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TRADE LIBERALIZATION AND ECONOMIC GROWTH NEXUS IN NIGERIA

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Abstract

This paper explores the effect of trade liberalization on economic growth in Nigeria. The study used the econometrics method of Autoregressive Distributed Lag (ARDL) Error Correction Model and Toda-Yamamoto causality test to analyse the time series data on growth rate of gross domestic product, export value index, import value index, exchange rate and trade openness for the period 1981-2021. These data were obtained from the Central Bank of Nigeria and the National Bureau of Statistics. The findings of the study show that export value index proxy for exports has a significant and positive relationship with the growth rate of gross domestic product in the long run, import value index proxy for imports has a negative and significant relationship with the growth rate of gross domestic product in the long run, and trade openness and exchange rate has a significant and negative relationship with growth rate of gross domestic product in the long run. A uni-directional positive causality exists between export value index and growth rate of gross domestic product. The paper therefore recommends that

trade policies by ministry of trade and industry should be targeted at encouraging Nigerian businesses to diversify their export products and markets beyond traditional commodities, promote value-added manufacturing, agricultural processing, and service exports to increase the range of exportable goods and services are required. This will reduce dependence on a few primary commodities and expand export opportunities.

Keywords: Trade Liberalization, Manufacturing output, ARDL, Toda-Yamamoto

INTRODUCTION

Trade is the exchange of goods and services between countries, typically involving buying and selling products and services across international borders. Trade encompasses various economic activities, including the import and export of goods, the provision of services, intellectual property rights, and investments. Trade liberalization refers to the process of reducing or removing restrictions on international trade, such as tariffs, quotas, and other trade barriers, (WTO, 2018).

Adam Smith's well-known work: *An Inquiry into the Nature and Causes of the Wealth of Nations*, was first released in 1776. It was a unique revolutionary work that received widespread praise as the beginning of economics as a science with a methodical structure and a scientific perspective. In it, Smith underlined the value of commerce to expand the market and serve as a means of utilising excess production, both of which help to improve the division of labour and the level of productivity. He argued that the home market's limitations do not prevent the growth of international trade, which enables the division of labour in any particular field of the arts or manufacturing to advance to the highest degree feasible. By creating a larger market and encouraging the economy to increase its productive capacity, deficiencies in demand or excess output in the domestic market can be corrected or overcome. As a result, wealth and society's revenue increase.

Even though there is some opposition to free trade, it is absurd, strange, and downright uneconomic for any nation to pursue autarky in the twenty-first century as it limits the ability of the domestic economy to develop to its full potential and breeds isolationism. Additionally, the benefits of having more options among competing alternatives in terms of spending habits, technology, resource use, and labour mobility are taken away from citizens. Classical trade theory is sometimes linked to colonialism because Smith's productivity concept of the advantages of commerce grew into an export focused argument, which was adhered to fervently notably in the colonies. This is due to the way that Smith's productivity doctrine of the advantages of commerce evolved into a case for export promotion.

The Smithsonian trade idea was expanded upon and modified by David Ricardo in his book *Principles of Political Economy and Taxation (1817).* By focusing on the production of the goods with the lowest opportunity costs and trading the excess of production over domestic demand, countries can increase welfare, as rigorously demonstrated by Ricardo in his theory of comparative advantage, provided that the international rate of exchange between commodities is between the domestic opportunity cost ratios. This is true even under the assumptions of perfect competition and full resource utilization. By focusing on producing the items with the lowest opportunity cost and exchanging the production excess above local demand, countries should be able to benefit from increased welfare. Greater specialization based on comparative advantage has caused resource reallocation from one industry to another, producing gains that are essentially flat. These are the trade-creating benefits that emerge within customs unions or free trade zones as the members' trade obstacles are diminished. However, once the tariff barriers are eliminated, the benefits are exhausted and there is no further reallocation of resources.

Kwanashie (2000) argued that while pushing for greater trade liberalization, which in most cases means opening up of new markets in developing countries for western capital and goods, new regional blocs are emerging. This is a deliberate strategy by the industrialized world to maintain their hegemony over the new world order. Common laws, integrated markets, liberalized environment attract capital away from other centres and spur growth in the region. This process of globalization has fundamental implications for the developing countries who on the one hand are being asked to open up while on the other find the world marketplace impossible to penetrate.

