TRADE OPENNESS AND ECONOMIC GROWTH NEXUS: EMPIRICAL EVIDENCE FROM NIGERIA

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ABSTRACT

This study examines the economic growth and trade openness nexus in Nigeria between 1981 and 2018. Primarily, the need to empirically find out the magnitude effect degree of trade openness has on economic growth as measured by the growth rate in real gross domestic product, motivated this investigation. The study included degree of trade openness, nominal exchange rate, foreign direct investment, import and export indices in the model, deploying the Autoregressive Distributive Lag (ARDL) methodology to analyze the data obtained from the World Bank country reports, CBN statistical bulletin and data from the National Bureau of Statistics. The study found out that degree of openness fails to meet theoretical and a prior expectations in terms of predicting economic growth in Nigeria. In essence, the study found degree of trade openness to have a negative and significant impact of economic growth in Nigeria. This implies that the more we open our economy to foreign trade, the more growth is retarded. However, foreign direct investment (FDI) was found to have positive effect on Nigeria's economic growth. The study concludes therefore that degree of trade openness in particular and foreign trade in general do not stimulate economic growth in Nigeria. The managers of the economy is, therefore, advised to pursue policies to will develop our domestic productive capacities, which could guarantee self-sufficiency in the long-run and halt our dependence on importations. A corollary benefit is that it would also save our foreign reserves and aid in stabilizing the value of the naira. The FDI channel show also be explored to attract needed capital for investment in Nigeria.

Key words: Foreign direct investment, trade openness, economic growth and comparative advantage.

INTRODUCTION

One of the policy thrusts of policy makers and scholars have predominantly been how to harness the gains inherent in trade, mostly, beyond borders and how this could stimulate economic growth. It was indeed David Ricardo whose proposition in his comparative advantage theory that suggested that economies could be better off if they could specialize in the production of goods or services they have comparative cost advantage in producing over other economies, and allow trade exchange to take place amongst economies. This policy prescription is indeed what gave rise to what we have as globalization today. Trade openness does no only remove barriers to trade, it also allows for transfer of technologies and integration of the world markets.

Trade openness and its impact on economic growth in Nigeria and other countries has dominated most of the empirical studies with variegated conclusions deploying either panel, cross sectional or time series data. Theoretically and predictably, trade is generally held to be positively related with growth (Smith, 1776). Succinctly, it is believed that appropriate trade policies in particular situations can be used to stimulate economic growth and development.

As opined by Adewuyi (2002) trade permits economies to sell their locally produced goods to other countries of the world. To this end, trade has been regarded as one of the drivers of growth as it could lead to sustained improvement in human status by increasing the range of people's standard of living and inclinations.

On the flip side of this submission is the narrative that degree of trade openness is pro-advanced economies who have the technology, larger economies of scale and superior technologically advanced manufactured goods as against the developing countries who are predominantly agrarian economies and producers of primary goods. Should trade under such conditions is to take place, the gains would be biased in favour of the developed economies (Prebisch & Singer, 1948 and Myrdal, 1954, cited in Nwaeze, 2018). In line with this narrative, Rodriguez (2007) have critiqued the facts supporting a positive link existing between trade openness and growth. Trade liberalization can be an ultimate goal, but the speed and manner of liberalization needs careful consideration on a country by country basis (Thirlwall, 2000). Hence, each country should know when to adopt its own trade policy and strategize on when and how to open its markets taking into consideration changing macroeconomic variables.

Consequently, from available statistics, it is evident that Nigeria's trade volumes have increased astronomically over the years. However, what most studies have failed to do is to decompose these trade volumes into exports and imports. In the case of Nigeria as a developing country that is mostly import dependent, has trade openness indeed stimulated economic growth, given that it is favourably biased toward import? Thus, a developing country like Nigeria who is import dependent, therefore, need to pay utmost attention on the import effects of the trade openness variable on the growth nexus. Additionally, Nigeria has tested with different exchange rate regimes, which might have implications for the trade-growth nexus. This is the objectives and/or the gap this study intends to bridge as well as add to existing body literature on this critical area of our growth and development concerns. The issues of causality between trade and economic growth shall also be investigated by the study.

REVIEW OF RELATED LITERATURE

There has indeed been dissenting views, theories and postulations as to what economies are to expect on the economies from trade. Chief amongst these are the works of Adam Smith and David Ricardo. While Smith came up with the absolute advantage theory, Ricardo countered his views with his comparative advantage theory.

It was indeed Adam Smith that first described the principle of absolute advantage in the context of trade, where he used labour as the only input, given that absolute advantage is a function of a simple comparison of labour productivities; this underlines the fact that it is possible for a country or party to have no absolute advantage in anything, in that case, according to the theory of absolute advantage no trade will occur with the other party. Succinctly captured, the principle of absolute advantage is the capacity of a party (an individual, or firm, or country) to produce more of a good product or service than competitors, using the same amount of resources, in this instance labour.

This proposal by Smith was sternly opposed by David Ricardo (1817) who was against any form of tariffs and other restrictions on trade. Ricardo christened this analysis as the theory of comparative advantage. In his submission, comparative advantage is a specialization technique used to create more efficient production and describes opportunity cost between producers with

perfect competition and undistorted markets where countries that tend to export goods in which they have a comparative advantage (Yakubu and Akanegbu, 2018).

David Ricardo's classical theory of comparative advantage capture why countries engage in international trade even when one country's labour are more efficient at producing every single good than labour in other countries. To him, if two countries capable of producing two commodities engage in the free market, then each country will increase its overall consumption by exporting the good for which it has a comparative advantage while importing the other good, provided that there exist differences in labor productivity between both countries. Ricardo's theory is broadly regarded as one of the most powerful yet counter-intuitive insights in economics, hence, the theory implies that comparative advantage rather than absolute advantage is responsible for much of international trade (Ricardo, 1817; Ruffin, 2002; Maneschi, 2004; Tabuchi, 2017 & Shiozawa, 2017).

