THE IMPACT OF DEMOGRAPHIC FACTORS ON TAX COMPLIANCE BEHAVIOUR IN NIGERIA

Anthony O. Garuba

Western Delta University, Oghara. Delta State. Nigeria.
E-mail: anthonygaruba@yahoo.com

&

Dominic Eichie

Bursary Department, University of Benin Edo State. Nigeria
E-mail: eichiedom1@gmail.com

Abstract

This study investigates the impact of demographic factors (gender, age, education and residential location/government presence) on the informal sector operators, tax compliance behaviour in Nigeria. In line with the reviewed literatures that tax compliance behaviour could not only be approached from the economic factors perspective, the non-economic factors approach (demographic) was examined in this study. The method adopted entails the application of statistical package for social sciences (SPSS) and econometric techniques. The economic techniques involve descriptive statistics, correlation and regression used in analysing the data obtained. The results of the tests of the hypotheses suggest that a non-significant negative relationship exists: between gender and informal sector operators' tax compliance, between age and informal sector operators' tax compliance and between residential location/government presence and informal sector operators' tax compliance. While a positive significant relationship exists between education and informal sector operators' tax compliance. The implication of this is that demographic factor such as education can positively influence the compliance behaviour of informal sector operators' taxpayers. Therefore, it was recommended amongst others that tax education should be incorporated in secondary schools and tertiary institutions syllabi in order to inculcate the culture of paying taxes in the students who are future potential taxpayers'.

Keywords: *Compliance, Demographic, Informal, Tax and Taxpayers.*

Introduction

Taxation is one of the significant ways a government can generate revenue in developed and developing countries in meeting their obligations in areas of social amenities and basic infrastructures (Garuba & Oghuma, 2021). Thus, the importance of taxes to the government in generating revenue to finance its developmental projects cannot be over-emphasised.

Income taxes serve as an important means of raising revenue in both the developing and developed nations (Teera & Hudson, 2004). One of the ways the government can improve its internally generated revenue (IGR) in emerging economies is by strengthening its tax system. The focus of most Sub-Sahara African countries recently is on improving their internally generated revenue through taxation (Drummond, Daal, Srivastava, & Oliveira, 2012). According to Teera and Hudson (2004), income taxes serve as a valuable means of raising fund for the government both in emerging economies and developed countries. Taxation has also been highlighted as a means used by the government in both the developing and developed countries for funding social amenities and basic infrastructures (Eiya, Ilaboya, & Okoye, 2016). Taxation is one of the significant ways that a government can boost its internally generated revenue in this era of post-COVID-19 (Coronavirus) pandemic across the globe (Garuba & Eichie, 2022). No doubt COVID-19 (coronavirus) took the world by storm and caused catastrophic loss in both human and the corporate world. There is no denying the fact that COVID-19 pandemic disrupted every facet of life globally. Virtually, every sector of the world economy with the exception of pharmaceutical companies, telecommunication, food industry and deliveries, experienced drastic fall in revenue base and profitability. The oil sector was not spared because the volatility of the crude oil markets subjected the global economy to undue pressure (Mzoughi, Urom, Uddin & Guesmi, 2020). Therefore, it became expedient for governments to look inward especially Nigeria instead of relying wholly on the oil sector as its major source of revenue in post-COVID-19 era.

The main intent of levying certain taxes on the public is to generate revenues for the government for public expenditures (Singn, 1999, Shanmugan, 2003, Lymer, & Oats, 2000). Other important intents are: maintenance of law and order, protection of infant industries, stop consumption of harmful goods, redistribution of income, correct unfavourable balance of payments, as a fiscal device, to encourage industrialisation, etc.

Tax compliance no doubt improves the revenue base of the government which helps it to execute its capital projects, less dependent on mono product and foreign aids. However, the total revenue generated from taxation depends on the adherence to the tax laws by the taxpayers (Eshag, 1983). The amount generated or realized by the government from taxation depends on the desire of the taxpayers to uplift their society by willingly paying their taxes as patriotic citizens (Eiya, et al, 2016).

Modugu and Omoye (2014) posit that tax evasion constitutes the major challenge confronting emerging economies against the backdrop of corrupt practices prevalent in such countries. Tax non-compliance happens when a taxpayer misrepresents revenue or income, allowable deductions from taxable income or fails to render tax returns (Serkan, Tamer, Yiizba, & Mohdali, 2016). No doubt that the Nigerian government has been fleeced of tax revenue that would have been channelled to the development of capital projects.

Tax evasion involves falsification of figures, misstatement of facts, stating incorrect income and misrepresentation of tax liabilities or failure to file returns (Garuba et al, 2022). Thus, evasion implies the use of illegal or dishonest means by the taxpayer to pay less tax or the outright failure not to pay tax. Tax evasion is geared towards reducing tax liability through illicit means while tax avoidance is using legal means to reduce tax liability (James & Alley, 2004). Tax evasion has adverse effect on the economy because it indicates the abdication of civic responsibility of the taxpayers. As for Okoye and Odia (2012) tax evasion is a thoughtful act by a taxpayer to avoid tax payment. To them tax non-compliance of income tax in Nigeria is grave and problematic, resulting in huge shortfall in revenue that would have accrued to the government for developmental projects.

The major challenge of administering income tax in Nigeria is in area of collecting tax from operators in the informal sector (Modugu et al, 2014). The escalating cases of tax evasion has adverse effect on the internally generated revenue of the government and this has given rise to critical questions as to why taxpayers evade taxes. In fact, the issue of compliance, evasion and avoidance has been a mounting problem globally (Mohd, Mohd, & Wan, 2013). Nigeria is not spared from this problem because the fund that would have been channelled to the development of capital projects is lost to tax evasion. It is therefore, necessary to understand why taxpayers evade tax in order to address the issue of compliance.

