factor endowments will tend to bring about factor price equalization and thus will increase the returns to labour in poor countries to the levels in rich countries; this suggests that international trade in general and exports in particular have the ability to mitigate inequality in income and wealth distribution between and within nations as well as the ability to bring about a convergence in absolute poverty incidence between the rich and poor countries (Ozughalu and Ajayi, 2004).

The relationship between exports and economic growth has always been a hot issue and has often generated heated debate among economists and policy makers. As observed by Lin and Li (2007), there are basically two approaches used in addressing the issue. The first approach has to do with studying the contribution of exports to the economic growth of an economy through analysis of the supply side of the economy. This approach emanates from the neo-classical economic growth theory/model. The approach states that the major source of economic growth lies in two major areas namely: increases in factor input(s) and improvements in efficiency. Following the above statement, analysis from the approach often regards exports as a factor that can affect technological progress or to be among factors that are related to economic efficiency. In practical terms, the contribution of exports is thought to be included in the residuals of growth accounting.

It is noteworthy that the new growth theory/model endogenises the mechanism through which exports impact on economic growth. In line with this theory/model, Grossman and Helpman (1990) proposed a two-nation growth model with endogenous technological progress. As shown in their model, exports help to promote technology and knowledge and thus accelerate economic growth. It is instructive to state here that how to introduce exports into the production function is the major problem involved in the econometric analysis that follows the neo-classical approach. Some analysts directly include exports in the production function as the third variable while others use more sophisticated methods. The second approach is to study the contributions of exports to a country's economic

growth through analysis of the demand side of the country's economy. The demand side approach is also called demand oriented analysis or post-Keynesian analysis.

According to the traditional Keynesian theory, an increase in exports is one of the factors that can cause increases in demand and thus will surely bring about increases in outputs, all other things being equal (Lin and Li, 2007). It is important to note that though this approach is highly sophisticated and robust, it has not been widely used. This is partly because of the remnant of Say's law in people's mind (McCombie and Thirlwall, 1994). Indeed most people believe that the major constraints of modern economic growth lie on the supply side instead of on the demand side. In other words, they believe that only increases in factor inputs and improvements in economic efficiency can stimulate economic growth (Lin and Li, 2007). However, proponents of the demand- oriented analysis disagree with the above view and argue persuasively that it is growth in exports that is the major stimulant of aggregate economic activity and economic growth.

Thirlwall(1987), McCombie (1985), McCombie and Thirlwall (1994, 1997 and 1999) and others later developed the argument of the proponents of the demand-oriented analysis into a powerful theoretical framework that analyses the relationship between exports and economic growth. Put briefly, the theoretical framework has the following characteristics: (a) contrary to popular belief, the Keynesian theory/model can be used to analyze long-term phenomena such as economic growth; (b) exports are an autonomous component of demand; (c) the role that exports play in an open economy model is as important as investment in a closed economy model; and (d) the role of the balance of payments as a constraint on economic growth is important.

## 2.2 EMPIRICAL REVIEW

It is important to note that a large number of studies on the importance of exports in economic performance and the relationship between exports and aggregate economic activity/economic growth have been conducted over the years, particularly in recent years. It is gratifying to observe that in recent times, there has been great and increasing interest in the study of exports and economic growth within the context of developing countries; a great number of research works have captured this interest. The research works may be said to be of two main categories. The first category concentrates on individual countries and assesses the implications of export promotion versus import-substitution strategies for economic growth (Bhagwati,1978 and Krueger,1978).

As observed by Fosu (1990), such analyses may provide useful country specific information on the success or failure of various development mechanisms, at least as they relate to the period of analyses. However, the long gestation periods associated with economic projects, in conjunction with the usual lack of adequately detailed data for individual countries, may prevent the proper evaluation of the importance of exports in any general fashion. The second category of studies examines the extent to which export performance differences may explain inter-country economic growth differentials. Studies in this category include Balassa (1978 and 1985), Ram (1985), Feder (1982) and Michaely (1977). Most of These studies employed a production function framework that included exports as an additional argument of the production function.

