EXPORT-LED GROWTH HYPOTHESIS: EVIDENCE FROM NIGERIA

By

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DEDICATION

I dedicate this work to Almighty Allah for giving me the wisdom, understanding and guidance throughout my life and my study at the Kingston University London.

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Abstract

This study investigated the export-led growth hypothesis in Nigeria using quarterly time series data from 196q1 to 2013q4 making the sample of 112 observations. The study examined the long-run and short-run equilibrium relationships between exports; imports and economic growth over the study period. The study used Johansen cointegration technique, granger causality, and vector error correction mechanism in the analysis of data. It also used the impulse response function and variance decomposition. The variables used were found to have the same order of integration and the empirical evidence strongly suggested the existence of long-run cointegration relationship among import, export and economic growth in Nigeria. The study also found causality running from export to import and from economic growth to import. However, there was no empirical evidence in support of the export-led growth hypothesis. The error correction term was correctly signed and statistically significant indicating long run equilibrium relationship between the three variables. However, there was no short run causality from both export and import to economic growth. The impulse response function, as well as variance decomposition results, showed that the shock of the income to export is positive in most quarters. The result also identified a mixture of both positive and negative shocks from income to import. The study recommended that Nigerian export base should be developed by given more attention to non-oil sector of the economy to augment the oil sector of the economy.

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INTRODUCTION

Export-led growth is an economic theory that has been practiced by most developing countries in an effort to revamp their economic growth and boost standards of living of their citizens. The export-led growth hypothesis (ELGH) implies that export growth is one of the crucial determining factors of economic growth. The rationale behind this assertion is that overall growth of countries can be enhanced not only by increasing the volumes of labour and capital in the economy, but also by increasing exports. According to its promoters, export can perform as an instrument of growth. It suggests that focusing on export will improve economic growth and development of a country. Due to the significant role that international trade plays in the process of economic growth through the exportation of goods and services across borders, it is paramount to consider the important contribution of exports to the economic growth. A country exports goods or services for which it has a competitive advantage, so as to speed up its industrialisation process. Export- led growth entails opening up of domestic markets to foreign players in exchange for market access in other countries. There have been general references to the connection that subsist between exports and economic growth in the economic growth literature over the years. It has been an imperative argument as to whether nations should promote their export sector to achieve economic growth leading to a series of empirical studies on the export-led growth hypothesis.

Nigeria can be regarded as an important player in the international market, having endowed with natural resources, especially crude oil for which it has a competitive advantage over other countries. Prior to the advent of petroleum in Nigeria, agricultural

production was the most important export sector in the country. Nigeria is the most populated country in Africa with the population of over 150,000,000. Nigeria is also the largest producer of crude oil in Africa and a member of the Organisation of Petroleum Exporting Countries (OPEC). The economy of Nigeria heavily relies upon the oil sector, accounting for over 90% of the total export earnings and about 40 percent of the government revenues.

1.1 BACKGROUND TO THE STUDY

As from the mid-1970s, in most developing countries, there has been a substantial move towards export promotion strategy. This approach proposes that increased export results in improved resource allocation, generating economies of large scale, as well as production efficiency through developing technology, capital formation, and job creation (Shirazi and Abdulmanap, 2005). In the past, many developing nations followed import-substitution strategy to achieve economic growth. However, with the magnificent achievements of countries such as South Korea, Hong Kong, Singapore, Taiwan, Mexico and Brazil over the past 30 years, many developing countries made a significant move towards export- led growth strategy (Todaro, 1994).

Nigeria is a developing country that engaged in several policy instruments including the Import Substitution Strategy. This strategy aimed at replacing imported items with the locally produced ones. The Import Substitution strategy aimed at discouraging and reducing importation and subsequently the running down of foreign exchange reserves in the early 1980s. The ineffectiveness of these instruments led to the acceptance of Structural Adjustment Programme (SAP) in 1986 of which Export Promotion strategy is an important component. This strategy has been followed with the intention that it would

transform into economic growth, and efforts have been made to promote domestic production for exports, especially in the non-oil sector of the economy in order to boost the quantity of products in the country export structure.

1.2 OBJECTIVE OF THE STUDY

This study intends to test the export-led growth hypothesis by analysing the causality between exports and economic growth in Nigeria, as well as the relationship between import, export and economic growth. The study considers the export, import and economic growth from the inception of the structural adjustment programme in Nigeria from 1986 to 2013.

1.3 JUSTIFICATION AND CONTRIBUTION OF THE STUDY

There have been numerous studies on the export-led growth hypothesis including studies on Nigeria where in most cases; the hypothesis has been valid. However, most of the studies employed annual data in their analyses and particularly on Nigeria; there is no research on this topic to the knowledge of the researcher that investigated the validity of export-led growth hypothesis using quarterly data from 1986 to 2013. This study covers a period of 27 years and consists of 112 observations which can be considered substantially large enough sample size for analysing the long-run relationship between the variables. The variables considered are exports, Real GDP, and Imports. This study will be of great importance to the government and policy makers in knowing whether exports lead to economic growth over the period of 1986 to 2013 or not. It will also help potential researchers who would want to re-examine the validity of this hypothesis in Nigeria.

1.4 ORGANISATION OF THE STUDY

This study is being organised into five chapters. Chapter one is made up of introduction, background to the study, objective of the study, justification of the study and contribution to knowledge. Chapter two is made up mainly of literature reviews and empirical studies. This chapter is being divided into sub-headings arranged from export - led growth, growth - led export, the relationship between import, export and economic growth, overview of the Nigerian economy, performance of the Nigerian economy, oil-export and the Nigerian economy. Nigeria and export promotion strategies, non-oil export and the Nigerian economy, import growth and the Nigerian economy, Nigerian economy and foreign direct investment, Nigerian economy and its foreign exchange rate regimes. Chapter three deals with econometric methodology, unit root test, Johansen cointegration test, error correction model (ECM), test for granger causality, impulse response functions, variance decomposition and data sources. Chapter four contains analysis of data and empirical results which consist of graphical presentation of data, unit root test, order of lag selection criteria, cointegration test result, vector error correction model (VECM), granger causality test result, impulse response function and variance decomposition. Chapter five covers summary and conclusion as well as recommendations.

CHAPTER TWO

LITERATURE REVIEW

This section intends to review relevant literature and studies on export-led growth hypothesis. Many studies succeeded in finding different and divergent kind of results depending upon the period under investigation and the countries under consideration. Some studies find unidirectional causality from export to economic growth, from output growth to export growth while others find bidirectional causality running from export to economic growth and vice versa. The idea of competitive advantage considers the direction of the production strength and cost effectiveness of a country. A country specializes in the production of commodities which it can produce with less cost and for which it has the available and required inputs. The country will now have an advantage to export those commodities to other countries at lower costs possible. The concept of export-led growth hypothesis stems from the argument that countries can improve, and accelerate their economic growth by exporting goods either manufactured or raw products to other countries.

Export-led growth hypothesis in general reveals the connection between export growth and output growth. It is fundamentally important to recall that, the promoters of this hypothesis believe that promoting export growth through such mechanisms and policies like export subsidy incentives and, or devaluing exchange rate will enhance and substantially boost the economic growth of a country. The essence of the neo-classical reasons fundamental to the export-led growth hypothesis (ELGH) is the fact that competition at international markets has an essential role to play in promoting economies of scale and accelerating efficiency. Resources have to be in sectors where the country

has a comparative advantage which is a cardinal point in the context of international trade. The spillover effect resulting from the international competition may lead to positive externalities that increase economic growth (Ullah et al., 2009). Dritsakis (2006) investigated the causal relationship between export growth and economic growth in the EU, USA and Japan using Granger causality test. He discovered that export growth played a significant role in economic development process and that exports have impact on the development of countries in EU and USA.

