

## Tax Reforms and Fiscal Policies in Selected West African Countries

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### Abstract

This study examined the effect of tax reforms on fiscal policies in six selected West African countries - Nigeria, Ghana, Senegal, Côte d'Ivoire, The Gambia, and Sierra Leone. Ex-post facto research design was used and data were obtained covering the period 1995 to 2024. Employing principal component analysis (PCA) alongside panel regression techniques, the study identified five tax reform variables such as tax revenue, tax rates, tax compliance cost, tax administrative cost, and tax base broadening. The findings revealed that tax revenue is the most significant predictor of fiscal policies, accounting for 32.8% of the total variation, emphasizing its critical role in enhancing government budget balance and reducing income inequality. The results further demonstrated that tax administrative cost significantly affects fiscal policies, underscoring the importance of efficient tax administration systems. However, tax rates, tax compliance cost, and tax base broadening were found to have no significant effect on fiscal policies in the selected countries. These outcomes highlight the necessity for regional cooperation in improving tax revenue mobilization and the efficiency of tax administration. The study fills a gap in accounting literature by providing a multi-country analysis of tax reforms and fiscal policies in West Africa, offering valuable insights for policymakers aiming to strengthen fiscal stability and socio-economic development through effective tax reforms.

**Keywords:** Tax Base Broadening, Tax Compliance, Tax Rates, Tax Reform, Tax Revenue.

### Introduction

Tax reforms and fiscal policies are crucial for economic growth and stability in West Africa, where they significantly influence public revenue, governance effectiveness, and efforts to tackle poverty, unemployment, and inequality(1). Countries such as Senegal have introduced progressive tax policies and strengthened tax collection systems to expand the tax base and close revenue gaps, especially in light of challenges posed by large informal sectors (2-4). Ghana has reformed its value added tax (VAT) structure to boost fiscal revenue, although these measures have faced public resistance amid economic hardship (5). Nigeria struggles with regional imbalances in VAT allocation and the politically sensitive removal of fuel subsidies, raising concerns about social stability and equity (5, 7). Mali has revised its mining tax policies to increase state revenue but at the cost of investor confidence (7, 8). The Gambia has modernized its tax administration but continues to face enforcement limitations and informal sector dominance. Similarly, Sierra Leone has implemented systems

to improve tax collection, but political opposition and weak institutions impede progress. These cases highlight the complex relationship between tax reforms, fiscal policy, governance, and socio-economic stability across the region, underscoring the importance of comprehensive and context-specific policy approaches to achieve sustainable fiscal outcomes. Tax reforms and fiscal policies in West Africa are essential for addressing persistent economic challenges such as poverty, inequality, and fiscal deficits; however, their effectiveness is undermined by complexities in tax administration, political resistance, large informal economies, and regional disparities in revenue mobilization (9). In countries like Senegal, Ghana, The Gambia, and Sierra Leone, the substantial informal sector restricts tax revenue potential and exacerbates socio-economic inequalities by keeping many outside the tax system (10). Weak enforcement, outdated infrastructure, and social mistrust hinder reforms in The Gambia and Sierra Leone, while Nigeria's VAT redistribution debate intensifies regional tensions (11, 12). Efforts to remove fuel

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subsidies in Ghana and The Gambia have triggered protests, reflecting the challenge of balancing fiscal reforms with social stability. Additionally, resource-rich nations like Mali, Ghana, and Sierra Leone face investor concerns over unstable mining tax policies (13), and widespread problem of illicit financial flows (IFFs) further limits reform success due to weak regulation and enforcement (14). Empirical evidence on the link between tax reforms and fiscal outcomes remains mixed; while some researchers reported negative effects, other researchers found positive relationships, highlighting a research gap in exploring how tax reform components impact fiscal indicators like the Gini coefficient and budget balance across the region (15,13). This underscores the necessity of comprehensive analysis, especially including countries like The Gambia and Sierra Leone, to clarify the political, social, and economic constraints shaping tax reforms and fiscal policies in West Africa. Given the study objectives the following hypotheses stated in the null form have been formulated:

- H<sub>01</sub>: There is no significant relationship between tax revenues and fiscal policies in selected West African countries.
- H<sub>02</sub>: There is no significant relationship between tax rates and fiscal policies in selected West African countries
- H<sub>03</sub>: There is no significant relationship between tax compliance cost and fiscal policies in selected West African countries
- H<sub>04</sub>: Tax administrative cost has no significant effect on fiscal policies in selected West African countries
- H<sub>05</sub>: Tax base broadening has no significant effect on fiscal policies in selected West African countries

