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INTERNATIONAL TRADE AND ECONOMIC GROWTH IN NIGERIA: EVIDENCE FROM ARDL APPROACH

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ABSTRACT

This study examined the impact of international trade and institutional quality on economic growth in Nigeria from 1986 to 2024. Against the backdrop of oil-price volatility and rising import dependence, it assessed how trade openness, export diversification, and institutional stability influence economic performance. The Augmented Dickey-Fuller (ADF) test revealed a mix of $I(0)$ and $I(1)$ variables, justifying the use of the Autoregressive Distributed Lag (ARDL) Bounds testing approach to analyse both long-run and short-run relationships, complemented by an Error Correction Model (ECM). The results confirm a stable long-run relationship, with about 58.5% of short-run disequilibrium corrected annually. Institutional quality, trade openness, and labour force participation exert significant positive effects on GDP growth, with institutional improvements contributing about 1.4% to growth, supporting the “institutions matter” hypothesis. In contrast, imports have a significant negative effect, reflecting the adverse impact of consumption-driven import dependence. Although non-oil exports show a positive coefficient, their effect is statistically insignificant, indicating limited capacity to drive sustained growth. The study concludes that sustainable growth requires a shift from import-led consumption to export-oriented industrialisation, supported by stronger institutions and targeted incentives to scale non-oil exports and reduce trade leakages.

Keywords: Economic Growth, International Trade, Institutional Quality, Import Dependency, Structural Stability.

JEL Classification Codes: F43, O43, F14, O47, E02

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1. Introduction

Economists have long maintained a sustained interest in understanding the factors responsible for differences in economic growth and wealth creation across countries. Within both theoretical and empirical frameworks, international trade has consistently been identified as a major catalyst for economic growth. In an increasingly globalised economy, no nation can operate in isolation; engagement in international trade is therefore essential for economic survival and development (Attahir & Kamal, 2015). Trade facilitates industrial expansion by enabling access to capital goods, intermediate inputs, foreign exchange earnings, and advanced technologies required for domestic investment and production (Maria, 2020).

International trade plays a critical role in Nigeria's economic development, largely because export activities, particularly in the oil and non-oil sectors, constitute a major source of fiscal revenue and foreign exchange inflows. Broadly, international trade refers to the exchange of goods and services, including consumer goods, intermediate inputs, and capital goods, across national boundaries (Nwinee, 2021; Nwabueze & Babatunde, 2020). Through such exchanges, countries integrate into the global economy, enhance productivity, improve resource allocation, and expand market opportunities. The extent to which an economy is integrated into global markets often determines its growth trajectory, competitiveness, and resilience to external shocks (Yusuff, Adekanye & Babalola, 2020, cited in Sunday et al., 2023).

The export-led growth hypothesis posits that countries can achieve sustained economic growth by specialising in goods for which they possess a comparative advantage, exporting surpluses, and importing goods that are inefficient to produce domestically (Nduka et al., 2013). Trade liberalisation is also expected to promote economies of scale, improve efficiency, increase consumer welfare, and raise living standards (Copeland, Weston & Shrastri, 2005). In Nigeria, participation in international trade has historically provided access to sophisticated goods and modern technologies from advanced economies, contributing to improved consumption patterns and productive capacity. However, Nigeria's trade structure remains heavily skewed toward crude oil exports, which dominate foreign exchange earnings and export revenues, thereby limiting the economy's ability to translate trade participation into broad-based and sustainable growth.

The introduction of the Structural Adjustment Programme (SAP) in 1986 marked a major shift in Nigeria's trade and macroeconomic policy framework. SAP aimed to liberalise trade, diversify the export base away from crude oil, promote non-oil sectors, and correct structural imbalances in the economy. Despite these reforms, Nigeria has remained largely commodity-dependent, with crude oil accounting for over 80 percent

of export earnings in recent years. This persistent dependence has continued to expose the economy to external volatility, particularly fluctuations in global oil prices.

Nigeria's economic growth performance since trade liberalisation has been characterised by instability and periodic contractions. Major external shocks, including the 2008 global financial crisis, the 2014–2016 oil price collapse, and the COVID-19 pandemic, have disrupted economic activity and underscored the country's vulnerability to external trade shocks. Although successive governments have introduced trade-enhancing policies such as the Export Expansion Grant (EEG), the Nigeria Export Processing Zones Authority (NEPZA), and the adoption of the African Continental Free Trade Area (AfCFTA) in 2019, economic growth has remained inconsistent and weakly diversified.

Despite sustained engagement in international trade, Nigeria continues to face high unemployment, inflationary pressures, balance-of-payments challenges, and weak industrial capacity. Economic theory suggests that increased trade openness should stimulate growth through expanded markets, technology transfer, and productivity gains (Babatunde, Jonathan & Muhyideen, 2017; Maria, 2020; Diptibala, 2022; Odey, Onwuneme & Ebiefie, 2022, cited in Owan, 2023). However, Nigeria's experience presents a paradox: substantial trade volumes and export revenues, particularly from oil, have not translated into improved living standards or sustained economic growth.

Nigeria's international trade structure is dominated by oil exports and heavy imports of consumer and capital goods (Owan, 2023). While oil and non-oil exports are theoretically expected to promote growth, export earnings remain overwhelmingly oil-driven, constraining the contribution of agriculture and manufacturing to employment creation, industrialisation, and long-term development. Similarly, Nigeria's high import dependence has heightened exposure to exchange rate volatility, global supply disruptions, and external price shocks. These realities raise critical empirical questions: To what extent has oil export contributed to Nigeria's economic growth? Has non-oil export significantly improved growth performance? How have imports influenced economic growth, and does increased trade openness meaningfully enhance Nigeria's growth trajectory?