As shown by Fosu (1990) in Uche (2009), the standard justification for such a treatment is based on the fact that the development of exports allows the home country to concentrate investment in those sectors where it enjoys a comparative advantage and the resulting specialization is likely to augment overall productivity; similarly the larger international market permits economies of scale to be realized in the export sector; in the same way worldwide competitive pressures are likely to reduce inefficiencies in the export area and result in the adoption of more efficient techniques in the overall traded goods sector; and a larger export sector would make available more of the resources necessary to import in a more timely fashion both physical and human capital, including advanced technologies in production and management, and for training higher quality labour. The numerous studies on exports and economic growth as found in the literature were conducted along various methodological lines.

The early studies examined the simple correlation coefficient between export growth and economic growth (Michaely, 1977 and Balassa, 1978). These studies in general concluded that there is strong evidence in favour of

the export-led growth hypothesis based on the fact that export growth and economic growth were found to be highly correlated. The principal weakness of this group of studies is that they used a high degree of correlation between the two variables as evidence supporting the export-led growth hypothesis. But high degree of correlation between the two variables is not a sufficient condition to validate the export-led growth hypothesis. It is well known in econometrics and statistics that correlation does not necessarily imply causality.

Following the early group of studies on exports and economic growth, we have the next group, which may be called the second generation of studies on the issue. This group examined whether or not exports are driving output by estimating output growth regression equations based on the neoclassical growth accounting technique of production function analysis, including exports or export growth as an explanatory variable (Feder, 1982; Balassa, 1985; and Ram, 1987). This second generation of studies used a highly significant positive value of the coefficient of export growth variable in the growth accounting equation and a significant improvement in the coefficient of determination with the inclusion of the export growth variable in the regression equation as evidence for the export-led growth hypothesis. This group of studies has been severely criticized based mainly on a methodological issue (Ekanayake, 1999). The studies in general made a priori assumption that export growth causes output growth and they did not consider the direction of causal relationship between the two variables.

There is a third generation of studies, which is relatively recent. This group of studies laid emphasis on causality between export growth and economic growth. This approach has been taken in a large number of recent studies designed to assess whether or not individual countries exhibit evidence for export-led growth hypothesis using Granger (1969) or Sims (1972) causality test (Ahmad and Kwan, 1991; Serletis, 1992; Jin and Yu, 1995; and Holman and Graves, 1995). The major weakness of this generation of studies (that are based on causality tests) is that the traditional Granger and Sims causality tests used in the studies are only valid if, among other things, the original time series are not co-integrated; the tests are invalid and misleading when the original time series are integrated of order one and are co-integrated. (Granger, 1980, 1986 and 1988; Engel and Granger, 1987; and Ahmad and Harnhirun, 1996).

Therefore, there is need for one to check for stationarity and co-integration properties of original exports and output time series before using Granger or Sims causality test. Despite the weaknesses associated with the techniques adopted by the foregoing generations of studies they are still very relevant for they can provide useful insights on the relationship between exports and economic growth. Indeed the techniques serve as simple and handy analytical methods of testing the validity of the export-led growth hypothesis and other related hypotheses. It is interesting to point out here that there have been relatively new studies on exports and economic growth that have used modern econometric techniques of co-integration and error-correction models (Oxley, 1993; Ghatak, Milner and Utkulu, 1997; and Islam, 1998).

As observed by Ekanayake (1999), this new generation of studies does not suffer from the shortcomings found in the methodologies adopted in the previous studies. In fact, the new group of studies has produced highly robust and reliable results; this is largely because they used modern econometric techniques that are not only highly sophisticated but also highly efficient.

There is a dearth of studies on exports and economic growth based on modern econometric techniques in Nigeria. The few studies on exports and economic growth in Nigeria that used modern econometric methods that is within our reach include Ekpo and Egwaikhide(1994), Odusola and Akinlo(1995), Idowu(2005) and Uche (2009). These studies suffer from some methodological defects. Ekpo and Egwaikhide(1994) analyzed the relationship between exports and economic growth within the framework of a general production function. The study employed modern econometric techniques of co-integration and error correction model in its analysis. In particular, the study used the Engel-Granger two-step procedure of co-integration as well as the associated error correction modeling technique in the analysis. The study in general validated the export-led growth hypothesis for Nigeria. However, the study did not address the issue of causality and the direction of causality. Suffice it to say that the issue of causality is very crucial in assessing the validity of the export-led growth hypothesis.