The massive liberalization of international trade since 1950, the creation of trading blocs, economic unions, and a general trend towards "integration of the world economy," which has been fundamentally accelerated in the last two decades by the revolution in information and communication technology, have all served to support the above assertions at least partially. The United Nations Conference on Trade and Development (UNCTAD) and other organizations operating under the UN's auspices such as the General Agreement on Tariffs and Trade (GATT), as well as the Organization of Economic Cooperation and Development (OECD) and World Trade Organization, (WTO), have their roots in the United Nations' (UN) dominant theoretical thought, which has also been negatively justified by history. According to Krueger (1985), after removing trade barriers and other restrictions on economic activity, a number of less developed countries (LDCs), particularly those that started in the early 1960s and continued on, saw a significant (and long-lasting) improvement in the pace of economic growth.

In contrast, dynamic advantages of trade derive from a constant shift to the outside of a country's overall production capability frontier. This transformation is the result of worldwide trade. This transition is associated with more investment and a faster growth in productivity based on economies of scale, learning by doing, and the acquisition of new knowledge from abroad, especially through foreign direct investment. The concept of dynamic benefits from trade is closely linked to the remarkable growth of modern economies such as Japan, China, Brazil, and, of course, the Asian Tigers. This is an important correlation. In its attempt to create a true connection in the causal chain between exports and growth, it also captures the attention of the current trade theory (Helpman and Krugman, 1985) and the new growth theory (Grossman and Helpman, 1991).

According to the available statistics and other empirical evidence, Nigeria has largely remained on the margins with a massive trade deficit despite the demonstrated and potential benefits of a free trade regime that would stimulate the economy and lead to massive trade expansion (especially outward), improved economic performance, and a positive trade balance (Ugagu, 2016).

Okorie (2018), Yusuf (2015), & Odusola (2014) all concur that Nigeria's economy continues to face a slower development trajectory in spite of the implementation of a free trade policy and conscious endeavours toward global economic integration. It is on the account of these that this study set out to investigate the effect of trade liberalization on economic growth in Nigeria.

THEORETICAL AND LITERATURE REVIEW

Trade liberalization and Economic Growth in Nigeria

Trade liberalization has played a role in promoting economic growth in Nigeria by fostering increased trade, attracting investment, and encouraging the development of non-oil sectors. According to Adeyemo & Ogwu, (2023), trade liberalization has contributed to Nigeria's economic growth and development through the following channels:

Market Expansion: Trade liberalization has expanded market access for Nigerian businesses. By reducing trade barriers, it has allowed domestic industries to reach larger consumer markets both domestically and internationally. This increased market access has stimulated economic activity, leading to higher production levels, sales, and overall economic growth.

Export Diversification: Trade liberalization has encouraged Nigeria to diversify its export base beyond oil. By reducing barriers to export-oriented industries, such as manufacturing and agriculture, trade liberalization has enabled the country to tap into new markets for non-oil

products. Diversification of exports reduces Nigeria's vulnerability to oil price fluctuations and enhances economic resilience.

Foreign Direct Investment (FDI): Trade liberalization has attracted foreign direct investment into Nigeria. When trade barriers are lowered, foreign companies are more likely to invest in the country to take advantage of market opportunities. FDI brings in capital, technology, and expertise, stimulating economic growth, creating jobs, and boosting productivity in various sectors of the economy.

Increased Competition and Efficiency: Trade liberalization exposes domestic industries to increased competition from foreign goods and services. This competition encourages Nigerian industries to become more efficient, improve product quality, and innovate in order to remain competitive. As a result, trade liberalization can drive productivity gains, leading to increased economic growth.

Technology Transfer and Knowledge Spillovers: Trade liberalization can facilitate technology transfer and knowledge spillovers from foreign companies to domestic firms. Through trade and investment, Nigerian businesses can gain access to new technologies, managerial expertise, and best practices from more advanced economies. This transfer of knowledge and technology can enhance productivity and foster innovation, contributing to long-term economic growth.

Consumer Welfare: Trade liberalization benefits consumers by providing them with access to a wider variety of goods and services at competitive prices. Reduced trade barriers lead to increased imports and lower prices for imported products, improving consumers' purchasing power and overall welfare.

It's important to note that while trade liberalization has contributed to economic growth in Nigeria, challenges and limitations exist. Infrastructure deficiencies, inadequate access to finance, and institutional weaknesses can hinder the full realization of the benefits of trade liberalization. Addressing these challenges through complementary policies and reforms is crucial to maximize the positive impacts of trade liberalization on Nigeria's economic growth.

