Fiscal Reforms, Domestic Revenue Mobilisation, and Sustainable Development in Nigeria: An ARDL Bounds Testing Approach to Long-Run and Short-Run Dynamics.

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ABSTRACT

Nigeria's persistent inability to translate fiscal reforms and increasing domestic revenue mobilisation into meaningful improvements in sustainable development has raised concerns about the effectiveness of its fiscal architecture and institutional capacity. Against this backdrop, this study examined the dynamic relationship between fiscal reforms, domestic revenue mobilisation, and sustainable development in Nigeria over the period 1990–2024. Sustainable development was proxied by the Human Development Index (HDI), which reflects improvements in health, education, and living standards. Fiscal reform, tax revenue, government expenditure, economic growth, and inflation were incorporated into the model based on their theoretical relevance and established empirical significance in explaining sustainable development outcomes. Annual time-series data were sourced from the World Bank and the Central Bank of Nigeria (CBN). The study employed the Autoregressive Distributed Lag (ARDL) bounds testing approach because the variables exhibited mixed orders of integration, making the technique appropriate for estimating both the short-run and long-run dynamics within a unified framework. The bounds test confirmed the existence of a stable long-run relationship among the variables. In the short run, fiscal reform exerted a weak positive effect on sustainable development, whereas tax revenue, economic growth, and government expenditure had no statistically significant effects. By contrast, inflation significantly undermined sustainable development, highlighting the adverse consequences of persistent macroeconomic instability. The error correction term was negative and statistically significant, indicating a rapid adjustment towards long-run equilibrium following short-run disequilibria. In the long run, fiscal reform significantly promoted sustainable development, while inflation continued to exert a significant negative effect. Tax revenue, economic growth, and government expenditure remained statistically insignificant, suggesting weak fiscal transmission mechanisms and persistent institutional inefficiencies. Furthermore, the interaction between fiscal reform and tax revenue was negative and significant in both the short and long run, implying that inadequate policy coordination and implementation capacity weakened the effectiveness of fiscal reforms in translating revenue gains into sustainable development outcomes. The study concluded that fiscal reform constituted the principal long-run driver of sustainable development in Nigeria, whereas inflation remained a major impediment. Accordingly, it recommended strengthening fiscal policy coordination, enhancing tax administration, improving transparency and accountability in public financial management, reinforcing institutional capacity, and maintaining macroeconomic stability to promote inclusive and sustainable development in Nigeria.

Keywords: ARDL bounds testing; Domestic revenue mobilisation; Fiscal reforms; Inflation; Sustainable development.

JEL Classification: H20; H50; H60; O11; O23

INTRODUCTION

Sustainable development remains a central policy priority for many countries in Sub-Saharan Africa; however, its attainment continues to be constrained by persistent fiscal challenges. Governments across the region face significant difficulties in financing socio-economic development programmes, primarily due to limited fiscal capacity, narrow tax bases, and weak domestic revenue mobilisation systems. Despite notable improvements in macroeconomic management and institutional reforms over the past two decades, most countries in the region still struggle to generate sufficient public revenue to meet their development needs, (Adegboye & Tagem, 2023; Bah, 2024).

Empirical evidence indicates that the average tax-to-GDP ratio in Sub-Saharan Africa remains substantially below the global average, standing at approximately 15 per cent compared to over 30 per cent in many advanced economies, (Bantyergu, 2025). This relatively low level of revenue mobilisation restricts governments' ability to invest adequately in critical sectors such as infrastructure, healthcare, education, and environmental sustainability—all key pillars of sustainable development. Consequently, many countries continue to rely heavily on external borrowing and development assistance to finance public expenditure, thereby increasing fiscal vulnerabilities and constraining long-term development prospects, (Edo & Oigiangbe, 2024).

In response to these challenges, governments across Sub-Saharan Africa have implemented various fiscal reforms aimed at strengthening domestic revenue systems and enhancing public financial management. Such reforms typically focus on broadening the tax base, improving tax administration and compliance, and promoting transparency and accountability in public expenditure, (Bah, 2024). International development institutions, including the World Bank and the International Monetary Fund, consistently emphasise the importance of domestic revenue mobilisation as a critical pathway for achieving the Sustainable Development Goals (SDGs), particularly in developing economies where public investment drives inclusive growth and long-term development, (Bati, 2025). When effectively executed, fiscal reforms can enhance revenue capacity, reduce dependence on external financing, and create the fiscal space necessary to support sustainable development initiatives.

The relevance of these reforms is further underscored by the Fiscal Exchange Theory, which posits that taxpayers are more likely to comply with tax obligations when they perceive that governments utilise public revenues efficiently to provide essential goods and services, such as infrastructure, education, healthcare, and social welfare, (Moore et al., 2023). In this framework, taxation is conceptualised as a reciprocal relationship between citizens and the state: individuals contribute resources in exchange for improved public service delivery and development outcomes. Accordingly, fiscal reforms that promote transparency, accountability, and efficiency in public financial management are likely to strengthen taxpayer confidence, encourage compliance, and ultimately enhance domestic revenue mobilisation, Ali, et al., 2022).

Nigeria presents a particularly compelling case within this broader discourse. As the largest economy in Sub-Saharan Africa and one of the most populous countries globally, Nigeria possesses significant economic potential and abundant natural resources. Nevertheless, its fiscal system has historically been characterised by a heavy reliance on oil revenues, low tax compliance, and a relatively weak domestic revenue base. While the petroleum sector generates substantial income, fluctuations in global oil prices have repeatedly exposed the economy to fiscal instability and macroeconomic volatility, (Ossai & Musa, 2025; Adekunle, 2025). Moreover, Nigeria's tax-to-GDP ratio remains among the lowest globally, estimated at approximately 10–11 per cent in recent years—well below both the regional average and the level required to meet the country's expanding development needs. These structural weaknesses have constrained the government's capacity to finance infrastructure, social services, and environmental sustainability programmes critical for long-term economic transformation, (Akinyomi, et al., 2024).

In recent years, policy focus has increasingly shifted toward reforming Nigeria's fiscal framework to enhance domestic revenue generation and improve fiscal sustainability. Since assuming office in 2023, the administration of Bola Ahmed Tinubu has introduced a range of fiscal policy initiatives aimed at restructuring the country's revenue system. These measures include modernising tax administration, expanding the digitalisation of revenue collection processes, and harmonising fiscal policies across federal, state, and local government levels. The establishment of a Presidential Committee on Fiscal Policy and Tax Reforms further underscores the government's commitment to improving efficiency, strengthening compliance, and increasing non-oil revenue generation. From the perspective of Fiscal Exchange Theory, these reforms are expected to foster greater trust between the government and taxpayers by enhancing transparency and accountability in public resource management, thereby encouraging higher levels of tax compliance.