Therefore, the objective of this study is to empirically examine the impacts of demographic factors (gender, age, education and residential location) on informal sector operators tax compliance in Nigeria. This study is focused on the self-employed who are unregistered and unregulated operators in the informal sector. The justification for the informal sector is because of the lack of accurate data base and to draw government's attention to the untaxed incomes due to tax evasion in that sector.

Against the backdrop above, we hypothesised in the null form the following:

i. There is no significant correlation between gender and informal sector operators' tax compliance;

ii. There is no significant correlation between age and informal sector operators' tax compliance;

iii. There is no significant correlation between education and informal sector operators' tax compliance; and

iv. There is no significant correlation between residential location/government presence and informal sector operators tax compliance;

The rest of the paper is divided into five sections namely: literature review, methodology, results and discussions, conclusions and recommendations.

1. Literature Review

This section examines the conceptual review and framework. The following will be explored in the course this paper: the concept of tax, personal income tax, tax compliance, gender, age, education and residential location as demographic factors and informal sector.

2.1 The Concept of Tax

Taxation is one of the means that government in both the developing and developed countries generate revenue for funding its social amenities and basic infrastructures.

Such basic infrastructures require huge capital outlays which are financed by taxation and other revenue sources. According to Anyaduba and Okoye (2015) government relies heavily on its tax-based revenue to fulfil most of its numerous responsibilities and obligations ranging from the provision of pipe-borne water, electricity, schools, hospitals, roads, bridges, dams, etc. to security and the rule of law.

Anyaduba (2000) states that tax is an obligatory levy imposed by government on profit, wealth/income of either an individual or a corporate body for a public purpose. Tolby (1978) describes the tax system as a worldwide apparatus whereby the state imposes a statutory levy on its citizens for the benefit of the society. Garuba (2021) defines tax as a compulsory levy imposed on employees or self-employed by the government, to raise funds to finance its budget. While Akanle (1991) defines taxation more generally as "a compulsory levy imposed on a subject or upon his property by government having authority over him". This definition reflects a wider base of taxation, as tax may be charged not only upon persons but also upon properties and transactions to raise money for public purposes.

From the definitions given above three essential characteristics of a tax can be deduced: Firstly, it is an obligatory levy. Secondly, government imposes the tax. Thirdly, the revenue generated should be for public purposes. These definitions show that not all internally generated revenues of government are taxes. That is, not all government revenues are compulsory levies. For instance, some charges are imposed rather by way of penalties or fees. The revenue generated from the fine paid for wrong parking or for beating traffic light is not a tax. Also, revenue realized from tolls or payment for specific service are not considered as tax but just levies.

Although tax assessment is based on reasonable rule of apportionment on persons or property within the control of the tax authority, the benefits derived by the individuals are not necessarily proportionate to the amount of tax paid. A taxpayer cannot sue government for not spending enough tax money in his locality, even when he pays more tax than others. Government's authority to levy is not dependent on the conferment of benefit but on its sovereign power.

Therefore, the significance of taxation to the government in meeting its numerous responsibilities and obligations cannot be over-emphasized. The ability of the government to effectively tax the personal income taxpayers will improve its revenue base. With the prevailing dwindling prices of oil in the world market, it is expedient for the government to diversify the economy and make use of fiscal policy to improve its revenue base. According to Anyaduba (2000), fiscal policy is the conscious effort by government to raise revenue (mainly through taxation) and with decisions relating to government expenditure.

2.2 Personal Income Tax (PIT)

The Personal Income Tax (Amendment) Act (PITA) 2011 consists of two forms. They are: (i) Pay-As-You-Earn (PAYE) meant for those in paid employment either in the private or public sector; and (ii) Taxes for the self-employed which consist of those who own and run organised businesses and the unregistered and unregulated operators in the informal sector. Under PAYE the employers are charged with the responsibility of deducting taxes from the monthly salaries of their staff and remitting same to the appropriate tax authority. Where the employer fails to deduct or remit deductions from employees to the appropriate tax authorities, such employer shall be subjected to a fine on conviction of ₦5,000, and in addition, ₦100 daily for the period of the failure together with the principal amount (Personal Income Tax (Amendment) Act, 2011).

Personal income tax is an obligatory amount imposed on individuals who are employees either in the private or public sector and the self-employed running his business under a business name or partnership (i.e. organised) and the unregistered and unregulated operators by the government. This type of tax is a direct form of taxation whose impact is on the taxpayer. Under the direct form of taxation, the burden or incidence of tax is upon the taxpayers who finally bear the money burden and unable to pass the burden to others (Bhatia, 2008).

Tax administration operates at the three levels of government in Nigeria. PITA (2011) imposes tax on the individuals and unincorporated bodies. The federal government collects corporate taxes while the states are responsible for collecting that of the individuals and unincorporated bodies. The local government councils collect sundry rates and levies based on the statute of the federal or state governments. The federal government collects income tax of companies, hydrocarbon tax and the personal income tax of citizens residing at the Federal Capital Territory, employees of Ministry of Foreign Affairs, expatriates and Nigerians residing abroad but earning income in Nigeria. Civilians who are working in the military formations and the police force pay their taxes to their respective internal revenue services of the states where they reside. The responsibility of collecting personal income tax from residents in a state who are employees of federal, state, local government, private sector and those who own their business (self-employed) rest with the State Internal Revenue Service (IRS).

1.3 Tax compliance

Theoretically, tax compliance means the taxpayers abiding by the tax laws and such laws differ from one country to another. The aim of imposing tax laws is to achieve compliance with them.

Some schools of thought argued that voluntary tax compliance is the key to any country's revenue growth (Aruwa & Oklobia, 2014). Devos (2005) states that tax compliance is complying with the applicable tax laws, whereby the taxpayer precisely reports his tax assessment according to IRS regulations or relevant laws and files his returns promptly.

As for Thuronyi (2003), tax compliance consists of stating accurately all assessable income, payment of the assessed tax liability timely without a reminder from tax officials and filing tax returns. Tax compliance is when a taxpayer pays his tax based on the correct declaration, computes his tax liability and files his returns on time (Brown & Mazur, 2005).

