# Nigeria International Trade Nexus and Economic Growth: An Autoregressive Distributed Lag Model

**Angelinah, K. Osu**

*Department of Economics,*
*Ignatius Ajuru University of Education, Rivers State*

**A b s t r a c t**

This paper examines the impact of international trade on the performance of the Nigerian economy, using gross domestic product as a proxy for economic growth: export, import, and exchange rate as proxies for international trade. The study employs time series data from 1970- 2015 using an autoregressive distributed lag model, in addition to other econometrics techniques: such as unit root test, the bound and the short run dynamic test. The finding reveals that a positive relationship exists between export and economic growth in Nigeria, while a negative relationship exist between import and economic growth. The results as well established that stable long run relationship exist between international trade and economic growth. The paper thus recommends for trade expansion policies and exchange rate reducing policies to boast exports and sustain positive economic performance.

**Keywords:** *Economic growth and International trade*

*Corresponding Author:* Angelinah, K. Osu

**Background to the Study**

Global trade connotes the interchange of goods and services among international locations across boundaries. The wave of globalization has grossly accelerated the rate of trade openness among nations. The magnitude of international transactions of some countries translates to significant share of gross domestic product (GDP). The international trade platform allows countries to exchange their internally produced goods and service to different countries of the world (Adewuyi, 2002). It is established that international exchange is the bedrock for economic growth of nations who takes advantage of a world market to exchange their domestic products. The growth of an economy associated to international trade by extension spur economic development through improved human welfare and increasing the choice of customer's demand. Adewuyi, (2002) revealed that no country has grown without trade exchange, consequently international trade plays a crucial position in shaping economy and social values of a country. The volume of global trade participation has set political and economic bases for the categorization of the world economy into developed and developing economies. Early economist in the likes of Adam Smith, David Ricardo has strongly advocated for countries to engage in global exchange or trade.

Development economist for long found out the role of trade among nations mainly in the growth process of their national economies as it provides both foreign and stimulate production, which accelerate the rate of economic growth. Nigeria as a nation relies upon largely on her trade relations with other nations for her sustained economic growth. Nigeria as an independent nation in 1960 depended on agriculture as the main stay of the economy as well as the chief earner of foreign exchange for the country. According to Ezike and Amah (2011), Nigeria became capable to execute investment projects, due to domestic savings and earning from exports of agricultural products and foreign aids with a favourable balance of trade. The Dutch disease that has characterized the Nigerian economy, because of the appearance of crude oil since 1974 has caused the economy to be grappling with problems of developmental realities, as a result escalating the debt profile of the country no matter the huge big foreign exchange earnings from crude oil export. The total neglect about the agricultural sector has caused the country to loss her position on the global market as the major exporter of palm oil, groundnut, cocoa and rubber (CBN, 2004).

CBN (2006), report that between 1960 and 1980, agriculture and agro-allied based exports represent approximately 60% of Nigeria overall exports basket which is now been allotted by the oil export. This development however has not diminished the value and significance of international trade to the growth of the Nigeria economy. With the advent of democratic governance, the rate of economic openness has increased (measured by ratio of exports - ratio of imports to GDP) from 3% in 1991 to over 16% in 2014 though with some interruptions occasioned by the aid of the Nigeria Delta militant activities and the insurgency in the North East of Nigeria ( Central Bank Statistical Bulletin, 2006 ).

**Statement of Problem**

The performance of the Nigeria economy has not been remarkable compared with developed countries who are Nigeria's trade partners. The country gross domestic product in the third

quarter is 1.8 and that of United State of America her trading partner is 6.7 and China 8.2 (World Bank, 2018). Udeh, (2002) recognized that Nigeria received over $228 billion as revenue from oil exports between 1981 and 1999 this does not translate to better-quality living standard of the people, lyoha, (2010) added that the population of the people living in poverty rose from 36 percent to 70 percent over the same period.

Though the speed of economic progress has improved since 2000 averaging 7% growth rate per annum between 2000 to 2013. Nigeria is not yet out of what Sachs and Warner (2001) captioned as "Natural Resource Curse" portraying a systematic tendency for narrowly specialized primary commodity exports to nurture more sluggishly than countries with more diversified exports. Economic growth has remained the concern of International trade. Nigeria participating fully in trade across International borders is still facing myriad of economic challenges fluctuating from price instability, high level of unemployment and unfavorable balance of payment.

