Empirical Relationship between International Trade and Economic Growth in Nigeria

[1]Agbonkhese Abraham Oni, Ph.D & [2]Bashiru Salihu, M.Sc.

[1]Department of Economics, Faculty of Arts and Social Sciences, Admiralty University of Nigeria, Ibusa, Delta State, Nigeria. Email: abraham_oni@yahoo.com

[2]Department of International Relations, Faculty of Arts and Social Sciences, Admiralty University of Nigeria, Ibusa, Delta State, Nigeria. Email: Merotz51@gmail.com

Abstract

Empirical studies have shown contradictory and/or inconclusive findings between international trade and economic growth in Nigeria and this necessitated this study. The study empirically examined the relationship between international trade and economic growth in Nigeria from 1986 to 2021 and used the Autoregressive Distributed Lag Model. Augmented Dickey-Fuller unit root test result established that, at levels and first difference, some variables were stationary while others were not. The Bounds test of co-integration showed a long run equilibrium relationship among the variables. The result further revealed that trade openness had negative and insignificant relationship with economic growth in Nigeria, because of the country's narrow production and export base dominated by low value products such as primary commodities. Foreign direct investment was positively and significantly related to economic growth, implying that foreign direct investment was a major determinant of economic growth in Nigeria. Exchange rate was positively insignificant to economic growth in Nigeria, due to exchange rate volatility. The study recommended that, government should strengthen trade openness by dismantling trade barriers, add value to their exports and provide a level playing field for trading partners to achieve the desired gains from international trade vis-à-vis a sustainable economic growth in Nigeria.

Keywords: *Empirical Relationship, International Trade, Economic Growth, Nigeria and ARDL.*

1. Introduction

In the past thirty years, the global economy has expanded dramatically. This expansion has been aided by the even faster increase in global trade. Trade has expanded as a result of both technological breakthroughs and purposeful efforts to reduce trade barriers. Many emerging economies have yet to open their economies to fully capitalize on the opportunities for economic growth through trade, but some have. The residual trade barriers in the industrialized world are largely in agricultural goods and labor-intensive manufacturing sectors, where developing economies have a competitive advantage. Increased trade liberalization in these

industries would benefit both developed and developing countries, assisting the world's poorest people in overcoming the most severe kinds of poverty (IMF, 2001).

International trade has piqued the curiosity of economists and policy makers. The opportunity to buy goods that are either not producible domestically or are only producible at a greater cost makes international trade relevant. Further, it allows a country to export its domestically produced goods to other countries. However, the performance of an economy in terms of output growth rates and per capita income has been based on both domestic and international transportation of goods and services, as well as local production and consumption. International trade was so highly regarded by classical and neoclassical economists in the development of a nation that they saw it as a growth engine (Jhingan, 2006). It is important to note that trade is frequently seen as a key factor in economic growth and development all over the world. For a developing nation like Nigeria, trade makes a significant contribution to overall economic growth. This is largely due to insufficient domestic supply, the majority of the necessary components for development, such as raw materials, capital goods, and technical know-how, are imported. Although locally produced commodities are gathered for export and imported goods are spread throughout the nation even into the interior, it is vital to keep in mind that internal trade supplements external trade.

Academic scholars and professionals have vigorously debated the impact of trade on economic growth, particularly in developing nations. The widespread consensus is that trade openness fosters an environment where high-quality products may grow the economy (Aradhyula, Rahman & Seenivasan, 2007). As a result, it is believed that global trade contributes significantly to economic growth. Many nations continue to seek international trade despite the fact that it has historically been turbulent and prone to reoccurring trade barriers due to the significant, advantageous externalities connected with it. Trade's role as a driver of economic growth is rapidly becoming critical, particularly in African countries, where natural resources abound but industries to convert them into consumer commodities and other intermediate products are lacking. As a result, external commerce in these resources is required to supplement domestic processing businesses and encourage economic growth (Asiedu, 2013).

Over time, international trade has proven to be effective in encouraging the growth and development of nations, particularly emerging countries such as Nigeria. As a result of globalization, which has transformed the world into a global village, countries can now engage more effectively and efficiently. Nigeria, like many other countries today, values international trade since their economy can no longer run independently. Nations are currently competing through trade to enhance the form, quality, packaging, and quantity of their products. Thus, international trade, or the movement of goods and services across national borders, is here to stay. This has created a fierce debate among academics and researchers on whether international trade stimulates economic growth. As a result, academics in Nigeria and other nations have conducted a variety of empirical studies to determine the impact of global trade on economic growth.

