



## Statistical Evaluation of Tax Compliance Behavior Among SMEs in Nigeria: A Modern Taxation Perspective

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### ABSTRACT

*Tax compliance among Small and Medium Enterprises (SMEs) in Nigeria remains low despite the introduction of digital tax reforms by the Nigeria Revenue Service (NRS) and state internal revenue services. This study statistically evaluated tax compliance behavior among SMEs in Kano State, focusing on the effects of digitalization, socio-economic factors, and perceptions. A cross-sectional survey of 500 SMEs was conducted using stratified random sampling across urban and rural local government areas. Structured questionnaires were administered, and 460 valid responses were analyzed using descriptive statistics, chi-square tests, and binary logistic regression. The main challenge identified was extremely low awareness of digital tax platforms (only 32.6%) and poor digital literacy among SME owners, with 44.3% rated as having low digital skills. Results showed that only 38.4% of SMEs were fully tax compliant. Logistic regression revealed that digital literacy (OR=3.27,  $p<0.001$ ), awareness of digital platforms (OR=2.51), education (OR=2.41), perceived fairness (OR=2.15), and prior tax education (OR=1.98) significantly predicted compliance. Business size and years in operation were not significant. The model correctly classified 79.4% of cases. The study recommends mandatory tax literacy programs, simplified mobile tax interfaces in local languages (Hausa), and linking tangible public services to tax payment to improve perceived fairness and voluntary compliance.*

**Keywords:** Tax compliance, SMEs, digital taxation, logistic regression, Kano State, Nigeria

### INTRODUCTION

Taxes are the lifeblood of any government. In Nigeria, there has been a serious push to rely less on oil money and more on taxes from businesses and individuals. Small and Medium Enterprises (SMEs) are at the heart of this strategy because they make up over 95% of all registered businesses in the country and contribute nearly half of the GDP (SMEDAN, 2022). But getting them to pay taxes consistently has been an uphill battle. Kano State is a major economic hub, especially in northern Nigeria. It has over 1.5 million SMEs spread across 44 local government areas (Kano State Investment Promotion Agency, 2023). That is a huge potential tax base. However, many of these businesses operate informally, keep poor records, and are suspicious of government motives. As a result, tax revenue from SMEs is far below what it could be. In response, the government has introduced modern tax tools. The Nigeria Revenue Service (NRS) formerly known as the Federal Inland Revenue Service (FIRS) along with the Kano State Internal Revenue Service (KIRS), rolled out digital platforms for tax registration, filing, and payment. Things like Tax Identification Numbers (TINs), e-filing, and mobile tax apps were supposed to make compliance easier and reduce corruption. But have they worked? That is the question this study tries to answer.

The truth is, we don't have enough hard data on whether these digital reforms are actually changing behavior on the ground, especially in Kano. Most of what we know is based on guesswork or small-scale studies. This research therefore aims to fill that gap by using real data and statistical methods to find out what really influences tax compliance among SMEs in Kano.

### LITERATURE REVIEW

Researchers have long tried to understand why some people pay taxes willingly while others avoid it. Two main ideas are often used. The first is deterrence theory, which says people comply because they

are afraid of being caught and punished (Ali *et al.*, 2021). The second is the theory of planned behavior, which suggests that a person's attitude, what others around them think, and how much control they feel over the situation all matter (Abubakar & Ibrahim, 2023). Several studies have looked at SME tax compliance in Nigeria. Musa and Ogbonna (2020) found that fear of harassment, lack of awareness, and poor record-keeping were major obstacles in northern Nigeria. Oladele and colleagues (2022) used logistic regression and found that business size, how long the business had been operating, and whether the owner had received tax education were key factors.

More recently, researchers have looked at digital taxation. Ihenyen and Mieseigha (2021) noted that even when digital tools are available, many SME owners see taxes as extortion rather than a civic duty, especially when they don't see corresponding government services. The Nigeria Revenue Service (NRS) has been modernizing its systems for years. The Integrated Tax Administration System (ITAS), electronic TIN registration, and online filing portals were all designed to make tax administration more transparent. The OECD (2022) has reported that similar systems in other developing countries have improved efficiency. But in Kano, the story appears different. Olumide and Nwachukwu (2021) found that digital literacy is a major barrier. Many SME owners simply don't know how to use the platforms. Ibrahim and Danjuma (2023) confirmed that digital literacy is positively associated with compliance. However, no large-scale study has been done specifically for Kano State using modern statistical methods.

