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Trade Liberalization, Non-Oil Export and Economic Growth in Nigeria

Jerome T. Andohol^{1,2} Terhemen Tarzoor¹ and Dennis T. Nomor¹

The study examines the impact of trade liberalization and non-oil exports on economic growth in Nigeria from 1986 to 2021. The study utilizes an autoregressive distributed lag model and found the combined effect of trade liberalization and non-oil exports to be positive and statistical significant. While trade liberalization alone may have negative consequences, its synergy with a robust non-oil export can drive sustainable economic growth. The study recommends that strategies to enhance non-oil exports should be encouraged to support the effectiveness of trade liberalization in promoting growth

Keywords: Capital, gross domestic product, labour, non-oil export, trade liberalization.

JEL Classification: F41, F43 **DOI:** 10.33429/Cjas.15124.4/8

1. Introduction

The gains of trade liberalization are touted for its ability to link global economies or foster integration. By reducing trade barriers such as tariffs, quotas, and exchange rate controls, trade liberalization facilitates the relatively free movement of capital and goods. Trade liberalization policy is designed to improve net exports, expand foreign reserves, and maintain a favorable balance of payments. In simple terms, it is the removal of trade obstacles or barriers (such as exchange rate controls, quotas, restriction of tariffs, nominal and effective rates protection) to free trade. This explains the importance of net exports in economic growth (Ricardo, 1817; Dollar & Kray, 2004; Adenugba & Dipo, 2013; Anjande, *et al.*, 2020; Masood, *et al.*, 2023). To this end, many developed and developing economies have instituted programs of trade liberalization to enable improvements in trade flows and economic growth. On

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the other hand, trade liberalization accentuates financial crisis as well as impact negatively on the environment given the speedy pace of development (Tabatadze, 2024; Kwakwa, 2024).

Several studies have examined the impact of trade liberalization on economic growth. While some findings indicate that trade liberalization fosters growth (Yameogo & Omojolaibi, 2021; Al-kasasbeh *et al.*, 2022), others suggest a negative relationship (Radmehr *et al.*, 2022). Factors such as the timing of liberalization and income distribution patterns also influence the outcomes (Irwin & Trevio, 2002; Dollar & Kraay, 2004). Despite these studies, there is a notable gap in the literature regarding the role of non-oil exports in the relationship between trade liberalization and economic growth, particularly in Nigeria. This study aims to fill this gap by investigating how trade liberalization and non-oil exports collectively impact economic growth in Nigeria to inform more effective trade policies.

Nigeria has pursued trade liberalization through efforts such as joining the African Continental Free Trade Agreement (AfCFTA), reducing tariffs, promoting export diversification beyond oil, attracting foreign investment, and implementing business-friendly policies. Both AfCFTA and the African Growth and Opportunity Act (AGOA) offer potential pathways for economic growth by enhancing intra-African trade and providing access to the U.S. market for non-oil exports. However, the effectiveness of these initiatives depends on overcoming challenges such as infrastructure development, regulatory reforms, and compliance with international standards. Despite these efforts, Nigeria has most of the time recorded trade deficits in non-oil exports since 1986. The non-oil export deficit has worsened from N4.5 billion in 1986 to N16,190.77 billion in 2019, with a recent deficit of N13,839.8 billion in 2021 (CBN, 2021). The oil sector has largely contributed to a favourable trade balance, showing the need to explore the link between trade liberalization, non-oil exports, and economic growth. The favourable trade balance noticed in most of the periods is traceable to the aggregated effect of non-oil and oil exports.

Historically, Structural Adjustment Program (SAP) introduced in Nigeria in 1986 marked a significant shift from an import substitution industrialization (ISI) strategy to a market-oriented economic approach. Despite the diversification efforts, non-

oil exports have shown unimpressive performance, contributing less to GDP over the years. The contribution of non-oil exports to GDP declined from an average of 7% between 1970 and 1985 to 4% between 1986 and 2000, with a slight improvement to 7% from 2001 to 2021 (CBN, 2021). Factors such as inadequate infrastructure, low technology levels, funding constraints, ineffective export incentives, and over-regulation have hindered non-oil export performance (Onwualu, 2012; Tyopev, 2019).

The theoretical framework for this study draws from the classical and neoclassical theories of trade and economic growth, which emphasize the role of exports, investment, human capital, and innovation in driving economic growth (Kormendi & Meguire, 1985; Barro, 1991; Lichtenberg, 1992; Ijirshar, 2019). The interactive effect of trade liberalization and non-oil exports is expected to positively influence economic growth in Nigeria. However, the performance of non-oil exports has been relatively low compared to non-oil imports leading to an unfavourable trade balance in the non-oil sector, necessitating an empirical investigation of the relationship with particular focus to non-oil exports. This study employs the Autoregressive Distributed Lag (ARDL) model with moderation analysis using interactive models to empirically investigate the relationship among trade liberalization, non-oil exports, and economic growth in Nigeria. The ARDL approach allows for robust analysis of the long-term and short-term dynamics between the variables, while the moderation analysis explains how non-oil exports interact with trade liberalization to impact economic growth, offering valuable contributions to the existing literature.

The study provides concrete data-driven insights into the impact of trade liberalization on economic growth in Nigeria, highlighting the long-term and interactive effects of trade liberalization and non-oil exports on economic growth in the country. The study is crucial for policymakers and stakeholders.

The rest of this paper is structured in four sections. Section 2 deals with the review of related literature, while Section 3 focuses on data and methodology. The results discussion is presented in Section 4. Conclusion and policy recommendations are provided in Section 5.

