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TAXATION AND PERFORMANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs) IN NORTH CENTRAL NIGERIA

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ABSTRACT
Micro, small and medium enterprises (MSMEs) are central to employment creation, income generation, and poverty alleviation in Nigeria, yet firms in the North Central zone operate under a fragmented tax structure that has attracted far less empirical attention than the South West. This study investigates how tax compliance, tax burden, and multiple taxations shape MSMEs performance across six North Central states, and whether the quality of state level tax administration moderates these relationships. Anchored in Optimal Tax Theory, the study surveyed 384 MSMEs owner managers using a stratified random sampling technique and analyzed the data with Ordinary Least Squares and instrumental variable (two stage least squares) regression to correct for endogeneity in tax compliance. The results show that tax compliance significantly improves performance ($\beta = 9.63$, $p < 0.001$), while tax burden ($\beta = –3.42$, $p < 0.001$) and multiple taxation ($\beta = –4.89$, $p < 0.001$) significantly reduce it. Multiple taxation also erodes the performance gains associated with compliance (interaction $\beta = –2.83$, $p = 0.009$), whereas stronger tax administration significantly enhances performance ($\beta = 6.21$, $p < 0.001$). Kwara State recorded the strongest performance outcomes and the lowest incidence of multiple taxations, while Kogi State recorded the weakest outcomes on both counts. The study concludes that the effect of taxation on MSMEs depends as much on administrative quality and system coordination as on compliance behaviour itself, and recommends harmonizing overlapping levies, prioritizing Kogi, Benue, and Nasarawa States for administrative strengthening, and pairing tax reform with improved access to finance.

Keywords: Taxation, Tax compliance, Tax burden, Multiple taxation, MSMEs performance.

JEL Classification Codes: H21, H25, H71, L25, O17.

Introduction

Micro, Small and Medium Enterprises (MSMEs) are widely regarded as the backbone of economic growth across Sub Saharan Africa, serving as key drivers of employment, entrepreneurship, and poverty reduction. In Nigeria, their contribution to national development is substantial, accounting for approximately 96% of all businesses, about 48% of Gross Domestic Product (GDP), and nearly 84% of total employment (National Bureau of Statistics, 2021). This role is especially prominent in the North Central geopolitical zone, comprising Benue, Plateau, Niger, Kwara, Kogi, Nasarawa, and the Federal Capital Territory, where economic life revolves largely around agriculture, agro processing, artisanal manufacturing, mineral trading, and petty commerce. Despite this significance, MSMEs in the zone continue to contend with inadequate infrastructure, limited access to formal finance, weak institutional support, and governance constraints that collectively restrict enterprise growth and competitiveness (CBN, 2020; Okeke & Ugwu, 2021).

Among these constraints, taxation stands out as one of the most consequential determinants of business performance, given that Nigeria's fiscal architecture involves federal, state, and local tax authorities whose responsibilities often overlap and are poorly coordinated (Abiola & Asiweh, 2012; Mustapha & Obid, 2015). This arrangement has fuelled the spread of multiple taxation, in which similar levies are imposed on the same enterprise by different tiers of government, raising compliance costs, eroding profitability, and discouraging expansion (Ocheni & Nwankwo, 2012; Taiwo & Agwu, 2016). Within North Central Nigeria, the concurrent application of state personal income tax, local government levies, Value Added Tax, Company Income Tax, and other statutory charges has produced a complex and often conflicting tax environment that many MSMEs owners, lacking specialized tax expertise, experience as burdensome and administratively confusing (Dada, 2014; Ifurueze et al., 2021).

Although taxation has attracted considerable scholarly interest in Nigeria, most existing studies focus on national level analysis or on enterprises in the economically advanced South West, particularly Lagos Nigeria, leaving North Central Nigeria comparatively underexplored (Adesola et al., 2020; Taiwo & Agwu, 2016; Eniola & Entebang, 2015). In addition, prior studies have generally treated tax compliance and tax burden as separate constructs, without jointly incorporating multiple taxations or considering how the quality of state level tax administration might moderate these relationships. This has left important questions unanswered regarding the combined effect of these taxation dimensions on enterprise performance, and the extent to which differences in governance capacity across the six North Central states shape these outcomes.

Statement of the Problem

Despite the acknowledged importance of MSMEs to income generation and poverty reduction in North Central Nigeria, enterprises in the zone operate within a tax environment marked by overlapping levies from multiple tiers of government, inconsistent implementation of recent Finance Act reforms, and considerable variation in the administrative capacity of state revenue authorities. This condition raise compliance costs, strain the liquidity of already fragile businesses and according to prior interstate anecdotal evidence, appears to affect enterprise survival and growth differently across the states that make up the zone.

