

Foreign Trade and Economic Growth: Nigerian Experiences From 1960-2013

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Abstract: *The study examined the impact of Foreign trade (FTD) on the growth of the Nigerian economy, using time series data from 1960 to 2013. The study employed secondary data such as Financial Reviews of Central Bank of Nigeria (CBN), and/or National Bureau of Statistics (NBS). The paper explored various econometrics and statistical analytical (.i.e., Eview 7.2) method to examine the relationship between FTD and economic growth. The paper tested different diagnostic tests of Nigeria's time series data. The entire tests rejected the null hypothesis and accepted the alternative hypothesis. Except Levin, Lin & Chu t* that accept null hypothesis and reject the alternative hypothesis. From the empirical result findings, it was discovered that there is a significant relationship between FTD and/or economic growth in Nigeria. The study recommended that government should embark on the policies of free-trade and removal of trade barrier, etc, since openness (net export) of the economy has a direct relationship with Nigerian economic growth, management of foreign exchange market and reduction of inflationary pressure, and/or formulate export encouragement and import substitution policies, hence economic growth and development.*

Keywords: *Trade, External Reserve, Exchange Rate, Growth*

1. INTRODUCTION

No nation could ever be in a state of autarky, therefore there is a coexistence or cohabitation of nations. This was accentuated by classical economists Shuaib (as cited in Smith (1776) and Ricardo (1817)) and/or a source of cordial relationship among nations of the world. However, trade (international or Foreign or national) is widely accepted as a major engine (or power house) of economic growth. This thus experienced in Nigeria since the early 1950s even though the composition of trade has changed over the centuries (Shuaib, 2007; Shuaib, 2011). The great political economists of time placed emphasis on trade liberalization or free trade in that if trade is liberalized or freed, therefore there is tendency of increment in the World output, which likely perhaps make it possible to consume goods and/or services not produced. This precisely led to specialization of countries in goods and services where they have an absolute advantage and/or import goods and services where they have absolute disadvantage as enunciated by Smith (1776) and/or countries should concentrate on producing goods and services where they have comparative advantage and import goods and services where they have comparative disadvantage as cited by (Jhingan, 2006; Shuaib, Ekeria & Ogedengbe, 2015).

Shuaib (as cited in Smith, 1776) in his work advocated for interlinks (.i.e. globalization or trade liberalization) of economies. He affirmed that the only way economic growth and development could easily be sustained among nations of the world is for every nation to specialize on that good she has an absolute advantage and import that good she has an absolute disadvantage or export that goods and services she has comparative advantage and import that goods and services she has comparative disadvantage. These enable countries to enjoy the pros of international trade. FD has brought employment opportunity, Research and Development (R & D)—.i.e., innovations and learning by doing, human capital development, capital formation, external revenue, high standards of living of her citizenries, which tantamount to high Gross National Product (GNP), that is economic development, etc.

International or foreign trade (ITD or FTD) has a direct relationship with economic growth and development. In other words, foreign trade has contributed to the Gross Domestic Product (GDP) of Nigeria. This relationship with economic growth has not manifested in the emerging countries—such as—Nigeria. The reason is that the composition of emerging countries' trade is primary goods or commodities, which serve as raw materials to the developed economies. The new developments in the demand for the goods or commodities of the emerging countries are that the developed or most advanced countries have designed the synthetic devices that could help them to preserve goods for long years without deterioration or changing value, and, the elasticities of demand and/or supply equally interplay in the demand and/or supply of the goods from the developing countries. In other words, it may be suffice to say that foreign trade has an inverse relationship with economic growth and development in the emerging countries. Trade (predominantly agricultural sector) was an engine to economic growth in Nigeria in the 19th and 20th centuries, which evidenced on the GDP. It has acted as an engine of growth for particular national economies. This has been argued that though trade is an engine of growth, but it has been in favour of developed countries, in the sense that the less-developed or emerging countries' produces are centrally on primary (raw materials) goods. To further the pains, the developed economies after the second World War had developed synthetic devices (which enable them to warehouse produces from emerging countries for a long period of times without any iota of deterioration or fading out) as a substitute for natural raw materials and/or other technological advances or robot leading to the reduction in the raw material contents of industrial products (Shuaib as cited in Iyoha, 1996).

Over several past decades, the economies of the world have become increasingly dependent (linked), through expanded international trade in services as well as primary and manufactured goods, through portfolio investments such as international loans and purchases of stock, and through Foreign Private Investment, especially on the part of large multinational corporations. Developing countries are importing and exporting more from each other as well as from the developed countries and some parts of the developing world, especially East Asia but notably Latin America. More investments have poured in from developed countries such as the United States, the United Kingdom and Japan. (Todaro & Smith, 2006).

Free trade or trade liberalization or globalization is characterized as the elimination of all forms trade restrictions, which may eventually result to counter-retaliation. Trade restriction is in form of Tariff, Custom duties. Excise duty, Embargo, Ban, etc., (Olawale & Afolabi, 1987). FD involves the use of foreign currency or dominant or stable currency (or unit of currency exchanges for another currency) or foreign exchange market (or foreign exchange rate) which the goods are exchanged. Again there is recording of the whole transactions (.i.e., balance of payments) among the countries of the World, where on the one hand it is expected that the account should always be favourable and/or on the other, if there is unfavourable situation—then it calls for policies and regulatory of government agencies—through the use of monetary and fiscal policies. These duo policies enable the control or regulatory of the macroeconomic variables or environment (Shuaib, *et al*, 2015).

