

Original Research Article

Petroleum Revenue and Fiscal Stability in Nigeria

Kunemoemi, Zacchaeus^{1*}¹Department of Economics and Development Studies, Faculty of Social Sciences, Federal University Otuoke, Bayelsa State**Article History**

Received: 09.11.2024

Accepted: 15.12.2024

Published: 19.12.2024

Journal homepage:<https://www.easpublisher.com>**Quick Response Code**

Abstract: This study investigated the effect of oil price volatility on economic growth in Nigeria over the period 1990 to 2024 using crude oil revenue, oil export revenue, non-oil revenue and pump price of fuel were used to proxy petroleum revenue while fiscal balance was used as a stand in for fiscal stability. Data were obtained from the World Banks World Development Indicator (WDI), and Central Bank of Nigeria (CBN) statistical Bulletin 2024 using the Augmented Dickey-Fuller unit root test, and Autoregressive Distributive Lag (ARDL). The results indicate the existence of a long-run relationship between petroleum revenue and fiscal stability according to the bound test. Further findings revealed that crude oil revenue has a positive and significant relationship with fiscal balance while non-oil revenue reported a negative but significant relationship with fiscal balance in the long-run. However, oil export volume and pump price of fuel are both insignificant and negatively related with fiscal balance in the long-run. It was concluded that petroleum revenue had a considerable impact on fiscal stability in Nigeria according to the F-Statistics. It was recommended amounts other that the Budget Office of the Federation should adopt stricter fiscal rules that link expenditure to long-term oil price benchmarks rather than short-term price increases. This will prevent procyclical spending and ensure that gains from rising oil prices translate into improved and sustainable fiscal balance.

Keywords: Crude Oil Revenue, Oil Export Volume, Non-oil Revenue, Pump Price of Fuel Fiscal Balance.

JEL Classification Code: F4, F32, F41

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Nigeria's fiscal framework has long been underpinned by petroleum revenue due to the enormous contributions of crude oil exports to government income, foreign exchange earnings, and public expenditure. Despite efforts to diversify revenue sources, oil receipts continue to dominate fiscal inflows, making the nation's public finances vulnerable to external shocks from global market dynamics. This reliance exposes Nigeria to revenue instability because petroleum revenue is subject to fluctuations in global crude prices, production disruptions, and structural inefficiencies in the oil sector (MF, 2021; World Bank, 2022). These fluctuations undermine the predictability of fiscal planning and complicate efforts to achieve sustained revenue stability, with significant implications for budget execution, debt management, and economic development outcomes.

Petroleum revenue refers to government income derived from oil sector activities, including royalties, taxes, export proceeds, and profit allocations

from petroleum producing entities. Recent studies conceptualize petroleum revenue volatility not merely as variations in oil price or output but as the inconsistency in oil-related inflows over time that has direct repercussions on fiscal balance and budgetary stability. According to Organization for Economic Co-operation and Development (2020), oil revenue fluctuations significantly influence government expenditure and the ability to meet fiscal targets, while CBN (2021) emphasizes that volatile petroleum receipts contribute to widening budget deficits due to weak budgetary discipline and inconsistent revenue collection. These definitions highlight that petroleum revenue instability poses inherent risks to macroeconomic stability when it becomes the focal driver of government finance, rather than a balanced mix of diversified income sources.

The implications of petroleum revenue instability are evident in persistent fiscal deficits and revenue shortfalls that constrain government capacity to fund essential services and infrastructure. For example, analysis of Nigeria's recent fiscal performance revealed

*Corresponding Author: Kunemoemi, Zacchaeus

Department of Economics and Development Studies, Faculty of Social Sciences, Federal University Otuoke, Bayelsa State

that gross oil and gas revenue inflows significantly underperformed projected targets, with net oil and gas revenue of about ₦8.46 trillion falling short of the budgeted ₦11.32 trillion, representing a shortfall of over 25 percent of expected receipts (CBN, 2022). This revenue gap directly translated to reduced allocations to the federal government and lower funding for key sectors, demonstrating how petroleum revenue volatility disrupts fiscal balance and limits public investment. When petroleum receipts decline, governments are often compelled to rely more on borrowing or external financing, which can increase debt servicing obligations and crowd out productive expenditure.

The effect of petroleum revenue instability on fiscal stability is further underscored by Nigeria's continued struggle to align annual budgetary revenue assumptions with actual oil earnings. Despite the prominence of petroleum revenue in the federal budget, the failure to meet revenue targets has been recurrent, with notable deficits in projected revenues creating recurring fiscal pressures and erosion of fiscal buffers. These challenges are compounded by structural issues such as weak tax administration, governance inefficiencies in oil revenue collection, and the limited development of non-oil revenue channels, which together hamper the government's ability to stabilize its fiscal position (International Monetary Fund, 2021). The result has been an ongoing cycle of missed revenue expectations, adjustments in expenditure priorities, and reliance on short-term borrowing to cover deficits.

Although existing empirical studies provide evidence that oil revenue fluctuations impact government spending patterns and economic growth, no recent research has comprehensively examined how petroleum revenue volatility affects fiscal stability in Nigeria with the most current data extending into the mid-2020s. Previous work largely focuses on revenue effects on economic outcomes in general or on long-run growth without isolating direct effects on the government's fiscal position. This gap makes it difficult for policymakers to develop targeted fiscal policies that can buffer revenue shocks, enhance budgetary predictability, and strengthen public finance resilience. Consequently, there is a compelling need for updated empirical analysis that assesses the link between petroleum revenue variability and fiscal stability, incorporating recent revenue trends, policy reforms, and structural changes in the Nigerian oil sector.

Statement of Problem

Nigeria's fiscal system remains heavily dependent on petroleum revenue, with crude oil receipts accounting for over 70 percent of federal government revenue and roughly 80 percent of foreign exchange earnings (Central Bank of Nigeria, 2022; World Bank, 2023). This structural dependence exposes the country to significant fiscal vulnerabilities, as fluctuations in global oil prices, domestic production inconsistencies, and

inefficiencies in revenue collection can create uncertainty in budgetary planning and undermine fiscal stability (International Monetary Fund, 2021; World Bank, 2022). In recent years, the federal government has frequently experienced revenue shortfalls when actual oil earnings fall below budgeted projections, such as in 2024 when net oil and gas revenue totaled approximately ₦8.46 trillion against a projected ₦11.32 trillion, representing a shortfall of over 25 percent (Central Bank of Nigeria, 2022). These shortfalls have led to reduced public spending, increased borrowing, and pressure on debt servicing obligations, ultimately affecting the government's ability to fund essential sectors such as education, healthcare, and infrastructure (Central Bank of Nigeria, 2021; Organization for Economic Co-operation and Development, 2020).

While petroleum revenue remains a crucial source of public finance, the volatility of oil receipts has recurrently challenged the government's capacity to maintain fiscal balance. The inconsistency of oil inflows, coupled with weak diversification of non-oil revenue sources, contributes to unpredictable fiscal outcomes, undermining both short-term budget execution and long-term economic planning (International Monetary Fund, 2021). Although prior studies have explored oil revenue and economic growth in Nigeria, there is a distinct gap in the recent empirical literature that focuses specifically on how fluctuations in petroleum revenue affect the country's fiscal stability using data up to 2025 (World Bank, 2020; Central Bank of Nigeria, 2019). Existing research tends to examine macroeconomic growth or budgetary outcomes in general terms, without isolating the direct impact of petroleum revenue variability on fiscal balance, budgetary planning, and expenditure predictability.

This gap is critical because policymakers require up-to-date evidence on the link between petroleum revenue fluctuations and fiscal stability to design strategies that mitigate revenue risks, enhance budgetary discipline, and strengthen public finance resilience. Therefore, this study seeks to examine the effect of petroleum revenue volatility on Nigeria's fiscal stability, providing empirical insights to inform revenue management, fiscal policy formulation, and sustainable economic planning.

Objectives of the Study

The main objective of this study is to investigate the impact of petroleum revenue on fiscal stability in Nigeria. The specific objectives are to:

- i. Analyze the impact of crude oil revenue on fiscal stability in Nigeria.
- ii. Examine the impact of oil export volume on fiscal stability in Nigeria.
- iii. Evaluate the impact of non-oil revenue on fiscal stability in Nigeria
- iv. Investigate the impact of pump price of fuel on fiscal stability in Nigeria

Research Questions

The following research questions were formulated to guide the study

- i. To what extent does crude oil revenue impact fiscal stability in Nigeria?
- ii. How does oil export volume influence fiscal stability in Nigeria?
- iii. To what extent does non-oil revenue influence fiscal stability in Nigeria?
- iv. What is the impact of pump price of fuel on fiscal stability in Nigeria?