These views have elicited scholars into investigating the trade-economic growth nexus with differing empirical findings. For instance Georgios (2003) investigated the effect of trade openness and economic growth, using two panel data set: one for 56 countries covering the period 1951-1998 and another of 105 countries over 1960-1997. His findings show that the effect of trade openness on economic growth is positive, permanent, statistically significant, and economically sizable. The finding of this study submits that developing countries can profit more from increased openness than developed ones, given that technology is transferred from developed to developing economies. Braun and Raddatz (2007) investigated on trade liberalization, capital account liberalization and the real effects of financial development of 108 countries from 1970-2003. They found that financial development had smaller effect on growth in countries which were open in trade and capital flow. Baltagi (2007) researched on the impact of liberalization, financial development and Institutions for 108 countries from 1980-2000 by means of a panel data. The results indicate that financial and trade liberalization as well as economic institutions is judged statistically significant determinants of financial instability in countries after 1980. Oladipo (1998) studied the degree of openness as the ratio of total trade (export + import) to GDP and as the ratio of export to GDP, using a sample period of 27 years (1970 to 1996) and Nigerian quarterly data. He found out that when the export/GDP ratio was used as a measure of openness it correlated positively with GDP growth. However, a negative relationship existed when he employed the conventional broad measure (import plus export) to GDP. In the study conducted by Nwafor et al (2007) used a dynamic equilibrium econometric technique to estimate a poverty model in their investigation, among others, trade liberalization as a predictor in Nigeria. The authors found that the effect of trade liberalization for different household type varies from one household type to the other. While a positive effect was found in the case of urban households, trade liberalization impacted negatively on rural households characterised by mainly agricultural production driven by land and labour. In the work of Atoyebi, Adekunjo, Edun, and Kadiri (2012) who studied trade openness and economic growth, reported that openness exerted negative impact on economic growth during the period of 1970 to 2010 in Nigeria. Conversely, however, the research by Nduka, Chukwu, Ugbor and Nwakaire (2013), Adelowokan and Maku (2013) found openness to have had positive effect on economic growth in Nigeria during the period of 1970 to 2008 and 1960 to 2011 respectively. Folorunsho and Olajide (2016) studied price instability, exchange rate volatility and the Nigerian economy, while deploying the Garch model and ECM. Their study found that the exchange rate in Nigeria is volatile, as the trend shows the fluctuation in price and exchange rate which of course may bear serious implications. Their instability however did not discourage investment and consequently economic growth both in the short and long run. Based on the regression result, it was observed that 1% change in money supply led to

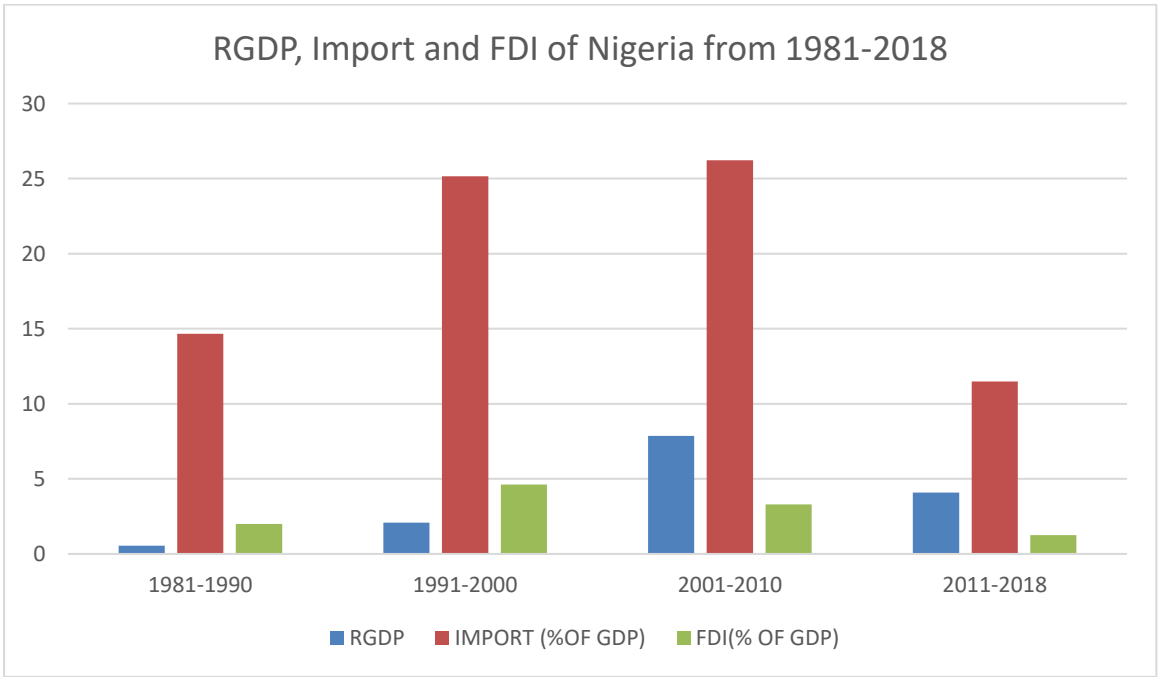
about 83.2% change in RGDP, the implication of this is that monetary variable may be a reliable instrument of ensuring growth in the long run. In addition, trade openness significantly depresses growth in the short and long run suggesting the adoption of inward growth strategy.

