

Gender Diversity as a Moderator of Taxpayer's Education and Voluntary Tax Compliance among Registered Businesses in Kaduna State

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Abstract: *This study examines whether gender is a moderator of taxpayer education and voluntary tax compliance behaviour among registered businesses in Kaduna State. Data were collected from 334 respondents from a target population of 2,000 registered businesses using a survey design. The sample size was determined using Yamane's formula, and proportionate sampling was employed to ensure representation across the state's three senatorial districts. Descriptive statistics and multiple regression were utilized to analyze the data. The study finds that both taxpayer's education and voluntary tax compliance behaviour are low among the registered businesses in Kaduna State. The study also finds that both taxpayer's education and gender are factors that have a significant positive effect on voluntary tax compliance. Finally, the study finds that the effect of taxpayer's education on voluntary tax compliance is significantly moderated by the taxpayer's gender. Based on the findings the study concludes that taxpayer education significantly improves voluntary tax compliance behaviour, and the effect is significantly moderated by gender. Based on the conclusion it is recommended that to increase voluntary tax compliance, the Kaduna State Internal Revenue Service should embark on taxpayer education by creating tax awareness campaigns using media platforms, like radio, television, social media, and flyers. The study also recommends that KADIRS should simplify tax education content and tailor it to specific genders. Finally, the study recommends incentives such as tax rebates to motivate voluntary tax compliance.*

Keywords: gender diversity, voluntary tax compliance, taxpayer's education

JEL Codes: C23, C58, C87, M21, M24, M48

INTRODUCTION

Tax compliance is a significant area of interest in both theoretical and practical studies of taxation. Researchers have examined not only how tax systems are structured but also the most effective methods for collecting taxes that benefit both taxpayers and governments. Taxation

is a vital source of revenue for governments in both developed and developing economies, serving as an essential tool for economic stabilization, fiscal policy, and administrative control (Kołodziej, 2011). To enhance voluntary tax compliance, which is crucial for addressing citizens' welfare needs, governments around the world have implemented self-assessment schemes.

In developing countries like Nigeria, voluntary tax compliance is relatively low. In contrast to developed economies, where compliance is seen as a commonplace practice that requires little encouragement, many Nigerian taxpayers view tax payments primarily as a means to avoid penalties rather than as a civic responsibility (Kirchler et al., 2008). Voluntary tax compliance refers to the willingness of taxpayers to meet their tax obligations without the need for enforcement. While this concept is more evident in Nigeria's formal and organized sectors, the informal sector—which includes artisans and small one-man businesses—presents a significant challenge to achieving compliance. The low level of compliance in this sector can be attributed to poor educational backgrounds and a limited understanding of the complexities of the tax system.

Taxpayer education is a critical tool in addressing non-compliance. Studies have highlighted that attitudes toward tax compliance are influenced by both economic factors (such as income, tax rates, and audit probabilities) and psychological factors (such as motivational postures and subjective knowledge) (Kołodziej, 2011). Educating taxpayers can address the root causes of non-compliance, particularly ignorance and negative attitudes toward taxation. Kirchler et al. (2008) argue that taxpayer education is more effective than enforcement, particularly for taxpayers with limited knowledge of tax procedures and laws. Thus, providing taxpayer education could help shift attitudes and improve voluntary tax compliance, especially in the informal sector.

In addition to these broad factors, gender may moderate the relationship between taxpayer education and voluntary tax compliance. Gender differences in economic behaviour, including risk tolerance and ethical decision-making, suggest that men and women may respond differently to educational interventions (Torgler & Valev, 2010). While men may prioritize compliance for business-related reasons, women are often found to comply out of a sense of ethical responsibility or financial prudence (Gambo, 2014).

Despite the extensive research on tax compliance, few studies have specifically focused on the intersection of gender, taxpayer education, and voluntary compliance in Nigeria. Understanding this could help for policymakers aiming to design more effective tax education programs that cater to different demographic groups. This paper fills this gap. Through this investigation, the study aims to contribute to the broader literature on tax compliance, gender studies, and public finance, offering insights for more targeted tax policies.

Thus, this study, examines the moderating role of gender on the relationship between taxpayer education and voluntary tax compliance among registered businesses in Kaduna State. Kaduna State is an economic hub in northern Nigeria, characterized by a diverse mix of formal and informal businesses. It is home to a large number of registered small and medium enterprises (SMEs), many of which operate in the informal sector—a sector notorious for low tax compliance. The state's unique demographic composition, including variations in educational attainment, socio-economic status, and gender roles, makes it a fertile ground for examining

the interplay between taxpayer education, gender, and voluntary tax compliance. By narrowing the focus to this state, the study aims to uncover localized insights that could inform broader tax policy reforms in Nigeria.

To guide the study the following hypotheses were formulated in the null form and tested:

H₀₁: Taxpayer education has no significant effect on voluntary tax compliance among registered businesses in Kaduna State.

H₀₂: Gender has no significant effect on voluntary tax compliance among registered businesses in Kaduna State.

H₀₃: Gender does not significantly moderate the relationship between taxpayer education and voluntary tax compliance among registered businesses in Kaduna State.

This study contributes to the literature on tax compliance by bridging three key gaps. First, while existing research has extensively explored the role of taxpayer education, few studies have examined its interaction with gender, particularly in the context of developing economies like Nigeria. Second, by focusing on the informal sector in Kaduna State, the study sheds light on a segment of the economy where traditional enforcement measures are less effective. Third, the study advances the theoretical discourse on the moderating effects of demographic variables (such as gender) in shaping tax compliance behaviour, integrating psychological and economic perspectives. These novel approach have practical implications for designing tailored taxpayer education programs and inclusive tax policies that address the unique challenges faced by diverse demographic groups. The study's scope is limited to informal businesses in Kaduna state.