2.1 EXPORT-LED GROWTH

It is sometimes true for some countries at a particular time that it is the growth which leads to export and not the other way round. This assertion can be as a result of so many factors. And the fact that, when a country's local products are efficiently being utilized and given the existing abundant labour force and technology, the economic activities will tend to expand. Consequently, the excess of the produce will then be exported to other countries. Serge (2010) re-examined the export-led growth hypothesis in Cote d'lVoire using annual time series data for the period of 1980 to 2007 by employing bound tests and VAR granger causality test, and found evidence of bidirectional causality running from export to economic growth and vice versa. Srivastava and Kapoor (2007) reinvestigated the export-led growth and growth -led export hypothesis in India using time series data from 1951 to 2004 by examining the relationship between export and economic growth. Granger causality was used to establish the direction of causality where the export-led growth hypothesis was being rejected, but there was evidence in support of the growth led export in India for the period of the study. A study by Njikam (2003) examined the validity of the export-led growth hypothesis in 21 African countries

where he tested the direction of causality between export and economic growth. Notably, the author emphasized on the causal relationship between agricultural and manufactured products exports using different econometric methods and found support for the growth led export in 4 of the countries. However, there was also empirical evidence in support of the export-led growth for agricultural commodities in 7 of the countries and for manufactured products in 3 of the countries. Ullah et al. (2009) equally investigated the existence of export-led growth in Pakistan using data from 1970 to 2008 by applying cointegration technique as well as causality test. The results of the analysis indicated a one-way causality from economic growth to exports for the period of their study.

2.2 RELATIONSHIP BETWEEN IMPORT, EXPORT AND ECONOMIC GROWTH

A study by Serletis (1992) is one of the few studies that considered the significance of import in the process of economic growth where he included the lagged values of import in his analysis of the time series for Canada. The study examined the causal relationship between import and economic growth. However, there was no evidence causality either unidirectional or bidirectional between the two variables. Islam and Shahbaz (2012) studied the long-term relationship between import and economic growth using error correction mechanism, and granger causality to test the direction of the relationship between imports and output growth for a sample of 40 countries of different income categories. The study found long -run bidirectional causality running from high-income countries with the exception of Japan. Hence, the results confirmed that imports cause economic growth and vice versa. Ramos (2001) investigated the relationship between export, import and economic growth in Portugal using granger causality and

cointegration approach for the period of 1865 to 1998. Although the results of the study did not show any unidirectional causality between the three economic variables considered, there was a feedback effect between the growth of export and output and that of import and output.

2.3 OVERVIEW OF THE NIGERIAN ECONOMY

The economy of Nigeria used to be characterised mainly by primary exports, commercial activities and traditional industrial activities mostly in villages before the country gained independence in 1960. The agricultural sector used to be the primary source of foreign exchange earnings for the country thereby contributing about 65% to the Gross Domestic Product and representing virtually about 70% of the total export. Raw materials that consisted of the agricultural produce as well as mineral resources were usually being exported to developed countries and other essential commodities imported in return. As a policy to encourage the consumption of locally produced products, the Nigerian government adopted Import Substitution Industrialisation strategy. The government equally employed proactive measures to protect domestic industries by strictly adhering to tariffs, quotas and other import duties aimed at discouraging importation of commodities that are being produced locally. The detection of crude oil in Nigeria was being considered as a significant breakthrough and considerable success in the history of the country that paved way for the realisation of economic, as well as industrial potentials. Substantial amount of foreign exchange earning realised from the exportation of crude oil enabled the country to venture into the importation of some products and services found to be crucial in the development process of the country.

2.4 PERFORMANCE OF THE NIGERIAN ECONOMY

The economy of Nigeria used to be dependent on the agricultural sector for its growth and development before the discovery of petroleum products. Prior to the period of the oil boom, the economy recorded a GDP growth of about 3.1 percent annually between the periods 1960 to 1970. In the course of the oil boom regime which was estimated to be around 1970 to 1978, the economy experienced a steady and positive GDP growth rate of about 6.2 percent per annum that was considered to be a remarkable success and substantial achievement in the history of Nigeria then. However, the agricultural sector was neglected because oil sector was doing very well beyond the expectation of the economy especially in terms of foreign exchange earnings. This development resulted into a decline in the agricultural sector contribution to the GDP growth to only about 34 percent. Moreover, as the economy is not always stable and is subject to fluctuation such as the expansion and contraction, the Nigerian economy experienced negative GDP growth rates in the periods of 1980s. The structural adjustment programme and some initiatives considered for economic liberalisation were being put in place for the revival of the economy from 1986 to 1997. The programme led to a significant response by the GDP growth to the economic adjustment programmes and policies resulting in GDP growth rate of about 4.0 percent.

There had been an apparent increase in both industrial as well as the manufacturing sectors of the economy owing to the economic activities in the petroleum industry around the period of 1978 to 1988. There had been a steady growth of investment especially as a percentage of the Gross Domestic Product of about 16.3 percent from 1965 to 1973, and 22.8 percent from 1973 to 1980. However, the investment growth experienced

fluctuations where it declined to 14.0 percent from 1980 1988 and subsequently gone up to 18.2 percent from 1991 to 1998. During 1960s, the inflation rate of the country was moderate and in fact, the economy was operating a single-digit inflation. However, the oil boom of 1970 introduced a devastating inflation rate that was as high as about 23 percent in 1976 but declined to about 11.8 percent in the year 1979. Unfortunately, the inflation rate did not stop at 11.8 percent but rather the figure inflated to about 41 percent and above all hitting the unusual 72.8 percent from 1989 to 1995. In 1996, the inflation rate declined to about 29.0 percent and subsequently declined to a reasonable figure of 9.5 percent in the year 1998.

2.5 OIL -EXPORT AND THE NIGERIAN ECONOMY

The crude oil discovery in Nigeria had been and up till now is playing a vital role in the process of economic growth especially through the exportation of the petroleum products for foreign exchange earnings generation. Substantial amount of revenue from the petroleum sector is being generated to the government through the foreign exchange earnings. According to estimates, about 98 percent of the Nigerian export comes from oil and gas sectors of the economy and this formed about 83 percent of the total government revenue in the year 2000. This huge percentage of the revenue that goes to the government led to the substantial balance of payments surplus. The analysis of this revenue revealed that 80% of the total country's revenue goes to the Nigerian government, 16 percent ends up on taking care of the administration while only 4 percent goes to the investment sector which investors can access for investment purposes. It is very pathetic that 99 percent of the population benefits only an insignificant percentage of the oil revenue with only 1 percent of the population benefitting the most because of

corruption and self-centeredness. The Nigerian oil reserve was estimated to have been around 35billion barrels; natural gas reserve was around 1000 trillion ft, and the crude oil production was about 2.2 million barrels per day (Odularu, 2008). Ogbokor (2001) examined the macroeconomic impact of oil export on the economy of Nigeria using OLS estimation method and observed that export is undeniably an essential source of growth for the economy of Nigeria. The study reached the conclusion that the relevant authority should give export-oriented strategies more practical support.

2.6 NON-OIL EXPORT AND THE NIGERIAN ECONOMY

The non-oil export sector which comprises of the agriculture and manufacturing sectors of the economy of Nigeria can contribute immensely and of course, more to the export earnings of Nigeria compared to the oil sector of the economy. However, proper management, attention and above all implementation of various existing programmes and policies geared towards enhancing the non-oil exports by the government are required. Nigeria is known to be popular in the production and export of quality and most demanding produce such as Groundnut, Cocoa, Cotton, Palm produce, Gum Arabic, Ginger, Mangoes, Sesame seed, Rubber Pineapples, Coffee, Bitter Nut, Cola nut, etc. The export markets for most of these commodities are identified to be in the Europe, USA, Gulf States, China, Japan, Singapore, and many countries in the African region. Furthermore, there are also manufactured exports consisting mainly of textiles, beer and beverages, soap and detergents, chemical products, plastic and non-metallic products as well as processed skin products among others. An investigation into the contribution of the agricultural sector to the growth of the Nigerian economy by Oji-Okoro (2011) indicated that FDI in the area of agriculture contributes the most to economic growth of