**Objectives of the Study**
The general objective of this paper is to study the effect of international trade on Nigeria economic performance. The specific objectives are to:
  (1)    Examine the effect of export on Nigeria economic growth.
  (2)    Investigate the effect of import on Nigeria economic growth.

**Literature Review**
**Foreign Trade and Economic Growth**
As originally proposed in the orthodox theories of trade, the theory of comparative advantage is static; therefore it can be examined whether trade has any importance to the vigorous issue of economic improvement. A harmony has subsequently arisen that the classical and neoclassical theories could be used to address the issue of economic development, employing the technique of comparative statics. Haberler (1988) and others have frazzled that the traditional trade theories confer both static gains (direct benefits) and vigorous gains (also termed unplanned benefits) on trading countries.

In this perspective, static achievements refer to the upsurge in income, which arises from greater effectiveness in apportioning resources along a fixed and given production possibilities frontier while the —dynamic profits of trade talk about the snowballing upsurges in income that arise from external shifts of the production possibilities frontier brought about by a trade-induced movement along the original frontier. These vigorous benefits have been doubled up the—growth effects of trade. According to Harbeler (1988), there are four vivacious points concerning the —dynamic paybacks of trade on participating less developed countries (LDCs): First, trade affords material means (capital goods, machinery and raw and semi-finished materials) indispensable for economic development. Secondly, and even more important, trade is the means and motor vehicle for the distribution of technological knowledge, the spread of ideas, for the introduction of know-now, skills, professional talents and entrepreneurship. Thirdly, trade is also the vehicle for the worldwide movement of capital specifically from the advanced to the underdeveloped countries. Fourthly, free worldwide trade is the best anti-monopoly policy and the best surety for the conservation of a strong degree of free competition (Haberler, 1988).

Preferably, international trade points to an upsurge in income, in the glassy of investment and in the state of technical information in the country. The upturn in investment and developments in inventions and technological development then lead to improved productivity and competitiveness, and generate a surplus increase in trade and in income. This encouraging response continues and brings about a —virtuous circle of amplified trade, rising income, and economic improvement. However, knowledge has revealed that positive export performance needs a broadly supportive policy environment including macroeconomic firmness, public investment in infrastructure and human capital, and policies that offer satisfactory inducements for investment in the export sector. Above all, these policies should be dependable, translucent and steadily sustained over a long period of time.

Finch and Michalopoulos (2000) have provided a treasured understanding into the nature of the association between external trade and development. According to them, it is not exclusively, or perchance even mainly, a demand-driven link, whereby export growth arouses incomes and output in the rest of the economy. Rather, actual contribution in international trade permits economies of scale not open to small-protected economies. By introducing bigger market rivalry, trade inspires a more effective employment of resources and better growth in productivity in the whole economy. Moreover, open trading policies permit faster adaptation to different technologies and greater tractability in responding to international economic advances.

**Foreign Trade and Economic Growth: The Empirical Evidence**
Using exports as a proxy for trade and growth in income per capita or GNP as a measure of development, many examiners over the years has struggled to test the hypothesis of a substantial positive association between trade and growth. Many of the studies (Tyler, 1981, Hassan, 2010,Salvatore & Ram, 2006 & Krueger, 2008), have been bivariate, associating exports and growth but a few others have been multivariate. Many of the studies have embraced a cross-country approach while some others have recycled time series data to study the association for selected countries. Most of the empirical results reported have maintained the proposition that exports certainly encourage growth and expansion.

Among the important cross-country studies, worth mentioning are those undertaken by Voivodas (2001), Michaely (2003), Balassa (2005), Salvatore and Ram (2006). Using a sample of 11 Latin American countries, found that export earnings had a greater impact on output growth than other sources of foreign exchange earnings such as public external debt and foreign direct investment. The Voivodas (2001) study concerned 22 LDCs which Michaely (2003) used correlation analysis to study 41 countries. Balassa (2005) on his part used the technique of rank correlation and pooled data for 11 countries covering 1960-2003

Finding among these researchers revealed a strong relationship between exports arid economic growth. Using data for 55 countries, Tyler (1981) established a strong evidence in favour of the suggestion that exports act as a stimulus to economic growth. Most of these studies recycled bivariate statistical and single equation regression techniques; they were logically subject to the disparagement of not allowing for feedback. Salvatore (2000) specifying

a simultaneous equations model of trade and development to address encounters associated with bivariate statistics and single equation regression. He estimated it using a sample of 52 countries in addition undertook dynamic simulations. His simulations revealed that exports in fact stimulate growth. He however interpreted the results as suggesting that trade is a handmaiden of development rather than an engine of growth.

