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THE APPLICATION OF STRUCTURAL EQUATION MODELING ON THE USAGE OF ONLINE TAX SYSTEM AMONG SELF-EMPLOYED TAXPAYERS IN NIGERIA

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Abstract

Online tax system refers to the use of information technology in the filing and payment of tax returns. This study examined the causal relationship between perceived ease of use, perceived security, and perceived usefulness on the usage of online tax system among the self-employed taxpayers in Nigeria. A total of 390 questionnaires were administered and analyzed using structural equation modeling (SEM) to determine the variables relationship in the model. The result support the direct positive relationship between perceived ease of use and perceived security, explain the self-employed taxpayers' usage of the online tax system with a statistically significant value on perceived usefulness. The paper also reveals that the perceived usefulness has a mediating effect on the relationship between perceived ease of use and perceived security towards the usage of the online tax system. The findings show the goodness fit indices are adequate with the model fit indices showing the chi-square value of 260.067, DF=98, p-value =0.000, Normed chi-square CMINDF = 2.654, CFI = 0.961, NFI = .939, TLI = 0.952 and RMSEA = .065. This study contributes to the on going effort to enhance the effective usage of the online tax system by the tax authority through the self-employed taxpayers. This may lead to the increase in revenue generated by the government through its effective implementation.

Keywords: perceived ease of use, perceived usefulness, perceived security, online tax system, Self-employed taxpayers

1. INTRODUCTION

The emergence of internet has brought about radical changes in almost all domains of life, including public governance, service provision and commerce. The introduction and usage of online tax systems in many countries today is therefore a natural extension of this trend in the tax world. Online tax systems are growing in today's world as part of e-government services with the objective of achieving efficiency in tax collection and administration. In general, an online tax system represents a new method of tax payment that no longer requires taxpayers to physically go to the tax authorities to file and pay their taxes (Ozgen & Turan, 2007). It is

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defined as the “non-manual tax filing system” which relies on the internet and other information and communication technologies (ICTs) to submit tax returns to government revenue authorities (Wang, 2002).

Given the underdeveloped nature of e-government and online tax systems in Africa (Schuppan, 2009), empirical studies on the determinants of acceptability and usage of these technologies based systems are very important. This study examined the usage of the online tax system by self-employed tax payers in Nigeria. Academic research in this area commonly applies the Technology Acceptance Model (TAM) the Theory of Planned Behavior (TPB) or the Theory of Reasoned Action (TRA) (Wang, 2002; Ramayah, Rouibah, Gopi & Rangel, 2009).

This study combined factors from TAM and TPB models and constructed a composite theoretical framework. We applied Structural Equation Modeling (SEM) to examine the usage of the online tax system by self-employed taxpayers through establishing its relationship with perceived ease of use and perceived usefulness of the TAM model on one hand and perceived security from the TPB model on the other. At present in Nigeria the implementation of the online tax system was to improve the level of revenue generated from the non-oil sector and improve compliance. Results show that despite these efforts, the Nigeria tax administration system still faces the issue of low compliance because of the user unwillingness to use the system owing to their perception of security of their information, benefit to be derived and the ease of use of the system.

2. LITERATURE REVIEW

According to Atawodi & Ojeka (2012) out of 185 economies covered by the annual surveys, only 66 economies had fully implemented the electronic filing and payment system (online tax system) for all their major taxes by 2010. The majority of countries (64%) had only partially implemented the online tax systems, with some taxes filed and paid electronically while others were still collected manually. Paying taxes is vital since taxes constitute the main source of government revenues in most countries. However, equally important are the tax collection and management systems applied by governments. Establishing efficient tax systems that can ensure the generation of sustainable source of revenue is a critical issue today, particularly in developing countries which are struggling to reduce their budget deficits, following the slashing of aid from the developed world. The introduction of electronic (online) tax systems in many countries is a step towards addressing this practical challenge.

Odusola (2006) argues that if an electronic filing and payment system is properly implemented, it would yield benefits for both tax authorities and taxpayers. For the former, it reduces the workload, operational costs and increase tax compliance while for the latter, and it saves time through reduction in tax computation errors rendering it simpler to organize, file and pay taxes. Nigeria is one of the countries in the world, where there is a high administrative burden in its tax system (Odusola, 2006). Measured in terms of the number of hours it takes a tax paying company to comply with the tax laws in an economy, Nigeria was found to demand the highest amount of time estimated at 956 hours per year, a score 3 times greater than the African region average! It also has the highest number of taxes in the region, imposing a high tax

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compliance burden. In view of these problems, the Joint tax board and the Federal Inland Revenue Service as well as some state level Internal Revenue Service authorities are working towards implementation of online tax systems.

