



Working Paper 96

# Acceptability of e-Filing of Taxes by Micro-Entrepreneurs in Northwestern Nigeria

Abdulsalam Mas'ud

April 2019

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by Micro-Entrepreneurs in  
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Abdulsalam Mas'ud

## Summary

E-filing for some kinds of tax payments was introduced at the federal level in Nigeria in 2013, yet it has not been made available by state government for the collection of Personal Income Tax from micro-entrepreneurs – a major source of revenue. This research was designed to investigate the acceptability of e-filing to micro-entrepreneurs in Northwestern Nigeria. Micro-entrepreneurs were asked what factors would affect their willingness to use e-filing should it become available. Data were collected through survey questionnaires from 384 micro-entrepreneurs and interviews with three tax consultants in the region. *Performance expectancy* was found to be the main predictor of e-filing acceptability by among micro-entrepreneurs: its use will likely enhance their ability to pay their taxes. *Effort expectancy* is the second main predictor, implying that micro-entrepreneurs believe that e-filing will be easy to use, and thus influence its acceptability. *Social influence* is the third main predictor of e-filing acceptability; friends, family, and business associates who value e-filing will influence its acceptance among micro-entrepreneurs. *Trust* in e-filing software was found to be an insignificant predictor of e-filing acceptability for micro-entrepreneurs. Lastly, *awareness* was found to be a negative factor that would affect the willingness of micro-entrepreneurs to use e-filing: while they are willing to use e-filing, they lack awareness of its operating modalities. In line with the findings, it is recommended that state government in Nigeria should introduce an e-filing system for collecting taxes from micro-entrepreneurs. The e-filing software design needs to be bilingual and fully reliable to gain the trust of its potential users, and the use of intermediaries to assist the users should be encouraged.

**Keywords:** awareness of e-filing, e-filing acceptance intention, effort expectancy, performance expectancy, social influence, trust in e-filing software.

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# Acronyms

AVE	Average Variance Extracted
AWN	awareness of e-filing
C-TAM-TPB	Combined TAM and TPB
CITN	Chartered Institute of Taxation of Nigeria
FIRS	Federal Inland Revenue Service
GDP	Gross Domestic Product
GOF	Goodness of Fit
HUF	Hindu Undivided Family
ITAS	Integrated Tax Administration System
JTB	Joint Tax Board
MGA	Multi-Group Analyses
MPCU	Model of PC Utilisation
MSMEs	Micro, Small and Medium Enterprises
NFI	normed fit index
NTRN	Nigerian Tax Research Network
PIT	Personal Income Tax
PLS	Partial Least Squares
SBIR	State Board of Internal Revenue
SCT	Social Cognitive Theory
SEM	Structural Equation Modeling
SIRS	State Internal Revenue Service
SME	Small and Medium Enterprises
SPSS	Statistical Package for Social Sciences
SRMR	standardised root mean square residual
TAM	Technology Acceptance Model
TIN	Taxpayer Identification Number
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
VAT	Value Added Tax
VIF	Variance Inflation Factor

# 1 Introduction

The Nigerian tax-to-GDP ratio has been deteriorating – from 7 per cent in 2013 (*The Economist Nigeria* 2013) to 6 per cent in 2017 (Aderinokun *et al.* 2017), which is far below the generally acceptable threshold of 15 per cent for low-income countries (*ibid.*). This might be due to a large percentage of taxpayers not having been brought into the tax net. For example, over 75 per cent of registered firms were not in the tax system in 2013, and over 65 per cent of the registered taxpayers do not file tax returns (*The Economist Nigeria* 2013).<sup>1</sup> To address this critical challenge, the Federal Inland Revenue Service (FIRS) introduced the Integrated Tax Administration System (ITAS) in 2013, which initiated e-filing for improving tax administration efficiency (PWC Nigeria 2015). However, despite this initiative and proactive action by the government, Nigeria still has the most complex tax system in Africa: it takes over 908 hours to comply with key taxes such as company income tax, labour taxes and consumption taxes, which is above the African average of 307 hours (PWC 2017). Moreover, the state governments in Nigeria that collect a significant number of taxes, including the Personal Income Tax (PIT) paid by micro-entrepreneurs (who are major taxpayers), are yet to implement the use of technology such as e-filing. Eventually, this non-implementation could contribute to the complexity and inefficiency of the tax system in the country. However, recently there was a call by the President of the Chartered Institute of Taxation of Nigeria (CITN) for state governments to embark on the digitalisation of tax revenue collections through technologies such as e-filing (Ikemefuna 2018). Consequently, this call may influence state governments in Nigeria to implement e-filing as a way to simplify their tax compliance processes and, eventually, enhance their revenue generation potential. However, all the states in Northwestern Nigeria that serve as an area of this study covering Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto and Zamfara have literacy rates of 24.2 per cent, 29.3 per cent, 48.9 per cent, 21.7 per cent, 23.5 per cent, 30.1 per cent and 33.9 per cent respectively, which is far below the national average of 56.9 per cent (UNESCO 2012). This situation may make it difficult for micro-entrepreneurs in the region to keep abreast of new developments and innovations such as the emergence of e-filing.

Despite this challenge, extant literature falls short in investigating what would be the possible factors that will influence the acceptance of an e-filing system when implemented by state governments in Nigeria. Only one study was found in our research, Stephen *et al.* (2017), which is not empirical in nature. However, the acceptance of e-filing has been studied in many developed, emerging and developing countries. For example, the USA (Schaupp and Carter 2009), the UK (Lymer, Hansford and Pilkington 2012), Taiwan (Wang 2003), India (Anees and Kumar 2017), Malaysia (Azmi and Kamarulzaman 2010), South Africa (Mongwaketse 2015), Uganda (Lumanyika 2012), Rwanda (Ndayisenga and Shukla 2016) and Kenya (Gwaro, Maina and Kwasira 2016). Hence, a study of e-filing acceptance intention – particularly among state governments which are yet to implement the system – will provide valuable inputs for policy.

It is important to note that in investigating e-filing acceptance across countries, besides the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT) has been the most commonly applicable theory. A number of studies applied UTAUT in understanding the factors influencing the acceptance of e-filing, such as McLeod, Pippin and Mason (2009), Schaupp, Carter and McBride (2010), Schaupp and Carter (2009) and Carter *et al.* (2011) in the USA; Alibraheem and Abdul-Jabbar (2016) in Jordan; Bhuasiri *et al.* (2016) in Thailand; Lu and Nguyen (2016) in Vietnam; Nisha, Iqbal, Rifat and Idrish (2016) in Bangladesh; Aziz and Idris (2012, 2014) and Tan and Foo (2012)

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<sup>1</sup> Registered firms are those registered through the registrar of companies under Corporate Affairs Commission saddle with the registration of companies, whereas registered taxpayers are those registered under any tax authority – either Federal Inland Revenue Service for federal taxes or State Boards of Internal Revenue (SBIR)/State Internal Revenue Service (SIRS) for state taxes.

in Malaysia; Liang and Lu (2013) in Taiwan; and Andriani, Napitupulu and Haryaningsih (2017) in Indonesia.

Consequently, given the rationality of Nigerians in their decision-making processes in which they embark on certain actions only after careful evaluation of an expected outcome, factors such as performance expectancy and effort expectancy could be important variables in understanding the e-filing acceptance intention of micro-entrepreneurs. 'Performance expectancy' here may mean the extent to which using e-filing will enhance potential users' performance towards tax payment while 'effort expectancy' refers to the belief that using the software will require less effort. Moreover, the cultural setting of Northwestern Nigeria, being predominantly Hausa/Fulani, makes family and friends very important elements in individual decision-making. Given this fact, social influence could be another important determinant of e-filing acceptance intention among these potential users. The issue of internet fraud and scams as well as inefficiencies in internet services that may cause the software to misbehave could be additional issues of concern in Nigeria. Hence, trust in e-filing software could be another factor for consideration. Additionally, as already mentioned, the literacy rate in Northwestern Nigeria is low and below the national average (UNESCO 2012): illiteracy creates difficulty for those affected to be abreast with new developments and innovations such as e-filing that happen in the real world. Eventually, based on the peculiarity of the region, awareness could also be another important factor for consideration.

Following this background, the key objective of this study is to investigate the factors influencing the acceptance of e-filing by micro-entrepreneurs in Northwestern Nigeria with UTAUT as the underpinning theory. Specifically, the study examines the influence of performance expectancy, effort expectancy, social influence, trust in e-filing software, and awareness of e-filing among micro-entrepreneurs in Northwestern Nigeria. The study also examines the moderating effect of age, gender and experience, which was considered in the prior literature to have interacting effects with performance expectancy, effort expectancy and social influence. The application of this theory here can be justified by three reasons. Firstly, the theory combines eight theories including TAM that have been applied in the context of use and acceptance of technology, e-filing included. Secondly, among all countries reviewed in this paper for which UTAUT was applied as an underpinning theory in relation to e-filing, none of the African countries, including Nigeria, was found, resulting in the need for more evidence from Africa and, specifically, from Nigeria. Lastly, the UTAUT model is well suited for the context of the current study as it tends to understand the intention to accept e-filing as the dependent variable. In fact, Venkatesh *et al.* (2003) stressed that the theory can be applied in any context within the field of technology acceptance/usage provided that intention/usage is used as dependent variables in such a study. Additionally, the study tends to extend UTAUT through examining whether or not trust in and awareness of e-filing influence its acceptance alongside the existing factors of performance expectancy, effort expectancy and social influence.

The study is expected to have some policy relevance. It is unarguable based on the above background that maximising tax revenue in Nigeria is a major public policy issue and e-filing has much potential. Thus, exploring ways and means of maximising tax revenues through e-filing will be the major contribution of this study. It is expected that the outcome of the research will assist policymakers in deploying necessary strategies to improve tax revenue as a percentage of GDP in Nigeria, which recently stood at 6 per cent (Aderinokun *et al.* 2017). Specifically, the policy relevance of the research is threefold. Firstly, the study highlights the factors influencing the acceptance of e-filing by micro-entrepreneurs. Thus, it has the potential of assisting State Board of Internal Revenue (SBIR)/State Internal Revenue Service (SIRS) in designing and implementing an e-filing system as a means of tax revenue collection. Secondly, when the first policy implication is achieved, it will reduce the percentage of taxpayers not filing their tax returns, which stood at about 65 per cent (*The Economist Nigeria* 2013), as well as reducing the compliance complexity which currently

takes over 900 hours (PWC 2017). Lastly, the study serves as a guide to SBIR/SIRS of the northwestern states when designing e-filing systems.

Section 2 details the extensive review of relevant literature that was carried out. In Section 3, the methodology of the study is discussed, and Section 4 presents and discusses the results. Section 5 presents the conclusions and policy implications, and directions for future research are highlighted.

## 2 Literature review

### 2.1 Microenterprise subsector and tax system in Nigeria

Like other developing countries, Nigeria has been challenged by a desire for inclusive growth and reducing poverty and unemployment, as well as underemployment (SMEDAN/NBS 2013). There has been a drastic decline in securing white-collar jobs among the youth population in the country, hence most resort to setting up their own businesses for a sustained livelihood and complementing their incomes. Following this development, the number of microenterprises has been rapidly growing. An extract from the Small and Medium Enterprises Development Agency of Nigeria report (SMEDAN/NBS 2013) revealed significant information relating to microenterprises alongside their small and medium counterparts. For instance, microenterprises account for 99.8 per cent of the total number of micro, small and medium enterprises (MSMEs). The remainder (less than 1 per cent) consists of small enterprises constituting both small and medium enterprises (SMEs). This significant number of microenterprises in the country gives it a comparative advantage to SMEs in terms of contribution to national GDP. The total GDP of the country was estimated at N80 trillion in 2013, out of which MSMEs contributed N38.78 trillion or 48.47 per cent. This contribution has been predominantly by microenterprises, which contributed about 80.76 per cent of the total MSMEs' share of GDP, and N31.32 trillion or 39.15 per cent of the country's total GDP.

Moreover, in terms of employment, microenterprises contribute significantly to the Nigerian economy. In 2013, while the number of individuals employed by SMEs stood at just 1,903,820, microenterprises employed 57,836,391 within the same period. This implies that, out of 59,740,211 employment slots available in the MSME sector, 96.8 per cent had been provided by the microenterprise subsector.

Further analysis from the SMEDAN/NBS report (2013) indicates that microenterprises cut across many sectors. The wholesale and retail sector is occupied by the largest number of microenterprises of about 54.67 per cent, followed by manufacturing (13.21 per cent), agriculture (8.92 per cent), accommodation and food (5.51 per cent), transportation and storage (4.76 per cent), construction (1.98 per cent), art, entertainment and recreation (1.06 per cent), information and communication (0.91 per cent), administration and support services (0.58 per cent), education (0.28 per cent), mining and quarrying (0.19 per cent), sewage, waste management and remediation (0.02 per cent), and others (7.8 per cent).

Similar to other countries, in Nigeria, MSMEs have been defined using total numbers of employees or total assets (excluding land and buildings). The clarity of this definition can be better assessed in Table 2.1.

**Table 2.1 Definition of micro, small and medium enterprises by classification**

S/N	Size category	Employment	Total assets (excluding land and buildings, Naira)
1	Microenterprises	Less than 10	Less than 5 million
2	Small enterprises	10 to 49	5 to less than 50 million
3	Medium enterprises	50 to 199	50 to less than 500 million

Source: SMEDAN/NBS (2013).