Economic Growth and Trade Openness Indicators

The values of imports, exports, foreign direct investment and to a greater degree exchange rate are classified as the fundamental indicators of the degree of trade openness of a given economy. Their values suggest or indicate how open or otherwise an economy is or integrated to the global market. These aforementioned variables have varying degrees of impact on economic growth and development of any country. As earlier noted, Nigeria being a predominantly import dependent economy, has a high degree of openness, especially, the import variable. The high volume of imports may not be unconnected with the dwindling fortunes of the manufacturing sector, power and energy problems, poor infrastructure, lack of adequate capital formation and difficulty encountered by local businesses in accessing credit from financial institutions. Other reasons, include globalization-which has exposed the local consumers to superior foreign products which have advertently competed out the locally made goods, due to technological progress in advanced economies producing these foreign products and services.

For instance, in 1981, Nigeria's import to GDP was 26.11. This implies that Nigeria utilizes an equivalent sum of over 26 percent of her GDP on importation. By the year 1997 and 1998, this figure has risen to 350.9 percent and 36.48 percent respectively. Although there was temporary reprieve by the turn of the millennium as import to GDP stood at 19.65, the figure rose to 31.03 in 2009, but eased to 10.49 percent in 2016. Alas, these figures signpost an economy in dare need of revamping. Unfortunately, both the export and foreign direct investment figures as well as exchange rate have not suggested that Nigeria's trade policy thrusts have been spot-on as captured in figure 1 below.

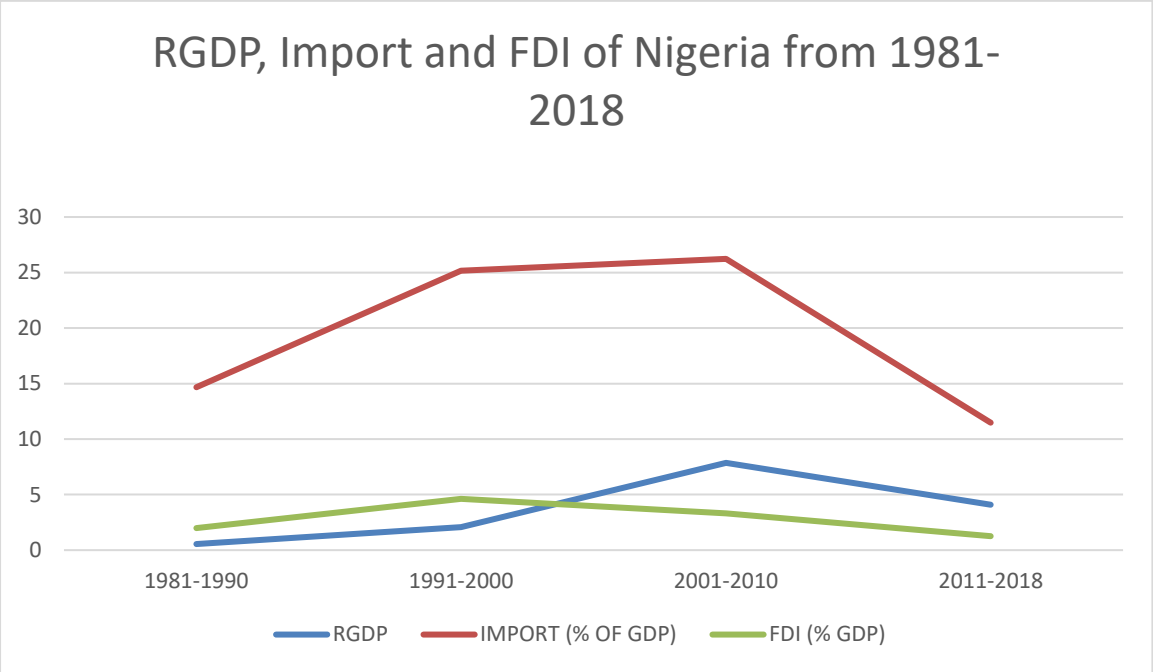
Figure 1. Nigeria's mean RGDP, Import and FDI between 1981 and 2018



Source: author's computation using data from CBN Statistical Bulletin and IMF

From available data as captured above, import as a variable of trade openness clearly dwarfed both Nigeria's real GDP and foreign direct investment (FDI). Whereas the mean economic growth of Nigeria in the period 1981-1990 was 0.55 percent, import to GDP averaged 14.66 percent as against an average FDI of 1.99 percent within the same period. Between 1991- 2000, real GDP rose marginally to 2.08 percent. Import responded accordingly to rising to 25.16 percent as against the FDI figure of 4.62 percent. Likewise, in the period, 2011-2018, whereas GDP (economic growth) declined to an average of 4.09 percent, import averaged 11.48 percent of Nigeria's GDP as against to 1.26 percent in FDI, which represents over 366 percent decline within the same period.

Figure 2. Trend of Nigeria's RGDP, Import and FDI between 1981 and 2018



Source: author's computation using data from CBN Statistical Bulletin and IMF

From figure 2 above, one could notice that the declining FDI began in the period 2001-2010 and has continued till date. This declining figures in Nigeria FDI corresponded with an increasing imports in the periods 1991-2000 and 2001-2010, before it started declining from the year 2011. Notice also that the declining FDI and the increasing imports corresponded with the period we had declining growth from 2010 to 2018 period. One striking observation from the figure above is that despite the expansion in the volume of imports and trade in general, Nigeria's FDI has continued to nosedive since the year 2011 till date.

We do not have enough evidence to suggest what impact and the magnitude these trade openness variables have had on Nigeria's economic growth, hence, the need to empirically investigate them in order to establish this assumption with some degree of certainty.

Methodology

In order to achieve the objectives of this study, data on real GDP growth rate (proxy of economic growth), foreign direct investment (FDI) exchange rate of the US dollar to the Naira, trade openness, import value index and export value index was sourced from the World bank country reports and Central bank of Nigeria statistical bulletin, from the period 1981 to 2018.