2. Literature Review

2.1 Theoretical Literature

The classical theory of comparative advantage associated with Ricardo (1917) remains one of the foundational theories of international trade in modern economics. The theory states that a country could benefit more from trade if it focuses on the production of goods and services for which it has a comparative advantage. Since the work of Ricardo, a number of trade theories have emerged to reinforce the rationale for engagement in international trade: Heckscher-Ohlin (H-O) factor endowment theory (Heckscher, 1919; Ohlin, 1933); and new growth or endogenous growth theory associated with Romer (1986), Lucas (1988), Barro and Sala-i-Martin (1997), among others. According to Ricardo, countries should engage in the trade of commodities in which they have a relative comparative advantage over others as this will facilitate and enhance trade gains amongst participating countries. In essence, as a country opens up its borders for trade, it will import goods and services, whose local production would have come at a high cost,, as well as export goods for which it can produce at a lower cost. Therefore, the net effect of this trade interaction could enhance economic growth.

The H-O factor endowment theory of trade, building upon Ricardo's earlier ideas, posited that simply relying on a country's relative comparative advantage in commodity production is insufficient for reaping the benefits of international trade. Essentially, a country with a surplus of labour should employ labour-intensive methods to manufacture exportable goods, while importing from a nation employing capital-intensive approaches for its goods and services. Consequently, this drives gains in international trade as these abundantly available factors serve as inputs in the production of tradeable goods and services that could lead to cost reduction and enhanced production efficiency.

The endogenous growth theory introduced the concept of factor substitutability as a means to achieving sustained long-term economic growth. Essentially, this theory suggests that the growth rate of output can be influenced by substitutable factors, including labour, capital, and technological progress. In contrast to Solow's model, new growth theorists argue that technological change is not an external force but rather a result of interactions among economic factors within the economy. In this context, governance and structural reforms play a significant role in influencing the overall productivity of factors, especially in the presence of an effective market size that motivates increased production through innovation. This involves a shift toward research-intensive technology and production systems to meet growing demand, in addition to incorporating new technologies facilitated by trade through the importation of goods.

The endogenous growth theory emphasizes that economic growth is not solely determined by exogenous factors (such as population growth or technological progress) but can also be influenced by internal factors within an economy. The theory suggests that opening up to international trade can have positive effects on economic growth. When a country engages in trade liberalization, it often leads to increased competition, technology transfer, and specialization in industries where the country has a comparative advantage. These factors can enhance productivity and innovation, contributing to long-term economic growth. The non-oil exports also play a crucial role as they represent diversification away from reliance on a single commodity (such as oil) and can lead to a more resilient economy.

Additionally, Keynes' theory of aggregate demand semphasizes that economic growth depends on the level of total spending (aggregate demand) in an economy. Trade liberalization also stimulates economic growth by increasing exports. This implies that when a country exports more goods and services, it can boost aggregate demand because foreign buyers are essentially increasing the country's income, leading to higher production levels, increased employment, and economic growth. The non-oil exports are also significant as they represent a source of demand from international markets, reducing the reliance on domestic demand alone. The Solow growth model focused on the factors that contribute to economic growth, particularly in the long run. It introduces the concept of a production function, which relates inputs (like capital and labour) to output (economic output or GDP). The augmented Solow model incorporates factors beyond traditional inputs, including technological progress and human capital. Trade liberalization can also be seen as a factor that enhances the efficiency of resource allocation and technology diffusion. This is because, when a

country engages in trade liberalization, it can access new technologies and ideas from international markets, leading to higher productivity. Non-oil exports are part of this process as they represent the goods and services through which these technologies and ideas are exchanged.

2.2 Empirical Literature

In light of the aforementioned context, studies examining the veracity of the direct transmission of endogenous growth effects through a panel framework have yielded varied findings regarding the relationship between trade openness and economic growth. For instance, Uwatt (2003) studied 41 African countries, Romer (1990) analyzed 16 Latin American and Caribbean countries, Wong (2007) focused on 8 Middle East countries, and the World Bank (2002) explored developing economies. All these studies concluded that trade openness has a positive and significant influence on economic growth. Parikh and Stirbu (2004) found similar results for 42 developing countries. Contrastingly, Moyo and Khobai (2018) found a negative relationship between trade liberalization and economic growth in 11 Southern African Development Cooperation (SADC) countries, while Ulasan (2015) found mixed pattern between trade openness and economic growth based on the results of the pooled ordinary least squares (POLS) estimator and significant negative effect on GDP per capita based on the results of fixed-effects in a panel of developing economies, negating the existence of a transmission mechanism between trade liberalization and economic growth.

When examining the partial transmission analysis within a panel framework with a focus on non-oil exports, De Melo and Dhar (1992) concluded that non-oil exports positively affect trade liberalization for 5 Latin American countries. However, Mehrara, *et al.* (2012) found no significant impact of non-oil exports on economic growth in a panel of 11 oil-exporting countries. On the other hand, Greenaway and Sapsford (1994) assessed whether exports and growth are affected by trade liberalization using 14 countries. The study found that exports and growth are related to trade liberalization positively with significant influence in a few cases. In a similar finding, Greenaway, *et al.* (2002) used a dynamic panel framework and found that trade liberalization has a weak influence on economic growth.

Country-specific studies have also provided diverse perspectives. Sokiyono and

Sokiyono (2007), and Yusoff and Febriana (2012) for Indonesia; Rahimi and Shahabadi (2012) for Iran, Lin and Li (2002) for China, Wah (2004) for Malaysia, Park (1996) for Korea, Dabel (2016) for Ghana, and Keho (2017) for Cote d'Ivoire found that trade openness significantly improved economic performance. However, Polat, *et al.* (2015) for South Africa and Musila and Yiheyis (2015) for Kenya found negative transmission effect in the trade openness-economic growth nexus. For Nigeria, studies by Yakubu and Akaegbu (2018), Kalu, *et al.* (2016), and Ademola, *et al.* (2013) concluded that trade openness had a positive and significant influence on economic growth. However, Ewetan and Okodua (2013), Ogbonna *et al.* (2013), and Ogujiuba, *et al.* (2002) found no significant effect. Elijah and Musa (2019), and Ajayi and Araoye (2019) reported a negative association.