The remainder of this paper is structured as follows. Section 2 presents a review of the relevant literature, covering conceptual issues, theoretical frameworks, and empirical studies on tax compliance and taxpayer education. Section 3 outlines the methodology, detailing the research design, sample selection, and data analysis techniques. Section 4 presents the results of the study, including the main effects of taxpayer education and the moderating role of gender. Section 5 provides a discussion of the findings in relation to the literature, and Section 6 concludes the paper with policy recommendations and suggestions for future research.

LITERATURE REVIEW

The literature review section shows the study's conceptual review, theoretical background which the work is built upon and the review of empirical findings relating to voluntary tax compliance taxpayer's education and gender.

Conceptual Review

Tax compliance is a critical issue that has garnered attention from scholars and policymakers alike, particularly in the context of developing economies like Nigeria. Tax compliance refers to the extent to which taxpayers meet their legal obligations under a given tax system, including filing tax returns and paying taxes on time. Voluntary tax compliance, a subset of tax compliance, refers to the willingness of taxpayers to meet these obligations without the need for enforcement by tax authorities (Kirchler, 2007). Unlike enforced compliance, which is driven by audits, penalties, and sanctions, voluntary compliance is achieved when taxpayers

willingly fulfill their tax obligations due to their understanding of the tax system and perceived benefits of compliance (James & Alley, 2004).

Voluntary tax compliance is especially important in self-assessment tax systems, where taxpayers calculate and remit taxes without direct oversight from tax authorities. For voluntary compliance to be effective, taxpayers must be knowledgeable about the tax laws, filing procedures, and the broader implications of tax payments on public services and infrastructure (Oladipupo & Obazee, 2016). This is particularly relevant in Nigeria, where voluntary compliance rates are low, especially among small businesses in the informal sector (Asaolu et al., 2015). These businesses often perceive taxes as burdensome, and many evade their obligations due to poor knowledge of the tax system and limited engagement with tax authorities (Fagbemi, Uadiale, & Noah, 2010).

Voluntary Tax Compliance

Voluntary tax compliance involves the taxpayer's readiness to file tax returns and pay taxes without coercion. Peter (2013) defines voluntary tax compliance as full adherence to tax administrative rules and the prompt payment of taxes. Olowookere and Fasina (2013) add that tax compliance is the process whereby taxpayers meet their civic obligations by timely filing and paying taxes, while Sitardja and Dwimulyani (2016) highlight that voluntary compliance requires taxpayers to accurately declare their income and pay the correct assessment on time. Gurama and Mansor (2015) view voluntary tax compliance as the willingness of taxpayers to complete and file their returns without the involvement of tax authorities.

Voluntary tax compliance is particularly significant in Nigeria due to the size of the informal sector, which is characterized by small-scale, often unregulated businesses. These businesses, many of which are operated by individuals with limited financial literacy, tend to fall outside the formal tax net, making compliance difficult (Asaolu et al., 2015). Encouraging voluntary compliance in such an environment requires a combination of simplified tax procedures and effective taxpayer education to overcome barriers to compliance (Oladipupo & Obazee, 2016).

Taxpayer Education

Taxpayer education is a strategic tool used by tax authorities to improve voluntary tax compliance. Olowookere and Fasina (2013) define taxpayer education as a method of providing taxpayers with information about the entire taxation process, including the reasons for paying taxes and the potential benefits. Taxpayer education is crucial in fostering a better understanding of tax laws and procedures, thereby reducing ignorance and helping taxpayers fulfill their obligations (Kołodziej, 2011). It empowers taxpayers with the knowledge necessary to navigate the complexities of the tax system, enhancing their ability to comply voluntarily.

Mwakabungu (2016) emphasizes that tax education is essential for encouraging voluntary compliance, particularly by helping both current and potential taxpayers understand their obligations and the importance of taxes in national development. Similarly, Adekoya (2021) defines tax education as the general knowledge possessed by taxpayers, which includes an understanding of tax laws and the ability to comply with them as a result of this understanding. The ultimate goal of taxpayer education is to foster a culture of voluntary compliance by

increasing the public's awareness of the need to pay taxes and the consequences of non-compliance (Kirchler, 2007).

Taxpayer education can take various forms, including formal programs such as workshops, seminars, and training sessions, as well as informal methods like radio and television programs, billboards, and social media campaigns (Misra, 2014). These initiatives are vital in bridging the gap between taxpayers and tax authorities, creating a more transparent and accessible tax system. By improving taxpayers' understanding of their responsibilities and the tax process, education programs can significantly reduce the need for enforcement measures and increase compliance rates.

Gender and Tax Compliance

Gender differences have been shown to affect tax behaviour, with research suggesting that women may be more likely than men to comply with tax laws due to their higher levels of risk aversion and ethical decision-making (Kirchler, 2007; Torgler & Valev, 2010). Women in the informal sector in Nigeria face additional barriers to compliance, such as limited access to taxpayer education and financial resources (Gambo, 2014). Understanding how gender moderates the relationship between taxpayer education and voluntary compliance is could help in developing effective policies aimed at improving voluntary tax compliance. Thus, in this study, gender is posited as a moderating variable, affecting the strength of the relationship between taxpayer education and voluntary tax compliance. Women's higher ethical standards and risk aversion may make them more responsive to taxpayer education, thereby enhancing voluntary compliance (Kirchler, 2007). It is expected that women, due to their unique behavioural traits, will show a stronger positive response to taxpayer education efforts compared to men.

Theoretical Review

This study is anchored on the Theory of Planned Behaviour (TPB) developed by Ajzen (1985), which provides a robust framework for understanding the drivers of voluntary tax compliance, particularly in relation to taxpayer education and the moderating role of gender. In addition to the TPB, two other theories—Economic Deterrence Theory and Gender Socialization Theory—are reviewed to provide a comprehensive understanding of the theoretical foundations of this study. The review below explains these theories and the study is anchored on the Theory of Planned Behaviour.

Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB), developed by Ajzen (1985, 1991), serves as the anchor for this study. According to TPB, an individual's behaviour, including tax compliance is driven by three key factors: attitudes, subjective norms, and perceived behavioural control. These factors collectively shape behavioural intentions, which in turn influence actual behaviour.