However, conflict exists on classification between employment and assets criteria; for instance, where a microenterprise holds assets worth more than N5 million excluding land and buildings but the number of employees is less than ten, then the employment-based classification will take precedence and the enterprise will still be regarded as a microenterprise irrespective of the fact that the capital base falls under small enterprises.

Another major issue is the ownership structure. Evidence from the SMEDAN/NBS (2013) report showed that the ownership status of microenterprises were predominantly sole proprietorship and mainly owned by men compared to women. In fact, about 97.74 per cent of microenterprises in Nigeria are sole proprietor in nine different sectors: wholesale and retail, manufacturing, food and accommodation, construction, transportation, agriculture, art, entertainment and recreation, information and communication, as well as other smaller sectors. The remainder is owned through partnership (about 1.28 per cent) and limited liability companies (about 0.59 per cent).

It can be inferred from the foregoing review that microenterprises are an important component to the Nigerian economy in many areas including employment, contribution to GDP, and potential for economic diversification as they cut across many sectors of the economy. Thus, microenterprises are expected to contribute significantly towards enhancing government revenue through taxation. Based on Nigerian tax laws, microenterprises that operate using a sole proprietorship model are not required to pay taxes as businesses but by the sole proprietor as a person. This similar rule is applied to those microenterprises that operate on a partnership business model, i.e. only the partners are required to pay taxes as individuals and not the business itself. However, for microenterprises that operate as a limited liability company, it is the company that will pay the tax, given the fact that it is recognised as an artificial person. Therefore, based on the amended Personal Income Tax Act (2011), it is the micro-entrepreneurs who operate either through sole proprietorship or partnership that will be responsible to pay taxes as a person and not the microenterprise as a business.

It is important to note that, like many other countries, the tax system in Nigeria has consisted of a mixture of direct and indirect taxes (Simeon, Simeon and Roberts 2017). However, the administration of the taxes is carried out by the federal, state and local government (*ibid.*). All taxes that belong to the federal government are collected by the FIRS. The taxes belonging to the states are collected by SBIR/SIRS, while those that belong to the local government are collected by the Local Government Revenue Committee. Specifically, Section 2(1) (a) and (b) and 2(2) of the Personal Income Tax Act, 2011 as amended provides that individuals such as micro-entrepreneurs pay their taxes to state governments through SBIR/SIRS depending on place of residence. It is important to recap here that the digitalisation of the tax system in Nigeria commenced in 2013 through the introduction of ITAS by the FIRS for the collection of federal taxes through e-filing. However, state governments are yet to introduce e-filing but have been called for by experts towards that end. The goal is to simplify the tax system and encourage compliance, thereby enabling the country to achieve a high percentage of tax-to-GDP ratio.

## 2.2 Electronic tax filing adoption

Within the e-filing literature authors have defined the concept of e-filing in different ways (e.g. Manly *et al.* 2005; Fu, Farn and Chao 2006; Edwards-Dowe 2008; Lu, Huang and Lo 2010; Azmi, Kamarulzaman and Hamid 2012; Arora 2016). However, Kumar and Gupta (2017) give a more comprehensive definition of e-filing: *the process of submitting tax returns over the internet, using tax preparation software that has been pre-approved by relevant tax authorities for usage by individual and corporate taxpayers where its design varies with the income or profit (taxable income) of the taxpayers*. This definition sounds more elaborate and fully defines the concept of e-filing. E-filing software is designed by the relevant tax authority and it needs to be specific to the nature of taxpayers and the tax itself. For instance, for e-filing taxes collectable by federal government, the FIRS developed the e-filing software. At the same time, for the taxes payable to states, it is the responsibility of the SBIR/SIRS to design the e-filing software or processes in line with the relevant tax laws. The same could equally be applied for taxes payable to local governments for which the local government's revenue committee has the responsibility. Therefore, based on these reasons, the definition offered by Kumar and Gupta (2017) is adopted in this study.

It is interesting to note that e-filing has been adopted in both developed, emerging, and developing countries. The adoption of e-filing dates back to 1986, when the US government first introduced the system. However, until 2007, only 52 per cent of the country's taxpayers used the system (Azmi and Kamarulzaman 2010). The number of e-filers grew from 52.9 million in 2003 to 68 million in 2005 and 90 million in 2008 (Schaupp and Carter 2009). The figures for e-filing rose to 119.6 million returns (about 80 per cent) and 122.5 million returns (about 83 per cent) in 2012 and 2013 respectively (Pippin and Tosun 2014). In the UK, e-filing could be said to have been adopted in 1998 and the acceptance rate reached approximately 74 per cent by 2010, i.e. almost 12 years after adoption (Lymer, Hansford and Pilkington 2012). This acceptance rate is higher than that of the US, which was 52 per cent in approximately the same period despite the US having been ahead of the UK in e-filing adoption for about 12 years.

In the emerging Asian countries, Taiwan introduced e-filing in 1998 (Wang 2003). By 2007, the number of individuals filing their tax return electronically reached 45.31 per cent and for corporations it reached 96.97 per cent (Lu *et al.* 2010). In India, it had been mandatory for firms, individuals and Hindu Undivided Family (HUF) (Arora 2016); the compliance was voluntary when it was introduced in September 2004 but was made mandatory in July 2006 for corporations, and 2013 for individuals (Anees and Kumar 2017). In Malaysia, e-filing was introduced in 2006 and, by 2009 the system had been used by only 1.25 million taxpayers (Azmi and Kamarulzaman 2010), and later increased to 2.1 million by 2012 (Bernama 2012).

The developing countries in Africa were not left behind in the trend of e-filing adoption. For instance, in South Africa, e-filing was introduced in 2001, starting with the Value Added Tax (VAT), then extended to individuals in 2006 and thereafter to companies (Mongwaketse 2015). In Uganda, e-filing was introduced in 2006 (Lumanyika 2012), and the acceptance rate reached about 80 per cent in 2009 (Asianzu and Maiga 2012). The country's filing process now takes only ten minutes compared to two days using the manual system as a result of this simplification (Asianzu and Maiga 2012). In Rwanda, e-filing was launched in 2012 with a view to assist clients to file taxes like VAT, PAYE, excise duty and withholding taxes electronically on the Rwanda Revenue Authority (RRA) website directly without visiting the RRA premises (Ndayisenga and Shukla 2016). In Kenya, e-filing was introduced in 2013 through the adoption of the Integrated Tax Management System (ITMS) initially for VAT collection (Gwaro, Maina and Kwasira 2016); this was later replaced with iTax, which enables taxpayers to undertake internet-based registration, filing, paying, and status inquiries with real-time monitoring of their accounts (Gwaro, Maina and Kwasira 2016).

It is evident from the foregoing review that the adoption of e-filing has a long history. Its adoption began in the developed countries of the USA (1986) and UK (1997). It was then adopted in emerging economies such as Taiwan (1998), India (2004) and Malaysia (2006), and even developing African countries including South Africa (2001), Uganda (2009), Rwanda (2012) and Kenya (2013) and later by the federal government in Nigeria. In all these countries, no country has ever recorded 100 per cent acceptance, though significant percentages such as 83 per cent in the US, 96 per cent for corporate taxpayers in Taiwan, and up to 80 per cent in Uganda have been achieved. This highlights the possible success of an e-filing system when adopted by state governments in Nigeria by SBIR/SIRS. However, given the literacy rate in the region of the study as well as the targeted sample, who are mostly self-employed rather than employees in private or public services, language and use of intermediary could be issues of concern in the implementation process. For instance, while the official language of all states in Nigeria is English, only a minority of citizens, particularly in the North, can read and understand it clearly. Hence, introduction of e-filing among the northern states may require either the use of local languages such as Hausa or intermediaries, or both.

### **2.2.1 Adoption of electronic tax filing in Nigeria**

In Nigeria, e-filing was introduced in 2013 through the implementation of ITAS (Stephen *et al.* 2017). Earlier, the implementation of e-filing had been planned through the introduction of the Taxpayer Identification Number (TIN), which was funded by the federal government alongside all states of the federation but overseen by the Joint Tax Board (JTB). The system was designed for the storage of information on taxpayers. The aim was to facilitate real-time information sharing and data exchange among the relevant tax authorities and other stakeholders such as the Central Bank of Nigeria, Nigeria Customs Service, Corporate Affairs Commission, and National Bureau of Statistics amongst others (Deloitte 2015). ITAS was introduced by the FIRS to reduce the need for physical interaction between it and the taxpayers (*ibid.*). However, state governments that serve as a focus of this study are yet to digitalise their tax collection systems, although there was a recent call for the use of technology for tax collection among states of the federation (Ikemefuna 2018). Hence, this study becomes desirable so as to understand the factors influencing e-filing acceptance intention among taxpayers within the jurisdictions of state governments. Consequently, northwestern states were selected as an area of study. Justifications for focusing on micro-entrepreneurs within the northwestern states, as is the case here, are their role in the Nigerian economy via GDP and employment contributions. Additionally, there has been a growing acceptance of banking and other financial services in the northwestern region from 2010 to 2016 (EFInA 2010, 2016). This could be significant considering that the use of e-filing requires bank accounts.

## **2.3 Theories of acceptance and use of technology**

Among many theories of user acceptance and use of information technology, the most commonly used in e-filing literature are the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT). Wang (2003) documents that TAM was formed from two social psychology theories by Davis (1989). The theories are the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen (1975) and the Theory of Planned Behaviour (TPB) developed by Ajzen (1985). It has been validated as a parsimonious and powerful framework to explain users' adoption of IT (Wang 2003). TAM postulates that the adoption of IT by users is determined by their intention to use the system and, subsequently, the intention is also determined by beliefs about the system. These beliefs are perceived usefulness and perceived ease of use. Later, Venkatesh and Davis (2000) extended TAM through TAM2 by integrating the subjective norm adopted from TRA and TPB. The relevance of this theory resulted in its widespread application in e-filing literature in many countries (Anees and Kumar 2017), such as Taiwan (Wang 2003; Lu *et al.* 2010), Malaysia (Azmi and Kamarulzaman 2010; Azmi *et al.* 2012) and Uganda (Asianzu and Maiga 2012), among others. However, the introduction of UTAUT by Venkatesh *et al.* (2003), which integrates eight theories including TAM and TAM2, has shifted the theoretical application in e-filing from TAM to UTAUT.

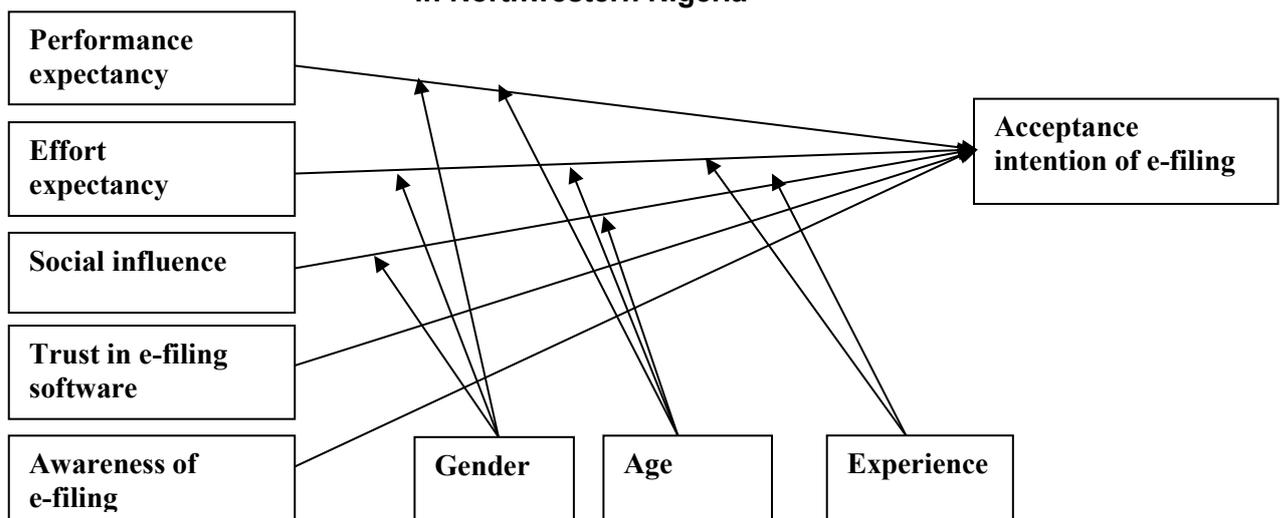
### **2.3.1 Unified Theory of Acceptance and Use of Technology (UTAUT)**

The Unified Theory of Acceptance and Use of Technology (UTAUT) had been proposed and validated by Venkatesh *et al.* (2003). It is the result of the integration of eight theories including TRA (Fishbein and Ajzen 1975), Model of PC Utilisation (MPCU) (Traindi 1977), TPB (Ajzen 1985), Social Cognitive Theory (SCT) (Bandura 1986), TAM (Davis 1989), Innovation Diffusion Theory (Rogers 1995), Combined TAM and TPB (C-TAM-TPB) (Taylor and Todd 1995), and the Motivational Model (Vallerand 1997). Alongside moderating variables such as age, gender, experience and voluntariness of use, UTAUT proposed four main determinants of usage of information systems; performance expectancy, effort expectancy, social influence, and facilitating conditions. The moderators in UTAUT can be explained here as the gender, age, and voluntariness of use. These four constructs, with the exception of facilitating condition, are predictors of user acceptance/behavioural intention and, subsequently, usage behaviour. However, age, gender, experience, and voluntariness of use serve as moderators. Findings from UTAUT indicated that three of these determinants – performance expectancy, effort expectancy and social influence – were found to have significant effect on the intention to use a technology (Venkatesh *et al.* 2003). Therefore, UTAUT is a model well suited for the context of the current study as it tends to understand intention to accept e-filing as the dependent variable. In fact, Venkatesh *et al.* (2003) stressed that the theory can be applied to any study in the field of technology acceptance/usage provided that intention/usage is used as a dependent variable. Several studies in the literature have applied UTAUT in the context of e-filing including: McLeod, Pippin and Mason (2009), Schaupp, Carter and McBride (2010), Schaupp and Carter (2009) and Carter *et al.* (2011) in USA; Alibraheem and Abdul-Jabbar (2016) in Jordan; Bhuasiri *et al.* (2016) in Thailand; Lu and Nguyen (2016) in Vietnam; Nisha *et al.* (2016) in Bangladesh; Aziz and Idris (2012, 2014) and Tan and Foo (2012) in Malaysia; Liang and Lu (2013) in Taiwan; and Andriani, Napitupulu and Haryaningsih (2017) in Indonesia.