Krueger (2008) used bivariate regression analysis to examine the export-growth nexus and found evidence in favour of exports acting as a stimulus for economic growth. In addition, he used a simple log-linear specification to analyze the effect of exports on growth for each of 10 Asian countries using data for 1954-2006. GNP was found to depend more on export earnings than total foreign exchange availability. Ekpo and Egwaikhide (2009) used Nigerian data. Like the other studies, they found exports to be a key contributing factor of economic growth in Nigeria. Focus (2008) study on certain African countries and also found evidence for a systematic relation between foreign trade and economic growth.

Hassan (2010) used Vector Auto-Regression (VAR), Impulse Response Function (IFR) and Granger-causality test to determine the long-run association between exports and local economic growth in Saudi Arabia from 1970 to 2008, and establish that the export sector had an important outcome on economic growth and a positive effect on other economic undertakings in the long run.

Obiora (2009) used VAR models to study the magnitude and sources of growth spill over in Nigeria from key trading partners, as well as from the country's exchange rate. The results debunked the —decoupling theory, and confirmed the existence of significant cross-country spillovers from the US and other major trading partners to Nigeria.

Omoke and Ugwuanyi (2010) used Granger causality and cointegration tests to examine the association between export, domestic demand and economic growth in Nigeria. The results from Trace and Maximum Eigen Value test conducted revealed that the variables do not have long-run association, but the Pair-wise Granger Causality test indicated that economic growth Granger causes both export and domestic demand, while a bilateral causality exists between export and domestic demand.

Mustafa (2011) examined the association between foreign trade and economic growth in Turkey using VAR and VECM, and employed quarterly data of GDP, export and import for 1987 through 2010. He found that, in the short run, GDP growth did not significantly depend on the export growth.

Rahmaddi and Ichihashi (2013) investigated the link between exports and economic growth in Indonesia during the period 1971-2011, using a VAR model. Based on the analysis conducted in a VECM framework, the authors establish that exports and economic growth exhibit bi-directional causal structure, and resolved that both exports and economic growth are substantial to the economy of Indonesia.

Ram (2013) joined the league to examine the association between foreign trade and economic growth in India, by means of annual data over the period 1972 - 2011. The co-integration and Granger causality tests established that economic growth and foreign trade are co-integrated, suggesting the presence of a long-run equilibrium connection between the two, and the incidence of bi-directional causality which runs from economic growth to foreign trade and vice versa.

Nyong (2005) investigated the long-run relationship between foreign trade and economic growth in Iran between 1975 and 2008 using a Vector Autoregressive model (VAR) and data for real gross domestic product, total population, trade volume, gross capital formation and tariffs. Their results indicated that total population, trade volume, gross capital formation and tariffs have positive outcome on economic growth.

More recent time series study of trade and growth. Basically, use (growth in) real GDP as a proxy for economic growth while we utilize exports, foreign direct investment and the nominal exchange rate as proxies for foreign trade. In order to proper!} analyze the interrelationships among these non-stationary time-series variable, informed the choice of versatile tool of vector auto regressions.

Adewuyi (2002) contended that trade policy does disturb the volume of trade, but there is no robust motivation to expect the consequence of growth to be quantitatively alike to the significances of variation in trade volumes that arise as declines in transport cause or upsurges in world demand. Trade constraints should represent policy responses to real or apparent market imperfections or are used as mechanism for rent extraction. They assumed that trade policy works inversely from usual or geographical barriers to trade and other exogenous determinants. In other stimulating study, Hassan (2010) argued that trade may not be the only key to rapid economic growth and development. They noted that the realization of some countries that experienced quicker growth did not chart simple path to trade liberalization because the government directs the economy with subsidies. Nevertheless, there are many opinions as concerns trade and growth; one submits that international trade increases resources allocation in the short run or raises growth rate perpetually. There are other arguments that submit the contrary. Ajayi (2003) suggests that trade is essential when an industry stretches a certain level of maturity provided it is undertaken progressively and selectively.