However, many of such studies have investigated international trade and economic growth nexus and came with three strands: positive, negative and non-linear relationship. For example, Emehelu (2021) reported the absence of long run relationship between international trade and economic growth while others revealed that, there was a long run relationship between international trade and economic growth (Ashrafi & Kalaiah, 2020; Mogoe & Mongale, 2014; Lawal & Ezeuchenne, 2017, Bashir 2018 and Lot, 2017). Most of these empirical studies on the relationship between international trade and economic growth have been within the Nigerian economy and other countries, which have been largely cross sectional in nature (Farag, Ab-Rahim & Mohd-Kamal, 2021; Nzabirinda, Ivang & Uwayezu, 2021).

This paper extends the current literature between international trade and economic growth in a number of significant ways. Firstly, this study uses the Autoregressive Distributed Lag (ARDL) model because it shows simultaneously the short run and long run interactions among the variables concerned unlike previous studies like Nzabirinda et. al. (2021); Farag et. al. (2021); Iwuoha and Awoke (2020); Lawal and Ezenchenne (2017); Mogoe and Mongale (2014) employed Cointegration and Vector Error Correction Model (VECM); Ashrafi and Kalaiah, (2020); Nwamuo (2019); and Adeleye *et. al*. (2015) explored Cointegration, Error Correction Model (ECM) and Granger Causality while Emehelu (2021); Afolabi et. al. (2017), Lot (2017); and Nageri, Ajayi, Olodo and Abina (2013) used the Ordinary Least Squares (OLS); and Iyoha and Okim (2017) utilized the Panel Data model to ascertain the relationship between international trade and economic growth.

Secondly, this study extends its scope beyond those of earlier studies by extending the period from 1986 to 2021 which captures international trade relationship with economic growth in the 80s, 90s, 2000, and beyond.

Some of the empirical studies have shown positive impact of international trade on economic growth while some others reported negative and/or inconclusive impact of international trade on economic growth in Nigeria, Africa and the world. These contradictory and/or inconclusive findings created a knowledge gap to be filled by this study. The paper is organized into five sections. Following the introductory section is section two which provides the literature review. Section three discusses the research methodology while section four presents the empirical results and discussion. Section five concludes the study and makes appropriate policy recommendations.

2. Literature Review

This section reviews related literature in this area of study and is structured into conceptual framework, empirical review and theoretical framework.

Conceptual Framework: International trade, according to Bakari (2017), is the exchange of capital, goods, and services across international borders or territories. In most countries, such trade accounts for a major portion of GDP**.** Agu, Amuka, and Ugwu (2016) described export trade as the sale of a good or service by citizens of one country to citizens of another in exchange for money, usually in the form of foreign currency. They also defined international trade as a voluntary interchange of commodities and services across international frontiers. Regional integration and international trade appear to be natural ways for an economy to produce at lower unit costs for a broader (regional) market (Ajayi & Araoye 2019). International trade, often known as international or external trade, is defined as commercial activity that takes place between two or more countries (Adeleye, Adeteye, & Adewuyi, 2015).

Empirical Review: Ashrafi and Kalaiah (2020) examined the relationship between foreign trade and Afghanistan's economic growth from 2002 to 2018 using Johansen Co-integration and Granger Causality tests. The results indicated a long-term relationship between foreign trade and economic growth in Afghanistan, while the Granger-Causality revealed a unidirectional and bidirectional causal link between foreign trade and economic growth in Afghanistan. Mogoe and Mongale

(2014) examined how foreign commerce affected South Africa's economic expansion using co-integrated vector auto regression methodology. The result indicated that all the variables had a long-term economic link with growth in South Africa. Nzabirinda, Ivang, and Uwayezu (2021) investigated how commerce from around the world affected Rwanda's economic development from 1990 to 2017. Descriptive data analysis and the Vector Error Correction Model (VECM) were utilized. The results of the empirical study showed that, Gross Domestic Product and both trade openness and foreign direct investment were positively correlated. In another study, Farag, Ab-Rahim, and Mohd-Kamal (2021) examined the short- and long-term causal links between international trade and economic growth in Libya over the 1990–2017 study periods. Johansen co-integration test, VECM error correcting model, and the Wald test were used to accomplish its objective. The results suggested both a short-term causal relationship between Libya's exports and imports and economic growth as well as a long-term association between foreign trade and that country's economic growth.