The empirical literature that would ordinarily guide policy on this problem is, however, limited in three important respects. First, the bulk of Nigerian tax performance studies concentrate on the South West, especially Lagos State, leaving North Central Nigeria comparatively underrepresented despite its distinct economic structure and governance environment. Second, where North Central MSMEs have been studied, researchers have typically examined tax compliance, tax burden, and multiple taxations as isolated constructs rather than as interacting elements of a single tax system and have rarely tested whether the quality of state level tax administration moderates the relationship between taxation and performance. Third, most of these studies rely on Ordinary Least Squares estimation, which does not adequately address the possibility that better performing firms are also more likely to comply voluntarily, a source of endogeneity that can bias the estimated effect of compliance on performance. These gaps leave policymakers, tax administrators, and enterprise development agencies in North Central Nigeria without a sufficiently integrated evidence base for designing tax policy's that simultaneously protects government revenue and supports MSMEs growth. It is this gap that the present study sets out to close.

Aim and Objectives of the Study

The aim of this study is to examine the effect of taxation on the performance of MSMEs in North Central Nigeria. The specific objectives are to:

i. Examine the effect of tax compliance on the performance of MSMEs in North Central Nigeria.
ii. Determine the effect of tax burden on the performance of MSMEs in North Central Nigeria.
iii. Investigate whether multiple taxations moderates the relationship between tax compliance and MSMEs performance in North Central Nigeria.
iv. Assess whether state level tax administration quality moderates the relationship between taxation and MSMEs performance in North Central Nigeria.

Research Questions

i. What is the effect of tax compliance on the performance of MSMEs in North Central Nigeria?
ii. What is the effect of tax burden on the performance of MSMEs in North Central Nigeria?
iii. Does multiple taxations moderate the relationship between tax compliance and MSMEs performance in North Central Nigeria?
iv. Does state level tax administration quality moderate the relationship between taxation and MSMEs performance in North Central Nigeria?

Hypotheses

In line with the positivist research tradition, the following null hypotheses are tested.

H_{01}: Tax compliance has no significant effect on the performance of MSMEs in North Central Nigeria.

H_{02}: Tax burden has no significant effect on the performance of MSMEs in North Central Nigeria.

H_{03}: Multiple taxations do not significantly moderate the relationship between tax compliance and MSMEs performance in North Central Nigeria.

H_{04}: State level tax administration quality does not significantly moderate the relationship between taxation and MSMEs performance in North Central Nigeria.

Literature Review

Concept Clarification

1 Taxation and MSMEs in Nigeria

Nigeria operates a three tier tax system in which the Federal, State, and Local Governments each hold constitutional authority to levy taxes within their respective jurisdictions (Federal Republic of Nigeria Constitution, 1999; Abiola & Asiweh, 2012). MSMEs are chiefly affected by Personal Income Tax, Company Income Tax, Value Added Tax, and an array of state and local levies such as business premises, signage, market, and environmental charges (Dada, 2014; Ifurueze et al., 2021). Recent Finance Acts (2019 to 2021) introduced reforms including Company Income Tax exemptions for businesses with annual turnover below ₦25 million and expanded presumptive tax provisions for small businesses, although implementation of these reforms has remained inconsistent across states (Ohaka & Agundu, 2022).

2 MSMEs Performance

MSMEs performance is conventionally assessed along three dimensions, financial performance (revenue growth and profitability), operational performance (efficiency and productivity), and growth performance (employment generation and market expansion), consistent with Eniola and Entebang (2015) and Pham et al,. (2021). Because many Nigerian MSMEs keep poor accounting records, researchers commonly rely on validated self reported performance measures supported by objective indicators (Adesola et al., 2020; Okeke & Ugwu, 2021).

3 Multiple Taxation

Multiple taxations refers to the imposition of several taxes or levies on the same taxpayer, by different government authorities, for what is essentially the same taxable activity (Ocheni & Nwankwo, 2012). Unlike a progressively structured tax, it raises compliance costs, adds administrative complexity, and reduces profitability; where such levies are charged on turnover rather than profit, multiple taxations can threaten the very survival of an MSMEs (Taiwo & Agwu, 2016).

Theoretical Framework

This study is anchored on Optimal Tax Theory, propounded by Frank Ramsey (1927) in his seminal work on commodity taxation and substantially extended by James Mirrlees (1971) through the theory of optimal income taxation, for which Mirrlees later received the Nobel Memorial Prize in Economic Sciences. The theory's central tenet is that a tax system should be designed to raise the revenue government requires while minimizing the economic distortions and welfare losses that taxation inevitably introduces into decisions to work, save, invest, and produce. Ramsey's original contribution showed that when government must raise a fixed amount of revenue from commodity taxes, efficiency is best served by taxing goods in inverse proportion to the elasticity of their demand, so that behavior is distorted as little as possible. Mirrlees extended this logic to income taxation under conditions of asymmetric information, formalizing the tradeoff between equity, achieved through progressive redistribution, and efficiency, which is eroded whenever high marginal rates or complex, overlapping levies discourage productive effort. Beyond rate design, the broader optimal tax literature that grew out of these two contributions treats administrative simplicity, certainty, and coordination among tax authorities as integral to efficiency, since a complicated or duplicative tax structure imposes real compliance costs on taxpayers even when statutory rates are moderate.