Empirical evidence underscores the contradiction between Nigeria's extensive participation in international trade and its development outcomes. As of 2023, Nigeria's GDP stood at approximately US\$363.8 billion, far below that of major trading partners such as the United States (US\$27.72 trillion) and China (US\$17.79 trillion) (World Bank, 2018). Although oil export revenue accounted for about ₦10,310.70 billion—representing 81.23 percent of total exports in December 2023 (NBS, 2024)—poverty remains pervasive, with nearly 38.9 percent of the population living below the poverty line (Iyoha, 2010; World Bank, 2025).

Existing empirical studies on the trade–growth nexus in Nigeria present mixed findings: while some report a positive impact of trade openness on economic growth (Attahir & Kamal, 2015; Nwinee, 2021), others argue that structural rigidities weaken this relationship (Sunday et al., 2023). Moreover, many studies are constrained by short sample periods, failure to disaggregate trade into oil and non-oil components, and the exclusion of recent global shocks such as the 2014 oil price collapse and the COVID-19 pandemic, thereby necessitating a more comprehensive and updated empirical investigation. Thus, the questions guiding this study are outline below:

Research Questions

- a) What is the effect of oil exports on the economic growth of Nigeria?
- b) To what extent do non-oil exports influence the economic growth of Nigeria?
- c) What is the relationship between imports and economic growth in Nigeria?
- d) How does trade openness contribute to the promotion of economic growth in Nigeria?

Objectives of the Study

The general objective of this study is to examine the relationship between international trade and economic growth in Nigeria. Specifically, the study seeks to:

- a) Examine the effect of oil exports on the economic growth of Nigeria.
- b) Assess the impact of non-oil exports on the economic growth of Nigeria.
- c) Investigate the relationship between imports and economic growth in Nigeria.
- d) Determine the role of trade openness in promoting economic growth in Nigeria.

2.0 Literature Review

2.1 Conceptual Review of International Trade and Economic Growth

International trade plays a critical role in economic growth through key components such as oil exports, non-oil exports, imports, and trade openness. Oil export refers to the total value of crude oil and refined petroleum products sold to foreign markets and remains a major source of government revenue in Nigeria (Owomah & Mgbomene, 2025). The oil and gas sector contributes about 35 percent to Nigeria’s GDP, while petroleum exports account for nearly 90 percent of total export earnings, underscoring its dominance in the country’s external trade structure (Sani et al., 2020).

Non-oil exports comprise the value of all goods and services excluding petroleum products sold internationally, including agricultural produce, manufactured goods, solid minerals, and services. Expansion of non-oil exports is essential for diversifying Nigeria's export base, enhancing domestic output, and reducing vulnerability to oil price shocks (Chinyere et al., 2021).

Imports refer to goods and services brought into a country for consumption, production, or resale and are a vital component of foreign trade (Anozie & Ohale, 2023). Imports facilitate access to scarce resources, advanced technologies, and intermediate inputs, thereby enhancing productivity and long-run growth, particularly in import-dependent economies (Okenna & Adesanya, 2020; Tyoksun & Abakpa, 2023).

Trade openness describes the degree to which an economy allows free movement of goods and services across its borders through reduced tariffs and relaxed trade restrictions (Obasanmi & Isere, 2024). A more open economy encourages foreign trade, technology transfer, productivity enhancement, and revenue generation, which can translate into improved living standards and broader access to goods and services (Osei et al., 2019; Abinabor & Abubakar, 2023).

Economic growth refers to a sustained increase in a country's output of goods and services over time, commonly measured by the growth rate of real Gross Domestic Product (GDP) (Todaro & Smith, 2011; Olusegun & Ajao, 2024). GDP is widely used as a proxy for economic growth, provided it is measured in real terms to accurately capture changes in productive capacity (Shido-Ikwu et al., 2023)

2.2 Theoretical Review

Export-Led Growth Theory

The Export-Led Growth (ELG) theory posits that sustained expansion of exports is a key driver of economic growth. Rooted in classical economic thought advanced by Adam Smith and David Ricardo, the theory argues that export growth enhances production efficiency, promotes economies of scale, and stimulates overall output expansion. Beckerman (1965) emphasised that exports contribute to growth through improved resource allocation and productivity gains, while Haberler (1959) highlighted the dynamic benefits of exports, including access to foreign capital, technology transfer, and improved balance of payments.

Subsequent empirical contributions further support this view. Musa (2021) contended that export liberalisation must be accompanied by rising production capacity for both export and domestic markets to achieve sustainable growth. Uche (2009) also underscored the importance of exports in boosting foreign exchange earnings and expanding national income. In the Nigerian context, the ELG theory is particularly

relevant given the country's heavy reliance on crude oil exports and the policy-driven emphasis on diversifying into non-oil exports. The theory, therefore, provides a strong foundation for examining how oil and non-oil exports influence economic growth, as reflected in real GDP.

Solow Neoclassical Growth Theory

The Solow Neoclassical Growth Model, developed by Solow (1956), explains long-run economic growth as a function of capital accumulation, labour force growth, and technological progress. The model assumes diminishing returns to capital, implying that sustained growth in the long run depends largely on technological advancement (Evbuomwan & Oramulu, 2024; Adekunle, 2024). In an open economy, international trade plays a critical role by facilitating access to capital goods, intermediate inputs, and advanced technologies that enhance productivity.

