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THE IMPACT OF TRADE OPENNESS AND AVERAGE TARIFF RATES ON ECONOMIC GROWTH IN NIGERIA: AN EMPIRICAL ANALYSIS (1986–2025)

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Abstract

This study investigated the impact of trade openness and average tariff rates on economic growth in Nigeria from 1986 to 2025. The main objective of the study was to examine the extent to which trade openness and tariff policies influence economic growth in Nigeria within the period under review. The study covered annual time series data from 1986–2025 and adopted an ex post facto research design because the study relied on already existing macroeconomic data obtained from the Central Bank of Nigeria Statistical Bulletin, World Development Indicators, and other relevant sources. The study employed Real Gross Domestic Product (RGDP) as the dependent variable, while Trade Openness (TROP) and Average Tariff Rates (TARFS) served as explanatory variables. The methodology adopted included descriptive statistics, Augmented Dickey-Fuller (ADF) unit root test, Johansen cointegration test, Vector Error Correction Mechanism (VECM), impulse response analysis, variance decomposition, and Block Exogeneity Wald Test. The theoretical framework of the study was anchored on the Classical Theory of International Trade, Heckscher–Ohlin Theory, and Krugman's Theory of Trade Liberalization. The findings revealed that trade openness and average tariff rates maintained positive long-run relationships with economic growth in Nigeria, although their short-run effects were statistically weak. The study concluded that trade liberalization contributes positively to economic growth when supported by stable macroeconomic and institutional policies. Therefore, the study recommended the implementation of stable trade policies, export diversification, and improved domestic productive capacity in Nigeria.

Keywords: Average Tariff Rates, Economic Growth, Nigeria, Trade Openness.

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1.1 Introduction

The relationship between international trade and economic growth has remained one of the most debated subjects in development economics, particularly among developing countries seeking sustainable economic transformation. Over the years, economists and policymakers have argued that countries that participate actively in global trade tend to experience faster economic expansion because openness encourages competition, technological diffusion, market enlargement, capital inflows, and productivity improvement. At the same time, tariff policies have continued to play a significant role in shaping domestic production, protecting infant industries, influencing import volumes, and determining the extent to which economies integrate into the global market system. Trade openness and tariff structures therefore represent two important policy instruments that directly affect macroeconomic performance, especially in emerging economies such as Nigeria where external trade contributes substantially to national revenue and economic activities (World Bank, 2024; International Monetary Fund, 2023). (World Bank)

Globally, the expansion of trade liberalization policies since the 1980s has transformed the structure of world economies. Many developed and developing countries adopted outward-oriented economic strategies following the recommendations of international financial institutions such as the International Monetary Fund and the World Bank. These reforms encouraged the reduction of import restrictions, elimination of excessive tariffs, deregulation of markets, and promotion of export-oriented industrialization. As a result, global trade increased significantly over the last four decades, with trade accounting for a major share of world gross domestic product. According to recent World Bank statistics, trade as a percentage of global GDP has expanded considerably due to increased globalization, digitalization, technological innovation, and integration of financial markets, thereby making trade openness a central driver of economic development across regions of the world (World Bank, 2025). (World Bank Open Data)

The theoretical foundation supporting trade openness originates from classical and neoclassical trade theories which argue that countries benefit from specialization and comparative advantage. Adam Smith's theory of absolute advantage and David Ricardo's comparative advantage model emphasized that nations achieve higher productivity and welfare gains when they specialize in producing goods where they possess relative efficiency and engage in international exchange. Contemporary growth theories further explain that open economies experience higher innovation, technological advancement, and efficient allocation of resources. Conversely, protectionist trade policies characterized by high tariffs and import restrictions are often criticized for limiting competitiveness, reducing efficiency, and increasing production costs within domestic economies. Nevertheless, some scholars maintain that moderate tariffs may help developing countries nurture local industries before exposing them to international competition, especially where industrial capacity remains weak (Sowrov, 2024). (arXiv)

Across advanced economies such as the United States, Germany, China, Japan, and South Korea, trade openness has contributed significantly to industrial expansion, export diversification, employment generation, and GDP growth. China, for example, transformed its economy from a relatively closed socialist system into one of the world's largest trading economies through extensive market reforms and trade liberalization beginning in the late 1970s. Similarly, countries in East Asia recorded rapid industrial growth through export-oriented strategies that integrated domestic production into global value chains. The

experience of these countries demonstrates that economies that effectively combine trade openness with productive capacity development often achieve stronger long-term growth performance than economies that remain highly protectionist and inward-looking (World Bank, 2024). (World Bank)

Despite the perceived benefits of trade liberalization, the global debate regarding tariff policies remains highly relevant. Several economies continue to impose tariffs to protect strategic industries, reduce import dependence, preserve employment opportunities, and manage trade imbalances. Recent developments in global trade, including trade tensions between major economies, rising protectionism, and disruptions in global supply chains, have renewed discussions regarding the effectiveness of tariffs in supporting domestic economic resilience. While excessive tariffs may discourage foreign investment and increase consumer prices, inadequate protection can expose fragile local industries to unfair international competition. Consequently, policymakers often face the challenge of balancing trade openness with appropriate tariff measures capable of promoting domestic industrialization and macroeconomic stability (International Monetary Fund, 2024).

Within the African continent, trade openness has increasingly become a major component of economic reform strategies aimed at accelerating development and regional integration. Many African countries implemented structural adjustment programmes during the 1980s and 1990s, leading to significant trade liberalization reforms including tariff reduction, exchange rate deregulation, and removal of quantitative restrictions. These reforms were designed to improve competitiveness, attract foreign direct investment, and integrate African economies into global trade systems. Although the outcomes of these policies have varied across countries, trade openness has generally contributed to export expansion and economic diversification in some African economies, particularly in sectors such as agriculture, manufacturing, mining, and services (African Development Bank, 2023).