In addition, the policy is often executed along with the depreciation of currency in order to make the exports of the devaluation country's export cheaper and is of good quality it have a tendency to sell more internationally there by boosting growth and improvement Agbeyegbe (2006), and Obadan (2006) maintained that the vital aim is to eradicate taxes on exports, which will boost further exportation of goods, and services that will further boost growth and development, limit on imports and decrease of imports tariffs. Sachs and Warner (1995) using cross-country growth model argued that trade liberalization leads to higher growth rates in poorer countries than in richer countries. In support of this, Ajayi (2003) reports that the elimination of barriers to trade has improved the stream of trade by 16 percent fold in the last

50 years, with the world exports of goods and services nearly tripled in real terms between 1970 and year 2000. Nonetheless, the share of developing countries or third world countries input to world trade is still very low because their exports are mostly primary products that do not add much to GDP of such countries paralleled to trade on manufactured or finished goods. Nyong (2008) having carried an empirical study on the effect of international trade on 70 developing countries establish a substantial positive association between trade and economic growth, i.e., international trade is a substratum for economic growth, Tervio (2002) recommended that countries that are more open to trade have a tendency to experience greater growth rates and per-capita income than closed economy.

Asafu (1999) used general equilibrium model to institute that the countless number of intermediate input mixture results in productivity gain and greater output, notwithstanding using the same capital labour input which displays the economies snowballing international trade return to scale.

Oyedeji (1974), after he studied middle and low income developing countries, he establishes that the extraordinary rate of economic growth was stalwartly linked with high rate of export growth. He saw that there is a positive link between exports and economic growth for both middle and low income countries nonetheless the effects have a tendency to reduce according to the level of economic development of the country.

Obadan (2010) also writes on the effect of export uncertainty on the economic development of Nigeria, during 1960-2008. More outstandingly, the study studies whether or not variations in Nigeria's export earnings have contrary effects on the economy. The outcomes of the study via multivariate analysis as the frame work, settle the hypothesis that export unpredictability is a significant hindrance to Nigeria's economic development. In specific, export uncertainty is establish to be highly damaging to the growth rate of investment as well as resulting in smaller proportions of national income being invested. The outcome also backs the assertion that Nigeria's economic growth is export led.

 In the same way, Akerele (2004), with the use of suitable quantitative methods, he acknowledged sources of uncertainty in export earnings for the Nigeria economy for the period between (1980-2001). He saw that both political and economic factors were the main sources of variability in Nigeria's export earnings. The effect of political factors on export earnings is not astonishing, since the period of study corresponded with the imposition of various prohibitions on Nigeria for failing to adopt western-style democracy.

Ogbokor (2001) investigated the macroeconomic effect of oil exports on the economy of Nigeria. With the usage of OLS method, he observed that economic growth responded in a predictable way to fluctuations in the variables used in the study. He also establishes that 10% surge in oil exports would lead to 5.2% upsurge in economic growth. He established that export-oriented approaches should be given a more useful support.

Michaely (2003) concentrated his attention on the enhancement between the rate of growth of export and GDP. He establishes out that the relationship between rates of growth of the economy is principally robust among the countries with successful growth experience.

Oviemune (2007) examined the contribution of foreign trade to china's economic growth and establish that the previous reviews on foreign trade underestimated the support of exports to GDP growth by overlooking the indirect influences of exports on domestic consumption, investment, government outlays and imports. They offered a new estimation method and found that 10% upsurge in exports caused in 1% increase in GDP in the 1990's in China, when both direct and indirect contributions were measured.

Mustafa (2011) in his study reported that for the past forty-seven years (1961-2008), the Malaysian economy grew at an impressive average rate of 6.8% per annum. The quick growth was credited, in part, to the outstanding success in the export-oriented industrialization policy.

Obiora (2009) establish that lack of openness was the most major contributor to the miserable economic growth performance in sub-Sahara Africa. Harrison (2001) study made a synthesis of preceding empirical studies between openness and the rate of GDP growth comparing the effects from cross section and panel estimations while controlling for country effects. The study concluded that on the whole, associations across openness measure seem to be certainly linked with GDP growth-the more open the economy, the higher the growth rate or the more safe the local economy.

Oyejide (2013) also showed the influence of restrictive measures was to produce a large anti-export bias in the African countries.
In his work, he clarified the likelihood that export growth may set up a venomous cycle of growth such that once a country is on track of growth, it upholds its competitive position in world trade and performs continually well relative to other countries.

Oviemuno (2007) studied foreign trade as an engine of growth in emerging countries taking Nigeria (1980-2003) as a case study; the outcomes indicated that Nigeria's export value does not act as an engine of growth in Nigeria and that Nigeria's inflation rate does not act as an engine of growth.