This work will build on Paul Romer and Robert Lucas's endogenous growth hypothesis from 1986. Endogenous growth, defined as sustained growth in gross national product (GNP) that is determined by the system driving the production process rather than external influences, can be evaluated using this theoretical framework, which is built on a microeconomic foundation. Human capital, knowledge capital, and Research and Development (R&D) capital are proposed as additional essential sources of growth alongside labour, capital, and technological efficiency in this theory. The neoclassical model has obvious flaws, and one of them is that (1) even with strong government actions like trade liberalisation, policies to promote

domestic savings, and the elimination of market distortions, the growth rate can only be temporarily enhanced. This is where endogenous growth theory comes in. This is because (1) the premise of diminishing marginal returns to capital and (2) the neoclassical prognosis of convergence in per capita incomes, which are both true for affluent countries but not for emerging countries or the world as a whole. Poor countries' earnings are not rising quickly enough to catch up to the richest countries.

Mohammed (2023) using secondary data from 1990 to 2019, covering four of the most liberalised SSA nations, and applying the autoregressive distributed lag (ARDL) framework, analysed the effects of globalisation on economic growth in Nigeria, South Africa, Ghana, and Kenya via the trade liberalisation channel. Countries in Sub-Sahara Africa (SSA) have recently increased their integration into the global economy through trade liberalisation to stimulate their developmental efforts. This is consequent on the findings from previous empirical studies that the SSA region has not benefited immensely from globalisation. Although several empirical studies have been done on the effect of globalisation on economic growth in Africa, they have largely ignored the role of trade liberalisation in the mix. Similar to previous findings, the result shows that globalisation, from the KOF Swiss Economic Institute, negatively and insignificantly impacts economic growth in Nigeria, South Africa, Kenya, and Ghana, while trade has a positive impact on growth in all the selected countries. However, we find that trade liberalisation augments globalisation to improve growth in the SSA countries. Lastly, we find various causal nexuses among the indicators for the SSA region and then recommend policies as well.

Adeyemo and Ogwu (2023) empirically examined the relationship between trade liberalization, gender inequality and economic growth in Nigeria over the time period from 1990 - 2021. Trade openness (TOP), male labour force participation rate (MLPR), female labour force participation rate (FLPR), government expenditure (GOVEXP), and inflation rate (INFL) were used as dimensions of independent variables while real gross domestic product (RGDP) was used as the dependent variable. Annual time series data on our targeted variables were obtained from secondary sources including the Central Bank of Nigeria annual statistical bulletin, World Bank development indicators. The Eview9 Statistical Software was employed to analyze the data empirically. The Unit root test shows that trade openness, government expenditure, male labour force participation, female labour force participation and real gross domestic product are all stationary after first difference I(1) while inflation rate was stationary at level I(0). The data were analysed using the Autoregressive distributed lag (ARDL). The results of the ARDL estimates indicate that in the long run trade openness, and government expenditure coefficients have positive relationships with real gross domestic product and they

are also statistically significant. The study recommended amongst others that the government should come up with women empowerment programmes and trainings that will further expand the percentage of women that engage in public and private employments. These will serve as the needed boost towards enhancing equal participation in economic activities and collectively enhance productivity and growth of the Nigerian economy beyond measures.

Dragusha, et al. (2023) explained the relationship between trade liberalization, foreign trade, and economic growth in Albania using annual economic development data for 1994-2019. The relationship between economic growth and foreign trade was put in focus by many economists when foreign trade developed. The case of Free Trade is always associated with significant positive effects on foreign trade and economic growth. This study is based on hypotheses for Causality Testing concerning the cointegration between GDP and foreign trade, trade liberalization and GDP, and GDP and exports in Albania. The ordinary least squares (OLS) model was used. Empirical results for the Albanian case show that trade liberalization has a positive relationship with economic growth, exports, and imports. However, the multiple regression proved that GDP, Openness Index, FDI, and remittances positively impacted trade volume growth. The study recommended that governments in Albania should support initiatives that boost participation in the import and export of goods. This will promote trade openness, which has been shown to favour GDP growth in Albania. It is advisable to have policies that support floating exchange rates. A flexible exchange rate promotes international investment as well as an improvement in the country's payment balance. Finally, Albania ought to implement measures to entice international investment in its economy.

Sunde, Blessing, and Anthony (2023) examined the impact of exports, imports, and trade openness on Namibia’s economic growth using the ARDL cointegration method. The results reveal a significant negative relationship between imports and economic growth, while exports and trade openness show positive and significant relationships with economic growth. Moreover, short-term economic growth is driven by exports, imports, and trade openness. The findings suggest that trade liberalisation and export-led growth are crucial for Namibia’s economic development. Overall, this study supports the mercantilist theory, which emphasises the importance of participating in global markets by increasing exports and trade.

