Impact of International Trade on Nigerian Economic Growth: Evidence from Oil Terms of Trade

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Abstract

Nigeria is not just richly endowed in primary oil (crude oil), but one of the major exporters of the same. However, the nation is also one of the key importers of refined/manufactured oil produce. Thus, the nation is known for her strong engagement in international trade via export and import of crude oil and refined/manufactured respectively. Theoretically, whereas Hechscher-Ohlin posit that international trade promotes economic growth if nations should produce and export goods in which they have factor endowment advantage and take the reserve on import, Prebisch-Singer maintained that exportation of primary product and importation of refined/manufactured produce will lead to negative terms of trade in developing countries which in turn will lead to perpetual underdevelopment. Given the aforesaid, this study examined the impact of international trade on Nigeria's economic growth drawing evidence from oil terms of trade from 2000 to 2018. The study made use of secondary data and employed Ordinary Least Square (OLS) regression technique. The estimated result revealed that in the short run, the oil commodity terms of trade (OCTOT) and non-oil commodity terms of trade (NOCTOT) had positive impact on Nigeria's economic growth, well the granger causality test shows that OCTOT, NOCTOT and GDP are independent of each other. From the results, the study therefore concludes that international trade both in oil and non-oil are vital for economic growth

in Nigeria and thereafter recommends that Nigerian government should promote not only the oil sector but the non oil sector as well.

Keywords: GDP; OLS; OCTOT; NOCTOT

Introduction

In economics international trade is an age-long phenomenon which has attracted different views theoretically and empirically in respect of economic growth. From theoretical point of view, some trade theorists such as Adam Smith, David Ricardo, Ali Hechscher and Bethel Ohlin etc. believe that international trade spurs economic growth mainly when nations trade on area they have absolute, comparative cost and factor endowment advantage respectively (Appleyard & Field, 1998).

Still from theoretical perspective, contrary opinion exists from some trade theorists such as Raul Prebisch, Hans Singer and Myrdal, who believe that international trade spurs economic growth of the developed countries and leads to perpetual underdevelopment in developing countries. This opinion is based on the fact that developed countries domestically extract raw materials, and at the same time import primary, intermediate goods from developing nations, and then refine both (import and domestically produced primary raw material) raw materials for domestic consumption and export. Whereas on the other hand, developing countries extracts raw materials and export them to developed countries in its primary stage, and import the manufactured versions of the same product initially exported (Prebisch-Singer, 1950; cited in Ojoh, 2005). Ojoh (2005) and Sen (2010) assert that exports of the developed countries are necessary good that conduct high market prices, high consumption speed and cannot be easily substituted with synthetics, while exports of developing countries can be substituted easily with synthetics which make them conduct lower prices in international market and as well as attract low consumption speed. These factors according to Prebisch-Singer will finally lead to negative commodity terms of trade in developing countries, which in turn will lead to perpetual underdevelopment.

From the era of 1973 oil boom to 2017 more focus has been given to oil sector which now dominates international trade in Nigeria (Afolabi, 2017). Regardless, trade in other sectors and subsectors agriculture inclusive are still ongoing, from 1970 to 1980 non-oil import stood at ₦ 45.41billion and non-oil export stood at ₦ 5.02 billion. From 1981 to 1991 non-oil import stood at ₦ 230.9 billion and non-oil export stood at ₦ 17.9 billion. On the other hand, from 1970 to 1980 oil import stood at ₦ 1.12 billion and oil export stood at ₦ 57.05 billion. From 1981 to 1991 oil import stood at ₦ 27.9 billion and oil export stood at ₦389.5 billion (CBN, 2017). The figure below shows summary of oil and non-oil import and export.
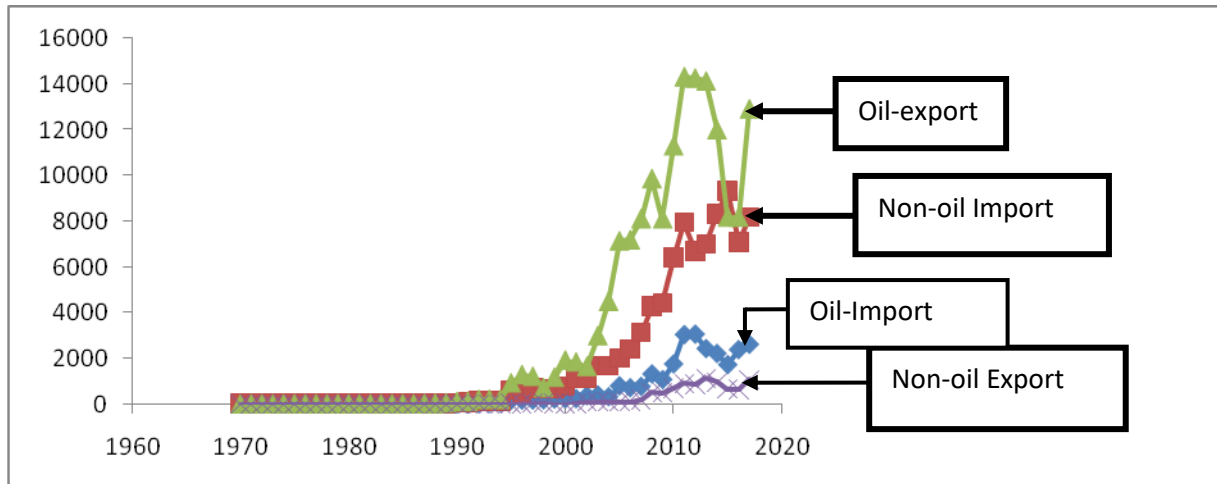
Figure 1.1: summary of oil and non-oil import and export form 1970-2017.

