AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Business Management, Economics and Banking
ISSN (E): 2832-8078 Volume 53, October- 2026

FEDERAL REVENUE TAX RELEVANCE AND ECONOMIC PERFORMANCE EFFECT

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ABSTRACT

This study examined the relevance and effect of federal tax revenue on economic performance in Nigeria over the period 1994–2025. Specifically, the study examined the effects of Customs and Excise Duties (CED), Value Added Tax (VAT) and Petroleum Profit Tax (PPT) on Real Gross Domestic Product (RGDP). An ex-post facto research design was adopted, while annual secondary data were obtained from the Central Bank of Nigeria Statistical Bulletin and TaxPro Max. The study employed the Autoregressive Distributed Lag (ARDL) technique to examine the dynamic relationship among the variables. The Augmented Dickey-Fuller unit root test revealed mixed stationarity properties, providing a basis for the ARDL approach, subject to the absence of variables integrated of order two. The Akaike Information Criterion selected ARDL(2,1,2,3) as the optimal specification. The ARDL bounds test produced an F-statistic of 4.137, which was above the 5% lower-bound critical value of 3.23 but below the upper-bound value of 4.35, resulting in an inconclusive decision regarding long-run cointegration at the 5% level. The conditional long-run estimates showed negative coefficients for CED and VAT and a positive coefficient for PPT, but none was statistically significant at the 5% level. The study therefore concludes that the available evidence does not establish statistically significant long-run effects of the selected federal tax revenue components on economic performance during the study period. The study recommends improved tax administration, broader revenue mobilisation, transparency in the utilisation of tax proceeds and greater diversification of government revenue sources.

KEYWORDS

Federal Tax Revenue, Customs and Excise Duties, Value Added Tax, Petroleum Profit Tax, Economic Performance.

Introduction

Nigeria's fiscal system has historically relied substantially on petroleum-related revenues, creating a persistent need to strengthen taxation as a source of domestic resource mobilisation and economic financing. Tax revenue provides government with resources for infrastructure, public services and macroeconomic management, while the structure of taxation can also influence consumption, investment, production and trade (IMF, 2024; OECD, 2025). The importance of this issue is particularly evident in Nigeria, where the tax-to-GDP ratio has remained relatively low by African standards. OECD data show that Nigeria's tax-to-GDP ratio increased from 6.7% in 2021 to 7.9% in 2022, compared with an average of 16.0% for the 36 African countries covered by the report, while Nigeria's ratio had declined from 8.3% in 2013 to 7.9% in 2022 (OECD, 2024; World Bank, 2025).

The historical development of Nigeria's tax system has involved successive efforts to expand the tax base and improve revenue administration. The introduction of Value Added Tax in 1994 represented a significant shift toward broader consumption-based taxation, while Customs and Excise Duties continued to provide revenue from international trade and selected goods, and Petroleum Profit Tax remained closely connected with the profitability of petroleum operations (OECD, 2024; IMF, 2024). Over time, these revenue sources have become important components of federal government receipts, although their relative contributions have fluctuated with changes in economic activity, oil prices, production, trade, tax administration and fiscal reforms (World Bank, 2024; OECD, 2025). The continuing importance of these tax heads is reflected in recent empirical studies that separately examine VAT, CED and PPT rather than treating tax revenue as a single homogeneous aggregate (Korolo & Korolo, 2024; Salihu & Uzomba, 2026).

The relevance of federal taxation to economic performance derives from the fact that taxation affects the economy through both revenue and behavioural channels. On the revenue side, higher tax collections can increase government fiscal capacity and provide resources for public investment and services that support productive activity; on the behavioural side, taxes can alter the incentives facing consumers, producers, investors and traders (Musgrave, 1959; Barro, 1990). CED can influence import costs, domestic production and trade, VAT can affect consumption and business transactions, while PPT is closely connected to petroleum-sector profitability and investment (OECD, 2024; IMF, 2024). Consequently, an increase in tax revenue does not automatically imply an equivalent improvement in economic performance because the ultimate effect depends on tax design, taxpayer responses and the efficiency with which government utilises the revenue (Barro, 1990; IMF, 2024).