Emehelu (2021) ascertained the effects of global trade on Nigeria's economic growth from 1981 to 2018 using the Ordinary Least Squares (OLS) approach. The result revealed the absence of a long-run equilibrium link between exchange rates and economic growth, while exchange rates had a negative and insignificant relationship with economic growth. Lawal and Ezeuchenne (2017) used Co-integration and Vector Error Correction Model (VECM) to investigate how foreign trade affected Nigeria's economic expansion for the period 1985 to 2015. The study found that, there was a long-term relationship between trade and economic growth, that import and trade openness were minor in the short term but significant in the long term, and that export and trade balance were important in both the short and long terms. Similarly, Iwuoha and Awoke (2020) employed Johansen co-integration and Vector Error Correction (VECM) methods to analyze time series data for the years 1981–2017 in order to evaluate the effects of global trade on economic growth in Nigeria. The vector error correction model results indicated that, net export had an insignificant positive impact whereas trade openness, the real exchange rate, interest rates, and foreign direct investment had a significant negative impact on Nigeria's economic growth over the study period. Afolabi, Danladi, and Azeez (2017) examined the effects of global trade on economic growth in Nigeria over the period 1981 and 2014 using the Ordinary Least Squares (OLS) method. The result revealed that government expenditures, interest rate, import and export were all positively significant, while exchange rate and foreign

direct investment were negatively insignificant to the growth process of the Nigerian economy.

Nwamuo (2019) evaluated the effect of global trade on Nigeria's economic growth using annual time series data that span through 1981 to 2018. The result showed that the variables were co-integrated, demonstrating a long-term relationship between them. The regression analysis revealed that while trade openness had a negative effect on Nigerian economic growth, export, import, and exchange rate had favourable effects, while the result of the error correction revealed a quick return to long-run equilibrium. Bashir (2018) examined the impact of international trade on economic growth in Nigeria from 1971 to 2016 using ARDL Bound testing approach. The result establishes that international trade bears positive and significant effect on economic growth in Nigeria over the study period. Lot (2017) analyzed the impact of international trade on the Nigerian economy over the period 1990 to 2016. The ordinary least squares (OLS) technique was used. The result showed that the variables were related over the long term, while in the parsimonious error correction model, import had a negative impact, while export and foreign direct investment had positive effects on economic growth.

Theoretical Framework: This study used Hecksher-Ohlin Theory to drive the theoretical framework. Heckscher-Factor Ohlin's Endowments were the foundation for this idea. This theory incorporates three main trade theories: Eli Heckscher (1919) and Bertil Ohlin (1933) developed the theories of absolute advantage, comparative advantage, and factor endowment. The Heckscher-Ohlin theory of factor endowment predicts that nations will export commodities that heavily rely on locally abundant factors, while she will heavily import goods that significantly rely on locally scarce factors. One of the most significant theories of global trade is the Heckscher-Ohlin theory, generally known as the factor proportions model. By adding a second factor of production, the Richardian model was considerably expanded upon. It is one of the simplest general equilibrium models that allows for simultaneous interactions across factor markets, goods markets, and national markets in its two-by-two-two variation, that is, two goods, two factors, and two countries. As a result, the Heckscher-Ohlin theory holds that all markets are interrelated, which means that Nigeria's trading relationship with other countries around the world contributes to global economic growth in some way through market activities. The Heckscher-Ohlin hypothesis holds that as all markets are interrelated, trade contacts between Nigeria and other nations of the world

contribute in some way to the global economy's expansion through market activities.

3. Research Methodology

Data Source: This study used annual time series data for the period of 1986 to 2021 and sourced from Central Bank of Nigeria and World Development Indicators (WDI). To measure the relationship between international trade and economic growth, this study explores the Autoregressive Distributed Lag Model (ARDL). The ARDL estimation is important because it shows simultaneously the short run and long run interaction among the variables concerned.

Autoregressive Distributed Lag (ARDL) Model: Pesaran and Shin (1999) introduced the ARDL model and was further extended by Pesaran, Shin and Smith (2001). This approach is based on the estimation of an unrestricted error correction model. It has some advantages over the conventional co-integration method of Johansen and Juselius (1990) co-integration test. While the Johansen co-integration methods are sensitive to the size of the sample, the ARDL test is suitable even if the sample size is small (Pesaran, Smith & Shin, 1996b). In addition, with the presence of omitting variables and autocorrelation problems which are very common in time series analysis, the short and long-run components of the model can be estimated at the same time.

Bounds Co-integration Testing Approach: Autoregressive Distributed Lag (ARDL) approach to co-integration or Bounds procedure for a long run relationship is used irrespective of whether the underlying variables are I(0), I(1) or a combination of both. In such situation, the application of ARDL approach to co-integration will give realistic and efficient estimates.