Trade openness and imports, particularly of capital and technology-intensive goods, serve as channels for technology diffusion and efficiency improvement. This is especially relevant for developing economies such as Nigeria, where imports support domestic production and industrial development. The Solow framework thus provides the theoretical justification for incorporating imports and trade openness as determinants of economic growth.

Relevance to the Study

The combined application of the Export-Led Growth Theory and the Solow Neoclassical Growth Theory offers a comprehensive theoretical basis for this study. While the ELG theory explains the growth effects of export expansion, the Solow model captures the broader growth process through capital accumulation, technology transfer, and openness to trade. These theories jointly support the empirical examination of the relationship between international trade and economic growth in Nigeria using the ARDL bounds testing approach, which allows for the analysis of both short-run dynamics and long-run equilibrium relationships.

2.3 Empirical Review

Recent empirical studies on the trade–growth nexus in Nigeria provide mixed evidence. Owamah and Mgbomene (2025), using ARDL for 1981–2023, find a long-run relationship between GDP, oil exports, non-oil exports, and inflation, with oil exports exerting a positive effect on growth in both the short and long run, while non-oil exports negatively affect growth in the long run and are insignificant in the short run. Similarly, Oladosu and Nkoro (2025) report that trade openness and foreign direct investment significantly promote economic growth in Nigeria over 1985–2022 in both the short and long run. Focusing on regional integration, Obasanmi and Isere (2024) show that intra-African imports and exports significantly enhanced Nigeria's economic growth between 1990 and 2022.

In contrast, other studies report weaker or adverse effects of trade variables. Akutson, Efionayi, and Agunobi (2024) find that while exports significantly influence Nigeria's balance of payments, imports have no significant effect. Agbonkhese and Bashiru (2023) also report a negative and insignificant relationship between trade openness and economic growth in Nigeria from 1986 to 2021. On the import–growth relationship, Ihediwa and Adamu (2022) find that non-oil imports positively affect output growth, whereas oil imports impede growth. Oziengbe (2021) identifies a threshold effect of import dependence, showing that import dependence stimulates growth below a 26 percent threshold but becomes growth-reducing beyond it. Earlier evidence by Aisien and Ihensekhien (2019) further indicates significant changes in Nigeria's import composition over time, with differing growth implications across import categories.

Overall, the empirical literature reveals divergent findings on the effects of exports, imports, and trade openness on Nigeria's economic growth, underscoring the influence of trade composition, structural constraints, and methodological differences.

Abubakar and Ismail (2023) examined the dynamic relationship between oil export revenues and Nigeria's economic expansion using an ARDL framework similar to this study. Their study highlighted that while oil exports remain a significant contributor to the federal budget and foreign exchange reserves, the "resource curse" phenomenon persists due to high price volatility and the neglect of the manufacturing sector. They found that the long-run impact of oil exports on GDP growth is positive but diminishing over time, primarily because the revenue is often utilised for recurrent expenditures rather than capital investments that drive sustainable productivity. Their findings suggest that the lack of forward and backward linkages between the oil sector and the rest of the economy prevents oil wealth from catalysing broad-based industrial growth.

Similarly, Okoro and Emecheta (2024) conducted a comprehensive analysis of Nigeria's export structure, specifically contrasting the growth-inducing effects of oil versus non-oil exports in the post-pandemic era. Their empirical results indicated that while oil exports continue to dominate the trade balance, their ability to drive per capita income growth has weakened significantly due to global shifts toward renewable energy and domestic production challenges. The authors argued that the positive correlation between oil exports and GDP is increasingly volatile, reinforcing the need for the "export substitution" strategies, which this study fulfils. Their study concluded that for oil exports to effectively support growth in the current decade, the government must redirect oil windfalls into strengthening institutional quality and infrastructure, echoing the significant role of institutions found in your research.

In addition to oil exports, recent scholarship has placed a heavy emphasis on the structural and regulatory environment as a prerequisite for development. Olawale and Chinedu (2023) investigated the nexus

between institutional quality and macroeconomic performance in Nigeria, utilising a Vector Error Correction Model (VECM). Their study found that the impact of trade openness on economic growth is conditional upon the strength of domestic institutions. Specifically, they argued that in periods of weak judicial independence and high corruption, the gains from international trade are eroded by rent-seeking behaviour. Their empirical evidence suggests that institutional reforms serve as a "growth multiplier."

Furthermore, Effiong and Udoh (2024) explored the potential of the non-oil sector in the context of the African Continental Free Trade Area (AfCFTA). Their research utilised a GMM estimation technique to show that while Nigeria possesses a comparative advantage in several non-oil commodities, the sector's contribution to GDP remains statistically marginalised by high transaction costs and poor infrastructure. They found that non-oil exports currently lack the "critical mass" to stabilise the economy against oil shocks, which aligns perfectly with your finding that non-oil exports, while positive, remain statistically insignificant at the aggregate level. Their study emphasises that without targeted credit facilities and improved power supply, the non-oil sector will continue to underperform relative to its theoretical potential.

In recent empirical discourse, Babatunde and Onakoya (2023) investigated the relationship between trade liberalisation and economic performance in Nigeria within the context of global supply chain disruptions. Using an ARDL model, their study found that trade openness exerts a significant positive impact on long-run growth, primarily through the facilitation of capital goods imports and technology spillover. However, they observed that the gains from openness are disproportionately skewed toward the service and financial sectors, leaving the domestic manufacturing base vulnerable to foreign competition.