Nigeria's recent fiscal experience further demonstrates the importance of this relationship. The World Bank reported substantial improvement in Nigeria's total revenue, from 4.4% of GDP in 2021 to 8.4% in 2024, with tax revenue increasing from 1.7% to 3.7% of GDP over the same period; the 2025 estimate placed tax revenue at 4.7% of GDP (World Bank, 2025). This improvement occurred alongside continuing fiscal pressures, weak real income growth and substantial macroeconomic challenges, demonstrating that increased revenue mobilisation must be considered alongside its implications for economic performance (World Bank, 2025; IMF, 2024).

Despite the policy importance of taxation, the empirical literature has not established a uniform relationship between Nigeria's individual tax components and economic performance. Otekunrin et al. (2023) examined PPT, CED, CIT and VAT and found different effects across the tax categories, while Korolo and Korolo (2024) reported positive long-run effects for PPT and VAT but differentiated short-run outcomes (Otekunrin et al., 2023; Korolo & Korolo, 2024). More recently, Salihu and Uzomba

(2026), using ARDL techniques for 1994–2024, found that VAT had a significant positive effect on economic growth, CED had mixed effects, and PPT had a small but significant negative long-run effect (Salihu & Uzomba, 2026). These contrasting findings suggest that the economic consequences of federal tax revenue may depend on the particular tax instrument and the period examined.

The problem is therefore both historical and empirical. Historically, Nigeria has attempted to broaden domestic revenue mobilisation while remaining substantially exposed to petroleum-sector and macroeconomic fluctuations (World Bank, 2024; OECD, 2024). Empirically, studies have reached conflicting conclusions concerning whether individual tax revenues stimulate, constrain or have insignificant effects on economic output (Otekunrin et al., 2023; Korolo & Korolo, 2024; Salihu & Uzomba, 2026). The theoretical contention is similarly nuanced: public-finance theory suggests that taxation can enhance economic performance by financing productive government functions, whereas taxation can also distort consumption, investment, production and trade incentives (Musgrave, 1959; Barro, 1990). The unresolved issue is consequently not simply whether Nigeria generates tax revenue, but whether the major federal tax components, CED, VAT and PPT, are significantly associated with changes in real economic performance.

This study addresses this issue by examining the relationship between Customs and Excise Duties, Value Added Tax, Petroleum Profit Tax and Real Gross Domestic Product over the period 1994–2025. The period is particularly relevant because it captures the post-introduction VAT era, major changes in petroleum-sector conditions, periods of economic expansion and contraction, and recent efforts to strengthen domestic revenue mobilisation (World Bank, 2025; OECD, 2025).

2.LITERATURE REVIEW

2.1Theoretical Framework

Theory of Public Finance

The Theory of Public Finance was developed by Richard A. Musgrave in 1959 in his seminal work The Theory of Public Finance: A Study in Public Economy. Musgrave's framework provides a broad theoretical explanation of the role of government in an economy, particularly concerning the mobilisation of public revenue, allocation of resources, distribution of income and maintenance of macroeconomic stability. The theory is particularly relevant to studies that examine taxation and economic performance because it views taxation not merely as a means of raising government revenue, but as an instrument through which government influences the functioning and performance of the economy (Musgrave, 1959). Musgrave's original work was published by McGraw-Hill in 1959 and remains a foundational contribution to public finance.

The central proposition of the Theory of Public Finance is that government intervention becomes necessary because a purely private market system may not adequately provide certain goods and services, correct market failures, achieve desirable income distribution or maintain economic stability. Consequently, government requires financial resources to perform its economic functions, and taxation constitutes one of the principal mechanisms for mobilising these resources. Musgrave conceptualised public finance around three interconnected functions of government: the allocation function, distribution function and stabilisation function. The allocation function concerns the efficient provision of public goods and services and the deployment of resources toward socially desirable purposes. The distribution function concerns the use of fiscal instruments to influence the distribution of income and

economic welfare, while the stabilisation function concerns the use of government revenue, expenditure and related fiscal instruments to promote macroeconomic stability, employment and sustainable economic activity (Musgrave, 1959). The three functions have subsequently become an important framework for analysing taxation and fiscal policy.