Edwards (2013) after carrying out his studies on factors including capital accumulation, growth in labour as well as differences in level of technology, establish out that countries with lesser degrees of protectionism, on average have a tendency to grow at a much quicker pace than countries with higher trade limitations. Correspondingly, Asafu (2014) having carried out an empirical analysis establish confirmation which is constrained with the weak association between exports and real output for inward looking countries. They establish that export were inadequately exogenous inferring inward oriented approach was unsuccessful to development strategy when hastily introduced. Nevertheless, Adewuyi (2002) having studied a cross section and the role of balanced trade, that is export minus imports, to show the role of international trade on economic growth and development, they establish a positive link between growth and export trade to imports (X-M)/(GDP).

**Theoretical review**

Three foremost models of export-led growth are discussed, the Neo classical supply-side model, the balance of payments constrained model which is also recognized as the Hicks super-multiplier model, and the virtuous circle model.

**The Neoclassical Supply-Side Model:** This model displays the association between exports and growth, and accepts that the export sector discusses externalities on the non-export sector, because of its disclosure to overseas competition; and furthermore that the export segment has a greater level of output than the non-export segment. Therefore, the segment of exports in GDP, and the advance of exports, matter for general growth performance. Kruger (1983) proved a formal model of this kind to clarify the connection between export growth and output growth. The productivity of the export growth sector is supposed to be a function of labor and capital in the sector, the productivity of the non-export sector is expected to be a function of labour, capital and the productivity of the export segment (so as to capture externalities), and the ratio of separate marginal factor productivities in the two sector is assumed to differ from unity by a factor. The model tested the using a cross section of 19 semi industrial countries and a more sample of 31 countries over the period 1964-73. He discovers that there are considerable changes in output between the export and non-export sector are also indication of externalities.

The externalities conversed are fragment of the dynamic gains from international trade that are related with the transmission and flow of new ideas from abroad connecting to both production methods and effective management practices. The cross-section slog on exports and growth adopts, but that all countries in a mockup follow to the same model, with the same intercept and coefficient parameters relating exports and growth. In practice, this is highly improbable to be the case; and it emerges, in fact, that when time series studies are conducted for individual countries, the relation between exports and growth is much punier.

**Balance of Payments Constrained Growth Model**

No country can develop quicker than rate dependable with BOPs equilibrium on current account in the long run, except it can fund ever-growing shortfall which, in overall, it cannot. Ratios of deficit to GDP of more than 2% -3% to make the international financial markets nervous and all borrowing eventually have to be repaid. A country's BOPs equilibrium growth rate can be modeled by stating the BOPs equilibrium state stipulating multiplicative (constant elasticity) import and export demand functions in which imports and exports are a function of home and foreign income, respectively, and of relative prices, and substituting these functions in the equilibrium conditions. Since imports are a function of home income, the model can be simply resolved for the growth of income dependable with balance of payments equilibrium.

Asafu (1999) applied this model to Africa to contrast the experience of slow growing African countries with the faster growing countries of Asia over the period 1970-1990. He uses an extended model which also embraces terms of trade effects and the effects of capital flows. The main clarification of the variance in growth rates between Africa and Asia turns out to be the variance in the growth of exports. He discovers that the usual growth of the African

countries, eliminating oil exporters, was 3.4 percent per annum, and of the Asian countries 6.6 percent. The contribution of export growth in Africa was 1.99 percentage points and in Asia 5.91 percentage points.

Variances in capital flows and terms of trade movements made only an inconsequential contribution to growth rate differences. Consequently, he established that exports are matchless as a growth encouraging force from the demand side because it is the only part of demand that offers foreign exchange to pay for the import desires for growth. In this sense, it permits all other components of demand to grow quicker in a way that consumption-led growth or investment-led growth does not.

**Virtuous Circle Models of Export-Led Growth**
There is need to identify the fact that export and growth may be interconnected in an accumulative process. This increases the questions of casualty; but more significantly, such model offers an clarification of why growth and expansion through international trade have a tendency to be focused in specific areas of the world, while other regions and countries have been left behind. These models offer a challenge to both orthodox growth theory and trade theory which foresee the long run convergence of living standards across the world. A modest cumulative model, driven by exports as the key component of autonomous demand, is to assume that:
  i.    Output growth is a function of export growth.
  ii.   Export growth is a function of price competitiveness and foreign income growth.
  iii.  Price competitiveness is a function of wage growth and productivity growth
  iv.   Productivity growth is a function of output growth (this is referred to as verdoorn law that works through static and dynamic returns to scale, including learning by doing). Induced output growth makes the model circular and cumulative, encourages high production and improved competition and consequently prompts quicker export growth influence of the liberalization on economic growth in all probability works primarily through improving efficacy and stimulating exports that have influential effects on both supply and demand within an economy. There is numerous diverse measure of trade liberalization or trade orientation, and all studies seem to indicate a positive effect of liberalization on economic performance. Studies about the relation between exports and economic growth and the evidence appears over whelming in a causal sense, but the relative implication of the exact mechanisms by which export growth influences on economic growth are not always easy to recognize or meet the requirements. The study is nevertheless, anchored on export-led growth theory.