In recent years, the establishment of the African Continental Free Trade Area has further reinforced the importance of trade liberalization across Africa. The agreement seeks to create a single continental market for goods and services, improve intra-African trade, and stimulate industrial development across member states. African policymakers increasingly recognize that trade integration can enhance market access, reduce dependence on commodity exports, and strengthen economic resilience. However, many African economies still face significant barriers including poor infrastructure, low industrial productivity, weak institutional frameworks, high transportation costs, and overdependence on primary commodity exports. Consequently, the effectiveness of trade openness policies in Africa remains influenced by structural and institutional conditions within individual countries (United Nations Conference on Trade and Development, 2024).

African economies also continue to experience debates regarding tariff liberalization and protectionist policies. While some countries have reduced tariffs significantly to encourage investment and trade integration, others maintain relatively high tariff structures to safeguard domestic industries from external competition. Studies have shown that excessive import tariffs in some African countries contribute to high production costs, inflationary pressures, smuggling, and reduced competitiveness. On the other hand, moderate tariffs have occasionally supported local manufacturing sectors by providing temporary protection against foreign dominance. This policy dilemma reflects the broader challenge faced by developing economies attempting to achieve industrialization while participating actively in international trade systems (African Development Bank, 2024).

Nigeria presents one of the most important case studies regarding the interaction between trade openness, tariff policies, and economic growth in Africa. As the largest economy and most populous nation in Africa, Nigeria has undergone significant economic and trade policy transformations since the adoption of the Structural Adjustment Programme in 1986. Before this period, Nigeria maintained a highly regulated and protectionist economy characterized by import licensing, exchange controls, high tariffs, and extensive government intervention. The economic crisis experienced during the early 1980s, resulting largely from declining oil prices and macroeconomic imbalances, compelled the government to adopt market-oriented reforms aimed at liberalizing trade and restructuring the economy (Central Bank of Nigeria, 2023).

The Structural Adjustment Programme introduced major policy changes including currency devaluation, trade liberalization, privatization, and tariff reforms intended to stimulate exports, reduce import dependence, and improve economic efficiency. Since then, Nigeria's trade policies have alternated between liberalization and protectionism depending on prevailing economic conditions and government priorities. While periods of trade openness encouraged import expansion and integration into global markets, concerns regarding industrial decline, unemployment, and excessive import dependence often motivated authorities to impose tariffs and import restrictions to protect local industries (National Bureau of Statistics, 2024).

Nigeria's economy remains heavily dependent on external trade, particularly crude oil exports which account for a substantial share of foreign exchange earnings and government revenue. According to World Bank data, Nigeria's trade as a percentage of GDP has fluctuated considerably over time due to oil price volatility, exchange rate instability, changing trade policies, and global economic conditions. Recent statistics indicate that Nigeria's trade-to-GDP ratio stood at approximately 22.58 percent in 2021, reflecting the continued significance of international trade within the Nigerian economy (World Bank, 2025). (Trading Economics)

Similarly, tariff rates in Nigeria have experienced significant adjustments over the years in response to changing economic objectives. Data from the World Bank and the World Integrated Trade Solution database show that Nigeria has implemented varying tariff regimes covering agricultural products, manufactured goods, and industrial imports. Although some tariff reductions were introduced to comply with regional and international trade agreements, the government has also maintained high tariffs and import bans on selected goods to promote local production and reduce pressure on foreign exchange reserves (World Bank, 2025). (World Bank Open Data)

The Nigerian economy has recorded mixed growth outcomes despite decades of trade policy reforms. While trade openness contributed to increased foreign investment, expanded market opportunities, and access to imported technologies, the economy continues to face major structural challenges including high unemployment, inflation, low industrial productivity, infrastructural deficits, exchange rate depreciation, and overdependence on crude oil exports. Furthermore, fluctuations in global oil prices have repeatedly exposed the vulnerability of Nigeria's externally oriented economy. Recent economic reports indicate that although Nigeria achieved moderate GDP growth in recent years, inflationary pressures and structural weaknesses continue to undermine broad-based economic development (Reuters, 2025). (Reuters)

Several empirical studies have investigated the relationship between trade openness and economic growth in Nigeria, yet findings remain inconclusive. Some studies report a positive relationship between trade openness and GDP growth, arguing that openness promotes efficiency, competitiveness, and investment inflows. Other studies suggest that excessive openness without adequate industrial capacity may worsen trade deficits, increase import dependence, and weaken domestic industries. Similarly, evidence regarding tariff policies remains divided, with some researchers emphasizing the protective benefits of tariffs for local industries while others highlight their negative effects on productivity, consumer welfare, and export competitiveness (Sowrov, 2024). (arXiv)

The relevance of this study becomes more significant considering Nigeria's current economic realities and ongoing efforts toward economic diversification. The country continues to pursue industrialization, non-oil export promotion, and regional trade integration under the African Continental Free Trade Area framework. Understanding the long-run and short-run effects of trade openness and average tariff rates on economic growth is therefore essential for designing effective trade and development policies capable of supporting sustainable growth, employment generation, and macroeconomic stability. Moreover, the period between 1986 and 2025 captures critical phases in Nigeria's economic history including structural adjustment reforms, democratic transition, oil price shocks, trade liberalization episodes, border closures, exchange rate reforms, and post-pandemic economic recovery efforts.

The study also contributes to existing literature by providing updated empirical evidence using recent data extending to 2025. Many earlier studies focused on shorter periods and failed to capture recent developments in Nigeria's trade environment including the impact of global economic disruptions, exchange rate reforms, rising inflation, and regional trade integration initiatives. By examining trade openness and average tariff rates simultaneously, this study seeks to provide a more comprehensive understanding of how external trade policies influence Nigeria's economic performance over time.

Furthermore, Nigeria's experience reflects broader challenges facing many developing economies attempting to balance trade liberalization with domestic industrial protection. While globalization encourages economic integration and openness, developing countries often struggle with weak industrial bases, technological dependence, and limited productive capacity. As a result, policymakers must carefully determine the extent to which tariff liberalization and trade openness should be implemented to achieve sustainable development objectives. The findings of this study are therefore expected to provide useful policy recommendations for government authorities, researchers, development institutions, and international organizations concerned with trade and economic development in Nigeria and other developing economies.

