

## EFFECTS OF VERTICAL FAIRNESS, TRUST IN AUTHORITY ON VOLUNTARY TAX COMPLIANCE IN JIGAWA STATE NIGERIA

<sup>1</sup>Abba Ya'u, <sup>2</sup>Natrah Saad, <sup>3</sup>Nura Badamasi

<sup>1 & 2</sup>Tunku PuteriIntanSafinaz School of Accountancy, Universiti Utara Malaysia  
(TISSA- UUM) <sup>3</sup>Department of Accountancy

**Hussaini Adamu**

Federal Polytechnic Kazaure, Jigawa State.

Emails: [abbayau1@gmail.com](mailto:abbayau1@gmail.com),

[Natrah@uum.edu.my](mailto:Natrah@uum.edu.my), [nurabadamasi@yahoo.com](mailto:nurabadamasi@yahoo.com)

### Abstract

*Tax compliance is declining in Nigeria over time. Many factors might contribute to the tax non-compliance level in Nigeria. Many studies indicate that complexities, inequality, lack of conveniences and inefficient tax system are the major causes of tax non-compliance in Nigeria. The desire for tax compliance through fairness perception is increasingly rapidly in both developed and developing countries, which make it necessary for policymakers to explore several means to encourage voluntary tax compliance. Fairness which believed to be a multidimensional construct in tax system is, eventually needed fundamentally if not urgently to encourage voluntary tax compliance across different level of taxpayers. Effective tax administration is a primary determinant of efficient revenue generation, implementation of tax policy and a conducive environment for investment. The aim of this study is to examine the effects of vertical fairness and trust in authority on voluntary tax compliance among owners' managers of micro enterprise in Jigawa State Nigeria. The study employed survey inform of questionnaires and used SPSS and PLS to analyze the data. The results revealed that vertical fairness has a positive and significance relationship with voluntary tax compliance, and trust in authority has a positive and significance relationship with voluntary tax compliance. The finding has a significance implication to the relevant tax authorities, because the result offers more insights for the tax authorities and government at large to strengthen the tax administration holistically, and make it friendlier and fairer to encourage more voluntary tax compliance which in turn will enhance significantly the overall government revenue. The study, therefore, recommend that, the Jigawa State government should increase the fairness of the tax system, in such a way that those with high income can pay higher tax rates and vice versa, which will eventually enhance government revenue in turn.*

**Keywords:** Tax; Vertical; Fairness; Voluntary; Compliance; Micro; Enterprises

### Introduction

Fairness in the tax system has been described as the most essential way to encourage tax compliance behaviour (Saad, 2011). Developed country like US, Inland Revenue Service (IRS) has put a great effort on fairness perceptions in a strive to encourage and enhance tax compliance (Bobek, 1997). Even though it is not unusual for a tax system that grossly defies the basic principles of efficiency and fairness to expects non-compliance behaviour amongst taxpayers (Head, 1992). Based on these

evidences which describe the significance of fairness perceptions in encouraging tax compliance behaviour by taxpayers, the question could be how to define fairness? Based on Adam Smith (1776) a tax system perceives to be fair when taxpayers are taxed based on their ability to pay (vertical fairness).

Vertical fairness simply means that taxpayers with different economic situations should be taxed at different level of tax rates (Kirchler, et al., 2006). This suggests that higher income earners would pay taxes at higher rates than the lower- or middle-income earners. Put differently, vertical fairness is considered as the approach of collecting income taxes where the taxes paid increase as the income increase. The fundamental principles of vertical fairness are that, those who could pay higher taxes should contribute more than those who are not. As stipulated by Adam Smith canon of taxation, a good tax system should be that the amount of tax an individual pay should be depend on the level of burden the tax will create to the wealth of individual.

Under vertical fairness taxes are assessed either through proportional or progressive tax rates. In proportional taxes the amount of taxes paid is however, increase directly with the income. While progressive tax rates entail the higher the income the higher the rate of taxes to be paid to the relevant authorities. Vertical fairness is an important dimension for assessing fairness perception on taxpayer's compliance behaviour (Saad, 2011). Despite the significant influence of this dimension, to the researcher knowledge, there is paucity of literature that specifically examines the influence of vertical fairness on voluntary tax compliance in Nigeria. Hence, the central objective of this paper is to fill this gap, by examining the influence of vertical fairness, trust in authority on voluntary tax compliance amongst owners of micro enterprises in Jigawa State Nigeria.

The paper organized as follows: The preceding section covers the introductory part of the study which highlighted the motivations of the study, as well as the potential contributions of the current study. Section two covers literature review which led to the hypothesis's development; and further discusses the under-pining theory which serves as the foundation of the current study. Section three covers methodological approach employed to achieve the main objective of the current study. Section four provides the result and discussions of the findings. And section five offer conclusion and policy implications of the current study.

### **Literature Review/ Hypothesis Development**

This section will begin with the concept of the dependent construct under investigations, the hypothesis development, the theory that underpinned the study and theoretical framework.