Augmented Dickey Fuller Unit Root Test: An important step in the estimation of the ARDL model is to test for the stationarity of the variables to ensure that none of the variables is integrated of order two. Autoregressive distributed lag model allows for a mix of I(0) and I(I) variables in an estimation. The Augmented Dickey Fuller test (Dickey & Fuller, 1981) unit root test is used to establish the order of integration of the variables and is generally modelled as:

$$\Delta Y_t = \varpi_1 + \delta Y_{t-1} + \sum_{i=1}^{n} \alpha_i \Delta Y_{t-1} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

$$\Delta Y_t = \varpi_1 + \varpi_t + \eta Y_{t-1} + \sum_{i=1}^{n} \beta_i \Delta Y_{t-1} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where Δ is the first difference of Y, while ϖ_1 and ϖ_t are the intercept term and time trend respectively, while n is the lag value. The Augmented Dickey-Fuller test is taken as superior to the Dickey Fuller because the Dickey Fuller test does not take account of possible autocorrelation in the error process (Uko & Nkoro, 2016).

Model Specification

In view of the synthesis above and particularly following empirical variables in the study, a simple model of Autoregressive Distributed Lag (ARDL) framework is hypothesized to capture the dynamics of the relationship between international trade and economic growth. The relevant variables in the empirical estimation are: Real gross domestic product (RGDP), Trade Openness (TROP), Foreign Direct Investment (FDI), Exchange Rate (EXR), and Inflation (INF). Inflation is included as a conditioning variable. The specification of the model follows the one introduced by Pesaran and Smith (2001) and specified below:

$$\Delta LNRGDP_1 = \beta_0 + \sum_{i=1}^{n} \beta_1 \Delta LNRGDP_{t-1} + \sum_{i=1}^{n} \beta_2 \Delta LNTROP_{t-1} + \sum_{i=1}^{n} \beta_3 \Delta LNFDI_{t-1} + \sum_{i=1}^{n} \beta_4 \Delta LNEXR_{t-1}$$
$$+ \sum_{i=1}^{n} \beta_5 \Delta LNINF_{t-1} + \beta_6 ECM(-1) + \psi_1 LNRGDP_{t-1} + \psi_2 LNTROP_{t-1} + \psi_3 LNFDI_{t-1} + \psi_4 LNEXR_{t-1}$$
$$+ \psi_5 LNINF_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where:

LN is the log of the variable
RGDP: Real Gross Domestic Product (measure of economic growth)
TROP: Trade Openness
FDI: Foreign Direct Investment
EXR: Exchange Rate
INF: Inflation Rate
ECM(-1): Error Correction Term
ε_t : Error Term

In addition, $\beta_1, \ldots\ldots, \beta_5$ are the short-run dynamic parameters of the model and β_6 is the speed of adjustment of parameters while $\psi_1, \ldots\ldots, \psi_5$ are the long run parameters.

A priori Expectation: It is expected that trade openness and foreign direct investment should have positive relationship with economic growth, while exchange rate could have positive or negative relationship with economic growth depending on the policy direction of the government and inflation should have an inverse relationship with economic growth.

4. Discussion of Estimated Results

Unit Root Test Results

Table 1: Augmented Dickey-Fuller (ADF) Test Statistic Results at Levels and First Difference

Variables		ADF Test Statistic	Critical Value	Order of Integration	Decision
LNRGDP	Level	-3.718119 (0.0360)**	-3.562882	1(0)	Stationary
	First Diff.	-3.154580 (0.1105)	-3.548490	1(1)	Not Stationary
LNTROP	Level	-6.315419 (0.0000)**	-3.544284	1(0)	Stationary
	First Diff.	-10.06444 (0.0000)**	-3.548490	1(1)	Stationary
LNFDI	Level	-2.415960 (0.3655)	-3.544284	1(0)	Not Stationary
	First Diff.	-7.589890 (0.0000)**	-3.548490	1(1)	Stationary
LNEXR	Level	-2.588280 (0.2875)	-3.544284	1(0)	Not Stationary
	First Diff.	-6.087493 (0.0001)**	-3.548490	1(1)	Stationary
LNINF	Level	-3.570072 (0.0473)**	-3.544284	1(0)	Stationary
	First Diff.	-4.008978 (0.0198)**	-3.574244	1(1)	Stationary

Note: Probabilities are in parentheses. ******All the variables are significant at 5% level.

Source: Authors' Estimation Results, 2022.

Table 1 presents the result of the Augmented Dickey-Fuller test at levels and first difference. It shows that none of the variable is integrated of order two and that the variables are not integrated of the same order. The unit root test results have mixed results; hence the use of ARDL Bounds test for co-integration is valid.

ARDL Bounds Test of Co-integration

The result of the test provides the existence of long run relationship among the variables as shown in Table 2.

