TRADE OPENNESS AND ECONOMIC GROWTH IN NIGERIA

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Abstract

This study looked at the connection between trade openness and economic growth in Nigeria. The nature of relationship that exist between these variables has been a major topic of economic debates in countries of the world. The study empirically investigates the nature and causal links between these two variables in Nigeria during the years 1986-2021 with the use of ARDL method and Granger Causality test. The study includes exchange rate, investment, and government expenditure as control variables. Results emanating from the study revealed that openness to trade in the short run, produce a significant negative influence on economic growth in Nigeria. It shows that trade openness or trade liberalization policies negatively influence economic growth in Nigeria. This influence becomes positive an insignificant in the long run. In addition, the overall results of causality test indicate unidirectional positive causality between economic growth and trade openness in the long-run. This implies that openness to trade possess the capacity that may promote long run economic growth in Nigeria. The short-run results suggest that the joint lagged value of the wald test result is not significant meaning that openness to trade may not be beneficial to economic growth in Nigeria.

Key words: Openness to Trade, Causality, Economic growth.

1.0 Introduction

Economic literature is split into two views on how trade openness and economic growth are related. The link between the variables has generated some controversies among police makers of nations. The conventional stand such as mercantilism, the classical and Heckscher-Ohlin theories depict trade openness as beneficial to economic growth for most developing countries of the world. The importance of country's trade openness includes innovation incentives, technology diffusion and knowledge dissemination which may lead to improved total factor productivity and growth of the economy. The mercantilists emphasized the need for

maintenance of favourable balance of trade, while the classical trade theories outline method of achieving that fit. (see, Tetelesti, Yu, Christiana, Elsie, Nana and Mabel, 2022; Eleanya, Jude and Kalu 2013; Romer, 1986; and Solow, 1956)). Trade openness is also said to enhance economic growth as it provides access to goods and services from other countries which may leads to efficiency of resources allocation of the world economy (Ricardian theory).

The findings of some researchers aligned themselves with this conventional proposition. They showed that countries with more friendly openness to trade policy possess the potential of catching up with the leading developed countries of the world. Friendly openness to trade policy is said to encourage competition in both domestic and international markets. That is, increased trade openness produces positive effect on productivity as it reallocates resources from less efficient to more efficient arrears (Victor, 2019). Also, trade openness is said to enhance market size especially for firms with high technological innovation which may increase the monopoly rents allocated to them. This may encourage research-intensive production leading to economic growth and development (Iyoha and Okim, 2017; Kim, Lin and Suen, 2016; Chang, Kaltani and Loayza, 2009). The position of Manwa and Wijeweera (2016) is more precise as they explained the potency of trade openness and how it has enhanced wider access to array of goods, and services with increase skills and technologies. Trade openness is said to have also stimulate and improved entrepreneurship leading to inflow of foreign capital into the country. The cumulative effect has increased employment opportunities, increases foreign earnings, relatives' price stability and promotion of economic activities with comparative advantage. Economic growth has been the end results of these. This means trade openness policy is positively related to economic growth.

However, a different viewpoint has been presented that claims that increased trade openness is harmful to economic growth, especially in the developing nations as it frequently coincides with rising inflation and exchange rates. This is in contrast to the wealth of literature that supports the positive relationship between trade openness and growth. (Usuman, 2011; Atoyebi, Adekunjo, Edun, and Kadirin 2012; Musila and Yiheyis, 2015; and Vlastou, 2010). Specifically, Haussmann, Hwang, & Rodrik (2007) argued that nations that specialise in producing low-quality items, especially countries exporting primary products, may be badly impacted by trade openness in terms of economic growth. These nations are susceptible to fluctuations in trade conditions.

Studies by Kim, Lin and Suen (2016) and Clemens and Williamson (2002); and Vamvakidis (2002) showed that the statistical significance of a positive correlation between openness to trade and economic growth depends on the specification of the empirical model and the proxy variable used for openness. That is, the mixed results can be attributed to the econometric techniques, the sample of countries, and the indicator used as proxy for trade openness. These findings also demonstrated that increased international commerce fosters economic development and, over time, amplifies growth volatility. It also revealed that significant variation in the effects of openness to trade is influenced by factors including a nation's degree of financial system development, macroeconomic policies, human capital development, level of corruption, and existing labour laws.

