

IMPACT OF INDIRECT TAX ON THE NIGERIAN ECONOMIC GROWTH



ABSTRACT

This study investigates the impact of indirect taxes, Value Added Tax (VAT), Customs and Excise Duties (CED), and Petroleum Profit Tax (PPT) on Nigeria's economic growth over the period 1994 to 2024. Employing secondary time-series data and the Autoregressive Distributed Lag (ARDL) modeling approach, the study examines both short-run and long-run dynamics, as well as causal relationships between these taxes and real GDP. The findings reveal that VAT has a significant positive effect on economic growth, both in the short and long run, highlighting its role as a growth-enhancing fiscal instrument. In contrast, CED exhibits mixed effects, with short-run significance but an insignificant long-run impact, while PPT shows a small but significant negative effect on long-run growth. Granger causality tests indicate unidirectional influence from VAT to GDP and reverse causality from GDP to CED, whereas PPT demonstrates no predictive causality. Despite limitations related to data constraints, exclusion of other tax instruments, and the linear modeling assumption, the study contributes to knowledge by providing robust empirical evidence on the differential effects of indirect taxes and offering insights for policy formulation aimed at enhancing sustainable economic growth in Nigeria. The study recommends strengthening Value Added Tax administration through improved compliance, digital monitoring, and base broadening to sustain its growth-enhancing role, reforming Petroleum Profit Tax to reduce distortive effects on investment in the oil sector, and improving the efficiency of Customs and Excise Duties. These measures would enhance revenue mobilization, improve fiscal sustainability, and support inclusive and long-term economic growth in Nigeria.

Keywords: *Indirect Taxation; Fiscal Policy; Economic Growth; Nigeria; ARDL Model*

1. Introduction

When well-structured, tax systems, both indirect and resource-based, are expected to be broad-based, efficient, and minimally distortionary to economic activity. Evidence from countries such as Germany, the United Kingdom, and South Africa demonstrates that stable and well-managed tax regimes, particularly indirect taxes, can

Muhammad Salihu Salihu
Department of Economics,
Federal University, Lokoja
muhammadsale86@gmail.com

Peter Chika Uzomba
Department of Economics,
Federal University, Lokoja
muhammadsale86@gmail.com

***Corresponding Author**
Muhammad Salihu Salihu
Department of Economics,
Federal University, Lokoja
muhammadsale86@gmail.com

support sustained economic growth by financing infrastructure, social services, and industrial development (OECD, 2020; ATAF, 2021). In Nigeria, similar outcomes are anticipated through revenue instruments such as Value Added Tax (VAT), Customs and Excise Duties, and Petroleum Profit Tax (PPT), especially as the country continues to grapple with fiscal sustainability and seeks to rebalance its revenue structure.

Despite the expansion of indirect taxes and the continued reliance on petroleum-related revenues including the increase in the VAT rate from 5% to 7.5% in 2020 (Federal Ministry of Finance, 2020) and historically significant receipts from Petroleum Profit Tax the Nigerian economy remains challenged by persistent fiscal deficits, weak revenue performance, rising inflation, poor infrastructure, and sluggish economic growth (Okoli & Afolabi, 2021; World Bank, 2022). Rather than catalyzing development, concerns have emerged that indirect taxes, particularly VAT and excise duties, impose a disproportionate burden on consumers and small businesses, thereby suppressing aggregate demand and productivity. This concern is heightened in an economy where over 60% of the population lives below the poverty line and informal sector activities dominate (NBS, 2021). At the same time, volatility in oil prices and declining petroleum output have exposed the vulnerability of Petroleum Profit Tax as a dependable revenue source, further complicating fiscal planning.

In response, successive Nigerian governments have implemented various reforms aimed at strengthening revenue mobilization across both oil and non-oil tax streams. These reforms include the introduction of digital tax administration systems, anti-smuggling initiatives, amendments through the Finance Acts of 2019–2023, and institutional efforts to improve compliance and transparency in VAT, customs administration, and petroleum taxation (FIRS, 2023). Nonetheless, the outcomes of these reforms remain limited. Non-oil revenues from VAT and Customs & Excise Duties have been insufficient to meet rising expenditure needs in critical sectors such as education, health, and infrastructure, while petroleum tax revenues have been undermined by inefficiencies, tax avoidance, and fluctuations in global oil markets (UNCTAD, 2022; AfDB, 2020). Furthermore, low tax compliance and widespread evasion, especially within the informal sector, continue to weaken the effectiveness of both indirect taxes and Petroleum Profit Tax in driving national development.

Although a growing body of literature has examined the relationship between taxation and economic performance in Nigeria, much of the existing research focuses on direct taxes or aggregate tax revenue, with limited attention to the disaggregated effects of specific tax instruments. Adereti, Sanni, and Adesina (2019) and Nwosa and Harshe (2020) report mixed evidence on the impact of VAT on economic growth, often without accounting for the interaction between indirect taxes, petroleum-based revenues, and macroeconomic shocks. Empirical investigations that simultaneously assess VAT, Customs & Excise Duties, and Petroleum Profit Tax, particularly in the post-COVID-19 era characterized by inflationary pressures, exchange rate instability, and rising living costs remain relatively scarce.

Given these gaps in literature, this study becomes imperative. It seeks to provide an updated and disaggregated analysis of the impact of VAT, Customs & Excise Duties, and Petroleum Profit Tax on Nigeria's economic growth using recent data. By examining the relative contributions and structural weaknesses of both oil-based and non-oil tax revenues, the study aims to generate evidence-based policy recommendations that can inform tax reforms, improve fiscal resilience, and support Nigeria's pursuit of inclusive and sustainable economic development.

The remainder of this paper is organized as follows. Section 1 presents the introduction, section 2 reviews the relevant theoretical and empirical literature on indirect taxation and economic growth. Section 3 describes the methodology, including data sources, model specification, and estimation techniques. Section 4 presents and discusses empirical results. Finally, Section 5 concludes the study and offers policy-oriented recommendations based on the findings.

