

The mediating role of adoption of an electronic tax system in the relationship between attitude towards electronic tax system and tax compliance

Electronic tax system and tax compliance

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Abstract

Purpose – The purpose of this paper is to examine the mediating effect of adoption of electronic tax system in the relationship between attitude towards electronic tax system and tax compliance using evidence from small business enterprises (SBEs) of an African developing economy.

Design/methodology/approach – This study used a quantitative research approach where questionnaires with close-ended questions were used. This study's research design was cross-sectional and correlational. Usable questionnaires were received from 214 managers of SBEs, and data were analysed with the help of SPSS v22 and MedGraph program (Excel version).

Findings – Adoption of electronic tax system is a partial mediator in the association between attitude towards electronic tax system and tax compliance. Results further indicate that adoption of electronic tax system and attitude towards electronic tax system are significantly associated with tax compliance.

Research limitations/implications – This study was cross-sectional, and monitoring changes in behaviour over time was not possible. The study used a quantitative research approach, and this limits respondents from expressing their feelings fully. The study was conducted in Uganda, and it is possible that the results of this study can be generalized to developing countries with environments similar to that of Uganda.

Originality/value – Whereas there has been a number of studies on tax compliance, this study provides an initial empirical evidence on the mediation effect of adoption of electronic tax system in the relationship between attitude towards electronic tax system and tax compliance using evidence from SBEs of an African developing economy – Uganda.

Keywords Uganda, Tax compliance, Adoption of electronic tax system, Attitude towards electronic tax system, Small business enterprises

Paper type Research paper

1. Introduction

Tax compliance is of paramount importance for the government to provide public goods and reallocate wealth (Jayawardane, 2016). For government to be able to provide public goods



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and reallocate wealth, there is a need for taxpayers to comply and pay the correct amount of taxes due and on time (Musimenta *et al.*, 2017; Nkundabanyanga *et al.*, 2017; Jayawardane, 2016). Because of the economic crises in several countries, for example, the Asian financial crisis in the late 1990s, there has been a marked increase in the importance of tax compliance in the global economic environment (Ritsatos, 2014). Tax revenue sustains economic development and finances both social programmes and infrastructure investment (Ibrahim *et al.*, 2015). Osundina and Olanrewaju (2013) state that taxation (a process of levying and administering taxes) is a key player in every society of the world because it is a chance for the government to collect revenue needed in satisfying its pressing obligations. Tax revenues provide governments with the funds needed to invest in development, dismiss poverty, deliver public services and build the physical and social infrastructure for long-term growth (OECD, 2010). Therefore, mobilization of tax revenues through taxation of all the economic agents is the most important way through which the government can raise funds to provide public services (Ndekwa, 2014). Small business enterprises (SBEs) are one of such economic agents the government can raise revenue through taxation. In Uganda, small and medium enterprises employ approximately 2.5million, constitute approximately 90 per cent of the private sector generating over 80 per cent of the manufactured output that contributes 20 per cent of Uganda's gross domestic product (Ojiambo, 2016; Hatega, 2007). With all their significance, studies have shown that the problem of non-tax compliance is still widespread among small businesses (Yusof *et al.*, 2014; Kasipillai and Abdul-Jabbar, 2006). Most SBEs fall under the presumptive tax system yet during the financial year 2014/2015, a large number of businesses that fell under the presumptive tax bracket did not pay taxes to Uganda revenue authority (URA) (Auditor General report, 2015).

