

Tax Professional Expertise and Voluntary Tax Compliance in Kaduna State: The Moderating Role of Gender in the Informal Sector

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Abstract: *This study examines the moderating role of gender in the relationship between tax professional expertise and voluntary tax compliance among registered informal sector businesses in Kaduna State, Nigeria. Adopting a survey research design, data were collected from 320 respondents drawn from a target population of 2,000 registered informal sector businesses. The sample size was determined using Yamane's formula, and proportionate sampling was employed to ensure fair representation across Kaduna's three senatorial districts. Descriptive statistics and multiple regression analysis were used to evaluate the relationships among the variables. The findings reveal that tax professional expertise has a significant positive effect on voluntary tax compliance ($\beta = 0.443$, $p < 0.001$), with gender serving as a significant moderator of this relationship ($\beta = 0.429$, $p < 0.001$). The study concludes that promoting the use of tax professionals can enhance voluntary tax compliance levels in Nigeria and that incorporating gender-sensitive strategies in tax advisory services is essential. From the conclusion, this study recommends that tax authorities should encourage businesses in Kaduna to engage the services of tax professionals and develop gender-responsive policies to improve voluntary tax compliance.*

Keywords: gender, informal sector, tax professional expertise, voluntary tax compliance
JEL Codes: C23, C58, C87, M21, M24, M48

INTRODUCTION

Voluntary tax compliance is a situation whereby taxpayers willingly fulfill their tax obligations without enforcement. It is a cornerstone of efficient tax systems. In developing economies like Nigeria, achieving high voluntary compliance remains a challenge, as evidenced by the

persistent gaps in revenue collection. This is particularly pronounced in the informal sector, which includes artisans and small businesses (Modugu & Omoye, 2014; Thuronyi & Vanistendael, 1996). Unlike formal sector taxpayers, whose taxes are deducted at source, informal businesses often operate outside the tax net due to limited knowledge, resource constraints, and the unavailability of professional tax services tailored to their needs (Aiworu, 2020).

Tax professionals are individuals with expertise in tax laws and administrative processes. Their responsibilities range from simplifying complex tax laws to providing advisory services that enhance taxpayers' understanding and reduce the perceived burden of compliance. These professionals act as intermediaries between taxpayers and authorities, ensuring accurate tax computation and fostering trust in the tax system (James & Alley, 2002; Sharma et al., 2022). For large corporations, in-house tax departments staffed with technical experts handle routine compliance tasks, while external advisors are consulted for complex transactions (Widt et al., 2016). However, small businesses in the informal sector rarely have such support, leaving a gap that tax professionals can bridge.

Gender is also a dimension to the discourse on tax compliance. Research by Bird and Davis-Nozemack (2018) and Richardson (2006) highlight the behavioural differences in compliance attitudes, with women generally exhibiting greater risk aversion and law-abiding tendencies compared to men. These differences influence how business owners perceive and utilize the expertise of tax professionals, thus, moderating the relationship between professional guidance and voluntary compliance. It is in view of this that this study is examining the moderating effect of gender on the relationship between professional expertise and voluntary tax compliance behaviour among registered informal sector businesses in Kaduna State. The study tested the following null hypotheses to accomplish this goal:

H₀₁: Professional expertise does not significantly affect the voluntary tax compliance of registered informal sector businesses in Kaduna State.

H₀₂: Gender does not significantly moderate the effect of tax professionals' expertise on voluntary tax compliance among registered informal sector businesses in Kaduna State.

The problem that motivated this study is that, despite numerous reforms aimed at enhancing tax compliance in Nigeria, voluntary tax compliance among registered informal sector businesses remains critically low, particularly in Kaduna State. Studies have identified a lack of access to professional tax services as significant contributor to this persistent non-compliance (Adebisi & Gbogi, 2013; Olaoye, 2009). Moreover, while professional expertise has been shown to positively influence taxpayers' willingness to comply (Fagbemi et al., 2010), gender differences in the reception and application of such expertise are rarely interrogated. The moderating role of gender—an important socio-demographic factor—has been underexplored in the tax compliance literature, particularly in developing contexts where cultural and institutional dynamics may amplify such disparities (Kasipillai & Abdul-Jabbar, 2006). Consequently, a systematic understanding of how gender interacts with professional expertise

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to influence voluntary tax compliance is urgently needed to inform inclusive and effective tax
policy interventions in Kaduna State.

The study contribute to the broader discourse on improving compliance through targeted and inclusive approaches. The scope of the study is restricted to the respondents from the registered informal sector businesses within the three Senatorial Districts of Kaduna State. The choice of the artisans and one-man businesses is on the premise that they offer a wide range of economic activities that are not regulated or protected by formal government institutions and are usually outside the tax net due to their informal nature (Ngozi, 2023).

The remainder of this paper is structured as follows. Section 2 presents a review of the relevant literature, covering conceptual issues, theoretical review, and review of empirical studies on professional expertise, gender and voluntary tax compliance behaviour. Section 3 outlines the methodology, detailing the research design, sample selection, and data analysis techniques. Section 4 presents the results of the analysis and their interpretations and a discussion of the findings, and Section 5 concludes the paper with policy recommendations and suggestions for future research.

LITERATURE REVIEW

The literature review includes the study's conceptual review, theoretical background, and review of empirical studies.

Conceptual Review

Taxation is generally characterized as an obligatory charge imposed on businesses and individuals by a government to finance its operations. One major tool to which government has continues to improve on tax collection is through making tax compliance a civil obligation, where the taxpayer himself fulfill the obligation by filing tax returns and other necessary documents required by the tax authority. James and Alley (2009) define voluntary tax compliance as a continuous no spatial whole that extends from individual societal commitment and governmental goals for legal compliance. Sitardja and Dwimulyani (2016) sees tax compliance as the willingness and ability of the tax payers to obey the tax laws, declared their actual earnings and at the same time pay the correct tax assessment.