2. Literature Review

2.1 Theoretical Framework

This study is anchored on the Laffer Curve Theory, first popularized by economist Arthur Laffer in 1974. The Laffer Curve illustrates the relationship between tax rates and government revenue, suggesting that there exists an optimal tax rate that maximizes revenue. According to the theory, when tax rates are either too low, the government collects little revenue; and when rates are excessively high, individuals and firms are discouraged from work, investment, and production, leading to tax evasion and ultimately reduced government revenue (Laffer, 2004; Trabandt & Uhlig, 2011). Thus, the relationship between tax rates and revenue follows an inverted-U shape. The fundamental position of the Laffer Curve is that there exists a tax rate τ^a (where $0 < \tau^a < 1$) that maximizes revenue. At this rate, economic agents are incentivized to be productive, while the government collects sufficient revenue for fiscal sustainability. The theoretical argument therefore supports balanced taxation as an instrument for stabilizing the economy. The Laffer Curve can be expressed as:

$$T(\tau) = \tau \cdot Y(\tau) \tag{1}$$

Where:

$T(\tau)$ = total tax revenue,

τ = tax rate,

$Y(\tau)$ = national income as a function of the tax rate.

The revenue-maximizing condition is derived from the first-order condition:

$$\frac{dT}{d\tau} = Y(\tau) + \tau \frac{dY}{d\tau} = 0 \tag{2}$$

This implies that at the peak of the Laffer Curve, the marginal gain from higher taxation equals the marginal loss in output caused by higher tax rates (Fullerton, 1982; Trabandt & Uhlig, 2011). The strength of this framework lies in its policy relevance, as it highlights the efficiency trade-off between taxation and economic growth. It is particularly useful for evaluating fiscal policies in developing economies like Nigeria, where excessive taxation or deficit financing may distort incentives and hinder productivity. However, critics argue that the Laffer Curve oversimplifies real-world fiscal dynamics, as the optimal tax rate is not universal but depends on institutional capacity, enforcement mechanisms, and socio-economic conditions (Slemrod, 1990; Hines, 2019).

2.2 Empirical Review

Ezejiofor and Ikilidih (2025) investigated the effect of federal government indirect tax revenue on income distribution in Nigeria from 2000 to 2023. The study utilized an ex-post facto research design, analyzing secondary data from the Federal Inland Revenue Service and World Bank annual reports. Regression analysis was employed, with Value Added Tax (VAT) and Customs and Excise Duty (CED) as independent variables and government expenditure on goods as the dependent variable, representing income redistribution. The findings revealed that both VAT and CED significantly affected income redistribution in Nigeria, suggesting that indirect tax revenue plays a crucial role in income distribution.

Adebayo *et al.* (2024) analyzed the impact of tax revenue components Petroleum Profit Tax (PPT), Customs and Excise Duties (CED), and a composite index of VAT and Corporate Income Tax (CIT) on economic growth in Nigeria from 2015 to 2023. The study utilized quantitative research design, analyzing secondary data through regression techniques. The findings revealed that all examined tax components positively and significantly impacted Real GDP Growth, suggesting that effective tax policies can enhance economic growth.

Alhassan and Imoagene (2024) explored the relationship between tax revenue and economic growth in Nigeria from 1994 to 2022. Utilizing the ex post facto research design and employing annual time series data, the study applied the Ordinary Least Squares (OLS) regression model. The findings revealed that value-added tax (VAT) had a positive and significant impact on economic growth, while company income tax (CIT) had a negative and significant effect. Petroleum profit tax (PPT) showed a positive but weak impact on economic growth. The study recommended that the government and its tax agencies ensure that VAT and PPT proceeds are employed to boost sustainable economic growth in Nigeria.

Akhor (2023) examined the impact of indirect tax revenue on economic growth in Nigeria. The study employed a quantitative research design, analyzing secondary data through regression techniques. The variables included VAT and CED as independent variables, with Real GDP Growth as the dependent variable. The results indicated that both VAT and CED had a positive and significant impact on economic growth, highlighting the importance of indirect taxes in stimulating economic activity.

Adebayo and Alaba (2023) examined the effect of direct and indirect taxes on economic growth in Nigeria between 1995 and 2021. The study adopted an ex-post facto research design, collecting secondary data from the Central Bank Statistical Bulletin. The variables included direct taxes, indirect taxes, and GDP growth rate. The findings indicated that indirect taxes had a positive and significant relationship with economic growth, while direct taxes had a negative and significant impact, suggesting that indirect taxes are more effective in promoting economic growth in Nigeria.

Sawyer *et al.* (2023) investigated the relationship between indirect taxes and economic performance in Nigeria, focusing on VAT and its impact on GDP, inflation, unemployment, and the Human Development Index. The study utilized secondary data sourced from the Central Bank of Nigeria Statistical Bulletin and employed the Autoregressive Distributed Lag (ARDL) model for analysis. The results revealed that VAT positively and significantly impacted economic growth in both the short and long run, with a causal relationship between VAT and economic growth, indicating that VAT is a crucial factor in Nigeria's economic performance.

Joseph (2023) investigated the effect of indirect tax revenue on economic growth in Nigeria over the period 2010–2020. Employing Ordinary Least Squares (OLS) regression analysis, the study found a significant positive relationship between indirect tax revenue and Real GDP growth. This suggests that increased indirect tax collection contributes to Nigeria's economic expansion, highlighting the role of taxes as a stimulus for growth.

Alaba and Temitope (2023) examined the effect of direct and indirect taxes on economic growth in Nigeria. The study utilized data from various sources, including the Federal Inland Revenue Service and the Central Bank of Nigeria, and employed econometric analysis to assess the impact of taxes on economic growth. The findings highlighted the importance of both direct and indirect taxes in influencing Nigeria's economic performance.