In the face of the oil and non-oil imports and exports as shown in figure 1.1 above, Nigerian economy has witnessed both negative and positive growth rates. For instance, in 1982, 1983, 1984, 1991 and 2016 Nigeria witnessed negative growth rates recording -1.79%, -7.58% and -0.51%, -0.55% and -1.58% respectively. The figure below shows summary of Nigerian economic growth.
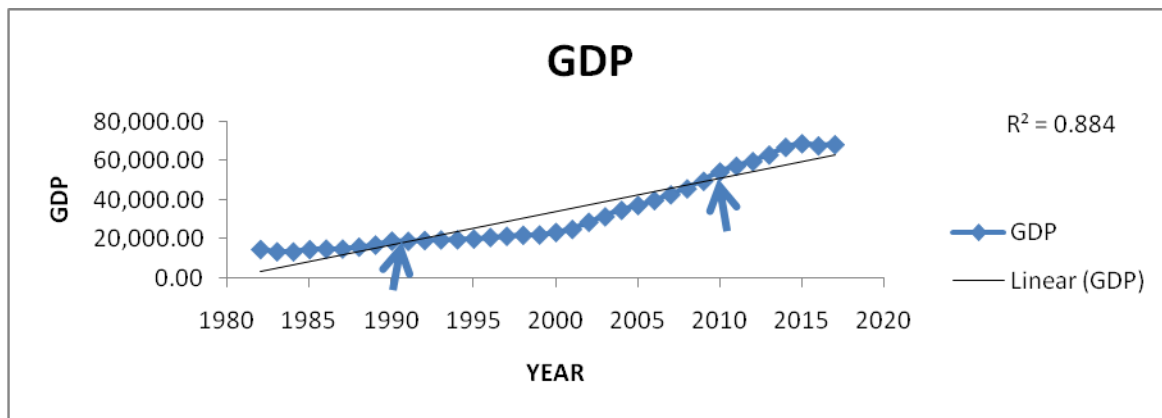

Figure 1.2: Trend of Nigerian economic growth from 1982 – 2017.
Source: CBN Statistical Bulletin.

Considering the linear line on GDP curve in figure 1.2, it is evidenced that Nigeria's economic growth is near linear with 88.4 percent linearity within1982 – 2017. Within1982-1989 GDP growth was slightly above the linear curve. In 1990 there was equilibrium as indicated by first arrow from the left side of figure 1.2, within 1991-2008 GDP growth was slightly below the linear curve and within 2009-2017 GDP growth was slightly above the linear curve. These summarily show that Nigeria's GDP has been increasing but slightly in the presence of oil and

non-oil trade at international frontier.

Regardless, reviewed empirical literatures concerning the impact of international trade on Nigerian economic growth have not examined the impact of oil and non-oil commodity terms of trade on Nigerian economic growth. Rather they have focused more on other variables neglecting oil and non-oil commodity terms of trade (see Afolabi, Danladi & Azeez, 2016; and Abiodun, 2017). However, from Prebisch-Singer point of view and from statistical evidence economic growth of all trading nations Nigeria inclusive interacts with international trade, precisely commodity terms of trade, Nigerian economic growth largely depends on both oil and non-oil terms of trade but reviewed empirical literatures have not tested the validity of Prebisch-Singer in respect of oil and non-oil commodity terms of trade. Hence this study intends to test the validity of Prebisch-Singer hypothesis in both oil and non-oil sectors.

Nevertheless, From Hechscher-Ohlin point of view international trade has the capacity to promote economic growth if nations should produce and export goods in which they have factor endowment advantage and import goods in which they are not endowed with. Comparing this theory to Nigerian economy, it is expected that Nigeria should witness economic growth through trade in oil and non-oil because of her level of factor endowment in these areas. Rather than sustainable growth, statistical evidence has shown that Nigerian economy has witnessed negative growth rates in 1982, 1983, 1984, 1991 and 2016 recording -1.79%, -7.58% and -0.51%, -0.55% and -1.58% respectively (CBN, 2017).

The negative growth rate and inconsistency in Nigerian economic growth have attracted researchers who try to examine the impact of international trade on Nigerian economic growth see Abiodun (2017), Afolabi, Danladi & Azeez (2017), Bosede (2014)). These studies did not consider oil and non-oil commodity terms of trade as a factor that can influence Nigerian economic growth negatively and/or positively. Whereas from Prebisch-Singer point of view developing countries such as Nigeria witness negative economic growth as a result of negative commodity terms of trade. Hence this study seeks to test the validity of Prebisch-Singer in respect of oil and non-oil commodity terms of trade in Nigeria economy.

