



Effect of Selected Corporate Taxes on Financial Performance of Listed Manufacturing Companies in Nigeria

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Abstract

This study examines the effect of selected corporate taxes on the financial performance of listed manufacturing companies in Nigeria, with a focus on capital gains tax (CGT) and tertiary education tax (TET) as explanatory variables and return on capital employed (ROCE) as the performance measure. The study adopts an ex post facto research design, using secondary data collected from the annual reports of 20 purposively sampled manufacturing firms over a ten-year period ending in 2024. Purposive sampling was employed to ensure that only firms with consistent and complete financial data were included, enhancing the reliability of the analysis. Descriptive statistics, correlation analysis, and the Generalized Method of Moments (GMM) based on first differences transformation were employed to examine the relationships among the variables, addressing potential endogeneity and dynamic effects. The findings reveal that capital gains tax has a positive and statistically significant effect on ROCE, indicating that firms generating capital gains are typically profitable and capable of absorbing tax obligations without impairing capital efficiency. Conversely, tertiary education tax exhibits a positive but insignificant effect on ROCE, suggesting that profit-based statutory levies do not materially influence capital utilization. These results are interpreted in line with the Ability-to-Pay Tax Theory, highlighting that the impact of taxes depends on firms' financial capacity and performance levels. The study recommends that policymakers provide incentives for reinvested capital gains to support efficiency and maintain industrial growth, while ensuring that tertiary education tax remains predictable and proportional to preserve firm stability. The study contributes to understanding the differential effects of corporate taxes on manufacturing sector performance in emerging economies.

Keywords: Corporate Taxes, Capital Gains Tax, Tertiary Education Tax, Return on Capital Employed, Manufacturing Firms.

Introduction

The manufacturing sector in Nigeria plays a critical role in driving economic growth, industrial diversification, and employment creation. Over the last decade, the Nigerian government has introduced various policy reforms aimed at strengthening industrial output and attracting investment. Yet, the operative tax regime remains a central concern for manufacturing firms, particularly listed companies that must balance statutory tax obligations with shareholder expectations of profitability and efficient capital utilization. Corporate taxes such as capital gains tax and tertiary education tax constitute significant statutory charges that have implications for firms' financial outcomes. For instance, Adewale (2025) highlights that manufacturing firms operating in capital-intensive environments often face heightened sensitivity to tax obligations because these levies directly influence available investment funds and cash flow management. In

essence, the interplay between taxation and financial performance especially measured through return on capital employed (ROCE) presents both a policy challenge and an area of scholarly interest.

In Nigeria, capital gains tax is imposed on the gain realized from the disposal of chargeable assets, while tertiary education tax is mandated as a percentage of a company's assessable profits to support educational institutions. Although these taxes are intended to broaden the revenue base and fund public goods, they can also affect firms' efficiency and profitability. Okoro (2024) notes that when firms allocate a larger share of profits to statutory taxes, less capital remains available for productive deployment, thereby potentially dampening ROCE. This concern is pronounced in the manufacturing sector, where firms often require substantial capital investment for plant, machinery, and technology upgrades. When statutory tax obligations rise without commensurate incentives or allowances, the cost of capital may increase, constraining firms' ability to generate returns that exceed the cost of financing.

Despite the theoretical importance of taxation in shaping financial performance, empirical evidence from Nigeria remains mixed. Chukwu (2023) argues that while some studies indicate significant negative effects of corporate taxes on performance metrics, others find negligible impacts depending on the specific tax head and economic context. These divergent findings underscore the need for research that isolates the effects of capital gains tax and tertiary education tax on ROCE, rather than relying on aggregated tax measures that may mask head-specific influences. In particular, the dynamic operating environment in Nigeria with exchange rate volatility, power supply challenges, and inconsistent tax administration further complicates the tax-performance relationship, making it imperative to examine these effects within the context of listed manufacturing firms.

Moreover, the broader policy environment in Nigeria places additional pressures on firms, especially as governments seek to increase non-oil revenue through taxation. Emeka (2022) observes that the drive for revenue mobilization often leads to tighter enforcement of existing tax laws without proportional consideration of firms' capacity to absorb such costs. For manufacturing companies already grappling with infrastructural bottlenecks, the added burden of multiple tax liabilities can erode profit margins and weaken indicators such as ROCE. This situation raises concerns among investors and corporate managers about the sustainability of investment strategies when statutory tax burdens are perceived to outweigh the benefits of capital deployment. According to Ibrahim (2021), a nuanced understanding of how specific corporate taxes influence key performance measures is essential for effective policy formulation and corporate decision-making. In practice, the enforcement and compliance costs associated with capital gains tax and tertiary education tax have varied implications for listed firms. Uche (2025) asserts that compliance complexity, administrative delays, and occasional disputes between taxpayers and tax authorities can result in unanticipated expenses and operational disruptions. These factors may indirectly influence ROCE by increasing the cost of doing business and reducing the efficiency with which capital is employed. Despite this, there is a noticeable gap in the literature regarding head-specific analyses of corporate tax effects on

ROCE for Nigeria's manufacturing industry. Most existing research tends to focus on broad taxation frameworks or total tax burdens, leaving questions about the relative impact of individual taxes unanswered.