Oduola and Akinlo(1995) as cited by Uche (2009) used the traditional Granger causality test in examining whether the export-led growth hypothesis is valid for Nigeria. The results of the study indicated that a bidirectional (or feedback effect) relationship between exports and economic growth exists in Nigeria. Thus the study validated both the export-led growth hypothesis and the growth-driven export hypothesis for Nigeria. Though the study examined the stationarity properties of the variables used, it did not consider the issue of co-integration. The issue of co-integration is very important in determining whether or not to apply the traditional Granger (1969) causality test in the analysis of causality.

Idowu(2005) used the traditional Granger causality and Johansen co-integration tests in his analysis of exports and economic growth in Nigeria. The results of the study showed a bi-directional causality and long-run relationship between exports and economic growth in Nigeria. However, given that the variables in question (i.e. exports and GDP) are integrated of order one and are co-integrated, the use of the traditional Granger (1969) causality test is not appropriate; Granger causality test should have been done in the framework of error correction model. Given the methodological defects of the aforementioned earlier studies on exports and economic growth in Nigeria their results are apparently suspect.

Uche (2009) in his studies employed econometric methodologies to assess the impact of oil export and non-oil export on the growth of Nigerian economy and discovered that there is a unidirectional causality from oil export to GDP which goes to support the export-led-growth in the case of Nigeria but with reference to oil sector only. He also found non-oil export does not granger cause economic growth in Nigeria. This work followed most of the set rules in econometric analysis and may have generated a robust result but was not able to cover up to 2011 period, and government have taken a number of steps to improve the non-oil sector of the Nigerian economy and the effect of these policies and programe by the government may have improved the impact of non-oil sector to the growth of Nigerian economy. And so, a resent look at this subject area becomes important to give consideration to the responds of these government policies and program aimed at improving the non-oil sector of the economy. Thus this study intends to correct these methodological defects in most of the works mentioned. It is worthwhile to further point out that the earlier studies did not recognise the dichotomy between oil exports and non-oil exports except Uche (2009).

In Nigeria, oil exports have overwhelmingly dominated non-oil exports for many years now. Thus, in any econometric modeling, it is important to specify oil and non-oil exports separately instead of combining them together as total exports. This will provide some insights as to the relative impact of each category on economic growth. This study specifies oil and non-oil exports separately and this approach paves the way for robust analysis. It is important to point out here that where the impact of exports on economic growth is considered to be direct such as the case of Nigeria, both short-run and long-run modeling may include only exports and economic growth variables (Idowu, 2005).

### 3.3 Model Specification

A model is a mathematical representation of a reality, it is also a simplified view of reality designed to enable a researcher describe the essence and inter-relationship within the system or phenomenon it depicts (Yomere and Agbonifoh, 1999). In order to achieve the objectives of this work, a linear Multiple regression model was formulated and the Granger causality tests were conducted to determine the direction of causality between the variables under consideration. We state the model as follows:

$$GDP_t = b_0 + b_1ROEXP + b_2RNOEXP + b_3FRESV_t + U_t... \quad \dots \quad \dots \quad \dots \quad \dots (1)$$

Where,

$GDP_t$  = Gross Domestic Product at time t

$OEXP_t$  = Oil Export at time t

$NOEXP_t$  = Non-oil Export at time t

$FRESV_t$  = Foreign Reserve at time t

$b_0$  = intercept,

$b_1$ -  $b_2$  = parameters to be estimated,

$U_t$  = white noise error term.