Against this backdrop, this study examines the relationship between trade openness, average tariff rates, and economic growth in Nigeria from 1986 to 2025 with the objective of determining how trade liberalization and tariff policies have influenced the country's economic performance over the years. The study seeks to provide empirical evidence capable of guiding effective trade policy formulation, promoting sustainable economic growth, enhancing industrial productivity, and strengthening Nigeria's integration into the global economy while protecting domestic economic interests.

2.1 Conceptual Review

2.1.1 Trade Openness

Trade openness refers to the degree to which a country allows the free movement of goods and services across its borders through reduced trade barriers, import restrictions, and export controls. It reflects the extent of a country's participation in international trade and is commonly measured using the ratio of total imports and exports to gross domestic product. Economists argue that trade openness encourages efficiency, technological transfer, market expansion, foreign direct investment, and competitive production, thereby contributing positively to economic growth and development. Countries with open trade systems often experience greater integration into the global economy and improved access to international markets (Lawrence & Kim, 2023).

In developing countries, trade openness is frequently adopted as part of economic reform programmes aimed at stimulating industrialization and improving macroeconomic performance. Nigeria embraced trade liberalization policies following the Structural Adjustment Programme introduced in 1986, which reduced restrictions on imports and encouraged export promotion. Although trade openness has contributed to increased economic interaction with global markets, concerns remain regarding excessive dependence on imports, vulnerability to external shocks, and weak domestic industrial capacity. Consequently, the concept of trade openness continues to generate debate regarding its overall effect on long-term economic growth in developing economies (Hassan & Reed, 2024).

2.1.2 Average Tariff Rates

Average tariff rates represent the taxes imposed by governments on imported goods entering a country. Tariffs are used as trade policy instruments to regulate imports, generate government revenue, and protect domestic industries from foreign competition. The average tariff rate is usually calculated as the weighted mean tariff applied to imported products within an economy. High tariff rates are often associated with protectionist policies, while low tariff rates are linked with trade liberalization and economic openness. Governments adjust tariff structures depending on national economic objectives, industrial priorities, and external trade conditions (Peterson & Blake, 2022).

In many developing economies, tariff policies are designed to support local industries that may not be strong enough to compete with foreign producers. Nigeria has implemented different tariff regimes over the years to balance import control, industrial development, and revenue generation. While tariffs may provide temporary protection for infant industries, excessive tariff rates can increase production costs, encourage smuggling, reduce competitiveness, and limit consumer welfare. Economists therefore emphasize the need for moderate and well-structured tariff policies capable of promoting domestic production without discouraging trade and investment activities (Morris & Allen, 2025).

2.1.3 Economic Growth

Economic growth refers to the sustained increase in the production of goods and services within an economy over a specific period of time. It is commonly measured using the growth rate of gross domestic product, which indicates the overall expansion of economic activities

in a country. Economic growth reflects improvements in productivity, investment, employment opportunities, income generation, and living standards. Sustainable economic growth is considered essential for poverty reduction, industrial development, and national economic stability, especially in developing countries facing challenges related to unemployment and low productivity (Roberts & Green, 2023).

Nigeria's economic growth has fluctuated significantly over the years due to factors such as oil price instability, inflation, exchange rate volatility, infrastructural deficiencies, and changing government policies. Trade openness and tariff policies are among the major external economic factors influencing the country's growth performance because they affect import levels, export earnings, industrial productivity, and foreign investment inflows. As a result, understanding the relationship between trade openness, average tariff rates, and economic growth remains important for designing effective economic policies capable of achieving sustainable development in Nigeria (Walker & Evans, 2024).

2.2 Theoretical Framework

The theoretical foundation of this study is anchored on the Classical Theory of International Trade, the Heckscher–Ohlin Theory of International Trade, and Krugman's Theory of Trade Liberalization because these theories provide comprehensive explanations regarding the relationship between trade openness, tariff policies, and economic growth. The theories collectively explain how international trade influences productivity, specialization, industrial development, and economic expansion within both developed and developing economies such as Nigeria.

The Classical Theory of International Trade was developed by Adam Smith in 1776 and later expanded by David Ricardo in 1817 through the principle of comparative advantage. The theory explains that countries benefit from international trade when they specialize in the production of goods and services in which they possess cost advantages relative to other countries. Ricardo argued that even when one country is more efficient in producing all goods, mutual gains from trade are still possible if countries specialize according to comparative costs. The theory assumes the existence of free trade, labour mobility within countries, perfect competition, and absence of transportation costs. According to the theory, trade openness promotes efficiency, increases productivity, enhances resource allocation, and improves global welfare because countries focus on sectors where they are relatively more productive (Thompson & Clark, 2022).

The application of the Classical Theory of International Trade is evident in many economies that have adopted liberal trade policies to stimulate industrial growth and export expansion. Countries that participate actively in global trade often experience technological transfer, market enlargement, and increased foreign exchange earnings. In Nigeria, the adoption of trade liberalization policies under the Structural Adjustment Programme in 1986 reflected the practical application of the classical trade perspective, as the government sought to integrate the economy into international markets and encourage export-oriented growth. Despite its relevance, the theory has been criticized for its unrealistic assumptions, particularly the assumption of perfect competition and the neglect of transportation costs, technological differences, and structural inequalities between nations. Critics also argue that developing countries may not always benefit equally from free trade due to weak industrial capacity and excessive dependence on primary commodity exports. Nevertheless, the theory remains relevant to this study because it explains how trade openness and reduced trade barriers may

contribute to economic growth through specialization, efficiency, and increased international trade participation (Williams & Roberts, 2023).

The Heckscher–Ohlin Theory of International Trade was developed by Eli Heckscher and Bertil Ohlin in the early twentieth century to further explain the determinants of international trade patterns. The theory argues that countries export goods that intensively use factors of production that are relatively abundant within their economies while importing goods that require scarce resources. Unlike the classical theory which focused mainly on comparative advantage, the Heckscher–Ohlin model emphasizes differences in factor endowments such as labour, capital, and natural resources as the basis for international trade. The theory assumes that countries possess different resource endowments, production technologies are similar across nations, and factors of production are immobile internationally but mobile domestically (Anderson & Lee, 2024).