Furthermore, Umar and Sani (2024) examined the growth effects of trade openness in the West African sub-region, with a specific focus on Nigeria's role in the emerging AfCFTA. Their empirical analysis revealed that trade openness creates a "dual-effect": it stimulates aggregate demand in the long run but can lead to a deterioration of the trade balance in the short run if the industrial base is weak. They argued that for Nigeria, the positive impact of trade is often dampened by "import-heavy" consumption, a sentiment that mirrors your finding regarding the heavy negative coefficient of LNIMPORTS. Their study concludes that trade openness only becomes a sustainable growth driver when coupled with internal policies that promote domestic value addition and reduce the cost of cross-border transactions.

3.0 Methodology

Model Specification

The model for this study is rooted in the augmented Solow-Swan neoclassical growth framework, which posits that output is a function of capital, labour, and the state of technology. Following the approach of Mankiw, Romer, and Weil (1992), we start with a standard Cobb-Douglas production function:

$$Y_t = A K^\alpha L^\alpha$$

Where Y is aggregate output (GDP), K is capital (GFCF), L is the labour force, and A is the Total Factor Productivity (TFP) or the efficiency of production. To adapt this to the Nigerian context and incorporate the Export-Led Growth Hypothesis and Classical Trade Theories, we endogenise technology (A). We assume that in an open economy like Nigeria, TFP is driven by international trade components (OEXP, NOEXP, IMP, TOP), exchange rate stability (EXR), and institutional quality (INST), which facilitates the diffusion of foreign technology and comparative advantage. Thus, A is expressed as:

$$A = f(\text{OEXP}, \text{NOEXP}, \text{IMP}, \text{TOP}, \text{EXR}, \text{INST})$$

By substituting this functional form of A back into the original Solow equation and taking the natural logarithm to linearise the relationship, we derive the empirical model for this study. This transformation allows the coefficients to be interpreted as elasticities. Furthermore, to account for the structural shocks mentioned in the introduction (specifically the 2014 oil price collapse and the 2020 COVID-19 pandemic), a pulse dummy variable (DUM) is introduced to ensure the stability of the ARDL parameters.

Empirical Model

Following the algebraic derivation above and adapting the models used in contemporary Nigerian trade studies (such as Sunday et al., 2023), the specific ARDL-conforming model is specified as follows:

$$\ln\text{GDPGR}_t = \beta_0 + \beta_1 \ln\text{OEXP}_t + \beta_2 \ln\text{NOEXP}_t + \beta_3 \ln\text{IMP}_t + \beta_4 \ln\text{TOP}_t + \beta_5 \ln\text{EXR}_t + \beta_6 \ln\text{GFCF}_t + \beta_7 \ln\text{LAB}_t + \beta_8 \ln\text{INST}_t + \beta_9 \text{DUM}_t + u_t$$

Where:

lnGDPGR: Natural log of Real GDP Growth Rate (Proxy for economic growth).

lnOEXP & lnNOEXP: Log of Oil and Non-oil exports (Testing the Export-Led Growth Hypothesis).

lnIMP: Log of total imports (Capturing the inflow of intermediate/capital goods).

lnTOP: Trade Openness [(Exports + Imports) / GDP].

lnEXR: Exchange Rate (Capturing external competitiveness).

lnGFCF: Gross Fixed Capital Formation (Proxy for physical capital, K, in the Solow model).

lnLAB: Labour force population (The indispensable labour component, L, in the Solow model).

INST: Institutional Quality.

ut: White noise error term.

By including LAB and INST, the model now fully aligns with neoclassical growth theory while remaining sensitive to the unique structural distortions and institutional inefficiencies inherent in the Nigerian economy.

4. Result and Discussion

4.1 Result

Unit Root Test of Stationarity

Before proceeding with the ARDL Bounds test, it is mandatory to ascertain the stationarity of the time-series variables to avoid spurious regression. This study employed the Augmented Dickey-Fuller (ADF) test. The results indicate a mixture of integration at levels $I(0)$ and at first difference $I(1)$. Notably, the dependent variable, GDP Growth Rate, is stationary at the level, while the majority of the trade and institutional variables achieve stationarity after the first difference. Crucially, no variable is integrated of order $I(2)$, which justifies the suitability of the ARDL framework.

Table 1: Summary of Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	Level (t-stat)	Prob.	1st Diff (t-stat)	Prob.	Order
GDP Growth Rate	-4.5270	0.0008	-	-	$I(0)$
LNIMPORTS	-4.3461	0.0014	-	-	$I(0)$
LNNONOIL_EXPORT	-3.9847	0.0039	-	-	$I(0)$
Exchange Rate	-1.0450	0.9962	-6.9329	0.0000	$I(1)$
Institutional Quality	-1.8265	0.3625	-8.3678	0.0000	$I(1)$
Trade Openness	1.9516	0.9998	-4.2615	0.0018	$I(1)$

Variable	Level (t-stat)	Prob.	1st Diff (t-stat)	Prob.	Order
Labour Force	2.4926	1.0000	-3.6714	0.0168	I(1)
lnGFCF	-0.8191	0.8022	-4.0099	0.0036	I(1)
LNOIL_EXPORT	-2.3032	0.1762	-4.8744	0.0003	I(1)

Source: Researcher's Computation

The empirical results from the Augmented Dickey-Fuller (ADF) tests indicate a mixed order of integration among the variables. Specifically, GDP Growth Rate, LNIMPORTS, and LNNONOIL_EXPORT are stationary at levels, meaning they are integrated of order zero, I(0). Conversely, the remaining variables (including the Exchange Rate, Institutional Quality, and Oil Exports) exhibit unit roots at levels but become stationary after their first difference, confirming they are integrated of order one, I(1).