## 2.4 Theoretical model and hypotheses development

The model for the acceptance of e-filing by micro-entrepreneurs in Northwestern Nigeria proposed in this study has been developed in line with UTAUT (Venkatesh *et al.* 2003). It is important to note that some adjustments have been made here to UTAUT. Firstly, the study examined the acceptance intention and not actual usage as micro-entrepreneurs who, by law, are required to pay tax to their state of residency are yet to adopt e-filing. Secondly, voluntariness of use as a moderator has also been removed. Its application in UTAUT was necessitated by the fact that the theory was tested in both voluntary and mandatory settings; however, in the current context, the system is yet to be in use – whether voluntarily or mandatory – and hence the focus is shifted towards intention to use. Lastly, based on the openness of UTAUT, as recommended by Venkatesh *et al.* (2003) that researchers should continue to identify the constructs that explain acceptance intention and behavioural usage of technology, this research considers the integration of trust in e-filing and awareness of e-filing as predictors of e-filing acceptance intention. Apart from the openness of UTAUT for the inclusion of additional predictor variables, the context of the study – Northwestern Nigeria – has a low level of literacy – below the national average of 56.9 per cent (UNESCO 2012) – and therefore awareness of e-filing may be lacking in the area. These additional variables could be seen as a theoretical contribution of the current study. The research model is presented in Figure 1.

**Figure 1 Model for the acceptance of e-filing by micro-entrepreneurs in Northwestern Nigeria**



### 2.4.1 Performance expectancy and acceptance of e-filing

Performance expectancy is the degree to which an individual believes that use of technology will assist him/her to achieve gains in job performance (Venkatesh *et al.* 2003). The earlier studies by Venkatesh *et al.* (2003), Anderson, Schwager and Kerns (2006), Bandyopadhyay and Fraccastoro (2007), McLeod *et al.* (2009) and Yuen *et al.* (2010) conclude that performance expectancy is among the main determinants of user acceptance and usage of new technology. Theoretically, UTAUT established that the power of performance expectancy in predicting behavioural intention of acceptance and use of technology has been validated in both voluntary and mandatory settings (Venkatesh *et al.* 2003). Following this theoretical confirmation, several studies were carried out to reaffirm such predictive power. In this, Carter *et al.* (2011) established the significant influence of performance expectancy in predicting the intention of Americans to use e-filing.

In contrast, Andriani *et al.* (2017) found no significant influence of performance expectancy on user acceptance intention with regard to e-filing in the Potianak District of Indonesia. Other studies outside the e-filing context but within IT settings also established a negative relationship between performance expectancy and technology acceptance (Marchewka, Liu and Kostiwa 2007; Loo, Yeow and Chong 2009), whereas Al-Hadban, Hashim and Yusof (2016) found performance expectancy to be an insignificant determinant of technology acceptance. The conflicting results in these studies could be due to additional variables incorporated in their models beyond the key UTAUT variables, which possibly alters the original relationship. It is evident from these findings that the relationship between performance expectancy and technology adoption is mixed and inconclusive as some studies recorded positive relationship, no relationship, and negative relationship. In Nigeria, there are relatively few studies on e-filing. Most of the studies are either conceptual in nature (e.g. Stephen *et al.* 2017) or they address influence of information technology on tax productivity and the relationship between information technology and tax implementation and tax planning (Olatunji and Ayodele 2017).

Due to these mixed results, and congruent to the postulation of UTAUT, researchers such as Marchewka and Kostiwa (2014) and Celik (2016) explored the moderating influence of age and gender on the influence of performance expectancy on technology adoption. The findings showed that age and gender strengthen the relationship between performance expectancy and adoption. Thus, it is also assumed that the influence of performance expectancy on e-filing acceptance can be moderated by age and gender, such that the influence will be stronger for men and younger men, in particular. Following this evidence, the following hypotheses are formulated:

Hypothesis 1: Performance expectancy has a significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria.

Hypothesis 2: The influence of performance expectancy on e-filing acceptance can be moderated by gender, such that the relationship will be stronger for male micro-entrepreneurs.

Hypothesis 3: The influence of performance expectancy on e-filing acceptance can be moderated by age, such that the influence will be stronger for younger micro-entrepreneurs.

#### **2.4.2 Effort expectancy and acceptance of e-filing**

Effort expectancy is the extent of ease associated with the usage of an e-filing system (Venkatesh *et al.* 2003). Theoretically, Venkatesh *et al.* (2003) and Venkatesh and Davis (2000) established that effort expectancy is a strong predictor of intention and actual usage of information technology. Empirical studies carried out by Marchewka *et al.* (2007), Naor-Elaiza and Geri (2008) and Nanayakkara (2007) found that effort expectancy has been found to have a direct and positive effect on users' intention to use information technology. Specifically, the application of UTAUT in the context of e-filing indicates a positive effect of effort expectancy on intention to use e-filing software (McLeod *et al.* 2009).

However, an insignificant influence of effort expectancy on user acceptance intention was found in a study carried out by Al-Gahtani, Hubona and Wang (2007). Similarly, Andriani *et al.* (2017) found there to be an insignificant relationship between effort expectancy and user adoption of technology. This inconsistency in findings could be the justification for the integration of the moderating effect of gender, age and experience on the influence of effort expectancy on user adoption of information technology (Venkatesh *et al.* 2003; Venkatesh and Davis 2000). In line with this evidence, the following hypotheses are proposed:

Hypothesis 4: Effort expectancy has a significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria.

Hypothesis 5: The influence of effort expectancy on e-filing acceptance can be moderated by gender, such that the relationship will be stronger for male micro-entrepreneurs.

Hypothesis 6: The influence of effort expectancy on e-filing acceptance can be moderated by age, such that the influence will be stronger for younger micro-entrepreneurs.

Hypothesis 7: The influence of effort expectancy on e-filing acceptance can be moderated by experience, such that the relationship will be stronger for micro-entrepreneurs who are familiar with the use of information systems.

### **2.4.3 Social influence and acceptance of e-filing**

Social influence has been described as the perception of an individual that persons close to him/her think that s/he should or should not perform a behaviour or action (Fishbein and Ajzen 1975). Venkatesh *et al.* (2003) also considered social influence as the degree to which an individual perceives that people who are important to him/her believe that s/he should use a new IT system such as e-filing. Theoretically, it was confirmed by Venkatesh *et al.* (2003) that social influence is a strong predictor of the user's intention to use a new technology; in fact, it was established that social influence has a significant effect on behavioural intention. More specifically, in the context of e-filing, social influence was found to have a positive effect on the intention to use tax preparation software (McLeod *et al.* 2009).

Conversely, some studies in the field of technology acceptance found a negative effect of social influence on user acceptance intention of information systems. These studies include Alshehri *et al.* (2012), Chiu and Wang (2008), and Nisha *et al.* (2016). This inconsistency in the literature could be the reason for integrating moderating variables in the relationship of social influence and behavioural intention towards acceptance of a new information system as proposed and validated by Venkatesh *et al.* (2003). In line with the theoretical postulation, some scholars investigated the moderating influence of age, gender and experience on the effect of social influence on behavioural intention (Ghalandari and Norouzi 2012; Alshehri *et al.* 2012). Based on this evidence the following hypotheses are proposed:

Hypothesis 8: Social influence has a significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria.

Hypothesis 9: The effect of social influence on e-filing acceptance can be moderated by gender, such that the relationship will be stronger for male micro-entrepreneurs.

Hypothesis 10: The effect of social influence on e-filing acceptance can be moderated by age, such that the influence will be stronger for younger micro-entrepreneurs.

Hypothesis 11: The effect of social influence on e-filing acceptance can be moderated by experience, such that the relationship will be stronger for micro-entrepreneurs who are familiar with the use of information systems.

### **2.4.4 Trust in e-filing software and acceptance of e-filing**

Trust has been defined by Mayer, Davis and Schoorman as 'the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other party will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party' (1995: 172). In the e-filing context, trust can be described as the

willingness of taxpayers to use e-filing software with the expectation that it will be reliable, it will not fail the taxpayer, and it will not arbitrarily malfunction while in use.

Trust has been emphasised as one of the major variables that can be used to better comprehend the user acceptance of electronic services (Carter and Weerakkody 2008), and it was found to be a significant predictor of user acceptance of e-government services (Belanche, Casaló and Flavián 2012). In line with this insight from literature and lack of studies in Nigeria relating to the influence of trust in e-filing software and on e-filing acceptance intention, the following hypothesis is developed:

Hypothesis 12: Trust in e-filing software has a significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria.

#### **2.4.5 Awareness of e-filing and acceptance of e-filing**

Knowledge of the existence of a particular issue in society or understanding the nature of operation of a specific concept at the right time based on information or experience is regarded as awareness. In relation to e-filing, awareness can be described as the knowledge of the existence of e-filing, its operating principles and concepts, and how it differs from manual filing.

Northwestern Nigeria is an area with low literacy, so awareness will be an important variable in the implementation of e-filing in the region. It can be argued that low literacy leads to low awareness, which can negatively affect e-filing acceptance, so this will need to be examined. Additionally, e-filing is a new system that many micro-entrepreneurs may not necessarily know about, especially the concepts and principles guiding its operation, which can adversely affect its acceptance. Interestingly, Venkatesh *et al.* (2003) made UTAUT open for the inclusion of additional predictor variables that can add more explanation to what is already known about the factors explaining the acceptance of new technology. Thus, in line with the practical problem highlighted and the theoretical insights from UTAUT, the following hypothesis is postulated:

Hypothesis 13: Awareness of e-filing has a significant negative influence on e-filing acceptance among micro-entrepreneurs Northwestern Nigeria.

The development of these hypotheses are in line with the model presented in Figure 1 and have been supported by the relevant literature and underpinned by UTAUT. Its validation could provide a basis for policy formulation in Nigeria, especially among state governments wanting to adopt e-filing as a means of filing tax returns by micro-entrepreneurs. Thus, it will eventually enhance the country's tax-to-GDP ratio, which currently stands at 6 per cent; below the threshold of 15 per cent for developing countries.

## **3 Methodology**

### **3.1 Research design**

The research employed a mixed-method approach with surveys through the use of questionnaires, which were supported with interviews. The questionnaires were responded to by micro-entrepreneurs while the interviews were conducted with tax consultants who commonly serve as agents for filing tax returns.

### 3.2 Population and sample

The population of the study is 7,500,000 microenterprises in Northwestern Nigeria based on the SMEDAN/NBS (2013) report. A convenience sampling technique was employed to arrive at the sample size, based on Krejcie and Morgan (1970), who suggested that any population above 1,000,000 will have an approximate sample of 384 subjects.

**Table 3.1 Population and sample**

No.	State	No. of Micro-enterprises with <10 employees	Sample
1	Kano	1,700,000	87
2	Kaduna	1,600,000	82
3	Katsina	1,250,000	64
4	Jigawa	850,000	43
5	Zamfara	700,000	36
6	Sokoto	700,000	36
7	Kebbi	700,000	36
<b>Total</b>		<b>7,500,000</b>	<b>384</b>

Source: The numbers are based on approximations from Figure 40 of SMEDAN/NBS (2013).

### 3.3 Instrumentation

Data from the above sample were collected through a survey instrument designed for the purpose, with eight sections. Section one contains demographic information of the respondents covering gender (male and female), age (below 30, 31–40 and 41 and above), marital status (single, married and divorced), qualification (no formal education, SSCE/GCE, ND/NCE, HND/BSc, and MBA/MSc), nature of enterprise (wholesale and retail; manufacturing; agriculture; accommodation and food; transportation and storage; construction; art, entertainment and recreation; information and communication; and others), number of employees (one, two, three, four, five, six, seven, eight and nine), experience in using internet (none, 1–5 years, 6–10 years, and above ten years), method of filing tax return (self-filing, through agent/intermediary, and not filing at all), primary language of business (Hausa, English, Hausa/English, Hausa/English/Yoruba, Hausa/English/Igbo), preferred language for e-filing (Hausa and English), need for intermediary/agent for help if e-filing software is in English (Yes or No).