Over two—and—half decades, the macroeconomic variables have distorted the free trade or trade liberalization or globalization in the emerging nations—such as—Nigeria. The most pronounced of the variables is the double—digits of the inflation that is waxing and wagging stronger in the *per se* countries. And Nigeria depends on importation, which has an exogenous impact on the *per se* nation. This economic fisticuff is equally experienced in a mono-economy. In Nigeria for example, is a mono-economy that depends on crude oil sector. Most recently all OPEC's members that supply crude oil to the market got into economic hardship resulting from the Shales Oil production by American government. Government swiftly intervened by policies formulation, which led to the currency devaluation and/or budget deficit (*op.cit.*).

In this paper, we shall examine the impact of foreign trade on the economic growth in Nigeria.

2. LITERATURE REVIEW

Multiple and/or robust research works both theoretically and/or empirically are available in academic circle and/or businessmen's milieu. For more than three decades, the emerging economies had been facing steady slow and/or sluggish economic growth and development even though with their abundant natural (human and non human) resources. Nigeria its composite of trade is primary or source of raw of material. And again, it is mono-economy or import dependent.

Examining the impact of foreign trade on economic growth and development, Edwards (1993); Frankel and Romer (1999); Dollar and Kraay (2001) laid emphasis on the positive effect of trade liberalization on economic growth and poverty reduction. Dollar and Kraay (2001) studies supported the view that trade openness has positive effect on economic growth and development by submitting that foreign trade increases the domestic income of participating countries. This is because opening the economy to international commerce allows domestic entrepreneurs to learn new methods of using or producing quality inputs quicker at lower cost, increasing total factor productivity, human capital accumulation and in harnessing overall national technological capacity.

Iyoha (2000) and Dike (1995) used growth accounting framework to investigate the determinants of economic growth. Whereas Iyoha (2000) constructed a time series data on capital stock, Dike (1995) used investment data. In comparison, the novelty of Iyoha's work lied in the use of capital stock. This is because capital stock is crucial in total factor productivity. Adewuyi (2005) used the Data Envelop Analysis to quantify the contribution of factor productivity to real output growth. Among others his findings show that albeit total factor productivity increased during the period of Structural Adjustment Programme (SAP) but could not be sustained in the post-SAP era. Assessing the challenges of international (foreign) trade, Obadan (1994) also noted the high inflation rate reduces international competitiveness of exports, foreign exchange earnings and puts pressure on current account and exchange rates. In short, high inflation rates may be considered as indicator of macroeconomic instability and a country's inability to control macroeconomic policy, both which contribute adversely to investment climate. Shuaib, Ekeria & Ogedengbe, (2015) examined the impact of inflation rate on the economic growth in Nigeria. The study explored secondary data for the period of 1960 to 2012 and used E-view 7.2 statistical window in processing and analyzing the time series data. The empirical result of the test showed that for the periods, 1960-2012, there was no co-integrating relationship between Inflation and economic growth for Nigeria data. Furthermore, we examined the causality relationship that exists between the two variables by employing the Pairwise-Granger causality at two lag periods.

Shuaib (as cited in Obadan 1994) submitted that with the presence of large external debt burden also reducing investment activities. This is because the higher debt service payment associated with a large external debt reduces the funds available for investment. *Secondly*, the existence of a large debt overhang in the form of high ratio of external debt to GDP can reduce the incentives for investment, because much of the returns from investments must be used to repay existing debt. *Thirdly*, if substantial, external debt leads to difficulties in meeting debt-servicing obligation, which may strain relations with external creditors and make it harder or more costly to finance or attract private investment. The importance of exchange rate on inflow of trade. Shuaib (as cited in Obadan 1994) noted that its importance as the center piece of the investment environment derive from the argument that a sustained exchange rate misalignment in terms of overvaluation or undervaluation, is a major source of macroeconomic disequilibria which spells danger for investment. The neoclassical economists argued that trade influences economic growth by increasing the amount of capita per person. However, because of diminishing returns to capital, it does not influence long-run economic growth. Ezebasili & Isu, (2011) investigated the relationship between Nigeria's external debt and economic growth, between 1975 and 2006. Econometric evidence revealed stationarity of the variables at their first difference while the Johansen cointegration approach also confirms the existence of one cointegrating relationship at the 1 percent and 5 percent level of significance. In addition, error correction estimates revealed that external debt has negative relationship with economic growth in Nigeria. For example, a one per cent increase in external debt resulted in a decrease of 0.027 per cent in Gross Domestic Product, while a 1 per cent increase in total debt service resulted to 0.034 per cent (decrease) in Gross Domestic Product. These relationships were both found to be significant at the ten per cent level. In addition, the Pairwise Granger Causality test revealed that uni-directional causality exists between external debt service payment and economic growth at the 10 percent level of significance. Also, external debt was found to granger cause external debt service payment at the 1 percent level of significance. Statistical interdependence was however found between external debt and economic growth.