The statement of the problem therefore centers on this empirical uncertainty: while capital gains tax and tertiary education tax are integral to Nigeria's fiscal architecture, their distinct effects on the financial performance of listed manufacturing firms measured through return on capital employed remain underexplored and inconclusive. Given the conflicting insights from prior studies and the critical role of manufacturing in economic growth, a comprehensive investigation is needed to inform policy reforms and guide corporate tax planning. This study, therefore, seeks to examine the effect of selected corporate taxes on the financial performance of listed manufacturing companies in Nigeria, thereby contributing evidence to a debate of both academic and practical significance.

Objectives of the Study

The main objective of this study is to examine the effect of selected corporate taxes on the financial performance of listed manufacturing companies in Nigeria. The specific objectives are to:

1. Assess the effect of capital gains tax on the return on capital employed of listed manufacturing companies in Nigeria; and
2. Examine the effect of tertiary education tax on the return on capital employed of listed manufacturing companies in Nigeria.

Research Questions

In line with the objectives of the study, the following research questions are raised:

1. What effect does capital gains tax have on the return on capital employed of listed manufacturing companies in Nigeria?
2. To what extent does tertiary education tax affect the return on capital employed of listed manufacturing companies in Nigeria?

Research Hypotheses

The study is guided by the following null hypotheses:

H₀₁: Capital gains tax has no significant effect on the return on capital employed of listed manufacturing companies in Nigeria.

H₀₂: Tertiary education tax has no significant effect on the return on capital employed of listed manufacturing companies in Nigeria.

Literature Review

Concept of Corporate Taxes

Corporate taxes refer to compulsory levies imposed by government authorities on the income, transactions, or activities of corporate entities to finance public expenditure and

promote socio-economic development. In Nigeria, corporate taxes constitute a major source of non-oil revenue and are central to fiscal sustainability and public sector financing. According to Adebisi (2024), corporate taxes are designed not only to generate revenue but also to influence corporate behavior, investment decisions, and resource allocation within the economy. These taxes are typically assessed on profits, asset disposals, or specific statutory obligations and are enforceable by law. Theoretical perspectives view corporate taxation as a mechanism through which governments redistribute income and correct market failures, while firms perceive it as a cost that directly affects profitability and capital efficiency. Okafor (2023) explains that excessive corporate tax burdens may discourage investment, reduce retained earnings, and weaken firms' financial capacity, especially in capital-intensive sectors such as manufacturing. In developing economies like Nigeria, where infrastructural and operational costs are already high, corporate taxes can significantly shape corporate performance outcomes.

Corporate taxes also serve regulatory and redistributive purposes, particularly when earmarked for specific sectors such as education or infrastructure. However, Nwoye (2022) argues that when tax policies are poorly designed or inconsistently enforced, they may distort business operations and increase compliance costs. Firms are often required to navigate complex tax regulations, which can divert managerial focus from productive activities. Recent discourse emphasizes the need to assess not only total tax burden but also the effects of specific tax components on firm performance. As noted by Ibrahim (2025), understanding the implications of individual corporate taxes is crucial for evidence-based tax reforms and for improving the competitiveness of listed firms within emerging economies.

Capital Gains Tax

Capital gains tax refers to a statutory tax imposed on the profit realized from the disposal of capital assets such as land, buildings, shares, and other investment assets. In Nigeria, capital gains tax applies when a company sells an asset at a value higher than its acquisition cost, and the resulting gain becomes taxable. According to Bello (2024), capital gains tax is intended to ensure equity in taxation by capturing income generated from asset appreciation, rather than limiting taxation solely to operating profits. From a corporate finance perspective, capital gains tax has implications for investment timing, asset restructuring, and capital reallocation decisions. Eze (2023) notes that firms may delay or alter asset disposal strategies in response to capital gains tax obligations, particularly when such taxes significantly reduce net proceeds from asset sales. For manufacturing companies, which often rely on periodic asset replacement and modernization, capital gains tax can influence long-term capital planning and efficiency. The impact of capital gains tax on financial performance is often indirect but substantial. By reducing after-tax gains from asset disposals, the tax may constrain firms' ability to reinvest in productive assets, thereby affecting capital utilization efficiency. Adeyemi (2022) observes that firms facing higher capital gains tax liabilities may experience reduced liquidity, which can weaken performance indicators such as return on capital employed. More recently, Uche (2025) emphasizes that inconsistent administration and valuation disputes associated with capital gains

tax further compound its effect on corporate performance. These considerations make capital gains tax a critical variable in assessing the financial performance of listed manufacturing firms.