Sections two to seven contained scale items measuring e-filing acceptance intention, performance expectancy, effort expectancy, social influence, trust in e-filing software and awareness of e-filing. Four survey questions were used for measuring acceptance intention of e-filing, which were adapted from Ajzen (2002). Another four questions were used for measuring performance expectancy and effort expectancy, which were adapted from Venkatesh *et al.* (2003). Three questions were used in measuring social influence, which were also adapted from Venkatesh *et al.* (2003). Four items were used in measuring trust in e-filing software, which were adapted and modified from Mcknight *et al.* (2011). Lastly, five questions were used in measuring awareness of e-filing based on the questions adapted from Keong *et al.* (2012). These measures are based on a five-point Likert scale of 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree).

Section eight contained only one question relating to the language used in administering the survey (Hausa or English). The responses were filled in by the field research assistants.

### **3.3.1 Pilot testing of the instrument**

Prior to the main survey, the instrument was measured through validity and reliability. The validity of the instrument was evaluated using content validity. Experts from the International Centre for Tax and Development (ICTD) assisted in these processes. For instance, the first draft of the introductory part of the instrument was corrected into a more informative pattern. Similarly, in the initial draft of the instrument, trust in e-filing was not included. However, it was suggested that trust in using electronic payment software as well as method of filing tax returns either by self or through an agent/intermediary needed to be added. Additionally, five items were proposed for measuring acceptance intention of e-filing; however, through content validity a redundancy was identified between items one and four, so item four was deleted leaving the variable with four items. Another important observation during the content validity evaluation was language usage, such as the language in which the respondents (a) do business, (b) would want to use software, and (c) answered the survey. It is crucial to develop e-filing software in a language that the micro-entrepreneurs are happy with to avoid creating a barrier to usage.

Having the instrument scaled through the content validity processes, it was subjected to reliability assessment. In conducting the reliability analysis, the suggestion of Callegaro, Manfreda and Vehovar (2015) was followed, who highlighted that 15–30 respondents is the minimum number required for a pilot study. Thus, 35 questionnaires were distributed for the pilot survey from which 31 usable responses were obtained. The result of the reliability analysis from the pilot survey is contained in Table 3.2.

**Table 3.2 Reliability analyses**

S/N	Variables	No. of items	Cronbach Alpha
1	Acceptance intention of e-filing Microfinance	4	.859
2	Performance expectancy	4	.914
3.	Effort expectancy	4	.940
4	Social influence	3	.806
5	Trust in technology	4	.882
6	Awareness	5	.757

Initially, trust in e-filing was proposed to be measured using five items, TRT1 to TRT5. However, the Alpha was found to be .171, so the deletion of TRT 3 optimised the Alpha to .882. Having deleted TRT 3, it can be said that the construct met the requirement of internal consistency reliability, measured using Cronbach Alpha as it ranged from .757 to .940 – which is above the minimum cut-off value of .700 for confirmatory research (Nunnally 1978).

For the demographic items in section one, all were fine except item eight in which respondents were asked to specify whether they are filing their returns themselves or through an agent/intermediary. In this, some were leaving it blank, indicating the possibility of not filing returns. Thus, based on suggestions by ICTD experts, an additional option – ‘not filing at all’ – was added which improved the response to that question. To further enhance objective responses to that question, a confidentiality section was added under it: *‘All answers on this form are treated in the strictest of confidence. There will be nothing to identify you as taking part in the survey. Please answer honestly.’*

After these corrections had been made, the instrument for the main survey was reproduced and administered.

### **3.4 Data collection and cleaning**

Data was collected through convenience sampling using the instrument described above. Consistent with the sample, 384 responses were obtained. However, only 383 were entered into Statistical Package for Social Sciences (SPSS) as one of the questionnaires in Katsina was more than 50 per cent not completed. Likewise, two questionnaires from micro-entrepreneurs in Kaduna and another one from Jigawa were found to be outliers through a multivariate analysis. Their Mahalanobis distance exceeds the cut-off value of 42.98 obtained from the Chi-square table at the .01 significance level. These three questionnaires were deleted from the dataset, leaving us with 380 usable responses.

Earlier, a few errors resulting from data entry were identified. One of the errors was the appearance of 6 as one of the options under awareness of e-filing (AWN) which was not supposed to be there as options only ranged from 1 to 5, i.e. 1=SD, 2=D, 3=N, 4=A, 5=SA. Tracing the code of the respondent indicated that it was under Kaduna state, respondent number 72. Having verified the hard copy of the questionnaire, it was found that the respondent selected 5, i.e. SA. This was corrected in the dataset. Furthermore, three missing values were identified in the dataset – under PE4, EE2 and TRT4. Upon verification, it was found that the responses were for questionnaire number 46 in Kano for PE4, questionnaire number 18 in Kano for EE2, questionnaire number 62 in Kaduna for TRT4. Having traced these questionnaires, it was found that respondents had responded to those questions but they were missed in the process of data entry and, thus, corrected.

### 3.5 Analytical procedures

Partial Least Squares (PLS) Structural Equation Modeling (SEM) using SmartPLS software was used for the data analysis. The use of this analytical method can be justified by the expected none-normal data due to the convenience nature of selecting the sample. The use of convenience sampling techniques can be justified by the lack of register for 7,500,000 microenterprises on which probability sampling techniques can be applied.

In analysing the data, a PLS two-step process was employed in line with the recommendation of Henseler, Ringle and Sinkovics (2009); these are analyses of measurement model and structural model. Hair *et al.* (2013) noted that prior to the assessment of the structural model, the requirements of the measurement model must be fulfilled. Otherwise, the statistical accuracy of structural model results would be questioned. Therefore, this note has been fully complied with.

Furthermore, interviews were also conducted with three tax consultants: two in Kano and one in Kaduna. The aim was to obtain some background data on whether or not they use software for e-filing, whether their clients would like them to or not, and why. Eventually, this assisted in understanding the relevance of intermediaries in e-filing.

## 4 Results and discussion

### 4.1 Analyses of the demographic characteristics of the respondents

The examination of the demographic features of the respondents covering gender, age, marital status, qualification, nature of the business, number of employees, experience in using the internet, method of filing tax return, business language, preferred language for using e-filing, need for help from agent/intermediary as well as survey language were carried out. The essence is to understand the nature of the respondents before the analyses of the responses as well as to give further analyses and discussion of findings.

#### 4.1.1 Gender

Analysis of the usable responses showed that the respondents were 84 per cent male and 16 per cent female.

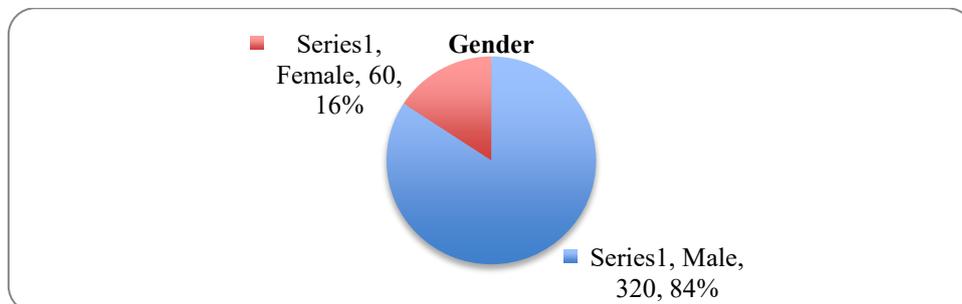


Figure 4.1 Gender

#### 4.1.2 Age

From the sample, 44 per cent of the micro-entrepreneurs surveyed were below 30 years, 40 per cent aged 31–40 years, while the remaining 16 per cent were aged 41 years and above.

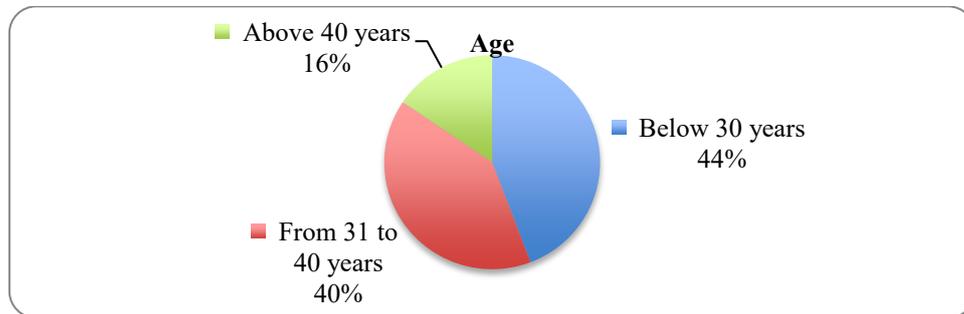


Figure 4.2 Age

#### 4.1.3 Marital status

The sample surveyed indicated that 58 per cent of micro-entrepreneurs surveyed were married, 40 per cent were single and the remaining 2 per cent were divorced.

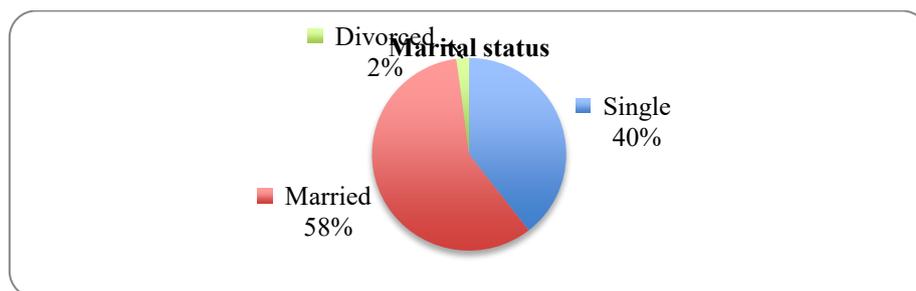
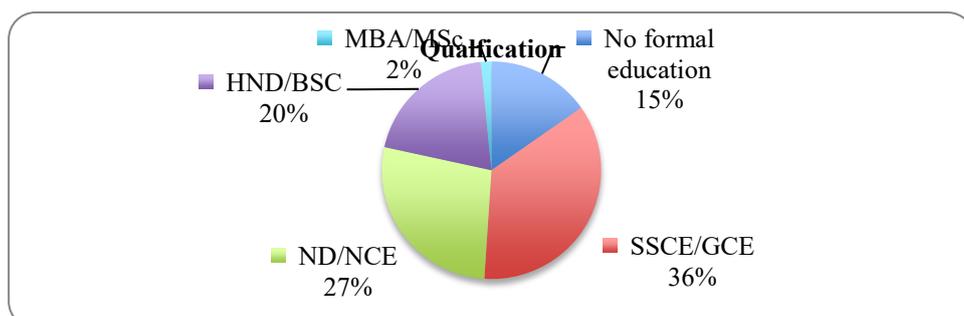


Figure 4.3 Marital status

#### 4.1.4 Educational qualifications

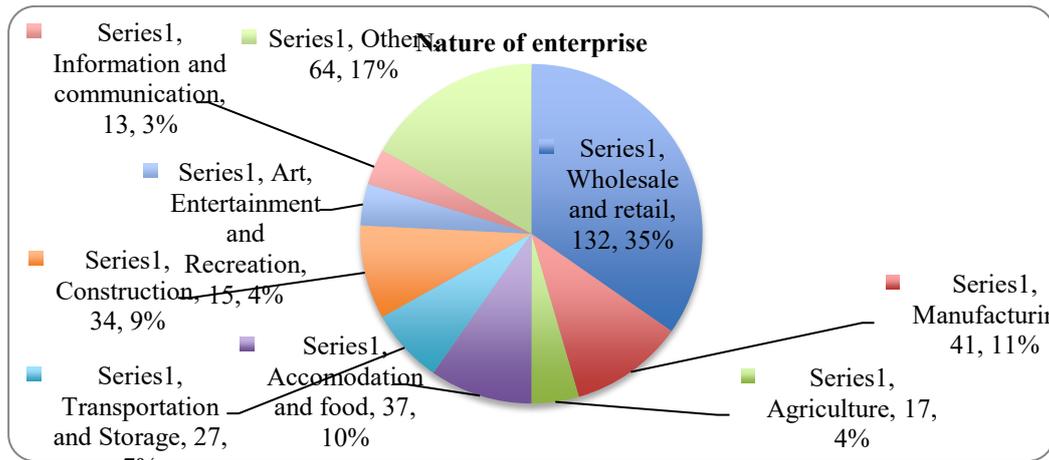
The sample has diverse educational qualifications with those having no formal education at 15 per cent, those holding SSCE/GCE certificates at 36 per cent, ND/NCE at 27 per cent, followed by holders of HND/BSc at 20 per cent and holders of MBA/MSc at 2 per cent, as shown in Figure 4.4.