In the pursuit of a deeper understanding of the direct impact of trade liberalization on economic growth in Nigeria, Deme (2002) reported mixed results, suggesting no causal link in the long run but a positive causality in the short run. Moyo, *et al.* (2017) found a positive and significant relationship between trade openness and economic growth for Ghana and Nigeria. Partial transmission studies, such as Usman (1986), reveal a significant and positive influence of trade liberalization on non-oil exports in Nigeria. However, Okoh (2004) found a negative impact. On the other hand, studies by Ezike and Ogege (2012) and Bakare and Fawehinmi (2011) concluded that trade openness had no significant effect on non-oil exports.

Regarding the transmission from non-oil exports to economic growth, some studies, including Apeh and Okpachu (2019), Ifeacho, *et al.* (2014), Olurankinse and Bayo (2012), Ewetan and Okodua (2013), Okoro (2009), and Akeem (2008), reported a positive and significant relationship. In contrast, Ogunjimi, et al (2015), Odagudo, et al (2013), Ogbonna (2010), and Asanebi (2007) found no significant effect of non-oil exports on the growth of the Nigerian economy. To the best of our knowledge, the existing literature has primarily focused on direct analyses, with limited exploration of the trade liberalization and economic growth nexus while assessing the role of non-oil exports in Nigeria. This study seeks to address this gap by investigating the impact of trade liberalization and non-oil exports on economic growth, focusing on the role of non-oil exports.

3.0 Data and Methodology

3.1 Data

The study utilized annual data, from 1986 to 2021. The year 2021 marked a recent period that witnessed an unfavourable trade balance in non-oil exports after which there was recovery. Prior to this period, the trade balance from non-oil exports have been deteriorating (CBN, 2021). The data covered annual time series on real gross domestic product (RGDP), non-oil export (NOX), and investment (K) proxied as gross capital formation, measured in billions of Naira. Other variables used in the study included labour (L), which is the total number of employed persons, and the index of trade openness (ITO), computed as the sum of imports and exports as a ratio of GDP. Data on RGDP, and NOX, are sourced from Central Bank of Nigeria Annual Statistics Bulletin of 2021, while K and L are sourced from World Development Indicators of World Bank 2022.

3.2 Theoretical Framework

The study provided the theoretical link between trade liberalization, non-oil exports, and economic growth, and it highlights several economic theories (Ricardo theory of comparative advantage, endogenous growth theory, Keynes's aggregate demand theory, and Solow's augmented production function) that support a positive relationship among the variables. The theoretical link between trade liberalization, non-oil exports, and economic growth is rooted in economic theories that suggest trade openness can stimulate growth through increased competition, technology transfer, higher aggregate demand, and improved resource allocation. Non-oil exports are also crucial because they represent a diversification strategy that reduces dependence on a single commodity and can lead to sustained economic growth by tapping into international markets and resources. Thus, to examine the relationship among trade liberalization, non-oil exports, and economic growth in Nigeria, the study employed the approach by Obwona (2001) and Onodugo (2013).

3.3 Model Specification

Following the theoretical framework above, the economic growth model can be specified using Solow's growth model as:

$$RGDP = F(K, L, A) \tag{1}$$

where, RGDP is Real Gross domestic product (GDP), L is labour force, K is capital stock proxied using gross fixed capital formation, and A is total factor productivity (TFP). However, total factor productivity depends on private investment (PINV) and trade policy. The trade openness index (ITO), however, is used as an indicator of trade policy. The volume of the trade (exports and imports) also affects the output. Therefore,

$$A = g(EXP, IMP, ITO) \tag{2}$$

The substitution of eqn (2) into eqn(1) yields;

$$RGDP = f(K, L, EXPT, IMPT, ITO)$$
(3)

Considering the role of the non-oil imports and exports as captured in this study, the model incorporates the non-oil exports and non-oil imports. Based on Keynes's theory, household consumption (HH) also affects output in an economy. Substituting household consumption (HH), non-oil exports (NOX) and non-oil imports (NOI), we have:

$$RGDP = f(HH, L, K, NOI, NOX, ITO)$$
(4)

To address the problem of multicollinearity in Equation (4), the Equation was restated by introducing the key variables into the model one at a time, while holding the control variables constant as follows:

Model 1: Economic growth model with non-oil exports variable (NOX)

$$RGDP = f(HH, L, K, NOI, NOX)$$
⁽⁵⁾

Model 2: Economic growth model with trade liberalization variable (*ITO*)

$$RGDP = f(HH, L, K, ITO)$$
(6)

Model 3: Economic growth model with interactive term (*NOX* * *ITO*)

$$RGDP = f(HH, L, K, NOX * ITO)$$
⁽⁷⁾

Taking the natural logarithm of the variables, and making equations 5-7 stochastic, we have

$$lnRGDP_t = \alpha_0 + \alpha_1 lnHH_t + \alpha_2 lnL_t + \alpha_3 K_t + \alpha_4 lnNOI_t + \alpha_5 lnNOX_t + \mu_t$$
(8)

$$lnRGDP_t = \beta_0 + \beta_1 lnHH_t + \beta_2 + lnL_t + \beta_3 K_t + \beta_4 ITO_t + \mu_t$$
(9)

$$lnRGDP_t = \chi_0 + \chi_1 lnHH_t + \chi_2 lnL_t + \chi_3 lnK_t + \chi_4 lnNOX * ITO_t + \mu_t$$
(10)

where α_0 , β_0 and χ_0 are the intercepts, while $\alpha_1 - \alpha_5$, $\beta_1 - \beta_4$ and $\chi_1 - \chi_4$ are parameters to be estimated. Given that some series are nonstationary but integrated at first difference while others may be stationary at level, the study used ARDL. Thus, the ARDL model for (8) to (10) can be specified as:

$$lnRGDP = \alpha_{0} + \sum_{j=1}^{k} \psi_{1,j} \Delta RGDP_{t-j} + \sum_{j=0}^{k} \psi_{2,j} \Delta HH_{t-j} + \sum_{j=0}^{k} \psi_{3,j} \Delta L_{t-j} + \sum_{j=0}^{k} \psi_{4,j} \Delta K_{t-j} + \sum_{j=0}^{k} \psi_{5,j} \Delta NOI_{t-j} + \sum_{j=0}^{k} \psi_{6,j} \Delta NOX_{t-j} + \lambda_{1} lnRGDP_{t-1} + \lambda_{2} lnHH_{t-1} + \lambda_{3} lnL_{t-1} + \lambda_{4} lnK_{t-1} + \lambda_{5} lnNOI_{t-1} + \lambda_{6} lnNOX_{t-1} + \varepsilon_{t}$$
(11)

$$lnRGDP = \beta_{0} + \sum_{j=1}^{k} \psi_{1,j} \Delta RGDP_{t-j} + \sum_{j=0}^{k} \psi_{2,j} \Delta HH_{t-j} + \sum_{j=0}^{k} \psi_{3,j} \Delta L_{t-j} + \sum_{j=0}^{k} \psi_{4,j} \Delta K_{t-j} + \sum_{j=0}^{k} \psi_{5,j} \Delta ITO_{t-j} + \lambda_{1} lnRGDP_{t-1} + \lambda_{2} lnHH_{t-1} + \lambda_{3} lnL_{t-1} + \lambda_{4} lnK_{t-1} + \lambda_{5} lnITO_{t-1} + \varepsilon_{t}$$

$$(12)$$

$$lnRGDP = \beta_{0} + \sum_{j=1}^{k} \psi_{1,j} \Delta RGDP_{t-j} + \sum_{j=0}^{k} \psi_{2,j} \Delta HH_{t-j} + \sum_{j=0}^{k} \psi_{3,j} \Delta L_{t-j} + \sum_{j=0}^{k} \psi_{4,j} \Delta K_{t-j} + \sum_{j=0}^{k} \psi_{5,j} \Delta (lnNOX * ITO)_{t-j} + \lambda_1 lnRGDP_{t-1} + \lambda_2 lnHH_{t-1} + \lambda_3 lnL_{t-1} + \lambda_4 lnK_{t-1} + \lambda_5 (lnNOX * ITO)_{t-1} + \varepsilon_t$$
(13)

The long-run equilibrium relationships can be expressed as:

$$lnRGDP = \lambda_0 + \lambda_1 lnHH_t + \lambda_2 L_t + \lambda_3 K_t + \lambda_4 lnNOI_t + \lambda_5 NOX_t + \mu_t$$
(14)

$$lnRGDP = \lambda_0 + \lambda_1 lnHH_t + \lambda_2 L_t + \lambda_3 K_t + \lambda_4 lnITO_t + \mu_t$$
(15)

$$lnRGDP = \lambda_0 + \lambda_1 lnHH_t + \lambda_2 L_t + \lambda_3 K_t + \lambda_4 (lnNOX * ITO)_t + \mu_t$$
(16)

where λ_0 is the intercept, and $\lambda'_i s$ for i = 1, 2, ...5 are the long-run parameters. The error correction term is formed from the residuals of the long-run relationship as follows:

$$ECM_{t-1} = lnRGDP_{t-1} - (\lambda_0 + \lambda_1 lnHH_{t-1} + \lambda_2 lnL_{t-1} + \lambda_3 lnK_{t-1} + \lambda_4 lnNOI_{t-1} + \lambda_5 NOX_{t-1})$$
(17)

$$ECM_{t-1} = lnRGDP_{t-1} - (\lambda_0 + \lambda_1 lnHH_{t-1} + \lambda_2 lnL_{t-1} + \lambda_3 lnK_{t-1} + \lambda_4 lnITO_{t-1})$$
(18)

$$ECM_{t-1} = lnRGDP_{t-1} - (\lambda_0 + \lambda_1 lnHH_{t-1} + \lambda_2 lnL_{t-1} + \lambda_3 lnK_{t-1} + \lambda_4 (lnNOX * ITO)_{t-1})$$
(19)

The ARDL model in the short-run can include the lagged differences of the variables and the error correction term. Pesaran *et al.* (2001) present five different explanations for the conditional error correction (CEC) forms, depending on whether deterministic terms are integrated into the error correction term. The error correction form for equations (11) to (13) of the ARDL model with constant can be expressed as follows:

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$$\Delta lnRGDP_{t} = \gamma_{0} + \sum_{i=1}^{p} \delta_{i} \Delta lnRGDP_{t-i} + \sum_{j=0}^{q} \psi_{j}^{1} \Delta lnHH_{t-j} + \sum_{k=0}^{r} \psi_{j}^{2} \Delta lnL_{t-k}$$

$$+ \sum_{l=0}^{s} \psi_{j}^{3} \Delta lnK_{t-l} + \sum_{m=0}^{t} \psi_{j}^{4} \Delta lnNOI_{t-m} + \sum_{n=0}^{\mu} \psi_{j}^{5} \Delta lnNOX_{t-n} + \phi ECM_{(t-1)} + \eta_{t}$$
(20)

$$\Delta lnRGDP_{t} = \gamma_{0} + \sum_{i=1}^{p} \delta_{i} \Delta lnRGDP_{t-i} + \sum_{j=0}^{q} \psi_{j}^{1} \Delta lnHH_{t-j} + \sum_{k=0}^{r} \psi_{j}^{2} \Delta lnL_{t-k}$$

$$+ \sum_{l=0}^{s} \psi_{j}^{3} \Delta lnK_{t-l} + \sum_{m=0}^{t} \psi_{j}^{4} \Delta lnITO_{t-m} + \phi ECM_{(t-1)} + \eta_{t}$$
(21)

$$\Delta lnRGDP_{t} = \gamma_{0} + \sum_{i=1}^{p} \delta_{i} \Delta lnRGDP_{t-i} + \sum_{j=0}^{q} \psi_{j}^{1} \Delta lnHH_{t-j} + \sum_{k=0}^{r} \psi_{j}^{2} \Delta lnL_{t-k}$$

$$+ \sum_{l=0}^{s} \psi_{j}^{3} \Delta lnK_{t-l} + \sum_{m=0}^{t} \psi_{j}^{4} \Delta lnNOX * ITO_{t-m} + \phi ECM_{(t-1)} + \eta_{t}$$
(22)