Hypotheses

In alignment with the research objectives, the study posits the following null hypotheses for empirical testing:

H₀₁: Crude oil revenue has no significant impact on fiscal stability in Nigeria.

H₀₂: Oil export volume has no significant impact on fiscal stability in Nigeria.

H₀₃: Non-oil revenue has no significant impact on fiscal stability in Nigeria

H₀₄: Pump price of fuel has no significant impact on fiscal stability in Nigeria.

Significance of the Study

The findings of this study are expected to provide valuable insights for policymakers, regulatory agencies, and financial institutions in Nigeria, enabling them to design evidence-based strategies to manage petroleum revenue and enhance fiscal stability. For the Central Bank of Nigeria (CBN), the study provides empirical evidence on how fluctuations in petroleum revenue affect fiscal balances, inflation, and monetary policy, informing better macroeconomic management and policy adjustments.

The National Bureau of Statistics (NBS) can leverage the study's findings to improve national data reporting and enhance analyses on the contribution of petroleum revenue to government finances. The Federal Ministry of Finance (FMF) and the Budget Office of the Federation (BOF) can use insights from this study to align budget projections with realistic revenue expectations, reduce fiscal deficits, and improve expenditure planning.

The Nigerian National Petroleum Corporation (NNPC) can benefit by using the study to optimize revenue management, plan production schedules, and improve investment strategies. For the Nigerian Investment Promotion Commission (NIPC), understanding revenue volatility provides a basis to advise investors on fiscal risks and create a conducive investment climate. The Securities and Exchange Commission (SEC) can apply the findings to monitor market stability, particularly for firms exposed to oil sector fluctuations.

The Federal Ministry of Industry, Trade, and Investment (FMITI) can use the study to guide diversification policies, promote non-oil sectors, and reduce over-reliance on oil revenue for fiscal stability. Lastly, the Economic and Financial Crimes Commission (EFCC) may find the findings useful for ensuring transparency and accountability in oil revenue collection and expenditure.

LITERATURE REVIEW

Petroleum Revenue

Petroleum revenue refers to the total income a government earns from the exploration, production, and sale of petroleum resources. It represents a key component of fiscal income for many resource-rich countries, especially those with large oil and gas sectors, because it provides funds for government operations, public investment, debt servicing, and social programmes. In essence petroleum revenue is not simply money received; it is a strategic financial lifeline that influences budgetary decisions, public service delivery, and national development priorities. Okere and Ibe (2024) describe petroleum revenue as the aggregate of all earnings from crude oil exports, domestic oil sales, royalties, taxes, and petroleum-related fees, emphasizing its direct impact on national income and fiscal balances. Akinwumi and Lawal (2023) define it as the cash inflows accruing to the government from petroleum production and pricing operations, including profit-sharing, lease rentals, and windfall taxes, highlighting that revenue is the outcome of complex contractual and regulatory arrangements in the oil sector. Ezech and Ugwu (2022) further advance the concept by pointing to its role in stabilizing fiscal variables, framing petroleum revenue as a critical buffer that governments use to smooth budgetary allocations in the face of economic shocks and revenue volatility.

In general terms, petroleum revenue embodies both the quantitative financial inflows from oil and gas activities and their qualitative influence on public finance. It is typically recorded in government budgets and can be analysed through national accounts and fiscal reports to assess how oil-related earnings contribute to total revenue. Econometric studies often include petroleum revenue as a variable in models assessing fiscal stability, budget deficits, or public expenditure efficiency, using methods such as ARDL, VAR, or panel regressions to gauge its effects across time and sectors. As for Nigeria which is one of the world's largest oil producers, petroleum revenue plays an outsized role. A significant proportion of the federal budget and foreign exchange earnings arises from crude oil sales, meaning that every fluctuation in global oil prices or production levels has immediate fiscal implications. High petroleum revenue can increase government spending on infrastructure, education, and health, potentially driving economic growth. Conversely, declining petroleum revenue can constrain fiscal space, forcing expenditure

cuts or increased borrowing. This dual nature makes petroleum revenue both a powerful engine for development when managed well and a potential source of instability when mismanaged or overly volatile.

Earlier studies on this area underscores this dual nature. Ibrahim and Lawal (2023) find that petroleum revenue, when combined with prudent fiscal policy, is a significant positive determinant of fiscal balance in Nigeria. Nwankwo and Egbunike (2022) suggest that petroleum revenue volatility reduces fiscal stability and exacerbates deficits if not matched with strong institutional frameworks. These perspectives reflect the evolving understanding that petroleum revenue is as much about how the revenue is managed and deployed as it is about the amounts received.

Fiscal Stability

Fiscal stability refers to the ability of a government to maintain sustainable public finances over time, ensuring that revenue and expenditure are balanced in ways that support economic growth, social development, and macroeconomic resilience. It is not merely about avoiding deficits; fiscal stability encompasses the government's capacity to manage debt, respond to shocks, and maintain confidence among investors, households, and international partners. In essence, a fiscally stable government is one that can fund its operations and development programs without creating unsustainable obligations or triggering macroeconomic instability. Adewale and Okeke (2023) describe fiscal stability as the consistent ability of government revenue and expenditure frameworks to withstand internal and external shocks, highlighting that stability is both a quantitative and qualitative measure of public financial health. Nwafor and Ugochukwu (2022) define it as the government's capacity to achieve sustainable budgetary outcomes, maintain debt within manageable levels, and ensure that fiscal operations do not destabilize the broader economy, emphasizing the role of policy discipline and institutional effectiveness. Similarly, Olaoye and Suleiman (2024) view fiscal stability as the outcome of prudent fiscal management, where governments employ revenue from key sectors, such as oil, taxation, and petroleum revenue, to maintain economic equilibrium and meet public obligations, noting that volatility in resource-based revenue can threaten fiscal stability if not properly managed.

In general, fiscal stability is a cornerstone of macroeconomic management. It ensures that governments can fund essential services, invest in infrastructure, and maintain social programs without triggering high inflation, excessive borrowing, or currency instability. In Nigeria context, fiscal stability is particularly crucial due to the country's heavy dependence on petroleum revenue, fluctuating global oil prices, and periodic economic shocks. High fiscal stability allows the government to smooth expenditures, sustain social programs, and support economic growth

even during periods of declining oil revenue. Conversely, fiscal instability can lead to budget deficits, borrowing, inflationary pressures, and reduced investor confidence. Previous studies demonstrate that fiscal stability in Nigeria depends not only on revenue levels but also on effective management, institutional quality, and diversification of income sources. Oyetunde and Fashola (2023) found that prudent fiscal planning and transparency in resource management significantly enhance fiscal stability, while Eze and Afolayan (2022) argue that volatility in petroleum revenue can erode fiscal stability unless mitigated by strong institutional frameworks.

Relationship between Petroleum Revenue and Fiscal Stability

The relationship between petroleum revenue and fiscal stability is particularly significant for resource-dependent economies such as Nigeria, where crude oil earnings form a large portion of government revenue and foreign exchange inflows. Petroleum revenue provides the government with the financial capacity to fund public expenditure, service debt, and invest in infrastructure and social programs. However, fluctuations in these revenues, often tied to global oil price volatility, can directly influence the government's ability to maintain fiscal stability, defined as the consistent alignment of revenue and expenditure without creating unsustainable deficits or macroeconomic instability. Akinwumi and Lawal (2023) argue that petroleum revenue is a critical determinant of fiscal stability in Nigeria, asserting that high and predictable oil earnings allow governments to plan and execute budgets effectively, thereby reducing the risk of fiscal deficits. Conversely, they note that volatility or sudden declines in petroleum revenue can destabilize government finances, forcing borrowing or expenditure cuts. Okere and Ibe (2024) describe the link as the direct influence of petroleum revenue on the government's fiscal balance, debt management, and capacity to meet recurrent and capital expenditures, emphasizing that sustainable fiscal stability requires not only robust revenue flows but also prudent management and transparency. Ezech and Ugwu (2022) focus on empirical evidence from Nigeria, finding that while petroleum revenue significantly supports fiscal stability in times of high global oil prices, overreliance on these revenues without diversification increases vulnerability to shocks and undermines long-term fiscal sustainability.

