

Effect of petroleum profit tax on the Nigerian economy: A critical evaluation

Gbenga Samuel Olorunfemi* and Sodiq Olayemi Ajani

Crescent University Abeokuta, Ogun state, Nigeria.

*Corresponding author: olami4u@rocketmail.com +234-8067-230-437

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Abstract

This study investigates the impact of Petroleum Profit Tax (PPT) on Nigeria's economic performance. Given that petroleum is Nigeria's primary source of revenue, understanding the contribution of oil-related taxes to national development is essential. The research covers the period from 1981 to 2023, utilizing official government data. The findings reveal a strong and sustained relationship between petroleum tax revenues and economic growth. In simple terms, higher government earnings from petroleum taxes are associated with improvements in economic performance. The study recommends that the Nigerian government enhance the efficiency of petroleum tax collection and allocate the resulting revenues to critical sectors such as infrastructure, education, and healthcare to support long-term development.

Keywords: Petroleum Profit Tax, economic growth, government revenue, oil sector.

Introduction

Petroleum Profit Tax (PPT) constitutes one of the most critical sources of government revenue in Nigeria, accounting for a substantial portion of the nation's budgetary income and development funding. As an oil-producing country, Nigeria heavily depends on the petroleum sector, which contributes over 90% of export earnings and approximately 70% of total government revenue (Central Bank of Nigeria [CBN], 2023). The significance of petroleum taxation lies not only in its fiscal role but also in its capacity to influence macroeconomic outcomes such as investment levels, infrastructure development, and overall economic growth (Fagbemi, Noah, & Olaniyi, 2021).

Established under the Petroleum Profit Tax Act (PPTA) of 1959 (as amended), PPT applies specifically to companies involved in upstream petroleum operations

in Nigeria. Unlike general taxes, PPT is uniquely designed for the oil and gas sector, with tax bases and rates tailored to reflect the particular risks and returns inherent in the industry (Nwezeaku, 2010). Over the decades, petroleum revenues—of which PPT is a major component—have consistently served as the backbone of Nigeria’s public finances, thereby making PPT a cornerstone of fiscal policy management (Odusola, 2006).

However, despite the magnitude of oil revenue flows, including those derived from PPT, Nigeria continues to face a range of persistent developmental challenges. These include widespread poverty, inadequate infrastructure, weak industrialization, and volatile macroeconomic performance (Akpan & Atan, 2013; Iyoha & Oriakhi, 2008). This paradox, where resource abundance coexists with underdevelopment, is commonly referred to as the “resource curse,” and it raises serious concerns about the efficient use and allocation of petroleum tax revenues.

The enactment of the Petroleum Industry Act (PIA) in 2021 introduced a new legal and fiscal framework for the oil and gas industry in Nigeria. While this legislation aims to modernize the sector, it also raises questions about the historical role of PPT and whether petroleum taxation has contributed meaningfully to long-term economic performance. Despite the promise of reform, the enduring issues of economic underperformance and fiscal instability remain, thereby underscoring the importance of assessing the past effectiveness of PPT in promoting development.

A key problem lies in the apparent disconnect between petroleum tax revenues and macroeconomic outcomes. While PPT constitutes a significant portion of government income, indicators such as GDP growth, infrastructure quality, and poverty reduction show limited or inconsistent progress, suggesting inefficiencies in how these revenues are managed and spent (Iyoha & Oriakhi, 2008; Akpan & Atan, 2013). Furthermore, empirical evidence regarding the link between PPT and Nigeria’s economic performance remains fragmented, inconclusive, and in many instances outdated. Previous research, including that of Odusola (2006), Nwezeaku (2010), and Fagbemi et al. (2021), has explored various aspects of petroleum taxation, but much of this work does not incorporate recent data or apply econometric models capable of identifying both short-term and long-term effects.

Compounding these challenges are policy inconsistencies and weak institutional frameworks, which have historically undermined the efficient use of oil revenues.