3.4 Estimation Procedure

The ARDL method was used in this study. It is highly appropriate for studying the relationship among trade liberalization, non-oil exports, and economic growth in Nigeria for several compelling reasons. First, economic variables like trade liberalization and non-oil exports can be mutually influencing, and ARDL allows for the modeling of these complex interdependencies allowing for interactive effects of the two variables on economic growth. Second, the ARDL approach accommodates shortand long-term dynamics, essential for understanding how trade policies and exports impact economic growth both immediately and over extended periods. Moreover, it helps ascertain the integration levels of variables, ensuring robust analysis.

4. Results and Discussion

Table 1: shows the descriptive statistics of the variables of interest from 1986 to 2021.

	Mean	Max	Min	Std.	Sk	Kurt	JB	Prob.	Obs
				Dev.					
RGDP	40530.17	72393.67	17007.77	20102.51	0.40	1.53	4.203	0.122	36
HH	29617.13	109433.1	82.73196	37045.36	1.04	2.60	6.796	0.033	36
K	9047.46	58293.95	108.87	12784.79	2.32	8.37	75.77	0.000	36
L	46.62722	70.62004	28.31276	12.13057	0.27	2.04	1.826	0.401	36
NOI	3860.737	17802.18	5.069700	4792.599	1.49	4.54	16.875	0.000	36
NOX	6507.571	19910.53	8.920600	6574.471	0.60	1.98	3.738	0.154	36
ITO	34.35777	53.27796	9.135846	10.69048	-0.32	2.58	0.889	0.641	36

Table 1: Descriptive statistics

Note: RGDP=Real Gross Domestic Product in Billions, HH=Household and NPISHs Final consumption expenditure (current LCU), in Billions K=Gross fixed capital formation (current LCU) in Billions, L=Total Labour force in Millions, NOI=Non-oil Imports in Billions, NOX= Non-oil Exports in Billions, and ITO=Trade Liberalisation (Ratio). Max.=Maximum, Min.=Minimum, Std. Dev.=Standard deviation, Sk.=Skewness, Kurt. =Kurtosis, JB=Jarque-Bera, Prob.=Probability, and Obs=Observations

The average real GDP in Nigeria of N40,530.17 billion from 1986 to 2021 explains the country's inflation-adjusted economic output during these years. The relatively high standard deviation of N20,102.51 reflects substantial spread from the mean. Nigeria has experienced significant fluctuations in its real GDP, indicating periods of both growth and economic contraction. The maximum real GDP value of N72,393.67 billion in 2021 indicates a peak in Nigeria's economic performance, possibly due to factors like increased oil prices or improved economic policies. Conversely, the minimum real GDP of N17,007.77 billion in 1986 signifies a challenging period, likely influenced by economic difficulties, external pressures, or unfavorable economic policies.

The average non-oil exports in Nigeria of N6,507.57 billion shows the country's earnings from non-oil sectors. It reflects the government's efforts to diversify the economy. However, the relatively high standard deviation of N6,574.47 indicates volatility in non-oil exports, suggesting that Nigeria's non-oil sector faced substantial challenges and fluctuations over the years, influenced by factors like global demand, trade policies, and domestic production issues. The maximum non-oil export value of N19,910.53 billion in 2019 marks a peak in this sector, possibly due to successful export promotion measures or increased global demand for Nigerian non-oil products.

On the other hand, the minimum value of N8.92 billion in 1986 reflects a modest starting point, indicating that the non-oil export sector had room for growth. The capital and labour components of the economy within the period of study shows an average of N9047.46 billion and about 44 million persons, respectively. However, about 28.3 million persons were the least number of people employed in year 1986 while by 2021 the total number of employed persons was 70.6 million people representing the period with most persons been employed. For capital, the highest value was recorded in year 2021 by the value of N58,293.95 billion, while by 1986 the least monetary value of investment was recorded at N108.87 billion. The performance of these series needs tests to assist in adopting the appropriate methodology as well guide against spurious estimates. To this end, the Augmented Dickey-Fuller (ADF) and Philips- Perron (PP) test for unit root are required.

4.1 Pre-Estimation Results

The unit root test results are presented in Table 2. From the results, real GDP, household expenditure, capital investment, and the total labour force are integrated of order 1 (I(1)). On the other hand, non-oil imports, non-oil exports, and trade liberalization are stationary at level (I(0)). These findings are crucial for the selection of an appropriate time-series model and conducting appropriate econometric analyses.

Variables	bles ADF		PP	Order of	
	At Level	First Difference	At Level	First Difference	Integration
lnRGDP	-0.676	-3.786***	-0.501	-3.68***	I(1)
lnHH	-2.578	-4.726***	-2.489	-4.756***	I(1)
lnK	-1.252	-4.302***	-1.136	-4.383***	I(1)
lnL	-0.263	-4.237***	-0.530	3.416**	I(1)
lnNOI	-3.137**	-7.925***	-7.820***	7.9796***	I(0)
lnNOX	-3.211**	-6.243***	-8.415***	-6.289***	I(0)
ITO	-3.412**	-7.37***	-3.3897**	-8.5299***	I(0)

Table 2: ADF and PP Unit Root Tests

Note: *** ** and * denote rejection of the null hypothesis at 1%, 5% and 10% level of significance, respectively.