Objectives of the Study

The broad objective of this study is to examine the impact of international trade on Nigerian economic growth with specific interest to;

1. Examine trend pattern of oil and non-oil commodity terms of trade.
2. Determine the impact of oil and non-oil commodity terms of trade on Nigerian economic growth.
3. Ascertain the causal link between oil and non-oil commodity terms of trade and Nigerian economic growth.

LITERATURE REVIEW
Theoretical literature review
The theories reviewed herein includes: a) international trade theories, b) theory of income determination in an open economy. This is done in order to give more theoretical insight to the

study.

ABSOLUTE ADVANTAGE THEORY

The theory of absolute advantage which is attributed to Adam Smith discusses the benefit a country can achieve by actively participating in the international division of labour. Smith argued that specialization in production leads to increase in output. This theory advocates that a country that trades internationally should specialize in producing only those goods in which it has absolute advantage. The country can then export a portion of those goods and, import goods that it's trading partner produce more cheaply. According to Smith, this approach would lead to global efficiency. Smith based his theory on the assumptions of; (1) the trade involves only two countries, (2) only two goods are traded by the two countries, (3) the countries have the same level of resource input. The absolute advantage theory is not free from criticism. The theory is based on the labour theory of value. The theory used labour as the only factor of production and its concern is merely on the number of workers available to each country and their efficiency in the ability to produce the goods in question; there was no room for the inclusion of other factors that may aid in the production process. Therefore, the production function is; $Q = F(L)$. Where, Q = output and L = labour input. This means that output is a function of labour only which is not realistic (Jhingan, 2006).

COMPARATIVE COST ADVANTAGE THEORY

This theory which is credited to David Ricardo proposed that countries can benefit from each other even though one has absolute advantage over the other in the production of both goods. The comparative advantage comes if each trading partner has a product that will bring a better price in another country than it will at home. If each country specializes in producing the goods in which it has a comparative advantage, more goods are produced, and the wealth of the both countries increases. This theory is based on the following assumption; (1) there is perfect competition in all markets. This means that; (a) firms are price takers, (b) firms choose output levels that equalizes the price with the marginal cost ($P = MC$), (c) output is homogenous across all firms, (d) free entry exit (e) perfect information. (2) only two countries are involved in the trading, (3) both countries produce only two goods, (4) labour is the only factor of production and it is homogenous and can freely move between industries but is immobile between two countries, and (5) there is no cost of transportation between countries. The theory of comparative advantage has been subjected to the following criticisms; the focus of the theory on labour cost is unrealistic. Production cost comprises labour and non-labour cost. In the same vein, trade process does not necessarily involve labour cost but money cost (Jhingan, 2006).

PREBISCH-SINGER TERMS OF TRADE (TOT) HYPOTHESIS:

Raul Prebisch and Hans Singer from Argentina and Germany respectively propounded the terms of trade theory in 1950 which is a two facet theory (Appleyard & Field, 1998) the first among their theoretical postulate is 1) Commodity Terms of Trade (CTOT), and 2) Income Terms of Trade (ITOT), this theory is basically known as Prebisch-Singer hypothesis. These two constructs focused on the economic implication of exportation of primary products from developing countries into developed countries and importation of manufactured products from developed countries into developing countries. This theory has gained popularity in literature as

a measure of trade efficiency that captures simultaneously the supply and demand sides of international trade.

CTOT is the simplest TOT for measurement of international trade efficiency or trade gain. The CTOT for any country is defined as the price of that country's export divided by the price of its import or the ratio of country's export to her import or the gap between country's export and her import, CTOT is represented as (P_X/P_M). Where P_X is export price and P_M is import price. Economic interpretation of the CTOT is that, as the price of export rises relative to the price of imports, the price gap between export and import should be large enough to purchase a larger quantity of import and bring higher utility and welfare to the citizens of the importing country which will further lead to economic growth and development and vice versa. For Prebisch-Singer CTOT will always be negative for developing countries and will always contribute negatively to her economic growth because demand pressure of manufactured products outstrips the demand pressure of primary products, by implication manufactured products conduct higher prices than primary products. This theory exists with acceptable critiques; first, Prebisch-Singer did not provide structural equation for better impact analysis. Secondly, CTOT is based on aggregate export and import not sector specific. Despite these criticisms, CTOT has the advantage to show the gap between per unit export over per unit import, CTOT reveal when trade is trending negatively and/or positively.

This study adopts CTOT Nigeria exports oil and non-oil primary products and imports refined petroleum products and manufactured non-oil produce. Secondly, bulk of Nigeria's oil and non-oil trade partners are developed nations, and these trades take place at different prices. Given this scenario therefore, the appropriate trade theory that can capture simultaneously the gap between oil and non-oil export price and oil and non-oil import prices is the CTOT. Income Terms of Trade (ITOT) on the other hand, attempts to quantify the trend of a country's export based capacity to import goods, as opposed to only the price relations between exports and imports. A rise in ITOT indicates that the country's export earnings now permit her to purchase a greater quantity of imports (Jhingan, 2006).