While both sides of these stands have been well documented in the literature, the interrelated nature of the two variables has not gotten much attention for the case of Nigeria as the empirical investigation on the link between the two variables was more focused on countries outside the West Africa. Only a very few empirical works have investigated the nature of existing interrelationship of these variables in Nigeria. Saibu, 2004; Ishola, Ajayi, Onafowokan and Giwa, 2013; Olaleye, Olajide, Abikoye and Ishola, 2015; Ebere, Chuke and Nwonye, 2016) are amongst few studies that have examined the interrelationship nature of these variables involving Sub-Sahara African countries. Most of these studies suffer from some limitations. While some used ordinary least square with zero attention paid to stationality properties of the variables, others utilised maximum likelihood tests based on Johansen (1988) and Johansen and Juselius (1990) or cointegration procedures based on the Engle and Granger (1987) cointegration test. In cases where the sample size is too small, these cointegration strategies might not be appropriate. Odhiambo (2009) makes advantage of the more reliable for small samples bounds testing cointegration technique proposed by Pesaran et al. That is why, the current study uses the established Auto Regressive Distributed Lag (ARDL-Bounds) testing technique to cointegration to examine the dynamic causal link between trade openness and economic growth in Nigeria.

This study is important for Nigeria as country currently burns with the desire to achieve faster economic growth in order to decrease economic inequality and unemployment. Ever before Nigeria becomes a sovereign nation, her doors has always been opened to other countries in terms of trade engagement and diplomatic relationship. The advent of globalization and trade

liberalization has equally widened this international relationship door of the country. Various government administrations in Nigeria have at different time adopted various export oriented and outward-looking trade policy for the economy. It is said that this has progressively opened up commerce, lowered import restrictions, and supported export promotion. This has led to higher levels of exports and imports as well as improved wealth and prospects for employment growth in some industries including the tourist, services, and manufacturing sectors.

Knowing how this trade openness would help Nigeria's economy thrive becomes crucial. The strength of the association between the variables is not sufficiently supported by the studies currently available. Although several research have indicated that removing trade barriers tends to send an economic upsurge, it is still unclear whether trade openness results in a greater growth rate in Nigeria. It is a known fact the country strongly relies on trade for survival especially crude oil and other primary products. Therefore, this research work looks at two main issues: first, what is the link between trade openness and economic growth in Nigeria, and second, what is the nature and the causal direction of this relationship.

2.0 Literature Review

Many growth studies have examined how trade openness affects economic growth with different empirical indices as proxy for trade policy. The empirical results from these studies still generate controversy as the effect of trade openness on economic growth is still surrounded with some level of ambiguities. While a sizable empirical body of this study shows a favourable correlation between the two variables, others have provided opposite findings. For example, Ebere, Chuke & Nwonye (2016) examined the potency of trade openness in terms of promoting economic growth in Nigeria. Gross domestic product (GDP) and net export (NEXP), which are both secondary data from 1991 to 2013, were employed as proxies for economic growth and trade openness, respectively. The GDP was used as the dependent variable in the study, and the estimate was done using the Ordinary Least Square Regression approach. The study's findings indicated that net exports had a favourable and considerable influence on Nigeria's GDP. In other words, trade openness is thought to help Nigeria's economy flourish. However, the basic cointegration features of the variables were not explicitly investigated by the test used, nor were the time series aspects of the data used addressed. The model's outcome may be deemed unreliable if the variables were cointegrated.

The paper is also closely related to Olaleye, Olajide, Abikoye, & Ishola (2015) who looked at how trade openness affected Nigeria's economic growth. The study analysed data from the National Bureau of Statistics on the GDP, trade openness, government spending, labour force, gross fixed capital formation, foreign direct investment, and currency rate in Nigeria from 1981 to 2012. Conintegration, the enhanced Dickey Fuller test of stationarity, and the recursive residuals (Cusum) approach were used in the research. Their findings showed that in order to raise the real Gross domestic product, exports should be promoted and varied. This strategy is intriguing because it tends to solve the issue of erroneous estimations, which earlier research overlooked.