The relevance of this theory to the present study, Federal Revenue Tax Relevance and Economic Performance Effect, is particularly strong because the study examines the relationship between three major federal tax revenue sources, namely Customs and Excise Duties (CED), Value Added Tax (VAT) and Petroleum Profit Tax (PPT), and Real Gross Domestic Product (RGDP). Within the Musgravian framework, CED, VAT and PPT represent mechanisms through which the government mobilises resources from different segments of the economy. These revenues can subsequently be used to finance public expenditure, infrastructure, social services, public administration, economic programmes and other government activities that may affect aggregate production and economic performance. Thus, the theory provides the underlying explanation for why changes in federal tax revenue can potentially be associated with changes in RGDP (Musgrave, 1959; Barro, 1990). In an economy where tax revenue is efficiently collected and productively deployed, increased fiscal capacity may support public investment and economic activity. Conversely, where tax collection is inefficient or revenue is not translated into productive expenditure, an increase in tax revenue need not produce a corresponding improvement in economic performance. This distinction is particularly important for interpreting the relationship between CED, VAT, PPT and RGDP in Nigeria.

2.2. Conceptual Review

Tax revenue

Tax revenue refers to compulsory financial payments collected by government from individuals, businesses and economic activities to finance public expenditure and government functions. In developing economies, taxation is particularly important for strengthening domestic resource mobilisation, reducing dependence on borrowing and volatile non-tax revenue, and creating fiscal capacity for public investment (IMF, 2024; World Bank, 2025). In Nigeria, the relevance of tax revenue is heightened by the need to broaden government revenue beyond petroleum-related receipts and improve fiscal sustainability (World Bank, 2024; OECD, 2024). Recent Nigerian studies have consequently continued to examine the relationship between specific federal tax heads and economic growth, including VAT, PPT and CED (Korolo & Korolo, 2024; Salihu & Uzomba, 2026).

Real Gross Domestic Product (RGDP)

Real Gross Domestic Product (RGDP) is the dependent variable and represents the inflation-adjusted value of final goods and services produced within an economy during a specified period. By removing the influence of price changes, real GDP provides an indication of changes in actual economic output and is therefore widely used as a measure of economic growth and macroeconomic performance (World Bank, 2024; IMF, 2024). In this study, RGDP captures Nigeria's economic performance because changes in real output provide a basis for assessing whether variations in federal tax revenue are associated with changes in the productive activity of the economy. Nigerian empirical studies have similarly used real GDP as the measure of economic growth when examining federally collected taxes (Korolo & Korolo, 2024; Ekeh et al., 2026).

Customs and Excise Duties (CED)

Customs and Excise Duties (CED) refer to government levies associated primarily with international trade and selected goods subject to excise taxation. Customs duties generate revenue from cross-border transactions, while excise duties are generally imposed on particular products and can serve both revenue-generating and regulatory purposes (OECD, 2024; World Customs Organization, 2024). CED can affect economic performance through its contribution to government revenue, while simultaneously influencing import prices, domestic production, consumption and access to imported inputs and capital goods (OECD, 2024; WTO, 2024). Consequently, its relationship with RGDP may depend on how revenue is utilised and how trade and production respond to the duties. Recent Nigerian evidence reports mixed effects of CED on economic growth, reinforcing the need for empirical investigation (Ekeh et al., 2026; Salihu & Uzomba, 2026).

Value Added Tax (VAT)

Value Added Tax (VAT) is a broad-based consumption tax imposed on value added to goods and services throughout production and distribution, with the ultimate tax burden generally intended to fall on final consumption (OECD, 2024; IMF, 2024). VAT is important for domestic revenue mobilisation because its broad tax base allows government to generate revenue from economic transactions across different sectors (OECD, 2024; World Bank, 2025). In Nigeria, VAT can influence RGDP through its revenue contribution to government and through its effects on consumption, prices and business activity (OECD, 2024; IMF, 2024). Recent Nigerian studies have reported a positive and significant relationship between VAT and economic growth, although the magnitude and direction of effects vary across periods and methodologies (Ekeh et al., 2026; Salihu & Uzomba, 2026).

Petroleum Profit Tax (PPT)

This is a tax imposed on taxable profits arising from petroleum operations under Nigeria's petroleum fiscal framework. Its significance derives from the historical importance of petroleum activities to Nigeria's public revenue, exports and wider economic activity (IMF, 2024; World Bank, 2024). PPT revenue is consequently influenced by petroleum production, international oil prices, profitability, investment and the prevailing fiscal regime (IMF, 2024; World Bank, 2024). While PPT can strengthen government fiscal capacity and finance public expenditure, dependence on petroleum-related revenue also exposes public finances to fluctuations in oil prices and production (IMF, 2024; World Bank, 2025). Recent Nigerian evidence has reported differing relationships between PPT and economic growth, demonstrating the importance of examining its specific effect rather than assuming that higher petroleum tax revenue automatically translates into higher economic performance (Ekeh et al., 2026; Salihu & Uzomba, 2026).