Extensive research has been done on the acceptance of new technologies in various disciplines from marketing to psychology and information management systems (Ramayah et al, 2009). Consequently, a variety of models for investigating and understanding the factors influencing the acceptance of new technologies have been suggested. These include, among others, Ajzen's Theories of Reasoned Action and Planned Behavior (TRA, 1975; TPB, 1985), Davis' (1989) Technology Acceptance Model (TAM), Roger's (1995) Innovation Diffusion Theory (IDT) and Vinkatesh et al., (2003) Unified Theory of Acceptance and Use of Technology (UTAUT). This study was based on TAM and TPB models which we briefly explain in the sections below:

The Technology Acceptance Model (TAM) developed by Davis (1989), suggests two fundamental factors influencing an individual's acceptance of a new technology, namely; perceived ease of use (PEOU) and perceived usefulness (PU). PEOU is defined as the extent to which the user anticipates the target system to be effortless, while the PU measures the user's subjective probability that applying a specific technology will increase their job performance (Fu, Farn & Chao, 2006). Derived from the Theory of Reasoned Action (TRA), TAM is an intentions based model which is normally customized to meet the extensive needs of information technology research (Money & Turner, 2004). The key hypothesis of TAM is that the actual use of a new technology is a function of behavioral intentions, which also depend on users' attitudes (Seyal, Rahman, & Rahim, 2002).

A host of empirical research studies has applied the TAM model, due to its parsimony and the multitude of experiential support for it (Wang, 2017). For specific studies on adoption of internet based technologies, TAM has been proven to be a valuable, authoritative and robust model in describing the adoption criteria by the users (Horton, Buck, Waterson, & Clegg, 2001). Among the studies that have successfully applied TAM and found it to have almost accurate predictive power are but not limited to; Wang, 2002; Chang, Li, Hung, & Hwang, 2005; Wu & Chen, 2005; Fu et al, 2006; Hussein, Mohamed, Ahlan & Mahmud, 2011. This study, hence forth chose to apply TAM as the main theory to explain what motivates the self-employed taxpayers in Nigeria to use the countries new online tax system. We hypothesized that both PEOU and PU had significant positive effects on the use of the online tax system in Nigeria.

The Theory of Planned Behavior (TPB) was developed as an extension of the Theory of Reasoned Action (TRA), out of the need to remedy the shortcomings of the primal theory in attending to behavior about which people have no power of control (Ajzen, 1991). This theory suggests that the actions of individuals are influenced by their intentions and opinions about control, while their intentions are a function of their attitudes towards behavior, subjective norms and perceptions of control (Hung, Chang & Yu, 2006). Attitude (A) explains the degree to which an individual has favorable or unfavorable assessment of the relevant behavior. Subjective norm (SN) reflects the individual's perceived organizational or social pressure on him to perform the

behavior while perceived behavioral control (PBC) relates to the individual's perception of the ease or complexity with regard to executing the behavior (Wu et al, 2016).

Our perceived security variable was derived from the TPB theory, following Van Gelderen, Brand, van Praag, Bodewes, Poutsma, & Van Gils (2008). They considered perceived financial security as part of the individuals' attitude toward the intended behavior and developed their entrepreneurial intentions model, with financial security as one of the variables. In our study, we hypothesized that perceived security is positively related with online tax system.

3. METHODOLOGY

This study is quantitative in nature with the collection of data through the use of questionnaires. The Churchill (1991) design of the questionnaire was outlined and follows in this study. A content validity measure was taken into consideration with a comprehensive review of the existing literature and practices such as the indicators in the questionnaire were based on the existing developed questionnaire from Davis(1989); Agarwal & Prasad (1998) and Suh & Han (2003). Quantitative research, usually involves building up hypotheses based on the theoretical statement and adapted variables measured for effect. The most widely method used in these type of study is an exploratory factor analysis, confirmatory factor analysis and structural equation modeling to examine the causal relationship between variables used as suggested by Hair, Ringle, & Sarstedt (2011). Research on the usage of the online tax system is mostly descriptive and most of the aspect inherent in e-tax environment(Stafford & Turan, 2011). The items used were adapted and modified for the suitability of an online tax system. Finally, the survey questionnaire was administered to the target respondents which are the self-employed taxpayers. The sample of self-employed taxpayers was selected from those who have registered with the corporate affair commission and the Inland Revenue Services and has been filed in their tax return through the system in Nigeria.

3.1 Hypothesis Development

Based on the two theoretical models, i.e. TAM and TPB, three antecedent variables were selected for this study and the respective hypotheses developed as follows;

3.1.1 Perceived Ease of Use

The perceived ease of use (PEOU) represents a person's supposition of the degree that a particular system would be free from effort (Davis, 1989). This effectively implies that the less the effort required to operate the technology, the greater the contribution it will most likely make on productivity and job performance of the users (Ramayah et al, 2009). Empirical literature suggests that PEOU has an indirect effect on actual usage, through perceived usefulness, rather than a direct effect (Davis, 1989; Fu et al 2006; Money et al, 2004). Others, however believe that PEOU can also exert a positive direct effect on actual behavior (Seyal et al, 2002; Hung et al, 2006). In our study, we hypothesized that PEOU has both a direct and mediated effect on the actual usage of online tax system;

H_{1a} Perceived ease of use has a positive effect on the usage of the online tax system.

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H_{1b} Perceived ease of use has a positive effect on perceived usefulness of the online tax system.

H_{1c} Perceived ease of use has a positive effect on the usage of online tax system, through perceived usefulness.