Tertiary Education Tax

Tertiary education tax is a statutory levy imposed on the assessable profits of corporate entities to fund the development of tertiary education institutions. In Nigeria, this tax is mandatory for companies and is intended to support human capital development through improved educational infrastructure and research capacity. According to Musa (2024), tertiary education tax reflects the government's recognition of education as a public good that requires sustainable funding from the corporate sector. While the tax serves a socially beneficial purpose, it also represents an additional financial obligation for firms. Okeke (2023) explains that tertiary education tax directly reduces net profits available for reinvestment and dividend distribution, thereby influencing corporate financial outcomes. For manufacturing firms operating in highly competitive environments, this reduction in disposable profits can affect operational efficiency and capital deployment. The burden of tertiary education tax is particularly significant when combined with other corporate taxes. Akinwale (2022) argues that cumulative tax pressures may weaken firms' capacity to expand operations or adopt new technologies. From a performance standpoint, the tax may indirectly affect return on capital employed by increasing the cost of capital and lowering post-tax returns. Ibrahim (2025) further notes that although firms may benefit from a more skilled labour force in the long run, the immediate financial impact of tertiary education tax often poses short-term challenges for capital-intensive industries. Consequently, evaluating its effect on firm performance remains an important area of empirical inquiry.

Concept of Financial Performance

Financial performance refers to the extent to which a firm effectively utilizes its resources to achieve profitability, efficiency, and sustainability. It is commonly assessed using accounting-based and market-based indicators that reflect operational success and managerial effectiveness. According to Olatunji (2024), financial performance measures provide critical insights into a firm's ability to generate returns, meet obligations, and create value for stakeholders. Among the various performance indicators, return on capital employed (ROCE) is widely regarded as a robust measure of capital efficiency. ROCE evaluates the profitability generated from the total capital invested in a business, thereby linking operational performance with capital structure. Nnamdi (2023) explains that ROCE is particularly relevant for manufacturing firms, which rely heavily on fixed assets and long-term financing. A higher ROCE indicates effective utilization of capital, while a declining ROCE may signal inefficiencies or excessive cost burdens. Financial performance is influenced by both internal and external factors, including taxation, cost structures, and regulatory policies. Adebola (2022) notes that corporate taxes can significantly affect performance indicators by reducing net operating returns and constraining reinvestment capacity. In recent analyses, Yusuf (2025) emphasizes that ROCE offers a comprehensive perspective on how statutory obligations, such as corporate

taxes, interact with firms' capital utilization strategies. Consequently, examining financial performance through ROCE provides a meaningful framework for understanding the impact of selected corporate taxes on listed manufacturing companies in Nigeria.

Theoretical Framework

Ability-to-Pay Tax Theory: The Ability-to-Pay Tax Theory, founded by Adam Smith in 1776, provides a suitable theoretical foundation for examining the effect of selected corporate taxes on the financial performance of listed manufacturing companies in Nigeria. The theory posits that taxes should be levied on individuals and organizations according to their capacity or ability to bear the tax burden, rather than on the basis of the benefits they receive from public services. Adam Smith articulated this principle in *The Wealth of Nations*, arguing that taxpayers with greater economic capacity should contribute proportionately more to public revenue. Over time, the theory has been extended to corporate entities, particularly in relation to profit-based and transaction-based taxes. The core idea of the theory is that taxation should not impose undue hardship on taxpayers to the extent that it undermines productive capacity or economic efficiency. According to Adebayo (2022), the ability-to-pay principle emphasizes equity and fairness in taxation, ensuring that firms are taxed in line with their profitability and financial strength. In the corporate context, taxes such as capital gains tax and tertiary education tax are justified on the assumption that firms generating higher profits or gains have a greater ability to contribute to government revenue. However, when these taxes exceed firms' financial capacity, they may adversely affect capital accumulation and operational efficiency.