Voluntary Tax Compliance in the Informal Sector

Voluntary tax compliance is the willingness of taxpayers to abide by the tax laws, accurately report their income each year, and timely pay the appropriate amount of taxes (Aiworo, 2020). Voluntary tax compliance from the above definitions has to be with no compulsion. Thus, the tax payer knows his or her tax amount to be paid, when to pay and where to pay without a need for reminder. This hinges on the Adam Smith principles of equity, certainty, convenience, and economy in tax collection.

Tax Professional Expertise

Tax professional expertise means more than a technical capacity of carrying out tax advisory service, it includes different professionals that provide tax services to their clients. Often these professionals include self-employed auditors, accountants, registered tax practitioners and agents, tax advisers and legal practitioners in tax business (Antonakas et al., 2013). Tax Professionals as is alternatively called also means persons employed either by the government or the tax payers to manage tax-related issues, and also bring their knowledge to help improve tax compliance by assisting their clients in the tax filing process which in turn may improve voluntary tax compliance. Devos (2012) posits that tax professionals provide service to their clients and also act as agents for the government revenue authority in promoting compliance.

Gender of Taxpayer

The gender of a taxpayer refers to the socially constructed roles, behaviours, and expectations that societies associate with being male or female, and how these gendered differences influence financial decisions, including tax compliance. Gender affects individuals' economic participation, risk preferences, trust in government, and responsiveness to tax policies (Alm & Torgler, 2006; Kirchler, 2007). For instance, studies suggest that women tend to exhibit higher levels of tax morale and compliance due to stronger ethical standards and greater risk aversion (Torgler & Valev, 2010). Additionally, gender intersects with structural inequalities—such as income disparity, access to education, and informal sector participation—that further shape tax behaviour (Bird & Zolt, 2008). Conceptualising gender not merely as a binary biological attribute, but as a social determinant, enables an understanding of taxpayer behaviour and supports the development of gender-responsive tax education and compliance strategies (Grown & Valodia, 2010).

Theoretical Review

To better explain voluntary tax compliance and tax professional expertise the study anchored on the Theory of Planned Behaviour (TPB) developed by Ajzen (1991) which holds that people will logically make decisions on what activities to engage in with interest-provoking behaviour toward the outcome and results and also considering how favorable or unfavorable the outcome will be from engaging in that activity that drives their decisions. These expectations serve as the foundation for the three distinct beliefs that make up the TPB Model. Ajzen's (1991) enhanced his work, with these beliefs which are normative beliefs (perceived social pressure), control beliefs (perceived ease or difficulty in engaging in a desired/undesired behaviour), and behavioural beliefs (perceived beliefs about the likely outcomes from engaging in the target behaviour and evaluation of the desirability outcomes). These factors arguably may have an impact on people's intentions to engage in their desired behaviour. That is a behaviour is controlled by the individual desire to act considering the immediate impact of perceived behaviour. The TPB has been used to describe human behaviour since its development twenty years ago and has received extensive validation in the behavioural domain and most effective models for predicting behavioural intents, according to the literature (Ajzen, 2010). The TPB applied to this study by showing that taxpayers drive to voluntary tax compliance is based on the quality of the tax system, and what it can provide them when they pay their tax.

Empirical Review

Thuronyi and Vanistendael (1996) investigated the role of tax professionals in improving voluntary tax compliance in selected European countries, Australia, and the United States of America. The study examined the role of tax professionals in giving provisional advice in Europe, Australia, and the United States of America. Comparing tax advisory services in these three continents, their roles and assistance to taxpayers, and the various regulations in which tax professionals operate in these three continents. The study considered the role of monopoly in the tax system in Western society and how it affects the tax process and tax system. The study concludes that the role of tax professionals cannot properly be viewed in isolation but is impacted by the country's culture and its economic and legal system. Thus, an approach that may work for one country may not be good for another.

Devos (2012) empirically examined the relationship between the advice provided by tax professionals and the compliance behaviour of Australian individual taxpayers. Using a survey instrument divided into six sections with a total of 30 questions looking at both tax evaders and non-evaders from the perspective of the taxpayers. The findings showed a statistically significant relationship between engaging tax professionals and compliance behaviour generally. The study also showed evidence of a significant relationship between tax professionals' advice and the compliance behaviour of non-evaders. Thus, it was concluded that the study outcome would be useful for the Australian Taxation Office and also have implications for tax policy development.

Borrego et al. (2013) examined the role of tax agents in tax compliance. The study analyzes the phenomenon into two main groups. First, those who examined the role of tax professionals from the perspective of the taxpayers indicated their perception of tax complexity as the motive to use tax agents' services. Second, those that examine the tax agents' attitudes. The study concludes that the first group sees tax agents or tax professionals as very important in reducing uncertainty for taxpayers. Their findings agreed with several other studies by Hitte and McGill (1992) and Collins et al. (1990) that taxpayers would always seek to have their tax return filled correctly and would always seek conservative advice.

Saad (2014) investigated taxpayers' views on their level of tax knowledge, the perceived complexity of the income tax system, and the underlying reasons for non-compliance behavior in New Zealand. The study employed a qualitative design using telephone interviews with 30 participants, drawn from a population of 2,267 invited individuals, comprising 18 males and 12 females across eight regions. The sample included various categories such as salary earners, retirees, entrepreneurs, a student, and a welfare beneficiary. The data were analyzed through a step-by-step thematic analysis of transcribed interviews. The study found that while some participants had a general understanding of the income tax system, many lacked technical knowledge, especially among self-employed individuals who found the system particularly burdensome due to requirements like PAYE, GST, and Kiwisaver. The income tax system was widely perceived as overly complex, with extensive paperwork contributing to compliance challenges. Furthermore, behavioral factors such as attitude, perceived control, complexity, and fairness perceptions were identified as contributors to non-compliance. A major strength of the

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Widt et al. (2016) investigate the role of tax professionals, specifically tax advisers, in large business tax. Comparing tax advisory industries in EU member states, specifically the United Kingdom, Ireland, the Netherlands, and Germany. Focusing on the professional background of tax advisers and the regulatory frameworks in which they operate, the study lists several types of professionals—exclusive tax advisers. Stating the rules the tax professionals must adhere to directly, mostly documented in laws, codes, standards, or a combination thereof. The study concludes that to identify the relationship between tax advisers (tax professionals) and taxpayers' voluntary compliance, a multidimensional analysis within the wider regulatory landscape is needed, with no limit to regulations that apply to the tax profession.