The functional model is specified below as thus;
RGDP= f (TOP, FDI, EXCR, IMVI, EXVI) ……1
Where,
RGDP = Real Gross Domestic Product
TOP = Trade openness
FDI = Foreign Direct Investment
EXCR = Nominal Exchange Rate of naira to the US Dollar
IMVI = Import Value Index
EXVI = Export Value Index

The econometric and the log function is given as;

$LnRGDP_{t-1} = \beta_0 + ln\beta_1 TOP_{t-1} + \beta_2 FDI_{t-1} + \beta_3 lnEXCR_{t-1} + \beta_4 lnIMVI_{t-1} + \beta_5 lnEXVI_{t-1} + \varepsilon_{t-1}$ ……..2

After describing the data using mean, minimum, maximum, standard deviation and kurtosis, the stationarity test was conducted using the Augmented Dickey Fuller (ADF) to determine the unit roots characteristics of the variables in the model. The level of integration of the residual error term of a set of non-stationary time series aggregate should be zero (i.e Ut~ 1(0)) in order to qualify as an error correction model. The analysis was concluded with test for autocorrelation, autoregressive, normality and heteroskedasticity (sensitivity analysis).

The Autoregressive Distributed lags (ARDL) Bound Testing procedure. The results of the unit roots tests indicate that all our variables including the dependent variable, RGDP, were stationary at levels; thus, I (0)). This shows evidence that the residual error terms are Ut ~ 1(0). The autoregressive distributed lag (ARDL) bounds testing procedure introduced by Pesaran and Pesaran (1997) and Pesaran et al (2001) is preferred in testing for long-run relationships or cointegration. This technique is advantageous because it yields valid results regardless of whether the underlying variables are I (1) or I (0), or a combination of both. The autoregressive distributed lag (ARDL) model used in this study is:

$$\Delta lnRGDP_t = \beta 0 + \sum_{i=1}^{n} \beta 1 \Delta lnRGDP_{t-1} + \sum_{i=1}^{m} \beta 2 \Delta lnTOP_{t-1} + \sum_{i=1}^{o} \beta 3 \Delta lnFDI_{t-1} + \sum_{i=1}^{p} \beta 4 \Delta lnEXCR_{t-1} + \sum_{i=1}^{q} \beta 5 \Delta lnIMVI_{t-1} + \sum_{i=1}^{r} \beta 6 \Delta lnEXVI_{t-1} + \theta_1 lnRGDP_{t-1} + \theta_1 lnTOP_{t-1} + \theta_1 lnFDI_{t-1} + \theta_1 lnEXCR_{t-1} + \theta_1 lnIMVI_{t-1} + \theta_1 lnEXVI_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

The following hypotheses are tested to investigate the existence of co-integration among the variables: the null hypothesis of no cointegration among the variables in Eq. (3) is ($H_o: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$) against the alternative hypothesis ($H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$). The decision to reject or accept H_o (no co-integration among the variables) is based on the following conditions: if the calculated F-statistics is greater than the upper critical bound, then H_o is rejected and the variables are co-integrated, if the calculated F-statistics is less than the lower bound, then H_o is accepted and the variables are not co-integrated, but if the calculated F-statistics remains between the lower and upper critical bounds then the decision is inconclusive (Pesaran et al., 2001). For the parameter γ_i, i =1,2,3,4,5 are the corresponding long-run multipliers, whereas, for the parameter α_i, i =1,2,3,4,5 are coefficients of the short-run dynamic of the ARDL model. ε_t is serially uncorrelated stochastic term with zero mean and constant variance, and Δ is the first difference operator.

After testing for cointegration among the variables, the long-run coefficients of the variables are then estimated. The existence of cointegration between the variables implies that causality exist in at least one direction. This study uses Akaike Information Criterion (AIC) for selecting the optimal lag length. The error correction model for the estimation of the short run relationships is specified as:

$$\Delta lnRGDP_t = \beta 0 + \sum_{i=1}^{n} \beta 1 \Delta lnRGDP_{t-1} + \sum_{i=1}^{m} \beta 2 \Delta lnTOP_{t-1} + \sum_{i=1}^{o} \beta 3 \Delta lnFDI_{t-1} + \sum_{i=1}^{p} \beta 4 \Delta lnEXCR_{t-1} + \sum_{i=1}^{q} \beta 5 \Delta lnIMVI_{t-1} + \sum_{i=1}^{r} \beta 6 \Delta lnEXVI_{t-1} + \lambda_2 ECM_{t-1} + u_{2t}$$

Where, ECM_{t-1} is the error correction term obtained from the cointegration model. The error correction coefficients (λ_1 and λ_2) indicate the rate at which the cointegration models correct previous period disequilibrium or speed of adjustment to restore the long-run equilibrium relationship. A negative and significant ECM_{t-1} coefficient implies that any short term movement between the dependent and explanatory variables will converge back to the long-run relationship.

Finally, the following diagnostic tests are conducted to ensure the acceptability of the empirical models: Breusch–Godfrey serial correlation LM test, ARCH test for heteroscedasticity, Jarque-Bera normality test and Ramsey RESET test for functional form. The stability of the long-run coefficients together with the short-run dynamics are tested using the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) tests. If the plot of CUSUM and CUSUMSQ statistics stays within the 5% range of the significance level, then all the coefficients in the error correction model are assumed to be stable, but if the plot of CUSUM and CUSUMSQ statistics crossed the 5% range of the significance level, the coefficients in the error correction model are considered unstable.**Presentation and Analysis of Data**