Table 2: ARDL Bounds Test of Co-integration Result

Computed Value			**Critical Value Bounds**			**Decision**
Test Statistic	Value	K	Significance	1(0) Bound	1(1) Bound	
F-Statistic	29.24446	4	10%	2.2	3.09	Existence of a long run relationship.
			5%	2.56	3.49	
			2.5%	2.88	3.87	
			1%	3.29	4.37	

Source: Authors' Estimation Result, 2022

The Bounds' test result as shown in Table 2 indicates two set of critical values for a given level of significance, that is, the lower bound I(0) and the upper bound I(1). Since the computed F-statistic is 29.24446 and it exceeds the upper bound at the 10 per cent significant level, it can be concluded that there is evidence of a long run relationship among the series, implying that the hypothesis of no long run relationship is rejected. Therefore, proceed to estimate both short and long run dynamics using the Autoregressive Distributed Lag model estimation.

Table 3: ARDL Cointegrating and Long Run Form

Cointegrating Form					**Long Run Coefficients**				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std Error	t-Statistics	Prob.
D(LNTROP)	-0.304998	0.361338	-0.844081	0.4139	**LNTROP**	0.073081***	0.016294	4.485033	0.0006
D(LNFDI)	0.188625***	0.025644	7.355646	0.0000	**LNFDI**	-0.001184	0.005818	-0.203489	0.8419
D(LNEXR)	0.041785	0.083107	0.502788	0.6235	**LNEXR**	-0.043443***	0.010271	-4.229637	0.0010
D(LNINF)	-0.340685***	0.083847	-4.063179	0.0013	**LNINF**	-0.015290***	0.005112	-2.990947	0.0104
CointEq(1)*/**ECT**	8.817581***	0.932336	9.457516	0.0000	**C**	-0.241082***	0.015467	-15.58698	0.0000

EC = LNRGDP – (-0.3050*LNTROP + 0.1886*LNFDI + 0.0418*LNEXR -0.3407*LNINF + 8.8176)

Source: Authors' Estimation Results, 2022.

The result in Table 3 shows that in the short run, all the variables are correctly signed except foreign direct investment which is also not significant. Foreign direct investment exerts indirect effect on economic growth in Nigeria in the short-run. This result is against the a priori expectations of the study and this could possibly be as a result of declining foreign direct investment in Nigeria, perhaps due to lack of enabling environment such as macroeconomic stability (relative price and exchange rate stability), and infrastructural development (good road network, steady power supply) and the over-reliance on crude oil. Following the Prebisch-Singer hypothesis, a country specializes and concentrates mainly on mono-product exports due to declining state of her terms of trade. Trade openness, exchange rate and inflation are correctly signed and significant in the determination of growth rate in Nigeria. As expected, the Error Correction Term (ECT) which accounts for the speed of adjustment from short-run disequilibrium to long-run equilibrium is negative and statistically significant. This indicates that the speed of adjustment is more than 24 per cent.

On the long run, all the variables met their a priori expectations except trade openness and exchange rate. Trade openness has negative and insignificant relationship with economic growth in Nigeria. This may not be unconnected with the country's narrow production and export base dominated by low value products such as raw materials and primary commodities, trade barriers, limited access to international market in industrial countries, and overdependence on a mono-cultural product. However, this result is in tandem with that of Iwuoha and Awoke (2020), Nwamuo (2019) and Lawal and Ezeuchenne (2017) who investigated the impact of international trade on economic growth in Nigeria. This is contrary to the result of Nzabirinda, Ivang and Uwayezu (2021) and Obadan and Okojie (2010) who examined international trade and economic growth in Rwanda and Nigeria respectively; and affirmed that trade openness had positive impact on economic growth.

Foreign direct investment is positively and significantly related to economic growth. This implies that foreign direct investment is a major determinant of economic growth in Nigeria. This result has aligned with Lot (2017) and Nzabirinda *et al*. (2021) who evaluated the effect of international trade on economic growth of Nigeria and Rwanda; and found a positive relationship between foreign direct investment and economic growth, while Afolabi, Danladi and Azeez (2017), Bashir

(2018), Iwuoha and Awoke (2020), and Enu *et. al*. (2013) reported that foreign direct investment had significant negative impact on economic growth.

Exchange rate has a positive and insignificant relationship with economic growth in Nigeria. This is as a result of the exchange rate that has been deteriorating consistently and persistently in value as against major international currencies. This is due to exchange rate volatility. This result is in consonance with Iyoha and Okim (2017), Bashir (2018), Mogoe and Mongale (2014) and Eravwoke and Oyovwi (2012) as against the results of Emehelu (2021) and Usman (2011) who reported that exchange rate has negative and insignificant impact on the growth of the Nigerian economy. Inflation rate is negative and significant to economic growth in Nigeria. This means that inflation has deleterious effect on economic growth in Nigeria. This means that consumers' price index is high leading to a high cost of living in Nigeria and its attendant effect on economic growth. The result is contrary to Onuorah (2018) and Adelowokan and Maku (2013) who found that inflation had a positive relationship with economic growth. In synopsis, the result indicates that, there are short run and long run relationships between international trade and economic growth in Nigeria.