According to Cameron (1994) and Ehrlich (1996) a log- linear form is more likely to find evidence of a deterrent effect than a linear form, we therefore log-linearize the equation as follow:

$$LOGGDP_t = b_0 + b_1LOGROEXP + b_2LOGRNOEXP + b_3LOGFRESV_t + U_t \dots \dots \dots (2)$$

The theoretical expectations of the above equation are as follows:

$$b_1 > 0, b_2 > 0, b_3 > 0,$$

### 3.5 TECHNIQUES OF DATA ANALYSIS

This work used OLS multiple regressions analysis to determine the effect of the independent variable on the dependent variable. And so, to improve on the linearity of the model we introduced log in the model. The choice of OLS is mainly because it minimizes the error sum of squares and has a number of advantages such as unbiasedness, consistency, minimum variance and efficiency; it is widely used based on its property of BLUE (Best, Linear, Unbias, Estimate), it is also simple and easy to understand. (Koutsoyannis: 1971; Gujarati: 2004). The E-view econometric software 3.0 was used for this analysis. The statistical test of parameter estimates was conducted using their standard error, t-test, F-test, R, and  $R^2$ . The economic criteria shows whether the coefficients of the variable conform to the economic a priori expectation, while the statistical criteria test were used to assess the significance of the overall regression.

### 3.6 THE GRANGER CAUSALITY TEST

To determine whether there is granger causality between FDI and economic growth in Nigeria which will help us achieve the third objective, the following Granger causality test was conducted. This model is in line with Adeolu (2007), Engle and Granger (1987), Khan, (2007) and Egbo (2010)

$$GDP_t = C_1 + \sum \alpha_i GDP_{t-1} + \sum \beta_1 OEXP_{t-1} + \sum \beta_2 NOEXP_{t-1} + \sum \beta_3 FRESV_{t-1} + \Sigma_{it} \dots \dots \dots (3)$$

$$OEXP_t = C_2 + \sum \delta_i OEXP_{t-1} + \sum \delta_1 NOEXP_{t-1} + \sum \delta_2 GDP_{t-1} + \sum \delta_3 FRSEV_{t-1} + \Sigma_2 t \dots \dots \dots (4)$$

$$NOEXP_t = C_3 + \sum \delta_i NOEXP_{t-1} + \sum \delta_1 OEXP_{t-1} + \sum \delta_2 GDP_{t-1} + \sum \delta_3 FRSEV_{t-1} + \Sigma_3 t \dots \dots \dots (5)$$

$$FRSEV_t = C_4 + \sum \delta_i FRSEV_{t-1} + \sum \delta_1 NOEXP_{t-1} + \sum \delta_2 OEXP_{t-1} + \sum \delta_3 GDP_{t-1} + \Sigma_4 t \dots \dots \dots (6)$$

Where  $C_1$  and  $C_4$  are constants,  $\Sigma_{it}$  and  $\Sigma_{4t}$  the stochastic term.

A Wald F-Test was used to test the following hypotheses:



H<sub>01</sub>: OEXP does not Granger cause GDP

H<sub>02</sub>: NOEXP does not granger cause GDP

H<sub>03</sub>: FRSEV does not granger cause GDP

H<sub>04</sub>: GDP does not Granger cause OEXP.

H<sub>05</sub>: NOEXP does not granger cause OEXP

H<sub>06</sub>: FRESV does not granger cause OEXP

H<sub>07</sub>: OEXP does not granger cause NOEXP

H<sub>08</sub>: GDP does not granger cause NOEXP

H<sub>09</sub>: FRESV does not granger cause NOEXP

H<sub>010</sub>: NOEXP does not granger cause FRESV

H<sub>011</sub>: OEXP does not granger cause FRESV

H<sub>012</sub>: GDP does not granger cause FRESV

We retain, in this regression, all lagged values of independent variables that are individually significant according to their t-statistics. Hence, the null hypothesis that the independent variable does not Granger-cause the dependent variable is accepted if and only if no lagged values of independent variables are retained in the regression.

## 4.2 DATA ANALYSIS

At this section we looked at the result of the estimation done with a view to determining the impact of export on the growth of Nigerian economy.