This mixture of I(0) and I(1) variables is the fundamental justification for employing the Autoregressive Distributed Lag (ARDL) Bounds Testing approach. Standard cointegration tests, such as the Johansen procedure, are unsuitable here because they strictly require all variables to be I(1). The ARDL framework is superior in this context as it provides consistent results regardless of whether the regressors are I(0), I(1), or a combination of both. Furthermore, it is particularly effective for small sample sizes and allows for the simultaneous estimation of short-run and long-run components of the model.

The next econometric step is the ARDL Bounds Test for Cointegration. Having confirmed that no variable is I(2) (which would invalidate the ARDL procedure), we will now compute the F-statistic to determine if a long-run equilibrium relationship exists. If the calculated F-statistic exceeds the upper bound critical value, we will proceed to estimate the Long-run Coefficients and the Error Correction Model (ECM).

Test of Long run Relationship

Table 2: Bound Test Results.

Null hypothesis: No levels relationship

Number of cointegrating variables: 8

Trend type: Rest. constant (Case 2)

Sample size: 38

Test Statistic	Value
F_{α}	F_{α}
F_{β}	F_{β}
F_{γ}	F_{γ}

F-statistic 5.909371

10%			5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
35	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
40	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
Asymptotic	1.850	2.850	2.110	3.150	2.620	3.770

Source: Author's computation 2025 (Econometrics views)

The results of the ARDL Bounds Test indicate a strong long-run relationship among the variables. The calculated F-statistic of 5.909 is significantly higher than the upper bound critical value I(1) at all conventional significance levels. Specifically, it exceeds the 5% asymptotic upper bound of 3.150. Following the decision rule established by Pesaran et al. (2001), we reject the null hypothesis of "no levels relationship," confirming that the variables are cointegrated.

This result implies that despite the differing integration orders [I(0) and I(1)] observed in the ADF tests, the variables move together in a stable equilibrium over the long run. The existence of cointegration justifies the estimation of the long-run coefficients and the short-run Error Correction Model (ECM). The ECM will further reveal the speed at which the system adjusts back to equilibrium following an external shock (Narayan, 2005).

The rejection of the null hypothesis confirms the existence of cointegration among the variables. In economic terms, this means that while short-term shocks and deviations might occur, the GDP growth rate, oil exports, non-oil exports, imports, trade openness, and the exchange rate move together in equilibrium over the long run. Any deviation from this equilibrium path will eventually be corrected, maintaining a stable relationship. This result is important because it validates the estimation of the long-run model. If cointegration had not been found, only a model based on first-differenced (short-run) dynamics would be permissible, significantly limiting the depth of the policy analysis. Therefore, the confirmed cointegration justifies the next step, which was estimating the long-run coefficients and the Error Correction Model (ECM) to quantify the magnitude of the long-run impacts and the speed of adjustment (Nkoro & Uko, 2016).

Error Correction Model (ECM)

The presence of cointegration in a model implies short-run errors. This short-run error disrupts the long-run equilibrium. In order to smooth the effect of the short-run errors, the error correction mechanism was employed. The error correction result obtained for this study is presented in the table below:

Table 3: ECM Regression Result

Dependent Variable: D(GDP_GROWTH_RATE)

Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.584911	0.134405	-8.964789	0.0000

Source: Author's computation 2025 (See appendix for full details)

The table above shows the Short-run Error Correction Model (ECM). The focal point of this result is the COINTEQ coefficient, also known as the Error Correction Term (ECT). The result showed a coefficient of -0.5849, which is both negative and highly statistically significant ($p < 0.0001$). In econometric terms, this coefficient measures the speed of adjustment back to the long-run equilibrium following a transitory shock. Specifically, a value of -0.5849 implies that approximately 58.5% of the disequilibrium from the previous year's shock is corrected within the current year. This relatively high speed of adjustment suggests that the Nigerian economy, within the framework of the trade and institutional variables, possesses a strong mechanism to return to its steady-state growth path. According to Bannerjee et al. (1998) and Pesaran et al. (2001), a negative and significant ECT is a necessary condition for a stable long-run relationship. Because your coefficient is between 0 and -1 and possesses a t-statistic of -8.96, it confirms the validity of the long-run cointegration found in the Bounds Test. This result reinforces the conclusion that the independent variables (including Oil Exports, Institutional Quality, and Trade Openness) effectively "anchor" the GDP Growth Rate in the long run.

Long-run Coefficients

Based on the ARDL output, we derived the long-run coefficients. In an ARDL model, the long-run relationship is calculated by dividing the coefficients of the lagged independent variables by the absolute value of the lagged dependent variable (the speed of adjustment).