3.1.2 Perceived Security

Perceived security is one of the external factors often used in technology-based studies, to measure the effect of users' apprehension for the safety of the information related to their business transactions and practices (Hussein et al, 2011). Bélanger and Carter (2008) argued that the absence of security in the online transactions and concerns regarding the management of information submitted electronically will most likely make the majority of people to be reluctant to use online systems. Hence perceived security has an effect on users' attitudes towards intention to use. In our study, we hypothesized that;

H_{2a} Perceived security has a positive effect on the usage of the online tax system.

H_{2b} Perceived security has a positive effect on perceived usefulness of the online tax system

3.1.3 Perceived Usefulness

Davis (1989) described perceived usefulness (PU) as the magnitude of an individual's conviction that the application of a given system would improve their productivity at work. As a key determinant of acceptance under the TAM theory, this variable has been applied in many technology-based studies (Davis, 1989; Wang, 2002; Fu et al, 2006; Ramayah et al, 2009). In general, as long as end-users believe that a particular system is useful (positive attitude) a positive relationship with intention to use would be established (Saadé & Bahli, 2005). In this study, we hypothesized that;

H₃ Perceived usefulness has a positive effect on the usage of online tax system

3.1.4 Measurement of Constructs

The array from existing study has identified this items for the acceptance of online tax system, and even item related to personal computing (Venkatesh, Thong, & Xu, 2012; Aboelmaged, 2010; Schaupp, Carter, & McBride, 2010 and Hu, Brown, Thong, Chan, & Tam, 2016). The first step of the conceptualized construct embarks on all the possible enlist in the constructs. The variables in this study are perceived security, perceived ease of use, perceived usefulness and the usage of online tax system. For each of the variables a number of items are identified based on the result from the exploratory factor analysis. A total number of 16 question items was designed and used based on the above mentioned reviewed literature. The focused respondents which are the self-employed taxpayers were asked to indicate the level of importance of the variables to the use of online tax system in the tax administration setting, which include perceived ease of use, perceived security, perceived usefulness and usage the online tax system. The measures of the perceived ease of use are from the view of the taxpayers which are based on the functions of the integrated tax administration system application (ITAS).

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These variables were measured using a seven-point likert scale anchored 1 = strongly disagree, 2 = slightly disagree, 3 = agree, 4 = neutral, 5 = agree, 6 slightly agree and 7 = strongly agree.

However, it is noted that the measure of the online tax system was selected from the usage attributes shown in most of the developed and developing countries that have been using the system. Based on Ojha, Sahu, & Gupta (2009) and Houghton & Hellerstein (2000) studies, the examination of the attributes on online tax system is provided by the tax authority with the undertaken of exploring for the fundamentals issues in most of the country using the system in filing their income tax return. Their findings revealed the key attributes of using online tax system is considered very important by the tax administrators and the self-employed taxpayers. Thus the measure of the usage of online tax system was created on the bases of the service attributes. Correspondingly, the respondents were asked to indicate how satisfied they are in the usage of online tax system with the same likert scale as mentioned above.

3.2 Sampling and Data Collection

There is high level of variation in the Nigerian tax environment, which includes variation in tax education, tax culture and the inter-relationship with the use of technology. Empirical data collected for the items validation and the testing of hypothesis was collected through the use of questionnaires which are based on the survey instrument from the use of online tax system variables. As online tax system is a new technology which is at the infancy stage in Nigeria, its introduction in 2009 to the taxpayers is with the expectation of an average self-employed taxpayers to use the system in filing their income tax return. The use of the system in Nigeria is a facility to the self-employed taxpayers but not yet a mandatory process for them as users. However, the self-employed taxpayers file their income tax themselves or using the tax agent. As they file their taxes themselves their knowledge and experience in using online tax system get better during the subsequent time of filing. This study applied a random sampling to be the best and suitable method in this study.

4. RESULTS AND FINDINGS

The sample used for the analysis was 390 out of the total 800 administered to the respondents in Nigeria. Hence, the sample was satisfactory for the analysis. The demographic profile of the respondent characteristics are shown in table 1. The result revealed that 23 (59.5%) of the respondents were male and 158 (40.5%) were female self-employed taxpayers. The respondent were also asked to provide information about their level of education. The result in table 1 shows that 147 (37.7%) of the respondent were graduate, 115(29%) of the respondent were self-employed taxpayers with diploma qualification. Also, 102 (26.2%) are respondents with school certificate and 28 (6.7%) are respondent with postgraduate qualification respectively. Generally, the tax authority (Federal Inland Revenue Board) is responsible for all the activities of tax related issues in Nigeria. Therefore, the views of the tax administrators and the self-employed taxpayers in the tax administration setting on the use of online tax system would be more useful than the manual filing system. Table 1 exhibits the detail.