Despite the significance of taxation and several tax reforms such as tax education and online tax services, non-tax compliance is still a challenge (Nawawi and Salin, 2018; Nkundabanyanga *et al.*, 2017; Musimenta *et al.*, 2017; Terkper, 2003). This has led to an emergent interest by many researchers to find out why such tax compliance behaviours exist in business enterprises (Nawawi and Salin, 2018; Nkundabanyanga *et al.*, 2017; Musimenta *et al.*, 2017; Ndekwa, 2014; Merima *et al.*, 2013; Nkwe, 2013; McCoon, 2011). Nawawi and Salin (2018) note that if there are no proper mechanisms put in place by the tax authorities to prevent tax evasion, there are higher chances that there will be non-tax compliance. Nkundabanyanga *et al.* (2017) documented that, in the presence of tax collection mechanisms put in place, there are still cases of non-compliance in Uganda. Therefore, it remains unclear on which appropriate mechanism can governments in developing countries like Uganda use to achieve full tax compliance? One such mechanism is to have an electronic tax system where taxpayers are given an opportunity to assess themselves (Nawawi and Salin, 2018). Also, according to Nkwe (2013), tax payer's attitude towards tax could be responsible for the compliance behaviours in Botswana. Attitude towards an electronic tax system is vital towards adoption or rejection of the e-tax system. Findings by Barati *et al.* (2014) suggest that positive evaluations such as convenience in terms of time and place and limited movements to the tax authority premises lead to the adoption of the e-tax system which improves tax compliance among taxpayers. To the researchers' knowledge, no study has explored the mediating effect of adoption of an electronic tax system in the relationship between attitude towards electronic tax system and tax compliance using evidence from SBEs in a developing African country – Uganda. In this study, we try to bridge this gap by investigating the mediating role of the adoption of an electronic tax system in the relationship between attitude towards electronic tax system and tax compliance using evidence from Uganda. This study's aim was achieved through a questionnaire survey of 214 owner managed small businesses in Uganda. Results suggest that adoption of electronic

tax system partially mediates the relationship between attitude towards electronic tax system and tax compliance.

This paper contributes to the already existing literature on tax compliance by documenting that the adoption of an electronic tax system is a partial mediator in the relationship between attitude towards electronic tax system and tax compliance. Government through tax authorities may wish to improve tax compliance by sensitizing taxpayers about the benefits of electronic tax systems which may positively change taxpayers' attitude towards electronic tax system and embrace the system and thus tax compliance. Tax authorities need to focus on increasing electronic tax system usage and ensure that there is further training of taxpayers on the importance of tax compliance as well. SBES' owners and managers may need to ensure that they comply with tax laws, and this is possible if the necessary infrastructures such as computers and qualified personnel are in place.

The rest of the paper is organized as follows. The next section is a literature review. In this section, the theories informing our study are discussed. A review of the existing literature is done to arrive at the hypotheses. The next section is methodology where the research design is outlined, and this is followed by the results section. Discussion of results then follows and finally summary and conclusion.

2. Literature review

2.1 Theoretical foundation

Tax compliance is fulfilling all the tax obligations as stated by the law willingly and fully (Marti, 2010). Singh (2003) also defines tax compliance as an act of lodging the income tax return form, stating all the taxable income truthfully and paying all the tax obligations within the specified period without having to wait for the authority for any follow-up actions. Theoretically, the views of the taxpayers and tax collectors are that tax compliance means observing the tax laws, which differ from one country to another (Chepkurui *et al.*, 2014). Musimenta *et al.* (2017) state that in Uganda, an individual or company is considered compliant if that individual or company registers with URA, submits all the tax returns, settles the tax obligations fully and withholds all the required taxes as per the Income Tax Act. On the other hand, an individual or company is non-compliant if that individual or company fails to submit the tax returns within the specified period, understates its incomes, overstates the deductions and fails to pay the assessed taxes by the due date (Kasipillai and Abdul-Jabbar, 2006). The theory of reasoned action (TRA) as proposed by Ajzen and Fishbein (1980) is to the effect that attitude relates to one's own personal views about a behaviour. Attitude may also be defined as positive or negative views of an "attitude object"; that is to say a person, behaviour or event. In relation to taxation, taxpayers' attitudes are positive or negative views towards tax compliance behaviour. The outcomes of positive views are tax compliance, and negative views are tax non-compliance (Nkwe, 2013). Accordingly, some people may have a negative attitude towards electronic tax system and that they would prefer to stay with traditional methods, which for most is the paper-based way, and in this case, attitudes towards using electronic tax system represent one of the main barriers for tax compliance.