Nigeria (Okunnu and Adeyemi, 2013). Similarly, Ogunkola et al., (2008) reported that around 1960s, Nigeria's export trade was mainly dominated by non-oil commodities like cotton, groundnuts, palm kernel, palm oil, cocoa, rubber, coffee, copra, beniseed, tin ore, columbite, hides, skin and cattle among others. These products accounted for over 66 percent of the Nigerian total exports. Cocoa export in particular accounted for about 15% of the total exports in the year 1970. Nigeria was ranked the largest producer and exporter of palm kernel as well as palm oil in some years back, the second largest cocoa exporter and the third largest exporter of groundnut. Ekpo and Egwaikhide (1994), document that there is a long run equilibrium relationship between export of agricultural commodities and Nigerian economic growth. Nigeria's agricultural export earnings contributed substantially to the growth of the Gross Domestic Product. Fajana (1979), observed a strong positive relationship between economic growth and export in Nigeria whereby the impact of export was observed to be greater on the economic performance of the country. The study revealed that the export, including non-oil export constitutes a greater source of growth for the economy of Nigeria. Alimi and Musa (2012) examined the causal relationship between exports and economic growth in Nigeria from 1970 to 2009 using Granger Causality econometric technique and found the presence of bidirectional causality running from export to economic growth and from economic growth to export. This finding cannot be unconnected to the fact that developing and promoting the local industries through the import substitution strategies, and export promotion industrialisation has been instrumental to the growth of the Nigerian economy. Furthermore, Raheem and Busari (2013) when examining the relationship between economic growth and non-oil export tested the export-led growth hypothesis using time

series data in Nigeria from 1970 to 2010. Simultaneous equation model and single equation model have been used all together, but the results of the SEM did not support the Export-led growth hypothesis while the single equation model supported the hypothesis. The considerable economic growth of about 6.0% in 2006 and 6.5% in 2007 recorded by the Nigerian economy have been arguably attributed to the fact that during these periods, the performance of non-oil export sector of the economy also significantly improved.

2.7 IMPORT AND THE NIGERIAN ECONOMY

Import is one of the crucial aspect of international trade especially import of capital goods that are considered essential and necessary for the growth of the economy like that of Nigeria. Because importation of capital goods have a direct bearing on investment and export which in return can serve as an engine of economic expansion. The growing importation in Nigeria can be traced back to the country's political independence in 1960. The percentage of import was 2.5 percent in 1968 but grown to an annual average rate of about 33 percent between the periods of 1970 and 1989. This import can be related to various factors including, the desire to foster Nigerian economic development, to expand oil exploration and exportation in order to increase foreign exchange earnings substantially (Egwaikhide, 2000). Records suggested that aggregate imports were predominantly consumer goods that occupied about 41% of the total imports from 1960 to 1965. Capital goods were also in high demand that oscillated between 24% and 40% in 1960s and the import of raw materials also increased from approximately 10% to 23% during this period. However, the imports figure fell from 41% down to 27% between the period of 1980 and 1990. The import of capital goods considered being crucial to

investment growth was in the lead from 1970 followed by the import of raw materials up to 1980. Egwaikhide (2000) reported that the gradual fall in the consumer goods import after 1980 was mainly because of the foreign exchange crisis which resulted from the downfall of oil prices in the international market. The study equally discovered that short-run variations in industrial output, foreign exchange accessibility and movements in relative prices had substantial influence on raw materials import. Evidence showed documented that annual changes in investment, availability of foreign exchange, as well as relative prices, were important determining factors for the import of capital goods.

2.8 NIGERIAN ECONOMY AND FOREIGN DIRECT INVESTMENT

Foreign direct investment can arguably be one of the paramount policies geared towards the enhancement, encouragement and promotion of economic growth and development particularly in a developing country such as Nigeria given the vast ill-tapped opportunities in the country. This assertion received support by the explanations given by Olayiwola and Okodua (2009) that foreign direct investment can serve as an instrument of propelling growth and development by way of raising opportunities for the integration into the world financial and capital markets. Increasing employment opportunity and expansion of the export sector as well as setting up numerous investment opportunities can be most helpful to the economic growth of the beneficial country. Anyanwu (1998) examined the determinants of foreign direct investment in the context of Nigeria and discovered that domestic market size plays a positive role in determining the flow of FDI to Nigeria. Similarly, a study by Iyoha (2001) confirmed that market size draws foreign direct investment to Nigeria whereas inflation discourages it. Ayanwale (2007) also revealed that the determining factors of foreign direct investment in Nigeria are infrastructure, market size and steady macroeconomic policies. The study further indicates that foreign direct investment in Nigeria contributes immensely and positively to the growth of Nigerian economy. He however shows that trade openness and availability of human capital do not induce foreign direct investment in Nigeria. While FDI in the manufacturing sector was identified to have a negative effect on the Nigerian economy, the study suggests that the communication sub-sector has the maximum potential to develop the economy far better than the oil sector.

CHAPTER THREE
ECONOMETRIC METHODOLOGY

This study will test the "Export-led Growth Hypothesis" in the context of Nigerian economy. The empirical data and analysis in this study cover 27-year period using quarterly time series data (1986:Q1 – 2013:Q4) which should be adequate to test the long-run relationship between the independent and dependent variables. The study uses data series on the Gross Domestic Product (GDP), Export and Import. The following functional relationship is being established in order to explore the export-led growth hypothesis.

$$RGDP_t = f(EXP_t, IMP_t) \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Real income, (RGDP) is a function of exports (EXP) and imports (IMP). This relationship in equation (1) can be expressed in logarithm form as most macroeconomic variables exhibit exponential growth. The general econometric model applied takes the following form:

$$LRGDP_t = \beta_0 + \beta_1 LEXP_t + \beta_2 LIMP_t + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where $LRGDP_t$ is the natural log of Real Gross Domestic Product at period t, $LEXP_t$ is the natural log of exports at period t, $LIMP_t$ is the natural log of imports; and ε is the error disturbance term. The expected sign of coefficients (β_1 and β_2) are positive in equation (2) suggesting that the export is expected to have a positive impact on economic growth leading to the existence of export-led growth.

3.1 UNIT ROOT TEST

Most time series observed in practice are non-stationary and it necessary to transform them to be stationary before they are analysed. A stationary series is one that has all its moments such as mean, variance and covariance to be constant. Most economic data in their original forms exhibit nonstationary behaviour and hence they need to be made stationary to avoid spurious regression. Furthermore, most economic time series are expected to be I(1). The variables used in this study namely, real gross domestic product, real export and import are equally expected to follow the economic theory by indicating I(1) behaviour which can be verified using unit root tests. Testing for stationarity implies testing for unit root. If the unit root is rejected, then the variables can be said to be stationary. There are many econometric techniques that can be used to make a series stationary. This study employed the most commonly used unit root test which are the Augmented Dickey-Fuller (ADF) and the Phillips-Perron (PP) tests. Augmented Dickey-Fuller (ADF) test is being applied when there is autocorrelation in the error term and it is performed by adding the lagged values of the dependent variable. The Augmented Dickey-Fuller (ADF) test has been reported to have a good size. The Philip-Perron (PP) test, on the other hand, is used to control for the higher –order serial correlation. It uses non-parametric statistical procedures and excludes the practice of adding lagged difference terms as is the case with the ADF test.

3.2 JOHANSEN COINTEGRATION TESTS

The study will determine whether the time series of the variables under investigation exhibit a stationary process in a linear combination. Cointegration implies that time series data from a linear combination of two variables can be stationary even though they are nonstationary individually (Gujarati, 2009). In order for the cointegration test to be applied, it is indispensable that the variables being studied have the same order of integration. They are either stationary in their level or their first difference is stationary, denoted as I(0) and I(1) in that order. The theory of cointegration attempts to study the long-run equilibrium relationship between the nonstationary time series. If cointegration does not exist, it does imply that the variables do not have long-run relationship (Afzal and Hussain, 2010).