Table 1 Profile of the respondent self-employed taxpayers (n= 390)

Characteristics of the respondents	Frequency	%
Gender		
Male	232	59.5
Female	158	40.5
Total	390	100
Education Background		
School Certificate	102	26.2
Diploma	115	29.7
Graduate	147	37.7
Postgraduate	28	6.7
Total	390	100

4.1 Data Analysis

Data analysis followed three stages. The first stage was the exploratory factor analysis which was used for the evaluation of the items scales and identification of items loading to a specific variable and the reliability estimation using the Cronbach's alpha with the inclusion of the items correlation. Hence, the exploratory factor analysis (EFA) were used to determine how many component variables to be generated and used for the study based on the eigen value greater than 1. The second stage of the analysis is the confirmatory factor analysis which was used to test whether the constructs posed reasonable validation and reliability in the assessment of unidimensionality for a set of items in the model.

Furthermore, the assessment of validity, reliability, internal consistency, convergent validity and discriminant validity were performed on the whole set of items used simultaneously based on the suggestion by Anderson & Gerbing (1988). The discriminant validity was assessed by comparing the average variance extracted (AVE) to the square correlation between construct. Hence the AVE estimate was used as a complementary measures of composite reliability (Sarstedt, 2011). The third stage of the analysis was the structural modeling that best fit the data was hypothesized and tested on the model used in this study. The overall fit of the hypothesized model was tested by using the maximum likelihood through the AMOS application out and other goodness-of-fit indices.

4.2 Corrected items-total correlation

The formation of all items to the same set of composite score is referred to as items correlation. The use of this score does not include particular items in question of calculating the component score, thus this is related to and labeled correlated values (Sarstedt, 2011). However the analysis on the items correlation was performed for each of construct. The full evidence of the items correlation indicates that the scores with the exception of accurate information in the use of online tax service were ranged from 0.504 to 0.817. The criteria for these was based on the traditional threshold of 0.50 for evaluating items correlation. All the items were used in the subsequent analysis. Table 2 exhibits the detail.

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4.3 Reliability Test

In order to establish the internal consistency of the measurement instruments, reliability analysis was conducted. It was established by calculating coefficient alpha, also known as Cronbach's alpha, to measure the internal consistency of the measurement scale. Hair, Sarstedt, Ringle, & Mena (2012) suggests that the acceptable values for Cronbach's alpha ≥ 0.6 but if the value is ≥ 0.9 then strength of association will be excellent. The results of the reliability test are shown in Table 2 in which the Cronbach's α -values are greater than 0.6 for all items in each constructs in fact values obtained are close to 0.9 which shows near excellent association of items with their constructs.

Table 2. Shows the variables, items, questions detail, items correlation value, factor loading cronbach alpha mean value and standard deviation values based on EFA

Variables	Items	Details	Correlation value	Factor loadings	Cronbach alpha	Mean	SD
Perceived security	PSE1	The ability to provide security for my tax data in the use of online tax system	.680	.870	.903	5.35	1.144
	PSE1	The ability to provide protection of data transmission	.744	.851		5.34	1.152
	PSE3	The ability to provide protection of commercial secrets (e.g., from thefts of data and disclosures)	.623	.788		5.08	1.248
Perceived usefulness	PU1	Using an online tax system enables me to accomplish my tax filing and payment quickly.	.655	.676	.893	5.28	1.191
	PU2	Using the online tax system reduce the error in filing my tax return process.	.699	.777		5.23	1.178
	PU3	Using an online tax system enhance my ability in preparing my income tax statement.	.661	.790		5.16	1.151
	PU4	Using the online tax system enables me to get my tax refund from the authority within the time frame.	.645	.752		5.30	1.174
	PU5	Using an online tax system is useful in preparing my income tax.	.644	.714		5.30	1.099
Perceived ease of use	PEU1	I find online tax system easy to use in filling my tax return	.722	.642	818	5.20	1.262
	PEU2	It is easy to use online tax system application to get the right information about my tax data.	.738	.626		5.28	1.276
	PEU3	Online tax system is easy, clear and understandable	.663	.629		5.27	1.138
Online tax system usage	OTS1	Online tax system was a waste of money and has not assisted the self-employed tax payers in any	.541	.637		5.28	1.191

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		way					
	OTS2	Online tax system save the time used in filing my tax return	.817	.754	.875	5.23	1.178
	OTS3	Online tax system have really helped to have accurate information on my tax data	.745	.802		5.16	1.151
	OTS4	The Scrolling through pages is kept to a minimum online tax system usage	.547	.736		5.30	1.174
	OTS5	The online tax system provide service that are exactly what I need	.504	.663		5.30	1.099

4.4 Measurement Model

The application of descriptive statistic and reliability test shows that the result is satisfactory. This study used 16 items adapted and modified from existing literature to perform the required analysis of this study. Further analysis was used to validate and examine the path coefficient of the hypothesized structural model, and confirmatory factor analysis for the variables in the construct such as perceived security, perceived ease of use, perceived usefulness and online tax system to confirm the factor structure for ease of the constructs. The application of structural equation model using AMOS 20.0 for all the multivariate analysis techniques and testing the goodness-of-fit was also assessed by validating the measurement model through confirmatory factor analysis which is generally known as the measurement model.