Garuba (2021) avers that tax compliance is the capability of taxpayers to conform to relevant laws without any compulsion. In fact, taxation is the key to the survival of most economies, particularly the developing nations. Therefore, every committed government must strive to attain tax compliance. Hence the contemporary issue in most developing countries is tax compliance because of the resolve of the governments to efficiently improve their internally generated revenue to finance their budgets (Maseko, 2014).

Literature on compliance behaviour highlights among others the important role of demographic variables in taxpayers' behaviour. Usually, demographic factors such as gender, age, education and residential location could influence tax compliance. However, the probability that a taxpayer is compliant is shaped by the following variables: income level, tax rate, morals and attitude (psychological factors) and demographic factors such as age and gender (Brooks, 2001).

1.3.1 Gender and Tax Compliance

Gender is a key factor that influences taxpayer's behaviour and compliance attitude (Jackson & Milliron, 1986). Sari and Supadmi (2014) state that gender characteristics distinguish between men and women, which reflect one's biological sex or gender identity. Prior studies show correlation between gender and tax compliance. However, the findings vary and are inconsistent. Some of the studies found male taxpayers to be less tax compliant than the female taxpayers. This position was espoused in the work of Tittle (1980). This is because women by their nature are more moral restraint, conservative, and conforming and therefore, are more tax compliant than their male counterparts (Jackson & Milliron, 1986). Olowookere and Fasina (2013) concurred with the Jackson and Milliron that traditionally females are conformists, ethical and conservative in their life style. Therefore, the female taxpayers are more tax compliant than their male counterpart. However, the work of Houston and Tran (2001) showed a contrary result that females are less tax compliant than males. Richardson (2006) posits that gender does not influence tax compliance based on a study carried out across 45 countries. He therefore, opined that there is no correlation between gender and compliance. Alabede (2014) agreed with Richardson that gender does not significantly impact tax compliance behaviour of taxpayers in Nigeria. In summary, it shows that effect of gender on taxpayer's compliance behaviour is inconsistent.

1.3.2 Age and Tax Compliance

Virtually all studies in the United States of America (USA) depict age as essential variable in explaining taxpayers' compliance behaviour. For instance; study by Clotfelter (1983) showed there is an intimate relationship between age and compliance. However, there are studies that investigated age as a demographic variable but their results were inconsistent (Tittle, 1980; Warneryd & Walerud, 1982; Christian & Gupta, 1992; Beron, Tuachen & Witte, 1992). That adults are more compliant then the youths because they more exposed to tax awareness. On the contrary, there are studies that revealed there is no relationship between age and compliance, that is, adults are less compliant than youths (Warneryd & Walerud, 1982; Wahlund, 1992). Torgler (2004) also averred adults are less tax compliant than the youths. Engida and Baisa (2014) carried out their research in Ethiopia and the result revealed also that adults' are less compliant than youths'. However, studies also showed there is no relationship between age and compliance (Porcano, 1988). From the foregoing, it shows that the results from the various studies are contradictory. Therefore, there is need for further investigation.

2.3.3 Education and Tax Compliance

The key factor that could likely inhibit the mind-set of an individual lies in disproportionate comprehension level or tax structure commitment. Therefore, in the front burner is the level of awareness and knowledge which has effect of improving the overall taxpayer's compliance. The level of education in general and tax knowledge and education in particular is crucial to the willingness of taxpayers to be tax compliant. The result of the work of Chen (2006) in Malaysia showed that education is important in improving voluntary compliance. Singh (2003) posits that substantial relationship exists between general knowledge and comprehension of laws by the taxpayers and their level of tax compliance. Therefore, relationship exists between general knowledge and education of taxpayers and their level of tax compliance (Lewis, 1982). On the contrary, insignificant relationship exists between education and tax compliance behaviour of taxpayers (Richardson, 2008; Collins, Milliron, & Toy, 1992). Mohd (2010) states tax knowledge is essential in promoting public awareness of tax laws as an instrument of national development, and letting the citizens know how much is collected and expended. It is important to educate potential taxpayers of the need to pay their taxes especially in emerging economies.

On the contrary, insignificant relationship exist between education and compliance behaviour of taxpayers (Richardson, 2008; Collins, Milliron, & Toy, 1992). Also, Alabede (2014) posits that education does not significantly impact taxpayers' compliance behaviour in Nigeria. The findings of studies above produced mixed results as regards correlation between education and compliance.

Based on literature reviewed, it showed the impact of education on tax compliance is ambiguous. The ambiguity is as result of the inability to ascertain the segment of education being measured at a point time. However, four measures identified from the literature review are: the general degree of fiscal knowledge; knowledge involving evasion opportunities; general education attainment; and specific tax knowledge.

The measurements highlighted above help to address the ambiguity as regards the effect of education on compliance.

2.3.4 Residential Location/Government Presence.

The provision of basic infrastructure by the government such as good roads, health facilities, schools, electricity and other basic amenities in either the urban or rural locality are more likely to influence taxpayers' compliance behaviour. Individuals perhaps pay their taxes because of the value they attach to the goods the government provides, with the understanding that payments of their taxes not only help in funding the goods and services but encourage others to pay their taxes (Fjeldstad, & Semboja, 2001). Thus, the taxpayers' perception of the provision of basic infrastructures improves tax compliance. This is line with the theory of fiscal exchange which advocates that government provision of goods has the tendency to improving compliance. That is, government can improve compliance through its expenditure on social amenities because it influences compliance (Moore, 2004). It goes to show that the taxpayers are mostly interested in benefits they get in return for payment of taxes.

1.4 The informal sector

The economy can broadly be divided into two namely: the formal and informal sectors. The informal sector usually involves unorganised dealings with individuals, businesses or organisations in terms of economic activities while the formal sector comprise of organised economic interactions of individuals or corporate bodies.