Another research by Manwa and Wijeweera (2016) examined the 1980–2011 period in five Southern African nations: Botswana, Lesotho, Namibia, South Africa, and Swaziland. In order to determine the short- and long-term effects of trade liberalisation policies on economic development, the Auto Regressive Distributed Lag (ARDL) method was applied. In model 1 of the study, the average tariff rate was employed as a stand-in for trade liberalisation, while trade ratios were utilised in model 2. The findings from the two models indicate that both the short- and long-term benefits of Southern Africa's trade liberalisation policies are evident.

Also, for a group from four West African nations (Côte d'Ivoire, Ghana, Nigeria, and Senegal), Wiredu, Nketiah and Adjei (2020) empirically looked at the connection between trade openness and foreign direct investment (FDI) and economic development between 1998 and 2017. In order to determine the causal relationship between our regressors—FDI, trade openness, investment, and inflation—and economic growth as measured by Gross Domestic Product (GDP), static panel regression techniques were used. According to the statistical data, aggregated trade openness does positively and significantly affect the economies of Côte d'Ivoire, Ghana, Nigeria, and Senegal.

Similarly, Kim, Lin, and Suen (2016) used Chudik and Pesaran's (2013) Cross-Sectional Augmented Autoregressive Distributed Lag (CS-ARDL) panel data technique to examine the relationship between trade openness, growth volatility, and economic growth in 73 developing and developed countries. The research spanned the years 1960 to 2011. The study looked at 73 developing and developed countries to account for probable dynamic variability and cross-section dependency in the effects of trade openness. The findings revealed that greater global trade promotes economic development while exacerbating growth volatility over time. The study also revealed that the effects of trade vary greatly depending on a country's level of

development, financial system, macroeconomic policies, human capital, level of corruption, and labour regulations.

In contrast, numerous empirical research have shown that trade openness hinders economic growth, particularly in less developed nations that primarily rely on the export of a single item. For instance, Hassan and Islam (2005) examined the impact of trade openness and financial development on Bangladesh's economy between 1974 and 2003. The technique for the study included the Johansen co-integration test and the Granger-causality test. The outcome demonstrated that there is no long-term correlation between trade openness and economic development for that nation. Additionally, the Granger-causality test found no evidence of a causal link between trade openness and economic development. Using ordinary least squares estimation, Bamanga and Ismail (2017) examined the impact of trade openness on economic development in Nigeria between 1993 and 2015.

In the same way, Usman (2011) assess the "Performance Evaluation of Foreign Trade and Economic Growth in Nigeria." The paper utilised per-capita income, export openness, export values, import values, foreign exchange rates, and per-capita export values as explanatory variables. He applied ordinary least squares (OLS) technique to analyse the data collected between 1970 and 2005. The outcome demonstrates that real GDP is adversely correlated with export, import, foreign exchange rate, and economic openness (measured as the ratio of total trade to GDP). Real output decreases by 19% for every 1% change in export. Atoyebi, Adekunjo, Edun, and Kadiri (2012) equally stated that openness to trade has detrimental effect on economic growth in Nigeria from 1970 to 2010. In the study, the effects of global trade on economic growth in Nigeria between 1970 and 2010 are experimentally examined. Phillips Peron unit root test was used to determine whether the data was stationary in order to prevent erroneous regression results. Cointegration of the variable was determined using the Johansen (1988) approach. Three variables, including export, foreign direct investment, and exchange rate, are statistically significant at 5% and positively correlate with real GDP, according to empirical research. In contrast, other variables like import, inflation rate, and openness that produced negative effect on real GDP.

Musila and Yiheyis (2015) also investigate how trade openness influences investment levels and the rate of economic growth in Kenya. Annual time series data was used. Both total trade openness and trade policy-induced openness are evaluated. After controlling for a range of factors, aggregate trade openness is found to have a positive influence on investment levels and

economic growth rates, though, it effect is statistically insignificant. On the other hand, the study revealed that trade policy-induced openness has a negative and significant influence on investment and the rate of economic growth. Granger Causality studies show that a shift in trade openness interacts with physical capital expansion to alter the country's long-term rate of economic growth.