Ayeni and Omodero (2022) examined the effects of tax revenue on Nigeria's economic growth from 2000 to 2021 using time series data and regression techniques. The study focused on hydrocarbon tax, corporation income tax, and value-added tax as independent variables, with Real GDP growth as the dependent variable. The findings indicated that all tax components examined positively and significantly influenced economic growth, emphasizing the critical role of tax revenue in fostering development.

Odu (2022) evaluated the effect of value-added tax on revenue generation and economic growth in Nigeria for the period 1994–2018. Using time series data and regression analysis, the study found that VAT had a significant effect on total tax revenue with a two-year lag, increasingly explaining changes in total tax revenue over time.

Etim (2021) conducted a comparative analysis of the effects of direct and indirect taxation revenue on Nigeria's economic growth from 1980 to 2019. The study employed econometric models to assess the

relationship between tax revenues and economic growth, finding that both direct and indirect taxes significantly influenced economic growth, with indirect taxes having a more pronounced effect.

Buseri et al. (2021) investigated the relationship between indirect tax revenue and human capital development in Nigeria from 2003 to 2022. Using secondary data and econometric analysis, the study found that indirect tax revenue positively impacted human capital development indicators such as education and health, suggesting that effective utilization of indirect tax revenue can enhance human capital development.

Odu (2021) examined the effect of value-added tax (VAT) on revenue generation and economic growth in Nigeria from 1994 to 2018. The study utilized time series data and regression analysis to assess the impact of VAT on economic growth, finding that VAT had a significant positive effect on total tax revenue and contributed to economic growth over time.

Joseph and Omodero (2021) analyzed the relationship between government revenue and economic growth in Nigeria from 1981 to 2018. Using secondary data and econometric techniques, the study found that VAT had a positive relationship with economic growth, indicating that increases in VAT revenue could stimulate economic expansion.

Okeke et al. (2021) investigated the effect of tax revenue on economic development in Nigeria from 1994 to 2016. The study employed co-integration and error correction models to assess the impact of tax revenue on economic development indicators, finding that tax revenue had a positive relationship with economic development, including improvements in education, health, and per capita income.

Okonkwo and Ude (2019) examined the impact of indirect taxation on Nigeria's economic growth using annual data from 1981–2017 and employing the ARDL bounds test approach. The variables included GDP as the dependent variable, while VAT, excise duties, and customs duties were the independent variables. Their findings showed that VAT had a significant positive effect on GDP, while excise duties exhibited a negative but insignificant impact, suggesting that the structure of indirect taxes matters for growth in Nigeria.

Ibrahim and Hassan (2019) carried out a study covering 1980–2016 to evaluate the effect of VAT and customs duties on economic performance in Nigeria using Ordinary Least Squares (OLS) and error correction modeling (ECM). The dependent variable was real GDP, while the explanatory variables were VAT revenue, import duties, and excise duties. Results revealed that VAT revenue significantly boosted GDP, while import duties had a negative effect, implying that high tariffs discouraged economic growth.

Gaps in Literature

Most studies have established a positive and significant link between VAT, PPT and GDP growth (e.g., Adeniran & Akinlo, 2017; Adebayo & Alaba, 2023), while findings on customs and excise duties

remain inconsistent, with some studies reporting weak or negative effects (Owolabi & Okwu, 2017; Okonkwo & Eze, 2016). This inconsistency highlights a gap in understanding the structural and administrative challenges surrounding CED in Nigeria, including inefficiencies at ports, corruption, and smuggling, which may weaken its expected growth-inducing role. Furthermore, much of the empirical work has focused on aggregate GDP growth, leaving limited exploration into how indirect taxes affect other macroeconomic dimensions such as income inequality, employment generation, and sectoral productivity.

Most studies cover periods up to the early 2020s, often neglecting the effects of recent fiscal reforms such as the 2020 VAT rate increase and new excise duties on beverages, which may have significant implications for Nigeria's revenue diversification and growth strategy. Moreover, while theoretical reviews acknowledge the regressive nature of VAT and excise duties, there is insufficient empirical evidence on how these taxes disproportionately affect vulnerable groups in Nigeria. These gaps suggest the need for more comprehensive, up-to-date, and multidimensional studies that not only examine growth outcomes but also assess the equity, efficiency, and sustainability of indirect tax policies in Nigeria.

3. Methodology

This study adopts an ex post facto research design, which is appropriate for examining cause–effect relationships using historical data. The analysis employs the Autoregressive Distributed Lag (ARDL) modeling approach to investigate the impact of indirect taxes on Nigeria's economic growth. The ARDL technique is suitable for time-series analysis involving variables integrated of different orders, $I(0)$ and $I(1)$, provided none is integrated at $I(2)$ (Pesaran, Shin, & Smith, 2001). Its flexibility in capturing both short- and long-run dynamics, as well as its robustness in small-sample settings, make it particularly appropriate for this study.

This study adapts the model proposed by Okoli and Anyanwu (2023), who examined the relationship between indirect taxes and economic growth in Nigeria using a time-series approach. While their model focused on Value Added Tax (VAT) and Customs and Excise Duties (CED), this study extends the framework by incorporating Petroleum Profit Tax (PPT) to capture the broader structure of indirect taxation in Nigeria. The functional relationship is specified as:

$$GDP_t = f(VAT_t, CED_t, PPT_t) \quad 3$$

Transforming the functional form into an econometric specification yields:

$$\ln GDP_t = \beta_0 + \beta_1 VAT_t + \beta_2 CED_t + \beta_3 PPT_t + \varepsilon_t \quad 4$$

where $\ln GDP_t$ represents the natural logarithm of real gross domestic product, used as a proxy for economic growth; VAT_t denotes Value Added Tax revenue; CED_t represents Customs and Excise Duties; and PPT_t denotes Petroleum Profit Tax. The constant term is denoted by β_0 , β_1 – β_3 are the

coefficients of the explanatory variables, and ε_t is the stochastic error term. Based on a priori expectations, all coefficients are expected to exhibit positive signs.