### **Concept of voluntary tax compliance**

Voluntary tax compliance encourages taxpayers to comply with the tax laws voluntarily without compulsion by the tax authority. Kirchler (2007) defined voluntary compliance as a phenomenon that result of trust and cooperation between taxpayers

and the tax authority and it is the willingness and desire by the taxpayer to comply on his or her own with the relevant regulations and directives of the tax authority. Debate exists about the reasons behind voluntary tax compliance. Scholars like Frey and Feld (2002), Feld and Tyran (2002) and Frey and Torgler (2007) have claimed that the response of voluntary tax compliance is an intrinsic motivation. Thus, the act of volunteering can also be part of a taxpayer's personal values, internal motivations, cognitive processes, social norms and sense of moral obligation, which can all help explain the rationale for voluntary tax compliance. Lubian and Aarri (2011) stated that numerous empirical studies have shown that taxpayers are adequately candid and may respond voluntarily to the fulfilment of their tax obligations. They further stressed that an individual may be driven by a positive interest in paying taxes. Thus, positive interest may signal an increase in voluntary tax compliance; on the other hand, negative interest may signal lower voluntary tax compliance. Such an interest seems related to the association between perceptions of public good and tax payments.

According to Levi (1998) when taxpayers perceive drastic reductions in public goods when compared with the taxes they paid; these taxpayers will rationalize that government has failed in its contract with them. In turn, this may result in deteriorating voluntary tax compliance. Braithwaite (2002) said that taxpayer's commitment towards volunteering in terms of payment of tax must be encouraged without compulsion. Indeed, OECD (2007) said that providing good quality services to taxpayers strengthens their intention to embrace and comply voluntarily with the tax rules and regulations, which will, in turn, leads to the overall level of tax compliance. Many variables have been studied with respect to voluntary tax compliance. For example, Hofmann, Hoelzl, and Kirchler (2008), stressed that if taxpayers and tax authority perceived each other as harmoniously pursuing the same community goals, then internal variables were more appropriate in encouraging taxpayer's willingness to cooperate. Moreover, variables like government influence, perceived social norms, tax fairness, and motivational tendency to embrace tax laws are psychological determinants of voluntary compliance. Hence, voluntary tax compliance serves as the dependent variable for the current study.

#### **Equity Theory (Underpinning)**

Equity theory explains whether the allocation and distribution of resources are fair to relational parties, for example, taxpayers and tax authority. Equity is measured by looking at the costs to the benefits/rewards for an individual. The history of equity theory dates to the work of Adams (1976) a behavioral psychologist. Adams argued that employees strive to maintain equity between their contributions and the benefits they receive in return against the contribution and benefits of others (Adams, 1976). The emphasis here is that people respect fair treatment, which, in turn, influences their motivation to obey any law. Based on this relationship, the conclusion can be made that, where taxpayers perceive fair treatment from the relevant tax authority, they will voluntarily comply with tax regulations and government revenue will increase as a result of voluntary compliance. Based on the foregoing, equity theory was found to be

suitable for the current study, because vertical fairness which assert that individual with high income should pay higher taxes and those with low income should pay low tax rates was found to be an equitable treatment (Saad, 2011). Additionally, equity theory found suitable in explaining the relationship between trust in authority and voluntary tax compliance (Ya'u, 2017).

### **Hypothesis development**

Having defined the concept of the dependent construct and the theory that underpin the current study, this section will focus on the hypothesis's development.

#### **Relationship Between Vertical Fairness and Voluntary Tax Compliance**

To the researcher knowledge, studies that specifically tested the influence of vertical fairness on voluntary tax compliance are scant in the existing literature. However, studies conducted on the overall fairness perceptions and its dimensions will be reviewed to serve as a basis for developing the hypothesis. Researchers such as (Porcano, 1984; Jackson & Milliron, 1986; Gerbing, 1988; Richardson & Sawyer, 2001) have reiterated that fairness perception is a multidimensional construct. To buttress this point for example, Gerbing (1988) found only five dimensions of tax fairness in United States. Richardson (2006) found eight dimensions of tax fairness perception in Hong Kong. Saad (2009; 2011) found seven dimensions of tax fairness in Malaysia. Mustapha (2010) found five dimensions of tax fairness in Nigeria prior to the amendment of personal income tax act of 2011. Though, some studies believed that equity perceptions (vertical fairness) has significance influence on taxpayers' decisions (Baldry, 1987; Friendland et al., 1978 pg 115). Based on the above the following hypothesis drawn.

**H1.** There is positive relationship between vertical fairness and voluntary tax compliance.

#### **Relationship Between Trust in Authority and Voluntary Tax Compliance**

Many scholars have tested the relationship between trust and voluntary tax compliance. For example, Murphy's (2004) study of 2,292 Australian taxpayers. The study shows positive relationship between trust in government and tax compliance. Additionally, Richardson (2008), in a comparison of 47 countries, found that trust is positively related to tax compliance. In a series of experiments using students in Austria, Wahl, et al., (2010) found that trust in government is positively related to voluntary compliance.

Empirical evidence in Sweden has shown a positive relationship between trust in authority and tax compliance (Hammer, Jagers & Nordblom 2005). Also, Benk and Budak, (2012) found positive relationship between trust and voluntary compliance. Moreover, Fjeldstad (2004), who conducted a study in East and South Africa, found trust in government together with perceived procedural fairness has positive relationship with general tax compliance in South Africa. Based on these evidences the following hypotheses were developed.