Musimenta (2020) investigated the relationship between knowledge requirements, tax complexity, compliance costs, and tax compliance in Uganda, focusing on how compliance costs mediate the relationships. The study adopted a cross-sectional and correlational research design and sampled VAT-registered withholding agents presumed to be tax compliant, thus offering a more focused perspective compared to prior studies. Data were analyzed to determine both direct and indirect effects. The findings revealed that knowledge requirements had no significant relationship with compliance costs, although they were more relevant in explaining internal rather than external compliance costs. Despite adequate taxpayer knowledge, compliance costs were still incurred. The study established that tax complexity significantly increases compliance costs and, in turn, affects compliance levels both directly and indirectly. A key strength of the study is its methodological rigor in targeting compliant agents and combining multiple variables into a single explanatory framework. However, a limitation is that the study's generalizability may be constrained due to its focus on only compliant VAT withholding agents.

Kaghazloo and Borrego (2022) investigated factors affecting tax professionals' tax non-compliant behaviour by using the interpretive structural modeling method. The study used a comprehensive review of related literature on the perception of 30 tax professionals based in Iran, and five factors were identified and used to explain tax professionals' tax non-compliant behaviour. These factors are gender, age, complexity, legislative tax, tax knowledge, and compliance tax complexity. The results of the study showed that gender and age were the most influencing factors affecting tax professionals' tax noncompliant behaviour.

Awotomilusi (2022) examined the effect of tax administrators' professional skills and tax audits on voluntary tax compliance among Nigerian taxpayers, in response to the persistent problem of low compliance levels despite ongoing reforms. The study adopted a survey research design, administering structured questionnaires to a sample of 84 respondents selected from the Federal Inland Revenue Service (FIRS) in Garki Abuja. Simple random sampling techniques were used to ensure fair representation. The data collected were analyzed using multiple regression analysis to determine the strength and significance of relationships among the variables. The findings revealed that tax administrators' professional skills have a positive but statistically

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insignificant influence on voluntary tax compliance. However, tax audit practices exhibited a positive and statistically significant effect on voluntary tax compliance. The study recommended regular training for tax officials and consistent auditing procedures to foster compliance. However, a key limitations of the study lies in very small sample size and its geographic restriction to IFRS staffs in FIRS) in Garki Abuja which may affect the generalizability of the results across other tax jurisdictions.

Appah and Aganaba (2024) investigated the effect of tax knowledge on voluntary tax compliance among informal sector operators in Bayelsa State, Nigeria, in response to persistent tax non-compliance challenges within the informal economy. The study employed a cross-sectional survey research design, targeting a population of 30,450 informal sector operators and utilized a stratified sampling technique to ensure representation. Data were collected through structured questionnaires that underwent validity and reliability tests before administration. Analysis of the responses was carried out using univariate, bivariate, and multivariate techniques. The results demonstrated tax knowledge have a positive and statistically significant relationship with voluntary tax compliance. Moreover, public trust was found to significantly moderate the relationship between tax knowledge and voluntary compliance. The authors concluded that enhancing tax knowledge and rebuilding public trust are critical for improving voluntary compliance in the informal sector. However, a limitation of the study is its sole reliance on quantitative survey data, which may not capture deeper socio-cultural or psychological factors influencing taxpayer behavior.

Appiah et al. (2024) investigated how tax knowledge, perceptions of fairness, and trust in government influence voluntary tax compliance among SMEs in Ghana, focusing on the city of Sekondi-Takoradi. Using data from 341 SMEs and employing structural equation modeling (SEM), the study found that social and behavioral factors significantly affect tax compliance decisions. Notably, tax knowledge, trust in government, and especially perceptions of tax fairness emerged as strong predictors of voluntary compliance. Furthermore, the research revealed that tax fairness mediates the relationship between tax knowledge and compliance behavior, suggesting that efforts to increase tax knowledge may be more effective when accompanied by perceived fairness in the tax system. The study contributes valuable insights for policymakers aiming to enhance revenue mobilization by addressing the softer elements of tax behavior, particularly in emerging economies grappling with revenue shortfalls and growing debt burdens.

Table 1: *Summary of Empirical Literature reviewed*

Author(s)	Country	Focus	Method	Results	Gap
Devos (2012)	Australia	Tax professionals and the compliance behaviour	Quantitative	A significant result	No gender moderator
Borrego et al. (2013)	Portugal	The role of tax agents in tax compliance	Survey	A significant effect	No gender moderator
Saad (2014)	New Zealand	Tax fairness and Trust	Thematic analysis	Behavioral factors led to non-tax compliance	Ignore the informal sector gender
Widt et al. (2016)	EU countries	Tax advisory industries	Qualitative	Tax advisers enhance tax voluntary compliance	Not quantitative
Awotomilusi (2022)	Nigeria	Tax professional skills and tax audits on voluntary tax compliance	Survey	Insignificant effect	Limited to Garki
Appah and Aganaba (2024)	Bayelsa	Tax knowledge and voluntary tax compliance	cross-sectional survey	Significant effect	Rely on quantitative data
Appiah et al. (2024)	Ghana	Tax knowledge, fairness, & trust on voluntary tax compliance	SEM	A significant effect	Ignores informal sector gender effects

Source: Researcher's Compilation

METHODOLOGY

This study adopted a survey research design to investigate the effect of professional expertise on voluntary tax compliance among the registered informal sector businesses in Kaduna State, Nigeria, whether the gender of the tax payers influences this effect.