Muhammad & Ugur (2023) asymmetrically examined the links among human capital, trade liberalization, and economic growth by incorporating labor and capital for Pakistan's economy by applying the nonlinear autoregressive distributed lag model. Human capital and trade liberalization play a central role in growth theories. However, the link between human capital, trade liberalization, and economic growth remains a challenging question due to the inconclusive results of the previous studies. Results suggest that the positive and negative

asymmetric impact of trade liberalization and human capital on growth substantially vary in the short and long run. In the long run, the increased trade liberalization hurts economic growth, while increased human capital has a minimal positive impact on economic growth in the short and long run. The implications of this paper are for economists and policymakers to strengthen the role of human capital and trade liberalization for Pakistan.

METHODOLOGY

Model Specification

The model is built to determining the relationship between trade liberalization, economic growth and manufacturing output. It shall adapt the same overall growth model used by Lioness (2015) in their study on Trade Liberalization and Economic growth in Nigeria. Their findings revealed that there is a dynamic positive relationship between liberalization and economic growth in Nigeria. The individual determinants of growth may not have fared well under different regimes of trade openness, but this does not discount the fact that the country has made significant strides with liberalization. Their model is structured as follows;

$RGDP = f(IMP, EXP, FDI, INTR, EXCH)$ ---------- (1)

By removing interest rates and FDI as part of her explanatory variables, the functional form of the equation for this study is structured as follows. The equation goes thus;

$GRGDP = f(IMPVI, EXPVI, EXCH, TOP)$ ----------(2)

Where,

GRGDP= Growth rate of Gross domestic product

IMPVI= Import value index

EXPVI = Export value index

TOP= Trade openness.

EXCH=Exchange Rate

Growth rate of Gross domestic product is chosen as the dependent variable to capture the changes in the independent variables. While import value index, export value index, trade openness and exchange rate are the independent variables.

Econometric Specification

$GDGDP_t = \beta_0 + \beta_1 IMPVI_t + \beta_2 EXPVI_t + \beta_3 EXCH_t + \beta_4 TOP_t + \mu_t$ ----------(3)

Where,

β_0 = the intercept or constant of the regression line

β_1 = Parameter coefficient of import.

β_2 = Parameter coefficient of export.

β_3 = Parameter coefficient of exchange rate.

β_4 = Parameter coefficient of trade openness.

μ_t = error term or stochastic term.

By a way of extension and using the knowledge of econometric model to link the dependent variable GRGDP to the independent variables, a stochastic term μ will be introduced to capture all other factors that could impact on economic growth other than the ones already identified on the right hand side of the equation.

β_0 is the intercept which captures the state of dependent variable (GRGDP) as other independent variables are constant. β_1, β_2, β_3, and β_4 are coefficients attached to independent variables, which explains the effect of a unit change in the independent variables on dependent variable (GDP).

This paper therefore specifies both the linear and dynamic Autoregressive Distributed Lag (ARDL) models, (Pesaran and Shin (1999) and Pesaran et al. (2001). The attractions around the models are noteworthy in that they help to circumvent the problem of endogeneity, they accommodate mixed order of integration in the series and produce short run and long run (along with error correction) parameter estimates.

$$Yt = {}^{a_0} + \emptyset 0 Yt_{-i} + \emptyset 1 Xt_{-i} \ldots\ldots \emptyset k Xkt_{-i} + \sum_{i=1}^{p-1} \alpha i \Delta Yt_{-i} + \sum_{j=0}^{q-1} \beta 1j \Delta X1t_{-j} + \cdots + \sum_{j=0}^{qk} \beta kj \Delta Xkt_{-j} \ldots. + Et$$

Where, the change in the dependent variable is a function of a constant, its value at t-$_1$ (appearing in levels), values at t-$_1$ of all regressors appearing in levels, as well as up to p and qk lags of the first difference of the dependent variable and regressors respectively.

We adopt the conventional bounds testing procedure to evaluate the cointegration between the variables using the Pesaran et al. (2001) critical values; the lower and upper bounds $F_{tab(LB)}$ and $F_{tab(UB)}$. This done by comparing the calculated F-statistics with the critical values. The decision rule for testing the null is such that:

Scenario	Decision	Implication
$F_{cal} > F_{tab(UB)}$	Reject H_0	There is cointegration
$F_{cal} < F_{tab(LB)}$	Do not reject H_0	There is no cointegration
$F_{tab(LB)} < F_{cal} < F_{tab(UB)}$	Indecisive	Test is inconclusive

Toda and Yamamoto Augmented Granger Causality Test

Economic series could be either integrated of the different orders or non-cointegrated or both. The unit root results of the variables for this paper were not of the same order of integration and were cointegrated. In this case, the ECM cannot be applied for Granger causality test.