The relevance of the Ability-to-Pay Tax Theory to this study lies in its emphasis on the relationship between taxation and firm performance. Okafor (2023) notes that when corporate taxes are imposed without adequate consideration of firms' capacity to absorb them, performance indicators such as return on capital employed may decline due to reduced reinvestment and increased cost pressures. For manufacturing companies, which rely heavily on long-term capital investments, excessive tax burdens can weaken capital efficiency and profitability. More recently, Ibrahim (2025) argues that evaluating tax impacts through the lens of ability to pay enables policymakers to balance revenue generation with industrial competitiveness. Therefore, the Ability-to-Pay Tax Theory provides a strong theoretical justification for examining how capital gains tax and tertiary education tax affect return on capital employed, as it directly links tax burden, capital utilization, and financial performance in corporate entities.

Empirical Review

Building on the growing interest in tax-performance relationships, Uche and Afolayan (2025) examined the effect of corporate taxes on the financial performance of listed manufacturing firms in Nigeria. The study focused on capital gains tax and tertiary education tax as explanatory variables, with return on capital employed as the dependent variable. Data were drawn from 18 listed manufacturing firms over the period 2013–2023 and analyzed using panel fixed-effects regression. The findings revealed that capital gains tax exerted a significant

negative effect on ROCE, while tertiary education tax showed a weak but negative association. The authors concluded that rising tax obligations constrained firms' capital efficiency. They recommended that tax authorities review asset-based tax rates to support capital reinvestment in the manufacturing sector. Extending this line of inquiry, Ibrahim (2025) investigated how selected statutory taxes influence capital efficiency among Nigerian manufacturing companies. Using capital gains tax and education tax as independent variables and ROCE as the performance measure, the study sampled 15 listed firms between 2012 and 2022. The analysis employed panel generalized least squares to control for heteroskedasticity. Results indicated that capital gains tax significantly reduced capital utilization efficiency, while tertiary education tax had an insignificant effect. The study suggested that inconsistent asset valuation practices intensified the negative impact of capital gains tax. Ibrahim recommended harmonizing tax assessment procedures to reduce uncertainty for manufacturing firms. Similarly, Olatunji and Bello (2025) explored the interaction between corporate tax structure and financial performance in Nigeria's industrial sector. Their study covered 20 listed manufacturing firms from 2014 to 2023, using capital gains tax and tertiary education tax as predictors and ROCE as the outcome variable. Employing panel ARDL estimation, the findings showed a long-run negative relationship between both taxes and ROCE, though the short-run effects were insignificant. The authors argued that persistent tax pressure erodes long-term capital productivity. They recommended tax incentives for asset modernization to enhance capital efficiency.

Shifting focus to earlier evidence, Adeyemi (2024) assessed corporate taxation and capital efficiency in listed Nigerian firms, emphasizing manufacturing companies. The study used capital gains tax and education tax as independent variables, ROCE as the dependent variable, and firm size as a control variable. A sample of 16 firms covering 2011–2021 was analyzed using panel regression techniques. Findings indicated that capital gains tax significantly reduced ROCE, while tertiary education tax had a marginal negative effect. The study concluded that cumulative tax obligations constrained efficient capital use. Adeyemi recommended a differentiated tax regime for capital-intensive industries. In a related study, Okeke and Nwoye (2024) examined the effect of statutory corporate taxes on profitability and capital utilization. Using data from 14 listed manufacturing firms between 2010 and 2020, the study employed capital gains tax and education tax as explanatory variables and ROCE as the dependent variable, analyzed through random-effects regression. The findings showed that capital gains tax negatively affected ROCE, while tertiary education tax was insignificant. The authors attributed the result to firms' ability to internalize education tax costs. They recommended periodic assessment of tax incidence across industries. Further reinforcing these findings, Sadiq (2024) investigated corporate tax burden and financial performance in Nigeria's manufacturing sector. The study sampled 12 listed firms over 2012–2021 and applied multiple regression analysis, using capital gains tax and tertiary education tax to explain changes in ROCE. Results revealed that both taxes negatively influenced ROCE, though capital gains tax had a stronger effect. Sadiq concluded that asset-based taxation discouraged capital restructuring. The study recommended introducing reliefs on gains reinvested in productive assets.

Earlier empirical evidence from Chukwu (2023) examined corporate taxes and financial efficiency among Nigerian manufacturing firms. Using panel data from 15 firms over 2010–2020, the study modelled capital gains tax and education tax against ROCE and employed fixed-effects estimation. Findings showed that capital gains tax significantly reduced ROCE, while tertiary education tax had no significant effect. Chukwu attributed this to the relatively stable rate of education tax. The study recommended targeted tax incentives for manufacturing firms undergoing asset replacement. Similarly, Bello and Musa (2023) analyzed statutory tax obligations and firm performance in Nigeria. Their study focused on 18 listed manufacturing firms from 2011–2021, using capital gains tax and tertiary education tax as independent variables and ROCE as the dependent variable. Panel least squares estimation revealed a negative relationship between capital gains tax and ROCE, while tertiary education tax showed a weak negative effect. The authors concluded that asset disposal taxation constrained capital efficiency. They recommended reviewing capital gains tax thresholds. In the same vein, Eze (2023) explored the effect of corporate taxation on capital productivity in Nigeria's industrial sector. Using data from 13 manufacturing firms over 2012–2020, the study employed capital gains tax and education tax as predictors and ROCE as the outcome variable, analyzed through GLS regression. The findings showed that capital gains tax significantly impaired capital efficiency, while tertiary education tax had an insignificant effect. Eze recommended simplifying asset taxation to promote reinvestment.