Taxation serves as a fundamental means for governments to generate revenue necessary for public spending, economic regulation, and wealth redistribution (16, 17). A well-structured tax system enhances fiscal capacity, institutional development, and public accountability, especially in developing economies (18). However, challenges such as tax evasion, inequality in access to public services, and public distrust remain prevalent, as taxpayers often perceive taxes as punitive due to poor service delivery (17). Moreover, high tax rates can distort labor supply and productivity, while low taxes may undermine

education and social services (6, 10). In Nigeria, the tax structure comprises both direct and indirect taxes—such as company income tax, VAT, and excise duties - enforced under various legislative acts, including the Companies Income Tax Amendment Act and the Petroleum Profit Tax Amendment Act, with the Federal Inland Revenue Services (FIRS) responsible for tax administration (19).

Tax reform remains a pivotal tool for enhancing fiscal stability and sustainable development in West Africa, as countries such as Ghana, Nigeria, Senegal, Côte d'Ivoire, Sierra Leone, and The Gambia seek to broaden their tax bases, improve revenue collection, and reduce dependence on foreign aid (6, 20). Reforms in Ghana, like the introduction of VAT and PAYE, have bolstered domestic revenue, while Nigeria has diversified beyond oil revenues through adjustments in VAT and personal income tax, though informal sector challenges persist (20, 21). Senegal's revised tax code improved VAT compliance and revenue-to-gross domestic product (GDP) ratio (22), whereas Côte d'Ivoire's reforms focused on petroleum profit tax (PIT) progressivity and tax system digitalization (11, 23).

Sierra Leone introduced broad fiscal adjustments, including excise reforms and digital tax systems to boost efficiency, and The Gambia modernized tax administration while expanding withholding taxes and digital service taxes, despite challenges from excessive duty waivers (24). These reforms reflect a regional trend toward fiscal discipline, though issues like weak tax enforcement, informal economies, and political constraints continue to limit reform effectiveness (25, 26).

Tax revenue plays a central role in shaping fiscal policies across West African countries by providing the financial resources necessary for public investment, reducing reliance on external aid, and supporting economic development (27). Countries such as Ghana, Nigeria, Senegal, Côte d'Ivoire, The Gambia, and Sierra Leone have implemented tax reforms to broaden the tax base, improve compliance, and enhance administrative efficiency, resulting in varying degrees of success in revenue mobilization (19, 28, 29). While increased tax revenue has enabled greater fiscal space and reduced budget deficits, challenges persist, including large informal sectors, weak enforcement, and governance issues (30, 31).

Addressing these structural constraints through inclusive, transparent, and technologically driven reforms remains essential for ensuring sustainable fiscal stability and economic growth in the region (9, 18).

Tax rate adjustments are a central component of tax reforms in West African countries, serving as a tool to boost revenue mobilization, attract investment, and stimulate economic growth. Nations such as Ghana, Nigeria, Côte d'Ivoire, Senegal, Sierra Leone, and The Gambia have modified tax rates—including VAT, corporate, and personal income taxes to balance fiscal needs with economic competitiveness (28, 31). These reforms have generally improved public revenue and supported infrastructure, health, and education investments, thereby reducing reliance on external borrowing (25). However, challenges persist, such as large informal sectors, tax evasion, and administrative inefficiencies, which can undermine the benefits of tax rate adjustments (23, 2). The success of these reforms thus hinges not only on the rates themselves but also on the effectiveness of enforcement and the structure of each economy.

Tax compliance costs—encompassing financial, time, and administrative burdens associated with fulfilling tax obligations—are a critical measure of tax reform success, particularly in developing countries where businesses often struggle with resource constraints (32). In West Africa, nations such as Nigeria, Ghana, Côte d'Ivoire, Senegal, Sierra Leone, and The Gambia have implemented reforms to reduce these costs by digitizing tax processes, simplifying tax rules, and enhancing tax administration (31, 11). These measures have improved revenue collection, expanded the tax base, and supported fiscal stability, though challenges like the large informal sector and tax evasion persist (17, 18).

Tax administrative costs (TAC)—the government's expenses for tax collection, enforcement, and compliance management—is a vital indicator of tax system efficiency and reform success in developing countries (33). West African nations such as Nigeria, Ghana, Côte d'Ivoire, Senegal, Sierra Leone, and The Gambia have pursued reforms to reduce TAC by adopting digital systems like e-filing and automated tax platforms, resulting in cost savings and improved revenue mobilization (34, 35). While these reforms have enhanced fiscal

capacity and service delivery, challenges remain - especially the large informal sector, administrative inefficiencies, and outdated infrastructure - that continue to hinder the full realization of tax reform benefits (36).