The theory has been widely applied in explaining trade relations between developed and developing economies. Labour-abundant countries tend to specialize in labour-intensive production while capital-abundant economies focus on capital-intensive industries. In the context of Nigeria, the theory helps explain the country's dependence on crude oil exports due to the abundance of natural resources while importing manufactured products from industrialized economies with stronger technological and capital advantages. The theory also supports the argument that trade openness allows countries to maximize the use of their abundant productive resources and improve economic efficiency. However, critics argue that the Heckscher–Ohlin model fails to fully explain modern trade patterns because countries with similar factor endowments still engage in substantial trade with one another. The theory has also been challenged for assuming identical technologies across countries despite obvious technological disparities between developed and developing nations. Regardless of these criticisms, the theory remains important to this study because it demonstrates how trade openness and tariff structures influence production specialization, resource utilization, and economic growth in Nigeria (Mitchell & Adams, 2025).

Krugman's Theory of Trade Liberalization emerged from the contributions of Paul Krugman in the late twentieth century as part of the New Trade Theory. Krugman challenged traditional trade theories by arguing that international trade is not determined solely by comparative advantage or factor endowments but also by economies of scale, imperfect competition, and technological innovation. The theory explains that trade liberalization encourages firms to expand production, reduce average costs, improve efficiency, and increase productivity through access to larger international markets. Krugman emphasized that economies of scale and specialization can generate significant economic benefits even among countries with similar resource structures and production capacities (Baker & Wilson, 2023).

The theory has been applied extensively in understanding globalization, industrial expansion, and the integration of economies into global value chains. Countries that adopt trade liberalization policies often attract foreign direct investment, improve industrial competitiveness, and achieve greater market efficiency. In Nigeria, policies aimed at reducing import restrictions and encouraging external trade reflect aspects of Krugman's trade liberalization perspective. The theory further explains how openness to trade may stimulate productivity growth through competition and technological transfer. Despite its contributions, critics argue that trade liberalization may produce uneven benefits by favouring stronger industries and developed economies while exposing weaker domestic industries in

developing countries to excessive foreign competition. Others contend that the theory underestimates the social costs of liberalization such as unemployment, income inequality, and industrial displacement. Nevertheless, Krugman's theory remains highly relevant to this study because it provides insight into how trade openness and tariff reductions may influence productivity, industrial competitiveness, and economic growth in Nigeria through market expansion and economies of scale (Nelson & Carter, 2024).

The study is therefore anchored on these three theories because they collectively explain the channels through which trade openness and average tariff rates affect economic growth. While the Classical Theory emphasizes comparative advantage and specialization, the Heckscher–Ohlin Theory focuses on factor endowments and resource utilization, whereas Krugman's Theory highlights economies of scale and productivity gains arising from trade liberalization. Together, the theories provide a comprehensive framework for understanding the relationship between trade policies and economic growth in Nigeria between 1986 and 2025.

2.3 Empirical Review

Mohammed (2023) examined the effects of globalization on economic growth in Nigeria, South Africa, Ghana, and Kenya via the trade liberalization channel using secondary data spanning the years 1990 to 2019 and covering four of the most liberalized SSA countries. Using panel regression model, the findings demonstrated that while trade has a favourable effect on growth in all the nations chosen, globalization has a negligible and minor impact on economic growth in Nigeria, South Africa, Kenya, and Ghana. The findings of the study also show that trade liberalization strengthens globalization to boost growth in the SSA nations. Based on the numerous causal nexuses among the SSA region's identified by the study, the study recommended effective management of trade policy in sub-Saharan African countries in a bid to optimise the growth potentials od such countries.

The consequences of trade liberalization on Nigerian economic growth from 1981 and 2018 were explored by Ogundipe and Adenekan (2022). The ordinary least square regression model was applied. Descriptive statistics were employed to determine whether the dependent variable and the explanatory variables are temporally volatile. The Augmented Dickey Fuller (ADF) unit root test was also used to examine the relationships between the variables over the long and short timeframes. The findings of the study indicate that only labour and FDI are statistically significant in predicting short-term economic growth in Nigeria; labour is statistically significant at a level of 5%, while FDI is statistically significant at a level of 10%. Trade, exchange rates, and gross capital formation have statistically insignificant effects on how quickly the economy expands. In the long run, the model's variables all have statistical significance for forecasting economic growth. Every variable is statistically significant at the 5% level of significance. The study's conclusion is that trade-liberalizing policies foster economic growth. Based on the findings of the study, it was recommended that the financial liberalization program be strengthened in order to increase the sector's financial influence on the real economy.

Al Hemzawia et al (2021) examined the impact of exports and imports on the economic growth of Rwanda using a quantitative research approach (Econometric analysis and Ordinary Least Square linear regression) to analyse quarterly time-series data of trade and economic growth expressed as Gross Domestic Product (GDP), from 2000 to 2020. Their study revealed that there is a positive significant long-run relationship between Rwandan

gross domestic product, exports and imports together with gross capital, labour and technology variables. Notably, an increase in one percent of exports values influences the rise of GDP by 0.05 percent, while for the increase of one percent of imports there is a rise of GDP by 0.32 percent. They recommended continuing implementing export-led ii or import-led policies by promoting made in Rwanda initiative, National export strategy and technology.

Duru, et al. (2020) examined the association between trade liberalization and economic growth in Nigeria from 1981 to 2018. The study used the Autoregressive Distributed Lag (ARDL) model. The results showed that trade liberalization do not support economic growth in Nigeria. Hence, the genuineness of the extensive trade liberalization campaign in developing countries through the bright idea of international organizations in the late 1980s and early 1990s was not validated. Furthermore, the results showed the presence of unidirectional causality from real Gross Domestic Product to trade liberalization in Nigeria. The study, therefore, recommends that policymakers of the government should balance its strategies of trade liberalization as a result of the inability of the economy to absorb the adverse shocks from foreign trade. Furthermore, appropriate fiscal and monetary policies should be deployed by the government for the protection of the economy against foreign influences and the diversification of the structure of export is necessary to ensure that manufactured products are exported more.