The study employs Johansen (1991, 1995) cointegration methodology mainly because the Johansen cointegration method is more robust and has more benefits over the Engle and Granger (1987) method. Johansen technique operates by testing the restrictions imposed via the cointegration upon the unrestricted Vector Autoregressive (VAR) involving the series. The cointegration test based on the cointegration approach in a bivariate framework using matrix notation is being represented as follows:

$Y_t = |X_t, M_t|$, $Yt = A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots\ldots + A_k Y_{t-k} + u_t$ ..... (4)

The vector - error correction model takes the following form:

$\Delta Y_t = \Gamma_1 \Delta Y_{t-1} + \Gamma_2 \Delta Y_{t-2} + \ldots\ldots + \Gamma_2 \Delta Y_{t-2} + \Gamma_{k-1} \Delta Y_{t-k-1} + \Pi Y_{t-1} + u_t$ .....

(5)

Where Γ_i $(1- A_1- A_2 - ..... - A_k)$, for i = 1, 2, ...,k-1 ; and $\Pi = -(1- A_1- A_2 - ..... - A_k)$....

(6)

The matrix Π is a 2x2 since there are two variables in $Y_t = |X_t, M_t|$, and contains information about the long-run relationships among the variables. If we assume K=2, we can have the following expression in matrix form:

$$\begin{pmatrix}\Delta X_t \\ \Delta M_t\end{pmatrix} = \Gamma_1 \begin{pmatrix}\Delta X_{t-1} \\ \Delta M_{t-1}\end{pmatrix} + \Pi \begin{pmatrix}\Delta X_{t-1} \\ \Delta M_{t-1}\end{pmatrix} + e_t =$$

$$\begin{pmatrix}\Delta X_{t-1} \\ \Delta M_{t-1}\end{pmatrix} = \Gamma_1 \begin{pmatrix}\Delta X_{t-1} \\ \Delta M_{t-1}\end{pmatrix} + \begin{pmatrix}\gamma_{11}\gamma_{12} \\ \gamma_{21}\gamma_{22}\end{pmatrix} \begin{pmatrix}\delta_{11}\delta_{21} \\ \delta_{12}\delta_{22}\end{pmatrix} \begin{pmatrix}X_{t-1} \\ M_{t-1}\end{pmatrix} + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (7)$$

The Error Correction Model part of

$\Delta X_t = Y_{t-1} = \gamma_{11}(\delta_{11}X_{t-1} + \delta_{21}M_{t-1}) + \gamma_{12}(\delta_{12}X_{t-1} + \delta_{22}M_{t-1})$ which depicts two cointegrating vectors with γ_{11} and γ_{12} representing the speed of adjustment to equilibrium.

The Johansen cointegration approach makes use of two test statistics which are the Trace test (λ_{trace}) and Maximum Eigenvalue(λ_{max}). Considering the hypothesis$H_1 : r_0 < r \leq k$, we can test this hypothesis using trace test

$$\lambda_{trace}(r_0) = -T \sum_{j=r_0+1}^{k} \log(1 - \widetilde{\lambda_j})$$

The name Trace test is so-called because it confirms whether the smallest $k - r_0$ eigenvalues are indeed significantly different from zero. Furthermore, hypothesis$H_0 : r \leq : r_0$, can equally be tested against a restrictive alternative hypothesis $H_1 : r = r_0 + 1$ by using the maximum Eigenvalue test as given by the following formula:

$\lambda_{max}(r_0, r_0 + 1) = -T\log(1 - \widetilde{\lambda_j})$

The maximum Eigenvalue test is being given based upon the estimated alternative hypothesis

$H_1 : r = r_0 + 1$ largest Eigenvalue.

3.3 GRANGER CAUSALITY TESTS

Granger causality tests the causal relationship between two or more variables. For simplicity, the variable Export is represented by X while Real GDP, which is a proxy for economic growth, is represented by Y. In the sense of Granger Causality, a variable X (export) is said to Granger cause Y (RGDP) if variable Y can better be explained or predicted by using both the lagged values of X and lagged values of Y, than just using the lagged values of Y. We can employ bivariate VAR to test for Granger Causality to see if there is causality from export to economic growth in the context of Nigeria for the period of the study. Consider the following bivariate VAR for testing the Granger causality.

$$Y_t = \alpha + \sum_{i=1}^{n} \beta_i Y_{t-i} + \sum_{j=1}^{m} \gamma_j X_{t-j} + u_t$$

$$X_t = \varphi + \sum_{i=1}^{n} \delta_i Y_{t-i} + \sum_{j=1}^{m} \rho_j X_{t-j} + e_t$$

Where Y is an output growth in the form real gross domestic and X is exports growth; u and e are serially uncorrelated white noise residuals; n and m are lag lengths.

The above specification involves explaining both Y and X by the lagged values of Y and X. For simplicity, assume a bivariate VAR (2) with variables and X are used, and its coefficients are all represented with the use of β and γ. The model becomes:

$$y_t = \beta_{10} + \beta_{11} y_{1,t-1} + \beta_{12} y_{2,t-2} + \gamma_{11} x_{1,t-1} + \gamma_{12} x_{2,t-2} + u_{1t}$$

$$x_t = \beta_{20} + \beta_{21} y_{1,t-1} + \beta_{22} y_{2,t-2} + \gamma_{21} x_{1,t-1} + \gamma_{22} x_{2,t-2} + u_{2t}$$

The null and the alternative hypotheses are being set as follows:

H_0 : $\sum_{i=1}^{n} \gamma_i = 0 \; or \; x_t$ does not granger cause y_t

H_1 : $\sum_{i=1}^{n} \gamma_i \neq 0 \; or \; x_t$ does granger cause y_t

If the coefficients on γ_{11} and γ_{12} are all non-zero, then the variable x granger causes y and that there is a unidirectional causality running from x to y. Otherwise x does not granger cause y. On the other hand, if the coefficients β_{21} and β_{22} are non-zero, it implies that the variable y granger causes x otherwise y does not granger cause x. If all of these coefficients appear to be non –zero, then there is a bidirectional causality running from x to y and from y to x, and this is called a feedback effect. However, if all of the coefficients appear to be zero, then it can be concluded that there is no causality running from either side.

3.4 IMPULSE RESPONSE FUNCTIONS AND VARIANCE DECOMPOSITION

In examining the relationships between the variables under investigation, impulse response analysis as well as variance decomposition method are other useful techniques employed in this study. Impulse response function enables the response of the dependent variable in the VAR system to innovations or shocks in the error terms to be figured out. Variance decomposition is used to separate the variation in an endogenous variable into the components shocks to the VAR. It measures the forecast error variance explaining

the proportion of movements in a variable as a result of its shocks and the shocks to other variables in the system.

3.5 DATA SOURCES

In this study, quarterly data on RGDP (Y), exports (X) and imports (M) for Nigeria for the period of 27 years from 1986Q1 to 2013Q4 are used thereby making 112 observations that can be considered adequate sample for the analysis. Data for the analysis in this study were being collected from the Central Bank of Nigeria from 1986Q1 to 2013Q4. The real gross domestic product represents the output growth which is the measure of economic growth in the economy while exports consist of both oil-exports, as well as non-oil export growth over the sample period. The variables, real gross domestic product, export and import were being measured in millions of naira. However, the variables undergone logarithm transformation because real gross domestic product, export and import are expected to constant percentage increases.

CHAPTER FOUR

EMPIRICAL ANALYSIS AND RESULTS

4.1 GRAPHICAL PRESENTATION OF DATA

The first step in time series analysis in particular and econometrics in general is to identify the features in the data being modeled visually because this will influence the approach to modeling. The upward trending of these series means that their means increase over the sample period which is consistent with most of the macroeconomic variables as they grow through time and so are expected to have upward trends.