Since ARDL is useful when dealing with non-stationary time series, its applicability is appropriate and justified. The method accommodates a mixture of variables that are integrated of different orders (I(0) and I(1)), making it a versatile approach for time series analysis. The lag length was chosen based on the Akaike Information

4.2 Estimation Results

The ARDL bounds test results are presented in Table 3. The results show the F-statistic values for the economic growth model with the non-oil exports variable (Model 1), the economic growth with trade liberalization variable (Model 2), and the economic growth model with interactive term (Model 3). For Model 1, the F-statistic (10.63439) is higher than the upper bound critical value at the 1% level (4.68). This indicates rejection of the null hypothesis of no cointegration, suggesting that there a longrun relationship exists between economic growth and non-oil exports. The study also reports similar results for Model 2 at the 5% level, and Model 3 at the 10% level indicating the existence of a longrun relationship between economic growth and trade liberalization, and econoic growth and the interaction of trade liberalization, and econoic growth and the interaction of trade liberalization, with weak evidence in Model 3.

Level of Significance	Lower Bound	Upper Bound
	I(0)	I(1)
Model 1: F-statistic = 10.63439		
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68
Model 2: F-statistic = 5.026799		
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06
Model 3: F-statistic = 3.909690		
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Fable 3: ARDL	bounds	test results
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Model 1, Model 2, and Model 3 denotes Economic growth model with Non-oil export, Trade Liberalization, and Interactive Term, respectively

The estimated longrun estimates for the three models are presented in Table 4.

Tuble 4. En	icets of trade fi	oeransation a	ia non on exp		ine growth mi	ligeria
	Model 1		Model 2		Model 3	
Variable	Coefficient	Std. Erro r	Coefficient	Std. Error	Coefficient	Std. Error
lnHH	0.478**	0.110	0.094	0.061	0.122**	0.046
lnL	2.269**	0.761	2.300***	0.716	1.697*	0.910
lnK	-0.323**	0.077	-0.172	0.158	-0.032	0.172
lnNOI	-0.472***	0.090				
lnNOX	0.181**	0.053				
ITO			-0.011**	0.004		
ITO*lnNOX					0.003***	0.001

Table 4: Effects of trade liberalisation and non-oil exports on economic growth in Nigeria

Note: *** (**) * denote significance at 1% (5%) 10% level; Model 1, Model 2, and Model 3 denote Economic growth model with Non-oil export, Trade Liberalization, and Interactive Term, respectively

From the results of Model 1, household consumption expenditure has a positive impact on economic growth in Nigeria, with a coefficient of 0.478. This means that as households in Nigeria increase their spending on goods and services, it tends to have a favourable influence on the country's overall economic growth. This finding suggests that consumer spending plays a significant role in driving economic growth in Nigeria in the long-run. The labour force also shows a strong positive impact on economic growth , with an estimated coefficient of 2.269. It is also statistically significant at 1% level. It means that 1% increase in the labour force leads to 2.269% increase in economic growth, emphasizing that human capital is a crucial asset for Nigeria's economy. Investing in education, vocational training, and skills development is essential to harness the potential of the labour force. The results for labour force are similar in the three models.

The results further indicate that capital investment has a significant negative impact on economic growth, with a coefficient of -0.323. However, the negative influence is not statistically significant from the other models. It suggests that merely increasing capital investment is not sufficient; the quality and productivity of these investments are critical. Ensuring that investments are directed toward high-growth and innovative sectors, improving transparency in public investment projects, and reducing corruption can mitigate the negative impact of capital investments. Moreso, implementing measures to enhance the efficiency of capital allocation and curbing insecurity issues will be vital for maximizing the positive effects of investments on economic

growth.

Non-oil imports have a significant negative coefficient of -0.472, suggesting that an increase in non-oil imports is associated with a decrease in economic growth in Nigeria in the long run. Conversely, non-oil exports show a significant positive impact, with a coefficient of 0.1805. This result shows the importance of non-oil exports as a growth driver in Nigeria in the long run. This is because non-oil imports can drain financial resources from the domestic economy, leading to an outflow of capital. When a country relies heavily on imports, especially of consumer goods, it spends a significant portion of its financial resources on foreign products instead of investing in domestic industries. This outflow can reduce the funds available for investment in local businesses, infrastructure, and other growth-promoting activities, thereby negatively impacting economic growth. Furthermore, it heightens competition for domestic producers. If the local industries are not competitive enough, they may suffer losses, reduce production, or even shut down. This can lead to job losses, lower domestic production, and a decline in economic activity thereby affecting economic growth. The positive impact of non-oil exports on economic growth implies that exports drive higher production levels, create jobs, increase incomes, and stimulate economic activity. The exporting firms become more efficient and innovative, enhancing overall productivity. This is because foreign exchange earnings from exports provide stability, reduce vulnerability to external shocks, and fund critical investments in infrastructure, education, and healthcare.

From the results of the second model, trade liberalization alone appears to have a negative impact on economic growth in Nigeria in the long run. Specifically, a 1% increase in trade liberalization is associated with a 0.011% decrease in economic growth in the long run. This might suggest that, in isolation, trade liberalization may not be beneficial to the economy due to factors such as increased competition, loss of tariff revenues, or exposure to external economic shocks. The results further show a significant positive influence of the interactive term of non-oil exports and trade liberalization has a positive impact on economic growth. Specifically, a 1% increase in the interactive term is associated with a 0.0025% increase in

economic growth. This implies that when trade liberalization is combined with an increase in non-oil exports, the overall effect on economic growth is positive. This could suggest that the benefits of trade liberalization are realized more effectively when the country has a diverse export base beyond oil. The results suggest that while trade liberalization alone might negatively impact economic growth, its combination with a strong non-oil export sector can lead to positive economic growth. This indicates a positive synergy between trade liberalization and non-oil exports in fostering economic growth over time, emphasizing their combined importance in driving economic growth.