### RESEARCH METHOD

We used a cross-sectional survey design. The target population was all registered SMEs in Kano State's 44 LGAs. To get a representative sample, we used stratified random sampling, selecting businesses from both urban areas (like Fagge, Kano Municipal, Kumbotso, Nassarawa) and rural areas (Danbatta, Bunkure, Gaya, Rano, Wudil). Using Cochran's formula, we estimated a sample size of 500 respondents. In the end, we got 460 valid responses after cleaning the data. Data were collected in August and September 2026 using a structured questionnaire. The questionnaire was administered face-to-face to SME owners or managers. We also obtained secondary data from KIRS compliance records for 2023–2025 to cross-check self-reported compliance.

**Dependent variable:** Tax compliance status. An SME was classified as compliant (coded 1) if it had filed and paid all taxes in the last 12 months. Otherwise, it was non-compliant (0).

**Independent variables:** Education level, business size, years of operation, awareness of digital tax platforms, internet access, digital literacy (low/moderate/high), prior tax education (yes/no), and perceived fairness of the tax system (agree/disagree). SPSS version 27 was used for the analysis of the data collected. First, we ran descriptive statistics (frequencies, percentages). Then we used chi-square tests to see if there were any associations between each independent variable and compliance. Finally, we built a binary logistic regression model to predict the probability of compliance. The Hosmer-Lemeshow test was used to check model fit.

Table 3.1 below gives a snapshot of the 460 SME owners who participated. Most had secondary or tertiary education. Micro businesses (1–5 employees) were the most common. Nearly half had been operating for more than five years.

**Table 3.1: Background of Respondents (n = 460)**

Variable	Category	Frequency	Percentage
Education	No formal	42	9.1
	Primary	68	14.8
	Secondary	187	40.7
	Tertiary	163	35.4
Business Size	Micro (1-5 Employees)	210	45.7
	Small (6-20 Employees)	178	38.7
	Medium (21-100 Employees)	72	15.6
Years in operation	Less than 3 years	95	20.7
	3 to 5 years	148	32.2

	More than 5 years	217	47.1
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## RESULTS AND DISCUSSION

The findings are sobering. Only 177 out of 460 SMEs (38.4%) were fully compliant. The rest over 60% were not. Even more striking, only 32.6% were even aware that digital tax platforms exist. And just 28.7% had ever received any form of tax education. Table 2 summarizes this.

**Table 4.1: Compliance and Digital Adoption**

Indicator	Category	Frequency	Percentage
Tax compliance	Compliant	177	38.4
	Non-compliant	283	61.6
Aware of digital tax platforms	Yes	150	32.6
	No	310	67.4
Has internet for business	Yes	189	41.1
	No	271	58.9
Digital literacy	Low	204	44.3
	Moderate	156	33.9
	High	100	21.8
Received tax education before	Yes	132	28.7
	No	328	71.3
Thinks tax system is fair	Agree	143	31.1
	Disagree	317	68.9

Before running the full regression, we checked each factor individually using chi-square tests. Table 3.1 shows that education, digital awareness, internet access, digital literacy, prior tax education, and perceived fairness were all significantly associated with compliance ( $p < 0.05$ ). Interestingly, business size and years in operation were not statistically significant.

**Table 4.2 Chi-Square Test Results**

Variable	Chi-square	df	p-value
Education	28.43	3	< 0.001
Business size	5.21	2	0.074
Years in operation	3.96	2	0.138
Awareness of digital platforms	42.17	1	< 0.001
Internet access	36.89	1	< 0.001
Digital literacy	57.62	2	< 0.001
Prior tax education	31.55	1	< 0.001
Perceived fairness	38.94	1	< 0.001

We then put all the significant factors into a logistic regression model. The model was statistically significant ( $\chi^2 = 124.37$ ,  $p < 0.001$ ) and fit the data well (Hosmer-Lemeshow  $p = 0.307$ ). It explained about 37% of the variation in compliance (Nagelkerke  $R^2 = 0.374$ ).