Frequent changes in fiscal policy, a lack of transparency, and regulatory loopholes have limited the potential of petroleum taxation to serve as a sustainable engine for economic growth (Eboh & Igwemma, 2022). With the implementation of the PIA marking a new chapter in petroleum sector governance, it becomes even more crucial to empirically evaluate the effectiveness of the previous PPT regime before the new policy structure is fully entrenched.

This study is therefore guided by a central research question: Has Petroleum Profit Tax significantly contributed to Nigeria's economic growth over time? And if so, to what extent, and through which mechanisms? In addressing this question, the study focuses on the period from 1981 to 2023 and aims to generate empirical evidence that can inform more effective fiscal policymaking and optimize the developmental role of petroleum taxation.

The overarching aim of the research is to examine the effect of Petroleum Profit Tax on the Nigerian economy. Specifically, the study investigates the short-run effect of PPT on Nigeria's economic growth and assesses its long-run impact on broader economic performance. To this end, the research tests two key hypotheses: first, that Petroleum Profit Tax has no significant short-run effect on Nigeria's economic growth; and second, that Petroleum Profit Tax has no significant long-run impact on the country's economic performance.

Literature Review

Conceptual Framework

Concept of Petroleum Profit Tax

The Petroleum Profit Tax (PPT) is a sector-specific tax established under the Petroleum Profit Tax Act (PPTA) of 1959. It applies exclusively to companies engaged in upstream petroleum operations in Nigeria, including exploration, production, and the initial sale of crude oil and natural gas. According to Odusola (2006) and Anyanwu (1997), the PPT rate ranges between 50% and 85%, depending on the type of contract—whether a Joint Venture Agreement or a Production Sharing Contract (PSC). The tax is assessed annually based on the profits generated within the accounting year, which typically runs from January to December.

Various scholars have highlighted the distinct features and significance of PPT. Anyanwu (1977) and Attamah (2004) emphasize that PPT is levied specifically on profits derived from petroleum extraction. Odusola (2006, 2016) further explains that the tax encompasses key revenue components such as rents, royalties, and profit-sharing arrangements within oil leases. He identifies PPT as Nigeria's most important source of government income, accounting for as much as 95% of foreign exchange earnings and up to 70% of total revenue. The original Act has been amended multiple times to reflect economic and industry changes, beginning with Decree No. 1 in 1967 and most recently with reforms introduced in the Petroleum Industry Act (PIA) of 2021 (Emmanuel & Adejare, 2014).

Concept of Economic Growth

Economic growth in Nigeria is primarily measured by Gross Domestic Product (GDP), which captures the total value of goods and services produced by resident entities. It is often analyzed through indicators such as GDP per capita, sectoral contributions, and quarterly performance. Theoretical and empirical literature offer diverse definitions and perspectives on economic growth. Jhingan (2006) characterizes it as a sustained quantitative increase in output, typically accompanied by corresponding increases in labor, capital, and trade. Ochejele (2007) highlights the importance of high per capita income, productivity gains, and structural transformation. Begg, Fischer, and Dornbusch (1994) define economic growth as a long-term annual rise in real per capita income, while Lipsey (1986) describes it as a sustained positive trend in national output over time. Collectively, these views position economic growth as a long-term process of increasing productivity, expanding trade, and achieving structural improvements across sectors.

Theoretical Literature

Theory of the Resource Curse

The theory of the resource curse posits that countries richly endowed with natural resources often underperform economically compared to their less-endowed counterparts. This counterintuitive outcome, commonly known as the "paradox of plenty," has been explored in economic literature through various lenses. Corden and Neary (1982) offered one of the most influential models—the Dutch Disease framework—which divides the economy into two sectors: the booming

sector (typically oil or gas) and the lagging sectors (such as agriculture or manufacturing).