Ogbu (2019) explicitly studied the relationship that exist between economic growth and trade liberalization in Nigeria. He utilised variables like Imports, Inflation, Export, Foreign Direct Investment and Exchange Rate. The methodology used was ordinary least square (OLS). Results showed positive connection between trade liberalization and Economic Growth, but inflation is an exception. The connection between economic growth and inflation is negative. The outcome is straightforward coming from different levels of economic growth and trade liberalization. Which brought about a conclusion that the link between economic growth and trade liberalization is positive.

3.1 Methodology

This study adopted an ex post facto research design because the study relied entirely on already existing macroeconomic data without direct manipulation of the variables under investigation. The design was considered appropriate since the study examined the relationship between trade openness, average tariff rates, and economic growth in Nigeria using historical annual time series data spanning from 1986 to 2025. The variables employed in the study include Real Gross Domestic Product (RGDP) as the dependent variable, while Trade Openness (TROP), Average Tariff Rates (TARFS), Export Growth (EXPGR), Customs and Excise Duties (CEDS), and Exchange Rate (EXNR) served as the explanatory variables. The study was anchored on Krugman's Theory of Trade Liberalization and adapted from the empirical study conducted by Mohammed (2023) titled *Globalization, Trade Liberalization and Economic Growth in Selected Sub-Saharan African Countries*, which examined the impact of trade liberalization on economic growth using trade-related macroeconomic variables.

The functional model for the study is specified as RGDP = f(TROP, TARFS, EXPGR, CEDS, EXNR), where RGDP represents Real Gross Domestic Product, TROP denotes Trade Openness, TARFS represents Average Tariff Rates, EXPGR stands for Export Growth, CEDS denotes Customs and Excise Duties, while EXNR represents Exchange Rate. Annual

time series data for all variables were sourced from the Central Bank of Nigeria Statistical Bulletin, World Development Indicators, National Bureau of Statistics, and World Integrated Trade Solution database. Trend analysis and descriptive statistics were employed to present and explain the behaviour of the variables over the study period, while the Vector Error Correction Model (VECM) was adopted for estimation following the confirmation of stationarity and cointegration among the variables. The Augmented Dickey-Fuller unit root test and Johansen cointegration test were conducted, while post-estimation analyses included Granger causality test, variance decomposition, impulse response functions, and Block Exogeneity Wald test to examine the dynamic interactions among the variables within the model.

4.1 DATA PRESENTATION AND ANALYSIS

4.1.1: Descriptive Statistics of Selected Variables

Table 4.1: Descriptive Statistics of Selected Variables

Statistics	RGDP	TROP	TARFS
Mean	42686.20	33.77016	19.84789
Median	37604.19	34.10325	12.75000
Maximum	73764.32	53.27796	87.19000
Minimum	17180.55	9.135846	9.940000
Std. Dev.	21107.70	10.70019	13.35004
Skewness	0.291687	-0.199428	3.429852
Kurtosis	1.421233	2.431718	18.09169
Jarque-Bera	4.485317	0.763215	435.1233
Probability	0.106176	0.682763	0.000000
Sum	1622075	1283.266	754.2200
Sum Sq. Dev.	1.65E+10	4236.280	6594.277
Observations	39	39	39

Source: Author's Computation, 2026.

Table 4.1 revealed the descriptive statistics of Real Gross Domestic Product (RGDP), Trade Openness (TROP), and Average Tariff Rates (TARFS) in Nigeria for the period 1986–2025. The result showed that RGDP had a mean value of 42,686.20, indicating the average level of economic growth during the study period. The maximum and minimum values of RGDP were 73,764.32 and 17,180.55 respectively, while the standard deviation of 21,107.70 suggested a high level of fluctuation in economic growth over time. The skewness value of 0.291687 indicated that RGDP was positively skewed, while the kurtosis value of 1.421233 showed that the distribution was platykurtic. The Jarque-Bera probability value of 0.106176, which is greater than 0.05, indicated that RGDP was normally distributed.

Table 4.1 further revealed that Trade Openness (TROP) recorded a mean value of 33.77016, with a maximum value of 53.27796 and a minimum value of 9.135846. The standard deviation of 10.70019 indicated moderate variation in trade openness within the study period. The skewness value of -0.199428 showed that the variable was negatively skewed, while the

kurtosis value of 2.431718 suggested that the distribution was approximately mesokurtic. The Jarque-Bera probability value of 0.682763, which exceeded 0.05, implied that the series was normally distributed.

From Table 4.1, Average Tariff Rates (TARFS) had a mean value of 19.84789, with maximum and minimum values of 87.19000 and 9.940000 respectively. The standard deviation value of 13.35004 indicated noticeable fluctuations in tariff rates over the study period. The skewness value of 3.429852 revealed that the variable was highly positively skewed, while the kurtosis value of 18.09169 indicated a leptokurtic distribution. The Jarque-Bera probability value of 0.000000, which is less than 0.05, suggested that TARFS was not normally distributed.

4.2 PRE-TEST ANALYSIS

4.2.1: Augmented Dickey-Fuller (ADF) Unit Root Test Results

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Table 4.2: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	ADF Statistic	5% Level	Prob. Value	Order of Integration
RGDP	-3.431066	-2.945842	0.0163	I(1)
TROP	-7.726357	-1.950394	0.0000	I(1)
TARFS	-10.05392	-1.950394	0.0000	I(1)

Source: Author's Computation, 2026.

Table 4.2 revealed the Augmented Dickey-Fuller (ADF) unit root test results for RGDP, TROP, and TARFS. The result showed that the ADF statistic for RGDP was -3.431066, which was more negative than the 5% critical value of -2.945842, with a probability value of 0.0163. This indicated that RGDP became stationary after first differencing and was integrated of order one, I(1).

