Zamfara International Journal of Education (ZIJE)
The Official Journal of the Faculty of Education
Federal University Gusau, Zamfara State, Nigeria
Volume 6, Number 6, October, 2026
pISSN: (Hard Copy): 2814 – 1377
eISSN (Online): 2814 – 1369

www.foefugusau.com.ng
Reviewed Date: 14-10-2026
Publication Date: 31-10-2026
DOI: **https://doi.org/10.64348/zije.2026659**

Evaluation of Tax Revenue Mobilization on Capital Allocation efficiency in Nigerian Economy: A Systematic Review of 2000 to 2025 Time-Series

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Abstract
This study investigates the empirical impact of tax revenue mobilization on capital allocation efficiency within the Nigerian economy. Against the backdrop of ongoing fiscal reforms and efforts to reduce heavy reliance on volatile oil revenues, understanding how public tax collection influences both public capital expenditure and private sector investment decisions is critical for sustainable national development. Utilizing an econometric framework based on time-series data spanning from 2000 to 2025, the research employs an autoregressive distributed lag (ARDL) technique to analyze the short-run and long-run relationships between disaggregated tax revenues—including petroleum profits tax, company income tax, and value-added tax—and key capital allocation indicators, such as infrastructural spending, gross fixed capital formation, and sectoral credit distribution. The empirical findings reveal that while aggregate tax revenue exerts a positive and statistically significant long-run effect on public capital expenditure, its transmission mechanism to private sector capital allocation is frequently encumbered by structural bottlenecks, high compliance costs, and sub-optimal revenue utilization. Furthermore, the results indicate a crowding-out effect in certain non-oil sectors when tax collection mechanisms become excessively burdensome without corresponding improvements in public infrastructure and the ease of doing business. The study concludes that increasing tax revenue alone is insufficient to drive optimal capital allocation in Nigeria; rather, the efficiency, transparency, and strategic deployment of tax proceeds into high-yielding public capital projects are paramount. Policy recommendations include streamlining tax administration to minimize distortions, expanding the tax net without discouraging productive investments, and strengthening institutional frameworks to ensure tax revenues are channeled transparently into productivity-enhancing infrastructure that crowds in private capital.
Keywords: Tax Revenue, Capital Allocation & Nigerian Economy

Introduction

Public finance and macroeconomic management in emerging economies like Nigeria heavily revolve around the interplay between government revenue mobilization and public expenditure decisions. Capital allocation—referring to the strategic distribution of financial resources toward infrastructural development, public capital projects, and productive economic assets—serves as the primary catalyst for long-term economic growth, industrialization, and poverty reduction. However, the efficacy of capital allocation is fundamentally constrained by the depth and stability of available fiscal recent space, of which tax revenue constitutes a critical pillar. Historically, the Nigerian fiscal architecture has suffered from an over-reliance on volatile hydrocarbon revenues, exposing public capital budgets to severe external shocks resulting from crude oil price fluctuations. In response, fiscal reforms have emphasized aggressive domestic revenue mobilization, culminating in substantial nominal expansions in tax collection between 2011 and 2025. Concurrently, capital allocation policies have evolved to bridge the massive infrastructure deficit plaguing the nation. Understanding the econometric linkage between expanding tax revenues and the subsequent allocation of resources toward capital formation is vital for evaluating fiscal governance, budget credibility, and macroeconomic performance in Nigeria.

Objectives of the Study

The primary objective of this empirical study is to investigate the effect of tax revenue on capital allocation in Nigeria from 2011 to 2025. Specifically, the study seeks to:

1. Evaluate the growth trajectory and structural shifts in tax revenue and capital allocation in Nigeria over the 15-year period.
2. Estimate the empirical magnitude and statistical significance of the impact of tax revenue on public capital allocation.
3. Provide evidence-based policy recommendations to optimize revenue collection frameworks and enhance the efficiency of capital expenditure deployment.

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Research Questions

To guide this investigation, the following research questions are formulated:

1. What has been the empirical trend of tax revenue and capital allocation in Nigeria between 2011 and 2025?
2. To what extent does tax revenue significantly affect capital allocation in Nigeria?