Tax base broadening is a crucial tax reform strategy for developing economies like Nigeria, Ghana, Senegal, and Côte d'Ivoire, aimed at expanding taxable activities, reducing reliance on narrow revenue sources, and enhancing fiscal sustainability (33). Measures such as formalizing the informal sector, introducing new taxes, closing loopholes, and adopting digital tax systems have been employed to widen the tax net and improve compliance (36, 35). Despite progress - such as VAT expansion in Ghana and digital registration platforms in Côte d'Ivoire (22) - challenges like widespread informality, tax evasion, administrative capacity gaps, and political resistance continue to limit effectiveness (37, 35), underscoring the need for sustained reform and capacity building.

Fiscal policy is central to economic management in West Africa, with tax reforms playing a key role in enhancing government revenue, reducing fiscal deficits, and fostering sustainable development (21, 38). Countries like Nigeria, Ghana, Senegal, and Côte d'Ivoire have introduced various reforms—such as VAT expansion, digital tax systems, and formalization of the informal sector—to broaden tax bases and improve fiscal sustainability (27, 26). Despite these efforts, challenges such as tax evasion, informality, and weak tax administration remain (37).

Similar fiscal reforms in The Gambia and Sierra Leone focus on modernizing tax systems and enhancing revenue collection but are constrained by limited institutional capacity and widespread informality (11, 26). Overall, while tax reforms have improved revenue mobilization, their effectiveness depends on addressing structural weaknesses and building stronger fiscal institutions (24, 17). The government budget balance is a crucial indicator of fiscal health, reflecting the difference between a nation's revenue and expenditure, with tax reforms playing a central role in shaping this balance across West African countries. In Nigeria, reliance on oil revenues and structural tax system weaknesses has sustained budget deficits despite reforms aimed at broadening the tax base. Ghana's fiscal

balance remains strained by high public spending and debt levels, limiting the impact of tax reforms on deficit reduction. Senegal has achieved moderate improvements in its budget balance through tax reforms that expanded the tax base and improved compliance, while Côte d'Ivoire's digital tax initiatives and informal sector reforms have strengthened fiscal stability, though public expenditure inefficiencies persist.

The Gambia and Sierra Leone have also pursued tax modernization efforts, but fiscal imbalances remain due to limited tax bases, high debt servicing costs, and challenges in public financial management. Overall, while tax reforms have positively influenced revenue mobilization in these countries, persistent challenges such as administrative inefficiencies, informal economies, and high public spending continue to hinder substantial improvements in budget balance and fiscal sustainability.

This study is anchored on a blend of the Public Choice (PCT), Public Finance, Taxation and Development Framework, and Optimal Tax Theories. First, public choice theory (PCT) explains how decisions in the public sector are influenced by the self-interests of government officials, taxpayers, and other stakeholders, rather than purely public interest. This theory is particularly relevant in the context of West African countries, where governance weaknesses, institutional limitations, and elite capture affect fiscal policies and tax reforms (9, 23, 39). In nations like Nigeria, Ghana, Côte d'Ivoire, The Gambia, and Sierra Leone, political bargaining, patronage networks and rent-seeking behaviors distort tax policy implementation, undermining equity and efficiency (25).

Second, public finance model (PFM) is a typical framework used to analyze how governments raise revenue (mainly via taxes), allocate resources and manage public expenditures so as to enhance the economy. PFM helps policymakers to understand trade-offs and outcomes of varied fiscal decisions (19). When linked to tax reforms, PFM evaluates how changes in government tax structures (e.g. rates, bases or compliance systems) influence government revenue, distribution of income, economic efficiency and growth (20). In the context of fiscal policy, PFM assesses the effect of government spending and taxes on macroeconomic indicators such as gross

domestic product (GDP), employment, and inflation; hence PFM is relevant to this study because it offers strategies for fiscal sustainability. On the other hand, taxation and development framework model (TDFM) explores how tax systems support long-term economic development and public service delivery. It emphasizes the role of taxation not just as a revenue mechanism, but as a foundation for inclusive growth (24, 29). Linking TDFM to tax reforms, the model serves as a guide to restructure tax policies in order to improve equity, efficiency and revenue mobilization (33). These may take the form of broadening tax base, reducing harmful tax incentives and improving tax compliance, particularly in developing economies like West Africa, where informal sectors dominate. In terms of fiscal policy TDFM offers support for the use of progressive and well-targeted taxation to finance vital public investments (e.g. health, education, infrastructure, and social protection). Hence, TDFM creates fiscal discipline, helping government balance revenue/expenditure for macroeconomic stability and sustainable development.