Adu-Gyamfi, Nketiah, Obuobi, and Adjei (2020) examine the influence of inflation and trade openness on economic progress in nine West African countries between 1998 and 2017. The study's findings were achieved utilising panel data and pooled ordinary least squares (OLS), fixed effect (FE), and random effect (RE) testing. The study revealed that, when using the pooled OLS and the fixed and random effects tests, trade openness had a minimal impact on economic growth (GDP).

The problem with all these research is that there is no agreement on how the two factors will interact over the long term. It is the same story with those that used different empirical indices for trade openness. It suggests that there is still room for disagreement regarding the role of trade openness in growth, opening the door for more research as the results of the current studies cannot be taken as definitive and conclusive. Reexamining the nature of the link between these two variables using data from Nigeria and the unexplored Autoregressive Distributed Lag (ARDL) method of Pesaran et al. (2001) becomes crucial and intriguing.

3.0 Methodology

The World development indicators (WDI) database and the Statistical Bulletin of the Central Bank of Nigeria both provided the data. Level of investment, exchange rate, and government expenditure are employed as control variables to ensure that the study model is properly stated. Furthermore, Autoregressive Distributed Lag (ARDL) is used to calculate the effect of trade openness on Nigeria's economic growth. The study departs from Bamanga & Ismail's (2017) work, which is consistent with Romer's (1990) contributions to the creation of the new growth theory, which considered economic growth as endogenous. Thus, the econometric model adopts the functional form shown below:

$$Y = f(OP, GX, XR, IV) \quad \text{.....(1)}$$

Where Y stands for Gross Domestic Product growth rate (a proxy for economic growth), and OP stands for a country's level of trade openness (calculated as exports + imports divided by

GDP). This measures the contribution of commerce to the global economy; GX Growth rate of government expenditure denotes a measure of both physical and human capital used as proxy for both infrastructure and human capital development. This measure is added to account for the quality of labour as workers that make them to be more productive, inventive, and innovative for buildup that can encourage capital accumulation. IV stands for the growth rate of investment. In order to approximate this amount of investment, we utilise the growth rate of gross fixed capital creation. XR stands for exchange rates.

The following is how the model is represented econometrically:

$$Y_t = \beta_0 + \beta_1 OP_t + \beta_2 GX_t + \beta_3 IV_t + \beta_4 XR_t + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where: β_0 = model's relationship's intercept, or the constant and

β_{1-4} = coefficient for every exogenous or explanatory factor..

μ_t = error term

Estimation Technique

Autoregressive Distributed Lag (ARDL) approach is used to determine the nature of relationship that exists between trade openness and economic growth in Nigeria. The model is expressed as follows:

$$\Delta Y_t = \alpha_0 + \sum_{i-1}^{\lambda} \alpha_{1i}\, \Delta Y_{t-i} + \sum_{i-1}^{\lambda} \alpha_{2i}\, \Delta(op_{t-i}) + \sum_{i-1}^{\lambda} \alpha_{3i}\, \Delta(xc_{t-i}) + \sum_{i-1}^{\lambda} \alpha_{4i}\, \Delta iv_{t-i} + \sum_{i-1}^{\lambda} \alpha_{5i}\, \Delta(gx_{t-i}) + \alpha_1 Y_{t-1} + \alpha_2 op_{t-1} + \alpha_3 iv_{t-1} + \alpha_4 xp_{t-1} + \alpha_5 xr_{t-1} + \mu_t \ldots\ldots\ldots\ldots (i)$$

Where the terms GDP, trade openness, exchange rates, government spending, and investment are denoted by Y_t, op_t, xr_t, gx_t, and iv_t, respectively. The difference operator is Δ, the optimal lag is λ, and the error term is μ_t. Using the total F-test statistic, the long-term connection between the variables is examined. The alternative cointegration null hypothesis is [$H_1 = \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 \neq 0$], whereas the no-cointegration null hypothesis is [$H_0 = \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$]. In order to determine if a long-term link exists, the following criteria must be met: if the computed F-test statistic exceeds the upper critical bound value, the H_0 (null hypothesis) is rejected; otherwise, the test is deemed inconclusive.