KEYNESIAN THEORY OF INCOME DETERMINATION IN AN OPEN ECONOMY
The theory of income determination in an open economy relaxed the assumption that there are no exports or imports and government expenditure in national income analysis. This means that imports and exports and government expenditure and taxation are added in the theory of open economy national income analysis. Government expenditures are like investment because they raise the demand for goods. They are injections in that national income. On the other hand, taxes are leakages in the national income like savings because they tend to reduce the demand for consumer goods. The impact of exports and imports is similar to that of the government expenditure. Exports are injections because they increase the demand for goods in the same economy. Imports, on the other hand, are leakages in the national income because they represent the supply of goods to the given economy.

The analysis of the determination of income in an open economy is based on the following assumptions. A) The domestic economy international trade is small relative to total trade b) There is less than full employment in the economy c) The general price level is constant up to the full employment level d) Exchange rate area   fixed e) There are no tariffs, trade and exchange restrictions f) Gross exports are determined by external factors g) Export (X), investment (I) and

government expenditure (G) are autonomous g) Consumption (C), imports (M) , savings (S) and taxes (T) are each a fixed proportion of income (Y) and their relationship with income are linear..

Functional equation of an open economy theory is represented as:

$Y=C+I+G+(X-M)$

$Y=C+I+G+N_d$

Where Y=National Income, C= Consumption Expenditure, I= Investment Expenditure, G= Government Expenditure, and N_d = net trade (Jhingan, 2008).

This theory has been criticized for its unrealistic assumptions, first constant consumption is not realistic, second price is not constant in reality, and thirdly total output of a nation does not dependent on consumption, investment and government expenditure and net export only. Regardless of these criticisms this theory has been instrumental in research studies concerning economic growth and government expenditure and net export. In spite of these criticisms, the theory of economic growth determination in an open economy will be adopted in this work with modification where the TOT will be factored-in as the independent variable

2.2 Empirical literature review

Agbo, Agu and Eze (2018), evaluated the impact of international trade on the Nigeria economic growth with sole objective of ascertaining the impact of export trade on the Nigerian economy and to determine the impact of import trade on the Nigerian economy**.** They deployed multiple regression analysis technique of estimation. The results of the study showed that there is a significant impact of export trade on the Nigerian economic growth. The study also revealed that there is no significant impact of import trade on the Nigerian economic growth. The researchers among other things recommended that conscious efforts should be made by government to fine-tune the various macroeconomic variables in order to provide an enabling environment to stimulate foreign trade by engaging in more of export trade and in effect curtail on import trade which has a negative effect or strain the economy.

Afolabi, Danladi and Azeez (2017), examined the impact of international trade on economic growth in Nigeria, with the objective of identifying the major factors influencing economic growth through international trade. They applied Augmented Dickey-Fuller (ADF) test together with Phillip-Perron (PP) test of Unit Root Tests to ascertain the stationarity properties of the variables. The Ordinary Least Square (OLS) technique was used to test for the significant relationship between the level of economic growth and international trade. Economic growth was proxied to GDP, exchange rate, government expenditure, interest rate, foreign direct investment, import and export were used as independent variables. The result revealed that government expenditures, interest rate, import and export are all positively significant while exchange rate and foreign direct investment are negatively insignificant to the growth process of the Nigerian Economy. The econometric results suggest that Nigerian government should give more emphasis to specialization on agriculture so as to diversify her production and export base in order to enable the country benefit all the gains of trade including economic growth. The country's trade should not only be on primary and oil exports but also the promotion of non-primary exports and

non-oil exports i.e. manufactured goods. Promotion of exports within the context of sub-regional and regional economic integration should be vigorously pursued to expand Nigerian international market and the importation policy of the government should be strictly adhered to in order to control dumping and to encourage the local investors.

Abiodun (2017), examined the contribution of international trade to economic growth in Nigeria, with specific interest of establishing nexus between international trade and economic growth. The variables considered are real GDP, a proxy for economic growth, export volumes, import volumes, trade openness, gross capital formation and exchange rate as independent variables. Augmented Dickey-Fuller (ADF) test was used for the unit root test and the variables were found to be stationary at levels. Granger Causality was also deployed to test the causality between the dependent and independent variables and a uni-directional relationship was established for some of the variables. The results reveal that there is, overall, a positive relationship between economic growth and international trade.

Arodoye and Iyoha (2014), examined the nexus between foreign trade and economic growth in Nigeria using quarterly time-series data for 1981Q1 through 2010Q4. In order to fully account for feedbacks, a vector autoregressive model is utilized. The results show that there is a stable, long- run relationship between foreign trade and economic growth. The variance decomposition results show that the predominant sources of Nigeria economic growth variation are due largely to own shocks and foreign trade innovations. The study therefore recommends adoption of trade expansion policies as a means of accelerating economic growth in Nigeria.