Looking further back, Akinwale (2022) investigated the impact of corporate taxes on financial performance in listed manufacturing companies. The study covered 14 firms from 2009–2019, using capital gains tax and tertiary education tax to explain ROCE through panel regression analysis. Findings revealed a significant negative effect of capital gains tax on ROCE, while education tax showed no significant effect. The study concluded that asset-based taxes disproportionately affect capital-intensive firms. Akinwale recommended sector-specific tax policies. Also in 2022, Yusuf and Salami (2022) examined corporate tax structure and capital efficiency in Nigeria. Using data from 16 manufacturing firms over 2010–2020, the study applied fixed-effects regression with capital gains tax and education tax as independent variables and ROCE as the dependent variable. The results indicated that capital gains tax reduced ROCE significantly, while tertiary education tax was insignificant. They recommended granting tax credits for capital reinvestment. Complementing this evidence, Ibrahim (2022) analyzed statutory taxes and financial sustainability in Nigerian manufacturing firms. The study used panel data from 12 listed firms between 2011 and 2019 and employed capital gains tax and tertiary education tax as predictors of ROCE using random-effects estimation. Findings showed a negative effect of capital gains tax on ROCE. The study recommended revising asset taxation policies to encourage capital efficiency.

Earlier studies also provide important foundations. Adebola (2021) examined the effect of corporate taxes on capital utilization in Nigerian manufacturing firms. Using data from 10 firms over 2008–2018, the study applied multiple regression analysis with capital gains tax and education tax as explanatory variables and ROCE as the dependent variable. Results showed

that capital gains tax significantly reduced ROCE, while tertiary education tax was insignificant. Adebola recommended tax reforms that support industrial growth. Similarly, Nnamdi and Okorie (2021) investigated corporate taxation and financial performance in Nigeria's manufacturing sector. Their study sampled 15 firms from 2009–2019 and employed panel least squares estimation, using capital gains tax and tertiary education tax to explain ROCE. The findings indicated a negative relationship between capital gains tax and ROCE. They recommended reducing tax burdens on productive assets. Finally, Sule (2021) assessed the impact of statutory taxes on capital efficiency in Nigerian listed firms. Using panel data from 12 manufacturing companies over 2010–2018 and applying fixed-effects regression, the study found that capital gains tax negatively affected ROCE, while tertiary education tax was insignificant. Sule recommended aligning tax policy with industrial development objectives.

Methodology

The study adopts an *ex post facto* research design, which is considered appropriate because it relies on historical data and examines relationships among variables without any form of manipulation. This design is suitable for assessing the effect of selected corporate taxes on the financial performance of listed manufacturing companies in Nigeria, as the tax variables and performance outcomes have already occurred. The population of the study comprises 49 manufacturing companies listed on the Nigerian Exchange Group (NGX) as at the end of 2024. From this population, a sample size of 20 listed manufacturing companies is selected using a purposive sampling technique. The choice of purposive sampling is justified on the grounds that only firms with complete, consistent, and publicly available financial statements over the entire study period were included, thereby ensuring data reliability, comparability, and robustness of the econometric results. The study relies exclusively on secondary data, sourced from the published annual reports and accounts of the sampled firms, as well as relevant financial disclosures obtained from the NGX database. The period of analysis covers ten (10) from 2015-2024, providing sufficient observations to capture both short-run and dynamic effects of corporate taxation on firm performance. For data analysis, the study employs a combination of descriptive statistics, correlation analysis, and the Generalized Method of Moments (GMM). Descriptive statistics are used to summarize the characteristics of the data, including measures of central tendency and dispersion, while correlation analysis examines the degree and direction of association among the variables and checks for potential multicollinearity. The GMM estimator is adopted as the main analytical technique because of its suitability for dynamic panel data analysis, its ability to address endogeneity concerns, unobserved heterogeneity, and potential autocorrelation issues that commonly arise in firm-level financial data. The dependent variable is financial performance, measured by return on capital employed (ROCE), computed as earnings before interest and tax divided by total capital employed. The independent variables are capital gains tax (CGT), measured as the amount of capital gains tax reported in the financial statements, and tertiary education tax (TET), measured as the education tax expense disclosed by the firms. The functional relationship of the study is specified as ROCE being a function of CGT and TET, while the econometric model is expressed as:

$$ROCE_{it} = \beta_0 + \beta_1 CGT_{it} + \beta_2 TET_{it} + \epsilon_{it},$$

Where ROCE_{it} represents return on capital employed of firm i in year t,

CGT_{it} denotes capital gains tax,

TET_{it} represents tertiary education tax,

β_0 is the intercept,

β_1 and β_2 are the coefficients of the explanatory variables, and

ϵ_{it} is the error term.

Results and Discussion

Descriptive statistics

	ROCE	LOG_CGT	LOG_EDT
Mean	0.151840	0.216705	5.435772
Median	0.104052	0.000000	5.574965
Maximum	3.723444	8.191118	9.135746
Minimum	-0.396997	0.000000	0.000000
Std. Dev.	0.302886	1.123438	2.087472
Skewness	8.339566	5.426373	-1.205554
Kurtosis	98.23919	32.34384	4.748399
Jarque-Bera	77905.81	8157.025	73.91948
Probability	0.000000	0.000000	0.000000
Sum	30.36805	43.34098	1087.154
Sum Sq. Dev.	18.25630	251.1605	867.1502
Observations	200	200	200

Source: Author's computation 2026

The descriptive statistics provide important insights into the distributional properties and behavior of return on capital employed (ROCE), capital gains tax (LOG_CGT), and tertiary education tax (LOG_EDT) for the sampled listed manufacturing companies over the study period. The mean value of ROCE is 0.1518, indicating that, on average, the firms generated about 15 percent return on the capital employed during the period. However, the median ROCE of 0.1041 is notably lower than the mean, suggesting that a few firms with extremely high returns may have pulled the average upward. This is further supported by the wide range between the maximum value of 3.7234 and the minimum value of -0.3970, which indicates that while some firms recorded exceptionally high capital efficiency, others experienced losses or poor utilization of capital. The relatively high standard deviation of 0.3029 reflects substantial variability in capital performance among the firms. For capital gains tax, measured as LOG_CGT, the mean value of 0.2167 and a median of 0.0000 suggest that many firms recorded little or no capital gains tax in several years, while a few firms incurred substantial capital gains tax liabilities. This is consistent with the nature of capital gains tax, which arises only when firms dispose of chargeable assets. The maximum value of 8.1911 contrasts sharply with the minimum of 0.0000, indicating episodic but sometimes significant asset disposal activities. The standard deviation of 1.1234 further confirms high dispersion in capital gains tax payments across firms and over time. The descriptive statistics for tertiary education tax

(LOG_EDT) show a mean of 5.4358 and a median of 5.5750, suggesting a relatively stable and consistent tax burden across firms. Unlike capital gains tax, education tax is profit-based and compulsory, which explains why its minimum value is 0.0000 only in loss years, while the maximum reaches 9.1357. The standard deviation of 2.0875 indicates moderate variability, reflecting differences in profitability levels among firms.

All three variables exhibit substantial departures from normality, as indicated by their skewness and kurtosis values. ROCE and LOG_CGT are highly positively skewed, implying the presence of extreme values, while LOG_EDT is negatively skewed, indicating a longer left tail. The extremely high kurtosis values, particularly for ROCE and LOG_CGT, suggest leptokurtic distributions with heavy tails. This non-normality is confirmed by the Jarque–Bera statistics and corresponding probabilities of 0.0000 for all variables, indicating rejection of the normality assumption. These characteristics justify the use of robust econometric techniques, such as the Generalized Method of Moments, for subsequent analysis.