The results of the shortrun impact are presented in Table 5. From the estimates of Model 1, the positive coefficients of lags 1 and 2 of the GDP indicate that past economic growth positively influences current growth in Nigeria. The negative coefficient at the third lag suggests a correction effect, indicating potential cyclical behavior where growth after three periods may reverse the positive impacts from earlier periods. Also, the immediate household consumption expenditure positively impacts economic growth. However, the negative coefficients of the lagged terms suggest that increased household consumption in previous periods may lead to a decrease in current growth, possibly due to higher consumption leading to lower savings and investments in future periods.

The results further reveal that changes in the labour force have no significant shortterm impact on growth. The significant negative coefficient at the second lag suggests a delayed negative impact of changes in the labour force on growth, which could be due to structural issues or inefficiencies in labour utilization. On the contrary, changes in capital investment do not significantly impact economic growth. However, there is a positive and significant coefficient at the first lag that indicates a positive lagged effect, implying that capital investments take time to influence economic growth positively.

	Model 1		Model 2		Model 3	
Variable	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
С	1.271***	0.1022	1.099***	0.1897	2.272***	0.4325
D(LNRGDP(-1))	0.276**	0.0698	0.213	0.1442	0.199	0.1718
D(LNRGDP(-2))	0.363***	0.0683	0.84***	0.1616	1.065***	0.1619
D(LNRGDP(-3))	-0.275**	0.0778	-	-	0.370	0.2328
D(LNHH)	0.186***	0.0171	0.08***	0.0234	-	-
D(LNHH(-1))	-0.133***	0.0141	-	-	-	-
D(LNHH(-2))	-0.206***	0.0210	-	-	-	-
D(LNHH(-3))	-0.056**	0.0135	-	-	-	-
D(LNL)	-0.281	0.1787	-0.05	0.4434	-0.952	0.5399
D(LNL(-1))	-0.459	0.2303	-1.800***	0.4644	-2.776***	0.6205
D(LNL(-2))	-2.528***	0.2685	-1.676***	0.5496	-3.284***	0.7751
D(LNL(-3))	-0.419	0.2278	-1.462*	0.6959	-	-
D(LNK)	0.005	0.0178	-0.042	0.0341	-0.080*	0.0427
D(LNK(-1))	0.084**	0.0224	0.015	0.0359	-0.044	0.0357
D(LNK(-2))	-	-	-0.070*	0.0331	-0.131***	0.0351
D(LNK(-3))	-	-	-0.102**	0.0423	-	-
D(LNNOI)	-0.061***	0.0096		-	-	-
D(LNNOI(-1))	0.182***	0.0238	-	-	-	-
D(LNNOI(-2))	0.189***	0.0204	-	-	-	-
D(LNNOI(-3))	0.105***	0.0163	-	-	-	-
D(LNNOX)	0.056***	0.0096	-	-	-	-
D(LNNOX(-1))	-0.053***	0.0122	-	-	-	-
D(LNNOX(-2))	-0.054***	0.0117	-	-	-	-
D(LNNOX(-3))	-0.015	0.0104	-	-	-	-
D(ITO)	-	-	0.001	0.0006	-	-
D(ITO(-1))	-	-	0.004***	0.0007	-	-
D(ITO(-2))	-	-	0.003***	0.0007	-	-
D(LNNOXVITOP)	-	-		-	0.0002**	6.8E-05
D(LNNOXVITOP(-		-		-	0.0012***	0.0002
1))						
D(LNNOXVITOP(-		-		-	0.0009***	0.0002
2))						
D(LNNOXVITOP(-		-		-	0.0004***	0.0001
3))						
ECT(-1)	-0.553***	0.0462	-0.378***	0.0669	-0.526***	0.1019
R-squared	0.985		0.8099		0.8519	
Adjusted R-	0.949		0.6798		0.6939	
squared						

Table 5: Short-run Results on the impact of the trade liberalisation and non-oil exports on economic growth in Nigeria

Note: *** (**) * denote significance at 1% (5%) 10% level

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The study found a short run negative impact of non-oil imports on economic growth, possibly due to outflows of foreign exchange or increased competition for domestic industries. The positive and significant lagged effects suggest that non-oil imports may contribute positively to growth in subsequent periods, potentially by providing essential inputs for domestic production or stimulating innovation and efficiency. The results further show positive influence of non-oil exports on economic growth in the short run. The negative lagged coefficients indicate a decrease in growth due to previous periods' non-oil exports. The significant negative coefficient of the error correction term indicates a strong error correction mechanism, meaning that deviations from long-run equilibrium are corrected by 55.3% yearly.

From the estimates of Model 2, the first lag of GDP growth is not significant, indicating no impact of past economic growth on current growth. The second lag of GDP growth is positive and significant showing a strong positive impact of economic growth from two periods ago, suggesting a delayed positive feedback effect on growth. Household consumption also showed positive and significant coefficient which indicates that household consumption expenditure positively impacts economic growth in the short run. The result shows that changes in the labour force are not significant in the short run. However, the negative and significant estimates for the first and second lags indicate a strong negative lagged effect, which may be due to inefficiencies in labour market utilization over time. The result also shows that changes in capital investment and its first lag are not significant in the short run, indicating no immediate or short-term impact on economic growth in Nigeria. The slightly negative and significant coefficient at the second lag suggests a lagged negative effect, potentially due to inefficiencies or delays in the productive use of capital investments. Trade liberalization is not significant in the short run, indicating no immediate impact on growth in Nigeria. The positive and significant estimates for the first and second lags indicate that trade liberalization positively influence economic growth with a delay, suggesting that the benefits of trade policies take time to materialize and influence economic activity. The significant negative coefficient of the error correction term indicates a strong speed of adjustment, meaning that deviations from longrun equilibrium are adjusted by 37.8% the following period.

From the estimates of Model 3, the first and third lags of GDP growth are not significant, indicating no immediate or third-period impact of past economic growth on current economic growth. The second lag of GDP growth is positive and significant, showing a strong positive impact, suggesting that economic growth two periods ago has a substantial positive influence on current growth.