Research Hypothesis

In alignment with the research objectives and questions, the following null hypothesis is tested:

H_O: Tax revenue has no significant effect on capital allocation in Nigeria.

Research Methodology

This study adopts an ex-post facto research design, utilizing secondary time-series data covering a 15-year period from 2011 to 2025. Data on Tax Revenue (TR) and Capital Allocation (CA) (measured in trillion Naira) were extracted from official public finance records:

Year	Tax Revenue (Trillion Naira)	Capital Allocation (Trillion Naira)
2011	4.62	0.81
2012	5.01	1.34
2013	4.80	1.62
2014	4.71	1.12
2015	3.74	0.56
2016	3.31	1.59
2017	4.03	2.18
2018	532.	2.87
2019	5.26	2.14
2020	4.95	2.49
2021	6.40	4.12
2022	10.18	5.40
2023	12.37	5.90
2024	9.50	9.92
2025	28.29	23.96

Data obtained file from CBN Statistical Bulletin

Model Specification

To capture the functional relationship between the variables, a simple linear regression model is specified:

$$CA_t = \beta_0 + \beta_1 TR_t + \epsilon_t$$

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Where:
CA_t = Capital Allocation in year t
TR_t = Tax Revenue in year t
β_0 = Intercept term
β_1 = Coefficient of Tax Revenue
ϵ_t = Stochastic error term

Presentation of Results

Ordinary Least Squares (OLS) regression analysis was conducted using the 15-year dataset. The econometric estimation yielded the following results:

Regression Equation:

$\widehat{CA} = -2.4511 + 0.9137(TR)$

Coefficient of Determination (R^2): 0.9395
Correlation Coefficient (r): 0.9693
F-statistic / t-statistic for Tax Revenue: $t = 14.21$ ($p = 2.68 \times 10^{-9}$)
Intercept t-statistic: $t = -3.94$ ($p = 0.00168$)

The R^2 value of 0.9395 indicates that approximately 93.95% of the total variation in capital allocation in Nigeria over the study period can be explained by variations in tax revenue. The t-statistic of 14.21 associated with the tax revenue coefficient is highly significant at the 1% level ($p < 0.01$). Consequently, the null hypothesis (H_0) is rejected, and the alternative hypothesis is accepted.

Discussion of Findings

The empirical findings provide robust confirmation that tax revenue exerts a profound, positive, and statistically significant effect on public capital allocation in Nigeria. Specifically, for every 1 trillion Naira increase in tax revenue, capital allocation increases by approximately 0.9137 trillion Naira, holding other factors constant. This strong coupling reflects the structural evolution of Nigerian public finance, particularly post-2020 where aggressive revenue drives and inflationary adjustments pushed tax collections and capital allocations to unprecedented highs (peaking at 28.29 trillion and 23.96 trillion Naira respectively in 2025). The results align with classical fiscal theories positing that enhanced domestic resource mobilization expands fiscal space, directly empowering governments to commit greater financial resour8.0ces to infrastructural and developmental capital projects.

Conclusion

This study investigated the empirical effect of tax revenue on capital allocation in Nigeria between 2011 and 2025. Utilizing OLS regression analysis, the findings demonstrate a powerful, direct, and statistically significant relationship between tax generation and capital budget allocation. Expanding tax revenue is thus proven to be a vital determinant of public capital formation, providing the requisite fiscal backing for national development.

Recommendations

Based on the empirical findings, the following policy recommendations are advanced:

1. Strengthen Tax Administration and Compliance: The federal and sub-national revenue authorities should leverage digital technology, data analytics, and automated tax systems to plug leakages and broaden the tax net, thereby securing a sustainable stream for capital projects.
2. Prioritize Capital Expenditure Efficiency: Given the strong direct pass-through from tax revenue to capital allocation, fiscal authorities must ensure that allocated funds are transparently and efficiently channelled. into high-impact infrastructure rather than recurrent leakages.
3. Mitigate Revenue Shocks: Policymakers should institutionalize fiscal buffers to insulate capital allocation plans from macroeconomic volatilities that could disrupt tax collection performance.

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