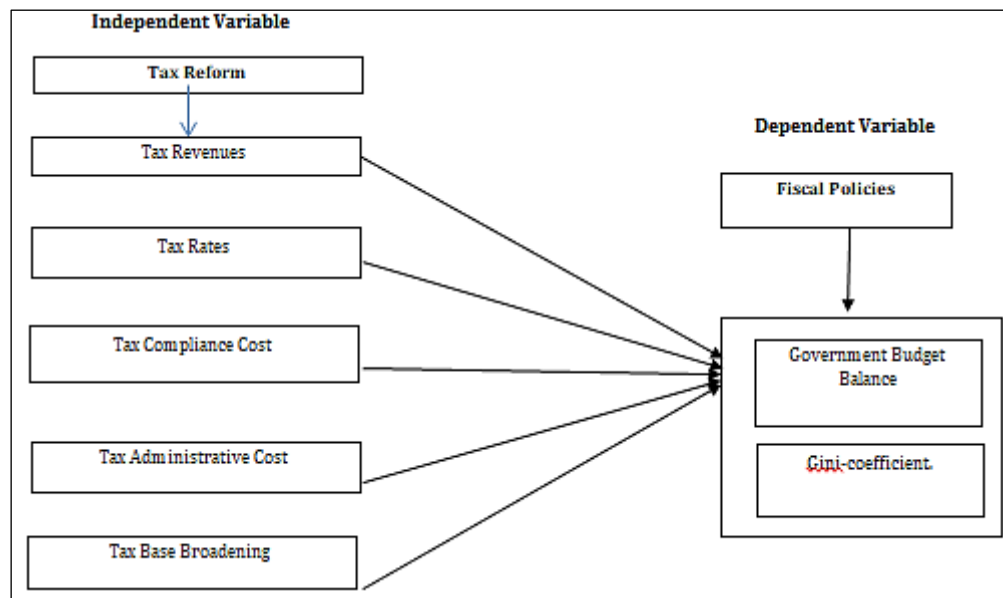
Fourth, the optimal tax theory (OTT) is an economic framework that seeks to design a tax system that maximizes social welfare while minimizing economic distortions and inefficiencies (39). OTT balances equity (fair distribution of tax burdens) and efficiency (minimal disruption to economic decisions like working, saving/investing) (10). When applied to tax reforms, OTT helps policymakers determine how to structure taxes (income, consumption, or capital taxes) to be able to raise the needed revenue while minimizing negative effects on productivity and growth. In relation to fiscal policy, OTT guides policymakers on how to finance public spending in a way that supports long-term economic goals. Thus, it is relevant to this study since it offers trade-offs between taxation and borrowing, helping government maintain fiscal sustainability.

Furthermore, issues of fiscal decentralization complicate coordination between central and local governments, as seen in Senegal and Côte d'Ivoire (40). International actors such as the IMF and World Bank also influence tax reforms, often prioritizing their own interests over domestic needs (8). Thus, PCT provides a robust lens to analyze how political, economic, and institutional

factors shape tax reforms in West Africa, explaining the persistent challenges in achieving equitable and sustainable fiscal outcomes.

Figure 1 is the conceptual model showing the relationship between the independent (tax reform

measures – tax revenues, rates, compliance cost, administrative costs, and base broadening) and dependent (fiscal policies measures – government budget balance and Gini-coefficient) variables.



**Figure 1:** Conceptual Model of Study

## Methodology

This study adopted an ex-post facto research design to examine the impact of tax reforms on fiscal policies in six West African countries—Nigeria, Ghana, Senegal, Côte d'Ivoire, The Gambia, and Sierra Leone—using existing historical data from 1995 to 2024. The choice of these countries was based on robustness of economies as well as hedging against constraint of data reliability/completeness; hence, the other West African countries were excluded from the study. The population comprised 31 relevant institutions responsible for tax reforms and fiscal policies across these countries, including ministries of finance, central banks, revenue authorities, and international financial institutions like the International Monetary Fund (IMF), World Bank, and AfDB (41). A judgmental sampling technique

was used to select 24 key institutions (four per country) directly involved in tax policy formulation, implementation, and fiscal reporting, ensuring that the data reflected credible and authoritative sources.