**Figure 4.4 Educational qualification**

**4.1.5 Nature of enterprise**

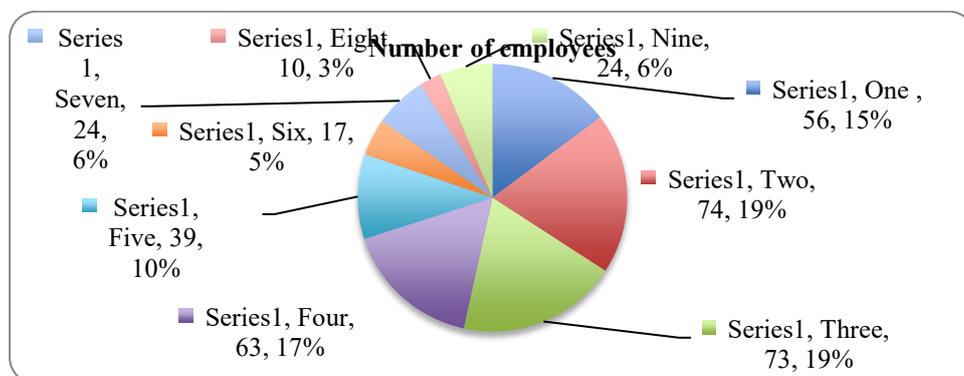
The study covers a wide range of enterprises. The wholesale and retail subsector covered 35 per cent of the sample, manufacturing at 11 per cent, food and accommodation at 10 per cent, construction at 9 per cent, transportation at 7 per cent, agriculture at 4 per cent, art, entertainment and recreation at 4 per cent, information and communication at 3 per cent, and the remaining 17 per cent of the sample were other enterprises that do not fall under any of the above categories, as contained in Figure 4.5.



**Figure 4.5 Nature of enterprise**

**4.1.6 Number of employees**

From the sample, the enterprises having two and three employees have the highest coverage of 19 per cent each. This is followed by those having four employees with 17 per cent, then enterprises having only the owner as employee representing 15 per cent, and those having five employees with 10 per cent. Enterprises with seven and nine employees both represent 6 per cent, those with six employees are 5 per cent and the rest having eight employees represent 3 per cent of the sample.



**Figure 4.6 Number of employees**

#### 4.1.7 Experience in using internet devices

The sample revealed that only 24 per cent of respondents have no experience in using internet devices. Those having one to five years of experience in using internet devices cover 34 per cent, those with six to ten years at 28 per cent, and those with more than ten years of using internet devices constitute 14 per cent of the sample as depicted in Figure 4.7.

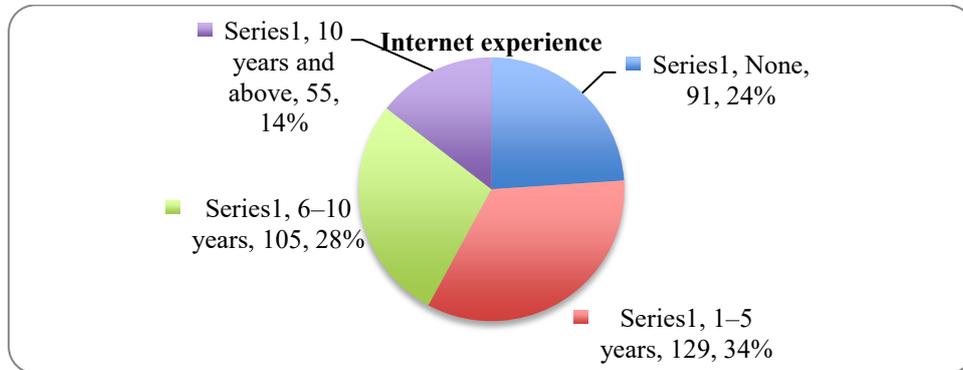


Figure 4.7 Experience in using internet

#### 4.1.8 Filing a tax return

As shown in the sample, 28 per cent of the respondents are not filing their tax return, 25 per cent are filing but through an agent/intermediary, while the remaining 47 per cent are filing the returns themselves. Further inquiry revealed that most of those who file their tax returns in person are found to tax on a 'judgemental basis' mostly using turnover of their businesses. Those filing through an agent/intermediary mostly paid through their trade unions or an agent assigned by SBIR/SIRS.

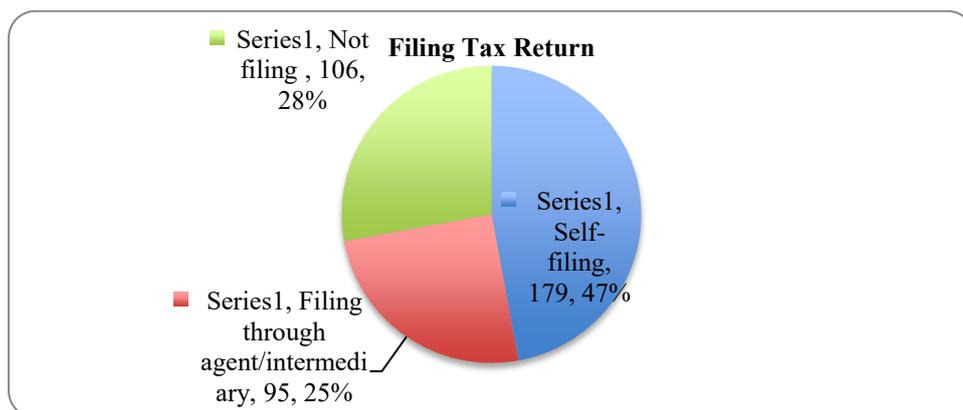


Figure 4.8 Filing tax return

#### 4.1.9 Primary business language

The sample revealed that the majority of the microenterprises in the region used Hausa as their primary language of business (about 43 per cent), those combining Hausa and English are 34 per cent, those who primarily use English are 21 per cent, while those who use either Yoruba or Igbo as their primary business language are 1 per cent respectively.

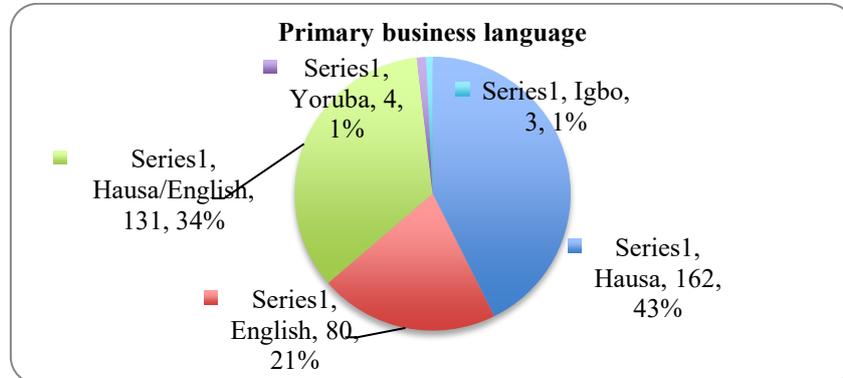


Figure 4.9 Primary business language

#### 4.1.10 Proposed e-filing language

On language preference for using e-filing software, 55 per cent of the sample indicated that they prefer English while the other 45 per cent prefer Hausa. This is not surprising because 15 per cent of the sample is not formally educated. The majority (about 85 per cent) has formal education that makes it possible to appreciate English. However, despite that, the number of respondents who would prefer using the software in English and those whose preference is Hausa are still significant.

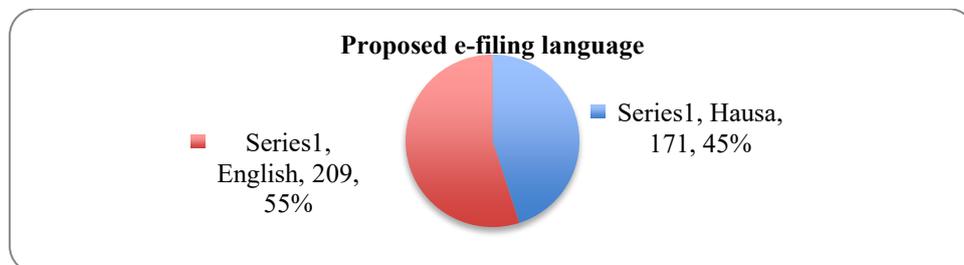
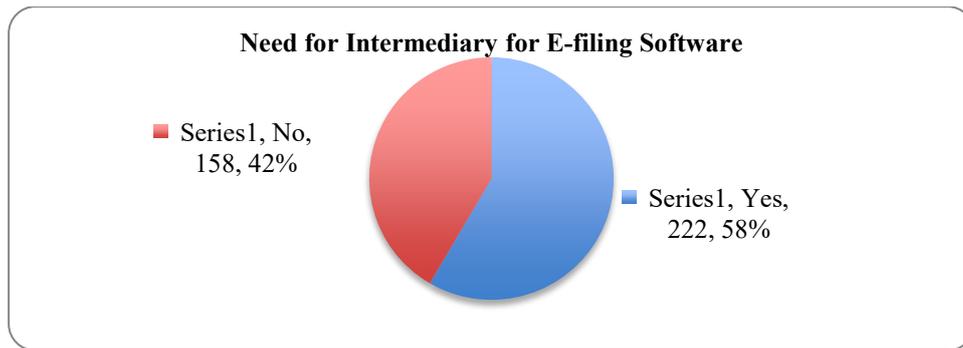


Figure 4.10 Proposed e-filing language

#### 4.1.11 Need for intermediary in using e-filing software

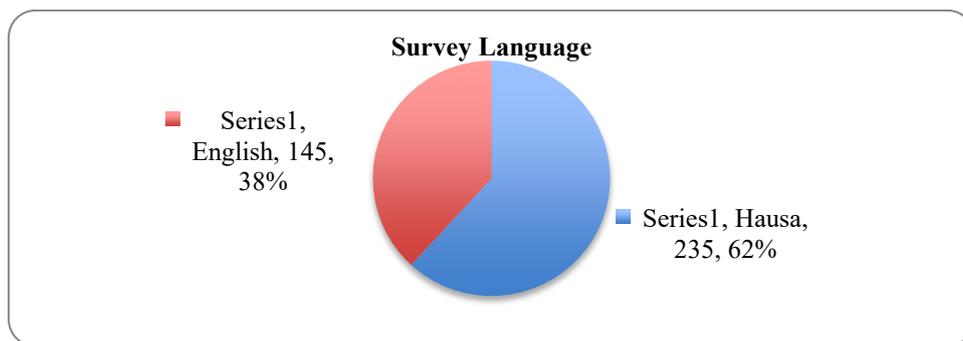
On whether or not the respondents will require an intermediary in using the e-filing software, the sample revealed that 58 per cent of the micro-entrepreneurs will require the aid of an intermediary while 42 per cent may not require such intermediation. Further inquiry through interaction with respondents revealed that such intermediation will be mostly at the early stages of using the software.



**Figure 4.11 Need for intermediary in using e-filing software**

#### **4.1.12 Survey language**

Analysis of language used in conducting the survey showed that 62 per cent of the respondents were surveyed in Hausa while the remaining 38 per cent were surveyed in English. It was also observed that most of those surveyed in English preferred to fill in the questionnaires themselves.



**Figure 4.12 Survey language**

### **4.2 Descriptive analyses of the scale measures**

Here, the descriptive analyses through frequencies and percentage are carried out for the scale items so as to understand the nature of the responses on an item-by-item basis.

#### **4.2.1 E-filing acceptance intention**

As mentioned in Section 3 on the methodology, a five-point Likert scale of 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree was used for all the variables with scale measures. Therefore, analyses of responses relating to e-filing acceptance intention indicates more than 70 per cent acceptance intention for all four scale questions including the recommendation of e-filing to others for using it as a means of filing tax returns via the internet, as depicted in Table 4.1.

**Table 4.1 Frequency of responses for intention to accept e-filing**

Code	Intention to accept e-filing	SD	D	N	A	SA
INT 1	I am interested to use Electronic Tax Filing Software as a means of filing my tax return through the internet instead of presenting myself to the tax office for filing my tax manually.	33 (8.7%)	37 (9.7%)	28 (7.4%)	146 (38.4%)	136 (35.8)
INT 2	I am interested to use Electronic Tax Filing Software in the <b>future</b> as a means of filing my tax return through the internet instead of presenting myself to the tax office for filing my tax manually.	22 (5.8%)	41 (10.8%)	26 (6.8%)	147 (38.7%)	144 (37.9)
INT 3	I am interested to use Electronic Tax Filing Software <b>someday</b> as a means of filing my tax return through the internet instead of presenting myself to the tax office for filing my tax manually.	23 (6.1%)	41 (10.8%)	32 (8.4%)	148 (35.8%)	136 (35.8%)
INT 4	I will definitely recommend the use of Electronic Tax Filing Software as a means of filing my tax return through the internet instead of being present at the tax office for filing tax manually.	29 (7.6%)	39 (10.3%)	29 (7.6%)	143 (37.6%)	140 (36.8%)

#### 4.2.2 Performance expectancy

For performance expectancy, 71.1 per cent of the respondents agreed that they will find e-filing software useful to their business, 70.8 per cent agreed that e-filing software will enable them to file their tax returns quickly, 71.4 per cent agreed that e-filing will increase their efficiency in filing tax documents, and, lastly, 71.6 per cent agreed that e-filing will increase their chances of paying taxes.

**Table 4.2 Frequency of responses for performance expectancy**

Code	Performance expectancy in using e-filing software	SD	D	N	A	SA
PE 1	I expect that I will find Electronic Tax Filing Software useful to my business type.	27 (7.1%)	35 (9.2%)	48 (12.6%)	147 (38.7%)	123 (32.4%)
PE 2	I expect that using Electronic Tax Filing Software would enable me to file my tax return quickly.	23 (6.1%)	35 (9.2%)	53 (13.9%)	143 (37.6%)	126 (33.2%)
PE 3	I expect that using Electronic Tax Filing Software will increase my efficiency in filing my tax document.	21 (5.5%)	35 (9.2%)	53 (13.9%)	145 (38.2%)	126 (33.2%)
PE 4	I expect that if I use Electronic Tax Filing Software it will increase chances of paying my taxes.	25 (6.6%)	34 (8.9%)	49 (12.9%)	136 (35.8%)	136 (35.8%)

### 4.2.3 Effort expectancy

For effort expectancy, the frequencies revealed that 71.2 per cent of the respondents agreed that their interaction with e-filing software would be easy and understandable, 75.8 per cent agreed that it will be easy for them to become skilful in using e-filing software, 75.3 per cent agreed that they will find e-filing software easy to use, and 76.3 per cent expected that learning to operate e-filing software would be easy for them, as depicted in Table 4.3.