In addition, the confirmatory factor analysis was performed on all the items in the construct to see whether the adapted items were adequately loaded on the respected construct as predicted to conform to the study model. The measure of the goodness-of-fit of the model, and the significance statistical measurement include the chi-square test (χ^2), the normed chi-square (CMIN/DF) = (chi-square/degree of freedom), Normalized Fit Index (NFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI) and Root Mean Square of Error Approximation (RMSEA). In conclusion five common model fits were used to check the overall goodness-of-fit in the measurement model. All the criteria that determined the overall model fits were met with CMIN/DF (2.228), CFI (.971), NFI (.949), TLI (.965), and RMSEA (.056), were found to be within acceptable range, which indicates that the online tax system model fit the data and we can continue our analysis for the full structural model of online tax system. The detail of the measurement model are exhibited in figure 1.

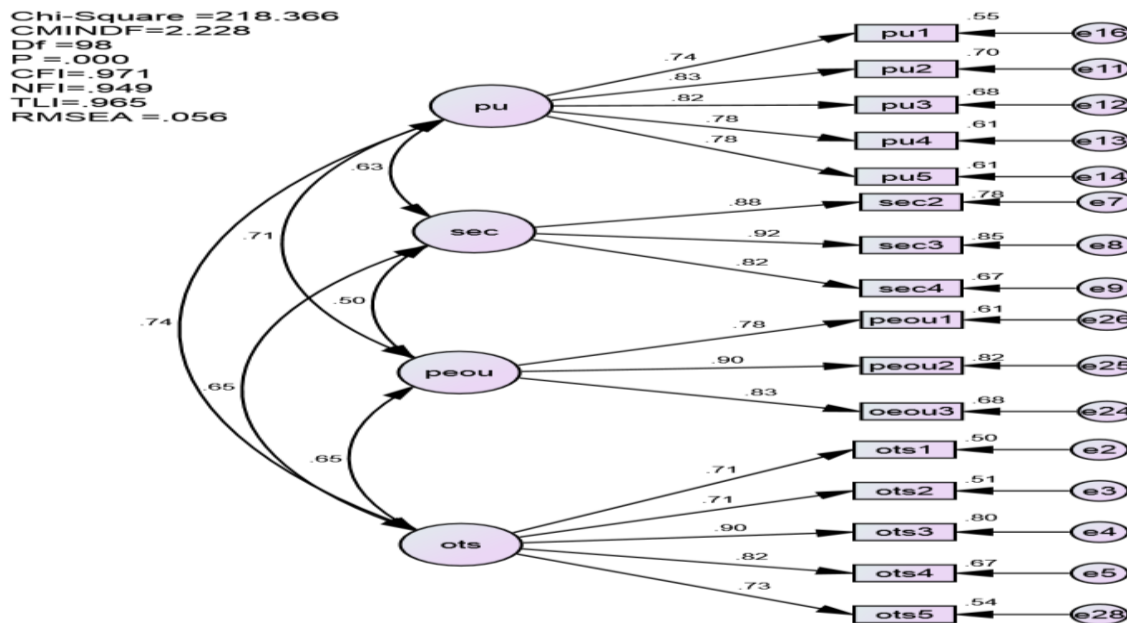


Figure 1: the CFA Model

4.5 Instrument’s Validity Analysis

For the effective validation of the items, the assessment of validity was performed which include the analysis of convergent and discriminant validity. Table 3 exhibit the details of the critical ratio, average variance extracted, recommended model fits, obtained model fit value and composite reliability result in this study with the evidence showing that the values are within the acceptable range base on the guidelines and suggested threshold. The result of the convergent validity indicate the degree to which two different items of the latent variables confirm with one another (Bagozzi & Yi, 1988). There are different ways of determining convergent validity according to (Hair et al., 2012).The check of the critical ratio is the first assessment to confirm the convergent validity in a factor loading with value >1.96 which is the first condition of analysis. Secondly, it is very important to check for the convergent validity with all standardized regression coefficient should be more than 0.50 threshold point (Nusair & Hua, 2010). It revealed that all the items loading are greater than the required threshold of 0.50 in fact all the items loaded above 0.60. As indicated in table 3 all the critical ratio value are higher than the acceptable value of > 1.96 with the range between 3.068 to 21.645. Hence, the obtained value are within the standard regression weights which shows evidence of good convergent validity in the online tax system model.

Based on the above mentioned the three main criteria for establishing convergent validity are; first the items loading must be significant and higher than 0.60. Second the construct or composite reliability must exceed 0.60 and lastly the average variance extracted with each of the

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construct must exceed the acceptable value of 0.50 (Byrne, 2013). Thus, our result shows that all these criteria were met with items loading of all the items were found to be greater than 0.60. Critical ratios' were found to be greater than 1.96 which is a first condition of convergent validity. In fact, most values are significantly high, over 0.70. Both the items loadings and critical ratios indicate good convergent validity. Average variance extracted (AVE) was calculated as (sum of standardized loadings squared)/ (sum of standardized loadings squared) + (sum of indicator measurement errors). Below table shows the AVE >0.50 and composite reliability > 0.70 satisfied the standard criteria. Based on items loadings, the critical ratio, and AVE calculation, convergent validity is confirmed.