Data collection relied on secondary sources such as policy reports, public records, and academic literature that provided insights into the relationship between tax reforms and fiscal outcomes, particularly focusing on variables such as tax revenue, rates, compliance cost, administrative cost, and tax base broadening in relation to fiscal policy indicators like budget balance and income inequality. This present study builds on existing empirical models to examine the effects of tax reforms on fiscal policies; in view of this, the following empirical models were estimated:

$$\text{Fisp} = F(\text{Taxrev}, \text{Taxrate}, \text{Taxcc}, \text{Taxac}, \text{Taxbb}) \quad - \quad [\text{Eq. 1}]$$

$$\text{Gbb} = f(\text{Taxrev}, \text{Taxrate}, \text{Taxcc}, \text{Taxac}, \text{Taxbb}) \quad - \quad [\text{Eq. 2}]$$

$$\text{Gbb}_t = \beta_0 + \beta_1 \text{Taxrev}_t + \beta_2 \text{Taxrate}_t + \beta_3 \text{Taxcc}_t + \beta_4 \text{Taxac}_t + \beta_5 \text{Taxbb}_t + u_{it} \quad - \quad [\text{Eq. 3}]$$

$$\text{Gico} = F(\text{Taxrev}, \text{Taxrate}, \text{Taxcc}, \text{Taxac}, \text{Taxbb}) \quad - \quad [\text{Eq. 4}]$$

$$\text{Gico}_t = \beta_0 + \beta_1 \text{Taxrev}_t + \beta_2 \text{Taxrate}_t + \beta_3 \text{Taxcc}_t + \beta_4 \text{Taxac}_t + \beta_5 \text{Taxbb}_t + u_{it} \quad - \quad [\text{Eq. 5}]$$

Where: Gbb is government budget balance; Gico is Gini-coefficient; Fisp is fiscal tax policies; Taxrev is tax revenue, Taxrate is tax rate; Taxcc is tax compliance cost; Taxac is tax administrative cost;

Taxbb is tax-base broadening;  $\beta_1$ - $\beta_5$  is regression coefficient; t is time period while u is the error term.

## Results

**Table 1:** Measurement and Description of Variables

| Variables                 | Variable Code | Type        | Measurement/Proxy                                                                                                                                                                                        | A-priori Signs |
|---------------------------|---------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Tax Revenue               | Taxrev        | Independent | Natural logarithm of aggregate government revenues from taxes                                                                                                                                            | +              |
| Tax Rates                 | Taxrate       | Independent | Divide the income tax expense by the earnings (or income earned) before taxes                                                                                                                            | +              |
| Tax Compliance Cost       | Taxcc         | Independent | Natural logarithm of direct compliance cost + indirect compliance cost                                                                                                                                   | +              |
| Tax Administrative Cost   | Taxac         | Independent | Natural logarithm of sum of all costs incurred by a tax authority in managing and enforcing the tax system                                                                                               | +              |
| Tax Base Broadening       | Taxbb         | Independent | Natural logarithm of Revenue generated + Revenue from expanding taxable sources + Revenue generated from eliminating or reducing tax exemptions                                                          | +              |
| Government Budget Balance | Gbb           | Dependent   | Natural logarithm of total government revenue – Total government expenditures                                                                                                                            | Nil            |
| Gini Coefficient          | GICO          | Dependent   | Where 0 represents perfect equality (everyone has the same income or wealth) and 1 represents perfect inequality (one person has all the income or wealth, and everyone else has none). – Dummy Variable | Nil            |

**Table 2:** Descriptive Statistics

| Statistics | Gbb    | Gico    | Tax rev | Tax rate | Tax cc | Tax ac  | Tax bb  |
|------------|--------|---------|---------|----------|--------|---------|---------|
| Mean       | 7.0461 | 0.8777  | 6.6992  | 4.4302   | 7.0824 | 6.8845  | 7.3811  |
| Std. Dev.  | 0.9339 | 0.3284  | 0.9306  | 2.5326   | 0.8261 | 0.6851  | 0.9190  |
| Mini Val.  | 5.2400 | 0       | 5.0927  | 0.2019   | 5.3134 | 5.3000  | 5.2394  |
| Max. Val.  | 9.3800 | 1       | 8.7617  | 14.938   | 8.9548 | 9.2900  | 9.2409  |
| Skewness   | 0.4734 | -2.3067 | 0.6326  | 1.1078   | 0.3055 | -0.0506 | -0.2025 |
| Kurtosis   | 2.6600 | 6.3210  | 2.5840  | 4.9434   | 2.5565 | 2.5726  | 2.2017  |
| N          | 180    | 180     | 180     | 180      | 180    | 180     | 180     |

Presented in Table 1, is the measurements and description of the proxies of the dependent and independent variables of the study, together with the signs of a-priori expectation.

Table 2 presents descriptive statistics for selected West African countries from 1995–2024; the result revealed that tax base broadening (taxbb) has the highest mean and this was followed by tax compliance cost (taxcc), while tax rate (taxrate)

had the lowest mean but highest variability. Government budget balance (gbb) and Gini coefficient (gico) averaged 7.05 and 0.88 respectively, indicating fiscal surplus and income inequality. Most variables showed normal distribution (mesokurtic), while gico and taxrate exhibited higher risk of extreme outcomes (leptokurtic), reflecting persistent inequality in the region.