**H2.** There is positive relationship between trust in authority and voluntary tax compliance.

### Theoretical Framework

An empirical study on the relationship between the predictor constructs and the dependent latent variable was discussed in the previous sections which led to the hypothesis's development. Therefore, this section will depict the diagrammatical picture of the theoretical framework of the current study. As stated earlier the study was underpins by equity theory, and the constructs proposed by the present study include vertical fairness, trust in authority and voluntary tax compliance. Figure 1 present the theoretical framework.

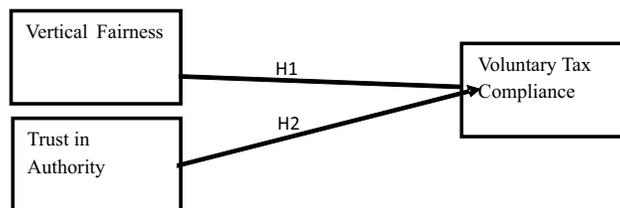


Figure 1 Theoretical Framework

Figure 1 above depicts the direct relationship between the exogenous and endogenous constructs under consideration. The first arrow with H1 representing the first hypothesis which postulated that there is positive relationship between vertical fairness and voluntary tax compliance. While the second arrow with H2 representing the second hypothesis which postulates that there is positive relationship between trust in authority and voluntary tax compliance.

### Methodology

This section will focus on the methodology which will be used to test the hypothesis developed in this study. The section will focus on the population of the study, sample size, method of data collection and methods of data analysis. However, all the measurement was adapted from previous studies.

### Population of the Study

In this study, the population of the study comprises micro enterprises in Jigawa State Nigeria. There are about 850,000 micro enterprises in Jigawa State from which the sample of this study was drawn (SMEDAN, 2013).

### Sample Size

Zikmund (2000) argues that, to determine the sample size of the population, statistical information must be identified, such as the estimated magnitude of acceptable error, the estimated variance of the population, number of observations and the confidence level. The sample size of this study was 382, which was drawn from the population of 850,000 the size, was determined by following the guidelines of Krejcie and Morgan (1970, p. 2). To get more responses and account for potential non-responses the sample size was increased to 450 (Saad, 2011).

### Sampling Technique

Proper sampling enables the researcher to make an estimate about unknown features of the population under investigation. Using a sample of a population instead of an entire population, this offers several advantages including reduces labor requirements, cost and time savings and quick information accumulations (Zikmund, 2000). As used by many previous studies (Olatunji, Taiwo, & Adewole, 2009; Mohammed, 2014), this study will use simple random sampling. This sampling technique basically gives all respondents an equal chance of being selected.

### Method of Data Collections

A survey using a questionnaire was utilized as a method of data collection in this study. All the measurements were adapted from previous studies. Direct administering of a questionnaire is expensive but has the potential of a good response rate, and this type of administration used in this study to optimize responses. Questionnaires were administered directly to the target group, which included owners/ managers of selected small and micro business through the help of research assistance.

### Methods of Data Analysis

This study used SPSS for preliminary analysis and Partial Least Square (PLS) for measurement modelling and structural modelling to analyze the data. Analysis of data enabled the determination of the relationship between the dependent and the independent variables.

### Results

This section presents the results of the study based on the proposed hypotheses as depicted in section two.

### Response Rate

Four hundred and fifty questionnaires (450) were distributed to respondents during the period from 3 March 2019 to 21 March 2019. The questionnaires were increase from 382 to 450 in order to account for potential nonresponses (Mehta, & Stuart, 2011). Afterwards 243 questionnaires were collected and analysed. Table 4.1 below shows the response rate of the study. Of the 249 questionnaires returned, 243 representing 54% of the total sample size were valid and usable. While 6 questionnaires approximately 1.3% of the questionnaires distributed were not included in the analysis as they were incomplete or incorrectly filled in by the respondents. Some potential respondents did not answer questions that be against their organizational policies.

Table 4.1

*Summary of Survey Response*

Description	Number of Questionnaires	% Total
Questionnaires Distributed	450	100.0
Returned Questionnaires	249	55.3
Invalid Questionnaires	6	1.3
Usable Questionnaires	243	54.0

### Background of Respondents

This section describes the respondent's demographic background, which comprised gender, age, educational background, business type, duration of the business and their income levels. Table 4.2 shows the demographic information of the respondents.