4.6 Discriminant Validity

Discriminant validity is the process whereby the constructs is truly distinct from other constructs (Churchill Jr, 1979). The average variance (AVE) was carried out in order to test the discriminant validity of the five components. The result suggested that the higher the correlation square supports the discriminant validity (Batra & Ahtola, 1991). To test whether the component items are interrelated with each other within the same construct, the composite reliability (CR) is applied. The finding on AVE for perceived security, perceived usefulness, perceived ease of use and online tax system is 0.57, 0.64, 0.650 and 0.61, respectively. While CR for perceived security, perceived usefulness, perceived ease of use and online tax system is 0.80, 0.91, 0.75 and 0.90, respectively. The result shows that AVE is above the threshold of 0.50 and CR is above 0.70. This indicates that the selected component has a good measure with each of the items loading on a specific tax service quality variables. In other words, the factor's loading of each of the variables have a significant loading that indicate a very good and comprehensive model for the model as suggested by Carter & Bélanger, (2005). Table 3 exhibits the details.

Table 3 the construct variables critical ratio, average variance extracted and composite reliability

	Items	Loadings	Critical ratio	AVE	Composite reliability
Perceived security	Pse1	.88	5.313	0.57	0.80
	Pse2	.92	21.645		
	Pse3	.82	20.678		
Perceived ease of use	Peu1	.82	10.754	0.50	0.75
	Peu2	.83	14.404		
	Peu3	.70	17.568		
Perceived usefulness	Pu1	.74	3.068	0.64	0.91
	Pu2	.83	16.529		
	Pu3	.82	17.568		
	Pu4	.78	17.822		
	Pu5	.78	15.393		
Online tax system	Ots1	.71	4.531	0.61	0.90
	Ots2	.71	13.316		
	Ots3	.89	16.547		
	Ots4	.82	15.425		
	Ots5	.73	13.724		

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4.7 Structural Model for Hypotheses Analysis

In the fulfillment of the requirement of the measurement model criteria, now it is possible for the researcher to build on the structural model to examine the hypothesized causal relationship between the variables in the model. The use of structural model are presented based on theory with a set structural path that depict the diagram (Bollen, 1998). However, the criteria for determining the overall fit indices of the structural model in this study are the NFI, CFI, TLI CMIN/DF, RMSEA with the result found to be within the acceptable range of value that indicate the online tax system model fit was good. Based on these result we proceed to the next step by finding the path coefficient of the structural model in order for the researcher to test for the hypotheses developed from the conceptual framework and the square multiple correlation (SMC) of this study. The use of the SMC is a measure for the entire structure model which provides a relative measure for each of the structured path analysis of the model.

Additionally, the model hypothesized in figure 2 was analyzed using the same criteria as mentioned above in the measurement model with; chi-square test (χ^2), the normed chi-square (CMIN/DF) = (chi-square/degree of freedom), Goodness of Fit Index (GFI), Normalized Fit Index (NFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI) and Root Mean Square of Error Approximation (RMSEA). The path coefficients were examined for the statistical significance at $P < .05$ with the practical significance of the model path loading $\geq .20$. Furthermore, all the items are well loaded on each of their variable with the value above > 0.5 which is higher than the cut-off point which is the first thing we examined on the model. The next thing we examined is the goodness-of-fit indices to see how our data fit the online tax system model. The details in figure 2 revealed that the chi-square is significant at $\chi^2 (98) = 260.076$, $p = 0.000$, the normed chi-square (CMIN/DF) = 2.654 (chi-square/degree of freedom), Normalized Fit Index (NFI) = .939, Tucker-Lewis Index (TLI) = .952, Comparative Fit Index (CFI) = .961 and Root Mean Square of Error Approximation (RMSEA) 0.065 which is within the acceptable valued of < 0.05 and < 0.08 . This result indicate that our model of online tax system does fit the data collected for these study