Table 1. Descriptive Statistics

	RGDP	LOG(EXCR)	LOG(EXPVI)	FDI	LOG(IMPVI)	LOG(TOP)
Mean	3.895135	3.359430	4.740548	2.905946	5.200201	3.834024
Median	4.210000	4.529261	4.433670	2.530000	4.970508	3.966322
Maximum	14.60000	5.722081	6.315430	10.83000	6.193589	4.404399
Minimum	-13.10000	-0.494296	3.178470	0.660000	4.141546	3.031099
Std. Dev.	5.218251	1.961391	0.946784	2.246686	0.715474	0.399036
Skewness	-0.890397	-0.748306	0.372307	1.792453	0.043907	-0.633162
Kurtosis	4.832408	2.241510	1.733638	6.406363	1.386496	2.164582
Jarque-Bera	10.06547	4.340028	3.327103	37.70125	4.025457	3.548143
Probability	0.006521	0.114176	0.189465	0.000000	0.133624	0.169641
Sum	144.1200	124.2989	175.4003	107.5200	192.4074	141.8589
Sum Sq. Dev.	980.2851	138.4940	32.27036	181.7135	18.42850	5.732270
Observations	37	37	37	37	37	37

Source: author's computation using E-views 10.0

From the table 1 above, the growth rate of real gross domestic product (RGDP) averaged at 3.90 percent between 1981-2018, with a corresponding maximum value of 14.6 and a minimum value of -13.1. The mean value of FDI was 2.91 and peaked at 10.83 with a critical low of 0.66. Volatility wise, RGDP was the most volatile variable followed by FDI and EXCR, while trade openness was the least volatile. It shows that TOP was relatively more stable within the study period as against the high variations in the growth rate of real gross domestic product (RGDP), exchange rate and foreign direct investment (FDI). It also suggests that these variables introduces more shocks to economic growth than trade openness indicators like TOP, IMPVI and EXPVI. The skewness statistic showed that only FDI, IMPVI and EXPVI were positively skewed, while the other three variables namely, RGDP, TOP and EXCR were all negatively skewed. While the positive values indicated right tailed, the negative values showed left tail of the normal distribution. The kurtosis statistic showed also that RGDP and FDI had large tails (leptokurtic) suggesting that its distributions were peaked relative to normal distribution. On the other hand, all other variables, namely, EXCR, IMPVI, TOP and EXPVI all had thin tails (platykurtic), suggesting that its distributions were flat relative to normal distribution. Based on these observations, it is evident that the series are non-stationary, which is not surprising since it involves time series data. The presence of unit root (non- stationarity) is equally supported by the Jarque Bera statistic. For instance, JB value for RGDP and FDI of 10.06 and 37.7 respectively are above 5.99 value or 5% critical value, hence both null hypotheses of a normal distribution are rejected. However, the null hypotheses of the other remaining variables cannot be rejected based on their probability values.

Table 2. ADF Unit Root Tests

Variables	**ADF Statistic @ Levels**	**ADF Critical Value**	**Level of Significance**	**Order of Integration**
RGDP	-4.509869*	-2.943427	5%	I(0)
EXCR	-3.851154*	-2.945842	5%	I(0)
D(LOG(EXPVI))	-6.761390*	-2.945842	5%	I(0)
D(LOG(IMPVI))	-5.545607*	-2.945842	5%	I(0)
D(TOP)	-8.241876*	-2.945842	5%	I(0)
FDI	-3.488586*	-2.945842	5%	I(0)

Source: Author's computation using e-view 10.0

Note: * indicates the order of integration at levels.

As depicted in table 2 above, all our variables were integrated at levels, denoting that they were all stationary (no presence of unit root). We also posit that RGDP, EXCR and FDI were all in their ordinary forms, while EXPVI, IMPVI and TOP are in their logged transformation forms. From this result, we conclude that all our variables are stationary at levels or I (0). The implication is that our outcome would be valid for policy implementations as they are no longer spurious. The uniqueness in the order of stability in the variables necessitate the use of ARDL in the estimation of the long run relationship among the variables and the error correction model.

Table 3. ARDL Bounds Test

Null Hypothesis: No long run relationship exists		
Test Statistic	Value	k
F- Statistic	4.897420	5
Critical Value Bounds		
Significance	I(0) Bounds	I(1) Bounds
10%	2.08	3
5%	2.39	3.38
2.5%	2.7	3.73
1%	3.06	4.15

Table 3 displays the calculated F- statistics (F-statistic = 4.897420), showing that the null hypothesis of no long run relationship is rejected at all critical levels (i.e. 10, 5, 2.5 & 1 percent). We arrived at this conclusion because the estimated bound test (F-calculated) is higher than the upper bound critical value of 4.68 as tabulated in Pesaran et al (2001). This result establishes the existence of a long run relationship or cointegration between economic growth and trade openness (TOP) as well as the other explanatory variables in Nigeria. Having established the long-run or cointegration relationship in our investigation, we now proceed to estimate the long run coefficients by estimating an ARDL of the order 1, 2, 0, 1, 1, 2.

Table 4: Estimated Long-Run Coefficients of the ARDL (1, 2, 0, 1, 1, 2)

Long run coefficients				
Variable	Coefficient	Std. Error	t-statistic	Probability
LOG(TOP)	-0.484631	3.883626	-0.124788	0.9018
FDI	0.271122	0.564559	0.480236	0.6358
LOG(EXCR)	4.784028	2.251081	2.125214	0.0450
LOG(IMPVI)	10.98246	5.969464	1.839773	0.0793
LOG(EXPVI)	-11.20473	6.096048	-1.838032	0.0796
C	-13.14486	20.68595	-0.635449	0.5317
R^2 = 0.67; R^2 adjusted = 0.60; F- statistic = 4.99 (0.00241) Durbin Watson = 1.99				

Source: Author's computation using E-views 10.0
CointEq = RGDP - (-0.4846*LOG(TOP) + 0.2711*FDI + 4.7840*LOG(EXCR) + 10.9825*LOG(IMPVI) -11.2047*LOG(EXPVI) -13.1449)