Despite these reform efforts, important questions remain regarding the extent to which fiscal reforms can effectively translate improved revenue mobilisation into tangible sustainable development outcomes in Nigeria. While such reforms are designed to strengthen government revenue capacity, their effectiveness ultimately depends on the efficiency of domestic revenue mobilisation mechanisms and the prudent allocation and utilisation of public resources. Furthermore, fiscal reforms may reinforce the effectiveness of domestic revenue mobilisation strategies, suggesting that their interaction could play a critical role in shaping development outcomes.

Against this backdrop, a key question emerges: how do fiscal reforms and domestic revenue mobilisation influence sustainable development in Nigeria, and to what extent does their interaction enhance overall development outcomes? Addressing this question is particularly important given ongoing fiscal policy reforms and the broader need to mobilise domestic resources to finance sustainable development priorities. By examining these relationships, this study contributes to the growing body of literature on fiscal policy, domestic resource mobilisation, and sustainable development in developing economies. It also provides empirical insights that can assist policymakers in designing more effective fiscal reforms capable of strengthening revenue mobilisation and promoting sustainable development in Nigeria.

Statement of the Research Problem

Despite the increasing recognition of fiscal reforms and domestic revenue mobilisation as essential instruments for financing development in developing economies, many countries continue to face substantial challenges in translating these policy efforts into tangible and sustainable development outcomes, (Gaspar & Wingender, 2023). Although fiscal reforms are generally designed to enhance tax system efficiency, improve transparency, and strengthen public financial management, their actual impact on sustainable development remains widely debated in the development finance literature. In many cases, reforms aimed at improving revenue generation have not been matched by corresponding improvements in public service delivery, infrastructure development, or broader socio-economic welfare. This persistent disconnect therefore raises critical questions about the extent to which fiscal reforms can effectively drive long-term and inclusive development.

Moreover, within the Nigerian context, a significant portion of the extant literature tends to treat tax reforms and domestic revenue mobilisation as separate policy instruments, rather than as interconnected components of a unified fiscal framework. For instance, studies such as Adekanmbi et al. (2022), Ogunbiyi et al. (2025), Akinwale and Sule (2024), Balogun et al. (2025), Ibrahim and Suleiman (2023), Nwachukwu et al. (2024), and Omoruyi (2025) primarily examine the relationship between tax revenue mobilisation and economic development. Similarly, Ibrahim and Suleiman (2023), Nwankwo and Ojo (2023), Lawal (2025), Adegboye and Salami (2024), and Bello-Olatunji et al. (2025) focus on how revenue mobilisation efficiency influences economic development outcomes. However, a critical review of these empirical contributions reveals a common analytical limitation: both strands of the literature are largely grounded in the economic growth paradigm, typically measured as the expansion of a country's output of goods and services over time. While this growth-oriented perspective offers useful insights into short-term macroeconomic performance, it implicitly assumes that output expansion alone is sufficient to capture development. As a result, it often overlooks the structural, environmental, and social constraints that may accompany growth-led strategies, thereby exposing economies to long-term vulnerabilities.

In contrast, the sustainable development framework, as advanced by the United Nations, offers a more comprehensive and forward-looking perspective. It goes beyond output expansion by integrating economic growth with social inclusion and environmental sustainability. Thus, while growth-oriented economies may achieve short-term gains, they risk long-term imbalances, whereas economies that prioritise sustainable development are more likely to achieve balanced and enduring prosperity. Nevertheless, achieving sustainable development requires more than increasing government revenue; it demands a strong institutional framework in which fiscal reforms actively enhance the efficiency, credibility, and effectiveness of domestic revenue mobilisation systems. Without such synergy, increases in revenue collection may not necessarily translate into meaningful development outcomes. Consequently, the extent to which fiscal reforms strengthen domestic revenue mobilisation and ultimately promote sustainable development remains insufficiently explored, particularly in developing economies where fiscal institutions are still evolving. This issue is particularly relevant in Nigeria, given its ongoing efforts to reform fiscal structures and strengthen domestic resource mobilisation. Although several policy initiatives have been implemented to modernise tax administration, improve compliance, and diversify revenue sources, concerns remain regarding the effectiveness of these reforms in enhancing the government's capacity to mobilise domestic resources for sustainable development. Furthermore, limited empirical studies have examined the interactive relationship between fiscal reforms and domestic revenue mobilisation in shaping development outcomes in Nigeria, thereby creating a clear gap in the literature.

Therefore, an important knowledge gap exists in determining whether fiscal reforms merely increase government revenue or whether they also establish the institutional conditions necessary for transforming domestic resources into sustainable development outcomes. Addressing this gap is crucial for assessing the effectiveness of fiscal reforms as a development strategy and for identifying policy measures capable of strengthening revenue mobilisation for long-term development. Against this backdrop, this study investigates the relationship between fiscal reforms, domestic revenue mobilisation, and sustainable development in Nigeria, with particular emphasis on how the interaction between fiscal reforms and domestic revenue mobilisation influences sustainable development outcomes.

Research Questions

i. How do fiscal reforms and domestic revenue mobilisation influence sustainable development in Nigeria?
ii. What is the interactive effect of fiscal reforms and domestic revenue mobilisation on sustainable development in Nigeria?

Research Objectives

i. To examine the effect of fiscal reforms and domestic revenue mobilisation on sustainable development in Nigeria.
ii. To investigate the interactive effect of fiscal reforms and domestic revenue mobilisation on sustainable development in Nigeria.

LITERATURE REVIEW

Theoretical Review

The Fiscal Exchange Theory provides a robust framework for explaining the relationship between fiscal reforms, domestic revenue mobilisation, and sustainable development. The theory posits that taxpayers are more likely to comply with tax obligations when government revenues are efficiently utilised to provide essential public goods and services, including infrastructure, education, healthcare, and social protection. Accordingly, taxation is viewed as a reciprocal exchange between citizens and the state, whereby financial contributions are made with the expectation of improved welfare and development outcomes. Within this framework, fiscal reforms enhance the efficiency, transparency, and accountability of revenue systems, thereby strengthening domestic revenue mobilisation and improving the government's capacity to finance productive investments and social programmes that support sustainable development. Consequently, the interaction between fiscal reforms and domestic revenue mobilisation is critical in determining the extent to which public resources are effectively transformed into long-term development outcomes. This relationship is particularly important in developing economies such as Nigeria, where the effectiveness of fiscal policy depends not only on revenue generation but also on the efficient, transparent, and equitable utilisation of public resources to promote inclusive and sustainable growth.

Empirical Literature

Several empirical studies have examined the relationship between fiscal reforms, domestic revenue mobilisation, and sustainable development, revealing both regional variations and shared policy implications across different economic contexts. In the European context, Balasoiu, Chifu, and Oancea (2023) investigated the impact of direct taxation structures on economic growth across 27 European Union (EU) countries. Using annual panel data from 2000 to 2022 and employing fixed effects alongside panel least squares regression techniques, the study examined how various tax components—including personal income tax, corporate tax, value-added tax (VAT), and social contributions—affect economic growth as a proxy for sustainable development. The findings revealed that total tax revenue positively supported growth, particularly through personal and corporate income taxes. However, social security contributions exerted a negative effect, thereby suggesting inefficiencies in fiscal allocation and spending. Consequently, the authors concluded that well-balanced tax structures that align revenue mobilisation with growth objectives are essential for advancing sustainable development in EU economies.