Atoyebi, Jubril, Adekunjo and Edun (2012), examined the impact of international trade on economic growth in Nigeria from 1970-2010. The study employed Phillips Peron unit root test and Johansen to test for stationarity and cointegration of the variables. The result of stationary and normality test reveals that the model is fairly well specified and could be used for policy analysis. Empirical investigations reveal that three variables are statistically significant at 5% and these variables are export, foreign direct investment and exchange rate and they are positively related to real GDP while other variables such as import, inflation rate, openness exert a negative influence on real GDP. The study demonstrates that increase participation in global trade helps Nigeria to reap static and dynamic benefit of international trade despite non conformity of the coefficient of the openness. Both international trade volume and trade structure towards high technology export result in positively effect on Nigeria economy. We therefore recommend that the government should design appropriate strategy by diversifying the economy through export promotion, stimulating foreign direct investment and exchange rate stability in order to boost productivity of Nigeria economy by raising the standard of living of the citizens.

Oviemuno (2007), looks at international trade as an engine of growth in developing countries taking Nigeria (1960-2003) as case study, he uses four important variables which are export/import, inflation and exchange rate. The result shows that Nigeria exports value does not act as an engine of growth in Nigeria.

 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 positive manner to oil exports as used in the study. He also found that 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.

RESEARCH METHOD

The purpose of this chapter is to provide adequate and appropriate methods that will give answer to the research questions, capture the objectives of the study and validate or nullify the alternative hypotheses of the study. This chapter covers theoretical framework, model specification, estimation technique and procedure as well as nature and sources of data for the study.

Theoretical Framework

The theoretical framework guiding this study is drawn from two theories such as Income determination in an open economy and Prebisch-Singer terms of trade hypothesis. The theory of income determination in an open economy relaxed the assumption that there are no exports or imports and government expenditure in national income analysis as assumed in a closed economy. Keynes forwarded functional equation of an open economy theory as:

$$Y=C+I+G+ (X-M) \qquad\qquad 3.1$$

Where $X-M \equiv N_d$. hence, equation 3.1 is rewritten as;

$$Y=C+I+G+N_d \qquad\qquad 3.2$$

Where Y=National Income, C= Consumption Expenditure, I= Investment Expenditure, G= Government Expenditure, and N_d = net trade. Equation 3.2 represents typical open economy equation but ignored other factors or measures that determine open economy. Prebisch-Singer projected CTOT as one of the measures for open economy. As a result equation 3.2 can be written as thus;

$$Y=C+I+G+N_d + CTOT \qquad\qquad 3.3$$

Since the intention of the study is not on C, I, G, and N_d. equation 3.3 will be reduced to

$$Y= f(CTOT) \qquad\qquad 3.4$$

Since the phenomenon of study interest is oil and non-oil terms of trade; the model for the study is expressed mathematically as;

3.2 MODEL SPECIFICATION

$$Y= f(oil\ CTOT + non\text{-}oil\ CTOT) \qquad\qquad 3.5$$
The econometric model of equation 3.5 is given as;
$$Y= \beta_0 + \beta_1 oil\ CTOT + \beta_2 non\text{-}oil\ CTOT + \varepsilon_i \qquad\qquad 3.6$$

Where Y= Nigerian economic growth (NEG); oil CTOT = oil commodity terms of trade;

Non-oil CTOT = Non-oil commodity terms of trade

β_0 = intercept; β_1 = slope of oil commodity terms of trade which measures the unit of or the rate at which a unit or percentage change in oil commodity terms of trade contributes to Nigerian economic growth. β_2= slope of non-oil commodity terms of trade which measures the unit of or

the rate at which a unit or percentage change in non-oil commodity terms of trade contributes to Nigerian economic growth. ε_i= stochastic variables.

β_0 ; β_1 and β_2 are estimable parameters. By a-priori standard using Prebisch-Singer's hypotheses as alternative, β_1 and β_2 are expected to impact negative on Nigerian economic growth. This can be expressed as; β_1 and $\beta_2 < 0$

Estimation techniques and procedures

In order to achieve the objectives of this study, ordinary least squares and Granger causality tests were adopted. The data sets were subjected to preliminary tests ranging from unit root test, co-integration test, and Error correction test in order to avoid spurious results.

Method of Estimation

This study employed ordinary least square (OLS) technique.

3.3.2 Unit Root Test

The PP test is considered appropriate to other forms of unit roots test for short sample test because it adjusts appropriately for the occurrence of series correlation when numbers of observation is not large. As a result this study therefore employs PP test, then PP equation is specified below as thus: $\Delta Y_t = \beta_1 + \beta_2 t + \psi Y_{t-1} + \varepsilon_t$ 3.7

3.3.3   Co-integration Test

The nature of co-integration test to be applied in a study is subject to stationarity test outcomes. If the variables of study interest are integrated at purely order zero that is 1(0) no co-integration test is required, but if the variables are integrated at purely order one that is 1(1), under such stationarity outcomes single co-integration tests such as Johansen or Augmented Engle-Granger respectively are appropriate for long-run analysis and is stated as:

$\Delta Y_t = \beta_0 + \beta_1 t \dots.. + \beta_j \Delta x_t + \varepsilon_t$ 3.8

However, if the variables are fractionally integrated at 1(0) and 1(I) ARDL bound testing become more appropriate.