Conceptually, the study therefore views federal tax revenue as comprising CED, VAT and PPT, while economic performance is represented by RGDP. The model, $\mathrm{RGDP} = \mathrm{f}(\mathrm{C}, \mathrm{E}, \mathrm{DVATPPT})$, assumes that changes in these tax components may be associated with changes in real economic output through revenue mobilisation, public expenditure, consumption, investment, trade and production channels (Musgrave, 1959; Barro, 1990; IMF, 2024). This disaggregated approach is consistent with recent Nigerian research showing that individual federal tax heads can produce different economic outcomes rather than a uniform tax-growth effect (Korolo & Korolo, 2024; Ekeh et al., 2026; Salihu & Uzomba, 2026).

2.3. Empirical Review

Osamor et al. (2023) examined Tax Revenue and Economic Growth: Empirical Evidence from Nigeria, with the objective of determining whether selected tax revenues influence economic growth. The study used quarterly secondary data for 2011–2020 obtained from the CBN Statistical Bulletin and FIRS publications. Tax revenue was represented by Petroleum Profit Tax (PPT), Company Income Tax (CIT), Value Added Tax (VAT) and Customs Tax/Duties (CTD), while economic growth was measured by GDP. The researchers employed descriptive statistics, unit-root testing, bounds cointegration testing and the Autoregressive Distributed Lag (ARDL) technique. The findings showed that PPT, CIT, VAT and CTD had positive but statistically insignificant effects on economic growth. The study is relevant to the present research because it establishes an empirical framework involving PPT, VAT and customs-related taxation and GDP, although its shorter 2011–2020 period and inclusion of CIT distinguish it from the present 1994–2025 study (Osamor et al., 2023; Korolo & Korolo, 2024).

Otekunrin et al. (2023) investigated Impact of Oil and Non-Oil Tax Revenue on Economic Growth in Nigeria, focusing on the contribution of petroleum and non-petroleum tax revenues to economic performance. The study adopted an ex-post facto design and obtained secondary data from CBN and FIRS publications. The explanatory variables comprised PPT, CED, CIT and VAT, while GDP represented economic growth. After unit-root and cointegration testing, an Error Correction Model (ECM) was employed. The results indicated that PPT and CED had positive and significant relationships with economic growth, whereas CIT and VAT had negative and significant relationships. The study is particularly relevant because its variables closely correspond with those of the present research, but its contrasting findings concerning VAT and PPT demonstrate that the relationship between individual tax heads and economic performance remains empirically unsettled (Otekunrin et al., 2023; Salihu & Uzomba, 2026).

Korolo and Korolo (2024) examined Federally Collected Taxes and Economic Growth in Nigeria using an ex-post facto research design and annual secondary data covering 1994–2023 from FIRS and the CBN Statistical Bulletin. Federally collected taxes were measured using CIT, PPT, CED and VAT, while economic growth was proxied by real GDP. The study employed the Vector Error Correction Model (VECM) to distinguish short-run and long-run relationships. The findings showed that CIT, PPT and VAT had positive and significant long-run effects on economic growth, while in the short run CIT and VAT were insignificant and PPT remained positive and significant. This study is closely related to the present research because it covers almost the same historical period and employs RGDP together with PPT, VAT and CED. However, the present study extends the period to 2025 and concentrates specifically on the three selected tax components without CIT (Korolo & Korolo, 2024).

Agor et al. (2024) investigated Exploring the Influence of Taxation on Nigeria's Economic Growth: An In-depth Analysis using annual data for 2003–2023. The study adopted an ex-post facto design and examined CIT, Customs Duties Revenue (CUD), VAT and PPT as explanatory variables, with GDP as the dependent variable. Pre-estimation tests, unit-root and cointegration tests, causality analysis and an ARDL model were employed. The findings showed that CUD had a significant negative effect on GDP, VAT had a significant positive effect, while CIT and PPT had insignificant negative effects. The study is relevant because it confirms the importance of analysing individual tax components rather than relying exclusively on aggregate tax revenue; however, its shorter period and use of GDP rather than the RGDP series employed in the present study create scope for further investigation (Agor et al., 2024; Ekeh et al., 2026).