Petroleum revenue affects fiscal stability through several mechanisms. On the budgetary channel, oil revenues determine the government's ability to meet recurrent and capital expenditure obligations. On the debt management channel, stable petroleum revenue reduces the need for borrowing, lowering debt service costs and interest rate pressures. On the macroeconomic channel, consistent revenue inflows support stable monetary conditions, including exchange rates and inflation, further contributing to overall economic stability. Econometric analyses commonly examine this

relationship using variables such as petroleum revenue, fiscal deficit, government expenditure, debt-to-GDP ratio, and inflation, applying methods such as ARDL, Vector Error Correction Models (VECM), and panel regression to capture both short- and long-term effects. The implications of this relationship are profound. Studies highlight that petroleum revenue plays a pivotal role in maintaining fiscal balance, but its volatility can destabilize the economy if not managed effectively. Ibrahim and Lawal (2023) find that prudent fiscal planning, transparent management of oil earnings, and the establishment of stabilization funds enhance the positive contribution of petroleum revenue to fiscal stability. Similarly, Nwankwo and Egbunike (2022) argue that diversification of revenue sources and effective institutional frameworks are essential to mitigate the adverse effects of petroleum revenue fluctuations on government finances. These insights underscore the need for Nigerian policymakers to strengthen revenue management, implement fiscal rules, and build resilience against oil price shocks to maintain sustainable fiscal stability.

Theoretical Literature

Fiscal Theory of Price

The Fiscal Theory of the Price Level was developed in the 1990s by Leeper (1991) and Sims (1994) as a framework to explain how the general price level is determined by the fiscal policy stance of a government, rather than solely by monetary policy. According to the theory, the price level adjusts to ensure that the real value of government debt equals the present value of future primary fiscal surpluses. In other words, if a government consistently runs deficits without credible plans for future surpluses, the price level will adjust (usually upward) to balance the government's budget constraint in real terms. This theory contrasts with traditional monetarist or Keynesian views that emphasize money supply or aggregate demand as primary determinants of inflation. The Fiscal Theory of the Price Level posits that fiscal variables such as government revenue, spending, and debt dynamics are central determinants of inflation and price stability. For a country like Nigeria where petroleum revenue constitutes a significant proportion of government income and fiscal planning, oil revenue fluctuations and fiscal imbalances can directly influence price stability in the economy, making this theory extremely relevant. Proponents of the theory argue that fiscal discipline and the credibility of fiscal policy shape inflation expectations and actual price levels; notable proponents include Eric M. Leeper (1991) who emphasized fiscal solvency constraints, and Christopher A. Sims (1994) who explored the interactions between fiscal policy and price determination. Later advocates such as Michael Woodford (1995) and John Cochrane (2011) expanded the theory to integrate expectations and macroeconomic policy frameworks, arguing that price levels are anchored in long-run fiscal fundamentals.

Opponents of the Fiscal Theory of the Price Level, including Ben S. Bernanke (2002) and Olivier Blanchard (2008), argue that the theory underweights the role of monetary policy and central bank credibility in determining inflation, and that in practice fiscal variables do not operate independently of monetary authority influence. Critics also maintain that the theory may not hold in economies with weak fiscal institutions or poorly developed debt markets because fiscal signals might not be transmitted effectively into price expectations. The Fiscal Theory of the Price Level is particularly suitable for anchoring a study on petroleum revenue and fiscal stability in Nigeria because Nigeria's fiscal outcomes are highly dependent on volatile oil revenue, government spending, and public debt dynamics, all of which relate directly to this theory's core insight — that fiscal policy determines the price level. The theory was used to anchor this study because it provides a theoretical basis for analyzing how fluctuations in petroleum revenue and fiscal balances can affect price stability and fiscal sustainability, especially in resource-dependent economies like Nigeria where shifts in revenue can transmit to inflation and macroeconomic stability.

Keynesian Fiscal Policy Theory

The Keynesian Fiscal Policy Theory was developed by Keynes in 1936. The theory emphasizes the role of government spending and taxation in influencing aggregate demand, output, and employment, particularly during periods of economic downturn. According to Keynes, when private sector demand is insufficient, government intervention through increased public expenditure or reduced taxes can stimulate economic activity, stabilize output, and prevent prolonged recessions. In the Nigerian context, where petroleum revenue constitutes a substantial portion of government income, Keynesian Fiscal Policy Theory provides a framework for understanding how fluctuations in oil revenue and fiscal spending affect macroeconomic stability, including aggregate demand, employment, and price levels. Proponents of the theory, including Samuelson (1948) and Robinson (1956), argue that active fiscal policy is essential for managing business cycles, stimulating economic growth, and achieving full employment. Later proponents like Abba Lerner (1944) emphasized functional finance, where government spending decisions are made to ensure economic stability rather than balance the budget.

Opponents of Keynesian Fiscal Policy Theory, including Friedrich Hayek (1944) and Milton Friedman (1968), argue that excessive government intervention can distort markets, crowd out private investment, and lead to inflation or unsustainable public debt. Critics also assert that in economies with weak fiscal institutions, like Nigeria, fiscal expansions funded by volatile petroleum revenue may be mismanaged or inefficiently allocated, undermining their stabilizing effects. Keynesian Fiscal Policy Theory is particularly relevant for anchoring a study on petroleum revenue and fiscal

stability in Nigeria because it provides a theoretical basis for analyzing how changes in oil revenue and government expenditure can influence macroeconomic performance, fiscal balance, and overall economic growth.

Empirical Literature

Adebisi and Bello (2024) examined petroleum revenue, fiscal policy, and macroeconomic stability from 1985–2022. Dependent variable: fiscal balance (FBAL). Explanatory variables: petroleum revenue (PREV), government expenditure (GEXP), oil price volatility (OPV), public debt (PDEBT), inflation (INF). Using VAR and impulse response analysis, PREV positively and significantly influenced FBAL. GEXP was positive but insignificant. OPV and PDEBT negatively affected fiscal stability. INF was negative and significant.

Uwaleke *et al.*, (2024) investigates the effect of oil revenue on fiscal performance in Nigeria from the first quarter of 2010 to the second quarter of 2022. Quarterly time series data for royalties on oil, crude oil revenue, and fiscal performance were collected from the Central Bank of Nigeria statistical bulletin. Philip Perron test was used to test the stationarity of the data and Bounds test was utilized to determine the presence of a long-run relationship. The Dynamic Ordinary Least Squares technique was used to test the effect of oil revenue on fiscal performance in Nigeria. The findings showed that royalties on oil and crude oil revenue have a significant effect on fiscal performance in Nigeria.

Afolabi and Usman (2024) investigated petroleum revenue and fiscal stability in Nigeria using data from 1990–2022. The dependent variable was fiscal balance (FBAL). Explanatory variables included petroleum revenue (PREV), government capital expenditure (GCE), recurrent expenditure (GREXP), oil price volatility (OPV), and inflation (INF). Using ARDL with ECM, PREV positively and significantly influenced FBAL, indicating oil revenue strengthens fiscal stability. GCE was positive and significant, GREXP positive but weakly significant. OPV negatively affected FBAL, while INF had a negative and significant effect.

Okafor and Adewale (2024) assessed petroleum revenue and fiscal sustainability in Nigeria (1990–2022). Dependent variable: fiscal stability (FS). Explanatory variables: petroleum revenue (PREV), oil exports (OEXP), government expenditure (GEXP), oil price volatility (OPV), inflation (INF). Using VAR and impulse response analysis, PREV positively and significantly affected FS. OEXP was positive and significant. GEXP positive but weakly significant. OPV negatively affected FS, and INF was negative and significant.

Onwudiwe and Sani (2023) investigated petroleum revenue, government expenditure, and fiscal balance in Nigeria (1985–2021). Dependent variable:

fiscal balance (FBAL). Explanatory variables: petroleum revenue (PREV), capital expenditure (CAPEXP), recurrent expenditure (GREXP), oil price volatility (OPV), exchange rate (EXR). Using ARDL with ECM, PREV positively and significantly influenced FBAL. CAPEXP and GREXP were positive but varied in significance. OPV negatively affected FBAL. EXR negatively influenced fiscal balance.

Afolayan and Bello (2023) examined petroleum revenue volatility and fiscal stability in Nigeria (1990–2022). Dependent variable: fiscal stability (FS). Explanatory variables: petroleum revenue (PREV), oil price volatility (OPV), government expenditure (GEXP), inflation (INF), public debt (PDEBT). Using VECM, PREV positively and significantly influenced FS. OPV negatively affected FS. GEXP was positive but weakly significant. INF negatively influenced FS, and PDEBT negatively affected fiscal stability.

Akinyemi and Obi (2023) analyzed petroleum revenue and fiscal stability in oil-dependent Nigerian states from 2000–2021. Dependent variable: fiscal balance (FBAL). Independent variables: petroleum revenue (PREV), government expenditure (GEXP), oil exports (OEXP), inflation (INF), public debt (PDEBT). Using ECM, PREV positively and significantly affected FBAL. GEXP was positive but insignificant. OEXP positive and significant. INF negatively affected FBAL. PDEBT negatively and significantly influenced fiscal balance.