Applied to the present study, Optimal Tax Theory offers a coherent lens for interpreting all four taxation constructs examined. Tax compliance, in this framework, reflects a tax system operating closer to its efficient design, when obligations are clear, administration is efficient, and compliance costs are low, MSMEs can meet their obligations without significant diversion of resources from productive activity, which is consistent with the hypothesized positive relationship between compliance and performance. Tax burden and multiple taxation, by contrast, represent departures from optimal design, excessive or duplicated levies raise the effective cost of doing business beyond what efficient revenue collection requires, distorting investment and reinvestment decisions and directly threatening the survival of financially constrained enterprises, consistent with the hypothesized negative effects of burden and multiplicity and with multiplicity's capacity to blunt the benefits that would otherwise flow from compliance.

Finally, state level tax administration quality operationalises the administrative dimension of optimal tax design. Efficient, transparent, and technologically enabled administration lowers the compliance costs and uncertainty that erode efficiency, which is why the theory predicts, and these study tests, that stronger administration should enhance the overall relationship between taxation and MSMEs performance.

Empirical Review

A number of empirical studies have examined taxation and MSMEs performance in Nigeria and other developing economies. Ocheni and Nwankwo (2012) studied SMEs across four Nigerian geopolitical zones and found that multiple taxation consistently depressed business performance, with micro enterprises hit hardest owing to their limited financial buffers. Similarly, Atawodi and Ojeka (2012) surveyed SMEs operators in Zaria to identify the factors behind poor tax compliance, ranking responses with descriptive statistics. They found that steep tax rates and cumbersome filing procedures were the dominant drivers of non compliance, with multiple levies and weak taxpayer enlightenment playing a comparatively smaller role, and recommended moderated rates and simplified filing to encourage voluntary compliance.

Adebisi and Gbegi (2013), focusing on West African Ceramics in Ajaokuta, Kogi State, used a structured questionnaire and ANOVA to examine how compounding tax obligations affect enterprise survival. They found that multiple taxations negatively affects the survival of small firms and that a firm's capacity to meet its obligations is closely tied to its size, recommending a harmonized tax policy sensitive to enterprise size. More so, Ocheni and Gemade (2015) examined overlapping levies among SMEs in Benue State using survey and inferential methods, finding that multiple levies significantly harmed profitability and continuity, and calling for the different tiers of government to restrict themselves to levies within their constitutional remit.

Taiwo and Agwu (2016), studying SMEs in Lagos State, found that multiple taxation significantly reduced business performance, lowering revenue growth and cutting profit margins by roughly 18%. Zayol et al., (2018) similarly found, using regression analysis of Benue State SMEs, which multiple taxations significantly and adversely affects financial performance, and recommended a leaner tax structure with fewer collecting agencies. Additionally, Tabet and Onyeukwu (2019), studying SMEs in the Abuja Municipal Area Council, the study found a strong association between disproportionate multiple taxations and firms financial performance and planning capacity, recommending repeal of detrimental tax laws and unification of levies across agencies. Additionally, Ilemona et al., (2019) examining SMEs in Lokoja, Kogi State, found that multiple taxes discouraged business expansion, as operators feared that overlapping levies would absorb a large share of new earnings.

Adesola et al., (2020) studied 210 manufacturing SMEs in Southwestern Nigeria and found that voluntary tax compliance positively influenced financial performance, largely because compliant firms enjoyed better access to formal credit and government contracts. Ifurueze et al., (2021), studying Enugu State, found that tax multiplicity and weak administration were major barriers to formalization and expansion. Outside this specific strand, Ekunnrin and Yaru (2024) examined the survival of small enterprises in Ilorin South, Kwara State, and found that compliance frequency, convenience of payment channels, and ease of covering running costs were most strongly associated with survival, recommending simplified and diversified payment channels. Most recently, Abubakar (2025) examined how tax administration efficiency shapes compliance among North Central SMEs and found that electronic filing and effective audit practices raised voluntary compliance, recommending continued investment in digital filing infrastructure and taxpayer education. Taken together, the empirical literature suggests that tax compliance tends to promote business performance when supported by efficient administration and appropriate incentives, while excessive tax burden, multiple taxation, and weak administration consistently undermine profitability, investment, and enterprise survival.