Granger non-causality test

The next stage is to investigate the short-run and long-run Granger-causality between trade openness, exchange rate investment, government spending, and economic growth using the following model once the long-run linkages have been discovered in equation (i):

$$\Delta Y_t = \alpha_0 + \sum_{i-1}^{\lambda} \alpha_{1i}\, \Delta Y_{t-i} + \sum_{i-1}^{\lambda} \alpha_{2i}\, \Delta(op_{t-i}) + \sum_{i-1}^{\lambda} \alpha_{3i}\, \Delta(xr_{t-i}) + \sum_{i-1}^{\lambda} \alpha_{4i}\, \Delta iv_{t-i} + \sum_{i-1}^{\lambda} \alpha_{5i}\, \Delta(gx_{t-i}) + ECM_{t-1} + \mu_t .. (ii)$$

$$\Delta op_t = \beta_0 + \sum_{i-1}^{\lambda} \beta_{1i}\, \Delta(op_{t-i}) + \sum_{i-1}^{\lambda} \beta_{2i}\, \Delta(Y_{t-i}) + \sum_{i-1}^{\lambda} \beta_{3i}\, \Delta(xr_{t-i}) + \sum_{i-1}^{\lambda} \beta_{4i}\, \Delta iv_{t-i} + \sum_{i-1}^{\lambda} \beta_{5i}\, \Delta(gx_{t-i}) + ECM_{t-1} + \mu_t .. (iii)$$

$$\Delta xr_t = \delta_0 + \sum_{i-1}^{\lambda} \delta_{1i}\, \Delta xr_{t-i} + \sum_{i-1}^{\lambda} \delta_{2i}\, \Delta(Y_{t-i}) + \sum_{i-1}^{\lambda} \delta_{3i}\, \Delta(op_{t-i}) + \sum_{i-1}^{\lambda} \delta_{4i}\, \Delta iv_{t-i} + \sum_{i-1}^{\lambda} \delta_{5i}\, \Delta(gx_{t-i}) + ECM_{t-1} + \mu_t .. (iv)$$

$$\Delta iv_t = \rho_0 + \sum_{i-1}^{\lambda} \rho_{1i}\, \Delta iv_{t-i} + \sum_{i-1}^{\lambda} \rho_{2i}\, \Delta Y_{t-i} + \sum_{i-1}^{\lambda} \rho_{3i}\, \Delta(op_{t-i}) + \sum_{i-1}^{\lambda} \rho_{4i}\, \Delta(xr_{t-i}) + \sum_{i-1}^{\lambda} \rho_{5i}\, \Delta(gx_{t-i}) + ECM_{t-1} + \mu_t .. (v)$$

$$\Delta gx_t = \theta_0 + \sum_{i-1}^{\lambda} \theta_{1i}\, \Delta(gx_{t-i}) + \sum_{i-1}^{\lambda} \theta_{2i}\, \Delta Y_{t-i} + \sum_{i-1}^{\lambda} \theta_{3i}\, \Delta(op_{t-i}) + \sum_{i-1}^{\lambda} \theta_{4i}\, \Delta(xr_{t-i}) + \sum_{i-1}^{\lambda} \theta_{5i}\, \Delta iv_{t-i} + ECM_{t-1} + \mu_t .. (vi)$$

where ECM_{t-1} is the lagged error-correction term derived from the long-run equilibrium connection to demonstrate that the variables have a long-term relationship. This long-term association shows that Granger causality must occur in at least one direction.

4.0 Analysis and Findings

Unit Roots and Cointegration Test

Given that unit roots are one of the most common causes of non-stationarity, the Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) unit root tests were employed to determine the stationarity of the variables. When a time series is non-stationary, the presence of a unit root implies it; when it is stationary, the absence of one implies it. A series is said to be stationary if its mean, variance, and auto covariance are constant. We chose to do a unit root test in order to ascertain the number of unit roots in the series under consideration, despite the fact that the bound testing method does not need unit root pretesting. This was done to avoid an ARDL model crash when an integrated stochastic trend of I(2) is present.