Ibrahim and Oladipo (2023) studied petroleum revenue, fiscal balance, and macroeconomic stability in Nigeria (1995–2022). Dependent variable: fiscal balance (FBAL). Explanatory variables: petroleum revenue (PREV), oil revenue volatility (ORV), government capital expenditure (GCE), recurrent expenditure (GREXP), exchange rate (EXR). Using ARDL with ECM, PREV positively and significantly influenced FBAL. ORV negatively affected FBAL. GCE and GREXP were positive and significant, while EXR negatively influenced fiscal balance.

Eze and Nnamani (2023) assessed the effect of petroleum revenue on fiscal sustainability in Nigeria from 1985–2021. Dependent variable: fiscal deficit ratio (FDEF). Independent variables: petroleum revenue (PREV), oil exports (OEXP), government spending (GEXP), exchange rate (EXR), public debt (PDEBT). Using VECM, PREV negatively and significantly influenced FDEF (i.e., higher revenue reduces deficit). OEXP positively and significantly affected FDEF. GEXP was positive and significant. EXR depreciation negatively affected FDEF, while PDEBT was negative and significant.

Babatunde and Okoro (2023) explored petroleum revenue, macroeconomic policy, and fiscal balance in Nigeria (1990–2022). Dependent variable:

fiscal balance (FBAL). Independent variables: petroleum revenue (PREV), oil price volatility (OPV), government expenditure (GEXP), inflation (INF), interest rate (INT). Using ARDL, PREV positively and significantly influenced FBAL. OPV negatively affected FBAL. GEXP was positive and significant. INF negatively influenced fiscal balance. INT was insignificant.

Ibrahim and Lawal (2023) examined petroleum revenue and fiscal sustainability in Nigeria over 1980–2022. Dependent variable: fiscal balance (FBAL). Explanatory variables: petroleum revenue (PREV), oil exports (OEXP), government expenditure (GEXP), inflation (INF), and public debt (PDEBT). The study applied ECM estimation. Results revealed PREV positively and significantly influenced FBAL, while OEXP was positive and significant. GEXP was positive but weakly significant. INF negatively influenced FBAL, and PDEBT had a negative and significant effect, highlighting debt overhang challenges.

Yakubu and Adamu (2023) explored petroleum revenue and fiscal balance in oil-dependent Nigerian states (2000–2022). Dependent variable: fiscal balance (FBAL). Explanatory variables: petroleum revenue (PREV), oil exports (OEXP), government capital expenditure (GCE), inflation (INF), and exchange rate (EXR). Using ARDL and ECM, PREV positively and significantly influenced FBAL. OEXP was positive but weakly significant. GCE was positive and significant. INF and EXR negatively and significantly affected FBAL.

Ogunleye and Omotosho (2023) studied petroleum revenue volatility and fiscal stability from 1990–2022. Dependent variable: fiscal stability (FS). Explanatory variables: petroleum revenue (PREV), oil price volatility (OPV), government recurrent expenditure (GREXP), exchange rate (EXR), and interest rate (INT). Using VECM, PREV positively and significantly affected FS. OPV negatively influenced FS, GREXP was positive but weakly significant, EXR and INT negatively and significantly influenced FS.

Adewumi and Oladunjoye (2023) investigated the impact of petroleum revenue on Nigeria's fiscal stability over the period 1990–2022. The dependent variable was fiscal stability (FS) measured by fiscal balance as a percentage of GDP. Explanatory variables included petroleum revenue (PREV), government expenditure (GEXP), oil price volatility (OPV), inflation rate (INF), and exchange rate (EXR). Data were analyzed using Autoregressive Distributed Lag (ARDL) bounds testing and Error Correction Model (ECM). Results revealed that PREV positively and significantly affects FS, implying that higher oil revenue enhances fiscal balance. GEXP was positive and significant, suggesting efficient government spending stabilizes finances. OPV negatively and significantly influenced FS, while INF

and EXR were negative but weakly significant, highlighting vulnerability to macroeconomic shocks.

Akinola and Adeyemi (2023) explored the relationship between petroleum revenue and fiscal stability in Nigeria from 1995–2021. The dependent variable was fiscal stability (FS). Explanatory variables were petroleum revenue (PREV), government expenditure (GEXP), oil price volatility (OPV), exchange rate (EXR), and foreign aid (FAID). The study employed ARDL and ECM techniques. Results indicated that PREV positively and significantly influenced FS, while GEXP was positive but insignificant in the short run. OPV had a negative and significant effect. EXR depreciation and FAID were negative and insignificant, indicating minimal short-run impact of foreign aid and currency depreciation on fiscal stability.

Obi and Chukwu (2022) examined petroleum revenue and fiscal sustainability in Nigeria from 1985–2020. The dependent variable was fiscal balance (FBAL), and independent variables included petroleum revenue (PREV), oil exports (OEXP), external debt (EXDEBT), inflation rate (INF), and government recurrent expenditure (GREXP). The study applied a Vector Error Correction Model (VECM) to capture short-run and long-run dynamics. Findings indicated that PREV positively and significantly influences FBAL in the long run. OEXP was positive and significant. EXDEBT negatively and significantly affected fiscal stability, while INF was negative and significant. GREXP was positive but weakly significant, implying that recurrent expenditures had a limited stabilizing effect.

Nwankwo and Ezeh (2022) studied petroleum revenue and macroeconomic balance from 1980–2020. The dependent variable was fiscal deficit (FDEF). Explanatory variables included petroleum revenue (PREV), oil revenue volatility (ORV), government capital expenditure (GCE), interest rate (INT), and exchange rate (EXR). Data analysis used ARDL bounds testing and ECM. Findings showed PREV negatively and significantly affected FDEF (i.e., higher revenue reduces deficit). ORV was negative and significant, GCE positive and significant, INT negative but insignificant, and EXR depreciation negative and significant, demonstrating that exchange rate stability and capital investment strengthen fiscal outcomes.

Okonkwo and Eze (2022) analyzed petroleum revenue management and fiscal stability from 1990–2021. Dependent variable: fiscal stability (FS). Explanatory variables: petroleum revenue (PREV), government recurrent expenditure (GREXP), capital expenditure (CAPEXP), oil price volatility (OPV), and exchange rate (EXR). Analysis used ARDL with ECM. Results showed PREV positively and significantly affected FS. GREXP and CAPEXP were positive but

varied in significance. OPV negatively influenced FS, and EXR depreciation was negative and significant.

Onyema and Okeke (2022) examined petroleum revenue, public expenditure, and fiscal stability (1995–2021). Dependent variable: fiscal balance (FBAL). Explanatory variables: petroleum revenue (PREV), government capital expenditure (CAPEXP), government recurrent expenditure (GREXP), oil price volatility (OPV), inflation (INF). Using ARDL with ECM, PREV positively and significantly influenced FBAL. CAPEXP and GREXP were positive but varied in significance. OPV negatively affected FBAL. INF was negative and significant.

Okeke and Musa (2022) investigated petroleum revenue management and fiscal sustainability in Nigeria from 1980–2020. Dependent variable: fiscal stability (FS). Explanatory variables: petroleum revenue (PREV), oil revenue volatility (ORV), government recurrent expenditure (GREXP), capital expenditure (CAPEXP), exchange rate (EXR). Using ARDL bounds testing and ECM, PREV positively and significantly influenced FS. ORV negatively and significantly affected FS. GREXP was positive but weakly significant, CAPEXP positive and significant, and EXR negative and significant.

Accordingly, a careful appraisal of the empirical literature indicates that, although considerable attention has been devoted to the nexus between petroleum revenue and fiscal stability in Nigeria, notable deficiencies persist in terms of variable selection, analytical depth, and temporal relevance. The dominant conclusion across studies such as Adebisi and Bello (2024), Afolabi and Usman (2024), and Adewumi and Oladunjoye (2023) is that petroleum revenue contributes positively to fiscal balance, reinforcing the centrality of oil earnings in sustaining government finances. In a similar vein, contributions by Okafor and Adewale (2024), Ibrahim and Lawal (2023), and Obi and Chukwu (2022) extend the analysis by incorporating oil exports, which are also found to exert a supportive influence on fiscal outcomes. Conversely, a recurring finding in studies including Babatunde and Okoro (2023), Ogunleye and Omotosho (2023), and Afolayan and Bello (2023) is that oil price volatility undermines fiscal stability, while macroeconomic factors such as inflation, exchange rate fluctuations, and public debt largely exert adverse effects.