**Methodology**
This study used annual time series data from 1970 to 2015. The data used for all the four variables were obtained from the CBN Statistical Bulletins. The study embraces the econometric method of autoregressive distributed lag model. The merit of this model is that it can be used if the variable are mixture of 1(0) and 1(1) that is if the variables are integrated of order zero 1(0) and order one 1(1). The next step is for us to establish if long run relationship exist among the variables of interest using the bound ARDL (Autoregressive Distributed Lag model). There after we establish the long run relationship which is followed by the short run dynamics.

Model Specification
$$RGDP=F(EXPO, IMPO, EXCH) \dots \dots \dots \dots \dots \dots \quad 1$$

From equation (1) the ARDL model can be written as:

$$RGDP = a_0 + a_1 RGDP_{t-1} + a_2 EXPO_{t-1} + a_3 IMPO_{t-1} + a_4 EXCH_{t-1} + U \text{ ---- } 2$$

RGDP = Real Gross Domestic Product proxy for economic growth
EXPO = Exports
IMPO = Imports
EXCH = Exchange Rate
U    = Error term

## Results Presentation and Interpretation

The series of econometric investigations carried out for the study are presented and interpreted in this segment.

## Unit Root Test Result

**Table 1:** ADF unit root test result

| Variables | Level | 1$^{st}$ diff | 2$^{nd}$ diff | Remarks |
|---|---|---|---|---|
| GDP | | -6.10073*** | | 1(1) |
| EXPO | -10.79520*** | | | 1(0) |
| IMPO | -4.326286*** | | | 1(0) |
| EXCH | | -2.862306*** | | 1(1) |

**Source**: Authors Computation using e views 9.0
***: Statistically significant at 1%, 5%, and 10% respectively

The result of the Augmented Dickey Fuller unit root test presented in table 1 discloses that, GDP and EXCH were stationary at first difference 1(1) as EXPO and IMPO were stationary at levels 1(0). This result submits varying levels of stationarity hence the OLS method cannot hold as dependable method of analysis.

## Presentation and Discussion of Results

We report the results of the data analyzed and also discuss the findings in this section.

**Table2:** ARDL Bound Test Result for Model 1
**Null Hypothesis:** No long-Run Relationship Exist

| Test Statistic | V | K |
|---|---|---|
| F-Statistics | 140.6107 | 3 |
| Critical Value Bounds | 1(0) | 1(1) |
| 10% | 2.37 | 3.2 |
| 5% | 2.79 | 3.67 |
| 2.5% | 3.15 | 4.08 |
| | 3.65 | 4.66 |

**Source**: Author's Computation Using E view 10.0 2018

Table2 above shows the bound test result, the computed F-Statistic value is 140.61 which is greater or higher than the upper bound critical value of 4.66. Thus, we can reject the null hypothesis of no long run relationship among the variables, and accept the alternative hypothesis. This buttress that a long run relationship exists between economic growth and international trade in Nigeria

**Table 3:** Estimated Long Run Coefficient of ARDL (1, 4, 3, 4) Result

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EXPO | 0.586050 | 0.798039 | -3.734362 | 0.0037 |
| IMPO | -0.767604 | 0.563094 | -2.363190 | 0.0099 |
| EXCH | 0.984595 | 0.188720 | 5.217235 | 0.0008 |
| C | -3545.310 | 3083.969 | -1.149593 | 0.2835 |

EC = GDP - (0.5860*EXPO -0.7676*IMPO + 0.9846*EXCH - 3545.3104 )

The estimated long run coefficient result is shown in table3 above. The result from table 3 indicates that all the variables have positive coefficient and are significant at 5 percent significance level, except import that has a negative coefficient and it is significant at 5 percent level of significance This implies that a direct relationship exist between economic growth and international trade proxy by export and import.