Ascertaining the relationship between balance of payments, globalization, fiscal policy, learning and talents, FDI, Shuaib, Ekeria and Ogedengbe (2015) examined balance of payments: Nigerian Experience: 1960-2012 using time series data from 1960-2012. The study explored secondary data from the Central Bank Statistical Bulletin for the period of 1960 to 2012 and used various

econometric analyses and/or statistical analytical (E-view 7.2) method to examine the relationship between balance of payments and economic growth. The paper tested the stationary—through Group unit root test. The co-integration technique employed in this study is Engle and Granger, (1987) approach in assessing the co-integrating properties of variables, especially in a multivariate context to determine the long-run relationship among the variables examined. Further effort was made to check the causality relationship that exists between the two variables by employing the Pairwise-Granger causality at one lag period. From the result of empirical findings, it was discovered that in table 3 there was unidirectional from RGDP to BOP, EXCH, EDR, and from EDR to FTD and bidirectional causality only between EDR to EXCH.

Ayanwale (2007) identified three sets of influences on FDI to include: (i) market factors such as the size and growth of the market measured by the Gross National Product (GNP) of the recipient country; (ii) cost factors such as the availability of labour, low labour costs and inflation; and (iii) the investment climate as measured by the degree of foreign indebtedness and state of balance of payments.

Shuaib, Ekeria & Ogedengbe, (2015) empirically examined the impact of globalization on the growth of Nigerian economy using times-series data from 1960 to 2010. The paper utilized secondary data and various econometrics and/or statistical packages analytical (View 7.2) method were explored to examine the link between the econometrics variables and their impact on the growth of Nigerian economy. The paper tested the stationarity, cointegration of Nigerian's time series data and used error correction mechanism to determine the long run and short run relationship among the variables examined. The results of the findings supported the Obadan's findings which proved that growth of external debt ratio was an inversely related to economic growth in Nigeria.

Shuaib (2011) examined the impact of Foreign Direct Investment (FDI) and trade on the economic growth of Nigeria. Taking into account the possible existence of endogeneity of Foreign Direct Investment modelling, and employed the Ordinary Least Square (OLS) techniques—through statistics Gretl packages in exploring the possible links between FDI, trade and economic growth in Nigeria. The results revealed that Foreign Direct Investment and trade have significant impact on the economic growth of Nigeria. Though the overall impact of Foreign Direct Investment and trade on economic growth may not be significant, but the components of Foreign Direct Investment and trade have a direct impact on the growth of the Nigeria economy during the period under review. Though the relationship between FDI, trade and economic growth was found to be statistically insignificant, but there still exist a direct relationship.

Shuaib, Dania, Imoagene & Pogonson, (2015) empirically examined the impact of Foreign Direct Investment (FDI) on the growth of the Nigerian economy, using time series data from 1981 to 2013. The paper explored various econometrics and statistical analytical (i.e., Eview 7.2) method to examine the relationship between FDI and economic growth. The paper tested different diagnostic tests of Nigeria's time series data. The entire tests rejected the null hypothesis and accepted the alternative hypothesis. From the empirical result findings, it was discovered that there is a significant relationship between FDI and/or economic growth in Nigeria. The results corroborated with the Harrod-Domar model which proved that the growth rate of national income will directly be related to saving ratio and/or investment (i.e. the more an economy is able to save-and—invest-out of given GNP, the greater will be the growth of that GDP).

Shuaib, Ekeria and Ogedengbe, (2015) examined the impact of fiscal policy on the growth of the Nigerian economy using time series data from 1960-2012. The study explored secondary data from the Central Bank Statistical Bulletin for the period of 1960 to 2012 and used various econometric analyses and/or statistical analytical (E-view 7.2) method to examine the relationship between fiscal policy and growth. The paper tested the stationarity—through Group unit root test, and stationarity found at first differenced at 5% level of significance. Factor method, Goodness-of- fit summary, VAR and its properties were tested. Also, the Co-integration Technique and Pairwise-Granger Causality were employed in this study to test and determine the long-run relationship among the variables examined. From the result of the empirical findings, it was discovered that fiscal policy has a direct relationship with growth.

Fajana (1979) investigated the impact of export and foreign capital on economic growth. He found that export has greater impact on GDP growth than foreign capital inflows over eleven years period,

1964 to 1974. He recommended that Nigeria should de-emphasize reliance on foreign capital while export should be promoted.

Ogbokor (2001) investigated the macroeconomic impact of oil exports on the economy of Nigeria. Utilizing the popular OLS technique, he observed that economic growth reacted in a predictable fashion to changes in the regressors used in the study. He also found that a 10% increase in oil exports would lead to 5.2% jump in economic growth. He concluded that export oriented strategies should be given a more practical support. Oviemuno (2007) looked at international trade as an engine of growth in developing countries taking Nigeria (1960-2003) a case study, he used four important variables, which are export, import, inflation and exchange rate. The findings showed that Nigeria's export value does not act an engine of growth in Nigeria, Nigeria's import value does not act as an engine of growth in Nigeria and that Nigeria's inflation rate does not act an engine of growth in Nigeria. Shuaib, Ekeria and Ogedengbe, (2014) examined the impact of exchange rate on the growth of Nigerian economy using time series data from 1960 to 2010. The paper tested the stationarity—through unit root test (ADF), Vector Autoregressive Estimates (VARs), cointegration test, Granger-Causality test of Nigeria's time series data and used an error correction model through over-parameterization and parsimonious of model to determine the long-run relationship among the variables examined. It was discovered from the findings that the growth rate of national income was directly related to domestic investment and economic growth.