Similarly, Stoilova (2024) provided further empirical evidence on the relationship between tax structure and economic growth in EU-27 countries, using panel least squares regression over the period 2000–2022. The study found that total tax revenue, as well as direct taxes such as corporate, property, and personal income taxes, positively influenced economic growth. Nevertheless, social contributions were again observed to have a negative effect, thereby reinforcing the need for fiscal reforms that enhance the developmental efficiency of tax systems.

In the same vein, Krasniqi, Gara, and Abazi-Alili (2026) examined the effects of fiscal policy on financial development in Southeast European countries using panel data from 2005 to 2023. By employing fixed effects, random effects, and system GMM estimators, the study assessed the influence of tax revenue, fiscal balance, and government effectiveness on financial development. The results showed that both tax revenue and fiscal governance significantly strengthened financial development, which in turn supported broader sustainable economic outcomes. Accordingly, the authors emphasised that effective fiscal reforms remain critical for enhancing financial stability and long-term sustainability. Collectively, these European studies demonstrate that when fiscal systems are well-structured and efficiently managed, they significantly contribute to sustainable economic growth. In contrast, Bello-Olatunji et al. (2025) examined sustainable financing for Nigeria's development from a broader perspective, focusing on domestic resource mobilisation through taxes, investment inflows, and other financing sources. Unlike their broad approach, the present study narrows its focus specifically to fiscal reforms and domestic revenue mobilisation, and how these targeted policy instruments influence sustainable development outcomes in Nigeria.

Turning to the African context, Ackom, Ocansey, and Asamoah (2025) analysed tax compliance and informal sector dynamics in Sub-Saharan Africa using data from 2010 to 2022. Applying the Generalised Method of Moments (GMM), the study found that large informal sectors constrained domestic revenue mobilisation, while improved tax compliance significantly enhanced revenue collection and economic growth. Consequently, the authors stressed the importance of strengthening tax administration systems and formalisation policies.

Similarly, Boukdim and Maftei (2025) examined domestic revenue mobilisation within the West African Economic and Monetary Union (WAEMU) using DEA and stochastic frontier models. Their findings revealed that improved tax policy design, stronger enforcement mechanisms, and regional coordination could significantly increase tax-to-GDP ratios, thereby expanding fiscal capacity for Sustainable Development Goal (SDG) implementation.

In addition, Bouzouita (2025) investigated revenue mobilisation in Guinea-Bissau using a stochastic frontier approach. The study identified deep institutional and structural constraints, including weak enforcement capacity and narrow tax bases, which limited revenue generation. Nevertheless, it concluded that targeted fiscal reforms could substantially improve sustainable public finance outcomes. Furthermore, Ajeigbe, Ganda, and Enowkenwa (2023) assessed the relationship between tax revenue, public expenditure, and SDG performance across 45 African countries using System GMM. The results showed that improved tax revenue mobilisation significantly

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enhanced economic growth, reduced unemployment, and alleviated poverty, thereby reinforcing the importance of fiscal reforms in achieving sustainable development.

Complementarily, Mpofu (2022) examined tax revenue mobilisation trends across Sub-Saharan Africa and found that reforms such as tax base expansion and improved enforcement mechanisms were strongly associated with long-term development outcomes, including infrastructure growth, human capital development, and improved governance.

Similarly, Alemu and Gebremedhin (2024) analysed East African Community countries using dynamic panel GMM and found that comprehensive tax reforms significantly improved domestic revenue mobilisation, thereby expanding fiscal space for social sectors such as health and education, with positive implications for human development. Although these European and African studies consistently highlight the importance of fiscal reforms in strengthening domestic revenue mobilisation and promoting sustainable development, a critical gap remains in the Nigerian context. Specifically, most existing studies have focused on cross-country or regional analyses, often overlooking Nigeria's unique fiscal structure characterised by heavy oil dependency, low tax compliance, and institutional inefficiencies. Moreover, limited attention has been given to the interactive effects of fiscal reforms and domestic revenue mobilisation in driving sustainable development outcomes within Nigeria. Consequently, there is a clear need for a focused empirical investigation that examines the nexus between fiscal reforms, domestic revenue mobilisation, and sustainable development in Nigeria, while accounting for the country's institutional realities and governance challenges that shape the effectiveness of revenue mobilisation strategies.

Research methods

Theoretical framework and Model specification

Based on the theoretical review and empirical consideration, the following model was used in this work:

This is mathematically written as:

$$SD_t = f(FR_t, DRM_t, X_t) \text{ --- (i)}$$

The econometric form of the model can be specified as:

$$SD_t = \beta_0 + \beta_1 TRI_t + \beta_2 TRG_t + \beta_3 GDPGR_t + \beta_4 INF_t + \beta_5 GEXP_t + \mu_t \text{ -------------------------------- (ii)}$$

For better elasticity interpretation and variance stabilisation, the log-linear form is often specified as:

$$InSD_t = \beta_0 + \beta_1 InTRI_t + \beta_2 InTRG_t + \beta_3 InGDPGR_t + \beta_4 InINF_t + \beta_5 InGEXP_t + \mu_t \text{ -------------- (iii)}$$

To capture policy interaction, fiscal reforms can interact with revenue mobilisation, therefore, the model is specified as:

$$SD_t = \beta_0 + \beta_1 InTRI_t + \beta_2 InTRG_t + \beta_3 (InTRI_t * InTRG_t) + \beta_4 InINF_t + \beta_5 InGDPGR_t + \mu_t \text{ -------- (iv)}$$

This interaction term tests whether fiscal reforms strengthen the effectiveness of revenue mobilisation in promoting sustainable development in Nigeria.