Table 4.2

Demographic Profile of the Respondents(N 243)

Category	Frequency	%
<b>Gender</b>		
Male	182	74.9
Female	61	25.1
<b>Age Group</b>		
Below 30	73	30
31-40	155	63.8
41-50	10	4.1
51 and above	5	2.1
<b>Educational Background</b>		
SSCE/GCE	75	30.9
NCE/ND	115	47.3
BSC/HND	37	15.2
MASTERS/PhD	16	6.6
<b>Business Type (BT)</b>		
Block Molding	102	42.0
Water Factory	44	18.1
Livestock feed sale and milling	17	7.0
Poultry Farm	80	32.9
<b>Business Duration (BD)</b>		
Below 10 years	197	81.1
11-20	17	7.0

Table 4.2 above shows the demographic characteristics of the respondents. Of the total 243 respondents, 182 were males (74.9%) and 61 were females (25.1%), and four age groups were present in this study. The age group between 31 to 40 years had the highest number of responses with 155 representing 63.8% of the total, followed by below 30 years with 73 respondents representing 30.0%, followed by 41 to 50 years representing 4.1% and finally 51 years and above with 5 respondents representing 2.1%. This clearly indicated that most respondents of this study were young, falling in the 30 to 40-year range.

Regarding educational qualifications the respondents of this study, National Diploma/National Certificate of Education ND/NCE had 115 respondents representing 47.3% of the responses followed by Senior Secondary Certificate of Education or General Certificate of Education SSCE/GCE with 75 respondents representing 30.9% of the responses, followed by Bachelor of Science or Higher National Diploma Bsc/HND with 37 respondents representing 15.2% and lastly Master/PhD with 16 respondents representing 6.6%. Thus, the educational qualifications of most respondents of this study fell within NCE/ND, SSCE/GCE with few respondents having a Bsc/HND and or a Masters/PhD.

With respect to the type of business of the respondents, the block moulding business had 102 respondents representing 42% of the total responses, followed by poultry farming with 80 respondents representing 32.9% followed by water factory with 44 respondents representing 18.1% and lastly livestock feed sale and milling with 17 representing 7% of the total responses.

The length that a business was in operation fell into following responses: below 10 years with 197 representing 81.1%, followed by 11 to 20 years with 17 representing 7%, followed by 21 to 30 with 16 representing 6.6% and finally 31 years and above with 13 respondents representing 5.3% of the total valid responses. This highlights that most the respondents worked in enterprises that had been in business for 10 years or less with a few exceeding 10 years in operations. Regarding the annual income of the respondents below N1.5M with 79 respondents representing 32.5% had the highest number of respondents, followed by above N2.5M with 66 representing 27.2%, followed by N2 to N2.5M with 61 representing 25.1% and lastly N1.5M to N2M with 37 representing 15.2% of the responses.

#### **Partial Least Square (PLS-SEM) Results**

As highlighted in section 3.5 PLS-SEM was selected to serve as the tool for analytical procedure because PLS has so many advantages which includes among others, accepting small sample size, running complex model and non-emphasis of the normality of data (Hair et al., 2011). Other researchers' recommendation was follows such as Henseler, Ringle, and Sinkovics (2009) in applying the two steps data analysis process: measurement and structural model. Additionally, Hair et al (2013) reiterated that measurement model requirement must be satisfied before conducting structural model.

### Measurement Model

This section presents the measurement results of the model. These are indicator reliability  $\geq 0.40$  composite reliability  $\geq 0.70$ , Average Variance Extracted (AVE)  $\geq 0.50$ , discriminant validity using HTMT, and Cronbach Alpha  $\geq 0.70$  (Hair et al., 2011; Henseler et al., 2009; Henseler et al., 2014). Table 4.3 present the result.

Table 4.3

*Indicator Reliability, Average Variance Extracted (AVE), Composite Reliability and Cronbach Alpha*

Constructs	Items	Loadings	Composite Reliability	Cronbach Alpha	AVE
Vertical Fairness	VF1	0.816	0.875	0.791	0.701
	VF2	0.910			
	VF3	0.782			
Trust in Authority	TR1	0.982	0.992	0.988	0.975
	TR2	0.987			
	TR3	0.993			
Voluntary Tax Compliance	VTC1	0.941	0.957	0.945	0.791
	VTC2	0.941			
	VTC3	0.950			
	VTC4	0.952			
	VTC5	0.753			
	VTC6	0.773			

Based on the Table 4.3 above all the above-mentioned criteria have been met. It's clear from the table that all the indicators are above the minimum threshold point of  $\geq 0.40$  Hair et al (2011,2012 & 2013) thus, the indicators ranged from 0.753 to 0.993 indicating high indicator reliability. Additionally, the internal consistency criteria which was measured using both composite reliability and Cronbach alpha has been met, its ranged from 0.791 to 0.988 indicating high internal consistency (Hair et al., 2011,2012 & 2013). The convergent validity requirement which was measured using

AVE was also met, the score ranged from 0.701 to 0.975 which are far above the minimum cutoff point of 0.50 (Hair et al., 2011; Henseler et al., 2009; Henseler et al., 2014). Discriminant validity will be presented in Table 4.4.

Table 4.4

*Discriminants Validity Using HTMT*

	Vertical Fairness	Trust in Authority	Voluntary Tax Compliance
Vertical Fairness			
Trust in Authority	0.098		
Voluntary Tax Compliance	0.095	0.597	

As shown in the Table 4.4 above the requirement for discriminants validity has been fulfilled using HTMT. Prior to the introduction of HTMT, researchers use Fornell and Larker (1981) criteria in discriminant validity assessment. Nevertheless, recently Henseler, Ringle and Sarstedt (2015) objected or disapproved the Fornell and Lacker criterion, arguing that prior criteria lacked strong distinctiveness amongst latent constructs, which eventually encourage them to recommend a new and more robust method that has the capacity to distinguish amongst the constructs in a given model.