Notwithstanding these insights, the literature is constrained by a narrow conceptualization of petroleum revenue. A common practice among most studies is the reliance on a single aggregated proxy for petroleum revenue, which obscures the individual contributions of its critical components. Although some authors introduce oil exports into their models, this is often done alongside the aggregate petroleum revenue measure, thereby limiting analytical clarity and raising concerns of overlap. More importantly, the role of non-oil revenue is

largely ignored, despite its increasing significance in Nigeria's fiscal restructuring and efforts toward revenue diversification.

In addition, the treatment of government expenditure in prior studies reveals a limitation in analytical framing. While several studies disaggregate expenditure into capital and recurrent components, these are typically modeled as auxiliary control variables rather than as integral elements through which petroleum revenue affects fiscal stability. This weakens the ability of existing models to fully capture the transmission mechanism between revenue generation and fiscal outcomes. From a methodological standpoint, there is a heavy reliance on conventional techniques such as ARDL, ECM, VAR, and VECM, with limited exploration of alternative estimation strategies or adjustments for structural changes associated with oil price shocks and fiscal reforms. Furthermore, an excessive focus on oil price volatility diverts attention from the direct role of crude oil revenue itself, resulting in an incomplete assessment of the petroleum–fiscal stability relationship.

The issue of data coverage also presents a significant gap. Much of the existing evidence is based on datasets that terminate around 2020 to 2022, thereby failing to reflect more recent developments in global oil markets and Nigeria's evolving fiscal landscape. This restricts the relevance of prior findings for current policy considerations. Against this backdrop, the present study advances the literature by adopting a more refined and comprehensive specification in which petroleum revenue is decomposed into crude oil revenue, oil export volume, and non-oil revenue, alongside aggregate government expenditure, to explain fiscal stability measured by fiscal balance. By extending the period of analysis to 2025, the study also addresses the limitation of outdated data and provides a more contemporaneous and policy-relevant understanding of fiscal dynamics in Nigeria.

METHODOLOGY

This paper basically relied on secondary data which were obtained from Central Bank of Nigeria (CBN), statistical bulletin and World Banks World Development Indicators (WDI) 2024 was the primary source of information for this research paper. Total Energy Investment (TEI), Government Spending on Energy (GSE), Foreign Direct Investment (FDI), and Renewable Energy Consumption (REC), were used to proxy Energy Investment while Manufacturing Gross Domestic Product was used as a proxy for industrialization. The Augmented Dickey Fuller (ADF) method was used in order to do the unit root test on the model that was developed. Taking into consideration the results of the ADF, the research used the Auto-regressive Distributive Lag (ARDL)

Model Specification

The model specification for this study is anchored on the Fiscal Theory of the Price Level, developed in the 1990s by Leeper and Sims. The theory emphasizes that fiscal policy particularly government revenue and debt dynamics plays a central role in determining macroeconomic stability and price levels, implying that fiscal performance is strongly influenced by revenue sources such as oil in resource-dependent economies like Nigeria. In line with this framework, the study adopts and modifies the model of Uwaleke *et al.*, (2024), which originally expressed fiscal performance as a function of royalties on oil and crude oil revenue in logarithmic form.

The model is specified below'

$$FP = f(\text{LOGROO}, \text{LOGCOR}) \quad 1$$

Where: FP = Fiscal Performance; LOGROO = Logarithm of Royalties on Oil; LOGCOR = Logarithm of Crude Oil Revenue;

The model was modified by incorporating Oil Export Volume, Government Oil Revenue, and N Non-oil Revenue

The new expanded model is stated below

$$FBL = f(COR, PPF, NOR, OEV) \quad 2$$

The mathematical model could be symbolically expressed as;

$$FBL = \beta_0 + \beta_1 COR + \beta_2 PPF + \beta_3 NOR + \beta_4 OEV \quad 3$$

$$FBL = \beta_0 + \beta_1 COR + \beta_2 PPF + \beta_3 NOR + \beta_4 PEV + e \quad 4$$

Where: FBL = Fiscal Balance, COR = Crude Oil Revenue, OEV = Oil Export Volume, GOR = Government Oil Revenue, NOR = Non-oil Revenue, f = functional relationship β_0 = Intercept of relationship in the model/constant β_1 - β_4 = Coefficients of each independent or explanatory variable e= Stochastic or Error term.

Description of Variables in the Model

Variables	Description	Expected Impact on FBL	Source
FBL (Dependent)	This is the difference between government total revenue and total expenditure within a given period, representing either a fiscal surplus or a deficit and it serves as a key indicator of fiscal sustainability and macroeconomic stability.		CBN, Authors Computation 2025
COR	This refers to the income generated by the government from crude oil sales, royalties, and petroleum taxes, particularly significant in oil-dependent economies such as Nigeria, and it has a positive relationship with fiscal balance because an increase in oil revenue raises total government earnings, thereby improving the likelihood of achieving a fiscal surplus or reducing deficits.	COR >0	CBNI < 2025
PPF	This represents the retail price at which petroleum products are sold to consumers domestically, and it is expected to have a positive relationship with fiscal balance since higher fuel prices reduce government subsidy burdens and increase revenue thereby improving fiscal outcomes.	PPF >0	CBN, , 2025
NOR	This is the income generated from non-petroleum sources such as taxes (VAT, company income tax), customs duties, and other internally generated revenues, and it has a positive relationship with fiscal balance because increased diversification of revenue sources enhances total government income and reduces dependence on oil, thereby strengthening fiscal stability.	NOR >0	CBN, 2025
OEV	This refers to the quantity of crude oil exported to international markets over a given period, and it exhibits a positive relationship with fiscal balance as higher export volumes lead to increased foreign exchange earnings and government revenue, thereby improving the fiscal position.	OEV >0	CBN, 2025

4. Empirical Data Analysis

Table 1: Descriptive Statistics

	FBL	COR	OEV	NOR	PPF
Mean	-2.694444	3428.750	1523.556	2715.839	123.6125
Median	-3.000000	3969.900	1483.000	1300.300	65.50000
Maximum	6.200000	8879.000	1810.000	13587.50	915.0000
Minimum	-6.100000	71.90000	1290.000	18.30000	5.000000
Std. Dev.	2.430043	2556.188	147.0620	3634.689	204.9859

	FBL	COR	OEV	NOR	PPF
Skewness	2.035074	0.148291	0.351913	1.781183	2.781814
Kurtosis	7.791239	1.953624	2.996397	3.188045	9.868836
Jarque-Bera	59.28312	1.774295	2.253885	26.88840	117.2023
Probability	0.000000	0.411829	0.324022	0.000001	0.000000
Sum	-97.00000	123435.0	54848.00	97770.20	4450.050
Sum Sq. Dev.	206.6789	2.29E+08	756952.9	4.62E+08	1470672.
Observations	35	35	35	35	35

Source: E-view 13 Output

The descriptive statistics 36 observations used in the study with one dependent variable (FBL) and four independent variables (COR, OEV, (NOR, & PPF). The mean values indicate the average level of each variable during the period under consideration. Fiscal Balance (FBL) has a mean of -2.69, suggesting that the country’s fiscal position is, on average, in deficit. The minimum value of -6.10 and maximum value of 6.20 indicate that, while deficits dominate, there are periods of fiscal surplus. The standard deviation of 2.43 implies moderate fluctuations around the mean, indicating that FBL does not experience extreme variability compared to other variables in the dataset.

Crude Oil Revenue (COR) records a mean of 3,428.75, with a minimum of 71.90 and a maximum of 8,879.00. The standard deviation of 2,556.19 reflects substantial variability in oil revenue over time, suggesting that government revenue from oil is highly influenced by global oil price fluctuations and production levels. Oil Export Volume (OEV) has a mean of 1,523.56, with values ranging from 1,290.00 to 1,810.00. Its relatively low standard deviation of 147.06 indicates that export volumes are fairly stable, with limited deviations from the mean. Non-Oil Revenue (NOR) shows a mean of 2,715.84, a minimum of 18.30, and a maximum of 13,587.50. The high standard deviation of 3,634.69 highlights significant variability, reflecting the inconsistent contribution of non-oil sources to government revenue, likely due to policy changes, tax administration efficiency, and economic structural shifts. Pump Price of Fuel (PPF) has a mean of 123.61, with a minimum of 5.00 and a maximum of 915.00. The standard deviation of 204.99 shows that fuel prices are highly volatile and subject to market dynamics and policy adjustments.