3.3.4 Augmented Engle-Granger Error Correction Model (short-run test)

Gujarati, Porter and Gunasekar (2012) states that if two variables dependent and independent are co-integrated, the relationship between the two can be expressed as ECM. This is done by tying the short-run behavior of the dependent variable to its long-run value. The ECM equation is stated as:

$\varepsilon_t = \Delta Y_t - \beta_0 - \beta_1 t -\dots..- \beta_j \Delta x_t$ 3.9

and ECM estimate is expressed as;

$\Delta Y_t = \beta_0 + \beta_1 t + \beta_j \Delta x_t + \beta_{ji} ECM(-1) + \varepsilon_t$ 3.10

3.3.5 Granger causality test

This study adopts also Granger causality technique of analysis in order to examine the direction of causality between oil, and non-oil and economic growth of Nigeria. This paper, adopts causality technique as applied in (Mahdavi & Sohrabian 2014). Mahdavi and Sohrabian applied causality test within the scope of the dependent variable and each of the independent variables. Using the same approach with Mahdavi and Sohrabian (2014), where we have two core variables, the causality equations herein are specified in two equations as;

$$(NEG)_t = \sum_{i=1}^{m} \beta i (NEG)_{t-I} + \sum_{j=i}^{n} Tj \, (\alpha)_{t-1} + \mu_t \qquad 3.13$$

$$(\alpha)_t = \sum_{i=1}^{p} \theta i (\alpha)_{t-I} + \sum_{j=i}^{q} \sigma j \, (NEG)_{t-1} + \varepsilon_t \qquad 3.14$$

α is representing all the independent variables while βi, Tj, θi and σj are estimable coefficients of the variables in equations 3.10 and 3.11.Based on the estimated coefficients for the equations (3.13) and (3.14)

3.4 Data Sources

This study relies on time series data ranging from 2000-2018. The Data sets for this study are from CBN Statistical bulletin of various years and NBS bulletin of various years.

RESULT PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS.

The empirical results from data analysis are presented in this chapter; the results include descriptive table used to present analysis of oil and non-oil commodity terms of trade, and statistical methods which include; pre-test results, data analysis, and post-test results. Empirical findings are also discussed therein.

4.1 Result Presentation and Analyses

Oil and non-oil commodity terms of trade

Table 4.1: Trend of oil and non-oil commodity terms of trade (₦ per unit)

year	NOCTOT	OCTOT
2000-2004	10,534.83	49.67
2005-2009	9736.798	82.71388
2010-2014	10,984.60	104.22
2015-2018	15,035.89	68.39

Source: Authors Computation 2019 from CBN statistical bulletin

Table 4.1 reveals that within 2000-2004 non-oil commodity terms of trade (NOCTOT) and oil commodity terms of trade (OCTOT) stood at 10,534.83 and 49.67 units respectively. Meaning that unit price of non-oil export can import about 10,534.83 units of non-oil produce in Nigeria while a unit price of exported crude oil can purchase about and 49.67 units of refined oil produce. Again from 2005-2009 purchasing power of Nigeria's non-oil export reduced to one unit is to 9736.798 (or as 1:9736.798) units while oil export purchasing power increased to a unit is to 82.71388 units. In 2010-2014 periods both non-oil and oil export purchasing power increased to a unit is to 10,984.60 and 104.22 units respectively. Whereas non-oil export purchasing power increased further to a unit is to 15,035.89units, oil export purchasing power decreased to a unit is to 68.39 units within 2015-2018 fiscal periods. The result summarily shows that NOCTOT benefits Nigeria more than OCTOT.

Theoretically, Prebisch-Singer highlighted that trade which involves exportation of primary products from developing countries to developed countries and importation of manufactured products from developed countries into developing countries will deter the development of the developing countries as a result of inelastic price of their primary exports and elastic price of their manufactured imports, which in turn leads to economic deterioration through negative terms of trade. But the result obtained herein shows that Nigeria's terms of trade is not negative.
Pre-test results: unit root test, co-integration test and error correction test.

Table 4.2: Phillips-Perron(PP) unit root test

Variables	PP test statistic	Critical value @ First difference			Remarks
		1% level	5% level	10% level	
GDP	-8.802373	-4.616209	-3.710482	-3.297799	stationary
NOCTOT	-7.832983	-4.616209	-3.710482	-3.297799	stationary
OCTOT	-6.216401	-4.616209	-3.710482	-3.297799	stationary

Source: Authors' Computation 2019 from CBN statistical bulletin

From the unit root test results in table 4.2above, it is observed that all the variables in the model are stationary at order at 1 or I(1), we therefore reject H_0 across all the variables which stated that the variable has unit root (not stationary), and accept H_1 that stated that the variable has no unit root (stationary) and conclude that the variables are stationary (the variables have no unit root) in all the model specified. Since all the variables are stationary at order I (I), this study therefore adopted Engel-Granger (E-G) two stage co-integration tests. First stage of E-G co-integration test states that residual is a level stationary variable and second stage states that there should be at least one co-integrated variable in the equation.