It is important to note that Henseler et al. (2015) projected a greater performance of this approach through Monte Carlo (2013) Simulation study which eventually found HTMT to gain higher specificity and sensitivity rates of 97% - 99% when compare to cross loading criterion of 0.00% and FornellLacker criterion of 20.82% (Ab Hamid, Sami & Sidek, 2017). However, the values of HTMT close to 1 shows lack of discriminates validity and once the values exceed 1 there is an indication of discriminant validity (Ab Hamid, et al., 2017). Though some researchers recommend a threshold of 0.85 Kline (2011), while Gold and Malhotra (2001) recommend 0.90. Based on this threshold we can conclude that all the constructs have achieved discriminant validity criterion. Consequently, having fulfilled the requirement for measurement criteria which eventually confirmed the validity and reliability of the measures, the results of the proposed hypothesis will be presented in the next sections.

**Structural Model Results**

Previous section presented the measurement model which clearly shows that the data met the validity and reliability criteria which is precondition for the structural model evaluations (Hair et al., 2016). There about four criterions for accessing structural model result as pointed by Henseler et al., (2009) and Hair et al., (2011). These criterions are: 1) an assessment of path coefficient using 5000 bootstrap sample, 2) an assessment of R-squared  $R^2$  following Hair et al (2011) classification of 0.25, 0.50 and 0.75 as small, moderate and substantial respectively, 3) the effects size  $F^2$  of all the independent variable to the dependent variable using 0.02, 0.13 and 0.35 as

small, medium, and large respectively (Cohen, 1988), and 4) the predictive relevance of the model using construct cross validated redundancy  $Q^2$  following Gaiser (1974) and Stone (1974). All these analyses have been conducted in this study and the results is presented in the subsequent tables below.

Table 4.5

Hypothesis Relationship	$\hat{\beta}$	SE	t	p	Decision
Vertical Fairness -> Voluntary Tax Compliance	0.56	0.045	12.22	0.000	Supported
Trust in Authority -> Voluntary Tax Compliance	0.15	0.068	2.23	0.026	Supported

The first hypothesis (H1) postulates that there is positive relationship between vertical fairness and voluntary tax compliance. The result was positive ( $\hat{\beta} = .56$ ,  $t=12.22$ ,  $p=.000$ ) and this implied that the hypothesis was supported. The result shows that the micro enterprises taxpayers believed that the existing tax structure is generally fair and equitable enough to encourage voluntary tax compliance. The result is consistence with equity theory which postulates that there should be an existence of fairness among two parties for good relationship to prevail. The finding is consistence to the assertion of (Baldry, 1987; Friendland et al., 1978) whom reiterated that equity and fairness has a significant influence on taxpayers' decision.

The second hypothesis (H2) postulates that there is positive relationship between trust in authority and voluntary tax compliance. The postulation was significant ( $\hat{\beta} = .15$ ,  $t=2.23$ ,  $p=.026$ ). The result indicated that the hypothesis is supported. The reason for this relationship could be that the micro enterprises taxpayers show a level of trust on tax authority, and that the trust can lead to voluntary tax compliance. The finding is consistence with equity theory which states that once there exist a mutual trust the outcomes will be a good and harmonious relationship between two parties' i.e (taxpayers and tax authorities). The finding is consistence with the work of Wahl, et al., (2010) Richardson (2008), Murphy's (2004). Having discuss the hypothesis result, Table 4.6 will present the co-efficient of determination inform of  $R^2$ .

Table 4.6

*Determination R<sup>2</sup>*

<b>Dependent Variable</b>	<b>R-squared</b>
Voluntary Tax Compliance	30.5%

The result of the R-squared as indicated in Table 4.6 above was determined using Hair et al., (2011) recommendation. Hair, Sarstedt, Hopkins, and Kuppelwieser (2014) stated that the R<sup>2</sup> values should be at least 0.10 for a good model. Moreover, R<sup>2</sup> of 0.26 and above is considered substantial, 0.13 is considered moderate and 0.02 is considered weak (Cohen, 1988). Based on this evidence, we can deduce that the R-squared value of 30.5% of the current model is considered substantial because the value is greater than 26% as recommended by (Hair et al., 2014). This highlighted that the exogenous latent construct can only explain 30.5% of the variance in the current model, indicating that there are other constructs which explain the remaining 69.5% of the unknown variance. However, to better understand the effect the exogenous constructs and endogenous latent variable, effect size of the predictor constructs will be discussed in Table 4.7.

According to Chin (1998) and Hair et al (2011) effect size could be refers to as the explicit changes in R<sup>2</sup> of a latent construct resulted from another construct. Based on Chin (1998) and Cohen (1988) effect size (F<sup>2</sup>) for multiple regressions is calculated as:  $effect\ size\ (F^2) = R^2\ included - R^2\ excluded\ 1 - R^2\ Included$ . Hence, (F<sup>2</sup>) of 0.02, 0.13 and 0.35 categorize as weak moderate and strong (Cohen, 1988). Table 4.24 presents the (F<sup>2</sup>) of the predictor variables based on the R<sup>2</sup> of the dependent latent construct.