Population and Sample Size

The target population consists of 2,000 registered business taxpayers from the Federal Inland Revenue Service (FIRS) data base, representing various sectors such as spare-part dealers, auto mechanics, carpenters, fashion designers, and small-scale business owners across three major regions: Kaduna, Zaria, and Kafanchan. A sample size of 334 respondents was determined using Yamane's (1967) formula:

$$n = \frac{N}{1+N(e^2)}$$

Where:

$n = 334$ (sample size),

$N = 2000$ (population size),

$e = 0.05$ (margin of error).

$$= \frac{2000}{1+2000(0.05)^2} = 334$$

The sample was proportionally distributed across the three senatorial districts of Kaduna State:

$$\text{Kaduna Central} = \frac{1200}{2000} \times 334 = 200 \text{ respondents,}$$

$$\text{Zaria} = \frac{550}{2000} \times 334 = 92 \text{ respondents, and}$$

$$\text{Kafanchan} = \frac{250}{2000} \times 334 = 42 \text{ respondents.}$$

Model Specification

The direct relationship between government accountability and voluntary tax compliance was tested using the regression model (1):

$$VTCB_i = \beta_0 + \beta_1 TPE_i + \beta_2 GEND_i + \beta_3 AGE_i + \varepsilon_i \dots\dots\dots (1)$$

Where:

VTCB = Voluntary tax compliance behaviour (VTCB),

TPE = Tax professional's Expertise,

GEND = Gender,

AGE = Age,

ε = Error term.

This model examines the direct impact of tax professional's expertise (TPE) on voluntary tax compliance, controlling for gender, and age.

To examine the moderating effect of gender on the relationship between tax professional expertise and voluntary tax compliance, the moderated model (2) was tested:

$$VTCB_i = \beta_0 + \beta_1 TPE_i + \beta_2 GEND_i + \beta_3 (TPE * GEND)_i + \beta_4 AGE_i + \varepsilon_i \dots (2)$$

Where:

$(TPE * GEND)$ = Interaction term between tax professional expertise and gender.

This model tests whether the effect of tax professional's expertise on voluntary tax compliance is stronger for one gender over the other. The interaction term $(TPE * GEND)$ captures the moderating effect of gender.

Source of Data Collection

Primary data were collected through structured questionnaires administered to business owners or their managers, who were most familiar with the tax compliance behaviour of their businesses. The research questionnaire is attached in Appendix A.

Due to the known issues commonly linked with the development of survey-based studies (e.g., achieving acceptable response rates), the businesses were surveyed by the researcher and with the help of the three (3) research assistants who were engaged in data collection. The survey was conducted between late 2023 and early 2024 using a questionnaire. The questionnaire included multi-item (mainly five-point Likert scales whose response ranges from 1 = strongly disagree to 5 = strongly agree for some questions, and 1 = never to 5 = always), and demographic questions. The questionnaire was validated by three academic experts and one

Publication of the European Centre for Research Training and Development-UK tax practitioner, and was pre-tested in July 2023 with 20 respondents within Kaduna metropolis. The final questionnaire was sent to 334 registered informal sector businesses; 200, 92 and 42 copies of the questionnaire were sent to registered business in Kaduna Central, Zaria and Kafanchang Senatorial Zones, respectively. This survey process finished in May 2024, yielding a total of 320 respondents, which represents a response rate of 95.8%.

Variables Definition and their Sources

Table 2 shows the definitions of voluntary tax compliance behaviour and tax professional expertise with their sources.

Table 2 : Variables definition and sources

Variable	Acronyms	Definition	Measurement	Source	Apriori
<i>Dependent</i>					
Voluntary Tax Compliance Behaviour	VTCB	Taxpayers' willingness to pay their taxes in accordance with the applicable laws, rules, and regulations.	Survey Questionnaire on a 5-Point Likets scale	Kirchler (2007); Sitardja and Dwimulyani (2016)	
<i>Independent</i>					
Tax professional's expertise	TPE	Knowledge gained in the field through experience within a defined domain, considering the general qualities of leadership	Survey Questionnaire on a 5-Point Likets scale	Sharma et al. (2022)	+
<i>Moderating</i>					
Gender	GEND	Taxpayer's gender	Binary "1 = Male" "2 = Female"	Torgler and Valev (2010)	+
<i>Control</i>					
Age	AGE	Taxpayer's age	1= below 30 2 = 31 - 40 3 = 41 - 50 4 = 51 - 60 5 = above 60	Hofmann et al., (2008).	+

Source: Researcher compilation 2025

Data Analysis

The study employed principal component factor (PCF), descriptive and multiple regression for the analysis. Descriptive statistics (e.g., means, frequencies, and standard deviations) were used to summarize the characteristics of the respondents, while multiple regression were used to test

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the study hypotheses. Multiple regression was used to test both the direct and moderated effects of tax professional expertise on voluntary tax compliance. The PCF, therefore, accounts for all the variance and covariance of the set of items rather than portion of the covariance that the items share in common.

Diagnostic Tests

Before interpreting the regression results, diagnostic tests were performed to validate model assumptions. Multicollinearity was assessed using the Variance Inflation Factor (VIF), with all values below 1.5, indicating no significant multicollinearity. The normality of residuals was evaluated through Shapiro–Wilk W tests, confirming a normal distribution. Additionally, the Breusch-Pagan test was conducted to check for heteroscedasticity, ensuring that the variance of residuals remained constant across observations.

RESULTS AND DISCUSSION

This section presents the descriptive statistics, the correlation assumptions alongside the various tests, and the results of the regression analysis. In this section, the data obtained from the field were 320 questionnaires returned out of 334 questionnaires that were administered. Some were properly filled out while a few questionnaires were incomplete.