Technology acceptance model (TAM) was originally proposed by Davis in 1986 to help to explain and predict user behaviour on information technology (Legris *et al.*, 2003). Davis (1989) and Davis *et al.* (1989) proposed TAM to explain why a user accepts to use or rejects to use information technology (IT) by adapting TRA. Carter and Belanger (2004) as cited in Shajari and Ismail (2010) highlighted that TAM is used by many researchers, especially in information systems, to achieve a better understanding of IT adoption and its success in

organizations. However, TAM has proven to be a strong and robust framework to clarify the adoption pattern of users (Shajari and Ismail, 2010). Chuttur (2009) admitted that several studies found significant statistical results for the high influence of attitude on behavioural intention to use a specific system, and these studies provided strong evidence to support TAM as a model for predicting systems usage behaviour. TAM provides a basis with which belief or attitude to use an electronic tax system enhances adoption of an electronic tax system which affects tax compliance behaviours among SBEs.

2.2 Electronic tax system and tax compliance

According to Wasao (2014), an electronic tax system is an online platform that enables the taxpayer access tax services through the internet. Such services include registration for a tax identification number, filing of returns and registration of a payment and compliance certificate application. Electronic tax systems first started in the USA, where the Internal Revenue Services began offering tax return e-filing for tax refunds only (Muturi and Kiarie, 2015). Maisiba and Atambo (2016) argue that the e-tax system improves tax compliance, as it facilitates faster accessibility to tax services without a physical visit to the tax authority premises. Haryani *et al.* (2015) further state that a system that is easy to use, secure, dependable, provides easy payment mode, provides a variety of services and is user-friendly boosts voluntary tax compliance. Today, electronic tax system has been adopted in many countries such as Australia, Canada, Italy, the UK, Chile, Ireland, Germany, France, The Netherlands, Finland, Sweden, Switzerland, Norway, Singapore, Brazil, Mexico, India, China, Thailand, Malaysia and Turkey (Muturi and Kiarie, 2015). On the African scene, countries such as Uganda, Nigeria, Rwanda and Kenya have embraced electronic tax system (Muturi and Kiarie, 2015). Globally, the tax environment is changing rapidly, and an electronic tax system is a modern way of tax authorities interacting with taxpayers (Muturi and Kiarie, 2015).

Previous scholars document a relationship between attitude towards electronic tax system and tax compliance (Simuyu and Jagongo, 2019; Ondara *et al.*, 2016; Maisiba and Atambo, 2016; Al-Debei *et al.*, 2015). Findings by Simuyu and Jagongo (2019) indicate that there is a significant relationship between the perception towards online tax filing in terms of ease and simple to file and also the system being secure, and this improves tax compliance levels. Furthermore, Ondara *et al.* (2016) suggest that there is a strong relationship between attitude towards electronic tax system and tax compliance. Further, Maisiba and Atambo (2016) found that taxpayers in Kenya felt uncomfortable using an electronic tax system as compared to the old manual system. Taxpayers who evaluate electronic filing system as not easy to use do not adopt it which affect tax compliance (Maisiba and Atambo, 2016). Al-Debei *et al.* (2015) also propose that consumer attitudes towards online system are positively and directly affected by trust and perceived website reputation, and this implies that if taxpayers perceive or evaluate the e-tax system to be secure, they will trust it and adopt it. Similarly, Chan *et al.* (2000) found that Hong Kong taxpayers have a low promising attitude towards electronic tax system which results in a lower level of tax compliance.