Evaluating of learning, innovations, human capital development, Research and development, technology transfer and economic development, Shuaib, Ahmed & Kadiri, (2015) examined the impact of innovation for 21st century educational sector in Nigerian economic growth. The paper employed the characteristics of each time series by testing their stationarity using Augmented Dickey Fuller (ADF) tests, including co-integration tests and Error Correction model through over-parameterization and parsimonious of the variable to enable the researcher to ascertain both short run and long run equilibria. Shuaib, Ahmed & Kadiri (2015). Examined the impact of innovations and transformations in teaching and learning on educational systems in Nigerian economic growth, The paper employed the characteristics of each time series by testing their stationarity using Augmented Dickey Fuller (ADF) tests, including co-integration tests and Error Correction model through over-parameterization and parsimonious of the variable to enable the researcher to ascertain both short run and long run equilibria. The results of the findings revealed that total government expenditure on education proxied for teaching and learning has direct relationship with economic growth.

Shuaib, Igbinosun and Ahmed, (2015) examined the impact of government agricultural expenditure on the growth of the Nigerian economy. The study employed secondary data sourced from National Bureau of Statistics, and Financial Review of Central Bank of Nigeria. The study employed E-view 7.2 statistical output as a window in exploring the possible links between government agricultural expenditure and economic growth. The results revealed that government agricultural expenditure has a direct relationship with economic growth which statistically significant at 5% level.

Ainabor, *et. al* (2014) examined the impact of capital formation on the growth of Nigeria using time series data from 1960 to 2010. The paper applied Harrod –Domar model to Nigerian growth model and tested if it has a significant relationship with Nigerian economy. The paper utilized secondary data and the paper explored various econometrics and/or statistical analytical (Eview 4.0) method to examine the relationship between capital formation and economic growth. The paper tested the stationarity, OLS, cointegration of Nigeria's time series data and used an error correction mechanism to determine the long-run relationship among the variables examined. The results of the findings supported the Harrod-Domar model which proved that the growth rate of national income was directly related to saving ratio and capital formation (i.e. the more an economy is able to save-and invest-out of given GNP, the greater will be the growth of that GDP).

Shuaib & Dania, (2015) examined the capital formation: impact on the economic development of Nigeria, using time series data from 1960 to 2013. The paper applied Harrod –Domar model to Nigerian economic development model and tested if it has a significant relationship with Nigerian economy. The paper explored various econometrics and statistical analytical (i.e., Eview 7.2) method to examine the relationship between capital formation and economic development. The paper tested the stationarity and/or different diagnostic tests of Nigeria's time series data. The entire tests rejected the null hypothesis and accepted the alternative hypothesis. From the empirical findings, it was

discovered that there is a significant relationship between capital formation and/or economic development in Nigeria.

Shuaib and Kadiri, (2012) examined the impact of Information and Communication Technology (ICT) on the Growth of the Nigerian Economy using annual time series data from 1970 to 2010. The basic variables of concern derived from the literature review are: real gross domestic product proxied as economic growth, ICT proxied as telecommunications (TELCOM), enrolments into Tertiary (TSE), Secondary (SSSE) and Primary (PSE) on educational institutions was used as proxied for human development. With the aid of statistical package (E-views, version 3.1); the model was estimated using annual time series data from 1970 to 2010. The paper employed stochastic characteristics of each time series by testing their stationarity using Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests, including cointegration tests and Vector Autoregressive Measure. Empirical results revealed that there is, indeed a long-run relationship among government expenditure on education, human capital development proxied as tertiary school enrolments, Secondary school enrolments and Primary school enrolments and economic growth in Nigeria. All the variables have short and long run relationship with each other as revealed by Johansen cointegration. From the Findings, it was revealed that there is a feedback mechanism between ICT and economic growth in Nigeria (Aluyor & Shuaib, 2012).

Foreign trade leads to infrastructural development in the recipient country. Shuaib (as cited in ODI, 1997) asserted that infrastructure covers many dimensions, ranging from roads, ports, power generations, railways and telecommunication systems to institutional development (e.g. accounting, legal services etc). Thus, both social and economic (including financial) infrastructures are relevant to our definition. Though views differed on whether poor infrastructure is a minor or major incentive, majority view held that poor infrastructure is a major disincentive. Surveys in sub-Saharan Africa indicated that poor accounting standards, inadequate disclosure and weak enforcement of legal obligations have damaged the credibility of financial institutions to the extent of deterring foreign investors. Bad roads, delays in shipment of goods at ports and unreliable means of communication have added to these disincentives. Foreign trade has enabled Research and Development (R & D) to take place in Nigeria such as, new method (s) of production, transfer of modern technology to recipient community. On the other hand, the endogenous school of thought opined that FDI also influences long-run variables such as research and development (R & D) and human capital development (Oke, 2007; Momoh, 2010). Shuaib (as cited in Borensztein *et al*, 1998; Sjöholm, 1999) opined that through technology transfer to their affiliates and technological spillovers to unaffiliated firms in host economy, Transnational Corporations (TNCs) can speed up development of new intermediate product varieties, raise the quality of the product, facilitates international collaboration on R&D, and introduce new forms of human capital development (*op. cit*). FDI also contributes to economic growth via technology transfer. TNCs can transfer technology either directly (internally) to their Foreign Owned Enterprises (FOE) or indirectly (externally) to domestically owned and controlled firms in the host country. TNCs may have an inverse impact on the direct transfer of technology to the FOEs, however, and thereby reduce the spillover from Foreign Private Investment in the host country in several ways. They can provide their affiliate with too few or the wrong kind of technological capabilities, or even limit access to the technology of the parent company. The transfer of technology can be prevented if it is not consistent with the TNC's profit maximizing objective and if the cost of preventing the transfer is low (Carkovic and Levine, 2002).