Table 4.7  
*F<sup>2</sup>) for the model*

<b>Predictor Constructs</b>	<b>F<sup>2</sup> Value</b>	<b>Effect Size</b>
General Fairness	.059	Small
Trust in Authority	.047	Small

As shown in Table 4.7 above the effect size of tax administrative fairness and trust in authorities are 0.059 and 0.047. Following Cohen (1988) recommendation the effect size of the latent constructs is small. Finally, the last analysis under structural model will be predictive relevance of the current research model. The reason for this analysis is to examine the predictive capability of the model in the absence of missing cases,

because the model may not be able to accommodate all the constructs which could be able to explain voluntary tax compliance. The predictive relevance result is presented in Table 4.8.

Table 4.8  
Predictive Relevance  $Q^2$

Endogenous Construct	SSO	SSE	1-SSE/SSO
<b>Voluntary Tax Compliance</b>	380	176.30	0.54

#### Reference

- Ab Hamid, M. R., Sami, W., & Sidek, M. M. (2017). Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. In *Journal of Physics: Conference Series* (Vol. 890, No. 1, p. 012163). IOP Publishing.
- Adams, J. S., & Freedman, S. (1976). Equity theory revisited: Comments and annotated bibliography. *Advances in experimental social psychology*, 9, 43-90.
- administration reform.
- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in Experimental Psychology* (pp. 267-299). New York: Academic Press.
- Alm, J., & Duncan, D. (2014). Estimating tax agency efficiency. *Public Budgeting & Finance*, 34(3), 92-110.
- Aziz, S. A., & Al\_Harethi, A. R. S. (2018). Factors Determining Tax Administration Efficiency in Hadhramout, Yemen: Perception from Individual Taxpayers.
- Azmi, A. A. C., & Perumal, K. A. (2008). Tax fairness dimensions in an Asian context: The Malaysian perspective. *International Review of Business Research Papers*, 4(5), 11-19.
- Baldry, J. (1987). Income tax evasion and the tax schedule: Some experimental results. *Public Finance* 42: 357-383.
- Baurer, L.I. (2005). Tax administrations and small and medium enterprises (SME) in developing countries. *World Bank Group* 1(1) 6-9
- Bobek, D. D. (1997). Tax fairness: How do individuals judge fairness and what effect does it have on their behavior? Unpublished manuscript, University of Florida, Michigan.

- Benk, S., Budak, T., & Cakmak, A. F. (2012). Tax Professionals' Perceptions of Tax Fairness: Survey Evidence In Turkey. *International Journal of Business and Social Science*, 3(2).
- Braithwaite, J. (2002). Restorative justice & responsive regulation. Oxford University Press on Demand.
- Chin, W. W. (1998). Issues and opinion on structural equation modeling. *Management Information Systems Quarterly*, 22(1), 7-15.
- Christensen, A.L., Wehrich, S.G. & Gerbing, M.D. 1994, 'The impact of education on perceptions of tax fairness', *Advances in Taxation*, vol. 6, pp 63-94.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale: NJ: Lawrence Erlbaum Associates.
- Eberl, D. (2003). *Vertrauen und Management*. Stuttgart: Schaeffer-Poeschel educational Books (Nigeria) Limited.
- Edgar, L., & Feige, E.L. (2009). New estimates of overseas U.S. currency holdings, the underground economy and the "Tax Gap
- Elkins, D. (2006). Horizontal equity as a principle of tax theory. *Yale L. & Pol'y Rev.*, 24, 43.
- Erard, B. (1994). "Honesty and evasion in the compliance game". *The RAND Journal of Economics*, 25(1), 1-19.
- Federal Inland Revenue Service (2009). Performance appraisal in 2008 and work plan for 2009. Abuja Federal Inland Revenue Service.
- Feld, L. P., & Frey, B. S. (2002). Trust breeds trust: How taxpayers are treated. *Economics of Governance*, 3(2), 87-99.
- Fjeldstad, O. H. (2004). What's trust got to do with it? Non-payment of service charges in local authorities in South Africa. *The Journal of Modern African Studies*, 42(04), 539-562.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, 18(1), 39-50.
- Friedland, N., S. Maital, and A. Rutenberg. (1978). A simulation study of tax evasion. *Journal of Public Economics* 8: 107-116.
- Frey, B. S., & Torgler, B. (2007). Tax morale and conditional cooperation. *Journal of*

Comparative Economics, 35(1), 136-159.

Gberegbe, F. B., Idornigie, G. A., & Nkanbia-Davies, L. O. (2015). Ethical Education and Sensitivity of Students in Kenule Beeson SaroWiwa Polytechnic, Nigeria: The Role of Value and Relevance.

Gerbing, M.D. (1988), 'An empirical study of taxpayer perceptions of fairness', Unpublished PhD Thesis, University of Texas.