Research Gaps

Four gaps emerge from the literature reviewed, first, most studies examine tax compliance, tax burden, and multiple taxations independently rather than as parts of a single analytical model. Second, empirical coverage of North Central Nigeria remains limited relative to its economic weight, with existing zonal studies such as Okeke and Ugwu (2021) relying mainly on descriptive analysis. Third, state level tax administration quality has rarely been tested as a moderating variable, despite a well documented difference in administrative capacity across states. Finally, most Nigerian studies rely on Ordinary Least Squares, which does not adequately address the endogeneity that arises when better performing firms are also more inclined to comply voluntarily. This study addresses that limitation through an instrumental variable estimation strategy.

Methodology

1 Research Design

This research employs a quantitative cross sectional survey methodology based on the positivist paradigm and follows a hypothetico deductive approach to scientific inquiry. The quantitative approach is considered suitable because it facilitates objective measurement of relationships among variables and permits statistical testing of the proposed hypotheses. The cross sectional design enables data to be collected from respondents at a single period, thereby providing evidence of the association between taxation related factors and the performance of micro, small, and medium enterprises (MSMEs) across different locations within the study region. Although this design allows the identification of statistically significant relationships, it does not establish definitive causality because observations are obtained at only one point in time.

2 Study Area

The geographical scope of this investigation covers the six states that constitute the North Central geopolitical zone of Nigeria, excluding the Federal Capital Territory. These states include Benue, Plateau, Niger, Kwara, Kogi, and Nasarawa. The selection of the zone is informed by its relatively similar economic characteristics, where MSMEs are concentrated largely in agricultural processing, commerce, manufacturing, and service related activities. At the same time, differences in tax administration practices and governance structures across the states provide an appropriate setting for comparative analysis. Collectively, the region accounts for approximately 3.2 million MSMEs and contributes about 12 percent of total MSMEs employment in Nigeria (SMEDAN 2021).

3 Population, Sampling, and Sample Size

The study population consists of all formally or semi formally registered MSMEs operating in the six study states across the manufacturing, agricultural processing, trade, and service sectors. A stratified random sampling procedure was employed, with each of the six states constituting a primary stratum. Within each state, MSMEs were further stratified by sector (manufacturing, processing, trade, services) and enterprise size category (micro: 1 to 9 employees, small: 10 to 49 employees, medium: 50 to 200 employees). Random selection was conducted within each stratum using sampling frames obtained from state level corporate affairs regional offices, SMEDAN state offices, and relevant trade associations. The sample size was determined using the Krejcie and Morgan (1970) formula: $[n = X^2NP(1–P) \div [d^2(N–1) + X^2P(1–P)]$, yielding a minimum sample of 384 for an estimated zonal MSMEs population of 3.2 million at a 95% confidence level and 5% margin of error. The final sample of 384 MSMEs was allocated equally across the six states (64 MSMEs per state), with proportional allocation across sectors within each state.

4 Data Collection Instrument and Measurement of Variables

Primary data were collected using a structured questionnaire developed from the study's conceptual framework, subjected to expert review for content validity, and pilot tested with forty respondents (ten from each of four locations) outside the final sample. The instrument contained four sections. Enterprise and owner manager characteristics, a twelve item Tax Compliance Index covering filing practices, payment promptness, and interaction with tax authorities, an eight item Tax Burden Score together with a binary Multiple Taxation Dummy (coded 1 where an enterprise faced simultaneous overlapping levies from different tiers of government) and a sixteen item MSME Performance Score spanning financial, operational, market, and growth dimensions. All items used a five point Likert scale. Internal consistency for all multi item constructs exceeded the recommended Cronbach's alpha benchmark of 0.75, and Confirmatory Factor Analysis confirmed that observed variables loaded significantly on their respective constructs, with Comparative Fit Index values above 0.90 and Root Mean Square Error of Approximation values below 0.08.

5 Model Specification

The primary econometric model relating taxation variables to MSMEs performance is specified as follows:

$$MPS_i = \beta_0 + \beta_1 TCI_i + \beta_2 TBS_i + \beta_3 MTD_i + \beta_4(TCI_i \times MTD_i) + \beta_5 STAS_i + \beta_6 X_i + \varepsilon_i \quad \ldots\ldots\ (1)$$

Where MPS_i is the MSMEs Performance Score for firm (i), (TCI_i) is the Tax Compliance Index, (TBS_i) is the Tax Burden Score, (MTD_i) is the Multiple Taxation Dummy, ($TCI_i \times MTD_i$) is the interaction term testing moderation of the compliance performance relationship by multiple taxation. ($STAS_i$) is the State Level Tax Administration Score (a composite index measuring tax authority responsiveness, efficiency, transparency, and use of technology, constructed from firm level ratings of their primary tax authority). (X_i) is a vector of control variables comprising firm age, the natural logarithm of firm size (employee count), owner manager education (years), and Access to Finance Score and (ε_i) is the stochastic error term.