Shuaib, Ekeria and Ogedengbe, (2015) examined the impact of corruption on the growth of Nigerian economy using time series data from 1960 to 2012. The paper utilized secondary data and the paper explored various econometrics and/or statistical analytical (Eview 7.2) method to examine the relationship between corruption and economic growth. The paper explored unit root, Cointegration analysis to test for the Nigeria's time series data and used an error correction mechanism to determine the long-run relationship among the variables examined. From the results of the findings, it was discovered that corruption has an inverse relationship with growth of an economy.

Ayadi, (2007) adopted the country data-annual time series (1980-2007).The variables of the models and their relationships are defined thus; FDI, FDI/GDP ratio or FDI growth rate (FDIGRO) is assumed to be caused by – labour productivity growth (LPGROW), real gross fixed investment (RGFINVBN), government size (GOVSIZE) measured as the ratio of government consumption to GDP (Ayanwale, 2007), trade openness (TRADOPEN) measured as import plus export over RGDP.

Other determinant includes exports (EXPBN). In order to measure the linear relationship between measures of growth and that of FDI we utilized the Spearman's rho.

3. THEORETICAL FRAMEWORK

The model that captures the main objective of this study is Harrod–Domar model. Harrod–Domar model describes the economic mechanism by which more investment leads to more growth. For a country to develop and grow, it must divert part of its resources from current consumption (or save) and invest them in capital formation. Diversion of resources from current consumption is called saving. While saving is not the only determinants of growth, the Harrod Domar model suggests that it is an important ingredient for growth. Its argument is that every economy must save a certain proportion of its national income if only to replace worn-out of capital goods. The model shows mathematically that growth is directly related to saving and indirectly related capital output ratio. Suppose we define national income as Y, growth as G, capital output ratio as K, saving as S, and investment as I, and average saving ratio as s and incremental capital output ratio as k, then we can construct the following simple model of economic growth.

$$S = sY \tag{1}$$

i.e. saving (S) is some proportion of (s) of national income (Y)

$$I = \Delta k \tag{2}$$

i.e.net investment (I) is defined as the change in capital stock K

$$G = \Delta Y \tag{3}$$

ΔY i.e. growth is defined as change in National income ΔY divided by the value of the National income.

But since the total stock, K, bears a direct relationship to total national income, or output Y, as expressed by the capital/output ratio k, then it follows that:

$$K = \frac{K}{Y} \tag{4}$$

$$\text{or } K = \frac{\Delta K}{\Delta Y}$$

or, finally,

$$\Delta K = K \Delta Y$$

Finally, since total national saving, S, must equal total investment, I we can write this equality as

$$S = I \tag{5}$$

But from Equation (1) above we know that $S = sY$ and from Equations (2) and (3) we know that:

$$I = \Delta K = k \Delta Y.$$

It therefore follows that we can write the identity of saving equalling Investment shown by Equation (6) as

$$S = sY = k \Delta Y = \Delta k = I \tag{6}$$

or simply as

$$sY = k \Delta Y \tag{7}$$

$$\Delta Y = G = sY K \tag{8}$$

Now by dividing both sides of Equation (8) by Y and later by K, we derive the growth Model $\Delta Y/Y$ which represents the rate of change of national income or rate of GDP (i.e., It is the percentage change in GDP)

Equation (8), which is a simplified version of the famous Harrod –Domar equation in the theory of economic growth, implies that the rate of growth of GDP ($\Delta Y/Y$) is determined jointly by the national saving ratio, s, and national capital/output ratio, k. More specifically, it says that in the absence of government, the growth rate of national income will be directly or positively be related to saving ratio (i.e. the more an economy is able to save-and- invest-out of given GDP, the greater will be the growth

of that GDP) and inversely or negatively; relate to the economy's capital/output ratio (i.e., the higher the k is, the lower will be the rate of GDP growth).

The economy logic of equation (8) is very simple. In order to grow, economies must save and invest a certain proportion of their GDP. The more an economy can save, and invest, the faster they can grow, for any level of the rate of growth depends on how productive the investment is.

3.1. The Specification of Model

The model of this paper is hinged on the model of Shuaib (2011), which enables the determination of the impact of foreign trade on the growth of the Nigerian Economy.

$$RGDP_t = f(AOUT_t, EDR_t, ER_t, FTD_t, INFL_t, INV_t, REXCH_t) \quad (1)$$

Where:

RGDP_t = Real Gross Domestic Product is proxied for economic growth; AOUT_t = Agricultural Output; EDR_t = External debt ratio; ER_t = External Reserve Ratio; FTD_t = Foreign trade which measures the ratio of export and imports in the Nigerian economy; INFL_t = Inflation Rate; INV_t = Investment; REXCH_t = Real Exchange Rate.