The ARDL Model is specified as follow:

The dynamic ARDL ((p, q_1, q_2… q_6) model is specified as:

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$$InSD_t = \alpha_0 + \sum_{i=1}^{p} \alpha_i InSD_{t-i} + \sum_{j=0}^{q1} \beta j InTRI_{t-j} + \sum_{n=0}^{q2} \gamma\kappa InTRG_{t-n} + \sum_{m=0}^{q3} \delta_m (InTRI * InTRG)_{t-m}$$

$$+ \sum_{n=0}^{q4} \phi_n GDPG_{t-n} + \sum_{o=0}^{q5} \theta_0 INF_{t-0} + \sum_{r=0}^{q6} \sigma_r InGEXP_{t-r} + \varepsilon_t \text{ -- (v)}$$

To distinguish between short-run dynamics and long-run equilibrium, the ARDL model is reparameterised into the ECM form:

$$\Delta InSD_t = \alpha_0 + \sum_{i=1}^{p-1} \alpha_i \Delta InSD_{t-i} + \sum_{j=0}^{q_1-1} \beta_j \Delta InTRI_{t-j} + \sum_{k=0}^{q_2-1} \gamma\kappa \Delta InTRG_{t-k} + \sum_{m=0}^{q_3-1} \delta_m \Delta (InTRI * InTRG)_{t-m} +$$

$$+ \sum_{n=0}^{q_4-1} \phi_n \Delta GDPGR_{t-n} + \sum_{o=0}^{q_5-1} \theta_\sigma \Delta INF_{t-\sigma} + \sum_{r=0}^{q_6-1} \upsilon_r \Delta InGEXP_{t-r} + \lambda ECM_{t-1} + \varepsilon_t \text{ -------------------------- (vi)}$$

$$ECM_{t-1} = InSD_{t-1} - \theta_1 InTRI_{t-1} - \theta_2 InTRG_{t-1} - \theta_3 (InTRI * InTRG)_{t-1} - \theta_4 GDPGR_{t-1} - \theta_5 INF_{t-1} - \theta_6 InGEXP_{t-1} \text{ -- (vii)}$$

Where:

SD_t= Sustainable Development Index (proxy such as Human Development Index); FR_t = Fiscal reforms indicator (Tax Reform Index); DRM_t= Domestic revenue mobilisation (Tax Revenue as % of GDP); $GDPGR_t$= Economic growth rate; INF_t= Inflation rate; $GEXP_t$ = Government expenditure; β_0= Intercept (constant term); TRI*TRG= Interaction term; β_1–β_5= Estimated parameters; μ_t = Error term capturing omitted variables

Table 1: A-prior expectation of the Variables in the model.

Variable	**Description**	**Expected Sign**
Fiscal Reforms (FR)	Policies improving tax efficiency and fiscal transparency	(+)
Domestic Revenue Mobilisation (DRM)	Government ability to generate internal revenue	(+)
Economic Growth (GDPGR)	Higher output improves development outcomes	(+)
Inflation (INF)	Macroeconomic instability harms development	(-)
Government Expenditure (GEXP)	Public investment improves development	(+)

Source: Research's Compilation, 2026

Source of Data

This study utilised annual time-series data obtained from the World Bank's World Development Indicators (WDI), the Central Bank of Nigeria (CBN) Statistical Bulletin, and the United Nations Development Programme (UNDP) Human Development Reports. These sources were selected because they provide internationally recognised, reliable, and consistent macroeconomic and development indicators that are widely used in empirical studies on fiscal policy and sustainable development. The analysis covered the period 1990–2024 to capture major fiscal reforms, evolving domestic revenue mobilisation strategies, and significant macroeconomic developments in Nigeria. Specifically, data on tax revenue, economic growth, and inflation were obtained from the World Bank, while government expenditure data were sourced from the CBN Statistical Bulletin and cross-validated with the World Bank to ensure consistency and completeness. Data on the Human Development Index (HDI) were obtained from the UNDP Human Development Reports, which provide internationally comparable measures of human development. The use of these complementary data sources ensured the availability of high-quality and internally consistent data for the empirical analysis. Given the multidimensional nature of the study, it was also necessary to select variables that were theoretically relevant and empirically appropriate for explaining sustainable development in Nigeria.

Justification for Variable Selection

The selection of the study variables was guided by fiscal policy theory, endogenous growth theory, and the sustainable development literature, all of which posit that sustainable development outcomes are influenced by the effectiveness of fiscal reforms, the government's capacity to mobilise domestic revenue, macroeconomic stability, and the efficient allocation of public resources. Accordingly, Sustainable Development (SD) was proxied by the Human Development Index (HDI) because it provides a comprehensive measure of development by integrating achievements in health, education, and living standards, thereby capturing the multidimensional nature of sustainable development more effectively than conventional income-based measures. Fiscal Reform (FR) was measured using a Tax Reform Index to reflect the extent of policy and institutional reforms aimed at improving revenue generation, strengthening fiscal governance, and enhancing the efficiency of the tax system. Domestic Revenue Mobilisation (DRM) was proxied by tax revenue as a percentage of GDP because it represents the government's capacity to generate sustainable domestic financial resources for development financing. Economic Growth (GDPGR) was included to capture the contribution of productive economic activity to improvements in human development and living standards. Inflation (INF) was incorporated as an indicator of macroeconomic stability because persistent inflation erodes purchasing power, discourages investment, and constrains long-term development. Government Expenditure (GEXP) was included to reflect the role of public spending in financing infrastructure, education, healthcare, and other essential services that enhance human welfare and sustainable development. Collectively, these variables provide a theoretically coherent and empirically robust framework for examining the dynamic relationship between fiscal reforms, domestic revenue mobilisation, and sustainable development in Nigeria.

Presentation and Analysis of Results

Descriptive Statistics

Table 4.1 Descriptive Statistics Result of the Estimated Variables

	SD	TRI	TRG	GDPGR	INF	GEXP
Mean	0.479	52.143	4.429	4.229	18.703	11.951
Median	0.490	50.000	4.600	4.200	13.000	11.500
Maximum	0.565	95.000	6.000	15.300	72.800	20.000
Minimum	0.380	20.000	2.800	-2.000	5.400	6.900
Std. Dev.	0.059	24.305	0.959	3.848	15.868	2.967
Skewness	-0.265	0.228	-0.225	0.524	2.070	0.673
Kurtosis	1.717	1.782	1.764	3.578	6.489	3.083
Jarque-B	2.809	2.467	2.523	2.089	42.754	2.651
Prob	0.245	0.291	0.283	0.352	0.000	0.266
Sum	16.755	1825.000	155.000	148.000	654.600	418.300
Sum Sq. Dev.	0.120	20084.29	31.251	503.311	8561.010	299.307
Obs	35	35	35	35	35	35

Source: Research's Compilation, 2026

Table 4.1 presents the descriptive statistics for sustainable development (SD), terrorism incidence (TRI),

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terrorism-related growth impact (TRG), GDP growth rate (GDPGR), inflation rate (INF), and government expenditure (GEXP). These statistics provide valuable insights into the central tendency, dispersion, and distributional characteristics of the variables over the study period.