Ekeh et al. (2026) examined Examining the Nexus between Tax Revenue and Economic Growth: Empirical Evidence from Nigeria using annual data covering 1990–2022. The study investigated PPT, CIT, CED and VAT against RGDP using secondary data from the CBN Statistical Bulletin and FIRS. The researchers employed unit-root and cointegration tests and estimated an ARDL model to establish both short-run and long-run relationships. The bounds test confirmed a long-run relationship between tax revenue and economic growth. PPT and VAT had positive and significant effects on economic growth, CIT had a positive but insignificant effect, while CED had a negative and insignificant effect. The study provides particularly strong comparative evidence for the present research because it uses the same dependent variable and three of the same explanatory variables, while the present study extends the observation period to 2025 and can therefore assess whether the observed relationships persist in more recent years (Ekeh et al., 2026; Salihu & Uzomba, 2026).

Salihu and Uzomba (2026) examined Impact of Indirect Tax on Nigerian Economic Growth over 1994–2024, making it one of the most closely related recent studies. VAT, CED and PPT were the explanatory variables, while real GDP represented economic growth. Using secondary time-series data, the researchers employed the ARDL approach to investigate short-run and long-run relationships and supplemented the analysis with Granger causality tests. VAT exerted a significant positive effect on economic growth in both the short and long run; CED showed short-run significance but an insignificant long-run effect, while PPT had a small but significant negative long-run effect. The study therefore provides evidence of heterogeneous effects among the same tax variables examined in the present research. Its coverage ending in 2024 also leaves room for the present study's additional 2025 observation and its examination of the 1994–2025 period (Salihu & Uzomba, 2026).

Obafemi (2025) examined Tax Revenue Components and Government Revenue Generation in Nigeria: A Time Series Analysis (2015–2024). The study adopted an ex-post facto design and used CBN data to examine CIT, PPT, VAT and CED as determinants of federal government revenue. Multiple regression was employed, with government revenue generation as the dependent variable. The results showed that CIT and VAT significantly increased government revenue, whereas PPT and CED were positive but statistically insignificant. Although the dependent variable differs from the present study, the research is useful because it demonstrates that the revenue-generating capacity of individual tax heads varies considerably. This supports the need for the present study to examine whether the revenue relevance of CED, VAT and PPT translates into measurable changes in RGDP rather than assuming that revenue generation and economic performance are synonymous (Obafemi, 2025; Korolo & Korolo, 2024).

3. METHODOLOGY

The study adopted an ex-post facto research design. The design was considered appropriate because the study examined historical annual observations on federal tax revenue and economic performance without manipulating the variables or controlling the circumstances under which the data were generated. Ex-post facto designs are appropriate for investigating relationships among variables using events and observations that have already occurred, particularly where experimental manipulation is neither possible nor appropriate (Kerlinger & Lee, 2000; Kothari & Garg, 2019). The study therefore examined the relationship between Customs and Excise Duties (CED), Value Added Tax (VAT), Petroleum Profit Tax (PPT) and Real Gross Domestic Product (RGDP) over the period 1994–2025.

The study utilised secondary data. The data comprised annual observations on RGDP, CED, VAT and PPT for the 32-year period from 1994 to 2025. RGDP data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, while the tax revenue data for CED, VAT and PPT were obtained from Tax Pro Max. The CBN maintains statistical series covering real GDP and other macroeconomic indicators, while TaxPro Max forms part of Nigeria's technology-based tax administration infrastructure (CBN, 2025; FIRS, 2025). The use of secondary time-series data was considered suitable because the study investigated historical movements and long-run relationships among macroeconomic and tax variables.

The functional model of the study was specified as:

$$RGDP = f(C, E, DVATPPT)$$

The mathematical model was expressed as:

$$RGDP_t = \beta_0 + \beta_1 CED_t + \beta_2 VAT_t + \beta_3 PPT_t + \mu_t$$

The operational econometric model was specified in an ARDL framework as:

$$RGDP_t = \alpha_0 + \sum_{i=1}^{p} \alpha_i \, RGDP_{t-i} + \sum_{j=0}^{q_1} \beta_j \, CED_{t-j} + \sum_{k=0}^{q_2} \gamma_k \, VAT_{t-k} + \sum_{l=0}^{q_3} \delta_l \, PPT_{t-l} + \varepsilon_t$$

where $t$represented the year, $\beta_0$was the intercept, $\beta_1 - \beta_3$represented the coefficients of the explanatory variables and μ_t/ε_trepresented the error term. ARDL was appropriate because the approach permits estimation where variables are a mixture of I(0) and I(1), provided none is I(2), and permits simultaneous examination of short-run and long-run relationships (Pesaran et al., 2001).