**TABLE 4.2 THE MULTIPLE REGRESSION RESULT FOR HYPOTHESIS ONE AND TWO**

Dependent Variable: LOG(GDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.641293	0.287660	9.181998	0.0000
LOG(OEXP)	0.619361	0.071628	8.646967	0.0000
LOG(NOEXP)	0.287250	0.084067	3.416925	0.0025
LOG(FRESV)	0.060220	0.022237	2.708055	0.0128
R-squared	0.992586	F-statistic		981.7207
Adjusted R-squared	0.991574			
Durbin-Watson stat	1.556908	Prob(F-statistic)		0.000000

**SOURCE:** Researcher's E View Results

$$\text{InGDP} = 2.641293 + 0.619361\text{InOEXP} + 0.2872501\text{InNOEXP} + 0.060220\text{InFRESV} + \text{ut} - (7)$$

From equation 7 above, the constant term is 2.641293, this is the intercept of the regression line indicating that the value of Gross Domestic Product (GDP) will be 2.641293 if other variables in the equation is held constant. The coefficient of Oil Export is positive (0.619361) and is statistically significant with a probability value 0.0000 < 0.05.

This implies that for every 1% increase in the value of Oil Export holding other variables constant, the Gross Domestic Product (GDP) will increase by 0.619361.

**Table 4.3 Correlation Results of Hypothesis One**

	GDP	OEXP
GDP	1.000000	0.984245
OEXP	0.984245	1.000000

Source; Researcher's EVIEW Result

The correlation result as indicated from table indicates that there is a high positive correlation between Oil export and economic growth. This was indicated by the correlation coefficient (R) = 0.98 which is positive as indicated by the beta coefficient of the independent variable (OEXP). The implication is that as the Oil Export changes; it will bring about 98% variations in the Economic growth in Nigeria.

The coefficient of Non-oil export is positive (0.287250) which implies that a 1% increase in Non-oil Export will result to 0.287250 increases in economic growth in Nigeria for the period under review. The result of the probability of the t-statistics is 0.0025 which is less than 0.05 implies that there is a statistical significant relationship between non-oil export and economic growth in Nigeria.

**Table 4.4 Correlation Results of Hypothesis Two**

	GDP	NOEXP
GDP	1.000000	0.981231
NOEXP	0.981231	1.000000

Source; Researcher's EVIEW Result

The correlation result as indicated from table indicates that there is positive correlation between Non-oil export and economic growth. This was indicated by the correlation coefficient (R) = 0.98 which is positive as indicated by the beta coefficient of the independent variable (NOEXP). The implication is that as the non-oil export changes, it will result to about 98% variations on the growth of Nigerian economy.

The coefficient of foreign reserve which was used as a control variable shows a positive relationship with GDP. This implies that an increase in foreign reserve by one percentage point GDP will increase by 0.060220. The result of the t-statistics (0.012) indicates that foreign reserve has a statistically significant impact on GDP. Based on this we state that foreign reserve has a positive and significant impact on GDP for the period under review. The Coefficient of determination ( $R^2$ ) is 0.992586. This is very high goodness of fit indicating that 99% of the variation in the dependent variable (GDP) is explained by changes in independent variable. The Durbin Watson (d test statistic) was 1.556908 which approximately 2 is line with the rule of thumb value of 2 indicating that there was no sign of autocorrelation in the model. The result shows that the overall regression is statistically significant with F-statistics of 981.7207 and the prob(F-statistics) of 0.0000. This indicates that the overall regression is statistically significant at both 99% and 95% degree of confidence. Significance means that we can accept our model implying that Oil and Non-oil Export has a significant impact on the gross domestic product of Nigeria. In other words, it implies that the variables included in the model best explain the variations on economic growth in Nigeria.

## TABLE 4.5 PAIRWISE GRANGER CAUSALITY TESTS

Date: 06/19/13 Time: 10:37

Sample: 1986 2011

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
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OEXP does not Granger Cause GDP	24	0.88837	0.42774
GDP does not Granger Cause OEXP		4.35331	0.02777
NOEXP does not Granger Cause GDP	24	1.14642	0.33880
GDP does not Granger Cause NOEXP		2.53767	0.10549
FRESV does not Granger Cause GDP	24	3.19632	0.06360
GDP does not Granger Cause FRESV		5.08709	0.01701
NOEXP does not Granger Cause OEXP	24	2.71143	0.09206
OEXP does not Granger Cause NOEXP		4.99404	0.01807
FRESV does not Granger Cause OEXP	24	1.89577	0.17755
OEXP does not Granger Cause FRESV		19.4619	2.5E-05
FRESV does not Granger Cause NOEXP	24	2.32137	0.12532
NOEXP does not Granger Cause FRESV		3.24582	0.06129

Source: Researcher's E view result.