The electronic tax system is one of the mechanism tax authorities can be proud of since it allows taxpayers to file returns and pay on time. Nkundabanyanga *et al.* (2017) castigate that, in the presence of tax collection mechanisms, countries such as Uganda will still face cases of non-tax compliance. Nkundabanyanga *et al.* (2017) attribute cases of non-tax compliance to lack of voice and accountability, government ineffectiveness and non-transparent tax systems. Accordingly, taxpayers are likely to comply in paying taxes voluntarily if there is a transparent tax system and if taxpayers expect the government to

put the taxes to their intended use. Ibrahim *et al.* (2015) documented that if taxpayers have trust in government, they will pay the taxes, whereas Nkundabanyanga *et al.* (2017) are of the view that, for taxpayers to pay taxes, they should see government providing some sort of exchange. A government should be seen providing services to the citizens/tax payers to the extent that there is some level of equivalence in the amount of taxes paid to Government and the cost of services provided by Government to taxpayers. Whereas services are difficult to measure by virtue of their characteristics of intangibility, Bananuka *et al.* (2018) found that physical output or visibility of activities is one of the most important ways of ensuring accountability. So, taxpayers must see schools, roads and hospitals being constructed, and security must be provided to all citizens. Once, tax taxpayer is convinced that the government treats all her citizens equally, they are likely to comply with tax laws (Nkundabanyanga *et al.*, 2017).

Other than voluntary tax compliance, there is a mandatory tax compliance, and the two must work together to achieve total compliance. Voluntary tax compliance is highly achieved if taxpayers have a positive attitude towards filing returns and subsequent payment of the taxes due. It is therefore important that the attitude of taxpayers towards self-assessment is improved to achieve a better tax compliance level (Nawawi and Salin, 2018). According to Khaddafi *et al.* (2018), the adoption of an electronic tax system will depend on the perceived ease of use of the tax system, intensity of behaviour and user satisfaction. This implies that taxpayers must be happy and motivated to use the electronic tax system, but the tax system should as well be easy to use. The user of the electronic tax system must find it pleasant interacting with the electronic tax system. Zaidi *et al.* (2017) found that taxpayers with computer skills will find it easy to adopt an electronic tax system than those without.

The adoption of e-tax systems has become fundamental, as many countries adopt information systems in tax management (Ondara *et al.*, 2016). According to Davis (1989) TAM suggests that taxpayer adoption behaviour is determined by the intention to use a particular system, which in turn is determined by the attitudes towards the system. Accordingly, taxpayer adoption of any system may be determined by the intention to perform a certain behaviour. Adoption of an electronic tax system is important not only in terms of reducing costs and taxpayer convenience but also in terms of improving tax compliance (Guriting and Ndubisi, 2006). Much as the new e-tax system payment in Uganda has become easy and simple, it is still only used by the large companies, and small companies not connected electronically are still finding it difficult to pay taxes (Asianzu and Maiga, 2012). Findings by Motwani *et al.* (2015) suggest that adoption of e-tax systems is voluntary in India, and their findings suggest that voluntary adoption through taxpayers' e-filing of tax returns and e-payment increases tax compliance. Similarly, the results of the study on tax compliance by Muturi and Kiarie (2015) indicate that there is a strong positive correlation between adoption of an e-tax system through online tax registration, online tax return filing, online tax remittance and tax compliance among small taxpayers in Meru County, Kenya. This implies that the government is able to raise more revenues if SBE taxpayers adopt the electronic tax system.

Previous scholars document that the relationship between attitude towards electronic tax system and adoption of the electronic tax system (Barati *et al.*, 2014; Asianzu and Maiga, 2012; Ramlah, 2010; Jahangir and Begum, 2008). In developed countries, the evaluation by the taxpayers about the risk coming from breaking privacy and disclosure of information is the most significant factor in adopting the electronic tax system (Barati *et al.*, 2014). Findings by Barati *et al.* (2014) indicate that the level of adapting to the electronic tax system is dependent on the attitudes of the taxpayer. Similarly, Asianzu and Maiga (2012) findings

show that in Uganda negative attitudes towards electronic tax system limit their use. In another study, Kiring'a *et al.* (2017) found that there is a strong relationship between the perception towards online tax filing in terms of ease and simplicity to file and tax compliance. Ramlah (2010) discovered that the more the taxpayers believe in electronic tax system, the more committed they will become towards using the system. Additionally, Jahangir and Begum (2008) findings suggest that to attract more users towards electronic tax system, then there is need to work on the taxpayers' belief on the usefulness of the tax system. From the foregoing review of the literature, it can be hypothesized that:

- H1.* There is a positive relationship between attitude towards an e-tax system and tax compliance.
- H2.* There is a positive relationship between adoption of an electronic tax system and tax compliance.
- H3.* Adoption of electronic tax system mediates the relationship between attitude towards an e-tax system and tax compliance.

3. Methodology

3.1 Research design, population and sample

This study's research design is cross-sectional and correlational. This study's population as extracted from the URA internal revenue report 2015/2016 Mbarara branch comprises 698 SBEs registered for tax purposes in Mbarara. Mbarara is the second largest commercial town in Uganda and with the highest number of small business establishments in western Uganda (UBOS, 2011). Uganda is divided into four regions, that is to say, western, northern, eastern and central. Western Uganda is second to central Uganda in terms of business establishments (UBOS, 2011). Basing on the population of 698, a sample size of 242 SBEs was determined using the Krejcie and Morgan (1970) table of sample size determination. The simple random sampling method was used to select SBEs for the study. The rotary method of simple random sampling was used to select the 242 SBEs. The unit of analysis was the manager of the firm. Of the 242 SBEs, usable questionnaires were received from 214 respondents representing a response rate of 88 per cent. The higher response rate is as a result of the ample time given to respondents. Majority of the respondents were male 53 per cent, whereas 47 per cent were female. Further, the majority of the SBEs are owned and managed by age group that ranges from 30 to 40 years (about 39 per cent), followed by those who are below 30 years (about 38 per cent) and age group 52 years and above (about 4 per cent). Diploma holders were the most respondents showing 30.3 per cent response rate followed by certificate holders with 25.9 per cent, 22 per cent were bachelor degree holders and the least level of education was the non-educated (2 per cent). Most of the respondents had owned or managed small businesses for a period between 6 and 10 years (46.6 per cent), and this was followed by 33.1 per cent of the respondents, and these had spent 1-5 years, and the least were businesses which had spent above 15 years.

3.2 The questionnaire and variables measurement

We used the questionnaire because of its appropriateness in terms of data collection from a large group of respondents at a low cost, within little time and using less energy (Sekaran, 2003). A questionnaire may be an open-answer or closed-answer format. The open-answer system allows and encourages respondents to give their opinion fully and with as much nuance, as they are capable (Sudman and Bradburn, 1982; Bananuka *et al.*, 2018).

However, we considered this approach inapplicable in this research because of the intention to calculate the mean ratings of the extent of agreement with each statement; in the alternative, we considered a closed-answer format which is easier to analyse (Sudman and Bradburn, 1982; Bananuka *et al.*, 2018). The questionnaire was designed according to the study hypotheses and variables used in this study (see Table 1). A six-point Likert scale was used because an even Likert scale enables the researcher to extract exact information from the respondents on situations they have already experienced. The questionnaire was developed after reviewing existing literature on attitude towards electronic tax system, adoption of an electronic tax system and tax compliance. The dependent variable for this study is tax compliance, whereas the independent variables are the attitude towards electronic tax (e-tax) system and adoption of electron tax (e-tax) system.

3.3 *Validity, reliability and factorability*

We tested for validity and reliability using the content validity index and Cronbach alpha. Validity determines whether the research instrument truly measures that it was intended to measure or how truthful the research results are (Golafshani, 2003, p. 599). Field (2009) categorizes validity as criterion validity and content validity. The content validity index was used to test the relevance and clarity of the questions. The instrument was given to two academicians, two practitioners and any other knowledgeable person to ascertain the relevance and clarity of the questions. The overall content validity index was 0.857. Reliability is the ability of a measure to produce consistent results when the same entities are measured under different conditions (Field, 2009), and once the Cronbach’s alpha coefficient is above 0.70, the instrument is considered reliable (Cronbach, 1951). For this study, the Cronbach alpha coefficients of all the study variables were above 0.70.