Table 3: *Analysis of Questionnaire*

Variable	Obs	Mean	Std. Dev.	Min	Max
My business is registered with the Kaduna State Internal Revenue Service (KADIRS) for the purpose of taxation.	320	1.903	.83	1	5
I have a Tax Identification Number (TIN).	320	1.881	.881	1	5
I always pay my taxes on time.	320	1.953	1.011	1	5
I keep a receipt number as evidence of my tax payments.	320	1.731	.821	1	5
I determine the taxes my business has to pay by either assessment from KADIRS or self-computation.	320	1.703	.89	1	5
My business regularly consults a tax professional for advice on tax matters	320	2.063	.793	1	5
The expertise of tax professional helps my business understand and comply with tax regulations	320	1.959	.846	1	5
I believe that engaging a tax professional improves my business willingness to comply voluntarily with tax obligations	320	2.481	.885	1	5
Without professional tax advice, it would be difficult for my business to meet its tax responsibilities on time	320	1.631	.839	1	5

Source: Researcher compilation 2025

The descriptive statistics provide information on the levels of voluntary tax compliance and taxpayer education among the 320 respondents. Each variable is assessed on a Likert scale, ranging from 1 to 5. The data reveal respondents' perceptions of voluntary tax compliance and tax professional expertise. The first five questions assess voluntary tax compliance, while the remaining four focus on tax professional expertise.

Voluntary Tax Compliance

The first question assesses whether businesses are registered with the Kaduna State Internal Revenue Service (KADIRS). With a mean score of 1.903 and a standard deviation of 0.83, the data suggests that a majority of businesses are not registered with KADIRS. This finding aligns with existing research indicating that many small and medium-sized enterprises (SMEs) in Nigeria operate informally to evade taxation (Adebisi & Gbegi, 2013). Given the importance of business registration for tax collection and economic development, this low level of compliance presents a challenge for tax authorities. This outcome suggests challenges, such as limited awareness, inadequate enforcement mechanisms, or a lack of incentives to encourage tax registration, and suggests low voluntary tax compliance.

Similarly, the question on whether respondents have a Tax Identification Number (TIN) shows a low mean score of 1.881 with a standard deviation of 0.881. This result reveals that most business owners either do not have a TIN or are unaware of its necessity. This suggests that obtaining a TIN is not a common practice among the respondents. The TIN is important for tax compliance and enables authorities to track payments (Atawodi & Ojeka, 2012). A lack of TIN registration shows that there is low voluntary tax compliance.

The statement “*I always pay my taxes on time*” records a mean of 1.953 and a standard deviation of 1.011, indicating that punctual tax remittance is not a widely practiced behaviour among respondents. The higher standard deviation suggests greater variability in responses. Factors such as lack of knowledge, or administrative inefficiencies may account for these disparities. Late tax payments can be attributed to various factors, including poor enforcement, lack of trust in government, and financial constraints (Fagbemi et al., 2010).

For “*I keep a receipt number as evidence of my tax payments,*” the mean value is 1.731, with a standard deviation of 0.821. This indicates a limited prevalence of record-keeping practices among respondents. The low mean suggests a lack of awareness about the importance of maintaining such records and an absence of enforcement mechanisms that emphasize the necessity of proper documentation. Studies have shown that maintaining tax receipts improves compliance, as it provides proof of payment and reduces disputes with tax authorities (Torgler, 2007).

The statement “*I determine the taxes my business has to pay by either assessment from KADIRS or self-computation*” yields a mean score of 1.703 and a standard deviation of 0.89. This outcome indicates that while a few business owners engage in tax assessments, the majority do not. This is in agreement with Ariyo (1997) who concluded that many businesses in Nigeria rely on informal methods or avoid taxes altogether. The findings suggest a generally low level of voluntary tax compliance, with most businesses not registered with KADIRS, lacking TINs, and failing to pay taxes on time. Additionally, record-keeping practices are poor, and most businesses do not actively assess their tax obligations.

Tax Professional Expertise (TPE)

The descriptive statistics presented in Table 3 also describe the extent to which registered informal sector businesses in Kaduna utilize and value the expertise of tax professionals. The responses to the four questionnaire items measuring professional expertise were measured on a 5-point Likert scale ranging from “Strongly Disagree” (1) to “Strongly Agree” (5). The results reveal generally low mean scores across all the items, indicating limited engagement with tax professionals among the surveyed businesses.

The statement “*My business regularly consults a tax professional for advice on tax matters*” recorded a mean of 2.063 and a standard deviation of 0.793, suggesting that most respondents disagreed about regular consultation with tax professionals. This low average reflects the informal nature of many registered informal sector businesses in Kaduna, which often lack structured tax advisory mechanisms (Asongu et al., 2019). The moderate standard deviation also suggests some variability, indicating that while regular consultation is not common, there is a minority that engages such services frequently.

In a similar vein, the mean for the statement “*The expertise of tax professionals helps my business understand and comply with tax regulations*” is 1.959, with a standard deviation of 0.846. This indicates widespread skepticism regarding the value added by tax professionals among registered informal sector businesses in Kaduna State. This aligns with literature suggesting that in developing economies, informal sector operators often perceive tax systems as complex and irrelevant to their micro-level operations (Joshi et al., 2014). The low mean further signals a disconnect between the informal business environment and formal tax advisory services.

Interestingly, a slightly higher mean of 2.481 was recorded for the item “*I believe that engaging a tax professional improves my business willingness to comply voluntarily with tax obligations,*” suggesting a more positive perception of the potential influence of tax professionals on voluntary compliance. Although still below the midpoint, this finding aligns with Fjeldstad and Heggstad (2012), who argue that improved taxpayer support, including access to professional advice, can enhance compliance behaviour even in the informal sector. The mean and standard deviation (0.885) indicate diverse views among respondents, possibly reflecting differences in business size, education levels, or prior experiences with tax professionals.

Lastly, the statement “*Without professional tax advice, it would be difficult for my business to meet its tax responsibilities on time*” had the lowest mean of 1.631, reinforcing the perception that most registered informal sector businesses Kaduna do not rely on or see the necessity of professional tax advice for timely compliance. This result may stem from the minimal or irregular tax obligations encountered by such enterprises, or from a general tendency to engage in tax avoidance practices due to weak enforcement (Torgler & Schneider, 2007). While there is a slight acknowledgment of the potential benefits of engaging tax professionals, widespread utilization is limited.