Labour force has significant negative coefficients for the first, second, and third lags, suggesting that labour force adjustments negatively impact economic growth over time. This could be due to structural inefficiencies or labour market rigidities. The changes in capital investment are negative and significant, indicating a minor negative impact on economic growth in Nigeria. The estimated negative and significant coefficients for the second and third lags suggest that capital investment has a delayed negative effect on growth, possibly due to inefficiencies in realizing the benefits of investments. The estimated positive and significant coefficients for the interactive term and its lags indicate that the combination of non-oil exports and trade liberalization positively impacts economic growth both immediately and in subsequent periods. This suggests that trade liberalization enhances the positive effects of non-oil exports on economic growth in the short run. The significant negative coefficient of error correction term implies that initial distortions are corrected the following period at the speed of 52.61% yearly.

In summary, the study reveals that the interactive term of trade liberalization and non-oil exports exerts a positive and significant influence on economic growth in the short-run. This suggests that the combined effect of promoting trade openness and non-oil exports has an immediate positive impact on the economy, fostering economic growth in the short-run. Trade liberalization on its own is also identified as a positive and significant factor affecting economic growth in the short-run. This explains the importance of open markets and international trade in driving economic growth.

The study post-estimation test results are presented in Table 6. The results reflect the appropriateness of Models 1 and 3, where there is evidence of no heteroskedasticity and serial correlation.

Table 0. Diagnostic tests results						
Test Statistic	Model 1	Model 2	Model 3			
Jarque Berra	0.367	1.207	2.772			
	(0.832)	(0.547)	(0.257)			
Ramsey RESET	0.275	0.187	0.269			
	(0.616)	(0.672)	(0.616)			
Breusch-Godfrey LM	4.990	13.775	4.281			
	(0.167)	(0.003)	(0.118)			
Breusch-Pagan-Godfrey LM	2.529	26.700	18.599			
	(0.190)	(0.063)	(0.548)			

 Table 6: Diagnostic tests results

Note: The probabilities are presented in parenthesis ()

The study also examines the stability of the models using the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) and the results are presented in Figure 1. Since the CUSUM plot fluctuates within their bounds, the model estimates are stable, indicating that the ARDL model adequately captures the relationship between trade liberalisation, non-oil exports and economic growth in Nigeria.



Figure 1: Model Stability Test

5. Conclusion and Policy Recommendation

The study concludes that the combined effect of trade liberalization and non-oil exports has a significant positive impact on Nigeria's economic growth in the shortand long-run. While trade liberalization alone may have negative consequences, its synergy with a robust non-oil export sector can drive sustainable economic growth in Nigeria. Thus, policymakers should focus on creating and enhancing a balanced and supportive environment that promotes non-oil exports, ensures efficient investments, and protects the economy from external vulnerabilities. By implementing strategic policies and fostering collaboration among government, private sector, and educational institutions, Nigeria can achieve sustained economic growth.

The practical policy recommendations for Nigeria to promote economic growth are: Trade liberalization should be pursued strategically to ensure it benefits the economy. The government should implement measures to protect vulnerable industries from increased competition and ensure that the benefits of trade openness are widely distributed. This can include providing financial assistance, technical support, and access to new technologies for affected industries. Improving the regulatory framework to ensure fair competition and protect intellectual property rights will create a more favorable business environment. Additionally, enhancing the capacity of domestic industries to compete globally through skills development, innovation, and infrastructure investments is crucial for maximizing the benefits of trade liberalization.

Since enhancing non-oil exports is essential for driving economic growth in Nigeria, the government should focus on improving the competitiveness of non-oil sectors by providing export incentives, developing export infrastructure, and accessing new markets through trade agreements. Investing in infrastructure such as ports, roads, and logistics will reduce the cost of exporting goods and enhance the efficiency of the supply chain. Establishing export processing zones can provide a conducive environment for exporters by offering tax incentives, streamlined customs procedures, and access to quality infrastructure. Furthermore, negotiating favorable trade agreements with other countries will open new markets for Nigerian products, enhancing their global competitiveness. The private sector should also invest in research and development to innovate and improve the quality of export products.

The Nigerian government should promote import substitution policies that encourage the production of goods domestically. This can be achieved by providing subsidies, tax breaks, and grants to local manufacturers. Developing a robust industrial base and supporting the growth of SMEs will reduce the country's reliance on imports and stimulate domestic production. The government should also implement strict quality standards for imported goods to protect local industries from unfair competition.

The Nigerian government should stimulate household consumption as a means to drive economic growth. This can be achieved through fiscal policies such as reducing personal income taxes and increasing social welfare spending. By increasing disposable income, households will have more funds to spend on goods and services, thereby boosting demand and stimulating economic activity. Additionally, ensuring stable inflation rates will help maintain the purchasing power of households. The private sector can support this initiative by offering affordable consumer credit and financing options, which will further enhance household spending capabilities.

The Nigerian government should also prioritize improving educational infrastructure, providing scholarships, and supporting vocational training programs. Aligning educational curricula with the needs of the industries will ensure that graduates possess relevant skills. Public-private partnerships can be instrumental in this regard, with businesses collaborating with educational institutions to design and deliver training programs that meet industry standards. Additionally, initiatives to attract skilled Nigerian professionals from the diaspora back to the country can help bolster the human capital base. This can be facilitated through incentives such as tax breaks, housing allowances, and opportunities for career advancement.

The government should also direct investments towards high-growth sectors such as infrastructure, technology, and innovation. Enhancing transparency in public investment projects and reducing corruption will build investor confidence and attract more private sector investments. Establishing clear regulatory frameworks, ensuring political stability and security are crucial for creating a conducive investment climate. Additionally, measures to improve the efficiency of capital allocation, such as developing robust financial markets and reducing bureaucratic red tape, will help maximize the positive impact of investments on economic growth.

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