A percentage change in export will result to 0.58 percent change in economic growth. A percent change in import will lead to 0.77 percent reduction in economic growth in Nigeria. The reason for this may because the multiplier effect of import is felt outside the shore of the country. Thus, an inverse relationship exists between import and economic growth in Nigeria. Exchange rate has a positive coefficient 0.985, implying that a percentage change in exchange rate will result to 0.985 percent increase in economic growth in Nigeria.

**Table 4:** Estimated Short-Run ARDL Result (1,4,3,4)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(EXPO) | 0.033692 | 0.018121 | -1.859316 | 0.1000 |
| D(EXPO(-1)) | 0.053945 | 0.024439 | -2.207334 | 0.0083 |
| D(EXPO(-2)) | 0.073574 | 0.018933 | 3.886014 | 0.0046 |
| D(IMPO) | 0.013486 | 0.015552 | -0.867162 | 0.4111 |
| D(IMPO(-1)) | -0.015723 | 0.023202 | -2.677650 | 0.0171 |
| D(IMPO(-2)) | -0.047834 | 0.024879 | -3.922667 | 0.0007 |
| D(IMPO(-3)) | 0.074037 | 0.017617 | -4.202604 | 0.0030 |
| D(EXCH) | 0.086106 | 0.017679 | -4.870657 | 0.0012 |
| D(EXCH(-1)) | 0.041771 | 0.012532 | 3.333235 | 0.0103 |
| D(EXCH(-2)) | 0.052626 | 0.017682 | -2.976253 | 0.0177 |
| D(EXCH(-3)) | 0.073366 | 0.017850 | 4.110193 | 0.0034 |
| ECM(-1)* | -0.437738 | 0.004241 | 32.47430 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.982438 | Mean dependent var | 4646.091 |
| Adjusted R-squared | 0.966339 | S.D. dependent var | 3477.856 |
| S.E. of regression | 638.0838 | Akaike info criterion | 16.06167 |
| Sum squared resid | 4885812. | Schwarz criterion | 16.65070 |
| | | Hannan-Quinn | |
| Log likelihood | -180.7400 | criter. | 16.21794 |
| Durbin-Watson stat | 2.090492 | | |

Table 4 reports the estimated short run model result using ARDL (1,4, 3, 4). From the result export at lag period1 and 2 have positive coefficient and are significant. The same is applicable to exchange rate but import has negative coefficient. The error correction (ECM) which explains the speed of adjustment is correctly sign and it is significant. This indicates that about 44 percent disequilibrium is corrected yearly.

The sensitivity test confirmed the robustness of the model; these sensitivity tests considered are Breusch-Godfrey serial correlation LM test, Jacque-Bera normality test and the hetroskedasticity test.

**Table 4:** Sensitivity (Diagnostic) Tests

| | | |
|---|---|---|
| Serial Correlation | F (2, 6) 0.014507 | 0.9856 |
| Hetroskedasticity | F (14, 8)1.534 | 0.4315 |
| Normality | 0.156212 | 0.9989 |
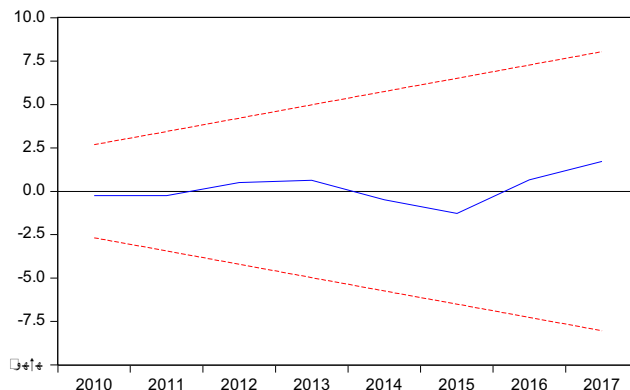
The result of the stability test of the long run relationship between international trade and economic growth using the cusum graph shows that the model is stable, because the graph fails within the critical region.

**Recommendations**

Grounded on the outcomes of the study, the subsequent robust policy recommendations are made:

1. Policies tailored towards export promotion should be encourage and sustained
2. Exchange rate reducing measures should be implemented to reduce the charge of foreign currency to encourage exports and reduce the charge of raw material importation

**References**

Adewuyi, A. O. (2002). Balance of payment constraints and growth rate differences under Economic recovery. *African Journal of economics and Social development,* 5,100-128

Ajayi, S. I. (2003). Globalization and Africa. *Journal of African Economics, 12,* 120-150

Akerele, A.O. (2004), Nigeria's export trade instability and forecast: *Journal of Development Alternatives and area Studies*

Alternative Policy Regimes.(2003). *Nigeria institute of social and economic research* (*NISER) Monograph series 10,* Ibadan: Nigeria.