The Toda and Yamamoto (1995) augmented Granger causality test method is based on the following equations.

$$Yt = \mu + \sum_{t-1}^{p+m} \alpha i Yt_{-i} + \sum_{t-1}^{p+m} \beta i Xt_{-i} + U1_t$$

$$Xt = \mu + \sum_{t-1}^{p+m} \gamma i Xt_{-i} + \sum_{t-1}^{p+m} \delta i Yt_{-i} + U2_t$$

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$$Nt = \mu + \sum_{t-1}^{p+m} \rho i Nt_{-i} + \sum_{t-1}^{p+m} \varphi i Xt_{-i} + U\mathrm{n}_t$$

Where;

m is the maximum order of integration of the variables in the system and p is the optimal lag length of Y_t and X_t, and the error terms are assumed to be white noise.

Sources of data and Measurement

The study has theoretical and quantitative aspects. We make use of secondary sources of information for this study. Time series data covering the period 1981 – 2021 and obtained from CBN Statistical Bulletin, Annual Report and Statement of Accounts; National Bureau of Statistics (NBS) and NBS foreign trade summary; World Development Indicators. Other sources of secondary information include textbooks, journals, periodicals and relevant publication. The rationale for choosing this time series is that it covers the pre and post structural adjustment era in Nigeria and will enable us to see how these policies impacted on the selected indices. The formation of models and hypothesis testing constitute the quantitative aspects. Trade liberalization was measured by savings, foreign direct investment, manufacturing output and human capital.

ANALYSIS

Descriptive Analysis

The descriptive statistics presented in table 1 below provides a summary of the statistical properties of the variables employed in the study. The GRGDP has a maximum value of 15.330 and a minimum value of -13.130. It has a mean of 3.040 and a standard deviation of 5.385, which indicates that the dataset is closely spread. The skewness is negative at -0.818 while the kurtosis is below 7 per cent at 4.620. The maximum and minimum values for EXPVI were 553.040 and 24.010, respectively. Of note was the significant variance between the mean of 189.34 and the standard deviation of 86.82 which indicates a high spread within the dataset. Import values ranged between 668.480 and 48.010 per cent. The variance between the mean and standard deviation indicated a moderate spread within the dataset. In summary, all the variables were positively skewed while Kurtosis figures did suggest the presence of possible outliers in the data. Based on the recommendation by Kline (2011), the absolute values of the Skewness and Kurtosis of all the items used in this study were within the acceptable range of < 3 and < 10 respectively.

Table 1: Summary Statistics

	GRGDP	EXPVI	IMPVI	EXCH	TOP
Mean	3.0407	174.6605	270.7012	107.5971	0.4830
Median	3.6000	86.0300	141.1200	111.2300	0.4844
Maximum	15.3300	553.0400	668.4800	381.0700	0.8181
Minimum	=13.1300	24.0100	48.0100	0.6200	0.2360
Std. Dev.	5.3853	153.2067	221.6127	108.6685	0.1676
Skewness	-0.8183	1.0725	0.6506	0.9329	0.0978
Kurtosis	4.6202	3.0405	1.7950	3.0266	1.8410
Jarque-Bera	9.0606	7.8640	5.3730	5.9487	2.3600
Probability	0.0107	0.0196	0.0681	0.0510	0.3072
Observations	41	41	41	41	41

Unit Root Test

The unit root test was carried out on the variables using the Augmented Dickey-Fuller (ADF) without structural break at constant and at trend and Zivolt and Andrews (1995) with structural break at both constant and trend. The results below show that all the variables tested with or without Structural break were not stationary at the same order of integration. The fact that the variables were stationary at different order of integration however connotes the likely

existence of long run relationship among the variables. The study therefore tested for cointegration using the autoregressive distributed lag (ARDL) cointegration bound test.