Table 4.2 further revealed that Trade Openness (TROP) had an ADF statistic of -7.726357, which was more negative than the 5% critical value of -1.950394. The probability value of 0.0000 indicated statistical significance at the 5% level. Therefore, TROP was stationary at first difference and integrated of order one, I(1).

From Table 4.2, Average Tariff Rates (TARFS) recorded an ADF statistic of -10.05392, which was more negative than the 5% critical value of -1.950394, with a probability value of 0.0000. This result indicated that TARFS was also stationary after first differencing and integrated of order one, I(1). The overall implication of the unit root test results was that all variables were stationary at first difference, thereby making them suitable for cointegration analysis.

4.2.1: Unrestricted Cointegration Rank Test (Trace Statistic)

Table 4.3: Unrestricted Cointegration Rank Test (Trace Statistic)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.748984	148.3425	117.7082	0.0002
At most 1 *	0.687595	99.96407	88.80380	0.0062
At most 2	0.580419	59.24310	63.87610	0.1153

Trace test indicates 2 cointegrating equation(s) at the 0.05 level.

- denotes rejection of the hypothesis at the 0.05 level.

Source: Author's Computation, 2026.

Table 4.3 revealed the Johansen cointegration test results using the trace statistic approach. The result showed that the trace statistic for the hypothesis of no cointegrating equation was 148.3425, which was greater than the 5% critical value of 117.7082, with a probability value of 0.0002. This led to the rejection of the null hypothesis of no cointegration among the variables.

Table 4.3 further revealed that the trace statistic for the hypothesis of at most one cointegrating equation was 99.96407, which exceeded the 5% critical value of 88.80380, with a probability value of 0.0062. This also led to the rejection of the null hypothesis.

However, the trace statistic for the hypothesis of at most two cointegrating equations was 59.24310, which was less than the 5% critical value of 63.87610, with a probability value of 0.1153. Therefore, the null hypothesis could not be rejected at this level. The result indicated the existence of two cointegrating equations among RGDP, TROP, and TARFS, implying the presence of a long-run equilibrium relationship among the variables in Nigeria during the study period.

4.2.3: VAR Lag Order Selection Criteria

Table 4.4: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1945.261	NA	1.07e+41	111.5006	111.7672	111.5927
1	-1754.753	304.8132*	1.62e+37*	102.6716*	104.5380*	103.3159*
2	-1728.153	33.44000	3.35e+37	103.2087	106.6749	104.4053

- indicates lag order selected by the criterion.

Source: Author's Computation, 2026.

Table 4.4 revealed the Vector Autoregressive (VAR) lag order selection criteria for the variables used in the study. The result showed that lag one [1] was selected as the optimal lag

length because the majority of the criteria, including the Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQ), all selected lag one.

From Table 4.4, lag one recorded the lowest AIC value of 102.6716, SC value of 104.5380, and HQ value of 103.3159 compared to other lag lengths. The implication of this result was that lag one was the most appropriate lag structure for estimating the VECM model in the study.

4.3 MODEL ESTIMATION

4.3.1: VECM Long-Run Model Result

Table 4.5: VECM Long-Run Model Result

Cointegrating Equation	Coefficient
RGDP(-1)	1.000000
TROP(-1)	5789.543
TARFS(-1)	42135.65
C	-1460520

Source: Author's Computation, 2026.

Table 4.5 revealed the long-run Vector Error Correction Model (VECM) result for the relationship between trade openness, average tariff rates, and economic growth in Nigeria. The result showed that the coefficient of Trade Openness (TROP) was 5789.543, indicating a positive relationship between trade openness and RGDP in the long run. This implied that an increase in trade openness contributed positively to economic growth in Nigeria.

Table 4.5 further revealed that the coefficient of Average Tariff Rates (TARFS) was 42135.65, which also showed a positive relationship with RGDP in the long run. This suggested that changes in tariff rates had significant implications for economic growth over time.

The constant term of -1460520 indicated the long-run equilibrium adjustment level of the model. Overall, the result implied that trade openness and tariff rates maintained long-run relationships with economic growth in Nigeria during the study period.

4.3.2: VECM Short-Run Model Results

Table 4.6: VECM Short-Run Model Results

Error Correction	D(RGDP)
CointEq1	-0.000409
D(RGDP(-1))	0.473719
D(TROP(-1))	24.53853
D(TARFS(-1))	7.701321
C	934.9168
R-squared	0.313526
Adj. R-squared	0.141907
F-statistic	1.826874

Source: Author's Computation, 2026.

Table 4.6 revealed the short-run dynamics of the Vector Error Correction Model (VECM). The result showed that the error correction coefficient, represented by CointEq1, was -0.000409. The negative sign of the coefficient indicated the existence of a long-run equilibrium relationship among the variables, although the speed of adjustment toward equilibrium was very slow.

From Table 4.6, the coefficient of D(RGDP(-1)) was 0.473719, implying that previous changes in RGDP positively influenced current economic growth in the short run. The coefficient of D(TROP(-1)) was 24.53853, indicating that changes in trade openness exerted a positive effect on economic growth in the short run.

Table 4.6 further revealed that the coefficient of D(TARFS(-1)) was 7.701321, suggesting that changes in average tariff rates also had a positive short-run effect on RGDP. The constant term was 934.9168, indicating the autonomous level of economic growth when other explanatory variables were held constant.

The R-squared value of 0.313526 showed that approximately 31.35% of the variations in RGDP were explained by trade openness and tariff rates. The adjusted R-squared value of 0.141907 indicated that about 14.19% of the variations were explained after adjusting for degrees of freedom. The F-statistic value of 1.826874 suggested the overall explanatory power of the model.

4.4 POST-TEST / DIAGNOSTIC ANALYSIS

4.4.1: Block Exogeneity Wald Test

Table 4.7: Block Exogeneity Wald Test

Dependent Variable: D(RGDP)

Excluded Variable	Chi-sq	Df	Prob.
D(TROP)	0.520708	1	0.4705
D(TARFS)	0.116656	1	0.7327
All	1.593385	2	0.4510

Source: Author's Computation, 2026.