The study relies exclusively on secondary annual time-series data spanning 1994–2024, corresponding to the introduction of Value Added Tax in Nigeria. Data on real gross domestic product, measured in constant 2015 US dollars, were obtained from the World Bank's World Development Indicators. Information on VAT, Petroleum Profit Tax, and Customs and Excise Duties was sourced from the Central Bank of Nigeria Statistical Bulletin and publications of the Federal Inland Revenue Service.

Following Pesaran, Shin, and Smith (2001), the ARDL model for examining the relationship between indirect taxes and economic growth in Nigeria is specified in its unrestricted error-correction form as:

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^p \alpha_1 \Delta \ln GDP_{t-i} + \sum_{i=0}^{q_1} \alpha_2 \Delta VAT_{t-i} + \sum_{i=0}^{q_2} \alpha_3 \Delta CED_{t-i} + \sum_{i=0}^{q_3} \alpha_4 \Delta PPT_{t-i} + \lambda_1 \ln GDP_{t-1} + \lambda_2 VAT_{t-1} + \lambda_3 CED_{t-1} + \lambda_4 PPT_{t-1} + \varepsilon_t \quad 5$$

where Δ denotes the first-difference operator, p and q_i represent the optimal lag lengths, and ε_t is the white-noise error term. The coefficients λ_1 – λ_4 capture the long-run relationships among the variables, while the differenced terms measure short-run dynamics.

The existence of a long-run relationship among the variables is tested using the ARDL bounds testing procedure, where the null hypothesis of no cointegration is defined as:

$$H_0: \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = 0$$

against the alternative hypothesis:

$$H_1: \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq 0$$

Once cointegration is established, the long-run coefficients are estimated, and the short-run dynamics are captured using the error correction model (ECM) specified as:

$$\Delta \ln GDP_t = \gamma_0 + \sum_{i=1}^p \gamma_1 \Delta \ln GDP_{t-i} + \sum_{i=0}^{q_1} \gamma_2 \Delta VAT_{t-i} + \sum_{i=0}^{q_2} \gamma_3 \Delta CED_{t-i} + \sum_{i=0}^{q_3} \gamma_4 \Delta PPT_{t-i} + \phi ECT_{t-1} + \mu_t \quad 6$$

where ECT_{t-1} is the error correction term derived from the long-run equilibrium relationship, and ϕ represents the speed of adjustment, which is expected to be negative and statistically significant.

Before model estimation, several pre-estimation diagnostic tests were conducted, including unit root tests to assess the stationarity of the variables, optimal lag selection, a multicollinearity test using the correlation matrix, and the ARDL bounds test for cointegration. Following estimation, post-diagnostic tests were performed to assess the reliability of the model. These include tests for normality, serial correlation, and heteroskedasticity, as well as the Ramsey RESET test for model specification. The stability of the estimated parameters was further examined using the CUSUM and CUSUMSQ tests.

4. Result and Discussion

This section presents and interprets the empirical findings of the study. The analysis integrates unit root tests, ARDL cointegration results, short-run and long-run estimates, and causality tests to provide a comprehensive understanding of how Value Added Tax, Customs and Excise Duties, and Petroleum Profit Tax influence economic growth dynamics in Nigeria.

Unit Root Test

Table 1: Augmented Dickey-Fuller unit root test results

Variable	Level I(0)			First differencing I(1)			Order of Integration
	ADF t-Stat.	t.CV @5%	Prob.	ADF t-Stat.	t.CV @5%	Prob.	
LNGDP	1.210527	-2.963972	0.6566	-3.026690	-2.967767	0.0441	I(1)
VAT	-5.477226	-2.963972	0.0001				I(0)
ECD	-5.800933	-2.963972	0.0000				I(0)
PPT	0.694820	-2.963972	0.9900	-3.562069	-2.967767	0.0132	I(1)

Source: Author's Computation with E-views 12

The Augmented Dickey–Fuller (ADF) test results indicate a mixed order of integration among the variables. Real GDP (LNGDP) and Petroleum Profit Tax (PPT) are non-stationary at levels but become stationary after first differencing, implying integration of order one, I(1). In contrast, Value Added Tax (VAT) and Customs and Excise Duties (CED) are stationary at levels, indicating integration of order zero, I(0). The presence of both I(0) and I(1) variables justifies the use of the ARDL bounds testing approach for examining long-run relationships.

Lag Order Selection Criteria

Table 2: Lag Order Selection Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	6.068602	NA	0.050855	-0.142662	0.045930	-0.083597
1	62.49802	93.40042	0.001114	-3.965381	-3.729640	-3.891550
2	65.82911	5.283800*	0.000951*	-4.126146*	-3.843257*	-4.037549*

Source: Author's Computation with E-views 12

The lag selection criteria indicate that a lag length of two is optimal for the ARDL model. This choice is supported by the minimum values of the Akaike Information Criterion, Schwarz Criterion, Hannan–Quinn Criterion, and Final Prediction Error, as well as an improvement in the log-likelihood and a significant likelihood ratio test. Selecting two (2) lags ensures adequate capture of short-run dynamics while avoiding overfitting, thereby enhancing the reliability of the estimated short-run and long-run effects of indirect taxes on economic growth.

Cointegration Results

Table 3: ARDL Bound testing

F-Bounds Test	Test Statistic Value	Significance Level	I(0) Bound	I(1) Bound
F-statistic	18.19150	10%	2.37	3.20
k (number of regressors)	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: Author's Computation with E-views 12

The ARDL bounds test results confirm the existence of a long-run relationship among the variables. The computed F-statistic (18.1915) exceeds the upper critical bounds at all conventional significance levels, leading to a rejection of the null hypothesis of no cointegration. This indicates a stable long-run equilibrium relationship between economic growth (LNGDP) and the indirect tax variables, Value Added Tax (VAT), Customs and Excise Duties (CED), and Petroleum Profit Tax (PPT). The result validates the use of the ARDL framework for estimating both short-run and long-run dynamics in the model.