Table 1 Results of Unit root Test

Variable	Augmented Dickey-Fuller (ADF)			
	Constant		Constant and Trend	
	I(0)	I(1)	I(0)	I(1)
Y	-4.539182***	-6.623082***	-5.206899***	-6.612575***
Op	-5.216035***	-9.164744***	-5.139704***	-9.023443***
Iv	-4.573618***	-11.17555***	-5.380002***	-11.13823***
Gx	-6.144233***	-7.116959***	-6.109870***	-7.013773***
Xr	1.394970	-3.678066***	-1.305598	-4.037008**

*** and ** respectively represent 1% and 5% level of significance

Source: author computation (2023)

Table 3 Results of Unit root Test

Variable	Phillips Perron (PP)			
	Constant		Constant and Trend	
	I(0)	I(1)	I(0)	I(1)

Y	-4.546682***	-18.19161***	-5.206899***	-32.06578***
Op	-5.18588***	-23.58137***	-5.088287***	-22.78614***
Iv	-4.62514***	-11.22537***	-5.351796***	-11.49199***
Gx	-6.14416***	-27.72560***	-6.109800***	-30.38245***
Xr	1.223723	-3.679066***	-1.522502	-4.016761**

*** and ** represent 1% and 5% level of significance

Source: author computation (2023)

Tables 1 and 2 show the results of the unit root testing. The ADF and PP figures do not surpass the critical values (in absolute terms) for gross domestic product, foreign direct investment, and exchange rate. However, the ADF and PP statistics are larger than their corresponding critical values (in absolute terms) when we consider the initial difference of each variable. As a result, we draw the conclusion that only the exchange rate, xr, is ordered one integrated. The unit root test of y (GDP), iv (Investment), gx (Government Expenditure), and op (degree of openness) on the other hand, exceeds the critical values (in absolute terms) at level. As a result, we infer that those four variables are stationary at certain values.

Selection Criteria for Lag Length

The bond test was used to examine the possibility of a long-run link between the variables while evaluating the given ARDL model. However, before running the test, the proper lag length fist had to be determined. Choosing an acceptable lag duration is as important as determining which variables to include in any system of equations. The selection of an adequate lag length is critical since the bond test is sensitive to the number of delays used in its calculation. This will aid in avoiding difficulties with misspecification and loss of degrees of freedom. The sequential modified Likelihood Ratio test statistics (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), and Schwarz

Table 3: Lag Order Selection Criteria

Lag	Logl	LR	FPE	AIC	SC	HQIC
0	-779.505	NA	3.073	47.545	47.772	47.622
1	-719.031	98.956*	3.644*	45.395	46.756*	45.853*
2	-700.157	25.165	5.912	45.767	48.261	46.606
3	-679.381	21.406	1.043	46.023	49.650	47.243
4	-633.826	33.130	6.122	44.771*	49.538	46.379

* indicates lag order selected by the criterion

Source: author computation (2023)

At the 5% level of significance, four criteria: LR, FPE, SC, and HQIC recommended an ideal lag of one. This recommendation was made since none of the criteria contradict it. As a result, in order to avoid statistical error, the study used the ideal lag duration of one for estimate.

Bounds Test Approach to Co-integration

After determining the optimal lag length for GDP (y), openness (op), investment (iv), government expenditure (gx), and exchange rate (xr), the next step is to investigate the existence of long-run relationships between the variables using the ARDL bounds testing approach to cointegration (Davoud et al., 2013; Narayan & Singh, 2007; Pesaran et al., 2001).

Table 4: ARDL Bounds Test Result

Variables	F– Statistics	Cointegration
(y, op, iv, gx, xr)	6.277861*	
Critical value Bounds		
Significance	Lower Bound	Upper Bound
1%	3.7	5.1
5%	2.9	4.0
10%	2.5	3.5

Source: author computation (2023)

The Bounds Test results revealed that there is a long-term relationship between the variables since y is cointegrated with its determinants, op, iv, xp, and xr. GDP, openness, investment, government expenditure, and the exchange rate are all linked together throughout the period.