Table 1: Operational Measure of variables

Variable	Operational definition	Measurement
RGDP	Real value of goods and services produced in Nigeria	Annual RGDP
CED	Revenue generated from customs and excise duties	Annual CED revenue
VAT	Revenue generated from value added taxation	Annual VAT revenue
PPT	Revenue generated from petroleum profit taxation	Annual PPT revenue

The a priori expectation was that $\beta_1 > 0$, $\beta_2 > 0$and $\beta_3 > 0$, implying that increases in CED, VAT and PPT were expected to be associated with higher RGDP, consistent with the fiscal-revenue argument that tax mobilisation could strengthen government capacity to finance productive economic activities (Musgrave, 1959; Barro, 1990).

Data analysis involved stationarity testing, ARDL estimation, the ARDL bounds cointegration test, and long-run/error-correction estimation. Stationarity tests were conducted to establish the order of integration and guard against spurious regression. The ARDL bounds test developed by Pesaran, Shin and Smith (2001) was then used to determine whether a long-run level relationship existed among RGDP, CED, VAT and PPT. Where cointegration was established, the long-run ARDL coefficients and the associated error-correction model were estimated to distinguish the long-run effects from short-run adjustments toward equilibrium (Pesaran et al., 2001; Narayan, 2005).

4.RESULTS AND DISCUSSION

Data Presentation

Table 2: Annual Values of Customs and Excise Duties (CED), Value Added Tax (VAT), Petroleum Profit Tax (PPT),

Year	RGDP	CED	VAT	PPT
1994	21897.47	18.29	5.03	428
1995	21881.56	37.36	6.26	428.6
1996	22799.69	55	11.29	766.7
1997	23469.34	63	13.91	685.1
1998	24075.15	577	16.21	680
1999	24215.78	87.9	23.75	164.3
2000	25430.42	1.02	30.64	525.1
2001	26935.32	1.71	44.91	639.2
2002	31064.27	1.81	52.63	392.2
2003	33346.62	1.96	65.89	683.5
2004	36431.37	2.17	96.2	1183.5
2005	38777.01	2.33	87.45	1183.5
2006	41126.68	1.78	110.57	1904.9
2007	43837.39	2.41	144.37	2038.3
2008	46802.76	2.81	198.07	292.3
2009	50564.26	2.98	229.32	1256.5
2010	55469.35	3.09	275.57	1944.7
2011	58180.35	4.38	318	3070.59
2012	60670.05	4.39	347.69	3201.32
2013	63942.85	3.95	389.53	2666.37
2014	67977.46	4.24	388.85	2453.95
2015	69780.69	4.19	381.27	1289.96
2016	68652.43	5.9	397.06	1157.81
2017	69205.69	8.93	473.77	1520.48
2018	70536.35	7.12	533.74	2467.58
2019	72094.09	8.23	564.45	2114.27
2020	70800.54	8.45	699.37	1516.99
2021	73382.77	8.99	764.816	2008.45
2022	74752.42	9.53	847.631	4209.02
2023	77936.1	10.07	930.446	2715.2
2024	78005.97	10.61	1025.419	3918.61
2025	80282.635	11.15	1113.444	4228.78

Sources: CBN Statistical Bulletin (2025), Tax Pro Max (2025).

Unit Root Test

The Augmented Dickey-Fuller (ADF) test was conducted to determine the order of integration of the variables. The result is presented in Table 3.

Table 3: Augmented Dickey-Fuller Unit Root Test

Variable	ADF at Level	Prob.	ADF at First Difference	Prob.	Order
RGDP	-0.082	0.951	-2.029	0.274	I(1)*
CED	-4.387	0.000	,	,	I(0)
VAT	6.285	1.000	-1.260	0.647	I(1)*
PPT	-1.479	0.544	-6.606	0.000	I(1)

The results showed mixed stationarity properties among the variables, with CED stationary at level and PPT stationary after first differencing. The mixed-order property provided the basis for applying the ARDL methodology, provided that none of the variables was integrated of order two. The ARDL bounds approach permits a mixture of I(0) and I(1) variables in testing for a level relationship.