The term informality means different things to different people. It is characterized by unprotected workers, excessive regulation, low productivity, unfair competition, evasion of the rule of law, underpayment or non-payment of taxes, and work `underground' or in the shadows." (Perry, Haloney, Arias, Fajnzyiber, Mason, & Saavedra-Chenduvi, 2007).

Uko, Akpanoyoro and Ekpe (2020) posit that informal sector activities range from agricultural production to mining and quarrying, small scale building and construction, traditional Nigerian crafts in clothing and furniture, machine shop-manufacturing, vehicle and mechanical repair, utility services, parallel finance structures operating mostly on unwritten rules and providing credit services among others.

According to the Bank of Industry (2018) the informal sector comprises any economic activity or source of income that is not fully regulated by the government and other public authorities; this includes enterprises that are not officially registered and lack accurate accounting records; and workers hold jobs lacking critical social or legal protection and employment welfares. Examples of the operators in the informal sector are Street traders, subsistence farmers, small scale manufacturers, service providers (such as private taxi drivers, carpenters and hairdressers), etc.

The informal sector can also be described as market based production of goods and services, whether legal or illegal, that escape detection in the official estimate of tax administration and gross domestic product. While for the most part the economic activities of informal workers are legal, they are often not taken into account in official statistics, and much of the income they generate goes untaxed. However, those who are rationed out of the formal segment have the opportunity to take a job in the (free entry) informal sector.

According to the findings of Enhancing Financial Innovation and Access (EFInA, 2018) the Nigerian informal sector has a population of 67.2 million. The breakdown of the population is as follows: individual entrepreneurs 36.8 million, business owners with employees 7.5 million and those employed 22,9 million. It shows that the business owners with employees (i.e.7.5 million) are able to employ 22.9 million staff in the sector. The ‘business owners with employees’ and the ‘employed staff’ consist 45% of the total population. Hence the focus of this study is on the business owners (self-employed) with employees who are the unregistered and unregulated operators in the informal sector.

3. Methodology

The study employed the survey research design in collecting data via questionnaire. Six hundred (600) questionnaires were administered to informal sector operators in the South-South geographical zone in Nigeria. The South-South geographical zone comprises Akwa-Ibom State, Bayelsa State, Cross River State, Delta State, Edo State and Rivers State. However, only 390 out of the 600 questionnaires administered, representing 65% response rate were completed and suitable for use. The questionnaire consists of well-structured close-ended questions comprising of twenty-five questions using a likert-scale ranging from 1 to 5. The research adopted the Statistical Package for Social Sciences (SPSS) version 17 and econometric techniques for data analysis. Descriptive statistics and correlation method were used in carrying out the preliminary analysis. Thereafter, data was further subjected to regression analysis.

Theoretical Framework and Model Specification

A framework for relationship between demographic factors and informal sector operators' tax compliance behaviour is anchored on Fischer's model and Fiscal exchange theory. The literature on compliance behaviour denotes among other factors the significant role played by demographic variables in compliance behaviour of taxpayers. Therefore, understanding the factors that drive specific compliance behaviour is essential to the tax authorities in formulating the best strategy to improve tax compliance and bridge gap between potential tax revenue and the actual tax revenue collected.

The Fischer's model (1992) helps one to understand how the demographic variables such as gender, age, and education influence taxpayers' compliance behaviour. While residential location/government/presence is based on the Fiscal exchange theory. This theory advocates magnitude of government expenditure sways compliance. That is, providing basic infrastructures by governments can improve compliance (Leviit, 1988; Moore; 2004). Against the backdrop of above theoretical and empirical review, we propose a functional relationship between gender, age, education and residential location/government presence; and informal sector operators' tax compliance.

The relationship is depicted schematically as shown below:

Independent variable

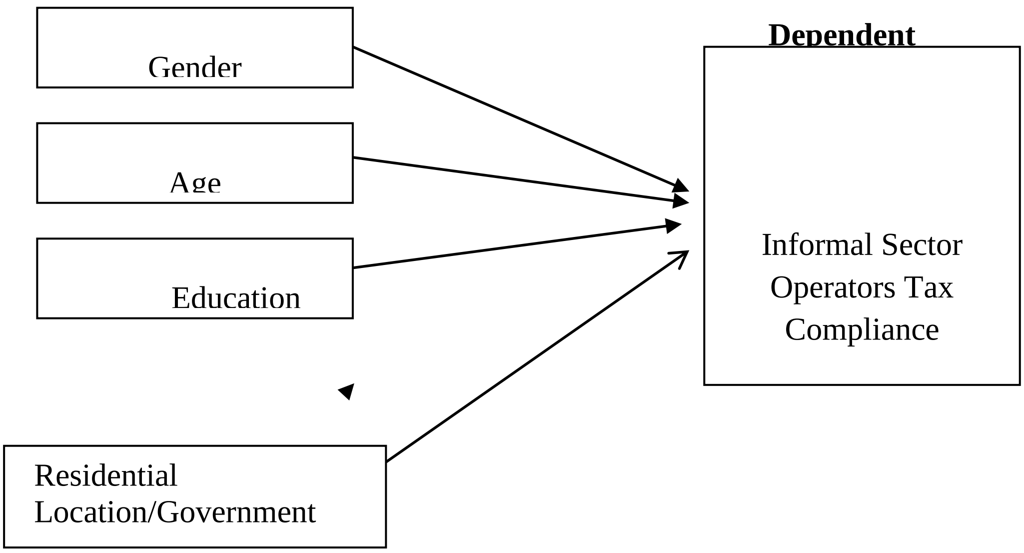

Figure 3.1: Schematic representation of the determinants of personal income tax compliance.