For the purpose of estimation for this paper, the model or behavioural equation is transformed into double log-linear form, and/or expressed as thus:

$$\text{LogRGDP}_t = \alpha_0 + \alpha_1 \text{logAOUT}_{t-1} \pm \alpha_2 \Delta \text{logEDR}_{t-1} \pm \alpha_3 \text{logER}_t \pm \alpha_4 \text{logFTD}_t \pm \alpha_5 \text{logINFL}_t \pm \alpha_6 \text{logINV}_t \pm \alpha_7 \text{logREXCH}_{t-1} + \mu \quad (2)$$

The a priori expectations are as follows:

$$\alpha_0 > 0, \alpha_1 > 0, \alpha_2 < 0, \alpha_3 > 0, \alpha_4 < 0, \alpha_5 \leq 0, 0 \leq \alpha_6 \leq 1, 0 \leq \alpha_7 \leq 1.$$

Where:

α_0 = Intercept, α_1 = Coefficient of Agricultural Output; α_2 = Coefficient of External Debt Ratio; α_3 = Coefficient of External Reserve; α_4 = Coefficient of Foreign Trade; α_5 = Coefficient of Inflation rate; α_6 = Coefficient of Investment; α_7 = Coefficient of Real Exchange Rate, and μ = white noise error term.

The contribution of this study to knowledge is in terms of the estimation techniques employed and/or the data used which was extended to 2013. Attempt was made to empirically investigate the relationship between the foreign (international) trade and/or economic growth of Nigeria for the period 1960 – 2013 regression analysis. The equation was estimated using a variety of analytical tools, including Group unit root tests, cointegration test, Wald Test, Ramsey RESET Test, and Variance Ratio Test. The results are discussed below. The data used for the study covers the period 1960 and 2013. The study employed secondary data which are derived from various issues of CBN *Annual Report and Statement of Accounts (2013)*, & CBN *Statistical Bulletin (2014)*.

3.2. Group Unit Root Summary

Table1 in appendix shows the summary of the Group unit root test using summary test (i.e. Levin, Lin & Chu t*; Im, Breitung t-stat, Pesaran and Shin W-stat; ADF-Fisher Chi-square; PP-Fisher Chi-square) with the lag length selection based on SIC: 0 of the variables used for the empirical study. The group unit root test shows that; Real Gross Domestic Product (RGDP); Agricultural Output (AOUT); External Debt Ratio (EDR); External Reserve (ER); Inflation rate (INFL); Investment (INV); and Real Exchange Rate (REXCH) were stationary at level at 5 percent level of significance respectively except Levin, Lin & Chu t*. The probability of obtaining the Group Unit Root is greater than 0 and less than 0.05 (i.e., $0 \leq 0.05$) which means the null hypothesis has to be rejected—which says there is no significant relationship between foreign trade and economic growth and the alternative hypothesis is to be accepted. While Levin, Lin & Chu t* showed that the probability of obtaining the value is greater than 5%, therefore, we need to accept the null hypothesis— which says there is no significant relationship between foreign trade and economic growth and/or the alternative hypothesis is to be rejected.

3.3. Cointegration Test Results

Co-integration test is carried out in order to determine the long-run relationship between the dependent and independent variables when one or all of the variables is/are non-stationary at level which means they have number of stochastic trends in asymptotic distribution. Co-integration tests are conducted by using the reduced procedure developed by Engle and Granger, (1987). They noted that a linear combination of two or more $I(1)$ series may be stationary, or $I(0)$, on which case we say the series are cointegrated. Such linear combination defines a cointegrating equation with cointegrating vector of weights characterizing the long-run relationship between the variables. The Engle and Granger, (1987) test results are divided into three distinct sections. *First* portion as shown in table 2 displays the test specification and settings, along with the test values and corresponding p -values. *Second* (or the middle) section of the output displays the *estimated coefficients, standard error, t-statistics, and p-value* for the constant, even though they are not strictly speaking valid or intermediate results used in constructing the test statistic that may be of interest. The summary statistics portion is relatively familiar but does require a bit comment MacKinnon (1996). Most entries are self-explanatory, though a few deserve a bit of discussion—such as RHO S.E. and Residual Variance are the (possibly) d.f. corrected coefficient standard error of the regression. The long-run residual variance is the estimate of the long-run variance is the estimate of the long-run of the residual based on the estimated parametric model. The number of stochastic trends entry reports the value used to obtain the p -value.

Engle and Granger, 1987 procedure is used to determine the linear combination of two or more series and/or to identify a long-run relationship as shown in table 2 at appendix. The cointegration tests include Real Gross Domestic Product (RGDP); Agricultural Output (AOUT); External Debt Ratio (EDR); External Reserve (ER); Foreign trade (FTD); Inflation rate (INFL), Investment rate (INV), and Real Exchange Rate (REXCH). Which includes Automatic lag specification (lag = 0 based on Schwarz Info Criterion, maxlag = 1).

3.4. Wald Test (WT)

The next stage of estimating residuals is the Wald test, which helps to measure the Chi-square value and/or its probability (p -value) and null hypothesis.