A resource boom creates two main effects: the resource movement effect and the spending effect. The resource movement effect occurs as labor and capital are reallocated toward the booming petroleum sector, often at the expense of productivity in other sectors. Meanwhile, the spending effect arises from increased national income, which leads to greater demand for non-tradable goods and services, causing inflation and appreciation of the exchange rate. These dynamics can render non-oil exports uncompetitive in global markets.

Further studies by Fardmanesh (1991) and Costa and Santos (2013) have associated resource wealth with macroeconomic instability, inflationary pressures, inefficient government spending, and institutional corruption. In contrast, Sachs and Warner (1995) argue that the negative outcomes often attributed to resource wealth are not inherent to the resources themselves but stem from weak institutions and poor governance. Their work underscores the necessity of strong institutional frameworks, prudent fiscal policies, and transparent governance to ensure that natural resource revenues contribute positively to long-term economic development.

Empirical Literature

A wide range of empirical studies has examined the relationship between Petroleum Profit Tax and economic growth in Nigeria. Akeem and Adejare (2015) used Johansen co-integration and Granger causality techniques with data from 1978 to 2013 to explore the connection between PPT and key macroeconomic indicators. Their results showed a significant positive relationship between PPT and GDP in both the short and long term. They concluded that reducing corruption and leakages in tax administration would improve the developmental impact of petroleum revenues.

Idris and Bawa (2022) adopted an ex-post facto research design and regression analysis to evaluate the effects of PPT, Company Income Tax, and customs and excise duties on real GDP. Their findings indicated that although PPT had a positive effect on economic growth, its impact was less significant than other forms of taxation. They attributed this outcome to declining oil prices and OPEC-imposed production quotas and recommended a more diversified economy as a sustainable policy solution.

Contrary evidence is provided by Pibowei and Marei (2021), whose study—covering the period from 1981 to 2020—found no statistically significant relationship between PPT and either per capita income or job creation. Their findings suggest that even during periods of oil price stability, PPT did not meaningfully contribute to inclusive economic development. They recommended reducing tax incentives for oil companies and shifting the fiscal burden toward non-oil sectors to improve resource allocation.

Njoku and Onyechere (2019) utilized Ordinary Least Squares (OLS) regression and Granger causality tests to assess the influence of PPT on GDP between 1981 and 2015. Their study revealed a statistically significant relationship, emphasizing the need to channel petroleum tax revenues into non-oil sectors as part of Nigeria's economic diversification strategy.

More recently, Iriabiji, Elhomun, and Kolawole (2024) applied regression analysis and correlation matrix techniques to examine the influence of PPT on national income, GDP, and per capita income. Their results showed a negative and statistically insignificant effect of PPT on all three indicators. These findings cast doubt on the effectiveness of petroleum taxation as a growth-enhancing tool and point to the need for a more integrated fiscal approach that aligns oil revenues with broader development goals.

Methodology

This study is grounded in the Endogenous Growth Theory, which emphasizes the pivotal role of internal factors—such as fiscal policy, taxation, technological progress, and institutional efficiency—in driving long-term economic growth. Unlike exogenous models that treat technological advancement as an external factor, the endogenous approach argues that economic growth is largely determined by policies and actions within the economy (Romer, 1990).

In this context, Petroleum Profit Tax (PPT) serves as a vital fiscal tool for the Nigerian government. When efficiently managed, PPT not only provides substantial revenue but also facilitates public investment in key growth-enhancing sectors such as infrastructure, education, and healthcare. These sectors, in turn, improve productivity and human capital, reinforcing the feedback loop central to endogenous growth models. Therefore, the theory provides a suitable framework for assessing the extent to which petroleum taxation contributes to Nigeria's long-term economic development.

This study employs an ex-post facto research design, which is appropriate for investigating historical relationships without manipulating the variables under study. Given the focus on examining the past effects of Petroleum Profit Tax on Nigeria's economic performance, this design allows for the objective evaluation of existing data to determine causality or correlation.