Three model variants are estimated, (Model 1 is a baseline OLS specification including only TCI), (Model 2 is the full OLS specification including all predictors and the interaction term), and (Model 3 is the IV specification addressing endogeneity, using the state average TCI (excluding firm is own contribution) and membership in a formal business association (binary) as instruments for individual TCI_i). Instrument relevance was verified through first stage F-statistics ($F = 17.83$, $p < 0.001$), instrument exogeneity was confirmed by the Hansen J-test ($\chi^2 = 2.14$, $p = 0.343$).

The exclusion restriction required that both instrument after MSMEs performance only through their influence on individual tax compliance ($TC\chi$), with no direct path way to the outcome once compliance and the control vector are held constant. The state average TCI, computed by leaving out each firms own contribution, follow the leave out mean instrumentation strategy long used in peer effect and social norm research (Brmoulle et al., 2009; Guryan et al., 2009) and has been applied specifically to tax behavior by Gao et al., (2021), who instrumented firm level tax avoidance with the average Idiosyncratic tax of regional peers on the reasoning that no single firm is large enough to move the state average, yet the average still captures the prevailing compliance norms and enforcement climate that shapes on individual firms compliance decision.

Because State fixed effects were already included in all models, any direct state level determinant of performance common to all firms in the state local infrastructure, market size, or the general business climate is absorbed separately, leaving the compliance norms channel as the main route through which the leave out mean can influence a firm’s outcome. Membership in a formal business association is defensible on similar grounds. Such association chiefly function as conduits for tax information, filing assistance and peer monitoring which Atawodi and Ojeka (2012), identify as key drive of SMEs compliance behavior in this same setting. Once firm size, age, owner manager, education and access to finance are controlled for, association membership has no obvious independent route to rising sale, profitability or productivity except through compliance behavior is encourage. To absorb unobserved state level heterogeneity. Standard errors were adjusted for heteroscedasticity using the Huber White sandwich estimator. All analyses were conducted using (STATA).

Data Presentation and Analysis of Results

1 Sample Profile

From all the 384 questionnaires distributed, all 384 were returned and deemed suitable for analysis, representing a 100% usable response rate achievable through in person administration by trained research assistants at business premises. By sector, 28.4% of respondents operated in manufacturing and agro processing, 41.1% in trade and commerce, and 30.5% in services. While by size, 54.7% were micro enterprises between (1 to 9 employees), 36.5% were small enterprises between (10 to 49 employees), and 8.9% were medium enterprises between (50 to 200 employees). The mean enterprise age was 8.46 years (SD = 6.12), and 67.2% of enterprises were sole proprietorships. Owner managers averaged 12.81 years of formal education (SD = 3.41).

2 Descriptive Statistics

Table 4.1: Descriptive Statistics of Key Study Variables (N = 384)

Variable	N	Mean	Std. Dev.	Min	Max	Skewness
Tax Compliance Index (0-1)	384	0.463	0.198	0.05	0.98	0.31
Tax Burden Score (0-10)	384	6.17	1.84	1.00	10.0	–0.28
MSMEs Performance Score (0-100)	384	54.21	16.43	10.00	97.0	0.19
Multiple Taxation Dummy (1=Yes)	384	0.641	0.480	0.00	1.00	–0.59
Firm Age (years)	384	8.46	6.12	1.00	38.0	1.47
Firm Size (employees)	384	11.34	9.83	1.00	99.0	2.11
Owner Education (years)	384	12.81	3.41	6.00	22.0	0.08
Access to Finance Score (0-1)	384	0.418	0.231	0.00	1.00	0.22
State-Level Tax Admin. Score (0-1)	384	0.502	0.187	0.12	0.91	–0.11

Source: Authors computation using (STATA 17).

Note; TCI = Tax Compliance Index (0-1). TBS = Tax Burden Score (0-10, higher = heavier burden). MTD = Multiple Taxation Dummy (1 = Yes). MPS = MSMEs Performance Score (0-100). State Level Tax Admin. Score (STAS) ranges from 0-1 respectively.

Table 4.1 presents descriptive statistics for all key study variables. The mean Tax Compliance Index (TCI) of 0.463 (SD = 0.198) suggests that, on average, MSMEs in the North Central zone demonstrate a moderate level of tax compliance, with considerable inter firm variation. The mean Tax Burden Score (TBS) of 6.17 out of 10 indicates that MSMEs in the study area perceive their tax obligations as moderately to substantially burdensome. The Multiple Taxation Dummy (MTD) mean of 0.641 implies that approximately 64% of sampled MSMEs are subject to simultaneous levies from more than one tier of government a considerable high rate, consistent with the documented prevalence of multiple taxations in the Nigerian sub national tax environment (Ocheni & Nwankwo, 2012). The mean MSMEs Performance Score (MPS) of 54.21 (SD = 16.43) on a 0 to 100 scale reflects moderate overall enterprise performance, with substantial variance across firms.