Figure 1: Log of RGDP, Export and Import in Nigeria from 1986Q1-2013Q4

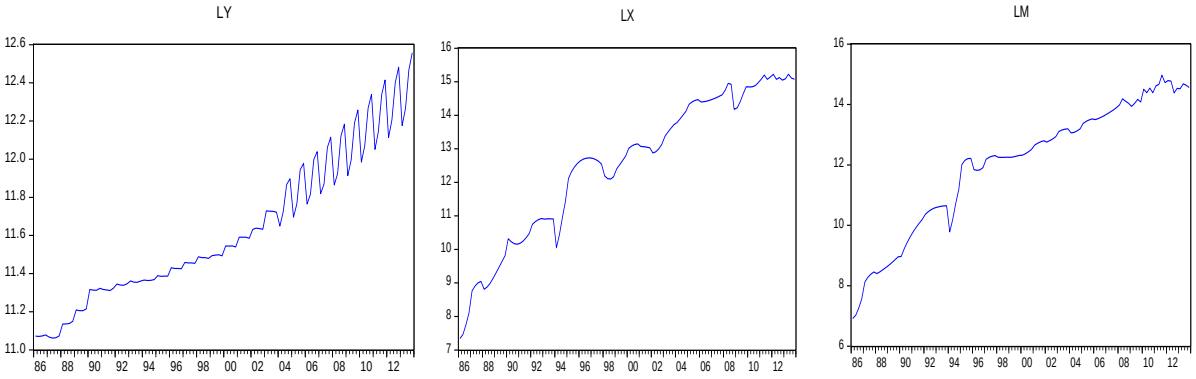

Figure 1 above is being given for the log of real gross domestic product represented by LY, log of real export represented by LX, and log of import represented by LM. Based on the behaviour of the above graph it is obvious that these variables are non-stationary. However, there are outliers in imports in 1994Q1 and 1994Q2 for exports. The graph of the log of income exhibits some seasonality from2004Q1 up to 2013Q4. Seasonality is a feature commonly associated with the quarterly time series.

4.2 UNIT ROOT TEST

Broadly speaking, unit root tests are performed to confirm that the data series are likely I(1) variables, so we have to be mindful of spurious regression and long-run cointegrating relationships. The empirical analysis begins by analysing the stationary properties of the variables under investigation before testing for causal relations between import growth, export growth and economic. Hence, to formally confirm that the series under investigation are I(1), unit root test is applied. Augmented Dickey-Fuller and Phillips-Perron tests have been used for the unit root test in order to determine stationarity of the series. Also to determine the order of integration of the variables that will enable the minimisation of getting spurious regression. The results of the unit root test are being reported in table 1 below.

TABLE 1: UNIT ROOT TEST RESULT

	Model 1 (constant)		**Model 2 (trend & constant)**		**Model 3 (none)**	
	ADF		**ADF**		**ADF**	
	LEVEL	DIFFERENCE	LEVEL	DIFFERENCE	LEVEL	DIFFERENCE
VARIABLES						
LY	1.449	-4.028*	-0.161	-4.314*	3.807	-1.123
LX	-2.420	-7.526*	-3.327***	-7.762*	2.045	-6.934*
LM	-2.687***	-7.639*	-1.584	-8.137*	3.396	-7.858*
	PPT		**PPT**		**PPT**	
	LEVEL	DIFFERENCE	LEVEL	DIFFERENCE	LEVEL	DIFFERENCE
LY	0.696	-17.704*	-6.838*	-17.183*	3.494	-12.728*
LX	-2.794***	-7.147*	-2.871	-7.485*	2.576	-6.890*
LM	-4.541*	-8.563*	-2.448	-9.810*	3.048	-7.929*

*, ** and *** denote rejection of the unit root null with the significance level at 1, 5 and 10% respectively.

Table 1 above contains the results of the unit root test. The results show that all of the variables are integrated of order one I(1) because ADF test outputs indicate that the levels of LY, LX and LM are non-stationary at 5% level of significance, whereas the first differences of those variables are suggested as I(1) by the ADF. PP test also indicates non-stationarity of first differences of LY and LX at their levels at 5% level of significance and stationarity of first differences of LY and LX. However, PP test suggests stationarity of LM at levels, which is contradictory to ADF test result. Despite this contradiction, the analysis proceeds considering all the variables as I(1) on the ground that the stationarity characteristics of variables would be reflected in cointegration analysis. Moreover, macroeconomic variables such as RGDP are expected to be I(1) and looking at the low power of PP test, all of the variables under investigation are treated as I(1) based on the Augmented Dickey Fuller test.

4.3 ORDER OF LAG SELECTION CRITERIA

The choice of the lag length is a crucial part of empirical research based on the Vector autoregressive (VAR) model, since all inferences in this model hinge on the correct model specification. The Johansen procedure requires that the choice of deterministic variables and maximum lag length (k) be such as to prevent serial correlation in the disturbance processes both within each equation of the VAR and also across equations. Table 2 below presents the appropriate lag length for the cointegration test.

Table 2 Order of Lag Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-185.3107	NA	0.007250	3.586870	3.662698	3.617597
1	187.1132	716.4727	7.15e-06	-3.335490	-3.032181	-3.212583
2	194.3284	13.46837	7.40e-06	-3.301494	-2.770702	-3.086407
3	245.8055	93.14889	3.30e-06	-4.110580	-3.352306	-3.803312
4	331.9696	150.9924	7.60e-07	-5.580374	-4.594617	-5.180926
5	354.4659	38.13660*	5.90e-07*	-5.837446*	-4.624207*	-5.345818*
6	363.2628	14.41012	5.95e-07	-5.833577	-4.392856	-5.249769
7	365.2220	3.097428	6.85e-07	-5.699467	-4.031263	-5.023478

* indicates lag orders selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

There have been many studies on selecting the lag length of a nonstationary VAR model subject to cointegration restrictions. Eviews offers five different lag length selection criteria. The first of these is the Likelihood Ratio (LR) testing the null hypothesis that all the coefficients of the longest lag offered by the user are zero. The other four lag length criteria are all based on the log -likelihood of the fitted model. This study will go with five lags as recommended by all the five criteria because lag length selection criteria choose the optimum lag by making a trade-off between model fitness and parsimony. All the lag length selection criteria suggest five lags for the VAR. However; Johansen procedure requires no serial correlation in the fitted VAR for valid inference. The diagnostic checks of the fitted VAR with five lags indicate that the fitted VAR is free from serial autocorrelation and heteroskedasticity but have some departures from residual normality. As at any other lag, the residual non-normality is not removed, and this is not a serious problem in Johansen procedure. Hence, the fitted VAR with five lags are being considered.

4.4 COINTEGRATION TEST

The use of cointegration test is employed to determine the existence of long run relationship between the variables. The cointegration test is being conducted on the level series which are nonstationary. The cointegration test results are being reported in table 3 below. Cointegration test result for model 1 revealed that the hypothesis of no cointegration was rejected by both the Max-Eigenvalue and Trace tests. The trace test indicates one (1) cointegrating equation at 5% level of significance, which also agreed with the Max-Eigenvalue result indicating one (1) cointegrating equation at 5% level of significance. This result suggests the existence of long -run equilibrium relationship among economic growth (RGDP), exports and imports in Nigeria for the period of the study. The variables appear to move together in the long run.

Table 3: COINTEGRATION TEST RESULTS

	Null	Alternative	Max-Eigenvalue	5%CV	Prob.	Trace test	5% CV	Prob.
1	**Income-Exports –Imports (VAR lag 5)**							
	H0: r=0	H1: r=1	25.181	24.252	0.038	39.197	35.011	0.017
	H0:r ≤1	H1: r=2	13.545	17.148	0.155	14.016	18.398	0.184
	H0:r ≤2	H1: r=3	0.471	3.841	0.493	0.471	3.841	0.493
2	**Income – Exports (VAR lag 5)**							
	H0: r=0	H1: r=1	11.683	17.148	0.261	11.734	18.398	0.329
	H0:r ≤1	H1: r=2	0.051	3.841	0.821	0.051	3.841	0.821
3	**Income-Imports (VAR lag 5)**							
	H0: r=0	H1: r=1	15.468	17.148	0.086	16.033	18.398	0.104
	H0:r ≤1	H1: r=2	0.564	3.841	0.453	0.564	3.841	0.453
4	**Export-Imports (VAR lag 5)**							
	H0: r=0	H1: r=1	17.604	17.148	0.043	20.471	18.398	0.025
	H0:r ≤1	H1: r=2	2.868	3.841	0.090	2.868	3.841	0.090

In an attempt to explore the bivariate relationships between the variables, Johansen cointegration test has also been applied to test for bivariate relations between economic and exports, economic growth and imports and between exports and imports as shown in

table 3. In Model 2 and 3, no evidence of cointegration have been found since the hypothesis of no cointegration was not rejected at the conventional 5% level, and both the trace test, as well as the max-Eigenvalue test, indicate no cointegration at 5% level of significance. Nevertheless, one Cointegration equation in model 4 exists which implies that export and import both have a long run equilibrium relationship.