The research relies entirely on secondary time series data spanning from 1981 to 2023, drawn from authoritative sources such as the Central Bank of Nigeria (CBN) Statistical Bulletin and other relevant government publications. The two main variables of interest are:

Petroleum Profit Tax (PPT): Representing government revenue derived from upstream petroleum operations.

Real Gross Domestic Product (RGDP): Serving as a proxy for Nigeria's economic growth.

The comprehensiveness and reliability of these official data sources ensure the credibility of the analysis and support valid empirical inferences.

Model Specification

To estimate the relationship between Petroleum Profit Tax and economic growth in Nigeria, the study adopts a log-linear multiple regression model. This model allows for the transformation of non-linear relationships into a linear form and facilitates the interpretation of coefficients in terms of elasticity.

The functional form of the model is expressed as:

$$\text{RGDP} = f(\text{PPT}, \text{INF}, \text{EXR}, \text{GEX})$$

Where:

RGDP = Real Gross Domestic Product (proxy for economic growth)

PPT = Petroleum Profit Tax

INF = Inflation Rate (control variable)

EXR = Exchange Rate (control variable)

GEX = Government Expenditure (control variable)

Log-Linear Econometric Model:

$$\log(\text{RGDP}_t) = \beta_0 + \beta_1 \log(\text{PPT}_t) + \beta_2 \log(\text{INF}_t) + \beta_3 \log(\text{EXR}_t) + \beta_4 \log(\text{GEX}_t) + \mu_t$$

Where:

β_0 = Constant term

$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients of the explanatory variables

μ_t = Error term capturing unobserved influences

A Priori Expectations

The expected signs of the coefficients in the regression model are guided by economic theory and prior empirical findings. These expectations are presented in Table 1.

Table 1

A Priori Expectations of Model Variables

Variable	Expected Sign	Justification
β_1 (PPT)	> 0	Higher Petroleum Profit Tax revenue enhances public investment and stimulates economic growth.
β_2 (INF)	< 0	High inflation erodes purchasing power and undermines macroeconomic stability.
β_3 (EXR)	\pm	Exchange rate effects are ambiguous; depreciation may either enhance export competitiveness or raise import costs.
β_4 (GEX)	> 0	Increased government expenditure is generally expected to stimulate aggregate demand and economic activity.

As shown above, the coefficients are anticipated to reflect the theoretical relationships between the explanatory variables and real GDP. These expectations will be tested empirically in the analysis.

Estimation Techniques

Model Estimation Technique

To evaluate the relationship between Petroleum Profit Tax (PPT) and economic growth (proxied by Real Gross Domestic Product—RGDP) in Nigeria, this study employs the Autoregressive Distributed Lag (ARDL) model. The ARDL technique is particularly suitable for time series variables that are integrated at different levels, i.e., I(0) and I(1), but not I(2). It also enables the simultaneous estimation of both short-run and long-run dynamics within the same framework.

The model is specified as follows:

$$\log(\text{RGDP}_t) = \beta_0 + \beta_1 \log(\text{PPT}_t) + \varepsilon_t$$

Where:

$\log(\text{RGDP}_t)$ = Log of Real Gross Domestic Product

$\log(\text{PPT}_t)$ = Log of Petroleum Profit Tax

β_0 = Intercept

β_1 = Coefficient of interest (expected to be positive)

ε_t = Error term

The a priori expectation for the coefficient β_1 is positive ($\beta_1 > 0$), as increased petroleum tax revenue is assumed to enhance government investment and economic output.

Unit Root Test

A unit root test was conducted to determine the stationarity of the data series. The Augmented Dickey-Fuller (ADF) test with structural breaks was used.

Table 2*Unit Root Test with Structural Breaks*

Variable	Break Date	ADF Statistic	Critical Value (5%)	Stationarity Level
LOGRGDP	2019	-4.8613	-4.444	I(0)
LOGPPT	2013	-8.3197	-4.444	I(1)

Source: Researcher's computation using EViews 10.