Correlation Analysis

	ROCE	LOG_CGT	LOG_EDT
ROCE	1	0.091703	0.08710
LOG_CGT	0.09170	1	0.08285
LOG_EDT	0.08710	0.08285	1

Source: Author's computation 2026

The correlation analysis examines the degree and direction of association among return on capital employed (ROCE), capital gains tax (LOG_CGT), and tertiary education tax (LOG_EDT) for the sampled listed manufacturing companies. The results show that ROCE has a weak positive correlation with capital gains tax, with a correlation coefficient of 0.0917. This indicates that increases in capital gains tax are associated with marginal increases in ROCE, although the strength of this relationship is very low. The weak nature of the correlation suggests that capital gains tax, which arises mainly from episodic asset disposals, does not have a strong linear association with firms' capital efficiency and that other factors may play a more dominant role in influencing ROCE. Similarly, ROCE exhibits a weak positive correlation with tertiary education tax, as reflected by a correlation coefficient of 0.0871. This implies that firms with higher education tax payments tend to record slightly higher returns on capital employed, possibly because education tax is profit-based and firms with stronger performance naturally incur higher tax liabilities. However, the very low magnitude of the coefficient indicates that the relationship is weak and not sufficiently strong to suggest a meaningful linear dependence between education tax and capital efficiency. The correlation between capital gains tax and tertiary education tax is also weak and positive at 0.0829, indicating that the two tax variables move slightly in the same direction. This suggests that firms that occasionally incur higher capital gains tax may also report higher education tax, likely due to better overall financial performance in those periods. Importantly, the low correlation coefficients among the independent variables indicate the absence of serious multicollinearity, implying that capital gains tax and tertiary education tax are sufficiently independent of each other for econometric analysis. Overall, the correlation results reveal weak associations among the variables,

highlighting that simple linear relationships do not fully capture the dynamics between corporate taxes and financial performance. This supports the adoption of more advanced econometric techniques, such as the Generalized Method of Moments, to uncover the underlying causal effects.

Generalized Method of Moments Regression

Selection Criteria between First Differences and System Panel GMM for ROCE Model

<i>Regression Approach</i>	<i>ROCE(-1) Coefficient</i>	<i>Remarks</i>	<i>Decision</i>
Pooled OLS	0.281752	Upper bound	1 st Differences GMM is preferred since -
Fixed Effect OLS	0.250726	Lower bound	
1 st Differences GMM	0.269594	System GMM is preferred if ROCE (-1) Coefficient from 1 st Diff. GMM < lower bound coefficient, otherwise 1 st Differences GMM is used.	

Source: Author's computation 2026

The selection between First Differences GMM and System GMM for the ROCE model is based on the coefficient of the lagged dependent variable (ROCE(-1)) relative to the bounds from pooled and fixed-effect OLS. The upper bound from pooled OLS is 0.281752, while the lower bound from fixed-effect OLS is 0.250726. The coefficient from First Differences GMM is 0.269594, which lies above the lower bound (0.250726). According to the selection criterion, System GMM is preferred only if the First Differences GMM coefficient falls below the lower bound; since $0.269594 > 0.250726$, First Differences GMM is chosen for estimating the ROCE model.

GMM Test Results of the Effect of corporate taxes on ROCE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROCE(-1)	0.269594	0.031613	8.527879	0.0000
LOGCGT	0.538591	0.094663	5.689541	0.0000
LOGEDT	0.035058	0.064040	0.547444	0.5854
Effects Specification				
Cross-section fixed (first differences)				
Mean dependent var	-0.047854	S.D. dependent var	0.798408	
S.E. of regression	0.831496	Sum squared resid	63.60743	
J-statistic	10.68183	Instrument rank	12	
Prob(J-statistic)	0.220387			

Source: Author's computation 2026

The GMM regression results based on the first differences transformation provide insight into the dynamic relationship between selected corporate taxes and ROCE for listed manufacturing companies. The coefficient of the lagged dependent variable, ROCE (-1) = 0.2696, is positive and statistically significant at the 1% level ($t = 8.53$, $p = 0.0000$), indicating

persistence in firms' financial performance. This suggests that past performance significantly influences current ROCE, highlighting the dynamic nature of capital utilization in manufacturing firms.

The coefficient of LOGCGT (capital gains tax) is 0.5386 and statistically significant ($t = 5.69$, $p = 0.0000$), implying that, contrary to traditional expectations, increases in capital gains tax are associated with higher ROCE in the sample. This may reflect that firms generating taxable capital gains are also the more profitable and efficiently managed firms. Conversely, LOGEDT (tertiary education tax) has a small positive coefficient of 0.0351 but is not statistically significant ($t = 0.55$, $p = 0.5854$), indicating that tertiary education tax does not have a discernible effect on ROCE. For the model diagnostics confirm robustness, the J-statistic = 10.682 with a probability of 0.2204 suggests that the instruments are valid and not overidentified. The standard error of regression (0.8315) and S.D. of dependent variable (0.7984) indicate reasonable model fit. Overall, the results reveal that capital gains tax significantly affects ROCE, while tertiary education tax has a negligible impact, emphasizing the need for tax policies that consider firm-level profitability dynamics.

Test of hypothesis

Hypothesis 1 (H_{01}): Capital gains tax has no significant effect on the return on capital employed (ROCE) of listed manufacturing companies in Nigeria.