Table 5: Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	P-value
D(OP)	-0.256526	0.141602	-1.811595	0.0812
DLOG(GXP)	0.022732	0.016329	1.392093	0.1753
DLOG(IV)	0.049559	0.076373	0.648910	0.5219
D(EXR)	-0.000573	0.000353	-1.621813	0.1165
CointEq(-1)	-0.i23011	0.067446	-2.680404	0.0252

Source: author computation (2023)

Table 6: Estimating Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	P-value
OP	-5.590	8.168	-0.684	0.500
LOG(GXP)	0.495	0.460	1.077	0.291
LOG(IV)	-1.478	3.675	-0.402	0.691
EXR	0.001	0.003	0.501	0.620
C	63.755	101.239	0.630	0.534

Source: author computation (2023)

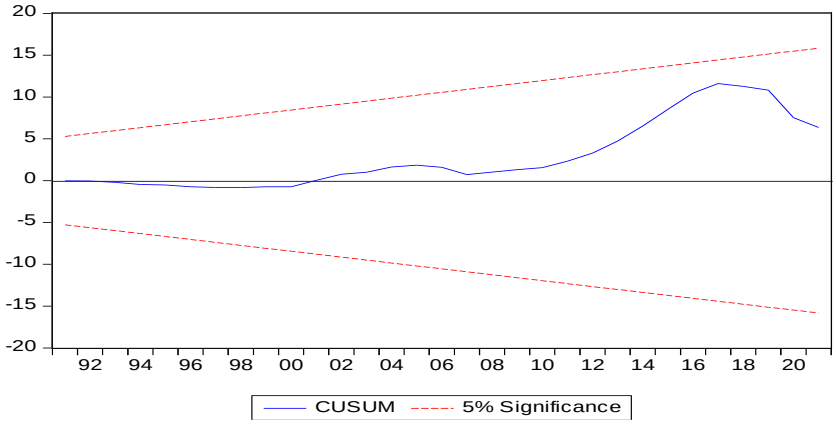
Both short- and long-term elasticities for economic growth and its drivers are displayed in Tables 5 and 6. The outcome demonstrates that the degree of openness has a short-term negative effect on economic growth, but it becomes insignificant in the long-term. This implies that, despite the numerous foreign policies adopted throughout these years, the coefficient of trade openness is negative in the short term. The problem that must have inhibited the country from reaping the maximum value from this trade openness might be traced to inconsistent policies and concentration on a single product for export. This finding slightly agrees with the position of Haussmann, Hwang, and Rodrik (2007) and the significant negativity of trade openness as found by Haussmann, Hwang, and Rodrik's study. Their finding shows that trade openness may present negative effect on economic growth if such countries only specialize in the production of low-quality products or engage in exportation of primary products. They are likely to be vulnerable to terms of trade shocks. Similarly, our findings are consistent with those reported by Bamanga and Ismail (2017) about the relationship between trade openness and economic development in Nigeria. Trade openness is thought to have a major detrimental impact on the country's economic growth. Policymakers were advised to focus more on endogenous variables that might boost and maintain economic growth.

Other results from our study show that the influence of investment and government expenditure on economic growth to be positive and statistically insignificant both in the short run and long run. This implies that the government needs to encourage more investment in both domestic and foreign direct investment as well as government expenditure in human and infrastructural development in order for them significantly influence the growth of Nigeria economy. The outcome also demonstrates the little impact of exchange rates on economic expansion. The speed of adjustment from short run disequilibrium to long run equilibrium is used to indicate the error correction term. This term is negative and statistically significant, which supports the hypothesis that the variables are related over the long term. It suggests that the disequilibrium

in the cointegrating relationship and changes in other explanatory factors are related to changes in the response variable. The established long-run association is stable, as evidenced by the lag error's statistically significant negative sign (Banerjee et al., 1998).

Additionally, the study used the Ramsey RESET specification test, Breusch-Godfrey Serial Correlation LM test, autoregressive conditional heteroskedasticity, white heteroskedasticity, and all diagnostic tests for non-normality of error term to assess the validity.