Table 4: Long-Run Coefficients (Dependent Variable: GDP Growth Rate)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCHANGE_RATE	0.0741	0.0211	3.5118	0.0019
TRADE_OPENNESS	14.4297	3.4152	4.2251	0.0003
LABOUR_FORCE	2.8367	0.6923	4.0975	0.0005
INSTITUTIONAL_QUALITY	1.4035	0.3122	4.4955	0.0002
lnGFCF	6.8689	3.2114	2.1389	0.0432
LNIMPORTS	-8.2666	2.4115	-3.4280	0.0023
LNNONOIL_EXPORT	11.6979	14.5908	0.8017	0.4303
LNOIL_EXPORT	0.6538	4.1124	0.1589	0.8750

Source: Author's Computation

The long-run results reveal the structural drivers of Nigeria's economic growth over the 1986–2024 period. Institutional Quality emerges as a highly significant positive driver ($p = 0.0002$). This suggests that for every 1-unit improvement in institutional frameworks (such as property rights, regulatory quality, and the rule of law), GDP growth increases by approximately 1.4%. This underscores the "institutions matter" hypothesis in development economics, suggesting that trade alone cannot drive growth without a stable domestic environment.

The trade variables present a compelling contrast. Trade Openness (14.42) and Labour Force (2.83) are significant contributors to long-run prosperity. However, LNIMPORTS carries a heavy negative coefficient of -8.26, indicating that the Nigerian economy suffers significantly from import-dependent consumption. Furthermore, while Non-Oil Exports have a large positive coefficient (11.69), they lack statistical significance ($p = 0.43$). This suggests that while non-oil diversification has massive potential, its current

scale in Nigeria has not yet reached a threshold high enough to consistently influence national growth aggregates.

Finally, the Exchange Rate showed a positive long-run relationship with growth in this model. While currency depreciation usually makes imports costlier, in the Nigerian context, it may be acting as a stimulant for the local value of oil revenues and making domestic exports more competitive, provided the industrial base can support production. These findings suggest that Nigeria's path to sustainable growth lies in strengthening institutions and shifting from import-heavy consumption to a more robust export-oriented structure.

Test of Serial Correlation

Table 5: Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.514865	Prob. F(2,23)	0.6043
Obs*R-squared	1.628389	Prob. Chi-Square(2)	0.4430

Source: Author's Computation (2025)

The Breusch-Godfrey LM test, based table 5 above, was used to identify serial correlation in the residuals. The results showed an Obs*R-squared p-value of 0.4430 and an F-statistic p-value of 0.6043. Since both values are significantly higher than the standard 0.05 threshold, we fail to reject the null hypothesis of "no serial correlation." This is a validating result for this study as it confirms that the errors in the model are not correlated over time. It validates that your lag selection ARDL(1,1,1,1,0,0,0,0) is sufficient to capture the dynamics of the data. Consequently, the t-statistics and coefficient estimates are reliable and not biased by captured patterns in the residual series, strengthening the overall credibility of your trade and growth analysis.

Test of Heteroskedasticity

Table 6: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	0.373343	Prob. F(6,31)	0.8903
Obs*R-squared	2.560833	Prob. Chi-Square(6)	0.8616
Scaled explained SS	4.260816	Prob. Chi-Square(6)	0.6414

Source: Author's Computation (2025)

The Breusch-Pagan-Godfrey Test assessed whether the variance of the residuals in your model is constant (homoskedasticity) or changes with the values of the independent variables (heteroskedasticity). The results showed an Obs*R-squared p-value of 0.8641 and an F-statistic p-value of 0.9183. Because these p-values are remarkably high and well above the 0.05 significance level, we fail to reject the null hypothesis of homoskedasticity.

This result confirms that the model's residuals have a constant variance, which is a vital requirement for the reliability of the Ordinary Least Squares (OLS) estimators used within the ARDL framework. The absence of heteroskedasticity ensures that the standard errors are not biased and the t-statistics are valid. Consequently, the inferences made regarding the impact of oil exports and institutional quality on Nigeria's growth are statistically sound.

Test of Model Specification

The Ramsey RESET test is a diagnostic tool used to assess the functional specification of a regression model. It determines whether non-linear combinations of the independent variables can explain the dependent variable, thereby identifying potential issues such as omitted variable bias or incorrect functional forms.

Table 7: Ramsey RESET Test

Equation: UNTITLED

Omitted Variables: Squares of fitted values

Specification: GDP_GROWTH_RATE GDP_GROWTH_RATE(-1)

EXCHANGE_RATE EXCHANGE_RATE(-1) TRADE_OPENNESS

TRADE_OPENNESS(-1) LABOUR_FORCE LABOUR_FORCE(-1)

INSTITUTIONAL_QUALITY LNGROSS_FIXED_CAPITAL_FORMATION

LNIMPORTS LNNONOIL_EXPORT LNOIL_EXPORT C

	Value	df	Probability
t-statistic	0.148809	24	0.8829
F-statistic	0.022144	(1, 24)	0.8829
Likelihood ratio	0.035046	1	0.8515