Attitudes refer to the individual's positive or negative evaluations of a behaviour—in this case, voluntary tax compliance. If a taxpayer believes that complying with tax laws will result in positive outcomes, such as contributing to public services or avoiding legal consequences, they are more likely to develop a favorable attitude toward compliance. Taxpayer education plays a

critical role in shaping these attitudes by increasing awareness of the importance of taxes and the consequences of non-compliance.

Subjective norms represent the perceived social pressure to engage in a behaviour. Taxpayers may be influenced by their peers, family, and community in their decision to comply with tax laws. When taxpayer education emphasizes the collective benefits of compliance and presents it as a societal duty, it can strengthen the subjective norms supporting voluntary tax compliance.

Perceived behavioural control refers to the individual's perception of their ability to perform a behaviour. In the context of tax compliance, this could include the taxpayer's understanding of tax laws and procedures. Taxpayer education can enhance perceived behavioural control by providing the necessary knowledge and tools to navigate complex tax systems, thereby making compliance easier and more accessible.

Ajzen's TPB suggests that people's intentions to comply with tax laws are shaped by their beliefs about the likely outcomes (behavioural beliefs), the influence of social pressures (normative beliefs), and their ability to comply (control beliefs). For example, a taxpayer with a positive attitude towards tax compliance, strong social support for compliance, and confidence in their ability to file tax returns correctly is more likely to comply voluntarily.

Furthermore, the TPB also provides a framework for understanding how gender moderates the relationship between taxpayer education and voluntary compliance. Research has shown that women may respond more positively to social norms and compliance expectations (Torgler & Valev, 2010), suggesting that gender differences can influence how taxpayer education impacts compliance behaviour. Therefore, the current study hypothesizes that gender moderates the effect of taxpayer education on voluntary tax compliance, with women likely to show higher responsiveness to education initiatives.

In applying TPB to this study, the focus is on how taxpayer education influences attitudes, subjective norms, and perceived behavioural control, thereby promoting voluntary compliance. The theory is particularly relevant in the Nigerian context, where informal sector businesses often lack formal tax knowledge and may be more responsive to educational interventions aimed at increasing compliance.

Economic Deterrence Theory

The Economic Deterrence Theory is rooted in classical economics and views tax compliance primarily through the lens of economic self-interest. Developed by Becker (1968) and later extended by Allingham and Sandmo (1972), the theory assumes that taxpayers are rational individuals who seek to maximize their utility by comparing the benefits of evading taxes with the potential costs, such as penalties and the risk of being audited. Taxpayers will comply with tax regulations when the expected cost of non-compliance, including penalties, sanctions, and audit probabilities, outweighs the benefits of evading taxes.

According to this theory, tax compliance is largely a function of external factors such as enforcement, fines, and the probability of detection. In this context, taxpayer education plays a more peripheral role, as the theory emphasizes deterrence through coercive measures rather

than voluntary compliance. However, the economic deterrence model has been criticized for its narrow focus on enforcement and penalties, overlooking other factors such as ethics, social norms, and the psychological determinants of tax behaviour. It is also limited in explaining voluntary compliance, where individuals adhere to tax laws not because of fear of punishment but due to internalized values or understanding of the tax system. Thus, while relevant, Economic Deterrence Theory offers a less comprehensive framework for examining voluntary compliance driven by taxpayer education.

Gender Socialization Theory

The Gender Socialization Theory posits that societal expectations and norms about gender roles influence the behaviour of men and women, including their economic and financial decisions. Gender roles are socially constructed, and from an early age, individuals are socialized into behaviours that are consistent with societal norms regarding masculinity and femininity. This theory helps explain how gender differences might manifest in tax compliance behaviours, including the differential impact of taxpayer education.

According to Eagly (1987) and Gilligan (1982), women are typically more risk-averse, more ethical in their decision-making, and more likely to adhere to social norms compared to men. These traits may lead women to be more compliant with tax laws and more responsive to taxpayer education, as they are more likely to internalize the social and ethical implications of paying taxes. Conversely, men may be more inclined toward risk-taking and evasion, perceiving tax compliance as less critical unless faced with strong enforcement mechanisms.

In the context of this study, Gender Socialization Theory suggests that gender moderates the effect of taxpayer education on voluntary tax compliance. Women may respond more positively to taxpayer education because they are socialized to prioritize compliance and the collective good. This theory complements the TPB by explaining the gendered dimensions of tax compliance and how taxpayer education might have different effects on men and women.

Empirical Review

The empirical evidence on voluntary tax compliance and tax education presents mixed results, with many believing that the primary driver of tax compliance is not simply what individuals know, but rather the desire to be perceived as good citizens.

Kołodziej (2011) analyzed the role of education in promoting voluntary tax compliance among Polish taxpayers. Using a sample of 100 respondents from two large cities, the study measured tax attitudes with Braithwaite's (2003) questionnaire and assessed economic knowledge with a specially developed instrument. Pearson's correlation analysis revealed no significant relationship between economic knowledge and tax attitudes, suggesting that simplifying tax regulations may have a greater impact on improving tax compliance than education alone.

Palil et al. (2013) examined the perceptions of taxpayers in Malaysia regarding tax knowledge and education, with a focus on the influence of religiosity on tax compliance. Using a sample of 70 working individuals enrolled in an MBA program, the study received 50 usable responses. The research explored three variables: tax awareness (education and knowledge), tax compliance, and religiosity. Data were analyzed using Pearson correlation and hierarchical regression analysis. The findings indicated that religious values significantly contribute to tax

compliance and that religiosity moderates the relationship between tax education, tax knowledge, and compliance.