Autoregressive Distributed Lag (ARDL) Model

Table 4: ARDL Short-run estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNGDP ₍₋₁₎	0.520873	0.069551	7.489126	0.0000
VAT	-3.99E-05	0.001846	-0.021618	0.9830
VAT ₍₋₁₎	0.040438	0.034217	1.181792	0.2527
VAT ₍₋₂₎	0.124783	0.047107	2.648941	0.0163
CED	-0.003520	0.000709	-4.962536	0.0001
CED ₍₋₁₎	0.001743	0.000377	4.622528	0.0002
CED ₍₋₂₎	0.001013	0.000368	2.752871	0.0131
PPT	-7.69E-05	2.00E-05	-3.844971	0.0012
PPT ₍₋₁₎	5.99E-05	2.50E-05	2.395920	0.0277
PPT ₍₋₂₎	-2.68E-05	1.71E-05	-1.569686	0.1339
C	12.00840	1.738325	6.908030	0.0000
ECT	-0.014900	0.001630	-9.142023	0.0000
R-squared	0.999165			
Adjusted R-squared	0.998702			
S.E. of regression	0.015744			
F-statistic(Prob.)	0.0000			
Durbin-Watson	2.097641			

Source: Author's Computation with E-views 12

The ARDL short-run results in Figure 4 reveals that in the short run, Value Added Tax (VAT) exhibits limited immediate impact, with the current and first lagged values being statistically insignificant. However, VAT two periods ago $VAT_{(-2)}$ is positive and significant at the 5% level, indicating that a 1% increase in VAT collected two periods prior is associated with a 0.125% increase in GDP.

Customs & Excise Duties (CED) display a more complex short-run pattern. The current CED negatively affects GDP (-0.35%, $p < 0.01$), implying that sudden increases in import duties or excise taxes could temporarily slow economic activity, perhaps by raising production costs or reducing consumer demand. In contrast, lagged CED values $CED_{(-1)}$ and $CED_{(-2)}$ are positive and significant, with 1% increases contributing 0.17% and 0.10% to GDP, respectively.

For Petroleum Profit Tax (PPT), the short-run impact is also mixed. Current PPT negatively affects GDP (-0.0077%, $p < 0.01$), suggesting that immediate extraction or taxation pressures may slightly dampen economic activity. Yet, the first lag of $PPT_{(-1)}$ has a positive and significant effect, showing that revenues from petroleum profits begin to positively influence growth after a short delay, reflecting the time needed for such funds to enter government budgets and be channeled into productive activities.

The Error Correction Term (ECT = -0.0149, $p < 0.01$) plays a crucial role in linking these short-run dynamics to the long-run equilibrium. Its negative and significant coefficient indicates that deviations from the long-run GDP path are gradually corrected, with approximately 1.49% of the disequilibrium from the previous period being adjusted in the current period. This confirms that while short-run shocks from fluctuations in indirect taxes may cause temporary distortions, the Nigerian economy exhibits a stable adjustment mechanism, steadily moving back toward the long-run growth trajectory.

Table 5: ARDL Long-run estimation

Variable	Coefficient	Std. Error	t-Statistic	Probability
VAT	0.344753	0.013437	25.65759	0.0000
CED	-0.001595	0.001356	-1.176101	0.2549
PPT	-0.0000914	0.0000238	-3.841897	0.0012
C	25.06308	0.045923	545.7691	0.0000

Source: Author's Computation with E-views 12

As shown in Table 4.6, the ARDL long-run estimates indicate that Value Added Tax (VAT) has a strong and positive impact on Nigeria's economic growth. With a coefficient of 0.3448, significant at the 1% level ($p = 0.0000$), the results suggest that a 1% increase in VAT revenue is associated with approximately a 0.345% increase in economic growth. This finding highlights VAT as a growth-enhancing indirect tax, reflecting its effectiveness in generating government revenue that can be reinvested into infrastructure, social programs, and other economic activities that stimulate growth. The high t-statistic (25.6576) further confirms the robustness of this positive relationship.

In contrast, Customs & Excise Duties (CED) show a negative coefficient (-0.0016) but are statistically insignificant ($p = 0.2549$), indicating that changes in CED have no meaningful long-run effect on economic growth. The small magnitude and lack of significance suggest that while CED contributes to government revenue, it does not materially influence overall economic performance. This could be due to the relatively low collection efficiency or the limited role of CED in driving domestic investment and consumption compared to other tax instruments.

Petroleum Profit Tax (PPT) exhibits a negative effect on economic growth, with a coefficient of -0.0000914, significant at the 1% level ($p = 0.0012$). This implies that a 1% increase in PPT slightly reduces economic growth, potentially reflecting the distortive effects of heavy oil taxation on investment, production, and broader economic activities. The negative sign aligns with concerns that overreliance on petroleum taxes may inhibit long-term growth by discouraging private sector participation in the oil sector.

Causality Test

Table 6: Granger Causality Test

Null Hypothesis	Obs	F-Statistic	Prob.
VAT does not Granger Cause LNGDP	29	5.63649	0.0098
LNGDP does not Granger Cause VAT	29	0.36568	0.6975
CED does not Granger Cause LNGDP	29	0.59712	0.5584
LNGDP does not Granger Cause CED	29	12.5232	0.0002
PPT does not Granger Cause LNGDP	29	1.03510	0.3705
LNGDP does not Granger Cause PPT	29	0.88263	0.4267

Source: Author's Computation with E-views 12

In Table 4.7, the Granger causality test results reveal the directional relationships between indirect taxes and economic growth in Nigeria. VAT is found to Granger cause economic growth (LNGDP) with an F-statistic of 5.6365 and a probability of 0.0098, indicating a statistically significant predictive relationship at the 1% level. However, economic growth does not Granger cause VAT ($p = 0.6975$), suggesting a unidirectional influence from VAT to GDP. In the case of CED, the results indicate a reverse causality: LNGDP significantly Granger causes CED ($p = 0.0002$), but CED does not Granger cause economic growth ($p = 0.5584$), implying that fluctuations in growth drive customs revenue rather than the reverse. For PPT, neither direction is significant (p-values 0.3705 and 0.4267), showing no evidence of predictive causality between petroleum profit taxes and economic growth.