Residual Tests: In a bid to ensure the reliability, accuracy, and validity of the statistical inferences to be drawn from the study, this section presents the outcome of the robustness tests conducted. The robustness tests are residual and stability tests.

Table 4: Breusch-Godfrey Serial Correlation LM Test and Breusch-Pagan-Godfrey Heteroskedasticity Test Results

Breusch-Godfrey Serial Correlation LM Test Result				**Breusch-Pagan-Godfrey Heteroskedasticity Test Result**		
F-statistic	4.084474	Prob. F(2,11)	0.0508	0.501472	Prob. F(18,13)	0.9129
Obs*R-squared	8.794700	Pro.Chi-Sqaure (2)	0.0123	13.11365	Prob. Chi-Square(18)	0.7848
Scaled explained SS				4.518058	Prob. Chi-Square(18)	0.9994

Source: Authors' Estimation Results, 2022.

The Breusch-Godfrey test of serial correlation is based on the null hypothesis that the residuals are not serially correlated. From the result shown in Table 4, the p-value of the F-statistic indicates that there is 10% level of significance, which means that we cannot reject the Breusch-Godfrey test null hypothesis that, there is no serial correlation in the residual. Therefore, there is the absence of serial correlation in the residual. The Breusch-Godfrey-Pagan test of heteroscedasticity is based on the null hypothesis that the error variances are equal (Homoscedasticity). From Table 4, the p-values of the F-statistic are 91.29, 78.48 and 99.94 per cents respectively, which are well above the 10 per cent level of significance. This implies that we cannot reject the null hypothesis, and therefore, the residual has no heteroscedasticity problem but rather homoscedastic.

Stability Test: The method used by Brown, Durbin, and Evans (1975) to examine the short-run stability of the model's parameters was examined in the study. They did this by plotting the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSq). The CUSUMSq test is useful when there is a haphazard and unexpected departure from the constancy of regression coefficients, whereas the CUSUM test is particularly useful for detecting systematic changes in the regression coefficients. The results of the two experiments are depicted in Figures 1A and 1B. Essentially, parameter instability is established if the CUSUM of residuals and CUSUM of squares of residuals fall outside the bands denoted by the two crucial lines (dotted lines). According to the graphs in figures 1 and 2, the CUSUM remains inside the 5% critical line throughout the period under examination, suggesting parameter stability throughout the estimating period.

Parameters Stability Test Result

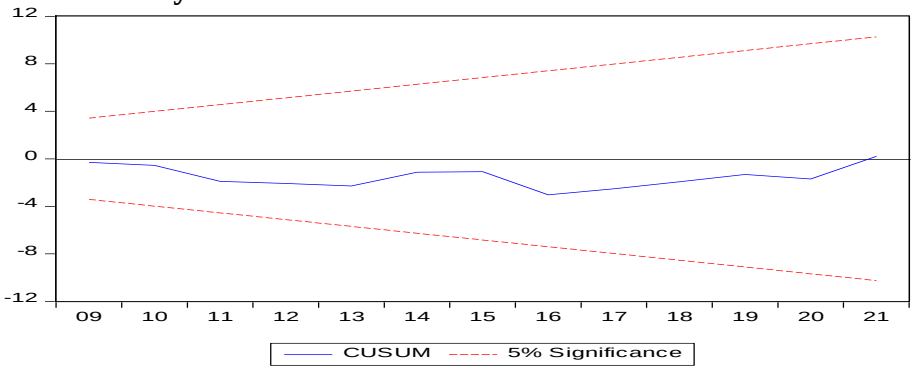

Figure 1: Cumulative Sum of Recursive Residual (CUSUM)

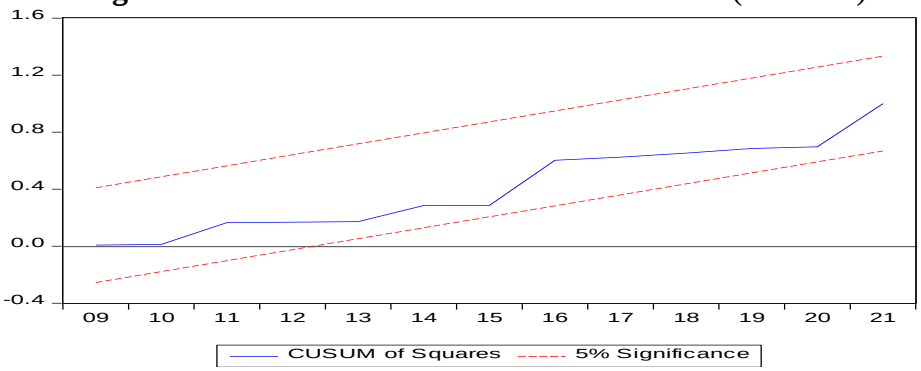

Figure 2: Cumulative Sum of Squares of Recursive Residual (CUSUMSq.)
Source: Authors' Graphs, 2022.