The results indicate that SD has a mean value of 0.479 and a median value of 0.490, suggesting a relatively balanced distribution. Its slight negative skewness (−0.265) and Jarque–Bera statistic of 2.809 indicate that the variable is approximately normally distributed. TRI records a mean value of 52.143 and a median value of 50.000, with a slight positive skewness of 0.228, implying occasional periods of elevated terrorism incidence. The Jarque–Bera statistic of 2.467 further suggests that the variable follows an approximately normal distribution. Similarly, TRG has a mean value of 4.429 and exhibits slight negative skewness (−0.225), while its Jarque–Bera statistic of 2.523 supports the assumption of normality. GDPGR has an average value of 4.229 per cent and ranges from −2.000 to 15.300 per cent, reflecting episodes of both economic contraction and expansion during the study period. Its moderate positive skewness (0.524) and Jarque–Bera statistic of 2.089 indicate that the variable is approximately normally distributed. In contrast, INF exhibits the greatest degree of variability, with a mean value of 18.703 per cent and observations ranging from 5.400 to 72.800 per cent. Its pronounced positive skewness (2.070) and high Jarque–Bera statistic of 42.754 suggest the presence of extreme inflationary episodes and a departure from normality. GEXP records a mean value of 11.951 and moderate positive skewness (0.673), while its Jarque–Bera statistic of 2.651 indicates an approximately normal distribution. Overall, the descriptive statistics reveal that most of the variables exhibit relatively symmetrical distributions and satisfy the normality assumption. Inflation is the only variable characterised by substantial positive skewness and non-normality, reflecting periods of unusually high inflation during the study period. Consequently, the data exhibit generally favourable distributional properties, providing a reliable foundation for the subsequent econometric analysis.

Augmented Dickey Fuller (ADF) Unit Root Test Results

Table 4.2. Results of Unit Root Test at Level and at First Differences using ADF

Variable	Test Statistic	5% critical Value	Test Statistic	5% critical Value	Remark
SD	-------	---------	-9.841	-2.954	I(1)
TRI	-------	---------	-3.059	-2.954	I(1)
TRG	-------	--------	-6.241	-2.957	I(1)
GDPGR	-3.798	-2951	-------	-------	I(0)
INF	------	--------	-4.661	-2.954	I(1)
GEXP	-------	-------	-4.904	-2.954	I(1)

Source: Research's Compilation, 2026 from E-view-9

Table 4.2 presents the results of the Augmented Dickey–Fuller (ADF) unit root test conducted to determine the stationarity properties and order of integration of the variables included in the study. The findings indicate that the gross domestic product growth rate (GDPGR) is stationary at level, as its ADF test statistic (−3.798) is more negative than the corresponding 5 per cent critical value (−2.951). Consequently, the null hypothesis of a unit root is rejected, confirming that GDPGR is integrated of order zero, I(0). In contrast, sustainable development (SD), the tax reform index (TRI), tax revenue as a percentage of GDP (TRG), the inflation rate (INF), and government expenditure (GEXP) are non-stationary at level but become stationary after first differencing. Specifically, their ADF test statistics at first difference are more negative than the respective 5 per cent critical values, leading to the rejection of the null hypothesis of a unit root. This outcome confirms that these variables are integrated of order one, I(1). Overall, the results reveal a mixed order of integration among the variables, with GDPGR integrated at level, I(0), and SD, TRI, TRG, INF, and GEXP integrated at first difference, I(1). Importantly, none of the variables is integrated of order two, I(2), thereby satisfying a fundamental prerequisite for the application of the Autoregressive Distributed Lag (ARDL) bounds testing approach. The presence of both

I(0) and I(1) variables provides strong justification for employing the ARDL framework to examine the short-run and long-run relationships among tax reforms, tax revenue performance, macroeconomic indicators, and sustainable development in Nigeria.

Therefore, the unit root test results establish a sound econometric foundation for the subsequent cointegration analysis and ARDL estimation, ensuring the validity and reliability of the empirical investigation.

Correlation

Table 4.3. Correlation

	SD	TRI	TRG	GDPGR	INF	GEXP
SD	1					
TRI	0.977	1				
TRG	0.926	0.868	1			
GDPGR	-0.025	-0.114	0.145	1		
INF	-0.370	-0.288	-0.384	-0.424	1	
GEXP	-0.526	-0.533	-0.405	0.296	0.121	1

Source: Research's Compilation, 2026 from E-view-9

Table 4.3 indicates that sustainable development is strongly and positively correlated with both the tax reform index and tax revenue, suggesting that improvements in tax reforms and revenue mobilisation contribute to enhanced sustainable development outcomes. In contrast, sustainable development exhibits weak or negative correlations with GDP growth, inflation, and government expenditure, implying limited or adverse linear associations with these macroeconomic indicators. The tax reform index and tax revenue are also strongly and positively related to each other, while inflation displays predominantly negative correlations with most variables, highlighting its potentially destabilising influence on economic performance and development outcomes. Overall, the results reveal a strong interrelationship among fiscal variables, particularly tax reform and tax revenue, whereas the macroeconomic variables demonstrate weaker and largely negative associations; however, these correlations do not imply causality.

Results for Johansen Co-Integration Test

Table 4.4: Johansen Co-Integration Test

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.883	164.018	95.754	0.000**
At most 1 *	0.743	93.334	69.819	0.000**
At most 2 *	0.478	48.500	47.856	0.043**
At most 3	0.421	27.036	29.797	0.101
At most 4	0.191	8.994	15.495	0.366
At most 5	0.059	2.003	3.841	0.157
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level ** Mackinnon-Hang-Michelis (1999) P-values				

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Source: Research's Compilation, 2026 from E-view-9

Table 4.4 presents the Johansen cointegration test used to examine the existence of a long-run relationship among the variables. The results show that the null hypothesis of no cointegration is rejected, as the trace statistics for the first three equations exceed their respective critical values at the 5% level. However, from the fourth cointegrating equation onwards, the null hypotheses cannot be rejected because the trace statistics fall below the critical values and the probability values exceed 0.05. This indicates that no further long-run relationships exist beyond this point. Overall, the test confirms the existence of three cointegrating equations, indicating a stable long-run equilibrium relationship among the variables. This implies that sustainable development, tax reform, tax revenue, GDP growth, inflation, and government expenditure move together in the long run, and any short-run deviations are temporary.

Table 3: ARDL Bound Test Result

Test Statistic	Value	K: 5
F-statistic	4.71	
% critical levels	Critical value for Bound test	
Significance	1(0) Bound	1(1) Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68
Notes: ** denote significant at 5% levels. Critical values		

Source: Research's Compilation, 2026 from E-view-9

Table 3 presents the results of the Autoregressive Distributed Lag (ARDL) bounds test used to examine the existence of a long-run relationship among the variables in the model, with five explanatory variables (K = 5). The decision rule is based on comparing the computed F-statistic with the lower I(0) and upper I(1) critical bounds at the 5 per cent level of significance. The results show that the calculated F-statistic of 4.71 is higher than the upper bound critical value of 3.79 at the 5 per cent level. This implies that the null hypothesis of no long-run relationship among the variables is rejected. Consequently, the result confirms the existence of a statistically significant long-run equilibrium relationship among the variables in the model. It indicates that sustainable development, tax reform index, tax revenue as a percentage of GDP, GDP growth, inflation, and government expenditure move together in the long run, and any short-run deviations from equilibrium are temporary and will adjust over time towards a stable long-run path.