3. Inter State Comparative Analysis

Table 4.2: Inter State Comparative Analysis of Tax Variables and MSMEs Performance

State	n	Mean TCI	Mean TBS	MTD (%)	Mean Perf. Score	Perf. Rank
Benue	64	0.441	6.43	71.9	50.34	5th
Plateau	64	0.512	5.81	57.8	58.92	2nd
Niger	64	0.489	6.02	62.5	55.67	3rd
Kwara	64	0.523	5.64	54.7	61.43	1st
Kogi	64	0.421	6.71	75.0	47.89	6th
Nasarawa	64	0.474	6.29	68.8	53.12	4th
Overall	384	0.476	6.15	65.1	54.56	—

Source: Authors computation using (STATA 17).

Note; TCI = Tax Compliance Index. TBS = Tax Burden Score. MTD (%) = percentage of MSMEs reporting multiple taxation. Mean Performance Score is on a (0-100) scale. Performance rank is based on mean MSME Performance Score.

Table 4.2 presents the interstate comparative analysis of key taxation and performance variables across the six study states. The results reveal meaningful variation in the tax and performance landscape across the North Central zone. Kwara State records the highest mean TCI (0.523) and the lowest mean TBS (5.64), alongside the lowest MTD rate (54.7%) and the highest mean MSMEs Performance Score (61.43), ranking first in MSMEs performance among the six states. Kogi State presents the reverse profile, with the lowest TCI (0.421), the highest TBS (6.71), the highest MTD rate (75.0%), and the lowest mean MSMEs Performance Score (47.89), ranking last. These interstate patterns are broadly consistent with the hypothesized negative relationships between tax burden and multiple taxation and MSMEs performance, and with World Bank Ease of Doing Business state level assessments that have consistently ranked Kwara favorably relative to Kogi in regulatory and tax administration quality (World Bank, 2020).

4 Regression Analysis Results

Table 4.3: OLS and IV Regression Results Determinants of MSMEs Performance in North Central Nigeria

Variable	Model 1 β	Model 2 β	Model 3 β (IV)	t-stat	p-value
Tax Compliance Index (TCI)	12.84***	9.63***	10.41***	5.87	<0.001
Tax Burden Score (TBS)	—	–3.42***	–3.61***	–4.12	<0.001
Multiple Taxation Dummy (MTD)	—	–4.71***	–4.89***	–3.94	<0.001
TCI × MTD (Interaction)	—	–2.83**	–2.97**	–2.64	0.009
Firm Age	—	0.41*	0.38*	1.98	0.049
Firm Size (ln)	—	3.84***	3.71***	5.23	<0.001
Owner Education	—	1.12**	1.08**	2.71	0.007
Access to Finance	—	8.63***	8.44***	6.11	<0.001
State Tax Admin. Score	—	6.21***	5.98***	4.83	<0.001
Constant	47.82***	11.34***	12.07***	5.44	<0.001
R^2	0.178	0.514	0.498		
Adj. R^2	0.176	0.497	0.480		
N	384	384	384		
F-statistic	82.31***	47.63***	44.12***		

Source: Authors computation using (STATA 17).

Note; Dependent variable: MSMEs Performance Score (0-100). All models include state fixed effects. Robust standard errors (Huber White). Model 3 uses state average TCI (excluding own observation) and formal business association membership as instruments for TCI. (*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$).

Table 4.3 presents the OLS and IV regression results for the three model specifications. In Model 1, the baseline OLS estimate confirms a significant positive association between tax compliance and MSMEs performance ($\beta = 12.84$, $p < 0.001$), explaining 17.8% of performance variance. The introduction of the full set of predictors in Model 2 substantially improves explanatory power (Adj. $R^2 = 0.497$). Tax compliance retains a positive and significant effect on performance ($\beta = 9.63$, $p < 0.001$), while tax burden ($\beta = -3.42$, $p < 0.001$) and the multiple taxation dummy ($\beta = -4.71$, $p < 0.001$) are negatively and significantly associated with performance, providing support for H_2. The interaction term (TCI × MTD) is negative and statistically significant ($\beta = -2.83$, $p = 0.009$), confirming that the performance enhancing effect of tax compliance is significantly attenuated among MSMEs subject to multiple taxation providing empirical support for H_3. The State Level Tax Administration Score (STAS) is positive and highly significant ($\beta = 6.21$, $p < 0.001$), confirming H_4, states with more efficient and responsive tax administration are associated with significantly higher MSMEs performance, even after controlling for the direct effects of compliance, burden, and multiple taxation.