- 4.4.1 Digital literacy** is the strongest predictor. SMEs with high digital literacy are 3.27 times more likely to comply than those with low literacy.
- 4.4.2 Awareness of digital platforms** doubles the odds of compliance (OR = 2.51).
- 4.4.3 Having tertiary education** makes compliance 2.41 times more likely compared to no formal education.
- 4.4.4 Perceiving the tax system as fair** increases compliance odds by 2.15 times.
- 4.4.5 Prior tax education** increases odds by about 98% (OR = 1.98).
- 4.4.6 Business size and years in operation** remained insignificant in the full model.

**Table 4.3 Logistic Regression Analysis Results**

Predictor	$\beta$	Wald	p-value	Odds Ratio	95% CI
Education	0.88	9.88	0.002	2.41	(1.39, 4.18)
Business size	0.21	1.36	0.243	1.23	(0.87, 1.75)
Years in operation	0.15	0.88	0.348	1.16	(0.85, 1.59)
Awareness of digital platforms	0.92	14.67	< 0.001	2.51	(1.57, 4.01)
Internet access	0.74	10.35	0.001	2.10	(1.34, 3.29)
Digital literacy	1.18	14.48	< 0.001	3.27	(1.78, 6.01)
Prior tax education	0.68	5.51	0.019	1.98	(1.12, 3.50)
Perceived fairness	0.77	8.77	0.003	2.15	(1.29, 3.58)
Constant.	-2.31	27.56	< 0.001	0.10	-

The model correctly classified 79.4% of all cases. Specifically, it correctly identified 84% of non-compliant SMEs and 72% of compliant ones (Table 4.4). That means it's fairly useful for predicting who is likely to be non-compliant.

**Table 4.4: Classification Accuracy**

Observed	Predicted Non-compliant	Predicted Compliant	% Correct
Non-compliant	238	45	84.1
Compliant	50	127	71.8
<b>Overall</b>			<b>79.4</b>

### Discussion

The finding that only 38% of SMEs are tax compliant is worrying but not entirely surprising. It matches earlier reports from northern Nigeria (Musa & Ogbonna, 2020). What is more concerning is how low digital awareness is just 33%. This means that even though KIRS launched a digital platform in 2021, the majority of SMEs either don't know about it or don't know how to use it. The strong effect of digital literacy (OR = 3.27) confirms what Ibrahim and Danjuma (2023) found: it's not enough to build a platform; people need the skills to use it. In rural areas especially, many SME owners struggle with basic smartphone navigation, let alone tax filing.

Perceived fairness came out as a major factor. SMEs that believe the tax system is fair are twice as likely to comply. This supports the work of Ihenyen and Mieseigha (2021). When people see taxes as a tool for extortion rather than development, they find ways to avoid paying. The Kano State Government needs to do a better job of showing taxpayers where their money goes better roads, markets, waste disposal, etc. Prior tax education also matters. Yet, nearly three-quarters of respondents had never received any tax education. This is a clear policy failure. A simple half-day workshop or radio jingle in Hausa could go a long way.

Interestingly, business size and years of operation did not predict compliance. This differs from Oladele et al. (2022), but may be explained by the fact that in Kano, even old and relatively larger SMEs often operate informally. Age alone doesn't create a compliance culture.

### CONCLUSION

This study provides hard evidence that digital tax reforms in Kano State are not working as well as hoped. While digital literacy, awareness, and access do predict compliance, actual adoption remains very low. Moreover, behavioral factors like trust in the system and prior education are just as important if not more so. The predictive model developed here can help tax authorities identify which SMEs are most likely to be non-compliant and target their interventions accordingly.

### RECOMMENDATIONS

Based on the findings, we recommend the following:

#### For the Nigeria Revenue Service (NRS) and KIRS:

- i. Launch a massive digital literacy campaign targeted at SME clusters, especially in rural areas.
- ii. Simplify the digital tax platform and add a Hausa language interface.
- iii. Set up free help desks at major markets where traders can register and file with assistance.

**For policymakers:**

- i. Make tax education a mandatory part of business registration and annual renewal.
- ii. Link visible public services (e.g., market sanitation, security lighting) directly to tax payment to improve perceived fairness.

**For future research:**

- i. A longitudinal study following the same SMEs over time would help establish cause and effect.
- ii. Qualitative interviews with tax evaders could uncover deeper reasons for non-compliance, including corruption and distrust.

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