The long-run result estimated in table 4 indicates that the overall growth model is relatively well fitted as the explanatory variables explained over 67 percent (R^2) variation in economic growth. The result also shows that trade openness (TOP) which happens to be the major variable of interest had a negative and insignificant impact on economic growth. This implies that the trade openness retards economic growth in Nigeria. Although this is contrary to theoretical and a prior expectations, our result may not be far from reality. One may ask, what does Nigeria offer to the world? Apart from crude oil export, the economy is virtually non-existent in the global space. It is not surprising, therefore, to discover that the more our openness indices improves, the worse-off we are in terms of growth in real GDP. The finding is in line with that of Nenbee and Onuchukwu (2017), who found that trade openness in Nigeria does not conform to a prior expectations. The studies of Braun and Raddatz (2007) and Atoyebi et al (2013) also arrived at the same findings. Howvever, this finding is contrary to the findings of Georgios (2003) and Nduka et al (2013) who reported a positive and significant relationship between degree of openness and economic growth. On the other hand however, exchange rate shows a positive and significant relationship with RGDP. As such, a stable exchange rate embers economic growth in Nigeria. However, currency appreciation retard economic growth while depreciation embers economic growth. The case of Nigeria, however, is a peculiar case as the depreciation of the naira over the study period has not impacted positively to the growth of the economy. This is not unconnected to the fact that Nigeria is a mono-product economy predominantly exporting crude oil as the only visible product in the international market, while she imports virtually all her domestic consumables including refined petroleum products. This findings is in line with that of Nteegah and Moses (2017).

However, the coefficient of FDI was positive and significant during the sample period. This implies that an increase in FDI inflow in Nigeria other things being equal would stimulate economic growth. This is in line with theoretical and a prior expectations. On the contrary, export index reports negative and significant impact on economic growth in Nigeria, while the reverse is the case in regards to the coefficient of import index. Both the import and export indices reveal

contradiction to both theoretical and a prior expectation. The logic behind this result may not be unconnected to the fact that Nigeria's trade relations with the world is being dominated by imports, due to low domestic productive capacity and little or no presence on export of goods baring crude oil sales.

Table 5. Error Correction Estimates of the ADRL Model
Dependent Variable: RGDP
Method: ARDL
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
RGDPGRT(-1)	0.392341	0.158377	2.477263	0.0214
LOG(TOP)	1.170386	2.682556	0.436295	0.6669
LOG(TOP(-1))	5.716929	2.776766	2.058845	0.0515
LOG(TOP(-2))	-7.181805	2.887429	-2.487267	0.0209
FDI	0.164750	0.332216	0.495911	0.6249
LOG(EXCR)	-3.624455	2.389616	-1.516752	0.1436
LOG(EXCR(-1))	6.531514	2.605507	2.506811	0.0201
LOG(IMPVI)	-1.611202	2.555111	-0.630580	0.5348
LOG(IMPVI(-1))	8.284792	2.554958	3.242633	0.0037
LOG(EXPVI)	3.559205	1.982789	1.795050	0.0864
LOG(EXPVI(-1))	-6.877910	3.041459	-2.261385	0.0340
LOG(EXPVI(-2))	-3.489953	2.327473	-1.499460	0.1480
ECM(-)	-0.607659	0.091994	-6.605419	0.0000
C	-7.987594	12.62109	-0.632877	0.5333

R-squared	0.687927	Mean dependent var	4.543143
Adjusted R-squared	0.517705	S.D. dependent var	4.353608
S.E. of regression	3.023470	Akaike info criterion	5.329239
Sum squared resid	201.1102	Schwarz criterion	5.906940
Log likelihood	-80.26168	Hannan-Quinn criter.	5.528661
F-statistic	4.041357	Durbin-Watson stat	1.991537
Prob(F-statistic)	0.002241		

Source: Author's computation using E-views 10.0

In line with our interpretation and analysis of our result, and having established that our variables are cointegrated, we undertook the error correction model (ECM) that demonstrates the short run dynamics of the cointegrated variables towards their equilibrium values, as well as the speed of adjustment in the long-run. The result of the error correction model is presented in table 5 above. From table 5, it shows that the error term is negative and significant. The error term coefficient of -0.607659 shows evidence of relative speedy adjustment towards long run equilibrium. The import of this statistic is that about 61 percent disequilibrium in the short-run dynamics is corrected on yearly basis by changes in economic growth. This implies that if there is a shock, the long-run equilibrium will return to its steady state easily. It would take relatively short time to restore the steady-state relation if the system is distorted as indicated by the coefficient of the ECM. We also observed that both the short run and long run results yielded the same sign for the variables which signifies consistency in the effects of the independent variables on economic growth in Nigeria.

Diagnostic Tests

Table 6. Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.144538	Prob. F(1,21)	0.7076
Obs*R-squared	0.239249	Prob. Chi-Square(1)	0.6247