Examining the deviation of the variables from their means further underscores the variability within the dataset. COR, NOR, and PPF show high standard deviations relative to their mean values, indicating that observations are widely dispersed and not closely clustered around the average, pointing to high volatility and susceptibility to economic and policy shocks. NOR, in particular, displays extreme variation, highlighting its instability as a source of revenue. In contrast, FBL and OEV exhibit relatively lower standard deviations, suggesting that these variables are more stable and exhibit less extreme fluctuations over time. The skewness statistics indicate that all variables are

positively skewed. FBL (2.04), COR (0.15), OEV (0.35), NOR (1.78), and PPF (2.78) all show right-skewed distributions, meaning that there are longer tails on the higher end of the distribution, with extreme high values occurring more frequently than extreme low values. The skewness is particularly pronounced for FBL, NOR, and PPF, highlighting the presence of unusually high fiscal balances, non-oil revenues, and fuel prices during certain periods.

Kurtosis values provide insight into the peakedness of the distributions. FBL (7.79) and PPF (9.87) are highly leptokurtic, indicating sharply peaked distributions with heavy tails and frequent extreme values. NOR (3.19) is slightly leptokurtic, suggesting moderate peakedness and occasional extreme observations. OEV (2.99) is approximately mesokurtic, indicating a distribution close to normal, while COR (1.95) is platykurtic, reflecting a relatively flat distribution with fewer extreme values. The Jarque-Bera statistics and their associated probability values provide formal evidence regarding normality. FBL (probability = 0.000000), NOR (0.000001), and PPF (0.000000) show significant departures from normality, indicating non-normal distributions. In contrast, COR (0.411829) and OEV (0.324022) have probability values above 0.05, suggesting that they are approximately normally distributed.

A comparison of the mean and median values reinforces the skewness findings. FBL has a median of -3.00, slightly lower than its mean of -2.69, indicating that a few high surplus values pull the mean upward. COR has a median of 3,969.90, slightly higher than its mean, reflecting mild leftward influence on its distribution. OEV’s median (1,483.00) is close to its mean, consistent with its low skewness and stability. NOR shows a median of 1,300.30, much lower than its mean of 2,715.84, indicating that extreme high values elevate the mean. PPF has a median of 65.50, far below its mean of 123.61, highlighting the effect of extreme high fuel prices on the distribution.

Finally, the descriptive statistics reveal substantial variability, asymmetry, and occasional extreme values across the variables, particularly FBL, NOR, and PPF, while COR and OEV display more stability and approximate normality.

Unit Root Test

A unit root test known as the Augmented Dickey Fuller (ADF) test was used in the research project

to determine the order of integration of the variables that were being investigated. This was done in order to pick the proper approach and prevent false regression.

Table 2: Unit Root Test Using Augmented Dickey Fuller (ADF)

Variables	Levels		First Difference		Order of Integration	P-value
	T. Statistics	5% Critical Value	T. Statistics	5% Critical Value		
FBL	-2.700012	-2.948404	-6.115133	-2.951125	I(1)	0.0000
LCOR	-2.451875	-2.948404	-5.490412	-2.951125	I(1)	0.0001
LOVE	-3.813830	-2.957110			I(0)	0.0073
LNOR	-1.221843	-2.948404	-7.742545	-2.951125	I(1)	0.0000
LPPF	0.159437	-2.948404	-6.585892	-2.951125	I(1)	0.0000

Source: Extracts from E-view 13. * Level of significance at 5%

We examined all of the research variables using Augmented Dickey Fuller (ADF) tests to see whether they were stationary or non-stationary series, following the guidelines provided by table. 2. At the initial difference I(1), the stationarity test indicated that FBL, LCOR LNOR, and LPPF, stationary, whereas LOEV is stationary at the level I(0). The variables show either mixed-order integration or stationarity of level and initial differences when we analyse their stationarity. The Autoregressive Distributive Lag (ARDL) technique was

used to analyse the data. Both the first difference (I(1)) and the stationary at level I(0) may be handled by this method. The ARDL test is the most appropriate analytical technique to utilise since it looks at the relationship between the independent and dependent variables in terms of both short-term and long-term trends.

Co-Integration Test

Table 3: ARDL Bound Test

Test Statistics	Value	K
F-statistics	7.061573	4

Significance	I (0)	I(1)
10%	2.75	3.99
5%	3.35	4.77
1%	4.76	6.67

Source: Authors computation 2025

From table 3 the bound test result indicates that there exist long run relationships amongst the variables as the F-statistic value of 7.061573 exceeds both the lower and upper bound critical values. Thus, we reject the null hypotheses of no long run relationship and accept its alternative. This means that there is a long-run

relationship between Petroleum Revenue and Fiscal Stability in Nigeria.

Short and Long-Run Estimation Results for the Model

The results of the short and long-run dynamics association of the model are presented in table 4 below.

Table 4: ARDL Short and Long-run Result for the Model

Short Run Coefficient				
Variable	Coefficient	Std. Error	t-Statistics	Prob
D((LCOR(-1)	-0.713454	0.312611	-2.282243	0.0342
D(LOEV(-1)	-0.929757	0.278599	-3.337259	0.0035
D(LNOR(-1)	0.763001	0.298867	2.552979	0.0194
D(LPPF(-1)	0.944067	0.210534	4.484158	0.0003
ECM(-1)	-0.762298	0.173116	-4.403404	0.0003
Long Run Coefficient				
Variable	Coefficient	Std. Error	t-Statistics	Prob
LCOR	0.746873	0.261650	2.854474	0.0079
LOEV	-0.472207	1.388560	-0.340070	0.7363
LNOR	-0.749461	0.294316	-2.546451	0.0028
LPPF	-0.998211	2.472249	-0.403767	0.6893
C	0.265260	0.068004	3.902128	0.0010
Adj R² = 0.503508, F-statistics = 3.496320 (0.006749), DW = 2.012004				

Source: Authors computation using E-view 13 2026

The coefficient estimate for the error correction term, ECM (-1) has a negative value and is significant at the 0.05 level. It suggests that the model will reach long-run equilibrium at a rate of 0.27% every year. This means that a yearly adjustment speed of 0.27% may fix the mistake from the previous year. The independent variables (LCOR, LOEV, LNOR & LPPF) explain 50% of the total variance in the dependent variable (FBL), according to the adjusted R-Square (R2) value. As a whole, the model is noteworthy since the F-statistic is significant at the 5% level of significance. Without serial correlation, the model would not work, according to the Durbin-Watson statistics of 2.012004 which is close to 2.

Table 3 displays the model's short-and long run outcome. The log coefficient of crude oil revenue

(LCOR) and logarithm value of oil export volume (LOEV) had a negative but significant impact on fiscal balance (FBL) while the logarithm coefficient of non-oil revenue (LNOR) and pump price of fuel (LPPF) had a positive and significant relationship with fiscal balance (FBL) in the short-run. Equally, table 3, shows that the outcome of the long-run result that the log coefficient of crude oil revenue (LCOR) has a positive and significant impact on fiscal balance (FBL) while the log value of non-oil revenue (LNOR) has a negative but significant relationship with fiscal balance (FBL). However, the value of oil export volume (LOEV) had a negative and insignificant relationship with fiscal balance (FBL) while the relationship between pump price of fuel (LPPF) and fiscal balance (FBL) is reported to be negative and insignificant in the long-run.

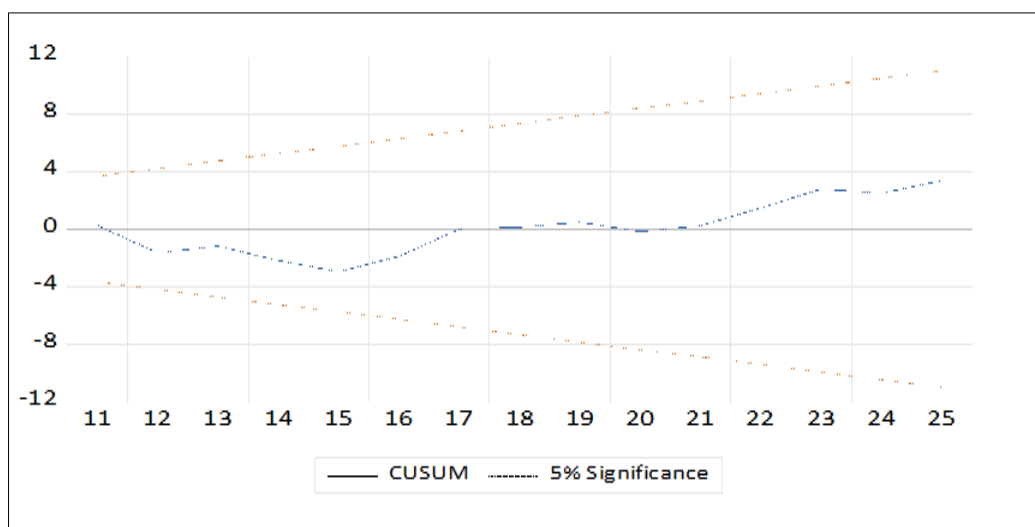


Figure 1: Stability Test

Figure 2 shows summary of the stability test, the result showed that the model is stable. This is evident

to the fact that the blue line is in-between the two red (-5 & +5) or less than 0.05 level of significance.