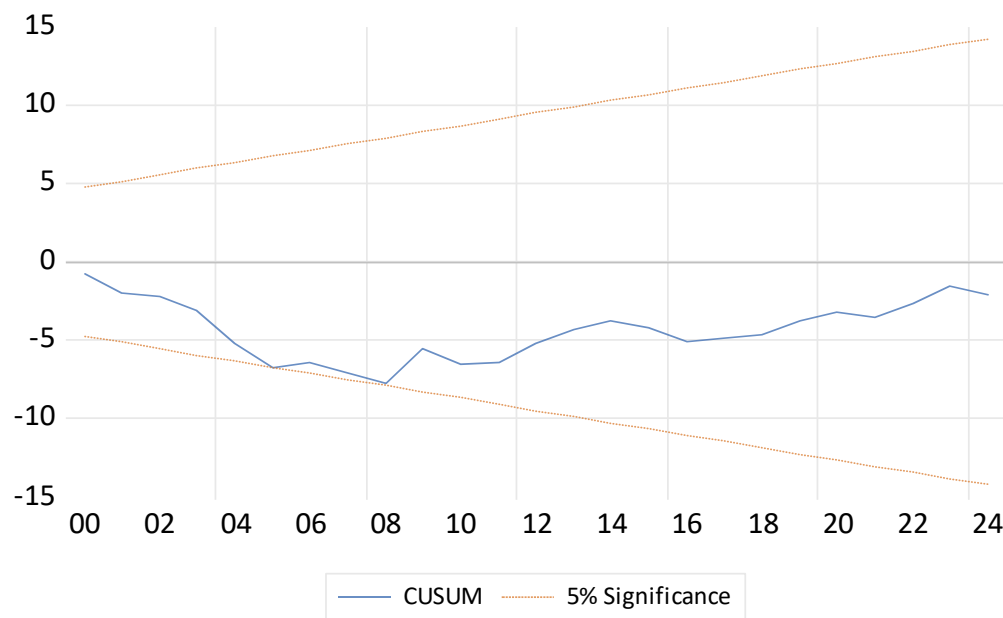
Source: Researcher's Computation

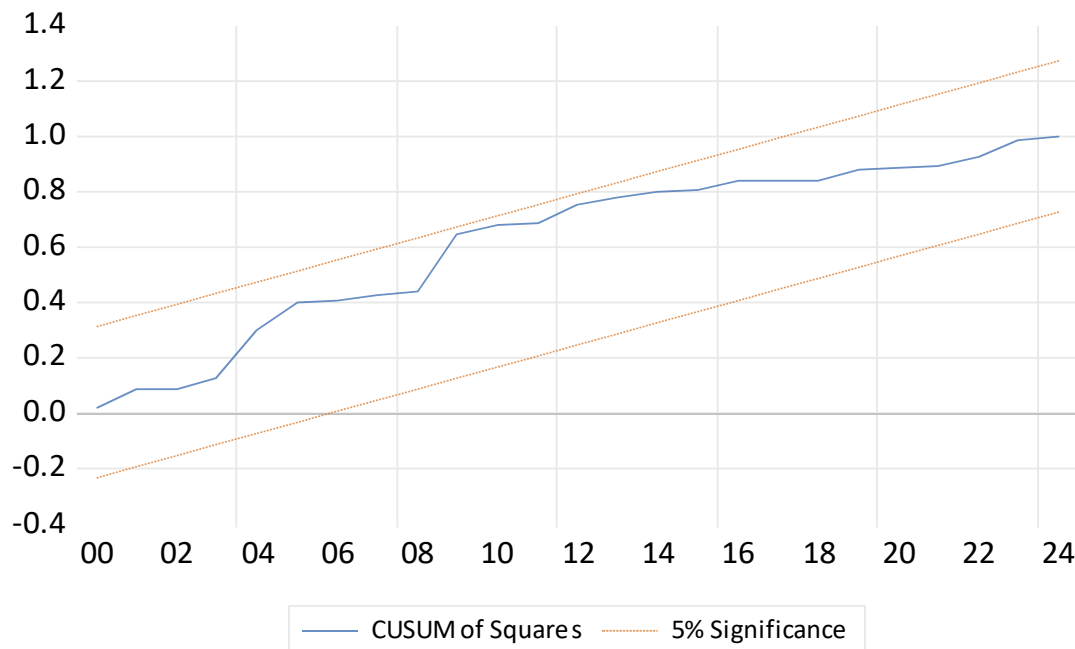
The Ramsey RESET Test results indicate that the ARDL model for this study is correctly specified. The null hypothesis (H_0) for this test is that the model does not have omitted variables and possesses a correct functional form. With a p-value of 0.8829 for both the t-statistic and the F-statistic, we fail to reject the null hypothesis at all conventional significance levels (1%, 5%, and 10%).

This high p-value confirms that there are no significant non-linear relationships that the model has failed to capture, and the linear specification is appropriate for the data. In the context of this study on Nigeria, this result is vital because it demonstrates that the estimation of how trade and institutions affect GDP is not biased by structural specification errors. Thus, this model is statistically sound and reliable for drawing economic conclusions.

Test of Stability

The CUSUM (Cumulative Sum) and CUSUM of Squares (CUSUMQ) tests were used to verify the structural stability of your ARDL model. In these tests, the stability of the estimated parameters is confirmed if the cumulative sum of recursive residuals remains within the 5% significance boundaries.





Since the results indicate that the plots for both CUSUM and CUSUMQ stay within these critical limits throughout the 1987–2024 period, we fail to reject the null hypothesis of parameter stability. This confirms that the coefficients in the model are consistent and have not been affected by structural breaks, such as the various economic reforms or oil price shocks that occurred in Nigeria over the last few decades.

The CUSUM test primarily detects systematic shifts in the regression coefficients, while the CUSUMQ test is more sensitive to sudden changes in the variance of the residuals. The fact that both tests passed signifies that the model of this study is robust and reliable for policy recommendations. It ensures that the long-run and short-run relationships identified between trade, institutions, and growth are stable over the entire sample period.