Olowookere and Fasina (2013) explored taxpayer education as a key strategy for promoting voluntary tax compliance in Lagos State, Nigeria. Using a quasi-experimental survey approach, the study randomly selected a sample of 250 taxpayers and administered a Taxpayer Compliance Appraisal (TCA) questionnaire. Descriptive analysis showed that 44.6% of the respondents were male and 55.4% were female. Hypotheses were tested using Analysis of Variance (ANOVA), and the results showed that knowledge of tax evasion opportunities had no significant influence on compliance behaviour, while tax revenue accountability education also had no significant impact on taxpayer compliance.

Adekoya et al. (2019) investigated the relationship between taxpayer education and tax compliance in Lagos State, Nigeria, using a population of 4,216,751 registered individual taxpayers. The study employed a survey design, utilizing a validated questionnaire. A purposive sampling technique was first applied to select individuals who could read and write, followed by stratified sampling to ensure the sample was representative of the population. The final sample size consisted of 400 small business owners, artisans, and traders. Data were analyzed using both simple linear and multiple regression methods, revealing that taxpayer education has a significant positive effect on voluntary tax compliance. The study recommended that the Lagos State government should expand tax education programs to further enhance compliance and improve internally generated revenue.

Ratnawati et al. (2019) investigated whether tax education, service quality, and accountability influence taxpayer compliance and awareness in Riau, Indonesia. Using a sample of 253 taxpayers listed with the Directorate General of Taxation, the study employed least squares regression and moderated regression analysis to test the hypotheses. The results indicated that accountability, service quality, and tax education have a direct positive impact on voluntary tax compliance. Additionally, the study found that tax awareness strengthens the effects of accountability and service quality on compliance.

Akintoye and Onuoha (2019) examined the influence of tax education and awareness on tax collection in Nigeria. The study used survey data and regression analysis, revealing a significant positive relationship between tax education and revenue collection. It also found that radio and television were the most effective channels for tax education. The study recommended the creation of an independent agency to manage tax education and awareness programs.

Aremu and Siyanbola (2021) assessed the impact of tax education on voluntary tax compliance within the informal sector in Ogun State, Nigeria. The study utilized a survey design, targeting six economic zones with a population of 2,465 technical and professional associations across various sub-sectors. Out of a sample of 310, 240 structured questionnaires were returned and analyzed. The findings showed that tax education significantly increased taxpayer registration and improved the accuracy of income disclosure for tax purposes. The study concluded that tax education positively influences voluntary tax compliance and recommended that tax authorities promote more educational initiatives to enhance compliance.

Lizzy and Joel (2021) investigated how tax education and awareness influence informal businesses' compliance with tax laws in Nigeria. Using a population of 19,383,447 respondents across 12 states in Nigeria, a sample size of 400 was determined using the Taro Yamane formula. The data analysis showed a positive correlation between voluntary tax compliance and tax education. The study suggested that state-level Internal Revenue Authorities should routinely conduct tax education campaigns to increase compliance across Nigeria.

Abina et al. (2021) studied the effect of tax education on voluntary compliance among SMEs in Ghana's Techiman Municipality. The study used purposive and random sampling to collect responses from 297 taxpayers through an online survey. A Partial Least Squares Structural Equation Model (PLS-SEM) was used to assess the model. The findings indicated that both digital and traditional tax education positively influenced compliance, with stakeholder sensitization activities also playing a significant role. The study recommended that tax authorities increase educational efforts to improve voluntary compliance and government revenue.

Hanapi (2022) examined the effect of tax education programs on voluntary tax compliance among teachers in Malaysia. The study employed a quantitative approach using a survey distributed to teachers in Kelantan, Malaysia. The results revealed that tax education significantly influences voluntary compliance, though the respondents demonstrated a low level of tax knowledge. The study recommended that revenue authorities develop additional programs to raise public awareness and improve compliance.

Trawule et al. (2022) explored the link between tax education and compliance among entrepreneurs using hierarchical regression. The study sampled 400 respondents from a total population of 28,355 and found that fear-inducing messages significantly influenced taxpayers' commitment to compliance. The study recommended that revenue authorities simplify tax legislation and improve the convenience of tax payments to lower the costs associated with compliance.

METHODOLOGY

This study adopted a survey research design to investigate the effect of government accountability on voluntary tax compliance in the registered businesses in Kaduna State, Nigeria, with gender as a moderating variable.

Population and Sample Size of the Study

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 taxpayer's education and voluntary tax compliance was tested using the regression model (1):

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

Where:

VTCB = Voluntary tax compliance behaviour (VTCB),

TEP = Taxpayer's Education

GEND = Gender,

AGE = Age,

ε = Error term.

This model examines the direct impact of taxpayer's education on voluntary tax compliance, controlling for gender, age, and education.

To examine the moderating effect of gender on the relationship between taxpayer's education and voluntary tax compliance, the moderated model (2) was tested:

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

Where:

(TEP* GEND) = Interaction term between taxpayer's education and gender.

This model tests whether the effect of government accountability on voluntary tax compliance is stronger for one gender over the other. The interaction term (TEP*GEND) captures the moderating effect of gender.

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

Variable Definitions and their Measurements

Table 1 shows the definitions of voluntary tax compliance behaviour and government accountability with their sources.

Table 1

Variables Definition Measurements and Sources

Variable	Acronyms	Definition	Source
<i>Dependent</i>			
Voluntary Tax Compliance Behaviour	VTCB	Taxpayers' wiliness to pay their tax in accordance with the applicable laws, rules and regulations.	Kirchler (2007); Sitardja and Dwimulyani (2016)
<i>Independent</i>			
Taxpayer's Education	TEP	Taxpayer's education as the process of imparting knowledge to individuals on tax issues, giving them reasons why they should pay their tax.	Olowookere and Fasina (2013); Adeleke (2021)
<i>Moderating</i>			
Gender	GEND	Taxpayer's gender	Torgler and Valev (2010)
<i>Control</i>			
Age	AGE	Taxpayer's age	Hofmann et al., (2008).