Gilligan, G., & Richardson, G. (2005), 'Perceptions of tax fairness and tax compliance in Australia and Hong Kong – A Preliminary Study', *Journal of Financial Crime*, vol. 12, no. 4, pp. 331-342

Geisser, Seymour 1974. A Predictive Approach to the Random Effects Model, *Biometrika*, 61 (1), 101–107.

Gold AH, Arvind Malhotra AH (2001) *J. Manage. Inform. Syst.* 18 185-214.

Guerrero, L. K., La Valley, A. G., & Farinelli, L. (2008). The experience and expression of anger, guilt, and sadness in marriage: An equity theory explanation. *Journal of Social and Personal Relationships*, 25(5), 699-724.

Gurama, Z. & Mansor, M. (2015). Tax administration problems and prospect: A case of Gombe state. *International Journal of*

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective (7th ed.)* Upper Saddle River, NJ: Pearson Education, Inc.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis (6th ed.)*. Upper Saddle River, NJ: Prentice Hall.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks CA: Sage Publications.

Hair, J. F., Hult, G. T., Ringle, C. M. & Sarstedt, M. (2013). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks, CA: Sage Publications Ltd.

Hair, J. F., Money, A., Samuol, P., & Page, M. (2007). *Research methods for business*. West Sussex: John Wiley and Son Ltd.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). *Partial least squares structural equation*

modeling: Rigorous applications, better results and higher acceptance. Long Range Planning, 46(1-2), 1-12. doi: <http://dx.doi.org/10.1016/j.lrp.2014.09.001>.

Hair, J.F., Sarstedt, M., Ringle, C.M. & Mena, J.A., (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414-433.

Hammer, H., Jagers, S.C. and Nordblom, K. (2005). "Tax evasion and the importance of trust". Working paper, Goteborg University, Goteborg.

Head, J. G. (1992). Tax fairness principles: A conceptual, historical and practical view. *Australian Tax Forum*, 9(1), 65-101.

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., & Ketchen Jr., D.J., Hair, J.F., Hult, G.T.M., & Calantone, R. J. (2014). Common beliefs and reality about PLS comments on Ronkko and Evermann (2013). *Organizational Research Methods*, 1094428114526928. Located at <http://orm.sagepub.com/content/early/2014/04/09/1094428114526928.full>.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43(1), 115-135.

Henseler, J., Ringle, C.M., & Sinkovics, R.R. (2009). The use of partial least squares path modeling in international marketing. In R.R. Sinkovics & P.N. Ghauri (eds.). *Advances in International Marketing*, 20 (pp. 277-230). Bingley, United Kingdom: Emerald Group Publishing.

Her Majesty's Revenue and Customs (2012). Annual Report and Account 2012- 13 (for the year ending 31 March, 2013).

Hofmann, E., Hoelzl, E., & Kirchler, E. (2008). Preconditions of voluntary tax compliance: Knowledge and evaluation of taxation, norms, fairness, and motivation to cooperate. *Zeitschrift für Psychologie / Journal of Psychology*, 216(4), 209-217.

Jackson, B.R., & Milliron V.C. (1986), "Tax compliance research, findings and problems and prospects", *Journal of Accounting Research*, vol. 5, pp. 125-165.

Joon, K.K., & Kim, K.S. (2011). Tax administration reform in Korea and its implications. World Bank and KDI School Conference on Fiscal Policy and Management on 14-18

- Kirchler, E., Niemirowski, A., & Wearing, A. (2006). Shared subjective views, intent to cooperate and tax compliance: Similarities between 476 Australian taxpayers and tax officers. *Journal of Economic Psychology*, 27(4), 502-517
- Kirchler, E. (2007). *The economic psychology of tax behaviour*. Cambridge University Press.
- Kirchler, E., Hoelzl, E., & Wahl, I. (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. *Journal of Economic Psychology*, 29(2), 210-225
- Kline RB (2011) *Principles and Practice of Structural Equation Modeling Third Edition* (New York: The Guilford Press)
- Krejcie, R. V., & Morgan, D. W. (1970). Table for determining sample size from a given population. *Educational and Psychological Measurement*, 30(3), 607-610.
- Levi, M. (1998). A state of trust. *Trust and governance*, 1, 77-101.
- Lubian, D., & Zarri, L. (2011). Happiness and tax morale: An empirical analysis. *Journal of Economic Behavior & Organization*, 80(1), 223-243.
- Maboja, W. (2013, October 18). Tax evasion in Nigeria could be costing government billion of naira. CNBCAfrica.
- McKerchar, M. (2003). *The Impact of Complexity upon Tax Compliance: A Study of Australian Personal Taxpayers* (Vol. 39): Australian Tax Research Foundation
- Mehta, Cyrus R., and Stuart J. Pocock. "Adaptive increase in sample size when interim results are promising: a practical guide with examples." *Statistics in medicine* 30.28 (2011): 3267-3284.
- Mohammed, F., & Dabor, A. O. (2016). Fairness Perception and Compliance Behaviour of Salaried Taxpayers in Nigeria. Kuwait Chapter of the Arabian Journal of Business and Management Review, 5(5), 1.
- Mohammed, K. (2014). *The message and methods of boko haram*, African Studies Centre (ASC). West African Politics and Society Series, Vol. 2.
- Muaen, M. A. (2016). *Determinants of tax administration efficiency in Libya* (Doctoral dissertation, Universiti Utara Malaysia).
- Murphy, G. (2004). *The big book of concepts*. MIT press.