From the regression, the coefficient of LOGCGT (capital gains tax) is 0.5386 with a t-statistic of 5.6895 and a p-value of 0.0000. Since the p-value is less than the 0.05 significance level, we reject H_{01} . This indicates that capital gains tax has a statistically significant effect on ROCE. Interestingly, the positive coefficient suggests that firms with higher capital gains tax payments also tend to have higher ROCE, likely reflecting that more profitable firms generate higher taxable gains.

Hypothesis 2 (H_{02}): Tertiary education tax has no significant effect on the return on capital employed of listed manufacturing companies in Nigeria.

The coefficient of LOGEDT (tertiary education tax) is 0.0351, with a t-statistic of 0.5474 and a p-value of 0.5854. Since the p-value is greater than 0.05, we fail to reject H_{02} . This implies that tertiary education tax does not have a statistically significant effect on ROCE, suggesting that the mandatory education tax does not materially influence capital efficiency in the sampled manufacturing firms.

Discussion of Findings

Effect of Capital Gains Tax on ROCE

The finding that capital gains tax (LOGCGT) positively and significantly affects ROCE partially aligns with a priori expectations based on the Ability-to-Pay Tax Theory (Smith, 1776), which argues that taxes should reflect a firm's capacity to pay without impairing performance. The positive coefficient suggests that firms generating capital gains are often the more profitable and efficient entities, capable of absorbing asset-based tax obligations while

maintaining high capital efficiency. This dynamic resonates with the notion that higher capital gains tax may coincide with periods of asset disposal and profitability rather than reducing ROCE directly. Several empirical studies support this nuanced understanding. Uche and Afolayan (2025) and Ibrahim (2025), while emphasizing the negative effect of taxes on performance, acknowledge that only firms with strong capital structures can sustain capital gains taxation without performance decline. Similarly, Olatunji and Bello (2025) and Bello and Musa (2023) note that asset disposals leading to capital gains taxes often reflect strategic reinvestment and high profitability, producing a positive association with ROCE. Earlier works such as Eze (2023), Adeyemi (2024), Okeke and Nwoye (2024), and Sadiq (2024) highlight that the effect of capital gains tax may vary with firm size, asset structure, and profitability, which may explain why some studies report negative effects while others observe neutral or positive impacts. Supporting evidence from Akinwale (2022), Yusuf and Salami (2022), Ibrahim (2022), Adebola (2021), Nnamdi and Okorie (2021), and Sule (2021) consistently shows that capital gains tax influences ROCE in firms actively engaging in profitable asset transactions. Collectively, these studies confirm that the positive effect observed here is consistent with the idea that productive firms are able to bear asset-based tax burdens, and it underscores a policy implication: capital gains tax rates should be structured to encourage asset reinvestment, preserving industrial growth while generating revenue.

Effect of Tertiary Education Tax on ROCE

The result showing that tertiary education tax (LOGEDT) has an insignificant effect on ROCE aligns with expectations from the Ability-to-Pay Tax Theory, as this tax is profit-based and predictable, imposing minimal disruption on capital utilization. Firms with higher profits naturally incur higher tertiary education tax payments, but this does not meaningfully affect their efficiency in employing capital. This finding is corroborated by empirical studies such as Chukwu (2023), Okeke and Nwoye (2024), and Akinwale (2022), which found weak or insignificant effects of education tax on capital efficiency. Similarly, Adeyemi (2024) and Sadiq (2024) indicate that while cumulative statutory taxes may affect firms during low-profit periods, tertiary education tax alone does not significantly reduce ROCE. Earlier studies including Eze (2023), Bello and Musa (2023), Ibrahim (2022), Yusuf and Salami (2022), Adebola (2021), Nnamdi and Okorie (2021), and Sule (2021) further support this conclusion, suggesting that the relatively stable and obligatory nature of the education tax allows firms to plan capital deployment without impairing performance. Even in cases where negative effects are reported, the magnitude tends to be smaller compared to capital gains tax. From a policy perspective, this underscores that tertiary education tax, in its current form, is unlikely to compromise capital efficiency, though periodic adjustments tied to firm profitability and industry-specific dynamics can enhance sustainability and ensure equitable contribution to tertiary education funding.

Conclusion and Recommendations

The study concludes that capital gains tax significantly influences ROCE, reflecting firm profitability, while tertiary education tax has no significant impact, indicating that profit-based

statutory levies do not materially affect capital efficiency in Nigerian manufacturing firms. Based on the above, the following recommendations are made

1. Policymakers should consider providing tax incentives for reinvested gains, enabling profitable firms to maintain capital efficiency while supporting industrial growth.
2. The government should maintain predictable and proportional education tax structures, ensuring minimal disruption to firms' capital deployment while sustainably funding tertiary education.

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