Table 4.3: Residual unit root test

Variable	PP test statistic	1%	5%	10%	Order of integration of critical values	Remarks
Resid01	-4.134605	-3.857386	-3.040391	-2.660551	I(0)	Reject H_0

Source: Author's computation 2019.

The table 4.3 shows that the residual in the specified model is stationary at level that is I(0),since the value of the PP test statistic is greater than the critical values at 1%, 5% and 10% then we therefore proceed to the next stage which is co-integration.

Table 4.4: Engel-Granger co-integration test

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
GDP	-4.274794	0.0476**	-17.90367	0.0512**
OCTOT	-2.801809	0.3907	-90.31840	0.7000
NOCTOT	-4.240151	0.0593**	16.49677	0.0060**

** denote co-integration   Source: Author's computation 2019.

Results in table 4.4 indicate that the time series in the model are co-integrated with evidence of

two co-integrating variables. We therefore reject H_0 and conclude that the variables are co-integrated at chosen level of significance. This indicates that there exist long run relationship between the dependent and independent variables in all model specified in this study.

Table 4.6 Engel-Granger Error Correction Model (Short-run).

Variable	Coefficient	t-statistic	Prob.*
ECM01(-1)	-0.144105	78.78021	0.0070

Source: Author's Computation 2019.

The negative coefficient possessed by ECM01(-1) in Table 4.6 reveals two things first it shows that there exists short-run disequilibrium in the specified model. Second it shows the speed with which the dependent variable can adjust from short run disequilibrium into long run equilibrium level. Broadly, the negative coefficients imply implies that for short-run disequilibrium in the specified model to be corrected in the long run, it will require 14.4% speed of adjustment.

Table 4.7 Short-run result

Dependent Variable	GDP		
independent Variables			
Variable	Coefficient	Std. Error	Probability
OCTOT	1.462731	0.069009	0.0084
NOCTOT	1.260258	0.090106	0.0061
ECM(-1)	-0.144105	0.078021	0.0070
Other test statistic			
Variables	Values		
R-squared	0.835732		
Adjusted R-squared	0.571960		
F-statistic and Prob(F-statistic)	6.439393(0.000447)		
Durbin-Watson stat	1.781307		
Information criteria			
Akaike info criterion	19.23019		
Schwarz criterion	19.42805		
Hannan-Quinn criterion	19.25747		

Source: Author's computation 2019.

The short-run result in table 4.7 indicates that a unit increase in OCTOT led to 1.46 units increase in Nigeria's GDP, while a unit increase in NOCTOT led to 1.26 units increase in GDP within the study period. Statistically, R-squared result shows that there exists about 83.5% goodness of fit between OCTOT, NOCTOT and GDP. While adjusted R-squared indicates that OCTOT and NOCTOT are non-collinear up to 57.1%. Additionally the individual significant test (that is $s(\beta_i) < \beta_i/2$) shows that both OCTOT and NOCTOT are statistically significant, meaning that the half of coefficient of each variable is greater than its standard error. The overall test statistic as shown by the F-test shows that both variables are also statistically significant, hence we reject H_0 of no statistical significance and accept the alternative in the short-run.

Table 4.8: Standard Error(S.E) test statistic Short run

Independent Variables	Coefficient	Std. Error	Probability	Remarks
OCTOT	1.462731	0.069009	0.0084	Reject H_0
NOCTOT	1.260258	0.090106	0.0061	Reject H_0

Source: Researcher's Computation 2019.

From table 4.8 $s(\beta_i)$ = 0.069009 and $\beta_i/2$ = 0.7313655 for OCTOT, since 0.069009< 0.7313655 we therefore reject H_0 and conclude that OCTOT have a significant impact on Nigeria's GDP in the short run. Also with $s(\beta_i)$ = 0.090106 and $\beta_i/2$ = 0.630129 for NOCTOT, since 0.090106< 0.630129 we therefore reject H_0 and conclude that OCTOT have a significant impact on Nigeria's GDP in the short run.

Table 4.9: Pair Wise Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
OCTOT does not Granger Cause GDP	17	0.11005	0.8967	OCTOT $\neq$ GDP
GDP does not Granger Cause OCTOT		0.58419	0.5727	OCTOT $\neq$ GDP
NOCTOT does not Granger Cause GDP	17	1.76118	0.2135	NOCTOT $\neq$ GDP
GDP does not Granger Cause NOCTOT		1.22106	0.4409	NOCTOT $\neq$ GDP

Source: Researcher's compilation 2019.

The pair wise granger causality test shows that there exists no causal link flowing from OCTOT to GDP or from GDP to OCTOT. In the same vein there is no causal link flowing from NOCTOT to GDP or from GDP to NOCTOT. Generally, this implies that OCTOT and NOCTOT are independent of GDP and vice versa.