From table 4.5, the granger causality test indicates that Oil export (OEXP) does not Granger Cause Nigeria's gross domestic product (GDP) (f statistic = 0.88837 > p value = 0.42774). This implies that the volume of the oil export does not cause economic growth in Nigeria for the period of this study. Also as indicated from the table Nigeria's gross domestic product granger cause oil export (f statistic = 4.35331 > p value = 0.02777). Again the result also indicates that economic growth granger cause oil export in Nigeria. This however means that there is a unidirectional causation between economic growth and oil export in Nigeria. This however, upholds the growth-led-export hypothesis in Nigerian economy.

From table 4.5, the granger causality test indicates that non-oil export (NOEXP) does not Granger Cause Nigeria's gross domestic product (GDP) (f statistic = 1.14642 > p value = 0.33880). This implies that the non-oil export trading does not granger cause economic growth in Nigeria for the period under study. As indicated from the table again Nigeria's gross domestic product does not granger cause non-oil export (f statistic = 2.53767 > p value = 0.10549). Therefore, from the result above, economic growth does not granger cause non-oil export in Nigeria for the period under study. This result also shows no causation or feedback effect between non-oil export trading and economic growth in Nigeria for the period under review.

From table 4.5, the granger causality test also indicates that Foreign reserve (FRESV) Granger Cause Nigeria's gross domestic product (GDP) at 10% level of significance (f statistic = 3.19632 > p value = 0.06360). This implies that foreign reserve granger cause economic growth in Nigeria for the same period under study. As indicated from the table also Nigeria's gross domestic product granger cause Foreign reserve also at 10% level of significance (f statistic = 5.08709 > p value = 0.01701). This result shows bidirectional causality between foreign reserve and economic growth in Nigeria.

Again from the table above, the granger causality test indicates that oil export (OEXP) Granger Cause non-oil export (NOEXP) in Nigeria (f statistic = 2.71143 > p value = 0.09206). This implies that the oil export granger cause non-oil export trading in Nigeria for the period under study. As indicated from the table also, non-oil export (NOEXP) trading granger cause oil export (OEXP) (f statistic = 4.99404 < p value = 0.01807).

Again from the table above, the test of granger causality effect between the independent variable indicates that the oil export does not granger cause foreign reserve (f statistic = 1.89577 > p value = 0.17755). Again, from the table, foreign reserve does not granger cause oil export (f statistic = 19.4619 > p value = 2.5E-05).

Finally Table 4.5, reveals that, non-oil export trading does not granger cause foreign reserve (f statistic = 2.32137 > p value = 0.12532). Again, from the table, the result indicates that the volume of foreign reserve granger cause the non-oil export in Nigeria at 10 % level of significance (f statistic = 3.24582 > p value = 0.06129). This indicates unidirectional causality between the two independent variables.

## 5.1 CONCLUSION

This study, as one of the empirical investigations on the relationship between export and growth in Nigeria has provided a good understanding of the impact that export has on the growth of Nigeria's economy with particular reference to oil and non-oil export. The study covered the period of 1986 to 2011 and time series data obtained from CBN were used. The econometrics tools used in this study include; Ordinary Least Squares (OLS) and Granger Causality test which were used to determine the level of impact that one variable has on the other as well as the direction of causality between them. The result arising from our findings indicates that oil export positively and significantly impacted on the growth of Nigeria's economy for the period under review. It was also shown in the result that non-oil export has a positive and significant impact on GDP. The result of the granger causality test indicates that there is unidirectional causality between oil export and GDP,. This finding is in line with that of Odusola and Akinlo(1995), Ekpo and Egwaikhide(1994) and Idowu(2005) who used the traditional Granger causality test in examining whether the growth-led-export hypothesis is valid for Nigeria. The results of the study indicated that a unidirectional relationship between exports and economic growth exists in Nigeria. Based on this, we conclude that growth-led-export hypothesis is applicable in the Nigeria context. Therefore to improve the living standard of the populace emphasis should not be directed only to the export sector of the economy but should be far reaching as the growth in the economy also has the potential to drive the export sector of the economy.

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