Source: Researcher compilation 2024

Data Analysis Techniques

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 the study hypotheses. Multiple regression was used to test both the direct and moderated effects of taxpayer education on voluntary tax compliance. The PCF therefore, accounts for all the

variance and covariance of the set of items rather than the portion of the covariance that the item share in common.

Diagnostic Tests

Before interpreting the regression results, diagnostic tests were conducted to ensure that the assumptions of the regression model were not violated. Variance Inflation Factor (VIF) was used to assess multicollinearity among the independent variables. All VIF values were expected to be below 5 to indicate that there is no multicollinearity problem. The study also checks for the normality of the residuals using Shapiro-Wilk test. Finally, Breusch-Pagan test was conducted to check for heteroscedasticity to ensuring that the variance of the residuals was constant across observations.

RESULTS AND DISCUSSION

This section presents the descriptive statistics, the correlation analysis alongside the various diagnostic tests, and the results of the regression analysis. Out of the 334 questionnaires administered, 320 were returned and completed properly. Thirteen questionnaires were found to be incomplete and were subsequently excluded from the analysis. The descriptive statistics for the individual items/questions are presented in Table 2 while the descriptive statistics of the composite variables used in the study are presented in Table 3.

Table 2

Items/Questions Descriptive

Items	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
How aware are you?	320	1.678	.849	1	4
Do you listen to the tax education program?	320	1.684	1.019	1	5
Is the tax education understandable?	320	1.872	1.001	1	5
Tax education programs assist you to comply with tax voluntarily	320	1.644	.818	1	4

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 taxpayer's education. The first five questions assess voluntary tax compliance, while the remaining four focus on taxpayer education.

Voluntary Tax Compliance

For the statement “*My business is registered with the Kaduna State Internal Revenue Service (KADIRS) for taxation,*” the mean value is 1.903 (S.D = 0.83), indicating a low level of agreement among respondents. This suggests that many businesses are not registered with KADIRS, a prerequisite for formal tax compliance. The relatively small standard deviation signifies consistency in this trend. This outcome suggests challenges, such as limited awareness, inadequate enforcement mechanisms, or a lack of incentives to encourage tax registration and suggests a low voluntary tax compliance.

The mean score for the statement “*I have a Tax Identification Number (TIN)*” is low with a mean of 1.881 (S.D = 0.881). This suggests that obtaining a TIN is not a common practice among the respondents, reinforcing the conclusion that tax compliance is low. Given the importance of TIN in tax administration, this finding highlights the necessity for targeted efforts to enhance taxpayer registration procedures and to inform businesses about their responsibilities.

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.

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.

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 shows that there is limited engagement in determining tax liabilities, whether through self-computation or reliance on assessments by KADIRS. This might contribute to the overall low levels of voluntary tax compliance, as understanding tax obligations is a fundamental step toward ensuring compliance.

4.2 Taxpayer Education

The determination of taxpayer education begins with the question, “*How aware are you of tax programs on radio, television, or social media?*” The mean score of 1.678 and a standard deviation of 0.849 reflects a generally low level of awareness among respondents regarding educational initiatives disseminated through various media platforms. The implication of this is that there is no sufficient tax awareness and this could result to low voluntary tax compliance. Awareness serves as the foundation for informed tax practices, and the low mean suggests the need for more effective communication strategies to increase public engagement with these programs.

The question “*Do you listen to the tax education program?*” has a mean score of 1.684, with a standard deviation of 1.019, indicating infrequent engagement with tax education initiatives. This implies that the KADIRS are not making enough aware campaign for the tax payers to

listen and voluntarily comply with tax. The slightly higher standard deviation suggests that while most respondents rarely engage with these programs, a small subset does so more regularly. Identifying and replicating the factors that encourage higher engagement within this subgroup could enhance the overall effectiveness of these initiatives.

The next question was “*Is the tax education understandable?*” This question records a mean of 1.872 and a standard deviation of 1.001. This variable reflects slightly higher agreement compared to previous taxpayer education variables, suggesting that some respondents find the content of the programs accessible. However, the low mean overall points to potential barriers, such as overly technical content or ineffective delivery mechanisms, which may hinder comprehension for the majority. This implies that there is a need to simplify the content of the available tax educational materials.

The statement, “*The tax education program helps you voluntarily comply with tax obligations,*” received the lowest mean score of 1.644 and a standard deviation of 0.818. This indicates that respondents generally do not view these programs as effective in promoting voluntary compliance. The low score likely stems from deficiencies in the design, dissemination, or perceived relevance of these initiatives, which may not adequately address taxpayers' needs and concerns. The overall implication of the tax payer education is that taxpayer education is low among the registered businesses in Kaduna State. If this is not improved there will be a voluntary tax compliance among these businesses

Principal Factor Analysis

The research items and questions in this study were designed to measure two latent variables: voluntary tax compliance behaviour (VTCB) and taxpayer education programs (TEP). Gender and age were considered observable variables. To assess VTCB and TEP, we employed a principal factor analysis (PFA) approach. Unlike the ordinary summation method, which aggregates raw scores and 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).

Table 3

Factor analysis and reliability measures

Construct		Loadings range	Cronbach's α	% Var extracted	Eigenvalu e	KMO
Voluntary Compliance (VTCB)	Tax Behaviour	0.629 - 0.727	0.696	0.457	2.284	0.761
Taxpayer's Education (TEP)		0.825- 0.944	0.9098	0.7890	3.15591	0.811

The results from Table 3 provide the factor analysis and reliability measures for two key constructs in the study: Voluntary Tax Compliance Behaviour (VTCB) and Taxpayer's Education (TEP). Factor analysis is a statistical method used to identify the underlying

relationships between variables and group them into factors, while reliability measures, such as Cronbach's alpha, assess the internal consistency of the items within a construct. This analysis is to ensure that the measurement instruments used in the study are both valid and reliable.