Principal Factor Analysis

The research items and questions in this study were designed to measure two latent variables: voluntary tax compliance behaviour (VTCB) and tax professional's expertise (TPE). Gender and age were considered observable variables. To assess VTCB and TPE, the study employed a principal factor analysis (PFA) approach. Unlike the ordinary summation method, which aggregates raw scores but does not account for redundancy or measurement error, PFA offers a better representation of latent constructs. It utilizes factor loadings to weigh variables based on their contribution to the latent factor (Hair et al., 2019). This method ensures that the extracted factors accurately reflect the underlying structure of the data, thereby enhancing both construct validity and reliability (Field, 2018; Kline, 2023). The factor analysis presented in Table 4 shows the reliability of the VTCB and TPE.

Table 4 *Factor analysis and reliability measures*

Construct	Loadings range	Cronbach's α	% Var extracted	Eigenvalue	KMO
Voluntary Tax Compliance Behaviour (VTCB)	0.629 - 0.727	0.696	0.457	2.284	0.761
Tax Professionals Expertise (TPE)	0.486 - 0.760	0.677	0.484	1.937	0.585

Source: Researcher compilation 2025

The factor loadings for VTCB range from 0.629 to 0.727, indicating that the items measuring VTCB are fairly good indicators of the underlying construct. In social science research, loadings above 0.6 are generally considered adequate (Hair et al., 2010), which suggests that the items used to measure VTCB are reasonably reliable, though some could potentially be improved. The Cronbach's α for VTCB is 0.696, which, while slightly below the ideal threshold of 0.7, still falls within an acceptable range for exploratory research (Nunnally, 1978). This indicates that there is a moderate level of internal consistency among the items measuring VTCB. The variance extracted is 0.457, meaning that about 45.7% of the variability in the data is explained by the VTCB construct. This level of explanatory power is moderate, suggesting that while VTCB captures a significant portion of the data's variance, other factors may still be influencing the observed behaviour.

The eigenvalue for VTCB is 2.284, which exceeds the 1.0 threshold (Kaiser, 1960), indicating that the factor explaining VTCB is meaningful and contributes significantly to the overall variance. Additionally, the Kaiser-Meyer-Olkin (KMO) value for VTCB is 0.761, which is considered good (Kaiser, 1974). This high KMO value indicates that the data is suitable for factor analysis, with sufficient correlations among the variables to justify the factor extraction. For TPE, the factor loadings range from 0.486 to 0.760, indicating some variability in the strength of the relationship between the items and the underlying construct. While the highest loading of 0.760 suggests strong validity for certain items, the lower end of the range, 0.486, indicates that some items are less robust indicators of the construct. This variability suggests that the measurement of TPE could be further refined, particularly for items with lower loadings (Field, 2013). The Cronbach's α for TPE is 0.677, which is slightly below the ideal

Publication of the European Centre for Research Training and Development-UK threshold of 0.7 but still within an acceptable range (Hair et al., 2010). This suggests that the items measuring TPE are reliable to a moderate extent, but there is room for improvement in internal consistency.

The variance extracted for TPE is 0.484, meaning that 48.4% of the variance in the data is explained by the TPE construct. This is a moderately acceptable value, indicating that while the TPE factor captures a decent portion of the variability, there is still significant unexplained variance that could be accounted for by other variables or constructs. The eigenvalue of 1.937 indicates that the TPE factor accounts for a substantial amount of the data's variance, which is considered meaningful in factor analysis (Kaiser, 1960). However, the KMO value for TPE is 0.585, which is lower than the generally accepted threshold of 0.6 (Kaiser, 1974). A KMO value below 0.6 suggests that the data may not be as well-suited for factor analysis as ideal, indicating that the relationship among the variables may be weaker or less coherent than in the VTCB construct.

Descriptive Statistics

The descriptive statistics focuses on understanding the distribution of VTCB, TPE, TPE*GEND, GEND, and AGE. The descriptive statistics for each of these variables are presented in Table 5.

Table 5 *Descriptive Statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
VTCB	320	2.663	.707	1.477	5
TPE	320	2.299	.584	1.3	4.187
TPE*GEND	320	2.633	1.311	1.3	8.373
GEND	320	1.116	.32	1	2
AGE	320	2.422	.853	1	5

Source: Researcher compilation 2025

The mean for VTCB is 2.663, with a standard deviation of 0.707, indicating that most respondents score below the mid-point (3). This suggests a low level of voluntary tax compliance behaviour among the surveyed businesses. The minimum value is 1.477, which indicates that some respondents may be engaged in low compliance levels, while the maximum value is 5, indicating that a few individuals show high compliance. A standard deviation of 0.707 suggests that the responses are relatively close to the mean but still exhibit some variation, which is expected given the diverse reasons behind voluntary tax compliance (Alm, 2019). These results align with previous studies that highlight a range of compliance behaviours in developing economies, with factors such as trust in government, perceived fairness, and the availability of tax services influencing these attitudes (Torgler & Schneider, 2007).

The mean for TPE is 2.299, with a standard deviation of 0.584. This suggests that, on average, respondents have a low perception of the expertise of tax professionals. The value suggests that while tax professionals are somewhat recognized for their expertise, the perception is not

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overwhelmingly positive. The minimum value is 1.3, indicating that some respondents may not perceive tax professionals as knowledgeable or trustworthy. The maximum value is 4.187, suggesting that a few respondents highly value the expertise of tax professionals. This is consistent with research indicating that while many taxpayers in developing economies acknowledge the importance of tax professionals, there remains skepticism about their effectiveness or accessibility (Richardson & Sawyer, 2001). The relatively low standard deviation implies that most respondents' views on tax professionals are fairly consistent but not highly enthusiastic.