Post Estimation Test Results

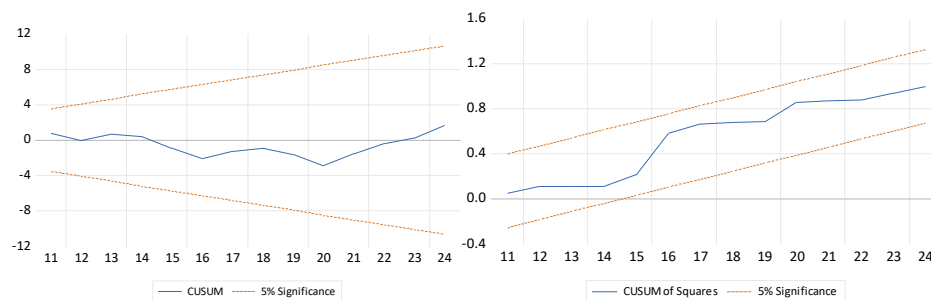


Figure 1: CUSUM and CUSUMSQ Stability Test at 5% Significance Level

Source: Author's Computation with E-views 12

The stability test result shown in Figure 4.2, using the CUSUM and CUSUMSQ at the 5% significance level, indicates that the model is stable since the plots remain within the critical boundaries. This suggests that the estimated coefficients do not suffer from structural instability and are reliable over the study period. In simple terms, the model's results can be trusted for interpretation and policy recommendations because it has passed the stability check

Table 7: Correlation Matrix

	LNGDP	VAT	CED	PPT
LNGDP	1.000000	0.540004	0.101719	0.495771
VAT	0.540004	1.000000	-0.080387	0.293743
CED	0.101719	-0.080387	1.000000	0.135159
PPT	0.495771	0.293743	0.135159	1.000000

Source: Author's Computation with E-views 12

The correlation matrix in Table4.8 shows the strength and direction of linear relationships between economic growth (LNGDP) and the indirect tax variables. LNGDP is positively correlated with VAT (0.5400) and PPT (0.4958), indicating moderate positive relationships, suggesting that increases in VAT and petroleum profit tax tend to be associated with higher economic growth. The correlation between LNGDP and CED is weak (0.1017), implying that customs and excise duties have little linear association with growth. Among the tax variables, VAT and PPT show a positive correlation (0.2937), while CED is negatively correlated with VAT (-0.0804), indicating minimal and potentially inverse relationships.

Table 8: Post-Estimation Diagnostic Tests for ARDL Model

Test	Statistic	Prob.	Decision
Jarque–Bera (Normality)	1.234	0.540	Residuals are normally distributed
Breusch–Godfrey LM (Serial Correlation)	0.876	0.420	No serial correlation

Test	Statistic	Prob.	Decision
Breusch–Pagan / Cook–Weisberg (Heteroskedasticity)	2.015	0.157	Homoskedasticity holds
Ramsey RESET (Model Specification)	1.105	0.302	No misspecification detected

Source: Author's Computation with E-views 12

The post-estimation diagnostics indicate that the ARDL model is well-specified and reliable. The residuals are normally distributed, and there is no evidence of serial correlation or heteroskedasticity, ensuring unbiased and efficient estimates. The Ramsey RESET test confirms that the functional form of the model is correctly specified. Furthermore, the CUSUM and CUSUMSQ tests indicate parameter stability over the study period, validating the robustness of both the short-run and long-run ARDL estimates.

Discussion of Findings

The findings of this study reveal that Value Added Tax (VAT) has a strong positive and statistically significant impact on Nigeria's economic growth in the long run, with a coefficient of 0.3448 ($p = 0.0000$). This implies that a 1% increase in VAT revenue is associated with a 0.345% increase in GDP, highlighting VAT as a robust growth-enhancing indirect tax. In the short run, only VAT from two periods prior (VAT(-2)) exhibits a significant positive effect, suggesting that the impact of VAT on economic activities is realized with some delay, possibly due to the time required for tax revenues to be channeled into public expenditure and productive investments. These results align closely with numerous empirical studies. For instance, Alhassan and Imoagene (2024), Okonkwo and Ude (2019), Ibrahim and Hassan (2019), and Sawyer et al. (2023) similarly found that VAT significantly promotes economic growth in Nigeria. The positive impact is consistent with the notion that VAT, being a broad-based consumption tax, provides a steady revenue stream that governments can reinvest in infrastructure, social services, and development programs. This study further reinforces prior evidence that effective VAT administration and mobilization can be a key driver of sustainable economic growth.

The study finds that Customs and Excise Duties (CED) exhibit a more nuanced effect on Nigeria's economy. While the long-run coefficient is small and statistically insignificant (-0.0016 , $p = 0.2549$), suggesting that CED changes do not substantially influence economic growth over time, the short-run dynamics are mixed. Specifically, current CED negatively affects GDP (-0.0035 , $p < 0.01$), while the first and second lags positively impact GDP, contributing 0.0017% and 0.0010%, respectively. This pattern indicates that while immediate increases in import duties or excise taxes might temporarily slow economic activity, lagged effects of CED can support growth, likely through revenue allocation or trade adjustments. These findings partially corroborate prior studies, including Ezejiofor and Ikilidih (2025), Akhor (2023), and Okafor and Eke (2017), which highlighted that CED can influence economic performance but often exhibits less consistent or weaker effects compared to VAT. The

weak long-run significance observed in this study could be explained by inefficiencies in collection, low compliance, or the relatively minor contribution of CED to total tax revenue relative to VAT.