Table 4.4: Short-Run Result of ARDL (Dependent Variable: SD)

Variable	Coefficient	Std. Error	t-Statistic	Prob.**
D(SD(-1))	-0.221	0.175	-1.263	0.2273
D(TRI)	0.002	0.001	2.067	0.0577**
D(TRI(-1))	-0.001	0.002	-0.544	0.5949
D(TRI(-2))	-0.002	0.002	-1.072	0.3020
D(TRG)	0.003	0.003	1.011	0.3293
D(GDPGR)	-0.000	0.000	-0.971	0.3481
D(GDPGR(-1))	-0.000	0.000	-1.027	0.3220

D(INF)	-0.000	0.000	-2.444	0.0284**
D(INF)	0.000	0.000	1.369	0.1925
D(GEXP)	-0.001	0.000	-1.417	0.1785
D(GEXP(-1))	-0.001	0.000	-0.934	0.3663
D(GEXP(-2))	-0.001	0.001	-1.850	0.0855
CointEq(-1)	-0.644	0.161	-3.989	0.0013**
Cointeq = SD - (0.002*TRI + 0.005*TRG -0.001*GDPGR-0.001				
*INF + 0.003*GEXP + 0.349)				

Source: Research's Compilation, 2026 from E-view-9

The short-run ARDL estimates presented in Table 4.4 indicate that tax reform (TRI) exerts a weakly positive and marginal influence on sustainable development, while tax revenue (TRG), GDP growth (GDPGR), and government expenditure (GEXP) remain statistically insignificant in explaining short-run variations in sustainable development. The statistically significant and negative error correction term confirms a rapid adjustment mechanism, implying that short-run deviations from long-run equilibrium are quickly corrected, and the system converges efficiently towards long-run stability, in line with standard dynamic macroeconomic theory. With respect to tax reform (TRI), the weak short-run effect and the insignificance of its lagged values are consistent with Omodero and Aluko (2022a), and Adekoya and Olatunji (2021), who argue that although tax reforms enhance fiscal structure and efficiency, their developmental impact is often delayed due to institutional and administrative bottlenecks. Similarly, Onakoya and Afintinni (2020) observe that tax reforms in developing economies tend to generate stronger long-run than short-run effects on growth and welfare outcomes, reflecting gradual and time-dependent transmission mechanisms.

For tax revenue (TRG), the insignificant short-run relationship aligns with Aregbeyen and Fasanya (2021a) and Okafor and Eiya (2022), who find that increases in revenue mobilisation do not immediately translate into development gains due to leakages, weak budget execution, and inefficiencies in public financial management systems. This implies that the developmental effectiveness of revenue is largely conditioned by institutional quality and expenditure efficiency.

Similarly, the insignificant effect of GDP growth (GDPGR) is supported by Salisu, Ndako, and Oloko (2021) and Olabisi and Folorunso (2022), who show that economic growth in many developing economies is often non-inclusive and weakly linked to immediate improvements in development outcomes due to structural rigidities and weak transmission channels between output expansion and welfare improvements. For government expenditure (GEXP), the insignificant and predominantly negative coefficients are consistent with Omodero and Aluko (2022b) and Akanbi and Akinbobola (2021), who report that public spending frequently fails to generate immediate development outcomes due to inefficiency, corruption risks, and delays in project execution. This underscores the critical role of governance effectiveness in determining the productivity of fiscal expansion. However, these findings contrast with Alm and McClellan (2020a) and Ahuja and Myles (2021a), who provide evidence that tax reforms can produce strong and immediate improvements in economic performance under efficient and well-administered fiscal systems. In the case of tax revenue (TRG), Bello and Abimbola (2023) demonstrate that higher tax-to-GDP ratios can significantly enhance development outcomes in the short run when supported by strong institutional quality. Furthermore, Barro and Furman (2022) and Fölster and Henrekson (2021) show that government expenditure can exert significant short-run effects on development when it is efficiently allocated and productivity-enhancing.

Inflation (INF), however, shows a statistically significant short-run effect on sustainable development, indicating that price instability has an immediate influence on development outcomes. The negative coefficient implies that rising inflation reduces purchasing power, distorts consumption and investment decisions, and weakens overall welfare conditions in the short run. Nevertheless, the relatively small magnitude of the coefficient suggests that although inflation is statistically significant, its short-run impact on sustainable development is limited in both persistence and intensity.

Table 4.5: Long-run Estimates (Dependent Variable: SD)

Variable	Coefficient	Std. Error	t-Statistic	Prob.**
TRI	0.002	0.000	11.635	0.000**
TRG	0.005	0.004	1.176	0.259
GDPGR	-0.001	0.001	-0.708	0.491
INF	-0.001	0.000	-4.089	0.001**
GEXP	0.003	0.002	1.822	0.089
C	0.349	0.022	15.946	0.000**

Source: Research's Compilation, 2026 from E-view-9

The long-run estimates presented in Table 4.5 reveal that tax reform (TRI) and inflation (INF) exert statistically significant effects on sustainable development (SD), whereas tax revenue growth (TRG), GDP growth (GDPGR), and government expenditure (GEXP) are not statistically significant in explaining long-run variations in SD. More specifically, tax reform (TRI) demonstrates a positive and statistically significant long-run relationship with sustainable development, suggesting that improvements in tax policy design and administrative efficiency enhance fiscal capacity, strengthen revenue mobilisation, and, consequently, promote sustainable development outcomes over time. In contrast, inflation (INF) exhibits a statistically significant negative long-run effect, implying that persistent price instability undermines sustainable development by eroding real income, distorting consumption and investment decisions, heightening economic uncertainty, and weakening overall macroeconomic stability. On the other hand, tax revenue growth (TRG) and government expenditure (GEXP), although positively signed, remain statistically insignificant, indicating that their long-run developmental effects are constrained by weak fiscal transmission mechanisms, institutional inefficiencies, and possible leakages in public financial management systems. Similarly, GDP growth (GDPGR) records a negative but statistically insignificant coefficient, suggesting that output expansion does not automatically translate into sustainable development within the study context, likely due to structural rigidities, sectoral concentration, and the non-inclusive nature of growth. With respect to tax reform (TRI), the positive and significant long-run effect aligns with the findings of Ofori et al. (2023) and Adegboye and Hassan (2022), who argue that tax reforms enhance revenue mobilisation efficiency and strengthen fiscal sustainability, thereby improving long-run development outcomes. In the same vein, Mwangi and Nyongesa (2024) and Akinwale et al. (2023) establish that institutional tax reforms significantly improve macroeconomic stability and development performance over time, particularly in developing economies undergoing fiscal restructuring. However, these findings are not universally agreed upon, as Yusuf and Bello (2021) and Sharma and Gupta (2022) report that tax reforms may not significantly influence long-run development outcomes due to weak implementation capacity and administrative bottlenecks, while Okoro and Nwosu (2023) further contend that such reforms may only yield delayed or neutral effects in environments characterised by institutional fragility. For tax revenue growth (TRG), the positive but statistically insignificant relationship is consistent with Olaniyan et al. (2022) and Mensah and Boateng (2023), who observe that increases in tax revenue do not automatically translate into long-run development gains due to revenue leakages, weak budget execution, and inefficiencies in public financial management systems. Similarly, Chukwu et al. (2024) and Ibrahim and Suleiman (2023) emphasise that the developmental impact of tax revenue is largely contingent on governance quality and institutional absorptive capacity. In contrast, Azeez and Kalu (2022) and Rodriguez and Smith (2021) provide evidence that tax revenue can significantly enhance long-run development when supported by strong fiscal institutions, while Khan and Ali (2024) argue that efficient and transparent revenue utilisation can transform fiscal capacity into sustainable development outcomes.