**Table 4.3 Frequency of responses for effort expectancy**

Code	Effort expectancy in using e-filing	SD	D	N	A	SA
EE 1	I expect that my interaction with Electronic Tax Filing Software would be easy and understandable.	22 (5.8%)	34 (8.9%)	43 (11.1%)	150 (39.5%)	132 (34.7%)
EE 2	I expect that it would be easy for me to become skilful in using Electronic Tax Filing Software.	20 (5.3%)	34 (8.9%)	38 (10.0%)	163 (42.9%)	125 (32.9%)
EE 3	I expect that I would find Electronic Tax Filing Software easy to use.	25 (6.6%)	29 (7.6%)	40 (10.5%)	152 (40%)	134 (35.3%)
EE 4	I expect that learning to operate Electronic Tax Filing Software would be easy to me.	22 (5.8%)	34 (8.9%)	34 (8.9%)	155 (40.8%)	135 (35.5%)

### 4.2.4 Social influence

From the sample, 61.1 per cent agreed that people who are important to them would think that they will accept e-filing, 60 per cent agreed that people who influence their decision think that they will accept e-filing, while 61.1 per cent agreed that people whose opinions are valued by them would prefer that they will accept e-filing for filing their tax returns.

**Table 4.4 Frequency of responses for social influence**

Code	Social influence in using e-filing	SD	D	N	A	SA
SI 1	Most of the people who are important to me would think that I will accept Electronic Tax Filing.	20 (5.3%)	39 (10.3%)	89 (23.4%)	134 (35.3%)	98 (25.8%)
SI 2	The people who influence my decision think that I will accept Electronic Tax Filing.	17 (4.5%)	40 (10.5%)	95 (25%)	130 (34.2%)	98 (25.8%)
SI 3	People whose opinions are valued by me would prefer that I will accept Electronic Tax Filing.	21 (5.5%)	38 (10%)	89 (23.4%)	126 (33.2%)	106 (27.9%)

#### 4.2.5 Trust in using e-filing software

From the sample, 70.3 per cent of micro-entrepreneurs agreed that e-filing software will be reliable, 66 per cent agreed that e-filing software will not fail them, 62.7 per cent agreed that e-filing software will not malfunction for them, and 70.8 per cent generally trust using software for other purposes including payments.

**Table 4.5 Frequency of responses for trust in e-filing software**

Code	Trust in using e-filing	SD	D	N	A	SA
TRT 1	Electronic Tax Filing software could be reliable.	30 (7.9%)	37 (9.7%)	65 (17.1%)	139 (36.6%)	109 (28.7%)
TRT 2	Electronic Tax Filing software may not fail me.	26 (6.8%)	41 (10.8%)	62 (16.3%)	160 (42.1%)	91 (23.9%)
TRT 3	Electronic Tax Filing software may not malfunction for me.	29 (7.6%)	40 (10.5%)	73 (19.2%)	15 (39.5%)	88 (23.2%)
TRT 4	Generally I trust using software for other purposes including payments.	27 (7.1%)	37 (9.7%)	47 (12.4%)	147 (38.7%)	122 (32.1%)

#### 4.2.6 Awareness of e-filing

From the sample, only 36.1 per cent of micro-entrepreneurs agreed that they are aware of the existence of e-filing, and 55 per cent agreed that they are aware of and understand the differences between e-filing and manual filing. Only 25 per cent agreed that e-filing is similar to manual filing where the difference is only in the name, only 23.7 per cent agreed that they are aware of the underlying principles or concepts governing e-filing, while 42.6 per cent agree that, when fully implemented, e-filing will be used by all categories of taxpayers and a significant percentage of this (about 38.7 per cent) were neutral. In summary, the level of e-filing acceptance is below average.

**Table 4.6 Frequency of responses for awareness of e-filing**

Code	Awareness of e-filing	SD	D	N	A	SA
AWN 1	I am aware of the existence of Electronic Tax Filing.	73 (19.2%)	92 (24.2%)	74 (19.5%)	90 (23.7%)	51 (13.4%)
AWN 2	I am aware and understand the differences between Electronic Tax Filing and Manual Tax Filing.	30 (7.9%)	86 (22.6%)	55 (14.5%)	122 (32.1%)	87 (22.9%)
AWN 3	Electronic Tax Filing is similar to the Manual Tax Filing except that it uses different names.	84 (22.1%)	97 (25.5%)	102 (26.8%)	63 (16.6%)	34 (8.9%)
AWN 4	I am aware of the underlying principles or concepts applied to Electronic Tax Filing.	79 (20.8%)	105 (27.6%)	106 (27.9%)	66 (17.4%)	24 (6.3%)
AWN 5	Electronic Tax Filing when fully implemented can be used by all categories of taxpayers.	28 (7.4%)	43 (11.3%)	147 (38.7%)	84 (22.1%)	78 (20.5%)

### 4.3 PLS-SEM results

In PLS-SEM, the two-step process is normally followed in assessing a research model – the measurement model and structural model – and this is in line with the recommendation of Henseler *et al.* (2009). Hair *et al.* (2013) suggested that the requirements of the measurement model must be fulfilled before assessing the structural model. The statistical accuracy of the model result will be in question if the requirements are not fulfilled.

#### 4.3.1 PLS-SEM measurement model results

Five criteria were followed in evaluating the measurement model (Hair *et al.* 2012; Hair, Ringle and Sarstedt 2011; Hair *et al.* 2013; Fornell and Larcker 1981): (1) assessing the indicator reliability, which is required to be greater than  $\geq .40$ ; (2) assessing the internal consistency reliability, where a composite reliability of  $\geq .70$  is used as a criterion; (3) assessing the convergent validity through Average Variance Extracted (AVE) of  $\geq .50$ ; (4) evaluating discriminant validity, which requires that the square root of AVE of each latent construct be greater than its squared correlation with any other latent construct in the model – evaluated using either Fornell–Larcker criterion or indicators’ cross-loadings; (5) assessing co-linearity of the independent variables through Variance Inflation Factor (VIF).

##### 4.3.1.1 Evaluation of reliability and validity

While reliability was assessed using two criteria, the validity was evaluated using three criteria. Reliability was evaluated using indicator loading and composite reliability as contained in Table 4.7, while validity was evaluated using convergent validity through AVE, Fornell–Larcker criterion and cross-loadings as contained in Tables 4.7, 4.8 and 4.9.

**Table 4.7 Indicators loadings, composite reliability, and average variance extracted**

Constructs	Indicators	Loadings	Composite reliability	Average Variance Extracted (AVE)
Awareness of e-filing	AWN1	.596	.783	.550
	AWN2	.790		
	AWN5	.819		
Effort expectancy	EE1	.921	.966	.877
	EE2	.938		
	EE3	.945		
	EE4	.942		
E-filing acceptance intention	INT1	.925	.962	.862
	INT2	.928		
	INT3	.933		
	INT4	.927		
Performance expectancy	PE1	.903	.960	.858
	PE2	.934		
	PE3	.944		
	PE4	.924		

<b>Social influence</b>	SI1	.938		
	SI2	.949	.960	.890
	SI3	.943		
<b>Trust in e-filing software</b>	TR1	.886		
	TR2	.931	.948	.821
	TR3	.892		
	TR4	.916		

Evidence from Table 4.7 indicates that the requirements for the indicator reliability have not been violated. The loadings for all the indicators exceeded the minimum threshold of  $\geq .40$ ; it ranged from .596 to .949. This justified the fulfilment of the requirement for the first criterion. For the second criterion, the internal consistency reliability measure through composite reliability indicated that the results are superb, with a range from .783 to .966, which are beyond the minimum threshold of .70. The results of convergent validity was also found to be splendid as all the latent variables have AVE beyond the minimum cut-off value of .50; it ranged from .550 to .890, thereby fulfilling the requirements of the third criterion.

For the fourth criterion, discriminant validity, the result as contained in Tables 4.8 and 4.9 measured through Fornell–Larcker criterion and cross-loadings respectively, indicated that each of the six latent constructs are distinct from each other. For Fornell–Larcker criterion, it showed that the square root of AVE of each of the latent variables is higher than its squared correlation with each of the other variables in the research model. This implies that each of the constructs is distinct from one another and there is no high level of correlation.

**Table 4.8 Discriminant validity – Fornell–Larcker criterion**

<b>Constructs</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Awareness</b>	<b>0.742</b>					
<b>Effort expectancy</b>	0.355	<b>0.937</b>				
<b>Intention</b>	0.284	0.814	<b>0.928</b>			
<b>Performance expectancy</b>	0.377	0.847	0.837	<b>0.926</b>		
<b>Social influence</b>	0.356	0.718	0.692	0.736	<b>0.943</b>	
<b>Trust in e-filing software</b>	0.381	0.825	0.732	0.783	0.727	<b>0.906</b>

For the cross-loadings in Table 4.9, it is clear that the indicator loading for each of six latent constructs is higher than its cross-loading, which is a clear reflection of fulfilling the discriminant validity requirements of PLS-SEM.

**Table 4.9 Discriminant validity – cross-loadings**

Constructs	Items	Awareness	Effort expect	Intention	Perform. expect.	Social influ.	Trust in e-filing
Awareness	AWN1	.596	.164	.129	.224	.195	.188
	AWN2	.790	.265	.199	.278	.292	.261
	AWN5	.819	.325	.270	.325	.292	.361
Effort expectancy	EE1	.316	.921	.749	.775	.679	.757
	EE2	.352	.938	.753	.804	.673	.777
	EE3	.348	.945	.759	.801	.657	.766
	EE4	.317	.942	.787	.795	.680	.789
Intention	INT1	.226	.750	.925	.764	.632	.656
	INT2	.271	.753	.928	.800	.672	.703
	INT3	.305	.772	.933	.798	.657	.714
	INT4	.249	.746	.927	.744	.609	.642
Performance expectancy	PE1	.334	.766	.780	.903	.657	.695
	PE2	.349	.791	.770	.934	.687	.739
	PE3	.361	.792	.797	.944	.693	.743
	PE4	.355	.789	.754	.924	.690	.725
Social influence	SI1	.325	.665	.650	.677	.938	.685
	SI2	.320	.658	.643	.691	.949	.675
	SI3	.362	.708	.665	.716	.943	.697
Trust in e-filing	TR1	.374	.765	.672	.734	.724	.886
	TR2	.325	.749	.664	.726	.650	.931
	TR3	.326	.713	.622	.658	.617	.892
	TR4	.355	.761	.690	.718	.641	.916

*4.3.1.2 Colinearity diagnostics*

To further confirm the independence of the independent latent constructs, VIF was used to diagnose the colinearity among the aforementioned constructs. The basic requirement is that VIF should not be higher than five. Thus, from the results in Table 4.10, it is quite evident that all the constructs have a VIF of less than five, indicating that multi-colinearity is not an issue among the independent variables in this study, which means the requirements of the last criterion have also been fulfilled.

**Table 4.10 Variance inflation factor for colinearity diagnostics**

<b>Constructs</b>	<b>VIF</b>
<b>Awareness of e-filing</b>	1.200
<b>Effort expectancy</b>	4.700
<b>Performance expectancy</b>	4.196
<b>Social influence</b>	2.546
<b>Trust in e-filing software</b>	3.712

#### **4.3.2 PLS-SEM structural model results**

Following the satisfactory fulfilment of the measurement model evaluation criteria, the study employed the standard bootstrapping procedure with 5,000 bootstrapped samples and 380 cases to evaluate the significance of path coefficients of the structural model. This process is in line with the recommendation of Hair *et al.* (2013) and Hair *et al.* (2011). Four criteria are used in the evaluation of the PLS-SEM structural model as suggested by Henseler *et al.* (2009) and Hair *et al.* (2011); these are (1) evaluation of significance of path coefficients; (2) evaluation of R-squared value; (3) evaluation of effect size ( $f^2$ ); and (4) evaluation of predictive relevance ( $Q^2$ ).

##### **4.3.2.1 Evaluation of significance of path coefficients for hypotheses testing**

Evaluation of significance level of path coefficients was carried out through the assessment of *beta* values, *t*-values and *p*-values for both direct and moderating influence as contained in Table 4.11.

**Table 4.11 Path coefficients for hypotheses testing**

Hypotheses	Paths	Beta	SE	T statistics	P values	Decision
1	Performance Expectancy -> E-filing Acceptance Intention	.415	0.064	6.442	.000***	Supported
2	Gender* Performance Expectancy -> E-filing Acceptance Intention	.140	0.081	1.732	.042**	Supported
3	Age* Performance Expectancy -> E-filing Acceptance Intention	.120	0.055	2.165	.015**	Supported
4	Effort Expectancy -> E-filing Acceptance Intention	.346	0.069	5.033	.000***	Supported
5	Gender* Effort Expectancy -> E-filing Acceptance Intention	-.181	0.090	2.003	.023**	Supported
6	Age* Effort Expectancy -> E-filing Acceptance Intention	-.071	0.064	1.117	.132	Not supported
7	Experience* Effort Expectancy -> E-filing Acceptance Intention	-.029	0.040	0.720	.236	Not supported
8	Social Influence -> E-filing Acceptance Intention	.120	0.054	2.229	.013**	Supported
9	Gender* Social Influence -> E-filing Acceptance Intention	.023	0.064	0.361	.359	Not supported
10	Age* Social Influence -> E-filing Acceptance Intention	-.086	0.046	1.858	.032**	Supported
11	Experience* Social Influence -> E-filing Acceptance Intention	-.004	0.041	0.103	.459	Not supported
12	Trust in E-filing Software-> E-filing Acceptance Intention	.045	0.055	0.820	.206	Not supported
13	Awareness of E-filing -> E-filing Acceptance Intention	-.050	0.030	1.706	.044**	Supported

Notes: \*\*\*p-value significant at < 1%, \*\*p-value significant at < 5%; SE – standard error.