As shown in Table 2, LOGRGDP is stationary at level [I(0)], while LOGPPT is stationary at first difference [I(1)]. These mixed integration orders justify the use of the ARDL estimation technique.

Lag Length Selection

The optimal lag length was selected using various criteria including Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQ). The result is shown below:

Table 3*Lag Length Selection Result*

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-882.4174	NA	1.87e+16	43.14231	43.22590	43.17275
1	-728.2903	285.6990	1.23e+13	35.81904	36.06980	35.91035
2	-721.8491	11.31124	1.10e+13	35.69996	36.11790	35.85215

Source: Researcher's computation using Eviews 10.

Lag 2 is selected as optimal based on the majority of selection criteria with asterisks.

Bounds Test for Long-Run Relationship

To test for the existence of a long-run relationship between LOGRGDP and LOGPPT, the ARDL bounds testing procedure was applied.

Table 4*Bounds Test Result*

Test Statistic	Value	Significance Level	I(0)	I(1)
F-statistic	11.12726	5%	3.62	4.16

Source: Researcher's computation using EViews 10.

Since the F-statistic (11.12726) exceeds the upper critical bound value at the 5% significance level (4.16), the null hypothesis of no long-run relationship is rejected. This confirms the presence of a long-run relationship between PPT and RGDP.

Long-Run Estimation Result

The long-run coefficients and the error correction mechanism (ECM) are presented below:

Table 5*Long-Run ARDL Estimation Result*

Variable	Coefficient	Std. Error	t-Statistic	p-value
D(LOGGDP(-1))	0.279318	0.139599	2.000855	0.0530
D(LOGPPT)	1.009597	0.233933	4.315756	0.0001
CointEq(-1)*	-0.08936	0.018352	5.936019	0.0000

R-squared: 0.9205

Adjusted R-squared: 0.9164

Durbin-Watson stat: 2.2434

Source: Researcher's computation using EViews 10.

The coefficient of LOGPPT (1.009597) indicates that a 1% increase in Petroleum Profit Tax leads to an approximate 1.01% increase in RGDP, holding other factors constant. The coefficient is statistically significant at the 1% level ($p = 0.0001$), confirming a strong positive relationship.

The error correction term (CointEq(-1)) is negative and significant, indicating a convergence to long-run equilibrium. Approximately 8.9% of short-run deviations are corrected annually.

Hypothesis Testing

Table 6

Hypothesis Test Summary

Hypothesis	A Expectation	Priori Coefficient (β)	Significance value)	(p- Decision
H ₁ : PPT RGDP	→ Positive ($\beta > 0$)	1.009597	0.0001	Supported

Table 6 summarizes the hypothesis testing result. The coefficient of Petroleum Profit Tax is positive and statistically significant ($p < 0.05$), which supports the alternative hypothesis. Therefore, the null hypothesis is rejected, affirming that PPT has a significant and positive effect on Nigeria's economic growth. This outcome aligns with the a priori expectation and supports the theoretical assumption that petroleum tax revenues, when effectively utilized, can drive macroeconomic development.

Results and Discussions

This study examined the impact of Petroleum Profit Tax (PPT) on Nigeria's economic growth over the period from 1981 to 2023, employing the Autoregressive Distributed Lag (ARDL) model. This approach enabled the analysis of both short-run dynamics and long-run relationships between PPT and Real Gross Domestic Product (RGDP), which serves as a proxy for economic performance.

The initial stationarity tests using the Augmented Dickey-Fuller (ADF) method revealed that the variables in the study exhibited different orders of integration. Specifically, LOGRGDP was found to be stationary at level, while LOGPPT became stationary only after first differencing. This mixture of integration orders justified the use of the ARDL model, which is capable of handling such data properties effectively.