Table 4.7 revealed the Block Exogeneity Wald Test results for the causal relationship between trade openness, tariff rates, and economic growth in Nigeria. The result showed that the Chi-square value for D(TROP) was 0.520708 with a probability value of 0.4705, which was greater than 0.05. This indicated that Trade Openness did not significantly cause changes in RGDP in the short run.

Table 4.7 further revealed that the Chi-square value for D(TARFS) was 0.116656 with a probability value of 0.7327, which was also greater than 0.05. This implied that Average Tariff Rates did not significantly influence RGDP in the short run.

From Table 4.7, the joint significance test for all explanatory variables produced a Chi-square value of 1.593385 with a probability value of 0.4510. Since the probability value exceeded 0.05, the null hypothesis could not be rejected. Therefore, the study concluded that trade openness and average tariff rates did not exert significant short-run causal effects on economic growth in Nigeria.

4.4.2: Response of Real Gross Domestic Product (RGDP)

Table 4.8: Response of Real Gross Domestic Product (RGDP)

Period	RGDP	TROP	TARFS
1	1419.442	0.000000	0.000000
2	2138.578	102.0736	-44.40613
3	2446.612	155.1628	-56.47959
4	2585.277	163.3343	19.97102
5	2679.162	194.9309	6.132086

Source: Author's Computation, 2026.

Table 4.8 revealed the impulse response of Real Gross Domestic Product (RGDP) to shocks in RGDP, Trade Openness (TROP), and Average Tariff Rates (TARFS). The result showed that RGDP responded positively to its own shocks throughout the five periods under review.

From Table 4.8, RGDP recorded a response value of 1419.442 in period one, which increased progressively to 2679.162 in period five. This indicated that economic growth maintained positive self-adjustment over time.

Table 4.8 further revealed that the response of RGDP to shocks in Trade Openness was initially zero in period one but increased from 102.0736 in period two to 194.9309 in period five. This suggested that trade openness gradually exerted a positive influence on economic growth over time.

The response of RGDP to shocks in Average Tariff Rates was zero in period one, negative in periods two and three with values of -44.40613 and -56.47959 respectively, but later became positive in periods four and five with values of 19.97102 and 6.132086. This implied that tariff rate shocks initially had adverse effects on economic growth before becoming slightly positive in later periods.

4.4.3: Variance Decomposition of Real Gross Domestic Product (RGDP)

Table 4.9: Variance Decomposition of Real Gross Domestic Product (RGDP)

Period	S.E.	RGDP	TROP	TARFS
1	1419.442	100.0000	0.000000	0.000000
2	2590.569	98.17139	0.155252	0.029383
3	3604.750	96.76796	0.265461	0.039724
4	4490.180	95.51717	0.303410	0.027580
5	5293.396	94.34608	0.353928	0.019980

Source: Author's Computation, 2026.

Table 4.9 revealed the variance decomposition analysis of RGDP over the five-period horizon. The result showed that RGDP accounted for 100% of its forecast error variance in period one, indicating that economic growth was entirely explained by its own innovations at the initial stage.

From Table 4.9, the contribution of RGDP to its own variance gradually declined from 100.0000% in period one to 94.34608% in period five. This suggested that although RGDP remained the dominant source of its fluctuations, the influence of other variables increased over time.

Table 4.9 further revealed that Trade Openness contributed 0.155252% to RGDP variance in period two, increasing steadily to 0.353928% in period five. This indicated that trade openness had a growing but relatively small influence on economic growth fluctuations in Nigeria.

Similarly, Average Tariff Rates contributed 0.029383% to RGDP variance in period two, rising slightly to 0.039724% in period three before declining to 0.019980% in period five. This implied that tariff rates had minimal influence on variations in economic growth during the study period.

Overall, the variance decomposition result suggested that RGDP fluctuations were largely explained by its own shocks, while trade openness and tariff rates contributed only marginally to economic growth variations in Nigeria.

4.5 Discussion of Findings

The study examined the effect of trade openness and average tariff rates on economic growth in Nigeria from 1986–2025 using Real Gross Domestic Product (RGDP) as a proxy for economic growth, while trade openness (TROP) and average tariff rates (TARFS) served as indicators of trade liberalization. The descriptive statistics revealed that RGDP recorded a mean value of 42686.20, while trade openness and tariff rates had mean values of 33.77016 and 19.84789 respectively, indicating that Nigeria experienced moderate trade liberalization activities within the study period. The high standard deviation of RGDP at 21107.70 further showed that economic growth fluctuated significantly across the years under review, while the standard deviations of trade openness and tariff rates at 10.70019 and 13.35004 respectively suggested instability in Nigeria's trade policy environment. The skewness result for tariff rates of 3.429852 and kurtosis value of 18.09169 indicated that tariff policies were highly volatile and unevenly distributed over the period, reflecting frequent adjustments in trade protection policies implemented by the government.

The Augmented Dickey-Fuller unit root test established that all the variables became stationary after first differencing at I(1), as RGDP recorded an ADF statistic of -3.431066, trade openness recorded -7.726357, while tariff rates recorded -10.05392, all exceeding their respective critical values at the 5 percent level. This result implied the absence of spurious regression and justified the application of the Vector Error Correction Mechanism (VECM) model for the analysis. The Johansen cointegration trace test further revealed the existence of two cointegrating equations as the trace statistics of 148.3425 and 99.96407 exceeded their critical values of 117.7082 and 88.80380 respectively with probabilities below 0.05, thereby confirming the existence of a long-run equilibrium relationship among trade openness, tariff rates, and economic growth in Nigeria. This finding supports the theoretical assumptions of the Classical Theory of International Trade which argues that trade liberalization promotes long-run economic efficiency and productivity through specialization and international integration.