Having fulfilled the measurement model requirements, the first evaluation criterion under the structural model is the assessment of the significance of path coefficients for hypotheses testing. It can be recalled that Hypothesis 1 postulates that performance expectancy has significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria. The result supports this postulation as the influence was found to be positive and significant ( $\beta=.415, t=6.442, p=.000$ ). It can be deduced that a significant number of micro-entrepreneurs believe that the use of technology will assist them in enhancing performance relating to e-filing, and such a belief will eventually influence their intention to accept the e-filing software in complying with their tax obligations.

Hypothesis 2 proposes the influence of performance expectancy on e-filing acceptance to be moderated by gender, such that the relationship will be stronger for male micro-entrepreneurs. This supposition was also confirmed from the results as it was found to be significant ( $\beta=.140, t=1.732, p=.042$ ). The results indicated that the influence of performance expectancy on e-filing acceptance is more pronounced for male micro-entrepreneurs than for female ones, as the relation is stronger for male than female.

Hypothesis 3 supposes that the influence of performance expectancy on e-filing acceptance is moderated by age, such that the influence will be stronger for younger micro-entrepreneurs. This hypothesis has been supported as it was found that the influence of performance expectancy on e-filing acceptance is significantly moderated by age with an inclination for younger micro-entrepreneurs ( $\beta=.120, t=2.165, p=.015$ ). It is clear from the results that younger micro-entrepreneurs have more belief that the use of technology will assist them to achieve performance relating to e-filing, eventually leading to the acceptance of e-filing software for paying their taxes.

For Hypothesis 4, which postulates effort expectancy to have a significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria, the result was found to be significant ( $\beta=.346, t=5.033, p=.000$ ). It revealed that a significant number of micro-entrepreneurs have the belief that it will be easy for them to use e-filing software, which will eventually lead to a high acceptance intention to use the system.

Hypothesis 5 supposes that the influence of effort expectancy on e-filing acceptance is moderated by gender, such that the relationship will be stronger for male micro-entrepreneurs. It was found that gender significantly moderates the influence of effort expectancy on e-filing acceptance intention ( $\beta=-.181, t=2.165, p=.015$ ). However, contrary to this postulation, it was found that the influence is weaker for male micro-entrepreneurs. This indicates that female micro-entrepreneurs have a stronger belief that it will be easy for them to use e-filing software. This is not surprising given that use of the internet has become so common in cities irrespective of gender, especially for mobile banking and social media applications.

Hypothesis 6 proposes the influence of effort expectancy on e-filing acceptance to be moderated by age, such that the influence will be stronger for younger micro-entrepreneurs. The results were found to be insignificant ( $\beta=-.071, t=1.117, p=.132$ ). The possible explanation here could be that there is no significant difference between male and female micro-entrepreneurs in the belief that it will be easy for them to use e-filing software and, eventually, the acceptance intention of the e-filing software itself.

Similarly, the postulation in Hypothesis 7 states that the influence of effort expectancy on e-filing acceptance is moderated by experience, such that the relationship will be stronger for micro-entrepreneurs who are familiar with the use of information systems but this was also not supported ( $\beta=-.029, t=.720, p=.236$ ). The implication of this finding is that micro-entrepreneurs

do not significantly differ in terms of effort expectancy when controlling for IT experience. This can be supported with a face-to-face discussion with some micro-entrepreneurs in Kaduna who categorically support the idea of e-filing as it is expected to reduce the perceived corrupt practices by tax officials and the agents who collect and remit tax to the government. They believe that e-filed taxes will go directly to the government's coffers, unlike manual filing where there is little confidence that the whole amount paid actually reaches the treasury. Here it shows that the main concern for micro-entrepreneurs is corruption. Thus, if e-filing is introduced, even those without experience of using IT devices say they will learn and use it with the intent to reduce the perceived corruption in the system.

Hypotheses 8 postulates that social influence has a significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria. This postulation was supported as the influence was found to be positive and significant ( $\beta=.120, t=2.229, p=.013$ ). The result can be supported by the nature of the study area, i.e. Northwestern Nigeria is predominantly Hausa/Fulani who value the opinions of relatives, family and friends in their decision-making processes. Thus, societal influence relating to friends, family and business associates can influence individuals to accept e-filing as a means of complying with their tax obligations.

Hypothesis 9 postulates that the effect of social influence on e-filing acceptance can be moderated by gender, such that the relationship will be stronger for male micro-entrepreneurs. The findings revealed that this moderating effect is not significant ( $\beta=.023, t=.361, p=.359$ ). This implies that there is no significant statistical variation on the effect of social influence on the acceptance of e-filing software between male and female micro-entrepreneurs in the study area.

However, the supposition of Hypothesis 10, which states that the effect of social influence on e-filing acceptance can be moderated by age such that the influence will be stronger for younger micro-entrepreneurs, was supported ( $\beta=-.086, t=1.858, p=.032$ ). However, contrary to the postulation that the influence will be stronger for younger micro-entrepreneurs, it was found that it will be weaker. This is not surprising considering that mature individuals could value the opinion of others better than younger individuals who are yet to understand the lessons of life.

Similar to Hypothesis 9, Hypothesis 11, which proposes that the effect of social influence on e-filing acceptance can be moderated by experience such that the relationship will be stronger for micro-entrepreneurs that are familiar with the use of information systems, was not supported ( $\beta=-.004, t=.103, p=.459$ ). It indicates that there is no significant statistical difference on the effect of social influence on the acceptance of e-filing software between micro-entrepreneurs with or without IT experience.

Hypothesis 12 postulates that trust in e-filing software has a significant positive influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria. It was found that, even though the positive influence exists, it is not statistically significant ( $\beta=.045, t=.820, p=.206$ ). Despite this outcome, an inference from frequencies of response relating to trust in e-filing indicates that more than 70 per cent believe that e-filing software can be reliable and, equally, more than 70 per cent of the micro-entrepreneurs generally trust using software for other purposes including payments.

Lastly, Hypothesis 13 proposes that awareness of e-filing has a significant negative influence on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria. This postulation was supported by the result ( $\beta=-.050, t=1.706, p=.044$ ), which can be supported by low literacy in the northwestern region compared to other regions. Low literacy can lead to low awareness, which can negatively affect e-filing acceptance, hence the need for investigation.

#### 4.3.2.2 Evaluation of coefficient of determination (r-squared)

In most of the studies that deployed the use of PLS-SEM in its analyses, the assessment of coefficient of determination (r-squared) is performed using the classification given by Hair *et al.* (2011) which categorises r-squared of .25, .50 and .75 as small, moderate and substantial, respectively. Thus, from Table 4.12 it can be deduced that the r-square of the model presented in Figure 1 is very close to a substantial category. It can be interpreted that the variables combined in the research model explain 74.4 per cent of acceptance intention of e-filing among micro-entrepreneurs in Northwestern Nigeria. The remaining 25.6 per cent of the e-filing acceptance intention can be explained by other constructs not included in the current research model. Conclusively, the model has a good predictive power.

**Table 4.12 Evaluation of r-squared (R<sup>2</sup>)**

Endogenous construct	R-square	R-square adjusted
E-filing acceptance intention	0.747	0.744

#### 4.3.2.3 Evaluation of effect size of predictor variables

While r-square explained the combined effects of the independent variables on the dependent variable in the model, *f*-square explains the individual's effect of each independent variable on the dependent variable. Drawing from the results in Table 4.13, it can be seen that performance expectancy has the highest effect on the e-filing acceptance intention with *f*-square of .222 – which can be classified as medium according Cohen (1988) who classified *f*-square of .002 as small, .13 as medium, and .35 as large. This is followed by the *f*-square of effort expectancy of .089, social influence .015, awareness .013, and trust in e-filing software of .001. This implied that performance expectancy is the most significant predictor of e-filing acceptance intention among micro-entrepreneurs in Northwestern Nigeria.

**Table 4.13 Evaluation of effect size**

Exogenous construct	F <sup>2</sup>	Effect size
Awareness of e-filing	0.013	Very small
Effort expectancy	0.089	Small
Performance expectancy	0.222	Medium
Social influence	0.015	Very small
Trust in e-filing software	0.001	Very small

#### 4.3.2.4 Evaluation of model predictive relevance

Predictive relevance of the research model examined through PLS-SEM is evaluated using construct cross-validated redundancy (Q<sup>2</sup>). Drawing from the suggestion of Hair *et al.* (2013) who asserted that any model with Q-squared above zero has a predictive relevance, it can be said that with a Q-square of .615, this model can be said to have predictive relevance and the data used in the research fits the model.

**Table 4.14 Evaluation of predictive relevance (Q<sup>2</sup>)**

Endogenous construct	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
E-filing acceptance intention	1,520.000	585.428	0.615

#### 4.3.2.5 Model fit evaluation

Earlier studies posited that the model evaluated using PLS-SEM does not require model fit assessment. However, recently researchers suggested that still there is a need to evaluate model fit even when PLS-SEM is used. In view of this recent development, this study uses three criteria in assessing the model fit as contained in Table 4.15.

**Table 4.15 Model fit summary**

Fit criteria	Estimated model
GOF	.816
SRMR	.041
NFI	.896

Firstly, the model fit was evaluated using the Goodness of Fit (GOF) index. GOF is normally assessed using the recommendation of Wetzels, Odekerken-Schroder and van Oppen (2009), who classified GOF into three categories: .10, .25 and .36 as small, medium and large, respectively. Thus, the GOF of .816 in this research model can be classified as highly substantial.

The second model fit index deployed was Standardised Root Mean Square Residual (SRMR) proposed by Hu and Bentler (1998, 1999). It was asserted that the value of 0 for SRMR indicates a perfect fit but the acceptable value should be less than .1 with values of .05 (Byrne 1998), .06 (Henseler *et al.* 2014) and .08 (Hu and Bentler 1999) as acceptable fits. However, the recommendation of .08 proposed by Hu and Bentler (1999) has been considered as more appropriate for PLS-SEM, as stated by Henseler, Hubona and Ray (2016). Thus, it can be concluded here that, irrespective of criterion used – whether .05, .06 or .08 – the SRMR of .041 obtained for the current research model can be considered as good and the model has a good fit.

The third and last model fit criterion used in this study is the Normed Fit Index (NFI), otherwise called the Bentler–Bonett index, as proposed by Bentler and Bonett (1980). NFI values range between 0 and 1, with a value closer to 1 indicating a better fit (Henseler *et al.* 2016). Thus, with a NFI value of .896 here, it can be concluded that the model has a good fit.

#### 4.4 Interview results

One of the key issues that had been foreseen was when state governments implement e-filing the perceived difficulty by the potential users may mandate them to use tax agents. Therefore, the aim of the interview was to obtain some background data on whether the tax consultants within the study area use software for e-filing for clients apart from those within the jurisdiction of the states, whether their clients like them to use the software or not, and why. Eventually, this will assist in understanding the relevance of intermediaries in e-filing implementation processes. The interview was conducted for only three tax consultants; two in Kano and one in Kaduna. The reason for limiting the interviewees to three was due to similarity in responses.

**Respondent 1:** Regarding the use of e-filing for clients, Respondent 1 reported that they only use e-filing for a few clients who have large turnovers. Only an insignificant number of micro-entrepreneurs require them to use e-filing, and these are mostly registered as a limited liability company. These categories paid tax under federal jurisdiction. However, micro-entrepreneurs that pay tax to the state government do not require the service now as states are yet to introduce e-filing. Finally, those that require the service do so mostly to get a tax clearance certificate easily as well as to ensure that the tax goes directly to the government coffers and avoid corruption.

**Respondent 2:** Respondent 2 did not use e-filing, and only assisted clients in preparing their accounts, after which they submit their tax return themselves to the relevant authority. Regarding whether micro-entrepreneurs such as the respondents will want him to use e-filing on their behalf, the response was that most of his clients are under SMEs, not microenterprises.

**Respondent 3:** Regarding the use of e-filing, Respondent 3 replied that they use the system for taxes such as Company Income Tax, Value Added Tax, education tax and withholding tax for clients who are mostly under the jurisdiction of the FIRS. Regarding whether micro-entrepreneurs use e-filing or not, the response was that some register as companies like them in order to use e-filing; whereas those registered only in their business names as sole proprietor or partnership pay tax to states, and states are yet to implement the system. In response to why micro-entrepreneurs prefer to use e-filing instead of manual filing, the response was that it is easier to use and it saves time.