From table 3 in appendix, the Chi-square value is 329.6335 and/or the probability to obtain Chi-square value is greater than zero and/or less than five (i.e., $0 \leq 0.05$). This states that null hypothesis has to be rejected and accepted the alternative hypothesis, which says that there are asymptotic normal distribution residuals in the model.

3.5. Ramsey Reset Test

To further estimate asymptotic normal distribution residuals, Ramsey RESET Test is employed, which helps to measure the t-statistic value, F-statistic value, Likelihood Ratio (LR), and/or its probability (p -value) and null hypothesis at lag 1.

From table 4 in appendix, the t-statistic value—5.302502, F-statistic value—28.11653, Likelihood Ratio (LR)—25.50308, and/or the probability to obtain these values is greater than zero and/or less than five (i.e., $0 \leq 0.05$). This states that null hypothesis has to be rejected and accepted the alternative hypothesis, which says that there are asymptotic normal distribution residuals in the model.

3.6. Variance Ratio Test

The variance ratio test view allows the researcher to perform the Lo and Mackinlay variance ratio test to determine whether differences in series are uncorrelated, or follow a random innovation or martingale property. In addition, Lo and Mackinlay (1988, 1989) variance test ratio enables for homoskedastic and heteroskedastic random innovations using asymptotic normal distribution or wildbootstrap to evaluate statistical significance (*loc. cit*). This is shown in table 5 at appendix

3.7. Orthonormal Loadings Biplot

The component scores are displayed as circles and the variables loadings and displayed from the origin with variable labels. In diagram 1, the Biplot clearly shows us that the first component has positive loadings for all the eight variables (i.e., external reserve and real exchange rate interpretations). Second, component has positive loadings for interest rate and negative loadings for

INV, AOUT, RGDP, TD, EDR and INFL. If INV does well relative to EDR and INFL, the second specific component will be positive, and vice versa

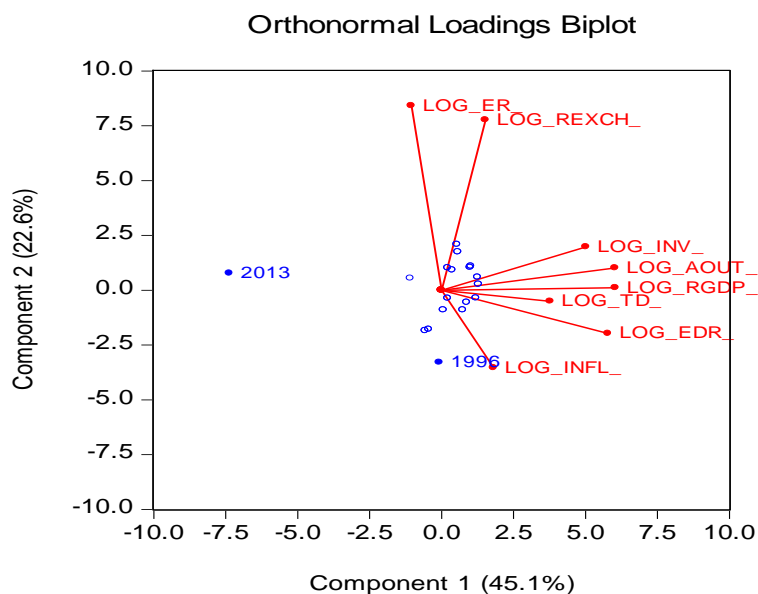


Diagram1. Orthonormal Loadings Biplot

A boxplot, also known as a box and whisker diagram, summarizes the distribution of set of data by displaying the centering and spread of the data using few primary elements.

Boxplots are often drawn so that the widths of the boxes are uniform. Alternatively, the box widths can be varied as a measure of the sample size for each box, with widths drawn proportional to N, or proportional to the square root of N.

4. SUMMARY OF RESULT FINDINGS

The paper empirically examines the impact of foreign trade (FTD) on the Growth of the Nigerian economy, using annual time series data from 1960 to 2013. The paper employs stochastic characteristics of each time series data by testing their covariance and residuals using Group unit root, Wald Test (WT), Ramsey RESET Test, Variance Ratio Test (VRT), and/or Orthonormal Loadings Biplot (OLB).

From the entire test carried out with different diagnostic tests, it was revealed that all the null hypotheses were rejected (i.e., there is no significant relationship between FTD and/or economic growth) and/or accepted the alternative hypotheses (i.e., there is significant relationship between FTD and/or economic growth), except Levin, Lin & Chu t* showed that the probability of obtaining the value is greater than 5%, therefore, we need to accept the null hypothesis— which says there is no significant relationship between foreign trade and economic growth and/or the alternative hypothesis is to be rejected.

The paper discovered that the FTD and/or its components (determinants) have significant relationship with the economic growth of Nigeria. Rejecting null hypotheses in the diagnostic tests corroborated the fact that FTD has a direct relationship with Nigerian economic growth.

4.1. Recommendation

From the econometric study of the impact of Foreign Trade (FTD) on the growth of Nigerian economy, the following recommendations are stated below:

- Government should embark on the policies of free-trade and removal of trade barriers, etc, since openness (net export) of the economy has a direct relationship with Nigerian economic growth;
- Government policies should be tailored towards the positive management of foreign exchange market and/or the reduction of inflationary pressure on the economy;
- Export encouragement policy should be formulated by the government—such that incentives or subsidies are granted to farmers, and private investors.