Source: Researchers' Compilation (2023)

Against the above backdrop is expected that gender may improve or adversely affect tax compliance. The results of studies carried out on gender as a demographic variable are conflicting. Some of the studies revealed sex or gender seems to have a substantial influence on compliance and females are more compliant than their male counterparts because they are averse to risk taking (Spicer & Becker, 1980; Tittle, 1980; Jackson & Milliron, 1986; Hasseldine & Hite, 2007; Olowookere & Fasina, 2013). The results of other researchers showed male are compliant than the female because they dare taking risk (Houston & Tran, 2001). The expected functional correlation between gender and informal sector operators tax compliance is as shown below:

Informal sector operators tax compliance = *f (gender)………………………………… (i)*

In the same vein, age as a demographic factor may also improve or adversely affect tax compliance. Most of the results of the researches carried out on age as demographic variable are inconsistent. Some concluded youthful taxpayers are less compliant than adult taxpayers because they are always daring in taking risk (Mason & Calvin, 1978; Tittle, 1980; Jackson & Milliron, 1986; Wenzel, 2002; Clotfelter, 2003). While others state youthful taxpayers are more compliant than adult taxpayers (Warneryd & Walerud, 1982; Wahlund, 1992; Torgler, 2002; Alabede, 2014). However, operational correlation is expected between age and personal income tax compliance as:

Informal sector operators tax compliance = *f (age)……………………………………. (ii)*

Results of some researches indicate the impact of education on compliance is unclear. Such conflicting results may be due to complexity ascertaining which aspect of education is being measured at a point in time. However, little awareness correlates with negative attitude toward taxation (Lewis, 1982). The findings of Richardson (2008) also revealed that insignificant relationship exist between education and compliance.

Also expected functional correlation exists between education and informal sector operators tax compliance, is as shown below:

Informal sector operators tax compliance = *f (education)…………………………… (iii)*

Residential location/Government presence

The provision of basic infrastructure could influence compliance behaviour. The presence of government expenditures according to fiscal exchange theory may encourage compliance. That is, government can improve compliance by provision of basic infrastructure in a more efficient and accessible means to its citizens (Cowell & Gordon,1988).

Informal sector operators tax compliance = *f (residential location/government presence)* ……………….……(iv)

Combining equations i-iv, we have a general functional form of our equation as:

Informal sector operators tax compliance = f (gender, age, education and residential location/government presence) ………………..………………. (v)

This is expressed in code form as:

ISOTC = f (GE, AG, ED and RL)

The above equation is expressed in econometric form as:

$ISOTC = \beta o + \beta 1GE+\beta 2AG+ \beta 3ED +\beta 4RL+e$

Where

ISOTC = Informal Sector Operators Tax Compliance

GE= Gender

AG= Age

ED= Education

RL= Residential Location

βo = Unknown coefficient of the variables

e= Error term

4 Results and Discussions

This section discusses the findings and discussions of the study.

Table 4.1: Demographic Factors and Informal Sector Operators Tax Compliance Descriptive Statistic

	TC	AGE	EDU	GEN	RLOC
Mean	1.517949	2.353846	4.251282	1.397436	1.733333
Median	2.000000	2.000000	4.000000	1.000000	2.000000
Maximum	2.000000	4.000000	6.000000	2.000000	2.000000
Minimum	1.000000	2.000000	2.000000	1.000000	1.000000
Std. Dev.	0.500320	0.567249	0.705058	0.489996	0.442785
Skewness	-0.071841	1.351685	-0.131917	0.419170	-1.055290
Kurtosis	1.005161	3.838176	3.183511	1.175704	2.113636
Jarque-Bera	65.00043	130.1747	1.678375	65.50167	85.15302
Probability	0.000000	0.000000	0.432061	0.000000	0.000000
Sum	592.0000	918.0000	1658.000	545.0000	676.0000
Sum Sq. Dev.	97.37436	125.1692	193.3744	93.39744	76.26667
Observations	390	390	390	390	390

Source: Researchers' Computation, 2023

The mean value of **gender** diversity as indicated in Table 4.1 is 1.397 which is quite low. The median value for gender from the table is 1 which is quite small. The median revealed that there are more males included in the sample than the females. The table also showed that the gender diversity had maximum value of 2 and a minimum value of 1 from the data. The standard deviation from the table is 0.49 which is quite small hence the distribution of the score points between male and the female were closely distributed around their mean.

The mean score for **age** factor shown in table 4.1 is 2.354 with the median of 2 and minimum value of 2 and maximum value of 4. The standard deviation of 0.567 showed age distribution is closely dispersed from the mean.

Linking education to tax compliance, the descriptive statistic results in table 4.1 revealed the mean score for EDU= 4.251 which is higher than that of the gender.

This is an indication that the higher mean has a positive impact on tax compliance. The table also showed a minimum score of 2 and a maximum score of 6 from the data. The median from table 4.1 is 4 and showed that there are more males included in the sample than the females. The table showed a standard deviation of 0.705 which is quite low. The low standard deviation means that the data for education was closely clustered and that most of the respondents obtained the educational qualification coded as 4 which is secondary education.

Linking **education** to tax compliance, the descriptive statistic results in table 4.1 revealed the mean score for EDU= 4.251 which is higher than that of the gender. This is an indication that the higher mean has a positive impact on tax compliance. The table also showed a minimum score of 2 and a maximum score of 6 from the data. The median from table 4.1 is 4 and showed that there are more males included in the sample than the females. The table showed a standard deviation of 0.705 which is quite low. The low standard deviation means that the data for education was closely clustered and that most of the respondents obtained the educational qualification of secondary education.

From table 4.1 the mean of **residential location** (RLOC) was 1.733 with the standard deviation of 0.443 which was found to be far from the mean. This implies that the demographic data for residential location/government presence were clustered around the mean. The median of 2 showed that most of the respondent scored 2 points on the scale that measured the presence of government where the minimum score was 1 and maximum score of 2.