Further analysis using the ARDL bounds test confirmed the existence of a statistically significant long-run relationship between Petroleum Profit Tax and

economic growth in Nigeria. The F-statistic value of 11.12726 notably exceeded the upper critical bound at the 5% significance level, reinforcing the presence of a stable long-run association.

The long-run coefficient estimate for LOG(PPT) was positive and significant, with a value of approximately 1.01 and a p-value of 0.0001. This indicates that a 1% increase in Petroleum Profit Tax corresponds to about a 1.01% increase in real GDP, confirming the hypothesis that petroleum taxation has a positive and substantial effect on Nigeria's economic performance over time.

The error correction mechanism further demonstrated the model's stability, with the error correction term being negative and significant. Specifically, about 8.9% of any short-term deviation from the long-run equilibrium is corrected annually. This suggests that while adjustments toward equilibrium occur at a moderate pace, the system remains stable over time.

These findings align well with economic theory and previous empirical studies, which argue that taxation of natural resource sectors, especially petroleum, can be a vital driver of macroeconomic growth when managed effectively. The positive elasticity of PPT with respect to RGDP observed in this study mirrors results found in other resource-dependent economies, where oil revenues have been instrumental in funding public investment and infrastructure, thereby fostering economic expansion (International Monetary Fund [IMF], 2021; World Bank, 2022).

Moreover, the significant error correction term underscores the resilience of Nigeria's economic system in reverting to equilibrium following shocks. This stability complements prior research by Okezie and Azubike (2020), who highlighted the essential role of petroleum taxes in maintaining fiscal balance and supporting development programs in Nigeria.

However, while Petroleum Profit Tax positively influences growth, the study also points to Nigeria's vulnerability to fluctuations in global oil prices, underscoring the risks associated with heavy fiscal dependence on the petroleum sector. Therefore, despite its importance, petroleum taxation must be coupled with sound revenue management practices and economic diversification strategies to ensure sustainable and inclusive development.

Conclusion and Recommendations

This study critically evaluated the impact of Petroleum Profit Tax (PPT) on Nigeria's economic growth between 1981 and 2023. Despite the country's considerable revenue from petroleum taxation, macroeconomic challenges persist. Employing the ARDL modeling approach, the study established a positive and statistically significant long-run relationship between PPT and Real Gross Domestic Product (RGDP), confirming the critical role of petroleum tax revenue in driving Nigeria's economic growth.

The bounds test validated a stable long-run equilibrium, while the error correction model indicated that short-run disturbances adjust back to this equilibrium at a moderate rate. These results highlight the strategic significance of petroleum taxation within Nigeria's fiscal framework and its potential as a catalyst for sustainable economic development.

To fully harness the developmental potential of petroleum resources, Nigeria must transcend mere revenue collection and focus on the strategic utilization and reinvestment of petroleum tax revenues into sectors that promote inclusive growth and long-term prosperity.

Based on the study's findings, several recommendations are proposed. First, the Federal Government should strengthen petroleum tax administration by improving efficiency and integrity through enhanced auditing, adoption of digital tax technologies, and capacity building to reduce revenue leakages. Second, transparency and accountability must be enhanced by ensuring regular public reporting on petroleum revenue utilization, thereby fostering trust and sound fiscal governance.

Third, petroleum revenues should be strategically reinvested into critical sectors such as infrastructure—roads, power, and transportation—to boost productivity; education and healthcare to develop human capital essential for sustainable growth; and agriculture and other non-oil sectors to diversify the economy and reduce dependence on petroleum.

Fourth, the government should build resilience against oil price volatility by establishing or reinforcing stabilization funds, such as the Sovereign Wealth Fund, to buffer economic shocks from fluctuating global oil prices. Finally, sustainable fiscal reforms are necessary to complement petroleum taxation,

creating a diversified and robust revenue base that supports equitable and inclusive growth across all economic sectors.

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