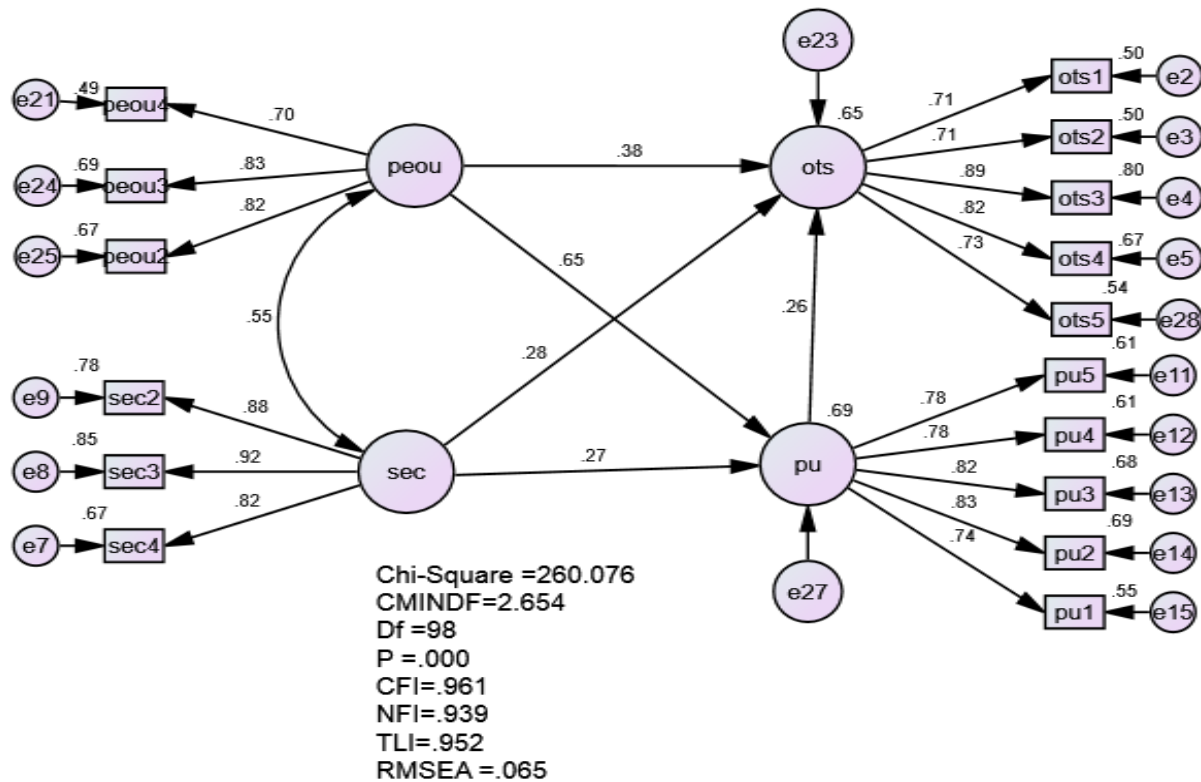


Figure 2: Structural Model of Online Tax System Usage

4.8 Results of the Hypotheses Testing

This study was set up to test seven hypotheses that were shown by their conforming path as obtainable in figure 2 with their respective significant loading values. Nevertheless, these hypotheses were maintained since we have very good fitting indices. All the seven hypotheses were also supported by the data we used for the study with T-value significant at 5 percent. Finally, the seven hypotheses exhibited statistically significant positive relationship toward the mediating variable (perceived usefulness) and the dependent variable (online tax system). Table 4 exhibits the detail.

Table 4: Result of the structural Model

Hypothesis	Causal Path	Estimate	p-statistics	Decision
H ₁	PEOU → OTS	.544	***	Supported
H ₂	PEOU → PU	.225	***	Supported
H ₃	PSE → OTS	.251	.002	Supported
H ₄	PSE → PU	.229	***	Supported
H ₅	PU → OTS	.300	***	Supported
H ₆	PEOU → OTS through PU		Sobel test calculation (0.308)	Supported
H ₇	PSE → OTS through PU		Sobel test calculation (0.284)	Supported

Source: Authors' computation

Based on the statistical significant of the path coefficient H1 posited a positive causal relationship between perceived ease of use and the usage of online tax system in the tax environment using the self-employed taxpayers in Nigeria. H2 revealed that perceived ease of use has a positive and statistical significant causal relationship with perceived usefulness in the Nigerian tax setting. This developed hypotheses from the path coefficient of the model is supported as indicated in table 4 and they are both statistically significant and practically important with correct causal positive relationship. With these result it indicate the more self-employed taxpayers perceived the use of online tax system ease to use on the tax environment, the more they used the online tax system in filing their income tax. These results are supported at 95 percent level of confidence with the path coefficient loading of 0.38.

The third out of the seven hypotheses is H3 which hypothesized that perceive security has a significant positive relationship with the use of online tax system. The fourth hypotheses H4 is there is positive relationship between perceive security on perceived usefulness of online tax system usage in the Nigerian tax environment. These hypotheses are statistically significant and practically important at 95 percent confidence interval with path coefficient loading of 0.65. The fifth hypotheses H5 indicates that there is positive relationship between perceived usefulness and the usage of online tax system in tax setting in Nigeria. The hypotheses shows is statistically significant and practically important with 95 percent confidence interval with path coefficient of 0.26. The last set of the hypotheses has to do with the mediating variable perceived usefulness. Hypothesis, H6 shows that perceived ease of use mediate the relationship between perceived ease of use and online tax system in the context tax environment in Nigeria with a significant value of 0.31 using the sobel test calculator.

The value is statistically significant and practically important based on the finding from the model. H7 indicate that perceived usefulness mediate the relationship between perceived security and online tax system in the Nigerian tax environment with a significant value of 0.28. Hence, it indicates that perceived usefulness has a full mediation on the relationship between perceived ease of use, perceived security on the usage of online tax system in the context of Nigerian tax system. Based on the finding the relationship between perceived security, perceived

ease of use and online tax system are statistically significant and practically important in this study.