Table 4.2 Demographic Factors and Informal Sector Operators Tax Compliance Correlation Matrix

	TC	AGE	EDU	GEN	RLOC
TC	1.000000	0.004738	0.052769	-0.055388	-0.071172
AGE	0.004738	1.000000	-0.017206	-0.044821	0.018423
EDU	0.052769	-0.017206	1.000000	-0.014500	-0.023605
EMP	0.081070	0.004324	0.018857	-0.034461	-0.030267
GEN	-0.055388	-0.044821	-0.014500	1.000000	0.015798
RLOC	-0.071172	0.018423	-0.023605	0.015798	1.000000

Source: Researchers' Computation, 2023

The correlation results presented in table 4.2 indicated negatively very weak correlation between tax compliance (TC) and GEN as it scored a -0.055. Moreover, the outcomes showed very weak negative correlation between GEN and age (AGE= -0.045), education (EDU= -0.015), except for RLOC= 0.016 which have very weak positive correlation.

Age is one of the demographic factors used in this study to test how it could affect informal sector operators' tax compliance. Table 4.2 shows that tax compliance moves in the same positive direction with AGE, but the strength of their association is very weak. More so, both EMP= 0.004 and RLOC = 0.012 have positive but very weak association with AGE. While EDU= -0.017 and GEN= -0.045 both moves in opposite direction with AGE, but the strength of their association was very weak. It shows that age has a positive but very weak correlation with informal sector operators' tax compliance. Furthermore, the results of correlation revealed there was no strong relationship between AGE and other variables of the study.

The correlation result for education and tax compliance showed a very weak positive association. That is, personal income tax compliance has impact on educational qualification (0.053). the correlation between EDU and AGE= -0.017, GEN= -0.145, RLOC= -0.023 showed a very weak negative association. The result indicates that there is a significant positive relationship between education and informal sector operators' tax compliance.

Table 4.3: Demographic factors and informal sector operators tax compliance regression model

Variable	Coefficient	Std. Error	z-Statistic	Prob.
GEN	-0.131027	0.130499	-1.004045	0.3154
AGE	0.010245	0.112923	0.090728	0.9277
EDU	0.558446	0.111021	5.030093	0.0001
RLOC	-0.191055	0.144699	-1.320361	0.1867
Limit Points				
LIMIT_2:C(6)	0.143364	0.610048	0.235004	0.8142
Pseudo R-squared	0.711890	Akaike info criterion		1.399308
Schwarz criterion	1.460325	Log likelihood		-266.8650
Hannan-Quinn criter.	1.423495	Restr. log likelihood		-270.0761
LR statistic	8.422194	Avg. log likelihood		-0.684269
Prob (LR statistic)	0.267277			

Source: Researchers' Computation, 2023

In table 4.3, it is observed from the pooled Ordinary Least Square (OLS) regression that R^2 value of 0.711890 indicated 71.2% of the methodical variations in informal sector operators' tax compliance which was explained jointly by the demographic factors. This implies that of the variation in informal sector operators' tax compliance, demographic factors do explain only 71.2%. Thus, 8.8% in the variation could not be accounted for by the demographic factor. The LR statistic of 8.422 with the p-value of 0.042 clearly indicated the model is good to describe compliance. In other words, the overall model is statistically significant in the prediction of personal income tax compliance. As regards the prediction of the impact of gender differences on tax compliance, we utilized regression result on GEN as presented in table 4.3. The OLS result revealed that gender diversity appears to explain about 13.1% (-0.131; p=0.32) in informal sector operators tax compliance. This implies that a change in gender differences reduces tax compliance with about 13.1%. The z-statistic score of -1.004 also supported that there was a negative cause and effect relationship between GEN and TC. However, the probability test value of 0.315 predicted that the regression was statistically insignificant even at 10% level of significance. Thus, the hypothesis on gender which stated no significant relationship between gender and informal sector operators' tax compliance was accepted.

In table 4.3, regression coefficient of 0.010 with probability value greater than 5% (p= 0.93) shows that age as a demographic factor has progressive but insignificant impact on compliance. Therefore, the hypothesis which stated no significant correlation between age and informal sector operators' tax compliance was accepted owing to high probability value of 0.93. Based on result of this study, age does not predict whether a person is going to be tax compliant because of the insignificant regression coefficient of 0.010.

OLS result in table 4.3 showed education predicts about 55.5% change in tax compliance. The result showed the influence of education on compliance is statistically significant at 5% level of significance as shown by OLS = 0.558(p= 0.0001). Hence, the hypothesis which stated no correlation between education and compliance is rejected, owing to low probability value (< 0.05).

Table 4.3 also revealed that residential location/government presence OLS -0.191(p= 0.19), that only 19.1% of total variation in compliance could be attributable to residential location/government presence, but the outcome was statistically insignificant at 10% level of significance. Based on statistical result of this study, the hypothesis which stated there is no correlation between residential location/government presence and informal sector operators' tax compliance was accepted, owing to the large p-value showed by the analysis.

Limitations

The limitations of this research work are as follows: (a) the territorial limit of the research is exclusively restricted to the South-south geographical zone of Nigeria; (b) is restricted to four variables; and (c) is restricted to only the informal sector of the economy.

This research is restricted to four variables; a similar study can be conducted using more than four variables which may suggest findings different from ours. Therefore, more variables should be employed for further studies. This study is also restricted to the South-South zone out of the six geographical zones in Nigeria. Therefore, future studies can be conducted by expanding the geographical zones. This study is focused on the informal sector of the Nigerian economy. Further studies can look at different industries in other sectors of the Nigerian economy.

Contribution to knowledge

Our study showed that a positive relationship exists between education and tax compliance. The result is in accord with the findings of (Chan, Troutman & O'Bryan, 2000; Sing, 2003; Abdul-Razak & Adafula, 2013; Lateef, Saheed & Onipe, 2015).

We contributed to existing knowledge by finding that one of the ways to improve tax compliance is through education. Therefore, education will help to expose potential taxpayers to the roles they can play by voluntarily paying their taxes as good citizens in future. Government can achieve such exposure through tax sensitization, seminars, incorporating tax education in secondary schools and tertiary institutions syllabi, etc.