The results of the Johansen cointegration test indicated that exports and imports have long run influence on the economic growth of Nigeria for the period of the study. This means that developing and expanding the export base of the Nigerian economy can sustain the economy in the long run. Importation of commodities such as capital goods for the expansion of the export sector would also have a substantially positive impact on economic growth.

4.5 VECTOR ERROR CORRECTION MODEL

The existence of cointegration between the three variables indicates a long-term relationship among them. VECM is being applied in order to evaluate the short-run properties of the cointegrated variables. The negative and significant coefficient of the error correction mechanism obtained suggest that short-term fluctuations between the export, import and economic growth give rise to a stable long run equilibrium relationship between them.

The result of vector error correction model is being given in table 4 below. The result indicates that neither exports nor imports cause economic growth in the short run as given by insignificant coefficients of ΔLX and ΔLM with all the coefficients individually insignificant (t-ratios < 2.00). Also, the coefficients restriction tests using Wald test that the lags of each variable are jointly equal to zero was not rejected at 5% level of

significance. This result indicates that there is no short run causality either from export or import to economic growth in Nigeria. The result, therefore, suggest that there is no support for the export-led growth hypothesis in this country for the period under consideration. Nevertheless, in the long run, there is some combination of the three variables that moves together. Hence, there is long run equilibrium relationship between economic growth, export and import as the error correction term is negative as expected and statistically significant. The error correction term (-0.008) describes the speed of adjustment back to equilibrium, and it measures the proportion of the equilibrium in the last period that is being corrected. The ECT (-1) estimated coefficient is -0.008 which indicates that about 0.8% of this disequilibrium is corrected between 1 quarter. The macroeconomic implication of this result is that export and import in Nigeria only influence economic growth in the long run but not immediately.

TABLE 4: VECTOR ERROR CORRECTION RESULT

LAG	**DIFFERENCED VARIABLES**		
	ΔLY	ΔLX	ΔLM
1	-0.399 (0.100)	-0.007 (0.019)	0.020 (0.023)
2	-0.721 (0.103)	-0.002 (0.019)	-0.009 (0.020)
3	-0.724 (0.107)	0.012 (0.019)	-0.009 (0.021)
4	0.295 (0.109)	-0.018 (0.019)	0.019 (0.021)
5	-0.308 (0.108)	-0.001 (0.019)	0.009 (0.022)
Intercept	0.018 (0.008)		
ECT(-1)	-0.008 (0.003)		
$\boldsymbol{R^2}$	0.943		
$\boldsymbol{\bar{R}^2}$	0.932		
SC	-3.814		
DW	1.931		

Standard errors are being given in parenthesis.

4.6 GRANGER CAUSALITY TEST

It is crucial to establish the direction of causality between the three variables namely, economic growth, exports and imports since the presence of long run relationship does not indicate causality. VAR Granger causality test has been performed to determine whether there is causality between economic growth, exports and imports for quarterly data during the period of the study in Nigeria. The results of the VAR Granger causality test are being reported in table 4 below.

TABLE 5: GRANGER CAUSALITY RESULT

VAR Granger Causality/Block Exogeneity Wald Tests			
Sample: 1986Q1 2013Q4			
Included observations: 107			
Dependent variable: DLY			
Excluded	Chi-sq	Df	Prob.
DLX	3.482232	5	0.4806
DLM	5.212284	5	0.2662
All	5.564604	10	0.6959
Dependent variable: DLX			
Excluded	Chi-sq	Df	Prob.
DLY	3.651437	5	0.4552
DLM	0.955604	5	0.9165
All	4.231226	10	0.8357
Dependent variable: DLM			
Excluded	Chi-sq	df	Prob.
DLY	9.861636	5	0.0428
DLX	7.985820	5	0.0921
All	17.87305	10	0.0222

In table 4 above, DLY, DLX and DLM stand for the first difference of log of income or real gross domestic product, first difference of log of exports and first difference of log of imports respectively. The results of VAR Granger causality test revealed that, the hypotheses that export does not Granger Cause economic growth and vice versa are not being rejected. Import does not Granger Cause economic growth; import does not

Granger Cause export and vice versa have not all been rejected at either 1%, 5% or 10% because the p-values are greater than 0.01, 0.05, and 0.10 respectively. However, the hypothesis that economic growth does not Granger Cause import is rejected at 5% level of significance while the null hypothesis that exports does not granger cause imports was also rejected at the 10% with the p-values 0.04 and 0.09 respectively. The joint hypothesis that both economic growth and export does not granger-cause import was rejected at the 5% level with p-value 0.02. These results show that export does not Granger cause growth and vice versa in Nigeria. This indicates that there is no bivariate causality running from exports to economic growth and from economic growth to exports.

The results of this analysis, therefore, do not provide empirical evidence in support of export -led growth hypothesis in Nigeria for the period under investigation using quarterly data. It indicates that as the economy grows, imports expand since import is caused by economic growth. It is also clear that export lead to import which explains that as Nigeria exports commodities especially oil, most of the proceeds goes to importation of finished goods including, but not limited to technological equipment. The result is found to be consistent with the findings by Udah (2012), Hadi (2006), Srivastava and Kapool (2007), Shihab et al. (2014), Ullah et al. (2009) and Omotor (2008) where the export-led growth hypothesis was rejected in each case. However, the result is inconsistence with many studies including studies by Kaberuka et al (2014), Maneschiold (2008), Silverstovs et al (2005), Mohan and Nandwa (2007), Medina-Smith(2001), Bahmani-Oskooee and Alse (1993), Ogbokor (2005), Kwamboka (2003) and Omisakin

(2009). Udah (2012) found significant causality running from import to export with no evidence in support of the export led growth hypothesis in Nigeria.

4.7 IMPULSE RESPONSE FUNCTIONS

Table 6 below depicts the direction of the impact of own-shocks or innovation, as well as the shocks on other variables. Maximum of twelve quarters has been considered to be adequate to test for the impulse response of each of the variables to another.

TABLE 6: IMPULSE RESPONSE FUNCTIONS

Response to one S.D. shock of dlincome							
Qtr	dly	Dlx	dlm	**Qtr**	dly	dlx	Dlm
1	0.028209	0.000000	0.000000	**7**	-0.020406	0.000198	-0.001938
2	-0.009046	0.002026	-0.002533	**8**	-0.003323	0.004035	0.001352
3	-0.018170	0.000501	-0.003192	**9**	0.035255	-0.005565	0.000703
4	-0.001675	0.002294	-0.000952	**10**	-0.008071	0.001480	-0.000620
5	0.034957	-0.004934	0.001709	**11**	-0.021267	-0.001916	-0.001916
6	-0.006771	0.001898	-0.001687	**12**	-0.003616	0.001819	0.001385
Response to one S.D. shock of dlexport							
Qtr	dly	Dlx	dlm	**Qtr**	Dly	dlx	Dlm
1	0.005222	0.195329	0.000000	**7**	-0.003481	-0.005666	0.004867
2	-0.003041	0.053472	0.008685	**8**	-0.004177	-0.014430	0.028472
3	-0.011679	0.016215	0.006924	**9**	-0.003935	-0.027249	0.024892
4	0.003959	0.004664	0.001324	**10**	-0.011923	-0.006761	0.001022
5	-0.017798	-0.054650	-0.017215	**11**	0.004740	0.002644	0.008938
6	0.002981	-0.011367	-0.007718	**12**	0.005804	0.002597	-0.013475
Response to one S.D. shock of dlimport							
Qtr	dly	Dlx	dlm	**Qtr**	dly	dlx	Dlm
1	0.003745	0.110484	0.131708	**7**	-0.004439	-0.009697	-0.027505
2	-0.003694	0.051471	-0.007896	**8**	0.010105	-0.016608	0.004363
3	-0.012603	0.015088	0.038064	**9**	-0.007673	0.028842	0.007482
4	-0.000755	0.006293	-0.012607	**10**	0.001426	0.007534	0.013413
5	-0.016533	-0.043612	-0.053331	**11**	-0.001105	0.019273	-0.013612
6	-0.002346	-0.033290	-0.001915	**12**	0.009996	0.002566	0.018477