**Table 3:** Pearson Correlation

| Statistics | Gbb     | Gico    | Taxrev  | Taxrate | Taxcc   | Taxac  | Taxbb  |
|------------|---------|---------|---------|---------|---------|--------|--------|
| Gbb        | 1.0000  |         |         |         |         |        |        |
| Gico       | -0.2620 | 1.0000  |         |         |         |        |        |
| Taxrev     | -0.2579 | 0.0832  | 1.0000  |         |         |        |        |
| Taxrate    | 0.0538  | -0.1346 | -0.0465 | 1.0000  |         |        |        |
| Taxcc      | 0.0440  | -0.0525 | -0.0663 | -0.2129 | 1.0000  |        |        |
| Taxac      | -0.2535 | 0.0676  | 0.0076  | -0.0303 | -0.1301 | 1.0000 |        |
| Taxbb      | -0.0216 | -0.0330 | -0.2646 | -0.2510 | 0.3948  | 0.1378 | 1.0000 |

Table 3 is the Pearson correlation results for the entire panel data; the result shows that taxrate and taxcc positively correlate with fiscal policies, while taxrev, taxac, and taxbb have negative correlations;

no multicollinearity was detected as all correlation values were below 0.8, confirmed by variance inflation factor (VIF) results.

**Table 4:** Variance Inflation Factor (VIF)

| Variable | VIF  | 1/VIF  |
|----------|------|--------|
| Taxbb    | 1.39 | 0.7201 |
| Taxcc    | 1.26 | 0.7946 |
| Taxrate  | 1.10 | 0.9089 |
| Taxrev   | 1.10 | 0.9130 |
| Taxac    | 1.07 | 0.9374 |
| Mean VIF | 1.18 |        |

**Table 5:** Heteroscedasticity Test

|                       |      |        |
|-----------------------|------|--------|
| Ho: Constant Variance |      |        |
| Chi2(1) =             | 9.44 |        |
| Prob > Chi2           | =    | 0.0021 |

Table 4 is the VIF results for the aggregate panel data; the average VIF (1.18) is less than accepted aggregate VIF (10). This suggests nonexistence of multicollinearity in the model of tax reforms and fiscal policies in the selected West African countries.

Table 5 is the Breusch-Pagan/Cook-Weisberg; the result (chi2 (1) =9.44) with probability (chi2 = 0.0021), is less than 0.05% suggesting nonexistence of heteroskedasticity among pairs of the independent variables.

**Table 6:** Ramsey RESET Test

|                                    |   |        |
|------------------------------------|---|--------|
| Ho: Model has no omitted variables |   |        |
| F (3, 171)                         | = | 12.06  |
| Prob > F=                          |   | 0.0000 |

Table 6 is the Ramsey regression specification-error test (RESET); the result is  $F(3, 171) = 12.06$  with Prob. F (0.0000), indicating a rejection of the alternative hypothesis and acceptance of the null

hypothesis, this means that the model has few omitted variables, thus the tax reforms and fiscal policies model do not suffer from functional form misspecification.

**Table 7:** Cameron & Trivedi's Decomposition Test

| Source             | Chi2   | Df | P-value |
|--------------------|--------|----|---------|
| Heteroskedasticity | 46.76  | 20 | 0.0009  |
| Skewness           | 55.74  | 5  | 0.0000  |
| Kurtosis           | 63.35  | 1  | 0.0000  |
| Total              | 164.84 | 26 | 0.0000  |

Table 7 is the Cameron and Trivedi's decomposition test; the heteroskedasticity result

is  $\text{Chi2}=45.76$ ;  $p\text{-value} = 0.0009 < 0.05$ ), skewness ( $\text{Chi2} = 55.74$ ;  $p\text{-value} = 0.0000$ ) and kurtosis ( $\text{Chi2}$

= 63.35; p-value = 0.000) were statistically significant, indicating a rejection of the null hypothesis and an acceptance of the alternative

hypothesis that the model of tax reforms and fiscal policies do not violate panel regression axioms.