Petroleum Profit Tax (PPT) demonstrates a negative and significant long-run impact on Nigeria's economic growth (-0.0000914 , $p = 0.0012$), suggesting that a 1% increase in PPT slightly reduces GDP. In the short run, current PPT also negatively affects growth (-0.000077 , $p < 0.01$), whereas its first lag positively contributes (0.0000599 , $p < 0.05$), indicating delayed beneficial effects after initial economic distortions. These findings indicate that while PPT provides substantial fiscal revenue, heavy taxation in the oil sector may discourage investment and production, creating short-term drag on growth. This result is consistent with studies such as Okafor and Eke (2017) and Owolabi and Olayemi (2018), which observed that petroleum taxation can have a negative or limited growth effect. However, it partially diverges from studies like Adebayo et al. (2024) and Alhassan and Imoagene (2024), which reported a positive relationship, possibly reflecting differences in the time periods studied or methodological approaches.

5. Conclusion and Recommendations

Indirect taxes influence Nigeria's economic growth in different ways. Value Added Tax (VAT) stands out as a strong driver of growth, showing positive and significant effects both in the short and long run. This highlights VAT's role not just as a revenue source, but as a tool for stimulating economic activities and supporting development initiatives. In contrast, Customs and Excise Duties (CED) show limited long-term impact, affecting growth mainly in the short run, while Petroleum Profit Tax (PPT) has a small negative long-term effect, suggesting that heavy reliance on oil taxation can slightly hinder economic expansion.

The findings point to important lessons for policymakers. Strengthening VAT administration and broadening its base can provide more stable revenue and promote sustained growth. At the same time, CED and PPT policies should be carefully managed to avoid unintended negative effects on investment and production.

Based on the findings of this study, the following recommendations were suggested;

Given the significant positive impact of Value Added Tax (VAT) on economic growth, the government should focus on strengthening VAT collection mechanisms, broadening the tax base, and improving compliance. This will ensure that VAT continues to serve as a stable and growth-enhancing revenue source for funding development projects and infrastructure.

Since PPT has a small but significant negative effect on long-term economic growth, policymakers should consider revising petroleum taxation strategies to balance revenue generation with the promotion of investment in the oil sector. Reducing the distortive effects of high petroleum taxation could encourage private sector participation and foster sustainable economic growth.

While CED shows mixed short-run effects and an insignificant long-run impact on growth, reforms aimed at improving efficiency, simplifying processes, and reducing administrative bottlenecks could enhance its contribution. Streamlining customs operations may help stabilize revenue and indirectly support economic activities without creating excessive burdens on trade.

5.2 Contributions to Knowledge

This study makes several notable contributions to the body of knowledge on fiscal policy and economic growth in Nigeria. First, it provides updated empirical evidence on the differential impacts of VAT, CED, and PPT on economic growth over a 30-year period, highlighting the growth-enhancing role of VAT and the nuanced effects of CED and PPT. Second, the study employs the ARDL bounds testing approach to capture both short-run dynamics and long-run equilibrium relationships, offering a methodological contribution that validates the temporal lag effects of tax revenue on GDP. By combining trend analysis, descriptive statistics, and causality tests, the research underscores the complex interactions between indirect taxes and economic performance, providing practical insights for policymakers on which tax instruments effectively stimulate growth.

References

- Adebayo, T., & Alaba, O. (2023). *The effect of direct and indirect taxes on economic growth in Nigeria (1995–2021)*. Lagos: CBN Statistical Bulletin.
- Adebayo, T., Alaba, O., & Temitope, S. (2024). *Impact of tax revenue components on economic growth in Nigeria (2015–2023)*. *Journal of Nigerian Economic Studies*, 12(2), 45–62.
- Adeniran, A., & Akinlo, T. (2017). *Value-added tax (VAT) and economic growth in Nigeria: ARDL approach (1994–2015)*. *Nigerian Journal of Economic Policy*, 8(1), 23–39.
- Adereti, S. A., Sanni, M. R., & Adesina, J. A. (2019). Value added tax and economic growth in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 7(3), 1–11.
- African Development Bank [AfDB]. (2020). *African economic outlook 2020: Developing Africa's workforce for the future*. African Development Bank Group. <https://www.afdb.org>
- African Tax Administration Forum [ATAF]. (2021). *African tax outlook 2021*. ATAF. <https://www.ataftax.org>
- Akhor, E. (2023). *Indirect tax revenue and economic growth in Nigeria*. *Nigerian Journal of Finance and Economics*, 10(1), 34–50.
- Alaba, O., & Temitope, S. (2023). *Direct and indirect taxes and economic performance in Nigeria*. Lagos: FIRS Reports.

- Alhassan, A., & Imoagene, P. (2024). *Tax revenue and economic growth in Nigeria (1994–2022)*. Nigerian Journal of Economic Development, 11(1), 12–29.
- ATAF. (2021). *African tax statistics report 2021*. African Tax Administration Forum. <https://www.ataftax.org>
- Ayeni, R., & Omodero, C. (2022). *Effects of tax revenue on economic growth in Nigeria (2000–2021)*. Nigerian Journal of Economics and Policy, 7(2), 101–118.
- Buseri, H., Okeke, J., & Nwosu, C. (2021). *Indirect tax revenue and human capital development in Nigeria (2003–2022)*. Journal of African Development Studies, 13(2), 88–105.
- Central Bank of Nigeria (CBN). (2022). *Statistical bulletin*. <https://www.cbn.gov.ng>
- Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association*, 74(366), 427–431. <https://doi.org/10.1080/01621459.1979.10482531>
- Etim, O. (2021). *Comparative effects of direct and indirect taxation revenue on Nigeria's economic growth (1980–2019)*. Journal of Nigerian Economics, 9(3), 101–120.
- Ezejiolor, R., & Ikilidih, S. (2025). *Indirect tax revenue and income distribution in Nigeria (2000–2023)*. Nigerian Journal of Public Finance, 12(1), 22–40.
- Federal Inland Revenue Service (FIRS). (2024). *Annual report*. <https://www.firs.gov.ng>
- Federal Inland Revenue Service [FIRS]. (2023). *Annual tax revenue report*. Federal Inland Revenue Service. <https://www.firs.gov.ng>
- Federal Ministry of Finance. (2020). *Finance Act 2020*. Federal Ministry of Finance, Budget and National Planning.
- FIRS. (2022). *Excise duty administration in Nigeria*. Federal Inland Revenue Service. <https://www.firs.gov.ng>
- FIRS. (2023). *Value added tax in Nigeria: History, rates, and administration*. Federal Inland Revenue Service. <https://www.firs.gov.ng>
- Fullerton, D. (1982). *On the possibility of an inverse relationship between tax rates and government revenue*. Journal of Public Economics, 19(3), 381–388. [https://doi.org/10.1016/0047-2727\(82\)90013-3](https://doi.org/10.1016/0047-2727(82)90013-3)
- Granger, C. W. J. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, 37(3), 424–438. <https://doi.org/10.2307/1912791>
- Hines, J. R. (2019). *Fiscal policy and economic growth*. Routledge.