Diagnostic Test

Table 5: Ramsey Reset Test, Serial Correlation LM Test and Homoscedasticity Test Results

	F-Statistic	Prob-Value
Ramsey Reset Test	1.425968	0.9140
Breusch-Godfrey Serial Correlation LM Test	0.137654	0.8727
Breusch-Pagan-Godfrey Heteroskedasticity Test	1.881770	0.1124

Source: Authors computation 2026

From Table 4, the results of the diagnostic test shows that the linearity test using Ramsey Reset test indicates that the f-statistic (1.425968) with computed p-value of 0.9140 which is greater than 5 percent (0.05) critical value, hence the study reject the null hypothesis and conclude that the model is correctly specified. The result of the Serial or Autocorrelation Test using Breusch-Godfrey Serial Correlation LM Test shows that the f-statistic is 0.137654, with a Chi-Square probability value is 0.8727. This indicates that the probability value of about 9 percent (0.8727) is greater than 5 percent

(0.05) critical value; hence the study confirms no serial correlation in the model. The result of the heteroscedasticity test using Breusch-Pagan-Godfrey test shows that the f-statistic is 0.1881770 with a Chi-Square probability value of 0.1124. The result suggests that there is no evidence of heteroskedasticity in the model since the probability Chi-square value is more than 5 percent (P > 0.05). So, residuals do have constant variance which is desirable in regression meaning that residuals are Homoscedastic.

DISCUSSION OF FINDINGS

Crude Oil Revenue and Consumer Price Inflation in Nigeria

The inference drawn from the long-run using the Auto-Regressive Distributive Lag (ARDL) result revealed that Crude Oil Revenue (COR) exerts a positive (+0.746873) relationship with Fiscal Balance (FBL). The positive relationship between Crude Oil Revenue (COR) and Fiscal Balance (FBL) conform to economic theory. It was expected that increase in oil revenue raises total government earnings, thereby improving the likelihood of achieving a fiscal surplus or reducing deficits. The p-value (0.0079) of the result indicates that Crude Oil Revenue (COR) is statistically significant to influence Fiscal Balance (FBL) in Nigeria. The study therefore rejects the null hypothesis that there is no significant impact between Crude Oil Revenue (COR) and Fiscal Balance (FBL). This implies that there is a statistically significant relationship between Crude Oil Revenue (COR) and Fiscal Balance (FBL). The findings of this study is in consonant with studies by Adebisi and Bello (2024) and Afolabi and Usman (2024) who reported in their studies that petroleum revenue is positive and significantly related with fiscal balance.

Oil Export Volume and Consumer Price Inflation in Nigeria

The insinuation drawn from the long-run using the Auto-Regressive Distributive Lag (ARDL) result revealed that Oil Export Volume (OEV) had a negative (-0.472207) relationship with Fiscal Balance (FBL). The negative relationship between Oil Export Volume (OEV) and Fiscal Balance (FBL) do not conform to economic theory. It was expected that higher export volumes lead to increased foreign exchange earnings and government revenue, thereby improving the fiscal position. However, the p-value (0.7363) of the result indicates that Oil Export Volume (OEV) is statistically insignificant to influence Fiscal Balance (FBL) in Nigeria. The study therefore accept the null hypothesis that there is no significant impact between Oil Export Volume (OEV) and Fiscal Balance (FBL). This implies that there is no statistically significant relationship between Oil Export Volume (OEV) and Fiscal Balance (FBL). Previous study conducted by Okafor and Adewale (2024) disagrees with this finding and revealed that oil export volume was positive and significant with fiscal balance

Non-Oil Revenue and Consumer Price Inflation in Nigeria

The suggestion drawn from the long-run using the Auto-Regressive Distributive Lag (ARDL) result revealed that Non-oil Revenue (NOR) exhibits a negative (-0.749461) relationship with Fiscal Balance (FBL). The negative relationship between Non-oil Revenue (NOR) and Fiscal Balance (FBL) do not conform to economic theory. It was expected that increase in non-oil revenue sources enhances total government income and reduces dependence on oil, thereby strengthening fiscal stability. The p-value

(0.0028) of the result indicates that Non-oil Revenue (NOR) is statistically significant to influence Fiscal Balance (FBL) in Nigeria. The study therefore rejects the null hypothesis that there is no significant impact between Non-oil Revenue (NOR) and Fiscal Balance (FBL). This implies that there is a statistically significant relationship between Non-oil Revenue (NOR) and Fiscal Balance (FBL). The findings of this study is in agreement with with study by Adebisi and Bello (2024) who reported non-oil revenue such as public debt (borrowings) negatively affected fiscal stability.

Pump Price of Fuel and Manufacturing gross Domestic Product in Nigeria

The submission drawn from the long-run using the Auto-Regressive Distributive Lag (ARDL) result revealed that Pump Price of Fuel (PPF) exhibits a negative (-0.9982111) relationship with Fiscal Balance (FBL). The negative relationship between Pump Price of Fuel (PPF) and Fiscal Balance (FBL) do not conform to economic theory. It was expected that higher fuel prices reduce government subsidy burdens and increase revenue thereby improving fiscal outcomes. However, the p-value (0.6893) of the result indicates that Pump Price of Fuel (PPF) is statistically significant to influence Fiscal Balance (FBL) in Nigeria. The study therefore accept the null hypothesis that there is no significant impact between Pump Price of Fuel (PPF) and Fiscal Balance (FBL). This implies that there is no statistically significant relationship between Pump Price of Fuel (PPF) and Fiscal Balance (FBL).

CONCLUSION AND RECOMMENDATION

Conclusion

The study on the impact of petroleum revenue on fiscal stability suggest that crude oil revenue has a positive and significant relationship with fiscal balance while non-oil revenue reported a negative but significant relationship with fiscal balance in the long-run. However, oil export volume and pump price of fuel are both insignificant and negatively related with fiscal balance in the long-run.

Hence, it was concluded that petroleum revenue had a considerable impact on fiscal stability in Nigeria.

Recommendation

- i. The Budget Office of the Federation should adopt stricter fiscal rules that link expenditure to long-term oil price benchmarks rather than short-term price increases. This will prevent procyclical spending and ensure that gains from rising oil prices translate into improved and sustainable fiscal balance.
- ii. Additionally, the Nigerian Ports Authority and the Nigerian Maritime Administration and Safety Agency should enhance efficiency in export logistics, reduce bottlenecks, and curb leakages in the export chain. Improving monitoring systems and port operations will

ensure that increased export volumes translate into meaningful fiscal gains.

- iii. Furthermore, the Federal Inland Revenue Service alongside the Nigeria Customs Service should intensify tax reforms, broaden the tax base, and improve compliance mechanisms. Emphasis should be placed on digital tax administration and reducing tax evasion to further enhance the contribution of non-oil revenue to fiscal sustainability.
- iv. Finally, the Nigerian Midstream and Downstream Petroleum Regulatory Authority in collaboration with the Petroleum Products Pricing Regulatory Agency should ensure a transparent and market-reflective pricing mechanism. This includes fully eliminating inefficiencies in subsidy administration and ensuring that fuel pricing policies do not distort fiscal outcomes.