For Voluntary Tax Compliance Behaviour (VTCB), the factor loadings range from 0.629 to 0.727, which are moderate to high, indicating that the items under this construct are reasonably correlated with the latent factor they are intended to measure. According to Hair et al. (2010), factor loadings above 0.6 are considered acceptable in exploratory research, suggesting that the items for VTCB sufficiently represent the underlying construct. The Cronbach's alpha value of 0.696 for VTCB is slightly below the widely accepted threshold of 0.70 for internal consistency (Nunnally & Bernstein, 1994), but it is still within an acceptable range for early-stage research. This indicates that the items measuring VTCB are relatively reliable, though there may be room for improvement in terms of enhancing the consistency of the scale.

The percentage of variance extracted for VTCB is 45.7%, which means that the factors identified explain 45.7% of the total variance in the observed variables. While this is below the 50% threshold commonly cited for adequate variance explained (Hair et al., 2010), it is close enough to be considered acceptable in behavioural studies where constructs are often multifaceted and difficult to capture with a single factor. Additionally, the eigenvalue for VTCB is 2.284, which is above the threshold of 1, confirming that the factor identified is significant and contributes meaningfully to the explanation of variance in the data (Kaiser, 1960). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy for VTCB is 0.761, which is well above the acceptable limit of 0.5, indicating that the sample size is sufficient for reliable factor analysis (Kaiser, 1974).

For Taxpayer's Education (TEP), the factor loadings range from 0.825 to 0.944, which are very high, suggesting that the items under this construct are strongly correlated with the underlying factor. These high loadings indicate that the items used to measure TEP effectively capture the construct, and there is little ambiguity about the relationships between the observed variables and the latent factor. The Cronbach's alpha for TEP is 0.9098, which exceeds the 0.90 threshold for excellent internal consistency (George & Mallery, 2003). This high reliability suggests that the items measuring TEP are consistent, and respondents' answers to these items are highly correlated, indicating a strong coherence within the construct.

The percentage of variance extracted for TEP is 78.9%, which means that a large proportion of the variance in the observed variables is explained by the latent factor, far exceeding the commonly accepted 50% threshold (Hair et al., 2010). This indicates that the TEP construct captures nearly all of the information present in the observed variables, making it a highly valid representation of the concept of taxpayer education. The eigenvalue for TEP is 3.15591, which, being well above 1, confirms the significance of the factor. The KMO value of 0.811 further supports the adequacy of the sample for factor analysis in relation to the TEP construct (Kaiser, 1974), suggesting that the factor structure is robust and the data are appropriate for this type of analysis.

4.4 Descriptive Statistics

Descriptive statistics of VTCB, TEP, gender, and age are shown in Table 4.

Table 4*Descriptive Statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
VT CB	320	2.663	.707	1.477	5
TEP	320	1.936	.93	1.124	4.809
TEP*GEND	320	2.147	1.19	1.124	8.519
GEND	320	1.116	.32	1	2
AGE	320	2.422	.853	1	5

From Table 4, voluntary tax compliance behaviour (VT CB) is a dependent variable in the study, representing the willingness of individuals to fulfill their tax obligations without coercion. With a mean score of 2.663 and a standard deviation of 0.707, the results suggest low levels of compliance across the sample, with small variability among respondents. This variability is significant, as prior studies have demonstrated that voluntary compliance is influenced by factors such as trust in government institutions, perceived fairness of the tax system, and the broader socio-economic environment (Torgler & Schneider, 2007; Kirchler, 2007). High variability might also indicate differing levels of trust and engagement with the tax system across various demographic or contextual factors.

Taxpayer education (TEP) has a mean value of 1.936, suggesting that, on average, taxpayers have a relatively low level of tax-related knowledge and education. The standard deviation of 0.93 indicates notable variability, with some taxpayers being significantly more educated about tax matters than others. The minimum score of 1.124 underscores the lack of education for certain taxpayers, while the maximum score of 4.809 indicates that some individuals possess a high level of tax knowledge. These findings suggest the need for targeted educational programs to bridge the knowledge gap and enhance overall compliance behaviour.

The interaction term (TEP*GEND), representing the combined effect of taxpayer education and gender, has a mean score of 2.147 and a standard deviation of 1.19. This relatively high variability suggests significant differences in how taxpayer education interacts with gender to influence compliance. The minimum score of 1.124 aligns with the lower boundary of taxpayer education, while the maximum score of 8.519 indicates strong combined effects in certain cases. This finding underscores the importance of examining how gender moderates the relationship between education and tax compliance behaviour.

Gender (GEND) is one of the control variable in the analysis, coded as 1 for males and 2 for females. The mean value of 1.116 indicates a male-dominated sample, with a low standard deviation of 0.320 reflecting minimal variability. This male dominance could influence the study's findings, as prior research has shown that males and females exhibit different compliance behaviours. Males are generally more likely to take risks, including non-compliance, whereas females are often more compliant due to higher risk aversion and stronger ethical considerations (Hofmann et al., 2008). These gender differences underscore the importance of understanding the demographic composition of the sample when interpreting the results.

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.

Diadnostic Checks

The Shapiro-Wilk W test was conducted to test the normality of the residuals (e) derived from the analysis of voluntary tax compliance behaviour (VTCB), taxpayer education (TEP), gender (GEND), and age (AGE). Table 5 reports the results of Shapiro-Wilk W test for normal data

Table 5

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	Z	Prob>z
e	320	0.995	1.201	0.432	0.333

The results of the Shapiro-Wilk test show that the W statistic is 0.995, with a corresponding V value of 1.201 and a z-value of 0.432. The p-value associated with this test is 0.333. Since the p-value exceeds the threshold of 0.05, this study fail to reject the null hypothesis of the Shapiro-Wilk test, which posits that the data are normally distributed. This outcome indicates that the residuals from the model do not significantly deviate from normality. The near-perfect W-statistic (0.995) suggests that the residuals closely approximate a normal distribution. This is further supported by the low V and z-values, which do not indicate any substantial departure from normality.

The correlation analysis in Table 6 examines the relationships among voluntary tax compliance behaviour (VTCB), taxpayer education (TEP), taxpayer gender (GEND), and age (AGE). The correlation coefficients, along with their corresponding p-values, indicate the strength and statistical significance of these relationships.