Global variable	Definition	Dimensions	Measurement	Sample items
Attitude towards e-tax system	These are the positive or negative views that an individual holds towards an e-tax system at a particular time	Evaluative judgement	Respondents rank eight items included in the questionnaire on a six-point Likert scale	I have positive feelings for e-tax system
Adoption of e-tax system	The ability to a tax payer to use an e-tax system	Usage	Respondents rank eight items included in the questionnaire on a six-point Likert scale	I use the e-tax system to file returns
Tax compliance	Is the fulfilling of all the tax obligations as stated by law willingly and fully (Marti, 2010)	Payment compliance Regulatory compliance	Respondents rank seven items included in the questionnaire on a six-point Likert scale Respondents rank six items included in the questionnaire on a six-point Likert scale	We pay actual tax assessed to URA We file returns on the due date

Table 1.
Definitions and operationalization of variables

Source: Primary data

To further test for reliability and validity, we ran factor analysis. Factor analysis was run basically to find out how much of the variance present in the data is common variance. Exploratory factor analysis was used to have those factors that explain better the study constructs through data reduction. Exploratory factor analysis was done by running a rotated component matrix, thereby reducing the questions to those that are more relevant to the study variables. Before running factor analysis, we assessed the suitability of the data for factor analysis based on sample size adequacy, the Keiser–Meyer–Olkin (KMO) and Bartlett tests. The KMO and Bartlett’s (1954) test of sampling adequacy was computed to ensure that factor analysis yields different and reliable factors (Kaiser, 1974). Field (2009) explains that KMO and Bartlett tests values range from 0 to 1. The following criteria are used to assess and describe the sampling adequacy: Below 0.5 = unacceptable, 0.5 to 0.7 = Mediocre, 0.7 to 0.8 = Good, 0.8 to 0.9 = Great and above 0.9 = Superb (Field, 2009; Hutcheson and Sofroniou, 1999 and Kaiser 1974). The results show that the KMO values for the predictor and outcome variables are all above 0.5 which is acceptable (Field, 2009). Bartlett’s test of sphericity in all scales also reached statistical significance, that is to say, significant value was 0.000 for each scale (Appendices 1-3).

4. Results

4.1 Descriptive statistics

We present descriptive statistics results in Table 2. We generated means and standard deviations to summarize the observed data, as according to Field (2009), means represent a summary of the data, and standard deviations show how well the means represent the data. The mean score for the dependent variable (tax compliance) is 4.10, whereas the standard deviation is 0.98. This means that on average, Ugandans are tax compliant. However, given that the dependent variable is measured on a six-point Likert scale, the minimum score of 1.23 indicates that there are some Ugandans that do not tax compliant. The mean and standard deviation for attitude towards electronic tax system and adoption of an electronic tax system are 4.24 and 4.36 and 1.27 and 1.25, respectively.

4.2 Correlation analysis results

Pearson’s correlation analysis was conducted to measure the strength of linear associations between the study variables and is denoted by *r*. Results in Table 3 shows that there is a positive significant relationship between attitude towards electronic tax system and tax compliance ($r = 0.531$, **, $p < 0.01$). This means that any positive change in attitude towards e-tax system is associated with a positive change in tax compliance, thus providing support to *H1* which states that there is a positive relationship between attitude towards an e-tax system and tax compliance of SBEs. Further, results indicate that there is a positive significant relationship between adoption of the e-tax system and tax compliance ($r = 0.568$, **, $p < 0.01$). This implies that for each unit increase in adoption of the e-tax system, there is

Variable	<i>N</i>	Minimum	Maximum	Mean	SD
Attitude towards electronic tax system	214	1.00	6.00	4.2430	1.27904
Adoption of electronic tax system	214	1.00	6.00	4.3692	1.25356
Tax compliance	214	1.23	5.77	4.1036	0.98328

Table 2.
Descriptive statistics **Source:** Primary data

up to 0.568 increases in tax compliance, and thus, *H2* which states that there is a positive relationship between adoption of an electronic tax system and tax compliance is supported.