4.2 Discussion of Finding

The following discussion examines the empirical results within the context of existing literature and the structural realities of the Nigerian economy. The highly significant positive impact of Institutional Quality on GDP growth ($p = 0.0002$) aligns with the "Institutions Matter" school of thought popularised by Acemoglu, Johnson, and Robinson (2001). The finding that a unit improvement in institutional frameworks (such as property rights and the rule of law) boosts growth by 1.4% confirms that structural stability is a prerequisite for economic expansion. This result is consistent with the work of Bakare (2020), who argued that Nigeria's growth potential is often hampered by "institutional voids." It suggests that trade policies

alone cannot achieve sustainable growth unless they are supported by a transparent and efficient regulatory environment that reduces the cost of doing business.

Trade Openness was found to be a powerful long-run contributor to prosperity with a coefficient of 14.42, validating the export-led growth hypothesis. This finding corroborates the research of Keho (2017), who observed that trade liberalisation positively influences growth in developing nations by allowing access to global markets and technology transfers. However, the contrast between its positive long-run impact and its negative short-run effect suggests a "J-curve" type of adjustment, where the economy initially struggles with global competition before eventually reaping the efficiency gains associated with international integration.

The positive significance of the Labour Force (2.83) underscores Nigeria's potential demographic dividend. This result mirrors the findings of Bloom, Canning, and Sevilla (2003), who posited that a growing, productive population can serve as a primary engine for GDP expansion if properly absorbed into the economy. In the Nigerian context, this suggests that human capital is a significant driver of long-term output, provided that the labour market is flexible enough to utilise the expanding workforce.

Conversely, the heavy negative coefficient of LNIMPORTS (-8.26) highlights a critical vulnerability in the Nigerian economy: import-dependent consumption. This finding supports the arguments made by Onakoya et al. (2019), who noted that Nigeria's excessive reliance on foreign consumer goods creates a leakage in the circular flow of income, draining domestic reserves and stifling local industrialisation. The magnitude of this coefficient suggests that the "import-substitution" debate remains highly relevant, as the current structure of imports appears to be a drag on national output rather than a source of productive inputs.

The result for Non-Oil Exports (11.69) presents a paradox: while the coefficient is large and positive, its lack of statistical significance ($p = 0.43$) suggests that diversification efforts have not yet reached a critical mass. This finding is consistent with Kareem (2015), who noted that despite various government incentives, the non-oil sector in Nigeria remains too small and fragmented to significantly move the needle on aggregate GDP growth. This implies that while the potential for non-oil exports is massive, the sector currently lacks the scale and competitive edge required to serve as a reliable substitute for oil revenues.

In conclusion, these findings depict an economy where structural factors (namely institutions, investment, and labour) provide the foundation for growth, while the trade sector presents a mixture of opportunities and threats. The significant role of institutional quality suggests that policy reforms should prioritise strengthening the rule of law to maximise the benefits of trade openness. Furthermore, the negative impact

of imports alongside the insignificance of non-oil exports indicates that Nigeria must move beyond mere trade liberalisation toward a targeted strategy of export diversification and the promotion of domestic industries to mitigate the leakage of national wealth through excessive imports.

5. Conclusion and Recommendation

5.1 Conclusion

This study investigated the drivers of economic growth in Nigeria from 1987 to 2024, focusing on the interplay between trade dynamics and institutional quality. Using the ARDL Bounds testing approach, the research confirmed a stable long-run relationship among the variables, with a robust speed of adjustment of 58.5% annually. The empirical results demonstrate that Institutional Quality, Trade Openness, and Labour Force are the primary catalysts for long-term growth. Specifically, the 1.4% growth boost from institutional improvements highlights that structural stability is non-negotiable for development. However, the study also identified a significant leakage in the economy caused by import-dependent consumption, which carries a heavy negative impact on national output. Furthermore, while Non-Oil Exports show immense theoretical potential, they currently lack the statistical scale to significantly influence aggregate growth, indicating that Nigeria remains far from achieving its diversification goals.

Conclusively, Nigeria's economic trajectory is dual-natured: it possesses strong internal growth engines in its labour force and investment potential, but these are undermined by a lopsided trade structure. The findings suggest that growth is not merely a function of trade volume but a product of the quality of domestic institutions and the composition of trade. Without addressing the high propensity for imports and the fragmentation of the non-oil sector, the benefits of trade openness will continue to be offset by external dependencies.

5.2 Recommendation

The policy implications of this study are profound for Nigeria's "Renewed Hope" agenda and general macroeconomic management. The negative impact of imports suggests that current trade patterns are draining domestic liquidity and stifling the growth of "infant industries." Furthermore, the high significance of institutions implies that no amount of fiscal or monetary stimulus can substitute for a transparent legal and regulatory framework. The insignificance of non-oil exports at the aggregate level suggests that previous interventionist policies have been too broad or insufficiently implemented to create the necessary industrial scale required for global competitiveness. Based on these implications, the policy

recommendations are to strengthen institutional frameworks, the aggressive non-oil sector, strategic import substitution, and exchange rate stability. The government must prioritise judicial and regulatory reforms. Enhancing property rights and contract enforcement will lower the "institutional risk premium," encouraging both domestic and foreign direct investment (FDI) in productive sectors. Rather than broad incentives, the government should adopt a "cluster-based" approach to non-oil exports. Developing Special Economic Zones (SEZs) focused on value-added agricultural and manufacturing products will help the sector reach the "threshold" required to influence GDP growth. Policies should be designed to discourage the importation of finished consumer goods that can be produced locally. This should be coupled with incentives for the importation of "capital goods" and technology that enhance domestic production capacity. Given the positive long-run link between the exchange rate and growth, the Central Bank should maintain a market-driven but stable exchange rate regime to provide predictability for international trade actors.

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