Considering the shock of income to itself, income has been negative for most of the quarters while positive for only three quarters. The shock of income to export and import is positive for most of the quarters with many fluctuations. The shock of export to itself is

positive but higher in quarter 1 although declined and fluctuated from quarter 2 to 12 with a shock from quarter 5 to quarter 10 being negative. The shock of export to income and import also appeared to fluctuate from quarter 1 to 12 with a negative impact being experienced in some quarters. As for the imports shock to itself, the shock has been negative in 5 quarters but positive in the remaining seven quarters with many fluctuations between the quarters. The shock of import to income and export has also been fluctuating between the quarters with a negative impact in some of the quarters but positive impact in most of the quarters.

4.8 VARIANCE DECOMPOSITION

The essence of using variance decomposition technique is to measure the fraction of forecast error variance for each of the variables under investigation to its shocks and also to shocks of other variables. Results of variance decomposition are being presented in table 6 below with both the direct and indirect effects of the shocks.

TABLE 7: VARIANCE DECOMPOSITION RESULTS

Variance Decomposition of dlincome							
Qtr	dly	Dlx	dlm	**Qtr**	dly	dlx	Dlm
1	100.0000	0.000000	0.000000	**7**	97.81577	1.270782	0.913449
2	98.81533	0.462344	0.722321	**8**	97.23111	1.803191	0.965699
3	98.29381	0.354633	1.351553	**9**	97.32087	1.990542	0.688584
4	97.80778	0.777304	1.414914	**10**	97.30327	2.010026	0.686707
5	97.81252	1.365819	0.821662	**11**	97.40878	1.893805	0.697413
6	97.60372	1.479525	0.916759	**12**	97.30996	1.9555373	0.734668
Variance Decomposition of dlexport							
Qtr	dly	Dlx	dlm	**Qtr**	dly	dlx	Dlm
1	0.071432	99.92857	0.000000	**7**	1.157391	97.73273	1.109876
2	0.088802	99.72777	0.183425	**8**	1.169107	96.00289	2.827998
3	0.415934	99.28729	0.296779	**9**	1.167805	94.79178	4.040417
4	0.453206	99.24608	0.300710	**10**	1.458892	94.51439	4.026715
5	1.117736	97.95003	0.932236	**11**	1.502203	94.31443	4.183366
6	1.132438	97.80820	1.059362	**12**	1.564901	93.89582	4.539277
Variance Decomposition of dlimport							
Qtr	dly	Dlx	dlm	**Qtr**	dly	dlx	Dlm
1	0.047443	41.28376	58.66880	**7**	1.174858	44.09739	54.72775
2	0.085692	46.00365	53.91066	**8**	1.408350	44.33889	54.25276
3	0.546478	44.19677	55.25675	**9**	1.515066	45.30444	53.18050
4	0.544967	44.05578	55.39926	**10**	1.511378	45.18472	53.30391
5	1.170144	43.26947	55.56038	**11**	1.494787	45.45921	53.04600
6	1.151431	44.81341	54.03516	**12**	1.707026	45.01063	53.28235

The forecast error variance of the shock of income to itself is between 100% and 98%, to export is between 0.0% and 2% while the shock of income to import is between 0.0% and 1.4%. Shock of export to itself has been around 99%, to income is between 0.05 and 1.71% while to import is between 0.0% and 4.5% with the highest impact being experienced in the long run. The shock of import to itself appeared to fluctuate between

58% and 53%, between 0.05% and 1.71% to income while the shock is between 41.3 and 45.0% to export with the greatest impact in the long run. This result further indicates that shock in dlincome produces cyclical patterns in changes in income. Shock in income generates mainly positive impact on export and a mixture of positive and negative impact on import. Export positively impact economic growth in the long-run and this is good for the economy suggesting that expanding export will a good policy option. However, economic growth will be hampered by excessive importation, which is detrimental to the economy.

CHAPTER FIVE

This chapter deals with summary of empirical results, conclusion and recommendations.

5.1 SUMMARY AND CONCLUSION

This project examined the evidence of export-led growth hypothesis in Nigeria using quarterly time series from 1986Q1 to 2013Q4. The variables used in this study are economic growth as a proxy for real gross domestic product (RGDP), real exports and imports. The study employed the use of Johansen cointegration technique to test for the long run relationship between economic growth, export growth and imports. We use error correction mechanism in order to explore both the long-run and short-run causality between the variables, whereas granger causality test was used to establish the direction of causality between economic growth, exports and imports. The impact of shocks has also been explored using impulse response function and variance decomposition.

The result indicates the existence of long run equilibrium relationship between economic growth, exports and imports. The result shows that the variables examined are cointegrated and hence share a common linear trend. In the framework of error correction mechanism, there is a long-run relationship between the variables. However, short-run causality from both exports and imports on economic growth was not found. The evidence shows that exports and imports do explain long term but not short term changes in economic growth in Nigeria.

Granger causality test result indicates no support for the export-led growth hypothesis. However, the result shows that there is unidirectional causality running from economic growth to imports and from exports to imports (at 10% level of significance) in Nigeria for the period of the study. This study indicates that in the process of economic

development, Nigeria could be said to rely heavenly upon imported inputs including capital and non-capital equipment. Import plays an essential role in the process of development through diverse ways. Raw materials imported can augment the value added of products and the existing technology, enhance production capacity and improve productivity, generate jobs in other sectors particularly the retail sector which subsequently impact positively on the economy of Nigeria. However, importing finished products extremely can have a great negative impact on the economy since this action may result in the displacement of local output, displacement of local workers and create unemployment in the country, and these are detrimental to the economy.

5.2 POLICY RECOMMENDATIONS

Having analysed the Nigerian quarterly data, the findings of the study revealed that exports, imports and economic growth have long-run relationship. The following policy recommendations are hereby suggested based on the findings of this research. There should be a proper planning towards diversification of other productive non-oil sectors of the Nigerian economy. The reason is to boost the export base of the country as well as augmenting the oil sector of the Nigerian economy. Policies towards import substitution and export promotion should be given adequate attention, and proper utilisation of oil revenue proceeds should be encouraged. Part of these proceeds should be directed towards developing local infrastructural facilities, providing incentives to local industries, entrepreneurial development and adequate security by providing enabling environment for business entrepreneurs. Policy makers should be mindful of policies that favour foreign direct investment flow into the country, widening the export base of the country, and restrict the importation of commodities that could be produced locally.

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APPENDIX

1.

EVIEWS OUTPUT OF COINTEGRATION TEST

Date: 09/16/14 Time: 21:55
Sample (adjusted): 1987Q3 2013Q4
Included observations: 106 after adjustments
Trend assumption: Quadratic deterministic trend
Series: LY LX LM
Lags interval (in first differences): 1 to 5

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.211449	39.19673	35.01090	0.0168
At most 1	0.119953	14.01550	18.39771	0.1844
At most 2	0.004432	0.470844	3.841466	0.4926

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.211449	25.18123	24.25202	0.0376
At most 1	0.119953	13.54465	17.14769	0.1552
At most 2	0.004432	0.470844	3.841466	0.4926

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

LY	LX	LM
1.129237	-4.618828	5.275284
10.82278	2.397501	0.598982
16.11944	-1.147081	1.289375

Unrestricted Adjustment Coefficients (alpha):

D(LY)	-0.007526	-0.005553	-0.000719
D(LX)	0.026364	-0.044486	0.006022
D(LM)	-0.027446	-0.013677	0.008184

1 Cointegrating Equation(s): Log likelihood 365.6309

Normalized cointegrating coefficients (standard error in parentheses)

LY	LX	LM
1.000000	-4.090221	4.671548
	(0.97123)	(0.94606)

Adjustment coefficients (standard error in parentheses)

D(LY)	-0.008498
	(0.00291)
D(LX)	0.029771
	(0.01988)
D(LM)	-0.030993
	(0.01680)

2 Cointegrating Equation(s): Log likelihood 372.4032

Normalized cointegrating coefficients (standard error in parentheses)

LY	LX	LM
1.000000	0.000000	0.292510
		(0.06387)
0.000000	1.000000	-1.070611
		(0.10113)

Adjustment coefficients (standard error in parentheses)

D(LY)	-0.068601	0.021446
	(0.02731)	(0.01306)
D(LX)	-0.451693	-0.228424
	(0.18448)	(0.08823)
D(LM)	-0.179020	0.093978
	(0.16112)	(0.07705)

2.