Asafu, A. J. (1999). Export-Led growth and import compression: Further time series evidence from LDCs. *Australian Economic Perspective, 38,* 164-175

Balassa, B. (2005). Export and economic growth: Further evidence. *Journal of Development Economics, 5* (4), 181-198

Central Bank of Nigeria (2012). *Statistical bulletin annual report and statement of accounts: Various issues* Abuja: Nigeria.

Central Bank of Nigeria (2014). Statistical bulletin annual report and statement of accounts: Various issues.

Edward, S. (1998). Openness, productivity and growth: What do we really know? *Economic Journal, 108* (1) 383-398

Ekpo, A. M. & Egwaikhide, D. (2000). Export and economic growth in Nigeria: A reconsideration of the evidence. *Journal of Economic Management, 1* (3) 100 -120.

Ezike, I. & Amah, P. (2011). Macroeconomic impact of trade on Nigerian growth: An empirical evaluation. *Research Journal of Business and Accounting, 1* (4) 79- 83

Hassan, A. (2010). Export and economic growth in Saudi Arabia: A VAR model analysis. *Journal of Applied Sciences, 7* (4) 49-53

Lortyer, A. D. (2016). *A medium sized macroeconomic model of the Nigerian Economy.* Calabar: PhD Thesis, University of Calabar, Nigeria.

lyoha, M. A. & Adamu, P. A. (2011). The impact of external trade on economic growth in Nigeria: A road map for the twenty- first century. *West African social and Management Sciences Review, 2* (10) 1-30.

Kruger, A. O. (1997). Trade policy and economic development: How we learn, *American Economic Review.*

Michaely, M. (2003). Export and growth: An empirical investigation. *Journal of Development Economics, 4* (1) 49 -53

Mustafa, K. (2011). An analysis of the relationship between trade and economic growth in turkey over the Period (1980-2009). *Lund University School of Economic and management.*

Nyong, M. O. (2005). *International economics, theory, policy and application*, Calabar: WUSEN Publication, Cross-River State.

Obadan, M.I. & Okojie, E. I. (2010). An Empirical analysis on the Impact of Trade on Economic Growth in Nigeria. *Jos Journal of Economics,* 4(5): 86 -109.

Obiora, K. I. (2009). How much do trading partners maters for Nigeria's growth? A contribution to the debate on decoupling and spillovers. *Journal of Economic and Monetary Integration, 9* (1) 20-41

Ogbokor, C. A. (2001). Oil and economic growth: An econometric analysis. *Journal of Development Alternative and Area Studies, 20* (3) 124-130.

Omoke, P. C. & Ugwuanyi, C. U. (2010). Export, domestic demand and economic growth in Nigeria: Granger Causality Analysis. *European Journal of Social sciences, 13* (2) 104-128.

Oviemuno, A. O. (2007). International trade as an engine of growth on developing countries, a case study of Nigeria (1980- 2003). *Journal of Economic Perspective, 12* (4) 45- 62

Oyedeji, T. A. (1974). Export and economic growth: An econometric analysis. *Journal of Development, Alternatives and Area Studies, 20* (3) 124-139

Policy Research Working paper WPS 809, World Development Report, World Bank, Washington, DC

Rahmaddi, R. & Ichihashi, M. (2011). Export and economic growth in Indonesia. A causally approach based on multi-variate correction model. *Journal of International Development cooperation, 7* (2) 53-73.

Ram, R. (2000). Export and economic growth: Some additional evidence. *Economic Development and Cultural Change, 33* (2) 415-425.

Salvatore, D. (2000). A simultaneous equation model of trade and development with dynamic policy simulation. *KYKLOS, 36* (1) 66-90.

Tyler, W. G. (1981). Growth and export expansion in developing countries: some empirical evidence. *Journal of Development Economics, 9* (1) 121-130.

Udeh, J. (2002). *Petroleum revenue management: The Nigerian perspectiv*e. Paper Presented at World Bank/IFC Petroleum Revenue Management Workshop, Washington DC.

Volvadas, C. (2001). Export, foreign capital inflow and economic growth. *Journal of International Economics,* 3 (4)337-344.