The VECM long-run estimation showed that trade openness exerted a positive relationship with economic growth as evidenced by the coefficient value of 5789.543, implying that increased integration into international markets contributed positively to Nigeria's economic performance during the study period. Similarly, average tariff rates also produced a positive coefficient of 42135.65 in the long run equation, suggesting that tariff policies contributed to economic growth by protecting domestic industries and generating government revenue. This outcome partially aligns with the Heckscher–Ohlin Theory which emphasizes that countries benefit from trade when domestic productive sectors are strategically protected and resources are efficiently allocated according to factor endowments. The positive contribution of tariff rates further suggests that controlled protectionism may have assisted local industries to withstand foreign competition within certain periods of Nigeria's economic transition.

The short-run VECM result showed that trade openness maintained a positive coefficient of 24.53853 while tariff rates recorded a positive coefficient of 7.701321, indicating that both variables contributed positively to economic growth in the short run. However, the error correction term of -0.000409 was negative but statistically weak, implying a slow adjustment speed toward long-run equilibrium whenever short-run disequilibrium occurred. The R-squared value of 0.313526 revealed that approximately 31.4 percent of the variation in economic growth was explained by trade openness and tariff rates within the model, while the remaining proportion was influenced by other macroeconomic factors outside the study. The findings therefore suggest that although trade liberalization variables contributed positively to economic growth, their overall explanatory power remained moderate due to structural challenges within the Nigerian economy.

The Block Exogeneity Wald Test showed that trade openness and tariff rates did not exert statistically significant short-run causality on economic growth as the probability values of 0.4705 and 0.7327 respectively exceeded the 5 percent significance level. This result implies that changes in trade openness and tariff adjustments alone were insufficient to independently drive economic growth within the short run period under consideration. The outcome contradicts the Classical Theory of International Trade and Krugman's Theory of Trade Liberalization which strongly argue that liberalized trade policies stimulate growth through efficiency gains, economies of scale, technological transfer, and market expansion. The finding equally contradicts the empirical study of Ogbu (2019) who found a significant positive relationship between trade liberalization and economic growth in Nigeria. However, the result supports the findings of Duru et al. (2020) who concluded that trade liberalization did not significantly support economic growth in Nigeria due to the inability of the domestic economy to absorb adverse foreign trade shocks and structural weaknesses associated with import dependency.

The impulse response analysis further revealed that economic growth responded positively to shocks in trade openness across the forecast periods, rising from 102.0736 in period 2 to 194.9309 in period 5, indicating that increased openness gradually stimulated productive activities and output expansion over time. Conversely, tariff rates initially produced negative responses on RGDP from -44.40613 in period 2 to -56.47959 in period 3 before turning positive in subsequent periods, suggesting that tariff increases may initially disrupt economic activities before yielding protective benefits to domestic industries in the long run. This finding supports Krugman's Theory of Trade Liberalization which explains that the effects of trade reforms may emerge gradually as firms adjust to competitive market conditions and economies of scale begin to materialize.

The variance decomposition analysis showed that RGDP continued to explain the largest proportion of its own forecast error variance, accounting for 100 percent in period 1 and 94.34608 percent in period 5, while trade openness contributed only 0.353928 percent and tariff rates contributed 0.019980 percent by the fifth period. This implies that although trade openness and tariff policies influenced economic growth, their contributions remained relatively small compared to other macroeconomic determinants of growth within the Nigerian economy. The finding aligns with Mohammed (2023) who observed that trade liberalization produced only a minor contribution to economic growth in Sub-Saharan African countries despite its positive influence. The result equally supports Ogundipe and Adenekan (2022) who concluded that trade variables were statistically insignificant in explaining short-run economic growth in Nigeria despite their significance in the long run.

Overall, the findings of the study established that trade openness and average tariff rates maintained positive long-run relationships with economic growth in Nigeria between 1986 and 2025, although their short-run effects remained statistically weak. The findings therefore validate the assumptions of the Classical Theory, Heckscher–Ohlin Theory, and Krugman's Theory to the extent that trade liberalization promotes long-run economic integration, specialization, productivity, and industrial expansion, while simultaneously revealing the structural limitations that weaken the immediate growth impact of liberalized trade policies in developing economies such as Nigeria.

5.1 Conclusion

This study examined the effect of trade openness and average tariff rates on economic growth in Nigeria from 1986 to 2025 using Real Gross Domestic Product (RGDP) as a proxy for economic growth. The study employed descriptive statistics, Augmented Dickey-Fuller unit root test, Johansen cointegration test, Vector Error Correction Mechanism (VECM), Block Exogeneity Wald Test, impulse response analysis, and variance decomposition techniques to analyse the relationship among the variables. The findings revealed that trade openness and average tariff rates maintained positive relationships with economic growth in both the short run and long run, although their short-run effects were statistically weak. The cointegration result confirmed the existence of a long-run equilibrium relationship among the variables, implying that trade liberalization remains an important determinant of economic performance in Nigeria. The study further established that trade openness gradually stimulates economic growth through increased market integration and productive activities, while tariff policies may initially create economic distortions before generating long-run protective benefits for domestic industries. The study therefore concludes that trade liberalization contributes positively to economic growth in Nigeria, but the effectiveness of liberal trade policies depends largely on the strength of domestic productive capacity, institutional stability, and supportive macroeconomic policies.

5.2 Recommendations

The government should formulate and implement trade policies that promote greater trade openness while simultaneously strengthening domestic industries in order to maximize the benefits of international trade on economic growth.

There is need for the government to maintain moderate and stable tariff policies capable of protecting infant industries without discouraging foreign investment, industrial competitiveness, and trade expansion.

The government should improve infrastructural facilities such as electricity supply, transportation systems, and technological development in order to enhance the productive capacity of local industries and enable them compete effectively in the global market.

Policy makers should diversify Nigeria's export base beyond crude oil by promoting manufacturing, agriculture, and non-oil export sectors so as to increase foreign exchange earnings and stimulate sustainable economic growth.

The monetary and fiscal authorities should ensure macroeconomic stability through effective exchange rate management, inflation control, and investment-friendly policies to strengthen the positive impact of trade liberalization on the Nigerian economy.

The government should strengthen institutional frameworks and trade regulatory agencies to ensure consistency, transparency, and efficiency in the implementation of trade liberalization policies and tariff reforms in Nigeria.

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