5. Conclusion and Recommendations

The study investigated the relationship between international trade and economic growth in Nigeria from 1986 to 2021. The Augmented Dickey-Fuller (ADF) test for unit root showed that there are mix of I(0) and I(1) variables in the model which justifies the use of Autoregressive Distributed Lag (ARDL) estimation technique. The ARDL Bounds test for co-integration showed that, there is a short run and long run equilibrium relationships among the variables of interest. The Autoregressive Distributed Lag estimation result revealed mixed results in the parameters used. Trade openness has negative and insignificant relationship with economic growth as a result of the country's narrow production and export base dominated by low value products such as primary commodities, while foreign direct investment is positively and significantly related to economic growth in Nigeria, implying that foreign direct investment is a major determinant of economic growth in Nigeria.

Exchange rate has a positive and insignificant relationship with economic growth due to exchange rate volatility, while inflation rate is negatively and statistically significant to the growth of the Nigerian economy, meaning that inflation has deleterious effect on economic growth in Nigeria. In a nutshell, international trade is very important to economic growth and development providing the enabling macroeconomic environment and a level playing field for all trading partners.

Based on the findings, the study makes the following specific policy recommendations:

(i). Government should strengthen trade openness by dismantling trade barriers, add value to their exports and provide a level playing field for all trading partners to achieve the desired gains from international trade vis-à-vis a sustainable economic growth in Nigeria.

(ii). Government should provide the enabling environment such as macroeconomic stability (relative price and exchange rate stability) and infrastructural development (good road network, steady power supply) which will lower the cost of doing business in Nigeria and ultimately attract more foreign direct investment inflows into the country.

(iii). Stable exchange rate is an impetus to economic growth and a way of attracting local and international investors. Therefore, the monetary authorities should have the political will to implement policies that will stem the tide of exchange rate volatility that can enhance the growth of the Nigerian economy. The Central Bank of Nigeria should intervene in the foreign exchange market by way of supplying more foreign currencies especially the United States Dollars to ameliorate its volatility, since the current policy of market determined exchange rate has failed.

(iv). The Nigerian monetary authority should provide an appropriate inflation rate ideally a single digit rate that will positively impact on the country's economic growth. High inflation rate will adversely affect economic growth leading to rapid deterioration in the value of a nation's currency and erode the confidence of foreign investors thereby discouraging foreign direct investment inflows into the economy. This can be achieved through the amelioration of exchange rate volatility and import reduction.

References

Adeleye, J. O., Adeteye, O. S. & Adewuyi, M. (2015). Impact of International Trade on Economic Growth in Nigeria. *International Journal of Financial Research,* 6(3), 163.

Adelowokan. O. A. & Maku, A. O. (2013). Trade Openness, Foreign Investment and Economic Growth in Nigeria: A Long-Run Analysis. *European Journal of Globalization and Development Research,* 7(1), 446-458.

Afolabi, B., Danladi, J. D. & Azeez, M. I. (2017). International Trade and Economic Growth in Nigeria. *Global Journal of Human-Social Science: Economics,* 17(5), 28-39.

Agu, A. O., Amuka, J. I. & Ugwu, C. C. (2016). Globalization and Relative Trade of a Developing Country: Evidence from Nigeria. *Journal of International Business and Economics*, 4(2).

Ajayi, E. O. & Araoye, F. E. (2019). Trade Openness and Economic Growth in Nigeria. *International Journal of Economics and financial Management*, 4(2), 25-45

Aradhyula, S. V., Rahman, T. & Seenivasan, K. (2007). Impact of International Trade on Income and Income Inequality. *American Agricultural Economics Association*, 520, 43.

Asiedu, K. M. (2013). Trade Liberalization and Growth: The Ghanaian Experience. *Journal of Economics and Sustainable Development*, 4(5).

Ashrafi, S. A. R. & Kalaiah, V. (2020). International Trade and Economic Growth in Afghanistan. *Journal of Xi'an University of Architecture & Technology*, XII (VI), 1799.