**Table 8:** Principal Component Analysis (PCA)

| Component                 | Eigenvalue | Difference | Proportion | Cumulative    |
|---------------------------|------------|------------|------------|---------------|
| Comp 1                    | 1.6379     | 0.5495     | 0.3276     | 0.3276        |
| Comp 2                    | 1.0884     | 0.0339     | 0.2177     | 0.5453        |
| Comp 3                    | 1.0546     | 0.3174     | 0.1474     | 0.7562        |
| Comp 4                    | 0.7371     | 0.2552     | 0.1474     | 0.9036        |
| Comp 5                    | 0.4819     |            | 0.0964     | 1.0000        |
| LR Test for Independence: | Chi2(15)   | =          | 709.31     | Prob > Chi2 = |
| 0.0000                    |            |            |            |               |
| LR test for Sphericity:   | Chi2(20)   | =          | 709.48     | Prob > Chi2 = |
| 0.0000                    |            |            |            |               |

Table 8 is the Principal Component Analysis (PCA) results identifying the most relevant tax reform variables influencing fiscal policies. Among five components - tax revenue, tax rate, tax compliance cost, tax administrative cost, and tax base broadening - tax revenue emerged as the most significant predictor, accounting for the largest variance proportion (32.8%), followed by tax rate and tax base broadening as the least.

The Likelihood Ratio (LR) test for independence ( $\chi^2(15) = 709.31$ ,  $p = 0.0000$ ) confirmed the absence of homogeneity among the variables, while the LR test for sphericity ( $\chi^2(20) = 709.48$ ,  $p = 0.0000$ ) indicated that the assumption of sphericity was satisfied, ensuring the validity of the PCA results.

**Table 9:** Fixed and Random Effects Panel Regression Results

| Estimator           | Fixed Effect       |             | Random Effect      |             |
|---------------------|--------------------|-------------|--------------------|-------------|
| Variables           | Coefficient        | Probability | Coefficient        | Probability |
| Taxrev              | -0.2400<br>(-2.80) | 0.006       | -0.2713<br>(-3.66) | 0.000       |
| Taxrate             | -0.0420<br>(-1.17) | 0.243       | 0.0085<br>(0.31)   | 0.754       |
| Taxcc               | 0.0590<br>(0.60)   | 0.547       | 0.0288<br>(0.32)   | 0.748       |
| Taxac               | -0.1871<br>(-1.49) | 0.139       | -0.3453<br>(-3.27) | 0.001       |
| Taxbb               | -0.1264<br>(-1.35) | 0.179       | -0.0655<br>(-0.78) | 0.438       |
| _Cons               | 10.644<br>(7.45)   | 0.000       | 11.48<br>(9.50)    | 0.000       |
| F-Value             | 2.40               |             |                    |             |
| F-Prob. (5, 145)    | 0.0401             |             |                    |             |
| R-Squared (within)  | 0.0764             |             | 0.0616             |             |
| R-Squared (between) | 0.3023             |             | 0.7794             |             |
| R-Squared (overall) | 0.1030             |             | 0.1340             |             |
| Wald Ch2            |                    |             | 26.92              |             |
| Prob. Ch2           |                    |             | 0.0001             |             |
| Hausman Test        | Chi2(5) = 7.75     |             | Prob>Chi2= 0.1708  |             |

Table 9 is the fixed and random effects regression results for the aggregate panel; the results were used in testing the relevant hypotheses of the

study. The result shows that under random effects model, tax reforms variables significantly influence fiscal policies in the selected West

African countries, with *taxrev* (-3.66) and *taxac* (-3.27) having a significant negative effect, while the other variables (*taxrate*, *taxcc* and *taxbb*) were statistically insignificant.

Using the random effects result, the model explained about 13.4% of the systematic variation in fiscal policies ( $R^2 = 0.1340$ ) while the Hausman test confirms that random effects model is preferred over fixed effect model, hence the results of random effects was used in validating the relevant hypotheses of the study. The random effect result demonstrates that tax revenue and administrative costs significantly affect fiscal policies, underscoring the importance of efficient tax administration systems and increased revenue generation for governments. However, tax rates, tax compliance cost, and tax base broadening were found to have insignificant effects on fiscal policies in the selected West African countries.

## Discussion

The study employed a random effects model to examine determinants of fiscal policy outcomes in selected West African countries. The choice of random effects model was validated using the Hausman test, which confirmed its suitability over the fixed effects alternative; this implies that the country-specific effects in the panel data are uncorrelated with the independent variables, justifying the use of the random effects estimator for unbiased and consistent results. The model accounted for approximately 13.4% of the systematic variation in fiscal policies across sampled countries; this suggests that the model explains a modest proportion of variance; it still provides meaningful insights into the factors influencing fiscal policies in the region.

Significantly, the results revealed that tax revenue and administrative costs have a statistically significant effect on fiscal policy outcomes. This finding underscores the critical role of tax revenue mobilization in shaping the fiscal capacity of governments. Countries that generate more tax revenue are better positioned to design and implement effective fiscal policies, including investment in public infrastructure, social services and economic stabilization measures. This viewpoint is supported by the public finance and taxation and development framework models.