5. Conclusion and Recommendations

This study investigated selected demographic factors that could have impact on informal sector operators' tax compliance in Nigeria. Indeed, tax compliance has of recent occupied the front burner of most researches carried out in a number of emerging economies and developed countries because of necessity to increase the revenue base of government rather than borrowing to finance its budgets. In line with extant literature, gender as a demographic factor was examined and our findings suggest that gender does not considerably impact tax compliance in Nigeria. However, literature on gender has produced inconsistent and varied results. It can therefore, be argued that such results could be due to differences in socio-political environment.

The negative relationship that exists between age and informal sector operators' tax compliance suggests a pointer to further investigate how age as a demographic factor can influence informal sector operators' tax compliance. Again results from most of the findings in literature are contradictory. It could also be argued that the different legal, socio-political environment and lack of uniformity in sample size could be responsible for such contradictory results.

Education plays an important role in influencing tax compliance. Our results revealed a positive relationship exists between education and informal sector operators' tax compliance. Literature on education has also produced mixed results. It therefore, revealed the influence of education on tax compliance to be inconsistent and ambiguous. Such inconsistency and ambiguity could be traced to different variables employed, operationalization of such variables and lack of the ability to identify the aspect of education at a point in time that is being measured.

It was also revealed that negative correlation exists between residential location/government presence and informal sector operators' tax compliance. Thus, it shows payment of taxes is not dependent on the provision of basic infrastructure by the government in one's locality.

Having carried out the study on demographic factors and informal sector operators' tax compliance in Nigeria, the following recommendations are proffered:

1. Tax education to be incorporated in secondary and tertiary institutions syllabi in order to inculcate the culture of paying taxes as good citizens in our students who are future potential taxpayers. This can be done by the policy makers of formulators by ensuring that the National Assembly and State Houses of Assembly pass a bill into law making the teaching of taxation a compulsory course in the

secondary schools while taxation should be included in General Studies in tertiary institutions.

2. There should be zero tolerance for tax evasion by ensuring that tax evaders are prosecuted accordingly.
3. There should be tax census of the informal sector by the government to enable it have an accurate data base of taxpayers in that sector. This can be achieved by given incentives in form of loans to the informal sector operators. For instance, when the Central Bank of Nigeria (CBN) wants to give out loans to operators in the informal sector, it must make sure that such self-employed operators in the informal sector are registered and well documented before disbursement of such loans. This procedure will help to ensure that there is accurate data base of the operators in the informal sector.
4. Government should tilt towards an informal driven economy in order to create more employment opportunities and generate more tax revenues. This can be achieved by the government empowering operators in the informal sector and providing the enabling business environment (especially power in terms of stable electricity).
5. There should be improvement in awareness especially for those in the informal sector because huge potential tax revenue accruable to the government is locked up in that sector. This can be done by organising 'town hall' meetings with stakeholders, seminars, and sensitisation through the mass and electronic media.

References

Akanle, O. (1991). *Tax law and administration in Nigeria.* Lagos: Nigerian Institute of Advanced Legal Studies.

Alabede, J.O. (2014). An exploratory analysis of individual taxpayers' compliance behaviour in Nigeria: A study of demographic differences and impact. *International Journal of Accounting and Taxation,* 2(2), 39-64.

Anyaduba, J.O. (2000). Personal income taxation. Benin City: United City press.

Anyaduba, J.O. & Okoye, A.E. (2015). The effects of indirect taxes on economic growth in Nigeria. *Accounting frontier. The Official Journal of Nigerian Accounting Association, 6(1), 1-12.*

Aruwa, S.A.S. & Oklobia, F.A. (2014). Tax competence, compliance cost and tax compliance of small and medium taxpayers' in Nigeria. *Nigerian Accounting Association, 2013 National Conference Proceedings,* 523-538.

Bank of Industry (2018). Economic development through the informal sector: A BOI perspective. Working Paper Series: No. 2. 17th May, 2018.

Bhatia, H.L. (2008). *Public finance.* New Delhi: Vikas Publishing.

Brooks, N. (2001). Key issues in income tax: Challenges of tax administration and compliance. Asian Development Bank.

Brown, R.E., & Mazur, M.J. (2005). IRS's comprehensive approach to compliance. *Paper presented at national tax association spring symposium,* May. Washington D.C.

Chau, G. & Leung, P. (2009). A critical review of Fischer's tax compliance model: A research synthesis. *Journal of Accounting and Taxation, 1(2), 34-40.*

Chen, L.E. (2006). Tax knowledge, tax structure and compliance. A report of a quasi- experiment. *New Zealand Journal of Taxation Law and Policy.12*, 117-140.

Christian, C. W. & Gupta, S. (1992, December). New evidence on secondary evasion. *The Journal of the American Taxation Association,* 72 – 93.

Clotfelter, C. T. (1983). Tax evasion and tax rates: An analysis of individual returns. *The Review of Economics and Statistics, LXV (3),* 363-73.

Collins, J.H., Milliron, V.C., & Toy, D.R. (1992). Determinants of tax compliance: A contingency approach. *The Journal of American Taxation Association,14(2),* 1-29.

Devos, K. (2005). Attitudes of tertiary students on tax evasion and penalties for tax evasion- A pilot study and demographic analysis. *Journal of tax research*, 3(2), 222-273.

Eiya, O., Ilaboya, O.J., & Okoye, A.F. (2016). Religiosity and tax compliance. Empirical evidence from Nigeria. *Igbinedion University Journal of Accounting 1(2),* 27-41.

Enhancing Financial Innovation and Access (EFIn A, 2018). Key findings: EFInA access to financial services in Nigeria. 2018 Survey 11th December 2018.

Eshag, E. (1983). *Fiscal and monetary policies and problems in development countries.* Cambridge: Cambridge University Press.

Fjeldstad, O.H. & Semboja, J. (2001). Why people pay taxes: The case of the development levy in Tanzania. *World Development, 29,* 2059-2074.