Figure1. Plot of Cumulative Sum of Recursive Residuals (CUSUM) Test



Analysis of causality test based on the error-correction model

The next stage is to test for causation between the five variables after proving that there is a long-term link between them. The Wald test is used to determine the significance of the lagged error-correction term's coefficient and the combined significance of the lagged differences of the explanatory variables in order to determine the causality in this scenario. Table 7 below lists the findings of various causality tests.

Table 7 Granger Causality Test using VECM

dependent Variables	Independent Variables					
	Δy	Δop(X^2)	Δiv(X^2)	Δgx(X^2)	Δxr(X^2)	ECT_{t-1}
Δy	-	0.016876 [0.6134]	-0.087235 [0.1941]	-0.040654** [0.0205]	0.021878 [0.8202]	-1.197*** [0.0030]
Δop	0.8869	-	-0.181707 [0.5882]	-0.024591 [0.7712]	0.867083* [0.0831]	-2.026250 [0.2866]

	[0.527]					
Δiv	-1.76* [0.079]	-0.047338 [0.6818]	-	-0.010087 [0.8614]	0.241669 [0.4699]	3.256515 [0.0164]
Δgx	8.394* [0.059]	-0.047784 [0.9269]	-0.251038 [0.8082]	-	0.074176 [0.9606]	-12.616** [0.0370]
Δxr	0.3739 [0.577]	-0.038520 [0.6344]	-0.187754 [0.2477]	-0.032217 [0.4291]	-	-0.174706 [0.8465]

Source: author computation (2023)

Note: (Chi-square) ***/** and * represent significance at the 1%, 5% and 10% levels, respectively. ECT_{t-1} is derived by normalizing the cointegrating vectors on the y as proxy for economic growth, op represent the degree of openness, iv represent investment, xr is exchange rate and gx represent government expenditure. We obtain both F-statistics and Chi-square for each coefficient in all equations by putting restrictions on the coefficients of each variable and doing a Wald test. Chi-square probabilities are represented by figures in squared brackets.

The results in table 7 revealed a long-run causality between economic growth as dependent variable and the four other variables (openness, investment government expenditure and exchange rate). The coefficient of one period lagged of the cointegrating vectors was -1.1973 with a p-value of 0.003 which is less than 1%. Since the coefficient is negative and significant, it means that the four explanatory variables are all influencing the value of gross domestic product in the long run. It means, openness, investment government expenditure and exchange rate can be used to predict economic growth rate for the country in the long-run. This was different in the short-run as the joint lagged value of the Wald test result revealed an insignificant influence of openness to trade on economic growth. On the other hand, the study reveals a unidirectional causality between investment and GDP where GDP is causing investment. The lagged value of GDP was also shown to be causing changing in the value of government expenditure in the short-run. Bidirectional causality exists between GDP and government expenditure.

5.0 Conclusion

The influence of trade openness on economic growth has been at the forefront of economic debates in countries of the world. The specific effect of the former on the latter is still said to be vague. That is why this study empirically investigates the nature and causal links between these two variables in Nigeria during the years 1986-2021 with the use of ARDL methodology and Granger Causality test. The research is extremely pertinent and significant since the nation has implemented various levels of trade liberalization policies over the past 20 years which opened up her markets to outside competitors.

Only a few studies have examined how the country's economy has been affected by the consequent trade openness despite implementing extensive trade liberalization measures. The results from our present study suggest that trade openness may be part of the harmful factors affecting economic growth in Nigeria as the study revealed a significant negative links between the variable in the short run. This effect becomes positive and insignificant in the long term. It shows that trade openness or trade liberalization policies are not explaining economic growth of the country in the long term. This implies that policymakers in Nigeria should pursue less of trade liberalization policies but look inward to speed up growth agenda of the economy.

Additionally, the findings of the causality test as a whole point to a long-run, unidirectional positive causation between GDP growth and trade openness, suggesting that openness fosters economic growth over time. The short-run findings imply that trade openness does not granger cause economic growth, as shown by the combined lagged value of the Wald test result.

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