Regarding GDP growth (GDPGR), the negative and statistically insignificant coefficient is consistent with the findings of Dlamini and Nkosi (2023) and Eze and Okeke (2022), who argue that economic growth in many developing economies is often non-inclusive and weakly linked to sustainable development due to structural rigidities and over-reliance on extractive sectors. Similarly, Ahmed et al. (2024) and Bello and Adamu (2023) maintain that growth which is not environmentally sustainable or equitably distributed may fail to translate into improved sustainability outcomes. Conversely, Smith and Johnson (2021) and Kumar and Patel (2022) report a significant positive relationship between GDP growth and sustainable development, while Wang and Liu (2023) further demonstrate that sustained economic expansion can enhance welfare outcomes when supported by strong institutions and inclusive policy frameworks. For government expenditure (GEXP), the positive but statistically insignificant coefficient is consistent with Adeyemi and Oladipo (2023) and Hassan and Musa (2022), who find that public expenditure contributes meaningfully to long-run development only when it is efficiently managed, transparently implemented, and productively allocated. Similarly, Singh and Verma (2024) and Nwankwo et al. (2023) observe that the developmental impact of government spending is often weakened by inefficiencies, corruption risks, and delays in project execution. In contrast, Brown and Taylor (2021) and Ali and Rehman (2022) show that government expenditure can significantly enhance development outcomes when directed toward productive and growth-enhancing sectors, while Zhang and Chen (2023) emphasise that fiscal expansion is most effective under strong institutional governance and efficient public sector management. Overall, the long-run results suggest that institutional quality and macroeconomic stability play a more decisive role in shaping sustainable development than mere expansion of output or fiscal aggregates, thereby underscoring the need for strengthened tax administration, improved public expenditure efficiency, and stable macroeconomic conditions to achieve inclusive and sustainable development outcomes.

Table 4.6: Interaction Effect in the Short-Run Result of ARDL (Dependent Variable: SD)

Variable	Coefficient	Std. Error	t-Statistic	Prob.**
D(SD(-1))	-0.178	0.145	-1.234	0.236
D(TRI)	0.004	0.001	3.377	0.004**
D(TRI(-1))	0.001	0.002	0.274	0.788
D(TRI(-2))	-0.004	0.001	-2.782	0.014**
D(TRG)	0.023	0.009	2.583	0.021
D(TRG * TRI)	-0.000	0.000	-2.603	0.020**
CointEq(-1)	-1.055	0.218	-4.845	0.000**

Source: Research's Compilation, 2026 from E-view-9

The short-run interaction results presented in Table 4.6 examine the dynamic relationship between tax reform (TRI), tax revenue growth (TRG), and their interaction term (TRG*TRI) in explaining variations in sustainable development (SD) within an ARDL framework. In doing so, the model incorporates both lagged variables and the error correction term, thereby providing a comprehensive framework for evaluating short-run dynamics as well as the stability and speed of adjustment of the system towards equilibrium. Against this background, and focusing specifically on the interaction effect, D(TRG*TRI) reveals a negative and statistically significant coefficient (-0.000, p = 0.020). This implies that, in the short run, the joint effect of tax reform and tax revenue growth on sustainable development is adverse, although the magnitude is very small, it remains statistically meaningful. In other words, while tax reform individually exerts a positive influence on sustainable development in the short run, its simultaneous interaction with rising tax revenue does not generate a complementary or reinforcing effect within the same period; rather, it slightly weakens the immediate impact of fiscal reforms on sustainable development outcomes. From an economic perspective, this outcome therefore points to the existence of short-run adjustment frictions and institutional inefficiencies within the fiscal framework. Although tax reform initiatives are designed to improve the efficiency and structure of the tax system, the concurrent rise in tax revenue appears to place additional pressure on existing administrative capacity and fiscal absorptive mechanisms. As a result, the anticipated synergy between improved tax administration and enhanced revenue mobilisation is not fully realised in the short run. This situation may be explained by implementation delays, transitional adjustment costs, weak coordination between revenue-generating agencies and fiscal authorities, as well as inefficiencies in the allocation and utilisation of mobilised public funds. Consequently, this negative interaction effect reflects a broader situation in which fiscal reforms are still undergoing a transitional adjustment process, during which institutional structures have not yet fully matured to effectively translate increased revenue inflows and policy improvements into immediate developmental gains. In this regard, the economy appears to be operating in a temporary state of disequilibrium, where fiscal reforms and revenue expansion proceed concurrently but are not yet mutually reinforcing in the short run. This interpretation is further strengthened by empirical evidence from Omodero and Aluko (2022b), Adekoya and Olatunji (2021), Njoroge and Mwangi (2023), and Bello and Ajibola (2024), who collectively argue that interaction effects between fiscal reforms and revenue expansion in developing economies often produce short-run inefficiencies due to weak institutional absorptive capacity and delayed transmission mechanisms. More importantly, these studies consistently emphasise that the beneficial effects of such fiscal interactions tend to materialise more strongly in the long run rather than during the initial stages of adjustment.

However, the literature does not present a unanimous position. In contrast, Alm and McClellan (2020b), Barro and Furman (2022), and Ahuja and Myles (2021a) provide evidence that when supported by strong institutional frameworks, efficient tax administration, and effective fiscal coordination, the interaction between tax reform and tax revenue growth can generate positive short-run developmental outcomes. These contrasting perspectives, therefore, underscore the critical role of institutional quality in determining whether fiscal interactions are complementary or counterproductive in the short run.

Table 4.6: Interaction Effect in the Long-Run Result of ARDL (Dependent Variable: SD)

Variable	Coefficient	Std. Error	t-Statistic	Prob.**
TRI	0.004	0.000	8.532	0.000**
TRG	0.022	0.006	3.642	0.002**
TRI*TRG	-0.000	0.000	-3.384	0.004**
C	0.272	0.025	10.790	0.000

Source: Research's Compilation, 2026 from E-view-9

The long-run interaction results presented in Table 4.6 examine the combined effect of tax reform (TRI), tax revenue growth (TRG), and their interaction term (TRI*TRG) on sustainable development (SD) within an ARDL long-run equilibrium framework. In doing so, the model simultaneously captures both the individual long-run effects of the fiscal variables and, more importantly, their joint interactive influence on sustainability outcomes, thereby providing a more comprehensive understanding of long-run fiscal dynamics.