From these interviews, some important points can be drawn. Firstly, tax consultants are involved in the use of e-filing on behalf of their clients. Clients need the consultants to use e-filing as it saves time and ensures transparency. A majority of micro-entrepreneurs are registered only in their business names and hence are charged based on personal income taxes and directors' PAYE. These categories do not use e-filing as it has not been implemented by SBIR/SIRS. Only a few micro-entrepreneurs who had registered their businesses as limited liability companies engaged tax consultants for filing tax returns and, in some instances, through e-filing.

## 5 Conclusion, implications, and future research direction

This paper presents an investigation of factors influencing e-filing acceptance intention by micro-entrepreneurs that was carried out in Northwestern Nigeria with UTAUT as an underpinning theory. Specifically, the influences of performance expectancy, effort expectancy, social influence, trust in e-filing software, and awareness of e-filing were investigated. The paper also looks at the moderating effects of gender, age, and experience. Additionally, interviews were carried out with three tax consultants to ascertain whether such consultants use software for e-filing on behalf of their clients so as to comprehend (1) the possibility of deploying tax agents by micro-entrepreneurs when state governments implement the system, and (2) whether their existing clients under federal jurisdiction would like them to use e-filing or not, and why. The interviews took place to gain understanding with regard to the relevance of intermediaries in e-filing among micro-entrepreneurs.

The findings obtained from the analyses revealed interesting results. Firstly, it was found that *performance expectancy* is a strong predictor of micro-entrepreneurs' e-filing acceptance intention in Northwestern Nigeria, indicating that the micro-entrepreneurs believe that the use of technology will assist them to achieve high performance relating to e-filing to comply with their tax obligations. It was also discovered that the influence of performance expectancy on e-filing acceptance could be higher for male micro-entrepreneurs and younger micro-entrepreneurs. However, this could be due to the fact that there were more male than female respondents in the sample.

Secondly, the results revealed a strong influence of *effort expectancy* on micro-entrepreneurs' e-filing acceptance intention. This implies that a significant number of micro-entrepreneurs believe that it will be easy for them to use e-filing software, thus leading to a high acceptance intention to the system. It was also found that such a belief is stronger for female compared to male micro-entrepreneurs. However, no significant difference was found between young and older micro-entrepreneurs on the influence of effort expectancy on e-filing acceptance intention. At the same time, no significant variation was found between those with and without IT experience on the influence of effort expectancy on e-filing acceptance intention. This insignificant difference could be supported by some micro-entrepreneurs in Kaduna who opined that e-filing will reduce the perceived corrupt practices by tax officials and the agents that collect and remit tax to the government. They believe that e-filed tax will go directly to the government's coffers unlike manual filing where there is little confidence that the whole amount paid actually reaches the treasury. Here it shows that the main concern of micro-entrepreneurs is corruption. Thus, if e-filing is introduced, even those without experience of using IT devices say they will learn and use the system with the intent of curtailing corrupt practices in the tax collection processes.

Thirdly, the results revealed that *social influence* is a strong predictor of e-filing acceptance intention such that friends, family, business associates, and community leaders may likely influence the acceptance of e-filing among micro-entrepreneurs. No significant variation was found on the predictive power of social influence on e-filing acceptance intention between male and female micro-entrepreneurs. This shows that the role of friends, family, business associates, and community leaders in influencing the acceptance of e-filing will be almost the same across gender. However, the results revealed that the influence of friends, family, business associates, and community leaders will be more pronounced for older micro-entrepreneurs compared to younger ones. This finding is not surprising given that elders can generally see more value in the opinions of others than younger individuals who are yet to understand the lessons of life. Contrastingly, the results implied that there is no significant statistical difference on the effect of social influence on the acceptance of e-filing software between micro-entrepreneurs with or without experience in using IT devices in Northwestern Nigeria.

Fourthly, the findings on the influence of *trust* in e-filing software on e-filing acceptance among micro-entrepreneurs in Northwestern Nigeria revealed insignificant positive influence.

Fifthly, *awareness* of e-filing was found to negatively influence e-filing acceptance in Northwestern Nigeria. This means that despite good acceptance intention, the micro-entrepreneurs have weak knowledge on the operation modalities of e-filing, hence the need for awareness.

The findings from the interviews revealed that tax consultants only apply e-filing on the request of their clients. Presently, only micro-entrepreneurs who had registered their businesses as limited liability companies engaged tax consultants for filing tax returns electronically. These

categories are very few as a majority of micro-entrepreneurs are registered in their business names and hence are charged Personal Income Tax and directors' PAYE. These categories do not use e-filing as it is yet to be implemented by the various SBIRs/SIRSs.

## **5.1 Theoretical implication**

Significant theoretical implication has been offered by the study to the Unified Theory of Acceptance and Use of Technology (UTAUT). Firstly, application of the theory in the new setting of Northwestern Nigeria and in the context of e-filing: it contributes in expanding the frontiers of the theory through its application in new settings. Secondly, the integration of trust in e-filing as an additional predictor variable is another contribution as the theory was made upon the inclusion of additional variables that will provide explanations beyond what is already known. Thirdly, the integration of awareness of e-filing was another theoretical contribution made to the theory and, to the best of the researcher's knowledge, such integration has never been reported in the extant literature.

## **5.2 Policy implication**

Some important policy insights can be derived from the study. These are discussed in the following subheadings.

### **5.2.1 Acceptance of e-filing**

It is evident that micro-entrepreneurs in Northwest Nigeria (covering Kano, Jigawa, Katsina, Kaduna, Sokoto, Kebbi and Zamfara) are willing to accept e-filing. All the determinants examined indicate strong support for the acceptance of e-filing by micro-entrepreneurs. It can be deduced from the analyses that micro-entrepreneurs will find e-filing software useful to their businesses as it will enable them to file their tax returns more quickly, it will increase their efficiency in filing their tax document and it will enhance their willingness to pay taxes. The surveyed micro-entrepreneurs also believed that their interaction with e-filing software would be easy and understandable, i.e. easy to learn and become skilful in operating it. A significant number of micro-entrepreneurs also stated that the people who are important to them, those who influence their decision-making, and those whose opinions are valued by them will all accept e-filing for their tax returns. As a consequence to these opinions, a majority of the micro-entrepreneurs not only have intention towards the acceptance of e-filing but also stated that they would actively recommend it to others.

Interactions with the sample of micro-entrepreneurs revealed that they would prefer to pay taxes electronically because they are quite confident that, when taxes are paid through such means, it will directly reach the government's coffers thereby reducing revenue leakage in the hands of agents (agents are normally assigned by the board to collect taxes from one shop to another; in some instances union/association leaders serve as collection agents). Following these findings, it can be suggested that the various SBIRs/SIRSs embrace the use of technology in tax collection through the introduction of e-filing. This recommendation is congruent to the call made by the President of Chartered Institute of Taxation of Nigeria (CITN) on the use of technology for tax collection among states of the federation (Ikemefuna 2018).

### **5.2.2 Design of e-filing software**

When SBIRs/SIRs in various northwestern states decide to introduce electronic payment systems for micro-entrepreneurs, it is suggested that the software is bilingual. Designing the software to be operated in both English and Hausa will enhance optimal usage for filing tax returns. This policy recommendation is based on the finding that about 45 per cent of the sampled micro-entrepreneurs would prefer to use the software in Hausa, the majority of whom conduct their business in Hausa.

From these insights, it can be recommended that SBIRs/SIRs introduce e-filing systems that enable micro-entrepreneurs to file their tax return online, compute their tax liabilities, respond to audit queries received online from the tax office, address any other queries, pay the agreed tax liabilities, receive receipts for such payments, and print their tax clearance certificate online – all without the need for their physical presence in the tax office. This is recommended regardless of whether normal assessment or based-on-judgement assessment is carried out. Even for a based-on-judgement assessment, e-filing will be relevant as benchmarks such as turnover or capital are used. Thus, a micro-entrepreneur can enter their turnover/capital to determine their tax liability, make their payment online, obtain receipt for it, and print the online tax clearance certificate.

### **5.2.3 Intermediation in the application of e-filing**

The demographic analyses of the sampled responses indicated that 58 per cent of micro-entrepreneurs will require intermediation in using the e-filing software. Further interaction with the sample showed that most of such intermediation will be required at the early stages of the application. Discussions with some older respondents revealed that their children who assist them in routine business will similarly assist them in e-filing their tax returns. This indicates the need for training agents and intermediaries to assist the micro-entrepreneurs in using the e-filing software to comply with their tax obligations. This can be advertised in the form of posters and pamphlets that will spell out the processes of online tax payments, used to guide the intermediaries.

### **5.2.4 Creating awareness of e-filing**

More than 60 per cent of the sampled micro-entrepreneurs are unaware of the existence of e-filing in Nigeria despite the Federal Inland Revenue Service (FIRS) having introduced the system through which many forms of taxes can be paid (e.g. Company Income Tax, VAT, etc.). However, this is not surprising as a majority of microenterprises registered only their business names, and as such taxes are paid in the form of Personal Income Tax of the owner as well as directors' PAYE to the relevant SBIR/SIRs.

More than 70 per cent of the sampled respondents are unaware of the differences between e-filing and manual filing as well as the underlying principles or concepts applied to e-filing. However, only 40 per cent of the sampled micro-entrepreneurs believe that when e-filing is fully implemented it will be used by all categories of taxpayers. Thus, there is a need for creating more awareness about the system prior to implementation by the various SBIRs/SIRs.

The major policy recommendation here is to train the heads of trade associations on the operating modalities of the e-filing system through workshops and seminars with the expectation that they will pass the knowledge acquired on to individual micro-entrepreneurs.

### **5.2.5 Building trust in e-filing**

One of the major issues regarding the acceptance and use of new technology like e-filing is trust. When the e-filing is introduced by the various SBIRs/SIRSs, effort should be made to build confidence and trust in the application of the software. The software design needs to work smoothly and be reliable, and it must not fail the user. Once this is assured, micro-entrepreneurs will continuously use the software for e-filing. Otherwise, shortly after implementation, people will lose confidence and the usage rate will decline.

### **5.3 Future research direction**

The study discovered areas in which further research can be undertaken. Firstly, though the coefficient of determination implies that the independent variables used in the study accounted for 74.4 per cent of the variation of e-filing acceptance intention in Northwestern Nigeria, there is still 25.6 per cent of variations of e-filing acceptance intention that needs to be explained by other variables not integrated in the current research model. Thus, it calls for the integration of additional variables not considered here for the integration into UTAUT in the context of e-filing so as to get a deeper understanding of the variables that explain an intention to accept e-filing.

Secondly, an attempt for Multi-Group Analyses (MGA) was constrained by the fewer samples in many subsectors and hence calls for using larger samples in each of the subsectors to enable complete MGA by future researchers.

Thirdly, from the insights obtained, the researcher intends to further understanding of the role of indirect predictors of e-filing acceptance intention through the investigation of the mediation effect of trust in e-filing software and the moderating effect of awareness of e-filing among the UTAUT variables; this will be carried out soonest.

Follow-up on the study in a few years' time is also recommended to see what the experience of micro-entrepreneurs has been following implementation of the e-filing system. Such follow-up studies will provide answers to questions such as: Do people use it? Do they like it? It would be very interesting to compare the results of the study detailed in this paper with those of the follow-up studies.

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# Appendix 1: Interview transcription

## Respondent 1

### ***Question 1: Do you use e-filing for your clients?***

'Yes, we do use e-filing for some few clients with large turnover. We log in to the IFRS website, fill the online form, upload the required documents, and submit. Then wait for audit queries (if any), reply to the queries, make payment and then obtain the e-tax clearance certificate.'

### ***Question 2: Do micro-entrepreneurs like you to use e-filing on their behalf?***

'In microenterprise subsector, some operate as [a] limited liability company and some just register their business name. For limited liability companies who are mandated to prepare accounts, they pay to FIRS, but those who only [their] register business name pay personal income tax to [the] relevant SBIR. There are insignificant numbers of microenterprises that register as a limited liability company, therefore even if there is, those that like us to use e-filing must be insignificant in number.'

### ***Question 3: Why do micro-entrepreneurs want you to use e-filing instead of manual filing?***

'Possibly to due [the] easiness in getting [a] tax clearance certificate and the time it takes to file the return online. And the issue of transparency as well.'

## Respondent 2

### ***Question 1: Do you use e-filing for your clients?***

'No. I normally assist clients to prepare accounts for tax purposes. Afterwards, they submit their returns themselves.'

### ***Question 2: Do micro-entrepreneurs like you to use e-filing on their behalf?***

'Most of my clients are under the category of small and medium enterprises.'

## Respondent 3

### ***Question 1: Do you use e-filing for your clients?***

'Yes, we use e-filing for number of taxes such as Company Income Tax, Value Added Tax, Education Tax and Withholding Tax.'

**Question 2: Do micro-entrepreneurs like you to use e-filing on their behalf?**

'You know microenterprises fall under two categories. There are those registered as limited liability companies and there are those registered for only business name. Those registered as limited liability companies are very few compared to those registered only their business name. It is these few that are registered as limited liability company that normally require us as consultants to file their returns relating to Company Income Tax, Value Added Tax, Education Tax and Withholding Tax. However, those that registered only their business name pay only Personal Income Tax to Kano State Internal Revenue Service (KIRS) for the owner and sometimes with directors' PAYE.'

**Question 3: Why do micro-entrepreneurs want you to use e-filing instead of manual filing?**

'You must belief [*sic.*] with me that e-filing make tax payment easier. It saves time. This is the basic reason I think.'

# Appendix 2: Measurement and structural models output