Bashir, U.F (2018). The impact of International Trade on Economic Growth in Nigeria: Autoregressive Distributed Lag (ARDL) Bound Testing Approach. *UMYUK Journal of Economics and Development*, Vol 1, no 3. September,

Brown, R. L., Durbin J. & Evans, J. M. "Techniques for Testing the Constancy of Regression relationships over Time." *Journal of the Royal Statistical Society*, vol. Series B, pp. 149-162, 1975.

Bakari, S. (2017). Appraisal of Trade: Potency on Economic Growth in Sudan: New Empirical and Policy Analysis. *Asian Development Policy Review*, 5(4), 213-225.

Dickey, D. A. & Fuller, W. A. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, 49, 1057-1072.

Eravwoke, K. E. & Oyovwi, D. O. (2012). Growth Perspective via Trade in Nigeria: A Co- Integration Approach. *African Research Review* 6(1), 18-26

Emehelu, C. I. (2021). Effects of International Trade on Economic Growth of Nigeria. *International Journal of Innovative Finance and Economics Research*, 9(1), 144-157.

Enu, P., Havi, E. D. K. & Hagan, E. (2013). The Impact of Foreign Trade on Economic Growth in Ghana. *International Journal of Academic Research in Economics and Management Sciences,* 2(5), 174-191.

Farag, F. S., Ab-Rahim, R. & Mohd-Kamal, K. A. (2021). Foreign Trade and Economic Growth Relationship: Empirical Evidence from Libya. *International Journal of Academic Research in Business and Social Sciences*, 11(4), 181-190.

Heckscher, E. F. (1919). The Effect of Foreign Trade on the Distribution of Income. *Harvard University Press,* Cambridge, MA.

Iyoha, M., & Okim, A. (2017). The Impact of Trade on Economic Growth in ECOWAS Countries: Evidence from Panel Data. *CBN Journal of Applied Statistical,* 8(1).

IMF (2001). Global Trade Liberalization and the Developing Countries. *International Trade and the World Economy.*

Iwuoha, J. C. & Awoke, C. F. (2020). Impact of International Trade on Nigeria's Economic Growth. *UMYUK Journal of Economics and Development (UJED),* 2(1), 112.

Jhingan, M. L. (2006). *Money, Banking, International Trade and Public Finance* (7th ed.). New Delhi: Vrinda Publication

Johansen, S. & Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration-with Applications to the Demand for Money. *Oxford Bulletin of Economics and Statistics,* 52(2), 169-210.

Lawal, E. O. & Ezeuchenne, K. (2017). International Trade and Economic Growth in Nigeria. *Journal of Humanities and Social Science*, 22(6), 35-43.

Lot, M. E. (2017). Effect of International Trade on Economic Growth in Nigeria. *International Journal of Humanities and Social Sciences*, 4(12), 89-102.

Mogoe, S. & Mongale, I. (2014). The Impact of International Trade on Economic Growth in South Africa: An Econometrics Analysis. *Mediterranean Journal of Social Sciences*, 5(14), 60-66.

Nageri, K .I, Ajayi ,O; Olodo, H. B; & Abina, B. M. (2013). "An Empirical Study of Growth through Trade". Nigerian Evidence. *Arabian Journal of Business and Management Review*. 3(5)

Nwamuo, C. (2019). Impact of International Trade on Economic Growth: The Nigerian Experience. *European Journal of Business and Management*, 11(34).

Nzabirinda, E., Ivang, A. E. & Uwayezu, S. T. (2021). Econometrics Analysis of Impact of International Trade on Economic Growth in Rwanda. *https://www.researchgate.net/publication/352020085*.

Obadan, M. I. and Okojie, E. I. (2010): "An Empirical Analysis of the Impact of Trade on Economic Growth in Nigeria", *Jos Journal of Economics*, 4(1)

Ohlin, B. (1933). Interregional and International Trade. *Harvard University*, MA. *Press*, Cambridge

Onuorah, A.C. (2018). Trade Liberalization and Economic Growth in Nigeria. *International Journal of Advanced Research*, 6(9), 389 – 400.

Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationship. *Journal of Applied Economics.* 16(3), 289-326.

Pesaran, M. H., Smith, R. J. & Shin, Y. (1996b). Testing for the Existence of a long run Relationship, *DAE Working paper,* 9622, Department of Applied Economics, University of Cambridge.

Pesaran, M. H. & Shin, Y. (1999). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis. *Econometrics and Economic Theory in the 20th Century*: The Ragnar Frisch Centennial Symposium, Strom, S. (ed.) Cambridge University Press.

Usman, O.A (2011), Performance evaluation of foreign trade and economic growth in Nigeria: *Research Journal of Finance and accounting*, 2(2).

Uko, A. K. & Nkoro, E. (2016). Inflation Forecast with ARIMA, Vector Autoregressive and Error Correction Models in Nigeria, *EJEFAS*, 50.