The variable TPE*GEND represents the interaction between TPE and gender, with a mean value of 2.633 and a standard deviation of 1.311. The higher standard deviation indicates considerable variation in how gender influences the perceived expertise of tax professionals. The interaction term reflects how gender-based differences might impact the views on the role of tax professionals. This result suggests that gender might moderate how individuals assess tax professionals' effectiveness or trustworthiness. Prior studies have indicated that gender can influence tax-related behaviours, with some evidence suggesting that female business owners might exhibit different compliance behaviour due to social and cultural factors (Luttmer & Singhal, 2014). However, this requires further examination to establish stronger causal relationships.

The mean for GEND is 1.116, with a standard deviation of 0.32, indicating that the majority of respondents in the sample are male ("1" corresponds to male and "2" to female). The low standard deviation suggests that the gender distribution in the sample is somewhat skewed, with a significant proportion of the respondents identifying as male. This is consistent with the general trend observed in many Nigerian studies, where men are often overrepresented in business ownership and management positions (Ariyo, 1997). The skewed gender representation may have implications for understanding tax compliance, as gender-specific cultural and social influences on tax behaviour could play a role in shaping attitudes toward tax compliance and professional advice.

Age (AGE) is also a demographic variable in the study, categorized into five groups ranging from 21–30 years to 61+ years. The mean score of 2.422 places the majority of respondents in the 31–40 years age range, with a standard deviation of 0.853. Age has been shown to significantly influence tax morale and compliance behaviour. Kirchler (2007) found that younger taxpayers are often less compliant than older individuals due to differences in life experiences, income stability, and social responsibilities. The relatively uniform age distribution in the sample may thus limit the variability of findings but still provides valuable insights into the compliance behaviour of a key demographic group.

Correlation Matrix

Table 6 presents the correlation coefficients between Voluntary Tax Compliance Behaviour (VTCB), Tax Professional's Expertise (TPE), Gender (GEND), and Age (AGE), with p-values in parentheses to assess statistical significance.

Table 6 *Pairwise correlations*

Variables	(1)	(2)	(3)	(4)
(1) VTCB	1.000			
(2) TPE	0.604 (0.000)	1.000		
(3) GEND	0.654 (0.000)	0.362 (0.000)	1.000	
(4) AGE	0.084 (0.132)	0.051 (0.363)	0.027 (0.625)	1.000

Source: Researcher compilation 2025

The correlation between VTCB and TPE is 0.604 with a p-value of 0.000, indicating a statistically significant positive relationship. This suggests that greater expertise among tax professionals is associated with higher voluntary tax compliance. This finding aligns with previous studies indicating that tax professionals' guidance improves taxpayer compliance by enhancing understanding of tax regulations (Saad, 2014). Similarly, VTCB and GEND have a strong positive correlation of 0.654 ($p = 0.000$), implying that gender differences might play a role in tax compliance behaviour. Prior research has found that women often demonstrate higher compliance due to risk aversion and ethical considerations (Alm & Torgler, 2006). The correlation between VTCB and AGE is 0.084, but the p-value (0.132) suggests statistical insignificance. This means that age does not have a meaningful linear association with voluntary tax compliance. Some studies suggest that age influences compliance through experience and financial stability (Damayanti et al., 2015), but the lack of significance here implies that other factors may moderate this relationship.

The correlation between TPE and GEND is 0.362 ($p = 0.000$), showing a moderate positive relationship. This suggests that gender differences may influence tax professionals' expertise, potentially due to varying educational or professional experiences. However, TPE and AGE have a weak and insignificant correlation of 0.051 ($p = 0.363$), indicating that age does not strongly influence tax expertise. This result contrasts with studies suggesting that professional experience increases with age, enhancing expertise (Tan & Braithwaite, 2018). The correlation between GEND and AGE is 0.027, with a p-value of 0.625, indicating an extremely weak and statistically insignificant relationship. This suggests that age does not significantly influence gender-based variations in tax compliance or expertise.

Multicollinearity Test

Table 7 presents the VIF values for TPE, GEND, and AGE, along with their respective tolerance values ($1/\text{VIF}$).

Table 7: Variance inflation factor

	VIF	1/VIF
TPE	1.153	.867
GEND	1.151	.869
AGE	1.003	.997
Mean VIF	1.102	.

Source: Researcher compilation 2025

The VIF for TPE is 1.153, with a corresponding tolerance value of 0.867. This suggests that TPE has a low level of multicollinearity with other independent variables, as its VIF value is well below the critical threshold of 10. A tolerance value close to 1 further confirms that TPE is not significantly correlated with the other predictors in the model. This aligns with prior studies indicating that tax professionals' expertise is a relatively independent factor influencing taxpayer behaviour (Saad, 2014). Similarly, GEND has a VIF of 1.151 and a tolerance value of 0.869, indicating a minimal risk of multicollinearity. Since gender is a categorical variable, it is expected to have low correlation with continuous predictors, reinforcing the robustness of its inclusion in the model.

The VIF for AGE is 1.003, with a tolerance value of 0.997, indicating virtually no multicollinearity. This result suggests that age is an independent predictor with minimal overlap with other explanatory variables. Previous research has shown that demographic variables like age tend to exhibit low multicollinearity in tax compliance studies, as they do not directly influence professional expertise or gender-related factors (Damayanti et al., 2015). The mean VIF across all predictors is 1.102, further confirming that multicollinearity is not a concern in this model. A mean VIF value close to 1 indicates that the independent variables are well-structured and do not pose estimation challenges (O'Brien, 2007).

Normality of Error Term

The Shapiro–Wilk W test was applied to a dataset with 320 observations for the residual term (e). The test yielded a W statistic of 0.995 as shown in Table 8, which is very close to 1, suggesting that the data is approximately normal.