Model 3, the IV specification, yields estimates that are consistent in direction with the OLS results but modestly lower in magnitude for the tax compliance coefficient ($\beta = 10.41$ vs. 9.63 in OLS), suggesting a modest downward endogeneity correction consistent with the hypothesis that more successful MSMEs are more likely to comply voluntarily, imparting slight upward bias in OLS. The IV estimates remain strongly significant and confirm all four hypotheses. Access to finance is consistently positive and highly significant ($\beta = 8.44$ in Model 3, $p < 0.001$), underscoring the critical role of financial access as a performance determinant alongside taxation, consistent with the findings of the CBN (2020) MSMEs finance survey.

5 Hypothesis Testing Summary

Table 4.4: Summary of Hypothesis Testing Results

H	Hypothesis Statement	Test Statistic	p-value	Decision
H_1	Tax compliance exerts a significant positive effect on MSMEs performance in North Central Nigeria.	$\beta =(9.63)$, $t =(5.87)$	$< (0.001)$	Supported
H_2	Tax burden significantly and negatively affects MSMEs performance in North Central Nigeria.	$\beta =(-3.42)$, $t =(-4.12)$	$< (0.001)$	Supported
H_3	Multiple taxation significantly and negatively moderates the tax compliance MSMEs performance relationship.	$\beta =(-2.83)$, $t =(-2.64)$	$< (0.009)$	Supported
H_4	State level tax administration quality significantly moderates the tax MSMEs performance relationship.	$\beta =(6.21)$, $t =(4.83)$	$< (0.001)$	Supported

Source: Authors computation using (STATA 17.0).

Note; All tests conducted at (0.05) significance level, two tailed. Null hypotheses stated in each H; decision refers to rejection of the stated null hypothesis.

Table 4.4 consolidates the hypothesis testing outcomes. All four null hypotheses are rejected at conventional significance levels, confirming that (H_1) tax compliance has a significant positive effect on MSMEs performance, (H_2) tax burden exerts a significant negative effect on MSMEs performance, (H_3) multiple taxation significantly and negatively moderates the tax compliance performance relationship and (H_4) state level tax administration quality significantly and positively moderates the taxation MSMEs performance relationship. These findings are robust to the IV correction for endogeneity and consistent across all three model specifications.

Discussion of Findings

Consistent with H_1, tax compliance has a significant positive effect on MSMEs performance ($\beta = 9.63$, $t = 5.87$, $p < 0.001$). Reading through Optimal Tax Theory, this result is best understood as evidence that a tax system operating closer to its efficient design, one in which compliance is straightforward and administration is predictable, allows compliant firms to convert their tax standing into tangible institutional benefits, such as easier access to formal credit, eligibility for government contracts, and legal protection, without those benefits being eroded by unnecessary distortion. This mirrors Adesola et al., (2020), who found a comparable link between voluntary compliance and access to formal credit among Nigerian SMEs, and extends the evidence to the North Central zone. The IV estimate of the compliance coefficient ($\beta = 10.41$) exceeds the OLS estimate ($\beta = 9.63$), indicating that OLS was mildly biased downward, most plausibly because better performing firms are also more inclined to comply voluntarily. The instrumental variable correction addresses this reverses causality concern and confirms that the compliance performance relationship is not merely an artifact of it.

H_2 is also supported, tax burden has a significant negative effect on performance ($\beta = –3.42$, $t = –4.12$, $p < 0.001$). Optimal Tax Theory frames this as a straightforward efficiency loss, obligations that exceed a firm's financial capacity distort investment and reinvestment decisions in ways that a well designed tax system would avoid, echoing Djankov et al., (2010) and Taiwo and Agwu (2016), who reported comparable effects elsewhere. Given that the sample's average performance score is only moderate (54.21 of 100), this coefficient carries real weight for state governments that depend heavily on MSMEs derived levies for internally generated revenue.

H_3, tested through the interaction term (TCI × MTD), is supported ($\beta = –2.83$, $t = –2.64$, $p = 0.009$) and is distinct from the direct main effect of multiple taxation ($\beta = –4.71$ in Model 2; $\beta = –4.89$ in Model 3). Together, the two estimates show that multiple taxation damages performance through two separate channels. A direct cost channel and an indirect channel that blunts the returns a compliant firm would otherwise earn. This is precisely the kind of distortion Optimal Tax Theory anticipates when levies are duplicated across authorities rather than coordinated, overlapping obligations raise compliance costs, consume managerial time, and divert resources from productive investment, implying that compliance focused policy alone is unlikely to deliver its full expected benefit unless paired with reforms that reduce tax multiplicity itself.