Table 7. Heteroskedasticity Test: ARCH

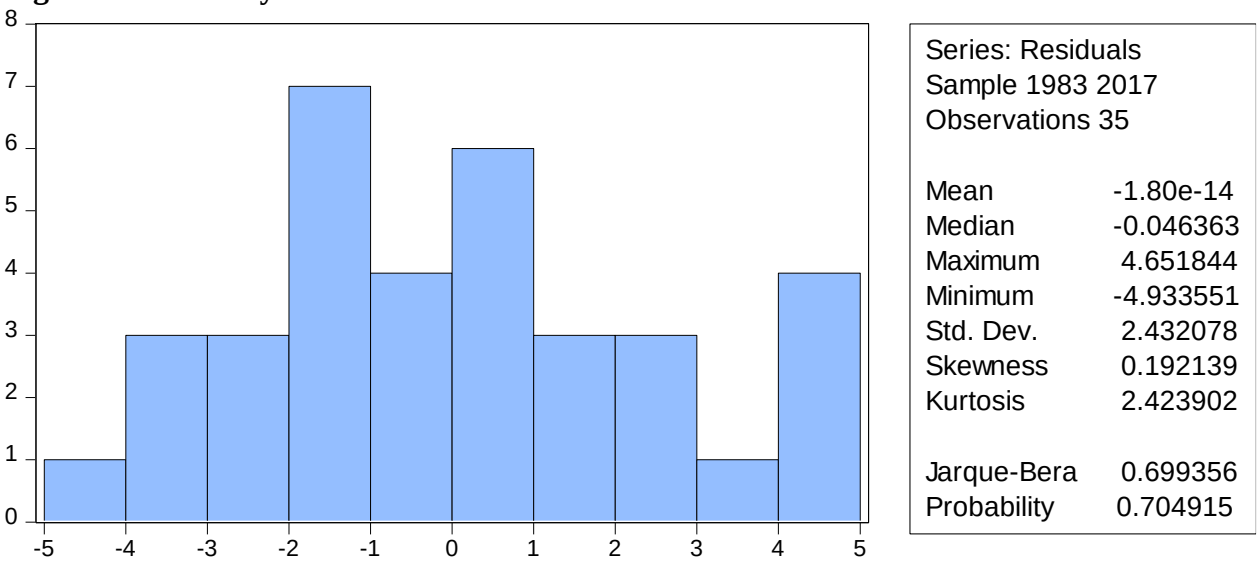
F-statistic	0.000905	Prob. F(1,32)	0.9762
Obs*R-squared	0.000962	Prob. Chi-Square(1)	0.9753

Table 8. Ramsey RESET Test

	Value	df	Probability
t-statistic	1.043085	21	0.3088
F-statistic	1.088027	(1, 21)	0.3088

Source: Author's computation using E-views 10.0

Figure 3. Normality Test



Source: Author's computation using E-views 10.0

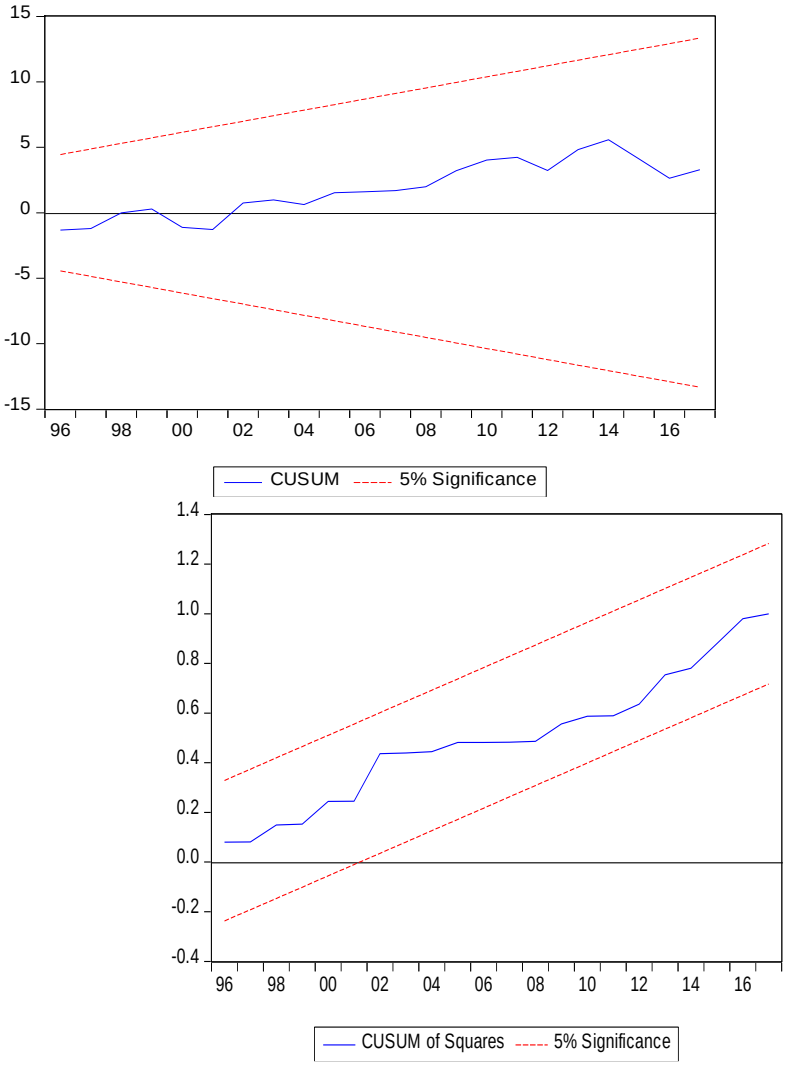
The empirical estimations for autocorrelation, autoregressive, normality and heteroskedasticity (sensitivity analysis) are reported above to test the following null hypotheses:

- ✓ There is no serial correlation.
- ✓ There is no functional form misspecification.
- ✓ There is no heteroscedasticity. Thus, our model is homoscedastic.
- ✓ There is no non-normal error.

The results of the above tests show that the short-run model passed the diagnostic tests. The results revealed that there is no trace of autocorrelation at 5% level of significance and that the model passes the test for normality, there is also evidence to show that the error term is normally distributed. While the Jargue-Bera statistic was deployed to investigate whether the

errors of the ARDL ECM were normally distributed, the ARCH- Autoregressive Conditional Heteroscedasticity test was used to find out whether or not the variance of the residuals in the model was homoscedastic. Finally, Breusch-Godfrey Serial Correlation LM test was employed as a higher order test for serial correlation.