Table 2: Unit Root Test

	ADF Unit root Without Structural Break			Zandrews Unit root With Structural Break		
Variable	Levels (Cons & Trend)	1st diff (Cons & Trend)	Order of Integration	Levels (Cons & Trend)	1st diff (Cons & Trend)	Order Integration
GRGDP	-2.731	-5.296***	I(1)	-4.915** (2005)	-	I(0)
EXPVI	-2.044	-4.964***	I(1)	-3.034 (2013)	-6.583*** (2007)	I(1)
IMPVI	-2.573	-4.906***	I(1)	-2.680 (1997)	-6.127*** (2008)	I(1)
EXCH	-0.919	-4.537***	I(1)	-3.130 (2014)	-5.363*** (2012)	I(1)
TOP	-1.809	-4.872***	I(1)	-3.320 (1998)	-9.567*** (2014)	I(1)

Source: Extract from Regression Printout using Stata 15

*Note: The statistics reported are the t - Statistics with the associated break dates in brackets. GRGDP: Growth Rate of Gross domestic product, EXPVI: Export value index, IMPVI: Import value index, EXCH: Exchange rate, TOP: Trade openness, . ***, **, * signify stationary @ 1%, 5% and 10% significance levels respectively. Values in "( )" are the break dates revealed by the unit root tests with structural break. Zandrews Unit root Critical values: 1%: -4.93 5%: -4.42 10%: -4.11. ADF Critical values at levels: -3.655 -2.961 -2.613 @ 1% 5% 10% resp. ADF Critical values at 1st Diff: -3.662 -2.964 -2.614 @ 1% 5% 10% resp*

Cointegration Bounds Test (ARDL)

The ARDL approach typically covers two stages when estimating the long-run relationship between variables, the Bound test for cointegration, followed by estimating the short and long run estimates. However, before examining the cointegrating characteristics of the variables, the optimal lag length of the model was selected. The Akaike information criterion in this case provided the most efficient lag length.

Table 3: Bound test cointegration for GRGDP model

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.632	10%	2.45	3.52
K	3	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

From table 3 above, the F-statistic results confirm that there may be a long run equilibrium state between the dependent variables (growth rate of GDP growth and growth rate of manufacturing output) and the independent variables. This is evidenced in the F-statistics value of 4.632 for GRGDP which rests above the upper bound thresholds of 90 per cent, 95 per cent and 99 per cent respectively. From the results, we can infer that economic growth rate in Nigeria have unique long-run relationship with either of EXPVI, IMPVI, EXCH, TOP or all the four.

Analysis of Estimates of the GRGDP Models

Table 4: Long and Short run ARDL Regression Estimates on GRGDP Model

Variables	coefficients	Std. Error	T - statistics	Prob.
Adjusted D.GRGDP	-0.7035	0.1583	-4.44	0.000
LONG-RUN ESTIMATE				
EXPVI	0.0257	5.0180	1.41	0.016
IMPVI	=0.0229	0.0169	=1.35	0.028
EXCH	-0.0303	0.0183	1.66	0.007
TOP	-10.2657	6.4888	1.58	0.124
SHORT-RUN ESTIMATE				
D(EXPVI)	0.0026	0.0157	-0.17	0.002
D(IMPVI)	-0.0028	0.0155	0.18	0.020
D(EXCH)	-0.7048	0.0494	-1.42	0.014
D(TOP)	-12.3756	5.7455	-2.16	0.039
R – squared			0.7984	
Adjusted R – Squared			0.6304	
F – statistics			0.0000 ($p < 0.05$)	
Durbin – Watson Statistics			1.9239	
Heteroskedasticity			(Prob>chi^2) 0.4256	
Normality test (Jacque Berra)			(Prob-chi^2) 0.5412	

Source: Author's Computation using stata15, 2023.

The result of ARDL estimates on table 4 shows that EXPVI has a significant and positive relationship with GRGDP in the long run. A unit increase in EXPVI will result in 0.0257 increase in GRGDP. IMPVI has a negative and significant relationship with GRGDP in the long run. A unit increase in IMPVI will result in 0.0229 decrease in GRGDP in the long run. However, EXCH has a significant and negative relationship with GRGDP in the long run. An increase in EXCH will result in a reduction of GRGDP by 0.0303 in the long run. TOP has a negative and significant relationship with GRGDP in the long run. A unit increase in TOP will result in 10.265 decrease in GRGDP in the long run.

In the short run, a positive and significant relationship exists between EXPVI and GRGDP. A unit increase in TOP results in 0.0026 increase in GRGDP. Also, a negative and significant relationship exists between EXPVI and GRGDP in the short run. A unit increase in EXPVI will result in 0.0028 unit decrease in GRGDP. However, a negative and significant relationship exists between EXCH and GRGDP. A unit increase in EXCH will result in an decrease in GRGDP by 0.7048 unit. TOP has a negative and significant relationship with GRGDP in the long run. A unit increase in TOP will result in 12.3756 decrease in GRGDP in the long run.