Similarly, the significance of administrative costs points to the importance of efficient tax

administration systems. For instance, high administrative efficiency likely translates to reduced leakages, improved compliance, and more reliable revenue collection -all of which strengthen the government's fiscal position. On the other hand, tax rates, tax compliance costs, and tax base broadening were found to have insignificant effects on fiscal policy outcomes; this is an important observation with policy implications. The insignificance of tax rates may suggest that merely adjusting tax rates - whether increasing or decreasing them - does not necessarily lead to meaningful changes in fiscal policy performance. This according to few researchers (10, 6) could be due to issues such as poor enforcement, high levels of tax evasion, or structural inefficiencies in the tax system.

Likewise, the lack of significance in tax compliance costs may indicate that efforts to reduce compliance costs have not yet translated into noticeable improvements in fiscal outcomes, possibly due to limitations in taxpayer education, institutional trust, or digital infrastructure. This view is supported by the public choice theory. Some researchers asserted that the insignificance of tax base broadening might reflect structural constraints in expanding the tax net, especially in economies with large informal sectors where tracking and taxing income remain challenging (33). Overall, these findings suggest that governments should prioritize improving tax revenue mobilization and administrative efficiency, rather than focusing solely on adjusting tax rates or expanding the tax base, which may not yield immediate/significant benefit without supportive institutional reforms.

## Conclusion

This study assessed the impact of tax reforms on fiscal policies in six West African countries—Nigeria, Ghana, Senegal, Côte d'Ivoire, The Gambia, and Sierra Leone—using data from 1995 to 2024. The research focused on five key tax reform variables: tax revenue, tax rates, tax compliance cost, tax administrative cost, and tax base broadening, while fiscal policy was measured through government budget balance and the Gini coefficient. The findings revealed that tax revenue and tax administrative cost significantly influence fiscal policies, whereas tax rates, tax compliance cost, and tax base broadening showed no

significant effect. Principal Component Analysis indicated that tax revenue is the most critical tax reform factor affecting fiscal policies in the region. The study concluded that strengthening tax revenue mobilization and improving administrative efficiency are essential for enhancing fiscal stability and social equity in West Africa. The study recommends regional cooperation in tax policy formulation, aligning and simplifying tax rates, promoting tax compliance in the informal sector through technology, and reducing administrative inefficiencies and corruption in tax agencies. Additionally, broadening the tax base requires reforming tax exemptions and expanding taxable income sources; these can be done by making large informal sector go untaxed, offer of incentives for new business entrants, and improvement of tax administration.

The study contributes to the accounting literature by highlighting tax revenue and administrative cost as key determinants of fiscal policy effectiveness in West Africa and suggests that future research should include more countries and explore additional fiscal policy variables. The study has its limitation in areas of being unable to investigate the sixteen [16] West African nations due to data availability/completeness, non-inclusion of the informal sector and political economy in its analytical framework. Thus, future research could investigate the effectiveness of specific tax policy reforms across different West African nations in order to identify best practices and scalable models for revenue mobilization. In addition, since much of West Africa's economy operates informally, future research should explore practical methods for integrating the informal sector into the tax net without disrupting livelihoods.

## Abbreviations

AfDB: African Development Bank, FIRS: Federal Inland Revenue Services, Fisp: Fiscal Tax Policies, Gbb: Government Budget Balance, GDP: Gross Domestic Product, Gico: Gini-Coefficient, IFFs: Illicit Financial Flows, IMF: Information Matrix, IMF: International Monetary Fund, LR: Likelihood Ratio, PCA: Principal Component Analysis, PCT: Public Choice Theory, PIT: Petroleum Profit Tax, PLS: Panel Least Square, RESET: Ramsey Regression Specification-Error Test, TAC: Tax Administrative Costs, Taxac: Tax Administrative Cost, Taxbb: Tax-

Base Broadening, Taxcc: Tax Compliance Cost, Taxrate: Tax Rate, Taxrev: Tax Revenue, VAT: Value Added Tax, VIF: Variance Inflation Factor.

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## Author Contributions

Juliet C Uwejeyan: wrote the introduction, review of related literature, discussion and conclusion, Augustine O Okolie: wrote the methodology, results, Frank O Ebiaghan: wrote the methodology, results.

## Conflict of Interest

There are no conflicts of interest.

## Declaration of Artificial Intelligence (AI) Assistance

The authors declare no use of artificial intelligence (AI) for the write-up of the manuscript.

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None.

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