- Mustapha, B. (2010). The Impact of Tax Fairness and Demographic Factors on Tax Compliance in Nigeria (Doctoral dissertation, Universiti Utara Malaysia).
- Nkeiruka, I. Z., Ebere, O. O., & Obianime, A. W. (2012). Nigerian herbal remedies and heavy metals: violation of standard recommended guidelines. *Asian Pacific Journal of Tropical Biomedicine*, 2(3), S1423-S1430.
- OECD (2011). "Efficiency of tax administrations", in *government at a glance 2011*, OECD Publishing. [http://dx.doi.org/10.1787/gov\\_glance-2011-64-en](http://dx.doi.org/10.1787/gov_glance-2011-64-en)
- Ogbonna, G.N. (2011). Burning issues and challenges of the Nigerian tax systems with analytical emphasis on petroleum profit tax
- Olatunji, O.C., Taiwo, O.A., & Adewole, J.O. (2009). A review generation in Nigeria local government: A case study of Ekiti
- Olatunji, O.C., Taiwo, O.A., & Adewole, J.O. (2009). A review generation in Nigeria local 72 government: A case study of Ekiti state. *International Business Management*, 3 (3), 54-60.
- Organization for Economic Co-operation and Development. (2007). Improving taxpayer service delivery: Channel strategy development . Forum on Tax Administration Taxpayer Services Sub-group. Retrieved July 14, 2011 from [www.oecd.org/dataoecd/56/47/3528306](http://www.oecd.org/dataoecd/56/47/3528306).
- Porcano, T.M. (1984), 'Distributive justice and tax policy' *The Accounting Review* vol. 59, pp. 619 – 636.
- Plotnick, R. (1981). A measure of horizontal inequity. *The review of Economics and Statistics*, 283-288.
- Rahman, A. (2009). Investment climate in practice: Tackling corruption through tax administration reform.
- Richardson, G. (2006). Impact of Tax Fairness Dimensions on Tax Compliance Behavior in an Asian Jurisdiction: The Case of Hong Kong, *The. Int'l Tax J.*, 32, 29.
- 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.
- Richardson, G. (2005a). A preliminary study of the impact of tax fairness perception dimensions on tax compliance behaviour in Australia. *Australian Tax Forum*, 20(3), 407-434.

- Richardson, G. (2005b). An exploratory cross-cultural study of tax fairness perceptions and tax compliance behaviour in Australia and Hong Kong. *International Tax Journal*, 31(1), 11-67.
- Richardson, G. (2006a). Determinants of tax evasion: A cross-country investigation. *Journal of International Accounting, Auditing and Taxation*, 15(2), 150-169.
- Richardson, G. (2006b). The impact of tax fairness dimensions on tax compliance behavior in an Asian jurisdiction: The case of Hong Kong. *The International Tax Journal* 32(1), 29-42. Jurisdiction: The Case of Hong Kong', *The International Tax Journal*, vol. 32, no. 1, pp. 29-42.
- Richardson, M., and Sawyer, A.J. (2001), 'A taxonomy of the tax compliance literature: Further findings, problems and prospects', *Australian Tax Forum*, vol. 16, pp. 137 -320.
- Saad, N. (2011). *Fairness Perceptions and Compliance Behaviour: Taxpayers' Judgments in Self-Assessment Environments*.
- Schlotterbeck, S. (2017). *Tax Administration Reforms in the Caribbean: Challenges, Achievements, and Next Steps*. International Monetary Fund
- Shagari, S. L. (2014). *Determinants of tax administration efficiency: A study of Bauchi State, Nigeria* (Doctoral dissertation, Universiti Utara Malaysia).
- SMEDAN, (2013). "2013 Annual Report. SMEDAN, Abuja
- Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society. Series B (Methodological)*, 36(2), 111-147.
- Thomas, K. (2012, Jan 9). IRS finds U.S. tax evasion \$385 billion per year, suggesting tax justice network numbers are right. *Middle Class Economist*.
- Torgler, B. (2003). *Tax morale: Theory and empirical analysis of tax compliance* (Doctoral dissertation, University\_of\_Basel).
- Torgler, B., & Schneider, F. (2005). Attitudes towards paying taxes in Austria: An empirical analysis. *Empirica*, 32(2), 231-250.
- UN (2000). *Improving tax administration in Sub-Saharan Africa: The potential for revenue agencies and electronic service Delivery*
- Wahl, I., Kastlunger, B., & Kirchler, E. (2010). Trust in authorities and power to enforce

tax compliance: An empirical analysis of the “Slippery Slope Framework”. *Law & Policy*, 32(4), 383-406.

Ya'u, A. (2017). *Fairness perceptions and income tax voluntary compliance among owners of micro enterprises in Jigawa State, Nigeria: the moderating role of trust* (Doctoral dissertation, Universiti Utara Malaysia).

Zikmund, W.G. (2000). *Business Research Methods*. (5th Ed). Orlando: The Dryden