From the estimate, the coefficient of the error correction term is correctly and negatively signed (-0.7035) and is statistically significant. The coefficient estimates of the error correction term which is -0.7035, means that the model corrects its short-run disequilibrium by about approximately 83 percent (70.35%) speed of adjustment in order to return to the long-run equilibrium. More so, that the coefficient of multiple determination of the model, that is the R - squared showed that the explanatory variables jointly explained 79% of the variations in the performance of the GRGDP, while the remaining 21% of the variation is explained by other variables not included in the model and the result of the coefficient of multiple determination showed that the model has a very good fit.

Also, the result of the Durbin - Watson statistics shows that the estimate of the model is free from the problem of serial autocorrelation and that the model estimate is appropriate and can be used for policy recommendation. The Prob > chi^2-value of 0.4256 indicates the absence of heteroskedasticity. The Normality test result of Jacque-Berra shows that the model is normally distributed as the p-value is greater than 0.05.

Toda-Yamamoto Causality Test

Table 5: Toda-Yamamoto Causality for GRGDP Model

Hypothesis Testing	Chi2	Prob Chi2	Direction of Causality
GRGDP does not granger cause EXPVI	0.57	0.9024	No Causality
EXPVI granger cause GRGDP	14.46	0,0023	EXPVI → GRGDP
GRGDP does not granger cause IMPVI	6.15	0.1046	No Causality
IMPVI granger cause GRGDP	2.89	0.0104	IMPVI → GRGDP
GRGDP does not granger cause EXCH	3.24	0.3560	No Causality
EXCH granger cause GRGDP	13.49	0,0037	EXCH → GRGDP
GRGDP does not granger cause TOP	1.30	0.7288	No Causality
TOP granger cause GRGDP	8.18	0,0424	TOP → GRGDP

Source: Extract from Regression Printout using Stata 15

Note: The statistics reported are Chi-square statistics with the associated probability values.

The results of Toda-Yamamoto models reported above show that there exist a uni-directional positive causality between EXPVI and GRGDP which confirmed the earlier results obtained the ARDL regression analysis. EXPVI granger cause GRGDP while GRGDP did not granger cause EXPVI. A negative uni-directional causality exists between IMPVI, EXCH, TOP and GRGDP. IMPVI, EXCH and TOP granger cause GRGDP while GRGDP did not granger cause IMPVI, EXCH and TOP. The positive and negative causality effects of trade liberalization proxies here is a confirmation of the earlier results obtained from the ARDL estimates.

Post Estimation Diagnoses

Diagnostic Test for Normality

To ascertain that the sample data has been drawn from a normally distributed population within tolerance, a normality test is used. Consequently, from the normality test conducted, the null hypothesis that the data is normally distributed cannot be rejected.

Diagnostic Test for Stability

To ascertain the stability of the coefficients, the cumulative sum of recursive residuals of both CUSUM (CUSUM) and the CUSUM of recursive squares (CUSUMQ) developed by Brown et al. (1975) were adopted. The cumulative sum test identifies systematic changes in the regression coefficients. As observed in figure 2, the CUSUM statistics fall within the accepted 5 per cent critical limits. This outcome implies that the null hypothesis of no stability is rejected at 5 percent level of significance and suggests that the model is stable, and its outcomes are valid.