H_4 is supported by the significant positive effect of state level tax administration quality on performance ($\beta = 6.21$, $t = 4.83$, $p < 0.001$), which corresponds directly to the administrative efficiency dimension of Optimal Tax Theory. Efficient, transparent, technologically enabled administration amplifies the gains from compliance while softening the costs of burden and multiplicity. The interstate comparison in Table 4.2 illustrates this concretely. Kwara State combines the lowest multiple taxation incidence (54.7%) and lowest tax burden (5.64) with the highest mean performance score (61.43), while Kogi State shows the reverse pattern, the lowest compliance, the highest tax burden (6.71), the highest multiple taxation incidence (75.0%), and the lowest performance score (47.89). This roughly 13.5-point gap between the strongest and weakest performing states tracks closely with measurable differences in administrative quality and multiple taxation exposure, and is used directly, in the theoretical terms set out above, as observable evidence of the efficiency losses that an uncoordinated, poorly administered tax system imposes on enterprises.

Across all three model specifications, the direction and significance of the key coefficients remain stable, and the IV results confirm that the findings are not an artifact of endogeneity between compliance and performance. Access to finance is also a robust, independent determinant of performance ($\beta = 8.44$, $p < 0.001$ in Model 3), indicating that financial inclusion and tax reform function as complementary rather than competing levers for MSMEs development in the region.

Conclusion

The evidence generated by this study supports the conclusion that taxation is a critical determinant of MSMEs performance in North Central Nigeria, and its impact extends beyond statutory rates to the broader institutional environment through which taxes are administered. While tax compliance creates opportunities for improved performance through formalization and access to institutional support, these benefits are substantially constrained by high tax burdens and the widespread incidence of multiple taxations. Deficiencies in tax administration and overlapping obligations represent major structural obstacles to enterprise growth in the region, and the considerable variation observed across states indicates that uniform tax policies are unlikely to produce comparable outcomes throughout the zone. State specific fiscal reforms, tailored to local administrative capacity and enterprise characteristics, are more likely to improve MSMEs productivity and competitiveness than a one size fits all approach.

Policy Recommendations

The Joint Tax Board and Federal Ministry of Finance should harmonize the taxes and levies imposed on MSMEs to close the gaps that allow the same taxable activity to be charged by more than one tier of government. This should be pursued as a precondition for compliance focused reforms, since multiple taxations were found to weaken the returns to compliance itself. The Office of the Tax Ombudsman should be given clearer authority and resources to investigate MSMEs complaints of multiple taxations. Complaints should be resolved within a defined timeframe to restore confidence in the tax system. Additionally, Kogi, Benue, and Nasarawa States, which record the highest multiple taxation rates and correspondingly weaker performance, should be prioritized for a structured benchmarking exercise against Kwara State's administrative practices. Reform targets should be measurable, such as reducing Kogi's multiple taxations incidence from 75% toward Kwara's 54.7% within a defined period.

Local government revenue collection in the lower performing states should be consolidated under a single state supervised platform, and levies that duplicate state or federal charges should be eliminated. This consolidation directly targets the administrative source of the efficiency losses identified in the analysis. Revenue authorities across the zone, particularly in weaker performing states, should expand digital tax administration, taxpayer education, and simplified presumptive tax regimes for micro enterprises. These measures should be sequenced alongside or after harmonization reforms, since compliance benefits are shown to be muted under multiple taxation. Similarly, SMEDAN and other enterprise development agencies should integrate basic tax literacy into existing entrepreneurship support programmes. This will help owner manager's act on the compliance incentives identified as beneficial in this study.

State governments and development finance institutions should pair tax reform with targeted credit facilitation for MSMEs, particularly in Kogi and Benue States. This reflects the finding that access to finance is an independent and significant driver of performance alongside taxation.

Contribution to Knowledge

This study contributes to knowledge in several respects. It offers one of the earliest comprehensive empirical assessments of taxation and MSMEs performance covering all six states of North Central Nigeria, addressing a significant regional gap in the literature. It applies Optimal Tax Theory as a unifying framework capable of explaining both the performance enhancing effect of compliance and the performance eroding effects of tax burden, multiple taxation, and weak administration within a single theoretical logic. The study also introduces multiple taxations as a moderating rather than merely additive variable, extending prior work that examined taxation variables in isolation, and demonstrates that tax administration quality independently and significantly shapes the taxation performance relationship. Finally, the use of an instrumental variable estimation strategy strengthens methodological practice in this research area by addressing the endogeneity associated with tax compliance, while the validated measurement scales developed for this study may serve as a useful instrument for future research on MSMEss taxation and performance.

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