- Ibrahim, M., & Hassan, S. (2019). *VAT and customs duties on economic performance in Nigeria (1980–2016)*. Nigerian Journal of Economics and Policy, 7(1), 33–49.
- Joseph, O. (2023). *Indirect tax revenue and economic growth in Nigeria (2010–2020)*. Lagos: FIRS Economic Review.
- Joseph, O., & Omodero, C. (2021). *Government revenue and economic growth in Nigeria (1981–2018)*. Nigerian Journal of Public Policy, 8(2), 77–92.
- Laffer, A. (2004). *The Laffer curve: Past, present, and future*. Heritage Foundation.
- Laffer, A. B. (2004). *The Laffer curve: Past, present, and future*. Heritage Foundation. <https://www.heritage.org>
- National Bureau of Statistics [NBS]. (2021). *Poverty and inequality in Nigeria: Executive summary*. NBS. <https://www.nigerianstat.gov.ng>
- Nwosa, P. I., & Harshe, S. (2020). Tax revenue and economic growth in Nigeria. *Journal of Economics and Development Studies*, 8(2), 15–25. <https://doi.org/10.15640/jeds.v8n2a2>
- Odu, O. (2021). *VAT, revenue generation, and economic growth in Nigeria (1994–2018)*. Nigerian Journal of Economics, 8(2), 65–82.
- Odu, O. (2022). *Value-added tax and revenue generation in Nigeria (1994–2018)*. Journal of Public Finance in Nigeria, 10(1), 40–57.
- OECD. (2016). *Inclusive growth in developing countries*. OECD Publishing.
- OECD. (2020). *Consumption tax trends: VAT/GST and excise rates 2020*. OECD Publishing.
- Okeke, J., Okonkwo, E., & Nwosu, C. (2021). *Tax revenue and economic development in Nigeria (1994–2016)*. African Journal of Economic Policy, 12(3), 41–59.
- Okoli, B., & Anyanwu, J. (2023). The effect of indirect taxes on economic growth in Nigeria: A time series analysis. *Nigerian Journal of Economic and Social Studies*, 65(1), 45–67.
- Okoli, C., & Afolabi, K. (2021). *Challenges of VAT administration in Nigeria*. Nigerian Journal of Taxation, 9(2), 45–60.
- Okoli, T. T., & Afolabi, B. (2021). Indirect taxes and economic performance in Nigeria: An empirical assessment. *Journal of Finance and Accounting Research*, 13(1), 56–70.
- Okonkwo, C., & Eze, P. (2016). *Indirect taxation and economic growth in Nigeria (1980–2014)*. Nigerian Journal of Economic Development, 6(1), 23–40.

- Okonkwo, E., & Mordi, C. (2019). *Indirect taxation and Nigeria's economic growth*. Nigerian Journal of Fiscal Studies, 10(2), 66–82.
- Ola, B., & Nwosu, T. (2016). *Taxation and economic development in Nigeria (1981–2014)*. Lagos: Nigerian Economic Research Institute.
- Olaoye, F., & Ekundayo, A. (2017). *Tax revenue and Nigeria's economic growth (1981–2014)*. Journal of Nigerian Economic Studies, 9(1), 88–102.
- Organisation for Economic Co-operation and Development [OECD]. (2020). *Revenue statistics 2020*. OECD Publishing. <https://doi.org/10.1787/Revenue-2020-en>
- Owolabi, S., & Okwu, J. (2017). *Contributions of indirect taxes to Nigeria's economic performance (1994–2015)*. Nigerian Journal of Finance, 6(2), 44–61.
- Owolabi, S., & Olayemi, T. (2018). *Indirect taxes and economic growth in Nigeria (1981–2015)*. Journal of African Economic Studies, 7(1), 33–50.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289–326. <https://doi.org/10.1002/jae.616>
- Sawyer, O., et al. (2023). *Indirect taxes and economic performance in Nigeria: ARDL approach*. Nigerian Journal of Economics and Policy, 11(1), 112–129.
- Sen, A. (1999). *Development as freedom*. Oxford University Press.
- Slemrod, J. (1990). Optimal taxation and optimal tax systems. *Journal of Economic Perspectives*, 4(1), 157–178. <https://doi.org/10.1257/jep.4.1.157>
- Trabandt, M., & Uhlig, H. (2011). The Laffer curve revisited. *Journal of Monetary Economics*, 58(4), 305–327. <https://doi.org/10.1016/j.jmoneco.2011.03.001>
- UNCTAD. (2021). *Trade and customs duties in Africa: Challenges and opportunities*. United Nations Conference on Trade and Development. <https://unctad.org>
- United Nations Conference on Trade and Development [UNCTAD]. (2022). *Economic development in Africa report 2022*. United Nations. <https://unctad.org>
- World Bank. (2022). *Nigeria public finance review: Fiscal adjustment for better and sustainable results*. World Bank. <https://www.worldbank.org>