VECTOR ERROR CORRECTION

Vector Error Correction Estimates
Date: 09/17/14 Time: 00:04
Sample (adjusted): 1987Q3 2013Q4
Included observations: 106 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
LY(-1)	1.000000
LX(-1)	-4.090221
	(0.97123)
	[-4.21138]
LM(-1)	4.671548
	(0.94606)

	[4.93792]		
@TREND(86Q1)	-0.042685		
C	-14.21689		

Error Correction:	D(LY)	D(LX)	D(LM)
CointEq1	-0.008498	0.029771	-0.030993
	(0.00291)	(0.01988)	(0.01680)
	[-2.91877]	[1.49757]	[-1.84476]
D(LY(-1))	-0.399163	0.079596	-0.125356
	(0.10048)	(0.68604)	(0.57980)
	[-3.97252]	[0.11602]	[-0.21621]
D(LY(-2))	-0.721231	0.152999	-0.508727
	(0.10338)	(0.70585)	(0.59654)
	[-6.97639]	[0.21676]	[-0.85280]
D(LY(-3))	-0.724317	0.372819	-0.213228
	(0.10744)	(0.73359)	(0.61998)
	[-6.74131]	[0.50821]	[-0.34393]
D(LY(-4))	0.294753	-0.040449	-0.861450
	(0.10868)	(0.74202)	(0.62711)
	[2.71212]	[-0.05451]	[-1.37369]
D(LY(-5))	-0.308301	0.014285	-0.389395
	(0.10765)	(0.73497)	(0.62114)
	[-2.86401]	[0.01944]	[-0.62690]
D(LX(-1))	-0.007179	0.306669	0.178918
	(0.01923)	(0.13129)	(0.11096)
	[-0.37331]	[2.33577]	[1.61245]
D(LX(-2))	-0.002347	0.050494	-0.220192
	(0.01900)	(0.12976)	(0.10966)
	[-0.12349]	[0.38914]	[-2.00790]
D(LX(-3))	0.012340	0.079494	-0.051646
	(0.01949)	(0.13306)	(0.11246)
	[0.63319]	[0.59742]	[-0.45926]
D(LX(-4))	-0.018373	-0.124809	-0.039354
	(0.01933)	(0.13195)	(0.11152)
	[-0.95067]	[-0.94587]	[-0.35289]
D(LX(-5))	-0.001110	0.130191	-0.056053
	(0.01936)	(0.13216)	(0.11169)
	[-0.05737]	[0.98512]	[-0.50186]
D(LM(-1))	0.020309	-0.027468	-0.007500
	(0.02267)	(0.15476)	(0.13079)
	[0.89599]	[-0.17749]	[-0.05734]
D(LM(-2))	-0.008674	-0.055304	0.326149

	(0.02019)	(0.13787)	(0.11652)
	[-0.42953]	[-0.40112]	[2.79907]
D(LM(-3))	-0.008973	-0.102568	0.025812
	(0.02128)	(0.14527)	(0.12277)
	[-0.42173]	[-0.70607]	[0.21025]
D(LM(-4))	0.018921	-0.207633	-0.381473
	(0.02069)	(0.14124)	(0.11937)
	[0.91466]	[-1.47009]	[-3.19584]
D(LM(-5))	0.009192	-0.022040	-0.002764
	(0.02192)	(0.14964)	(0.12646)
	[0.41943]	[-0.14729]	[-0.02186]
C	0.018256	0.106105	0.161536
	(0.00770)	(0.05259)	(0.04445)
	[2.37000]	[2.01748]	[3.63427]
@TREND(86Q1)	0.000269	-0.000913	-0.000987
	(0.00010)	(0.00069)	(0.00058)
	[2.65974]	[-1.32070]	[-1.68795]
R-squared	0.943415	0.204400	0.363237
Adj. R-squared	0.932484	0.050705	0.240225
Sum sq. resids	0.062014	2.890829	2.064786
S.E. equation	0.026546	0.181247	0.153178
F-statistic	86.30499	1.329905	2.952875
Log likelihood	244.1158	40.49299	58.32839
Akaike AIC	-4.266336	-0.424396	-0.760913
Schwarz SC	-3.814054	0.027886	-0.308631
Mean dependent	0.014100	0.058151	0.059306
S.D. dependent	0.102164	0.186024	0.175733

Determinant resid covariance (dof adj.)	3.54E-07
Determinant resid covariance	2.03E-07
Log likelihood	365.6309
Akaike information criterion	-5.823224
Schwarz criterion	-4.390997

Dependent Variable: D(LY)
Method: Least Squares
Date: 09/16/14 Time: 21:59
Sample (adjusted): 1987Q3 2013Q4
Included observations: 106 after adjustments
D(LY) = C(1)*(LY(-1) - 4.09022097672*LX(-1) + 4.67154783326*LM(-1) - 0.0426848564053*@TREND(86Q1) - 14.2168894513) + C(2)*D(LY(-1)) + C(3)*D(LX(-1)) + C(4)*D(LM(-1)) + C(5)*D(LY(-2)) + C(6)*D(LX(-2)) + C(7)*D(LM(-2)) + C(8)*D(LY(-3)) + C(9)*D(LX(-3)) + C(10)*D(LM(-3)) + C(11)*D(LY(-4)) + C(12)*D(LX(-4)) + C(13)*D(LM(-4)) + C(14)*D(LY(-5)) + C(15)*D(LX(-5)) + C(16)*D(LM(-5)) + C(17) + C(18)*@TREND(86Q1)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.008498	0.002912	-2.918772	0.0045
C(2)	-0.399163	0.100481	-3.972521	0.0001
C(3)	-0.007179	0.019230	-0.373310	0.7098
C(4)	0.020309	0.022667	0.895993	0.3727
C(5)	-0.721231	0.103382	-6.976389	0.0000
C(6)	-0.002347	0.019005	-0.123491	0.9020
C(7)	-0.008674	0.020193	-0.429528	0.6686
C(8)	-0.724317	0.107445	-6.741314	0.0000
C(9)	0.012340	0.019489	0.633192	0.5283
C(10)	-0.008973	0.021276	-0.421731	0.6742
C(11)	0.294753	0.108680	2.712116	0.0080
C(12)	-0.018373	0.019326	-0.950670	0.3444
C(13)	0.018921	0.020686	0.914660	0.3629
C(14)	-0.308301	0.107647	-2.864009	0.0052
C(15)	-0.001110	0.019356	-0.057370	0.9544
C(16)	0.009192	0.021917	0.419426	0.6759
C(17)	0.018256	0.007703	2.370002	0.0200
C(18)	0.000269	0.000101	2.659742	0.0093

R-squared	0.943415	Mean dependent var	0.014100
Adjusted R-squared	0.932484	S.D. dependent var	0.102164
S.E. of regression	0.026546	Akaike info criterion	-4.266336
Sum squared resid	0.062014	Schwarz criterion	-3.814054
Log likelihood	244.1158	Hannan-Quinn criter.	-4.083024
F-statistic	86.30499	Durbin-Watson stat	1.930798
Prob(F-statistic)	0.000000		