Discussion of Findings

The discussion of findings herein tries to highlight the outcomes of the results from the models used to capture the objectives of the study. Hence, emphases were placed on economic criteria, statistical criteria and granger causality. Further the results obtained were compared with the results of related empirical literatures reviewed and as well as the theoretical postulations adopted in this study. The broad objective of this study is to examine the impact of international trade on Nigerian economic growth from 2000-2018. While the specific objectives are; to determine the trend of oil and non-oil commodity terms of trade in Nigerian, to determine the impact of oil and non-oil commodity terms of trade on Nigerian economic growth, and to examine the causal link between oil and non-oil commodity terms of trade and Nigerian economic growth.

In the short run estimations of this study, the individual and overall test statistics reveal that oil and non-oil commodity terms of trade have significant impact on Nigerian economic growth. In the same vein economic criteria shows that oil and non-oil commodity terms of trade have positive impact on Nigerian economic growth. In addition, the granger causality test result shows that OCTOT, NOCTOT and GDP are independent of each other. The statistical and economic estimation output of this study disagrees with Prebisch-Singer commodity terms of trade hypothesis upon which this study stands. Following Prebisch-Singer hypothesis, commodity terms of trade in Nigeria are meant to be negative and should have negative impact on Nigeria's

economic growth reason been that Nigeria is a developing nation, two, Nigeria exports primary product and majorly imports manufactured products that have been refined from the primary products.

Despite adopting a slightly different approach from other studies, the outcome of this paper agrees with the works of Afolabi et al (2017), Abiodun (2017), Arodoye and Iyoha (2014), Atoyebi et al (2012) and Ogbokor (2001) who found a positive relationship between international trade and Nigerian economic growth, at international frontier Safdari et al (2012) found also a positive relationship between international trade and economic growth of Iran. However, disparity exists between the outcome of this paper and the works of Oviemuno (2007) who found that international trade have negative impact on Nigerian economic growth. Atoyebi et al (2012) and Abiodun (2017) observed that bi-directional causal relationship exists between international trade and economic growth in Nigeria.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter summarizes the major findings of this research work. This is followed by the conclusion drawn from the study and recommendations thereof.

Summary

Prebisch-Singer in 1950 as cited in Todaro and Smith (2009) postulated that trade which involves exportation of primary products from developing nations into developed nations and importation of manufactured products from developed nations into developing nations will lead to negative commodity terms of trade of the letter, which in turn contributes negatively to their economic growth. In context, Nigeria is not just a developing country but she exports primary products including oil and non-oil and imports manufactured products. Following Prebisch-Singer hypothesis, commodity terms of trade in Nigeria are meant to be negative and should have negative impact on Nigeria's economic growth.

This study examines the impact of international trade on Nigerian economic growth, with specific objectives; to determine the trend of oil and non-oil commodity terms of trade in Nigeria, to determine the impact of oil and non-oil commodity terms of trade on Nigerian economic growth, and to examine the causal link between oil and non-oil commodity terms of trade and Nigerian economic growth from 2000 to 2018.

The study employed Engle-Granger (E-G) two stage co-integration test technique of analysis because PP unit root test results showed that all the variables in the model specified are stationary at order 1 or I(1). E-G results showed that there exists both long and short run relationship between oil commodity terms of trade, non-oil commodity terms of trade and Nigerian economic growth. The result analysis is based on trend and short run estimation. The trend analysis result revealed that NOCTOT benefits Nigeria more than OCTOT.

The short run result revealed statistically that a unit increase in OCTOT led to 1.46 units increase in Nigerian economic growth, while a unit increase in NOCTOT led to 1.26 units increase in Nigerian economic growth within the study period. Economically the short run estimated results revealed that OCTOT and NOCTOT had positive impact on Nigerian economic growth. The pair wise granger causality test showed that there exists no causal link flowing from OCTOT to GDP

or from GDP to OCTOT. In the same vein there is no causal link flowing from NOCTOT to GDP or from GDP to NOCTOT. Generally this implies that OCTOT and NOCTOT are independent of GDP and that GDP is also independent of OCTOT and NOCTOT.

Conclusion
From the empirical results obtained, the study concludes that international trade both in the area of oil and non oil trade are vital for economic growth in Nigeria. Though non oil trade benefits Nigeria more than oil trade despite being a rich oil producing nation. This can be as a result of over dependence on refined oil import.

Recommendations
Based on the findings and conclusions made of this study, the following recommendations were made;
1. Nigerian government should channel oil trade towards exportation of finished petroleum products in order to expand oil revenue base of the economy.
2. The Nigerian government should make the domestic refineries functional as well as promote local method of refining oil to reduce the importation of finished petroleum products. This import expenditure on finished petroleum products will reduce and in turn improve oil terms of trade.
3. The government should reduce exportation of non oil commodities such as live animals, animal products, Vegetable products, Plastic, rubber Wood and articles of wood, wood charcoal and articles, and as well reduce the manufactured version of the aforementioned products and produce the same domestically in order to enhance her economic growth.

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