Fischer, C. A., Wartick, M., & Mark, M. (1992). Detection probability and tax payer compliance: A review of the literature. *Journal of Accounting Literature*, *11,* 1-46.

Garuba, A.O. (2021). *Demographic factors and informal sector operators tax compliance in Nigeria.* PhD Thesis, University of Benin.

Garuba, A.O. & Eichie, D. (2022). Employment status, gender and tax compliance behaviour of informal sector operators in Nigeria. Accounting and Taxation review, 6(2), 87-104.

Garuba, A.O. & Oghuma, R.I. (2021). The implication of the suspended Federal Inland Revenue Service (FIRS) power of tax substitution on tax evasion. *Benin Journal of Accounting, Finance and Forensic Science Research, 1(1),* 81-101.

Hasseldine, J. & Hite, P. (2007). *Key determinants of compliance and non-compliance*. Tax notes, October 22. Internal Revenue Act (2000), Act 592.

Houston, J., & Tran, A. (2001). A survey of tax evasion using the randomized response technique. *Advanced Taxation,13,* 69-94.

Jackson, B., & Milliron, V. (1986). Tax compliance research: findings, problems and prospects. *Journal of Accounting Literature, 5*, 125-165.

James, S., & Alley, C. (2004). Tax compliance, self-assessment and tax administration. *Journal of Finance and Management in Public Services, 2(2)*, 27-42.

Lewis, A. (1982). *The Psychology of Taxation*. Oxford: Martin Robertson.

Lymer, A., & Oats, L. (2009). *Taxation: Policy and Practice*. 16th ed. Birmingham: Fiscal Publications.

Maseko, N. (2014). The impact of personal tax knowledge and compliance costs on tax Compliance behaviour of SMEs in Zimbabwe. Elite Research *Journal of Accounting and Business Management,2(3)*, 26 - 37.

Modugu, K.P. & Omoye, A.S. (2014). An appraisal of personal income tax evasion in Nigeria. *Asian Economic and Financial Review, 4(1)*, 33-40.

Mohd, R. (2010). Tax knowledge and tax compliance determinants in self-assessment system, PhD Thesis, University of Birmingham.

Mohd, R.P., Mohd, R.M., & Wan, F.B. (2013). The perception of tax payers on tax knowledge and tax education with level of tax compliance: A study of the influences of religiosity. *ASEAN Journal of Economics, Management and Accounting, 1(1)*, 118-119.

Moore, M. (2004). Revenues, state formation, and the quality of governance in developing countries. *International Political Science Review, 25*, 297-319.

Mzuughi, A., Urom, .C., Uddin, G.S. & Guesmi, K. (2020). The effect of COVID-19 pandemicon oil prices, Co2 emissions and the stock market: Evidence from a VAR model. Available at https://www.researchgate.net/publication/341029961.

Olowookere, J.K. & Fasina, H.T. (2013). "Taxpayers' Education: A Key Strategy in Achieving Voluntary Compliance in Lagos State, Nigeria", *European Journal of Business and Management, 5(10)*, 146-155.

Okoye, A.E. & Odia, J.O. (2012). The ethics of tax evasion in Nigeria. *The Certified National Accountant Journal, 20(2)*, 5-12.

Personal Income Tax (Amendment) Act, 2011. Perry, G., Haloney, W., Arias, O., Fajnzyiber, P., Mason, A., & Saavedra-Chanduvi, J. (2007). *Informality: Exit and inclusion*, Washington DC: World Bank.

Porcano, T.M. (1988). Correlates of tax evasion. *Journal of Economic Psychology, 9(1)*, 47- 67.

Richardson, G. (2006). Determinants of tax evasion: A cross-country investigation. *Journal of International Accounting, Auditing and Taxation,15(2)*, 150-169.

Richardson, G. (2008). The relationship between culture and tax evasion across countries: Additional evidence and extensions. *Journal of International Accounting, Auditing and Taxation, 17(2)*, 67-78.

Sari, M.M. & Supadmi, N.L. (2014). Gender audit committee and audit delay. *The Indonesian Accounting Review,4(1),* 81-88.

Serkan, B., Tamer, B., Yiizba, B., & Mohdali, R. (2016). The impact of religiosity on tax compliance among Turkish self-employed taxpayers, *Religions,* 7(2), 37-39.

Shanmugam, S. (2003). Managing self-assessment - an appraisal. *National Tax Journal, 1(3),* 30-32.

Singh, V. (1999). Malaysian tax administration (4th ed.). Kuala Lumpur: Longman.

Singh, V. (2003). *Tax compliance and ethical decision-making*. A Malaysian Perspective.1st Ed. Pearson Malaysia Sdn. Bhd.

Thuronyi, V. (2003). "*Presumptive taxation of the hard to tax*". Paper presented at the conference "The hard to tax: An international perspective". May 14-1, 2003 Atlanta, Georgia.

Tittle, C. (1980). *Sanctions and social deviance:* The question of deterrence. New York: Praegers.

Tolby, R.A. (1978). *The theory and practice of income tax*. London: Sweet & Maxwell.

Torgler, B. (2004). 'Moral suasion: An alternative tax policy strategy? Evidence from a controlled field experiment in Switzerland'. *Economics of Governance, 5(3),* 235-253.

Uko, F.E., Akpanoyoro, M.J., & Ekpe, J.P. (2020). An evaluation of the contribution of the informal sector in employment and income generation in Nigeria. Thematic approach. *Social Sciences and Management International Journal, 1(2),* 1-34.

Wahlund, R. (1982). Tax changes and economic behaviour: The case of tax evasion. *Journal of Economic Psychology, 13,* 657-677.

Warneryd, K.E. & Walerud, B. (1982). Taxes and economic behaviour: Some interview data on tax evasion in Sweden. *Journal of Economic Psychology, 2,* 187-211.

Wenzel, M. (2004). An analysis of norm processes in tax compliance. *Journal of Economic Psychology, 25(2),* 213-228.