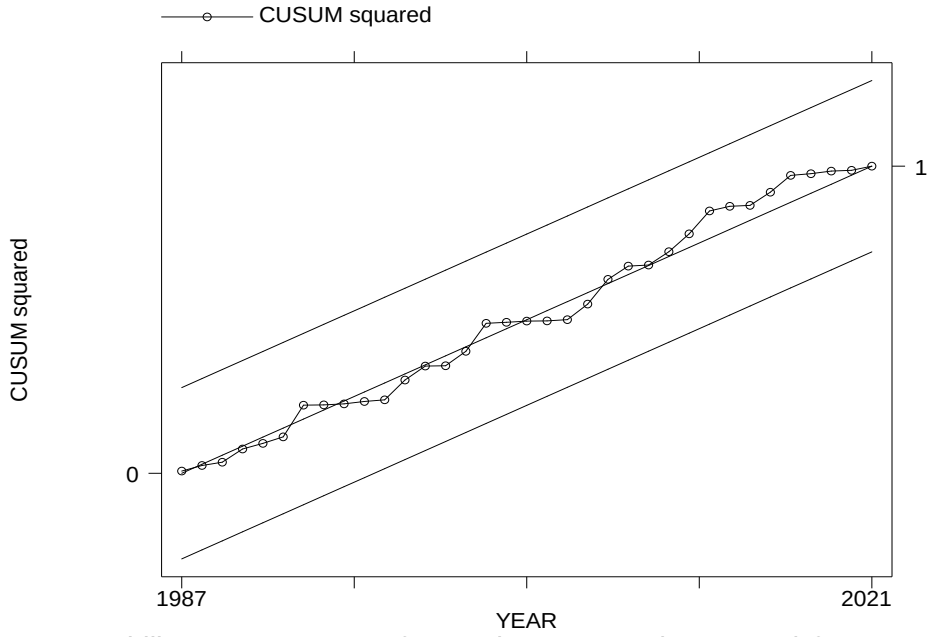

Figure 2: Stability Test: CUSUM of recursive squares (CUSUMQ) for GRGDP

Diagnostic Tests for Serial Correlation and Heteroscedasticity

The F-statistics of both serial correlation and heteroscedasticity tests (Table 6) are not statistically significant which means that we reject the null hypothesis of the presence of serial correlation and heteroscedasticity and that the model is free from serial correlation problem and at the same time is homoscedastic.

Table 6: Diagnostic Tests for Serial Correlation and Heteroscedasticity

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.011938	Prob. F(2,73)	0.9881
Obs*R-squared	0.027791	Prob. Chi-Square(2)	0.4256

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.685875	Prob. F(9,75)	0.1073
Obs*R-squared	14.30246	Prob. Chi-Square(11)	0.1120
Scaled explained SS	63.13685		

The absence of heteroskedasticity and serial correlation indicates that the standard errors of the estimates generated, and the variance of the estimator, are correct. Furthermore, it provides evidence that the estimator is BLUE and any inferences drawn from the analysis can be assumed to be valid.

CONCLUDING REMARKS

This paper investigated the effect of trade liberalization on economic growth in the Nigerian economy for the period 1981-2021. The findings of this paper shows that trade liberalization plays a crucial role in the Nigerian economy, offering several important benefits and opportunities. Trade liberalization can stimulate manufacturing output and economic growth by expanding market access for Nigerian businesses. By removing trade barriers such as tariffs, quotas, and restrictions, Nigerian firms can access larger international markets, attract foreign investment, and increase export opportunities. It encourages domestic industries to become more competitive, leading to productivity improvements, innovation, and diversification of the economy beyond traditional sectors.

Trade liberalization can attract foreign direct investment, which can bring new capital, technology, and expertise into Nigeria. By opening up its economy, Nigeria can create a more attractive investment climate for foreign companies looking to establish operations, expand their market presence, or participate in joint ventures with Nigerian firms. FDI

inflows can contribute to job creation, technology transfer, skill development, and overall economic development.

Integration into Global Value Chains (GVCs): Trade liberalization allows Nigerian businesses to integrate into global value chains, where different stages of production are distributed across countries. By participating in GVCs, Nigerian firms can benefit from technology transfer, knowledge spillovers, and opportunities to learn from international best practices. Integration into GVCs can enhance the competitiveness and capabilities of Nigerian industries, foster job creation, and drive economic growth.

Trade liberalization encourages regional and international cooperation, leading to increased economic integration and collaboration with neighboring countries and trading partners. By participating in regional trade agreements and organizations, such as the Economic Community of West African States (ECOWAS) and the African Continental Free Trade Area (AfCFTA), Nigeria can expand its market access, promote cross-border investments, and enhance regional economic cooperation.

It is important for Nigeria to implement complementary policies and measures to ensure that the benefits of trade liberalization are maximized and distributed equitably. This includes investing in infrastructure development, promoting skills training and education, improving trade facilitation measures, and implementing supportive policies to address the challenges faced by domestic industries during the transition to a more open trade regime.

Policies by ministry of trade and industry to encourage Nigerian businesses to diversify their export products and markets beyond traditional commodities, promote value-added manufacturing, agricultural processing, and service exports to increase the range of exportable goods and services are required. This will reduce dependence on a few primary commodities and expand export opportunities.

Same policies will enhance export promotion efforts by providing targeted support to exporters. This includes market research, trade missions, participation in international trade fairs, and the establishment of export development centres. Collaborate with industry associations and trade promotion organizations to identify and capitalize on export opportunities in global markets.

In conclusion, the direction for future studies could be to unravel why trade openness has a negative relationship with growth rate of gross domestic product in the long run in Nigeria as this is contrary to apriori expectations. Additionally, future studies could centre around how Nigeria's trading environment can be impacted by geopolitical or global economic trends in a rapidly evolving international trade environment.

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