- Import substitution policy has to be interplayed by government—in way of encouraging indigenous investors to produce those commodities that are imported by the citizenries and making the cost of importation to be dearer, and/or made in Nigeria should be in vogue. This is where devaluation of currency sets in.
- Government should improve on the macroeconomic indices such as: general price level, interest rate and exchange rate, etc, since they have a direct and/or an inverse relationship with Nigerian economy growth;
- Government should encourage domestic investors to invest in Nigeria as to snowballing in employment opportunity.

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Appendices

Table1. Group Unit Root Summary

Group unit root test: Summary				
Series: LOG_RGDP_, LOG_AOUT_, LOG_EDR_, LOG_ER_, LOG_INFL_, LOG_INV_, LOG_REXCH_, LOG_TD_				
Date: 04/11/15 Time: 10:53				
Sample: 1960 2013				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West fixed bandwidth and Quadratic Spectral kernel				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.42169	0.0776	8	382
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.77953	0.0376	8	382
ADF - Fisher Chi-square	31.2739	0.0124	8	382
PP - Fisher Chi-square	31.2165	0.0126	8	382
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Table2. Cointegration Test—Engle--Granger

Cointegration Test - Engle-Granger				
Date: 04/11/15 Time: 11:40				
Equation: UNTITLED				
Specification: LOG_RGDP_ LOG_AOUT_ LOG_EDR_ LOG_ER_ LOG_INFL_ LOG_INV_ LOG_REXCH_ LOG_TD_ C				
Cointegrating equation deterministic: C				
Null hypothesis: Series are not cointegrated				
Automatic lag specification (lag=0 based on Schwarz Info Criterion, maxlag=1)				
		Value	Prob.*	
Engle-Granger tau-statistic		-4.226527	0.5464	
Engle-Granger z-statistic		-17.61717	0.5453	
*MacKinnon (1996) p-values.				
Warning: p-values may not be accurate for fewer than 35 observations.				
Intermediate Results:				
Rho - 1		-1.036304		
Rho S.E.		0.245190		
Residual variance		0.001034		
Long-run residual variance		0.001034		
Number of lags		0		
Number of observations		17		
Number of stochastic trends**		8		
**Number of stochastic trends in asymptotic distribution.				
Engle-Granger Test Equation:				
Dependent Variable: D(RESID)				
Method: Least Squares				
Date: 04/11/15 Time: 11:40				

Sample (adjusted): 1997 2013				
Included observations: 17 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-1.036304	0.245190	-4.226527	0.0006
R-squared	0.526568	Mean dependent var		-0.002031
Adjusted R-squared	0.526568	S.D. dependent var		0.046744
S.E. of regression	0.032163	Akaike info criterion		-3.979003
Sum squared resid	0.016551	Schwarz criterion		-3.929991
Log likelihood	34.82153	Hannan-Quinn criter.		-3.974131
Durbin-Watson stat	1.849164			

Table3. Wald Test

Wald Test:			
Equation: Untitled			
Test Statistic	Value	df	Probability
F-statistic	164.8167	(2, 10)	0.0000
Chi-square	329.6335	2	0.0000
Null Hypothesis: C(2)=0, C(5)=4*C(8)			
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value	Std. Err.	
C(2)	0.918058	0.050651	
C(5) - 4*C(8)	-0.092582	0.078761	
Restrictions are linear in coefficients.			

Table4. Ramsey RESET Test

Ramsey RESET Test			
Equation: UNTITLED			
Specification: LOG_RGDP_C LOG_AOUT_ LOG_EDR_ LOG_ER_ LOG_INFL_ LOG_INV_ LOG_REXCH_ LOG_TD_			
Omitted Variables: Squares of fitted values			
	Value	df	Probability
t-statistic	5.302502	9	0.0005
F-statistic	28.11653	(1, 9)	0.0005
Likelihood ratio	25.50308	1	0.0000
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	0.013084	1	0.013084
Restricted SSR	0.017272	10	0.001727
Unrestricted SSR	0.004188	9	0.000465
Unrestricted SSR	0.004188	9	0.000465
LR test summary:			
	Value	df	
Restricted LogL	37.00040	10	
Unrestricted LogL	49.75194	9	

Table5. Variance Ratio Test

Null Hypothesis: Cumulated LOG_TD_ is a martingale				
Date: 04/11/15 Time: 11:26				
Sample: 1960 2013				
Included observations: 54 (after adjustments)				
Heteroskedasticity robust standard error estimates				
User-specified lags: 2 4 8 16				
Test probabilities computed using wild bootstrap: dist=rademacher, reps=1000, rng=kn, seed=537069565				
Joint Tests		Value	df	Probability
Max z (at period 16)		19.44425	54	0.0000
Individual Tests				
Period	Var. Ratio	Std. Error	z-Statistic	Probability
2	1.993641	0.177193	5.607682	0.0000
4	3.996397	0.325536	9.204507	0.0000

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8	7.983749	0.493151	14.16149	0.0000
16	14.01186	0.669188	19.44425	0.0000
Test Details (Mean = 4.74439991053)				
Period	Variance	Var. Ratio	Obs.	
1	1.95513	--	54	
2	3.89782	1.99364	53	
4	7.81347	3.99640	51	
8	15.6093	7.98375	47	
16	27.3950	14.0119	39	