Table 6

Matrix of correlations

Variables	(1)	(2)	(3)	(4)
(1) VTCB	1.000			
(2) TEP	0.610 (0.000)	1.000		
(3) GEND	0.654 (0.000)	0.368 (0.000)	1.000	
(4) AGE	0.084 (0.132)	0.053 (0.348)	0.027 (0.625)	1.000

The bivariate analysis presented in Table 6 reveals a positive and statistically significant relationship between VTCB and TEP, with a correlation coefficient of 0.610 ($p = 0.000$). This indicates that higher levels of taxpayer education are associated with increased voluntary tax compliance behaviour. The strength of this relationship suggests that taxpayer education fosters voluntary tax compliance.

The relationship between VTCB and GEND is also positive and statistically significant, with a correlation coefficient of 0.654 ($p = 0.000$). This result implies that gender is an important factor influencing voluntary tax compliance behaviour, with notable differences in compliance levels between males and females. The stronger correlation between VTCB and GEND compared to TEP suggests that gender dynamics might have a more pronounced impact on compliance behaviour in the context of this study. This highlights the need for tailored compliance strategies that address the motivations of different gender groups.

Conversely, the correlation between VTCB and AGE is weak, with a coefficient of 0.084, and is not statistically significant ($p = 0.132$). This implies that age has no direct influence on voluntary tax compliance behaviour within the studied population. The absence of a significant relationship suggests that age-related differences, such as generational attitudes or life stage factors, do not play a substantial role in shaping compliance behaviour in this sample.

The relationship between TEP and GEND is moderate, with a correlation coefficient of 0.368 ($p = 0.000$). This statistically significant result indicates that gender differences may influence levels of taxpayer education. This could reflect disparities in access to or engagement with educational opportunities, potentially driven by societal, cultural, or economic factors. The correlations involving AGE and the other variables (TEP and GEND) are weak and not statistically significant, with coefficients of 0.053 ($p = 0.348$) and 0.027 ($p = 0.625$), respectively. These findings suggest that age has minimal influence on taxpayer education or gender dynamics in this context.

Table 7

Variance Inflation Factor

	VIF	1/VIF
TEP	1.159	.863
GEND	1.156	.865
AGE	1.003	.997
Mean VIF	1.106	.

VIF values in Table 7 measures multicollinearity between the independent variables. All the VIF values are below 1.5, with the highest being 1.159 for TEP, and the lowest being 1.003 for age. These values indicate that multicollinearity is not a significant issue in the regression model, as the commonly accepted threshold for multicollinearity concerns is a VIF of 5 or higher (Gujarati & Porter, 2009). The mean VIF of 1.162 further confirms that there is no serious multicollinearity among the predictor variables. This means that the variables are sufficiently independent of each other, ensuring the reliability of the regression results (Akinwande et al., 2015).

The Breusch–Pagan/Cook–Weisberg test was conducted to assess the presence of heteroskedasticity in the regression model. Heteroskedasticity refers to the situation where the variance of the residuals is not constant across all levels of the independent variables. It violates a key assumption of ordinary least squares (OLS) regression, which assumes homoskedasticity, or constant variance, for reliable estimation and valid statistical inference. The test yielded a chi-squared statistic (chi2) of 10.30 with an associated p-value of 0.0013. Since the p-value is well below the conventional significance threshold of 0.05, the null hypothesis of homoskedasticity is rejected. This result indicates that heteroskedasticity is present in the regression model. To correct this the robust option was used.

Regression Analysis

The results presented in Table 8 provide a comprehensive analysis of the linear regression models both before and after moderation. The analysis explores the effects of taxpayer education (TEP), gender (GEND), and age (AGE) on voluntary tax compliance behaviour (VTCB), with additional insights into how gender moderates the relationship between taxpayer education and compliance.

Table 8

Linear regression

<i>VTCB</i>	BEFORE MODERATION			AFTER MODERATION		
	<i>Coef.</i>	<i>t-value</i>	<i>p-value</i>	<i>Coef.</i>	<i>t-value</i>	<i>p-value</i>
TEP	0.512	10.62	0.000	0.443	8.77	0.00
GEND	1.097	10.96	0.000	-0.128	-0.38	0.706
TEP*GEND	-	-	-	0.439	3.31	0.001
AGE	0.040	1.540	0.125	0.037	1.42	0.156
Constant	1.262	10.65	0.000	1.421	11.39	0.000
R-squared	0.588			0.603		
F-test	134.877			104.497		
Akaike crit. (AIC)	409.302			399.400		
Prob > F	0.000			0.000		
Bayesian crit. (BIC)	424.375			418.242		
Number of obs	320			320		

Before moderation, the model reports an R-squared value of 0.588, which means that approximately 58.8% of the variance in VTCB is explained by the predictors. The F-test value is 134.877 ($p = 0.000$), confirming the overall significance of the model. This indicates that TEP, GEND, and AGE collectively have a statistically significant impact on VTCB. Additionally, the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) values are 409.302 and 424.375, respectively, providing a baseline for comparing the model after moderation.

The coefficient for Taxpayer Education Program (TEP) is 0.512, with a highly significant t-value of 10.62 ($p = 0.000$). This result indicates a strong, positive, and statistically significant relationship between taxpayer education and voluntary tax compliance behaviour. Taxpayer education seems to enhance understanding of tax obligations, reduce errors, and promote

compliance. This aligns with prior research conducted by Aremu and Siyanbola (2021). The findings underscore the importance of implementing effective educational programs to encourage compliance behaviour among taxpayers.

GEND shows a significant positive effect on VTCB, with a coefficient of 1.097 and a t -value of 10.96 ($p = 0.000$). This indicates that gender differences significantly influence compliance behaviour, likely due to variations in financial literacy, risk aversion, or societal roles, as highlighted by Adekoya et al. (2019). These findings underscore the necessity for tailored interventions that address gender-specific barriers to compliance.