Figures 4 and 5. Stability Tests: CUSUM and CUSUM Square



Figures 4 and 5 were used to examine the stability of the coefficients of the independent variables in the ARDL model during the sample period. The CUSUM and CUSUM Square stability tests were used which confirms the long run stability of the coefficients of the independent variables. We were able to discover the parameters of the independent variables in the short-run and long-run dynamic model are stable over the study period, given that the graph laid between the dotted lines for both tests. As shown in the graphs, the recursive residuals and CUSUM lines stayed within the 5 percent critical bound. This conclusion was arrived given the fact that neither the recursive residual nor CUSUM plots cross the 5 percent critical lines, hence these statistics prove the stability of the long-run coefficients of trade openness (TOP), exchange rate (EXCR), foreign direct investment (FDI), import value index (IMPVI) and export value index (EXPVI) have an effect on the growth rate of real domestic gross product (RGDP), which is our proxy for economic growth in Nigeria.

CONCLUDING REMARKS

This study examines the economic growth and trade openness nexus in Nigeria between 1981 and 2018. Primarily, the need to empirically find out the magnitude effect degree of trade openness has on economic growth as measured by the growth rate in real gross domestic product, motivated this investigation. The study included degree of trade openness, nominal exchange rate, foreign direct investment, import and export indices in the model, deploying the Autoregressive Distributive Lag (ARDL) methodology to analyze the data obtained from the World Bank country reports, CBN statistical bulletin and data from the National Bureau of Statistics. The study found out that degree of openness fails to meet theoretical and a prior expectations in terms of predicting economic growth in Nigeria. In essence, the study found degree of trade openness to have a negative and significant impact of economic growth in Nigeria. This implies that the more we open our economy to foreign trade, the more growth is retarded. However, foreign direct investment (FDI) was found to have positive effect on Nigeria's economic growth. The study concludes therefore that degree of trade openness in particular and foreign trade in general do not stimulate economic growth in Nigeria. The managers of the economy is, therefore, advised to pursue policies to will develop our domestic productive capacities, which could guarantee self-sufficiency in the long-run and halt our dependence on importations. A corollary benefit is that it would also save our foreign reserves and aid in stabilizing the value of the naira. The FDI channel show also be explored to attract needed capital for investment in Nigeria. Restoration of investors' confidence is key, especially, in the area of exchange rate policy that would guarantee easy repatriation of profits by investors with ease.

REFERENCES

Adewuyi, A.O. (2001). The implications of crude oil exploitation and export on the environment and level of economic growth and development in Nigeria. Proceedings of the Annual Conference of the Nigerian Economic Society.

Atoyebi K.O, F.O Adekunjo, O. Edun and K. Kadiri (2012). Foreign Trade and Economic Growth in Nigeria: An Empirical Analysis. *Journal of Humanities and Social Sciences, Vol. 2(1), pp 73-80*

Georgios, K. (2003). Trade Openness and Economic Growth, can we Estimate the Precise Effects? *Applied Econometric and International Development. AEEADE Vol. 3-1, University of Illinois.*

Maneschi, A. (2004). The true meaning of David Ricardo's fur magic numbers. *Journal of International Economics* 62(2): 433-443.

Nduka, E.K. (2013). Openness and Economic Growth in Nigeria. *Journal of Education and Practice, Vol. 4, No. 1. pp. 68-73.*

Nenbee, S.G and Onuchukwu, O. (2017). Role of International Trade and Foreign Direct Investment in Nigeria's Industrialization. *African Journal of Applied and Theoretical Economics, Special edition, p.p 100-118.*

Nteegah, A., Nelson, M and Owede, V.M. (2017). Trade liberalization and economic growth in Nigeria. *International Journal of Social Science and Economics Invention (IJSSEI) Volume 03(01) 119-131.*

Nwaeze, N.*C.* (2018). *Political Economy: An Old Concept in a New World Order*. Justman Pulishers, Okigwe

Nwafor, M.C., Adenikinju, A.F. and Ogujiuba, K.K. (2007). The Impact of Trade Liberalization on Poverty in Nigeria: Dynamic Simulations in CGE Model. *Poverty and Economic Policy Research Network Working Paper, No.MPIA-2007-16*

Oladipo, O.S (1998). Trade liberalization and economic growth in Nigeria. *Ife Social Sciences Review, 15(1): 80-92*

Pesaran, M., Shin, Y. and Smith, R., 2001. Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics,* 16, 289–326

Ricardo, D. (1817). *On the Principles of Political Economy and Taxation*. Piero Sraffa (Ed.) Works and Correspondence of David Ricardo, Volume I, Cambridge University Press, 1951, p. 135

Rodriguez, F. & Rodrik, D. (2000). Trade policy and economic growth: A skeptic's guide to the cross-national evidence. *NBER macroeconomics annual, 15, 261-338. Retrieved from http://www.nber.org/chapters/c11058*

Ruffin, R.J. (2002). David Ricardo's discovery of comparative advantage. *History of Political Economy* 34(4): *727-748.*

Shiozawa, Y. (2017). An Origin of the Neoclassical Revolutions: Mill's "Reversion" and its consequences. In Shiozawa, Oka,and Tabuchi (eds.) *A New Construction of Ricardian Theory of International Values*, Tokyo: Springer Japan, Chapter 7 pp.191-243.

Tabuchi, T. (2017). Yukizawa's interpretation of Ricardo's `theory of comparative cost`. In Senga, Fujimoto, and Tabuchi (Eds.) *Ricardo and International Trade*, London and New York; Routledge, Chapter

Thirlwall, A.P. (2000). Trade Liberalization and Economic Growth: Theory and Evidence. *African Development Bank Economic Research Paper, No 63.*

Yakubu, M.M. and Akanegbu, B.N. (2018). Trade Openness and Economic Growth. Evidence from Nigeria. *European journal of business, economics and accountancy, 6(4).*