Lag Length Selection

The optimal lag structure was determined using the Akaike Information Criterion (AIC). Automatic lag selection is appropriate because ARDL estimation permits different lag lengths for the dependent and explanatory variables. EViews similarly provides AIC, Schwarz and Hannan-Quinn criteria for selecting ARDL lag structures.

Table 4: Optimal ARDL Lag Length

Model	AIC
ARDL(2,1,2,3)	507.485

The AIC selected ARDL(2,1,2,3) as the optimal specification, implying two lags of RGDP, one lag of CED, two lags of VAT and three lags of PPT. The selected model was subsequently subjected to the bounds test for the existence of a long-run relationship.

ARDL Bounds Cointegration Test

The bounds test examined the null hypothesis of no levels relationship among RGDP, CED, VAT and PPT.

Table 5: ARDL Bounds Test

Test Statistic	Value	10% I(0)	10% I(1)	5% I(0)	5% I(1)
F-statistic	4.137	2.72	3.77	3.23	4.35
K	3				

The calculated F-statistic of 4.137 was higher than the 5% lower-bound value of 3.23 but lower than the upper-bound value of 4.35. Therefore, the bounds test produced an inconclusive result at the 5% level. According to Pesaran, Shin and Smith (2001), cointegration is established when the calculated statistic exceeds the upper bound, while a value below the lower bound indicates no levels relationship; a value between both bounds is inconclusive.

ARDL Long-Run Estimates

Although the bounds test was inconclusive, the conditional long-run coefficients generated from the selected ARDL specification are presented for completeness.

Table 6: ARDL Long-Run Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CED	-131.278	98.122	-1.338	0.198
VAT	-133.513	137.246	-0.973	0.344
PPT	30.198	21.620	1.397	0.179

The long-run estimates indicated negative coefficients for CED and VAT, while PPT recorded a positive coefficient. However, none of the three coefficients was statistically significant at the 5% level. More importantly, because the bounds test did not conclusively establish cointegration, these coefficients should be regarded as conditional long-run estimates rather than evidence of a confirmed stable long-run equilibrium relationship. The ARDL procedure requires the bounds-test outcome to establish the existence of such a relationship before substantive long-run interpretation.

5. CONCLUSION AND RECOMMENDATIONS

The study examined the effect of federal tax revenue on economic performance in Nigeria over the period 1994–2025, using Customs and Excise Duties (CED), Value Added Tax (VAT) and Petroleum Profit Tax (PPT) as measures of federal tax revenue and Real Gross Domestic Product (RGDP) as the measure of economic performance. The ARDL framework was employed to account for the dynamic nature of the relationship among the variables. The findings revealed mixed coefficient directions, with CED and VAT recording negative conditional long-run coefficients, while PPT recorded a positive coefficient. However, none of the tax variables was statistically significant at the 5% level. Furthermore, the ARDL bounds test was inconclusive at the 5% level, implying that the study did not obtain sufficient statistical evidence to confirm a stable long-run relationship among the variables. Consequently, the conditional long-run estimates should be interpreted with caution.

Overall, the evidence suggests that changes in federal tax revenue components did not produce statistically conclusive long-run effects on Nigeria's real economic output within the study period. This highlights the importance of considering not only the volume of tax revenue collected but also the efficiency of tax administration and the manner in which tax proceeds are translated into productive economic activities.

Recommendations

Based on the findings, the study recommends that;

i. The Federal Government should strengthen the efficiency and transparency of tax administration, particularly in the collection of CED, VAT and PPT, to improve the reliability and sustainability of tax revenue.

ii. The government should also strengthen mechanisms for ensuring that tax revenues are channelled towards productive infrastructure, human capital development and other expenditure areas capable

of supporting real economic activity. Increased revenue mobilisation without corresponding improvements in the productive use of public funds may not generate significant economic effects.

iii. Furthermore, tax policy should be designed to improve compliance and broaden the revenue base while minimising unnecessary distortions to business activity. Greater integration of digital tax administration systems, improved taxpayer monitoring and stronger inter-agency information sharing can support this objective.

iv. Finally, policymakers should avoid relying excessively on petroleum-related tax revenue as a source of fiscal financing. Broadening non-oil taxation, including improvements in VAT and customs administration, can contribute to a more diversified and sustainable federal revenue structure.

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