The coefficient for AGE is 0.040, but it is not statistically significant (t -value = 1.540, $p = 0.125$). This indicates that age does not have a meaningful direct effect on voluntary tax compliance within this sample. This result diverges from some previous studies, such as Palil et al. (2013), which found older taxpayers to be more compliant due to greater stability and familiarity with tax systems. This inconsistency may reflect contextual differences in the population studied or other unmeasured factors.

After moderation, the inclusion of the interaction term (TEP*GEND) resulted in an increase in the R^2 to 0.603, indicating that the moderated model explains 60.3% of the variance in voluntary tax compliance behaviour (VTCB). The interaction term has a positive and statistically significant coefficient of 0.439 (t -value = 3.31, $p = 0.001$), suggesting that gender moderates the effect of taxpayer education on voluntary tax compliance behaviour among registered businesses in Kaduna State. Specifically, the combined impact of taxpayer education and gender has a stronger positive effect on compliance compared to education alone. This finding is consistent with the research of Palil et al. (2013), which highlighted that demographic factors, such as gender, can influence the effectiveness of educational interventions.

After moderation, the direct effect of gender (GEND) becomes insignificant, with a coefficient of -0.128, a t -value of -0.38, and a p -value of 0.706. This indicates that the influence of gender on compliance behaviour is primarily mediated through its interaction with taxpayer education, rather than acting as an independent factor. In contrast, taxpayer education (TEP) remains significant, with a coefficient of 0.443, a t -value of 8.77, and a p -value of 0.000, highlighting its role in promoting compliance.

AGE remains statistically insignificant after moderation (coefficient = 0.037, t -value = 1.42, $p = 0.156$), reaffirming its limited role in directly influencing compliance behaviour within this dataset. However, the possibility of AGE interacting with other variables warrants further exploration.

The study finds that there is low taxpayer education among the registered businesses in Kaduna State. The study also reveals that there is low voluntary tax compliance behavior among the registered businesses in the State. The findings from the analysis offer several important implications for tax policy and the enhancement of voluntary tax compliance. One of the most significant insights is the positive and robust relationship between taxpayer education and voluntary tax compliance behaviour (VTCB). This suggests that providing taxpayers with thorough, accessible, and effective education on tax-related matters plays a crucial role in encouraging compliance. When taxpayers understand their obligations and the broader benefits of fulfilling them, they are more likely to adhere to tax regulations, thereby reducing evasion

and enhancing government revenue.

Additionally, the findings show the importance of demographic factors, particularly gender, in shaping voluntary tax compliance behaviour. The moderating effect of gender, as evidenced by the interaction term between gender and taxpayer education, highlights that tailored education programs that address the specific needs of different demographic groups can yield stronger voluntary tax compliance outcomes. This suggests that policies should consider gender-specific approaches when designing educational interventions to promote tax compliance.

Finally, the insignificant relationship between age and voluntary tax compliance challenges previous assumptions that older individuals are more compliant due to longer exposure to the tax system. This finding implies that factors beyond age, such as financial literacy and tailored education programs, play a more significant role in influencing voluntary tax compliance behaviour.

CONCLUSION AND RECOMMENDATIONS

This study examined how gender moderates the relationship between taxpayer education and voluntary tax compliance behavior (VTCB) among registered businesses in Kaduna State. The analysis of descriptive statistics reveals low registration rates with the Kaduna State Internal Revenue Service (KADIRS) among these businesses. There is also limited adherence to tax regulations, such as obtaining a Tax Identification Number (TIN), inadequate record-keeping practices, and insufficient self-assessment. Collectively, these findings indicate that there is low voluntary tax compliance behavior by registered businesses in Kaduna State.

On the side of taxpayer education, awareness and participation in tax education programs are notably low. Respondents reported limited exposure to and understanding of these initiatives. Furthermore, the existing programs appear ineffective in promoting voluntary tax compliance, likely due to barriers such as poor communication strategies, inadequate content delivery, and a lack of relevance to the needs of the target audience. These findings mean that there is a low tax payers education in Kaduna State

The results of the regression analysis indicate that taxpayer education has a significant positive effect on voluntary tax compliance behaviour (VTCB) among registered businesses in Kaduna State. This suggests that effective taxpayer education can enhance voluntary compliance. Additionally, the analysis found that gender significantly influences VTCB, indicating that variations in gender-based perceptions and experiences can affect tax compliance behaviour.

Notably, the study also found that gender moderates the relationship between taxpayer education and VTCB. This means that the effectiveness of taxpayer education in promoting voluntary tax compliance varies by gender, with gender serving as a factor that amplifies the positive impact of taxpayer education on voluntary tax compliance in Kaduna State. On the other hand, the study found that age does not significantly affect VTCB, suggesting that a taxpayer's age is less relevant in predicting compliance behavior.

Based on the findings the study concludes that taxpayer education has a significant positive effect on voluntary tax compliance behavior among registered businesses in Kaduna State, and this effect is significantly moderated by gender. Based on the conclusion, the following recommended that:

- i. KADIRS, should improve tax payers' education by using media platforms such as radio, television, social media, and flyers to highlight the importance of registering with KADIRS and obtaining a Tax Identification Number (TIN). KADIRS should also simplify taxpayer's educational content to make them more relatable
- ii. KADIRS should improve tax compliance by introducing incentives, such as tax rebates or rewards for timely tax payments. Additionally, KADIRS should streamline tax administrative processes to make tax payments easy and fast. Furthermore, the KADIRS should encourage businesses to adopt proper record-keeping and self-assessment practices. This can be achieved through regular training sessions, workshops, and incentives for those who maintain accurate records and correctly calculate their tax liabilities.
- iii. KADIRS should tailor tax education and awareness campaigns that are specific to the different gender groups. This will make each gender to easily understand and make use of the tax education with the hope of improving tax compliance among the businesses in Kaduna State.

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