The first stage of the analysis in the use of structural equation modeling in this study is to examine the measurement model of the construct through the confirmatory factor analysis to confirm the factor loadings of each of the items. As shown in figure 2 the loading of the items through the measurement model indicate a very good loading on each of the construct with value above 0.5 minimum threshold recommended from the existing literature (Green, Gavin, & Aiman-Smith, 1995). The assessment of items measuring the construct perceive security, shows for taxpayers to effectively use and innovation like online tax system of filing return, it will first consider how secure is the innovation toward it data based on the loading these items have the highest loading on the perceived security construct. This is the reason since this is the first thing that a potential taxpayers will consider and it is a rough indication of what is expected from the tax administration. After the consideration by the taxpayers on the security of their data they further think on the level of their ability to secure the protection of their information for a very long time. Finally, the security of the information disclose about the taxpayers should be keep secure from other taxpayers interim of the security code and the password related to the use of online tax system by the self-employed taxpayers.

The discussion of this study is in a logical sequence looking at the construct perceived ease of use that measure how ease is the innovation for the taxpayer to use in filing their tax return the item with the highest loading is the one with that relate to the easy use of the application when taxpayers trying to applied for claim of refund from the tax office through the system. The third construct is related to perceived usefulness of online tax system. It has to do with the benefit derived from the use of the system. Looking at the construct online tax system that measure the usage of the online tax system based on the service provided by the tax administration, the items with higher loading is the one that relate to how the use of online tax system save time the self-employed taxpayers used in filing in their taxes. However the reason is that why taxpayers file in their tax through the use of online tax. It is noted that the variables in used are correlated and were eventually merged as the final model of the structural model. The seven hypotheses developed based on the model were statistically significant in this study. As indicated all the path coefficients from the perceived security, perceived ease of use and perceived usefulness are statistically significant at 95 percent level of confidence interval. On the practical important, the variables are significant with ($\geq .2$) with a positive direction. The implication of this model is that the constructs of perceived security, perceived ease of use and perceived usefulness are all predictor of the usage of online tax system in the context of Nigeria tax administration system.

In addition, the more effort exercised to enhance these variables the more satisfied the self-employed taxpayers would be on the usage of online tax system. The three variables conveniently and jointly predicted 71 percent of the total variance of the usage of online tax system explained by this study model. By looking at the path coefficient from figure 2, the variable that best contributes to the use of online tax system is the perceived ease of use with coefficient path of 0.38. This is followed by perceived security with path coefficient of 0.27 and perceived usefulness with path coefficient of 0.026 towards the usage of online tax system in the

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context of Nigeria. On these note it showed that though the quality of the innovation provided by the tax administration in the use of the online tax system, their first and major concern is the ease of use of the innovation been provided.

These result are in consonant with the previous empirical work of on the intention of shippers in the shipping company (Lu, Lai, & Cheng, 2007). It also conform to Gefen & Straub (2000); Karahanna & Straub (1999) that found perceived security, perceived ease of use, perceived usefulness variables among the constructs that were significant in their study. in conclusion, this work is also in supports with Cegarra-Navarro, Eldridge, Martinez-Caro, Teresa, & Polo (2014) that found a highly significant correlation between the usage of online tax system with their core and relational factors.

5. CONCLUSION

The main objective of this study examines the causal relationship between perceived ease of use, perceived security, and perceived usefulness Horton, Buck, Waterson, & Clegg, (2001). On the usage of online tax system among the self-employed taxpayers in Nigeria. Our model consists of three factors: perceived ease of use, perceived security and perceived usefulness leading to seven hypotheses. Conversely, it was discovered that all the variables are moderately correlated which led to the retained of all the hypotheses. From these results, all the items used to measure the construct are all statistically significant on the basis of the data collected from the self-employed taxpayers. Thus, with our finding we can conclude that all the items indicate a good measure of the variables. All the seven hypotheses in the usage of online tax system model were statistically significant and practically important at five percent.

In effect, this study has provided effort to justify three things. Firstly, the profiling of the socio-demographic characteristic of the respondents, using descriptive statistics. Our results revealed that majority of the respondents are male. Also most of the respondents were graduate with 37 percent. The second achievement based on the analysis was the establishment of measurement model for the usage of online tax system among the self-employed taxpayers in the context of tax environment in Nigeria. All the items used on the confirmatory factor analysis which is known as measurement model scale were good measure of their corresponding constructs. This study tested the causal relationship between the variables in the model and they are all significant with very good statistical path coefficient.

5.1 Implications and Suggestion for Further Studies

The study is with number of policy implications to the Nigeria tax administration setting. It has not only identified the statistically significant of the variable to the usage of online tax system. It also contributes to the self-employed taxpayer understanding of the benefit of filing their income tax through online. Also, the important are each of these variables and items to the model based on their perception on the usage of online tax system. Therefore, any policy or regulation to be made by the government to improve on the usage of online tax system in the tax administration setting will know which part of the be focused on based on priority either from the tax administrators or from the view of the self-employed taxpayers. However, this study is limited in term of sample population self-employed taxpayers. Hence, further study can be

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extended to the corporate taxpayers. Studies should take into consideration of other types of tax payers such as corporate tax payers and individual taxpayer's. To comprehend the present result, future study could apply other techniques of analysis such as EQS and PLS.

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