REFERENCES

- Abari-Ogunsona, T., Danmola, R. A., & Aruleba, M. S. (2025). Oil revenue fluctuation, fiscal policy response and economic growth in Nigeria. *International Journal of Research and Innovation in Social Science*, 9(9), 3037–3047.
- Adebisi, T., & Bello, R. (2024). Petroleum revenue, fiscal policy, and macroeconomic stability in Nigeria. *Nigerian Journal of Economic Studies*, 66(2), 145–163.
- Adekunle, A. O. (2025). Crude oil revenue volatility and budgetary discipline: An empirical study of Nigeria's fiscal sustainability. *International Studies Journal*, 9(7), 1–18.
- Adewale, T. O., & Okeke, C. M. (2023). Fiscal stability and macroeconomic resilience in Nigeria. *Journal of Economic Policy and Research*, 19(2), 125–144.
- Adewumi, O., & Oladunjoye, J. (2023). Petroleum revenue and fiscal stability in Nigeria: ARDL evidence. *CBN Economic and Financial Review*, 61(3), 50–71.
- Afolabi, T., & Usman, M. (2024). Petroleum revenue and fiscal stability in Nigeria: ARDL evidence. *Journal of African Finance and Economics*, 12(1), 55–75.
- Afolayan, M., & Bello, R. (2023). Petroleum revenue volatility and fiscal stability in Nigeria: VECM analysis. *Energy Economics*, 119, 106521.
- Akinola, T., & Adeyemi, S. (2023). Petroleum revenue and fiscal management in Nigeria. *Journal of African Economies*, 32(4), 320–340.
- Akinwumi, J. O., & Lawal, A. I. (2023). Petroleum revenue and fiscal stability in Nigeria. *Journal of African Economic Studies*, 15(3), 200–223.
- Akinyemi, L., & Obi, T. (2023). Petroleum revenue and fiscal balance in oil-dependent Nigerian states. *Journal of African Economies*, 33(2), 210–230.
- Babatunde, O., & Okoro, I. (2023). Petroleum revenue, macroeconomic policy, and fiscal balance in Nigeria. *CBN Economic and Financial Review*, 61(4), 45–67.
- Bernanke, B. S. (2002). Deflation: Making Sure “It” Doesn’t Happen Here. Speech delivered at the National Economists Club, Washington, D.C.
- Blanchard, O. (2008). Current Issues in the Post-Crisis Literature on Fiscal Policy. IMF Working Paper.
- Central Bank of Nigeria (2019). Annual Report and Statement of Accounts. Abuja: CBN.
- Central Bank of Nigeria (2021). Annual Report and Statement of Accounts. Abuja: CBN.
- Central Bank of Nigeria (2022). Statistical Bulletin. Abuja: CBN.
- Cochrane, J. H. (2011). Determinacy and Identification with Taylor Rules. *Journal of Political Economy*.
- Eze, P., & Nnamani, J. (2023). Petroleum revenue and fiscal sustainability in Nigeria: VECM approach. *Nigerian Journal of Economic Studies*, 65(2), 90–112.
- Eze, U., & Afolayan, A. O. (2022). Oil revenue volatility and fiscal stability in Nigeria: Implications for economic policy. *Journal of African Economic Studies*, 16(4), 345–367.
- Ezech, J. C., & Ugwu, C. I. (2022). The role of petroleum revenue in stabilizing government finance. *Nigerian Journal of Public Finance*, 7(2), 89–108.
- Friedman, M. (1968). The Role of Monetary Policy. *American Economic Review*, 58(1), 1–17.
- Hayek, F. A. (1944). *The Road to Serfdom*. London: Routledge.
- Ibrahim, H., & Lawal, A. (2023). Petroleum revenue and fiscal sustainability in Nigeria. *Energy Policy Review*, 18(2), 88–104.
- Ibrahim, H., & Oladipo, R. (2023). Petroleum revenue, fiscal balance, and macroeconomic stability in Nigeria. *Energy Policy Review*, 19(1), 77–95.
- Ibrahim, M., & Lawal, O. (2023). Petroleum revenue and budgetary outcomes in Nigeria: An ARDL investigation. *CBN Economic and Financial Review*, 61(1), 45–67.
- International Monetary Fund (2021). Nigeria: Article IV Consultation Report. Washington, D.C.
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan.
- Kydland, F. E., & Prescott, E. C. (1982). Time to build and aggregate fluctuations. *Econometrica*, 50(6), 1345–1370.
- Leeper, E. M. (1991). Equilibria under ‘Active’ and ‘Passive’ Monetary and Fiscal Policies. *Journal of Monetary Economics*, 27(1), 129–147.

- Lerner, A. P. (1944). *The Economics of Control: Principles of Welfare Economics*. New York: Macmillan.
- Nwafor, E., & Ugochukwu, K. (2022). Assessing fiscal stability in resource-dependent economies: Evidence from Nigeria. *Nigerian Journal of Public Finance*, 9(1), 67–88.
- Nwankwo, O., & Egbunike, C. F. (2022). Oil earnings and fiscal stability: Evidence from Nigeria. *African Development Review*, 34(4), 512–528.
- Nwankwo, O., & Ezech, C. (2022). Petroleum revenue and macroeconomic stability in Nigeria. *Journal of Economic and Social Studies*, 65(1), 110–128.
- Obi, C., & Chukwu, I. (2022). Petroleum revenue and fiscal sustainability in Nigeria: VECM evidence. *International Journal of Finance and Economics*, 27(3), 202–222.
- Oduyemi, G. O., Lawal, N. A., & Osinusi, K. B. (2025). Dynamics of Nigeria's fiscal policy responses to oil price shocks: Implications for revenue stabilization, public health outcomes, and external debt sustainability. *Ife Social Sciences Review*, 33(1), 127–143.
- Ogunleye, E., & Omotosho, T. (2023). Petroleum revenue volatility and fiscal stability in Nigeria. *Energy Economics*, 118, 106503.
- Okafor, K., & Adewale, F. (2024). Petroleum revenue and fiscal sustainability in Nigeria: VAR evidence. *Journal of Nigerian Policy and Development Studies*, 13(1), 88–108.
- Okeke, C., & Musa, A. (2022). Petroleum revenue management and fiscal sustainability in Nigeria. *African Development Review*, 34(4), 410–432.
- Okere, P. A., & Ibe, I. G. (2024). Petroleum revenue flows and national development in Nigeria. *Journal of Energy Economics*, 12(5), 350–370.
- Okere, P. A., & Ibe, I. G. (2024). Petroleum revenue flows and national development in Nigeria. *Journal of Energy Economics*, 12(5), 350–370.
- Okere, P. A., & Ibe, I. G. (2024). Petroleum revenue flows and national development in Nigeria. *Journal of Energy Economics*, 12(5), 350–370.
- Okonkwo, E., & Eze, J. (2022). Petroleum revenue management and fiscal stability in Nigeria. *African Development Review*, 34(3), 390–410.
- Olaoye, S. A., & Suleiman, M. A. (2024). Petroleum revenue management and fiscal stability in Nigeria. *African Journal of Fiscal Studies*, 14(3), 210–231.
- Onwujiwe, S., & Sani, U. (2023). Petroleum revenue, government expenditure, and fiscal balance in Nigeria. *Journal of African Finance*, 11(2), 102–120.
- Onyema, P., & Okeke, R. (2022). Petroleum revenue, expenditure, and fiscal balance in Nigeria. *Nigerian Journal of Policy and Development Studies*, 12(1), 65–85.
- Organization for Economic Co-operation and Development (2020). *Revenue Statistics in Africa*. Paris: OECD Publishing.
- Ossai, T. C., & Musa, G. K. (2025). Reducing fiscal reliance on oil: Comparing oil and non-oil contributions to federal revenue. *FUDMA Journal of Sciences*, 9(9), 279–286.
- Oyetunde, J. O., & Fashola, T. B. (2023). Institutional quality and fiscal stability in Nigeria: Evidence from ARDL approach. *Nigerian Journal of Economic Development*, 10(2), 89–110.
- PUNCH. (2024). Oil sector struggles as govt misses revenue target. *The PUNCH News*.
- Robinson, J. (1956). *The Accumulation of Capital*. London: Macmillan.
- Samuelson, P. A. (1948). *Economics: An Introductory Analysis*. New York: McGraw-Hill.
- Sims, C. A. (1994). A Simple Model for Study of the Determination of the Price Level and the Interaction of Monetary and Fiscal Policy. *Economic Theory*, 4(3), 381–399.
- Uwaleke U, Nwala, M. N., & Olofu A D (2024). Effect of Oil Revenue on Fiscal Performance in Nigeria. *Iosr Journal Of Economics And Finance* Volume 15, Issue 2 Ser. 1, Pp 01-08
- Woodford, M. (1995). Price Level Determinacy without Control of a Monetary Aggregate. *Carnegie-Rochester Conference Series on Public Policy*, 43, 1–46.
- World Bank (2020). *Nigeria Economic Update*. Washington, D.C.
- World Bank (2022). *Nigeria Development Update*. Washington, D.C.
- World Bank (2023). *Nigeria Macro Poverty Outlook*. Washington, D.C.
- Yakubu, M., & Adamu, U. (2023). Petroleum revenue and fiscal balance in oil-dependent Nigerian states. *Journal of African Finance*, 10(2), 115–133.

Cite This Article: Kunemoemi, Zacchaeus (2024). Petroleum Revenue and Fiscal Stability in Nigeria. *East African Scholars J Econ Bus Manag*, 7(12), 524-538.