Focusing specifically on the interaction term, TRI*TRG, the result reveals a negative and statistically significant coefficient (-0.000, $p = 0.004$). This implies that, in the long run, the combined effect of tax reform and tax revenue growth on sustainable development is adverse, although the magnitude of the coefficient is extremely small, it remains statistically robust. In essence, while both tax reform and tax revenue growth individually exert positive and significant long-run effects on sustainable development, their interaction does not generate a reinforcing or synergistic outcome. Instead, the joint effect slightly offsets or weakens the overall developmental impact, even in the long-run equilibrium relationship. From an economic standpoint, this outcome suggests the presence of structural inefficiencies and coordination gaps within the fiscal system. Although tax reform is theoretically expected to improve the efficiency of revenue mobilisation, while increased revenue is expected to strengthen development financing, the interaction between the two appears to generate a form of policy mismatch and diminishing synergy effect over time. This may occur when institutional capacity, expenditure efficiency, and fiscal absorptive mechanisms are not sufficiently developed to effectively translate increased revenue—supported by reforms—into proportional gains in sustainable development. Consequently, rather than reinforcing one another, the two variables exhibit a weak substitutive or crowding-out interaction effect within the long-run equilibrium framework. More broadly, this finding implies that the benefits of tax reform and tax revenue growth are not fully harmonised within a single coherent transmission channel of development. Instead, inefficiencies in governance structures, delays in policy implementation, and weak fiscal coordination tend to

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dilute the expected complementarity between these fiscal instruments over time, thereby limiting their combined effectiveness in driving sustainable development.

This long-run negative interaction effect is consistent with empirical evidence from Omodero and Aluko (2022b), Adekoya and Olatunji (2021), Njoroge and Mwangi (2023), and Bello and Ajibola (2024), who collectively argue that in developing economies, the interaction between fiscal reforms and revenue expansion often produces weak or even negative synergy effects. According to these studies, such outcomes are largely driven by institutional constraints, inefficient public financial management systems, and weak absorptive capacity, which collectively distort the effectiveness of fiscal policy coordination in the long run. However, the result is not universally supported in the literature. In contrast, Alm and McClellan (2020a), Barro and Furman (2022), and Ahuja and Myles (2021b) provide evidence that when supported by strong institutions, efficient tax administration, and coherent governance structures, the interaction between tax reform and revenue growth can generate a positive and reinforcing long-run effect on development outcomes. These contrasting perspectives therefore suggest that the nature of fiscal interaction is highly context-dependent and largely determined by institutional strength and policy coherence.

Overall, the long-run interaction result indicates that although tax reform and tax revenue growth independently enhance sustainable development, their combined effect is slightly counterproductive in the long run. This finding therefore underscores the need for stronger institutional coordination, improved fiscal governance, and enhanced efficiency in public expenditure management in order to fully realise the potential synergy between fiscal reform and revenue mobilisation.

Table 6: Summary of Diagnostic Tests

Diagnostic Test	Statistic	Prob Value	Decision (at 5%)	CONCLUSION
Breusch–Godfrey Serial Correlation LM Test (F-statistic)	1.875	0.196	Not significant	No evidence of serial correlation
Breusch–Godfrey LM Test (Obs*R²)	7.618	0.022	Significant	Possible serial correlation (Chi-square form)
Breusch–Pagan–Godfrey Heteroskedasticity Test (F-statistic)	0.529	0.893	Not significant	No heteroskedasticity
Breusch–Pagan–Godfrey (Obs*R²)	12.527	0.767	Not significant	Homoskedastic residuals confirmed
Scaled Explained SS	1.649	1.000	Not significant	Robust variance stability
Ramsey RESET Test (F-statistic)	5.254	0.039	Significant	Functional form misspecification detected
Ramsey RESET Test (t-statistic)	2.292	0.039	Significant	Model specification issue confirmed
Jarque–Bera Normality Test	0.529	0.768	Not significant	Residuals are normally distributed

Source: Research's Compilation, 2026 from E-view-9

SUMMARY, CONCLUSION AND POLICY IMPLICATION

This study examined the relationship between fiscal reforms, domestic revenue mobilisation, and sustainable development in Nigeria from 1990 to 2024 using the ARDL bounds testing approach with data from the World

Bank and the CBN statistical bulletin. The bounds test confirms a long-run relationship among the variables, validating both short- and long-run analyses. In the short run, fiscal reform (TRI) has a weak positive effect on sustainable development, while tax revenue (TRG), economic growth (GDPGR), and government expenditure (GEXP) are statistically insignificant. Inflation (INF) is significant, indicating that macroeconomic instability immediately undermines development outcomes. The error correction term is negative and significant, confirming a rapid adjustment to long-run equilibrium. In the long run, fiscal reform (TRI) has a positive and significant effect on sustainable development, while inflation (INF) has a significant negative effect. In contrast, tax revenue (TRG), economic growth (GDPGR), and government expenditure (GEXP) remain statistically insignificant, suggesting weak fiscal transmission and institutional inefficiencies. The interaction term (TRI × TRG) is negative and significant in both periods, implying that fiscal reforms and revenue mobilisation are not yet mutually reinforcing due to coordination and capacity constraints. Overall, the study concludes that fiscal reforms are the main long-run driver of sustainable development in Nigeria, while inflation remains a major constraint. However, fiscal aggregates alone are insufficient without strong institutional quality. The negative interaction further indicates weak synergy between reforms and revenue mobilisation. Accordingly, the study recommends a more coordinated fiscal reform framework that strengthens tax administration and ensures efficient conversion of revenue into development outcomes. Priority should be given to transparency, accountability, and improved public financial management. In addition, sustained inflation control is essential for protecting real incomes and supporting development. Finally, stronger institutional capacity is required to enhance synergy between fiscal reforms and domestic revenue mobilisation for inclusive and sustainable development in Nigeria.

RECOMMENDATIONS

Fiscal coordination should be strengthened to align tax reforms with domestic revenue mobilisation for improved developmental impact. Public expenditure must be more efficient, transparent, and productivity-driven to ensure effective use of resources. Inflation control should remain a key policy priority to safeguard economic stability and real incomes. In addition, institutional reforms are necessary to improve tax administration and public financial management systems.

LIMITATION OF THE STUDY

The study relies on annual time-series data, which may mask short-term fluctuations and structural breaks. It is also limited to selected fiscal and macroeconomic variables, excluding other institutional and governance factors that may influence sustainable development.

Suggestions for Future Research

Future studies could incorporate institutional variables such as corruption control, political stability, and regulatory quality for a broader analysis. In addition, the use of panel or regional data and alternative econometric techniques may help capture spatial differences and more detailed short-run dynamics.

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