Table 8: Shapiro Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
e	320	0.995	1.182	0.394	0.347

Source: Researcher compilation 2025

The associated V statistic of 1.182 and z-score of 0.394 indicate that there is no strong deviation from normality. More importantly, the p-value (Prob > z) is 0.347, which is well above the conventional significance threshold of 0.05. This means that there is insufficient statistical evidence to reject the null hypothesis, implying that the data does not significantly deviate from a normal distribution. While larger sample sizes often reduce the impact of normality violations due to the central limit theorem, confirming normality through tests like Shapiro–Wilk remains essential in statistical modeling to ensure the validity of results (Razali & Wah, 2011). Given

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the p-value above 0.05, the data meets the assumption of normality, allowing for the application of statistical methods that assume normally distributed errors.

Regression Results

Regression results are presented in Table 9, in the results VTCB is the dependent variable, while TPE, GEND, and AGE serve as independent variables.

Table 9 *Linear regression*

VTCB	Before Moderation			After Moderation		
	Coef.	t-value	p-value	Coef.	t-value	p-value
TPE	0.509	10.55	0.000 ***	0.443	8.77	0.000 ***
GEND	1.106	10.89	0.000 ***	-0.088	-0.25	0.803
TPE*GEND	-	-	-	0.429	3.13	0.002 ***
AGE	0.041	1.560	0.120	0.038	1.46	0.145
Constant	1.267	10.67	0.000 ***	1.418	11.36	0.000 ***
R ²			0.585			0.600
F			131.426			99.358
Prob > F			0.000			0.000
N			320			320

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Researcher compilation 2025

The regression model explains 58.5% of the variation in VTCB (R -squared = 0.585), indicating a moderately strong model fit. The F-test value of 131.426 with a p-value of 0.000 confirms the overall model fitness. The coefficient for TPE is 0.509 with a standard error of 0.048, a t-value of 10.55, and a p-value of 0.000, indicating a highly significant positive relationship at the 5% level. This suggests that an increase in tax professionals' expertise is associated with a higher likelihood of voluntary tax compliance. This aligns with prior research that emphasizes the role of tax professionals in guiding taxpayers toward compliance through better understanding and advisory services (Tan & Braithwaite, 2018).

Similarly, GEND has a coefficient of 1.106, meaning that gender differences significantly influence voluntary tax compliance behaviour. The t-value of 10.89 and p-value of 0.000 confirm statistical significance at the 5% level, suggesting that compliance tendencies vary across genders. Prior studies indicate that women generally exhibit greater tax compliance due to higher ethical concerns and risk aversion, which may explain this result (Alm & Torgler, 2006).

On the other hand, AGE has a coefficient of 0.041, but with a t-value of 1.56 and a p-value of 0.12, it is not statistically significant. This contradicts some studies that argue that older individuals are more likely to comply due to experience and financial stability (Damayanti et al., 2015). However, the result implies that other factors, such as education, income level, or tax enforcement mechanisms, may play a more critical role than age in determining tax compliance behaviour.

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After the moderation, the R^2 increased from 58.5% to 0.600, indicating that 60% of the variation in VTCB is explained by the independent variables, suggesting a relatively strong model fit. The coefficient for TPE is 0.443 after moderation, a t -value of 8.77, and a p -value of 0.000, which is statistically significant at the 5% level ($p < 0.05$). This positive and significant effect suggests that higher expertise among tax professionals is strongly associated with increased voluntary tax compliance. The findings support prior research showing that taxpayers rely on expert guidance to navigate tax regulations, reducing uncertainty and enhancing compliance (Saad, 2014). This result aligns with theoretical perspectives that emphasize the role of tax professionals in improving taxpayer confidence and adherence to tax laws (Tan & Braithwaite, 2018).

The interaction term TPE*GEND has a coefficient of 0.429, a t -value of 3.13, and a p -value of 0.002, this suggests that the impact of tax professionals' expertise on voluntary compliance varies based on gender. The positive coefficient indicates that gender moderates the effect of tax expertise, meaning that for certain gender groups, tax expertise has a stronger influence on compliance. This interaction effect shows the complexity of gender in tax behaviour and suggests that the effectiveness of tax professionals may differ between male and female taxpayers. Similar findings have been observed in studies where gender-specific behavioural tendencies affect how individuals respond to professional tax advice (Damayanti et al., 2015).

CONCLUSION AND RECOMMENDATIONS

This study examined the moderating role of gender on the relationship between tax professionals' expertise and voluntary tax compliance among registered informal sector businesses in Kaduna State. The findings indicate that voluntary tax compliance remains generally low, particularly among small businesses operating at the margins of the formal tax system. Results from the regression analysis reveal that businesses that engage the services of tax professionals are more likely to comply voluntarily with tax obligations than those that do not. Furthermore, gender was identified as a significant moderating factor, suggesting that the positive effect of professional expertise on voluntary tax compliance is stronger among female taxpayers. This underscores the need to incorporate gender-sensitive strategies into tax compliance frameworks.

Based on these findings, the study concludes that voluntary tax compliance among registered informal sector businesses in Kaduna State is suboptimal. Accordingly, it is recommended that in the short-term, the Kaduna State Internal Revenue Service (KADIRS) intensify public awareness campaigns on voluntary tax compliance. These campaigns should utilize platforms such as radio, television, social media, and print media to emphasize the importance of tax compliance, the advantages of engaging tax professionals, and the legal consequences of tax evasion.

Given the moderating influence of gender on compliance behavior, tax authorities should in a medium term design and implement policies that address gender-specific barriers to compliance. This may include tailored outreach initiatives targeting women-owned businesses

Publication of the European Centre for Research Training and Development-UK and ensuring that tax advisory services are both accessible and inclusive. KADIRS should in a medium term also organize gender-responsive tax trainings.

In the long-term this study recommends that, KADIRS should collaborate with CITN on subsidized tax advice. KADIRS should also promote the use of tax professionals among registered informal sector businesses by offering incentives such tax rebates for those who seek professional tax guidance. Collaborations between KADIRS and professional accounting bodies could support this effort through the organization of training programs aimed at educating business owners on tax compliance.

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