5. Mediation test results

This study aimed to establish the mediation effect of adoption of the e-tax system on the relationship between attitude towards the e-tax system and tax compliance. Mediation tests were thus conducted to be sure that the conditions suggested by Baron and Kenny (1986) are met. According to Baron and Kenny (1986) and Kenny *et al.* (1998), mediation occurs if the following conditions are met:

- variations in the independent variable significantly account for variance in the presumed mediator;
- variations in the mediator significantly account for variance in the dependent variable;
- variations in the independent variable significantly account for variance in the dependent variable; and
- the effect of the independent variable on the dependent variable significantly reduces when the mediator is included in the equation.

Baron and Kenny’s (1986) mediation path analysis as shown in Figure 1 revealed the following:

- there was a significant direct effect of attitude towards electronic tax system and tax compliance (beta = 0.526; *p* < 0.05);
- there was a significant direct effect of attitude towards electronic tax system and the adoption of an e-tax system (beta = 0.708; *p* < 0.05);
- There was a significant direct effect of adoption of an e-tax system and tax compliance (beta = 0.592; *p* < 0.05); and
- when controlling for the adoption of an e-tax system, the direct effect of the attitude on tax compliance reduced from beta = 0.526 to beta = 0.213 but remained significant. This is an indication that the relationship between attitude and tax compliance is partially mediated by the adoption of an e-tax system.

6. Discussion of results

Based on the TRA, it can be argued that attitude towards electronic tax system improves tax compliance given that in Uganda; the filing of returns is done online. When a taxpayer evaluates the e-tax system as favourable, for instance as time-saving, improving

Variable	1	2	3	4	5
Attitude towards electronic tax system (1)	1				
Adoption of electronic tax system (2)	0.710**	1			
Regulatory compliance (3)	0.535**	0.638**	1		
Payment compliance (4)	0.389**	0.353**	0.507**	1	
Tax compliance (5)	0.531**	0.568**	0.863**	0.873**	1

Note: **Correlation is significant at the 0.01 level (two-tailed)

Source: Primary data

Table 3.
Correlation analysis results

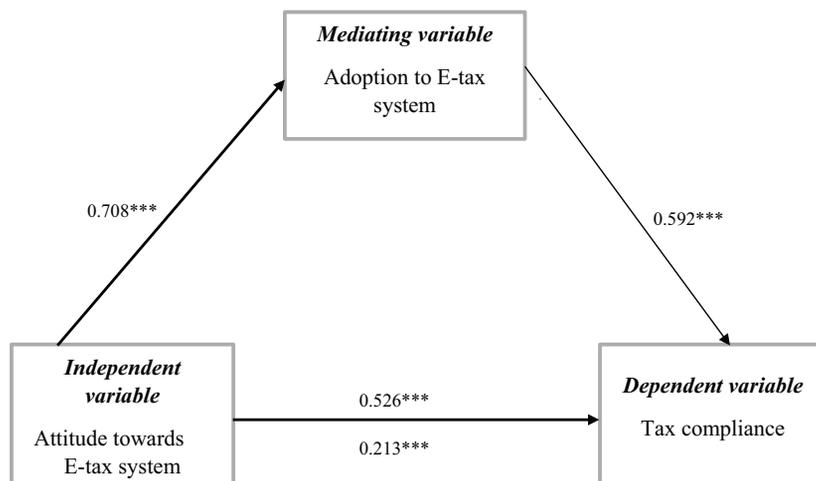


Figure 1.
Mediation path
analysis

Source: Primary data

performance in preparing tax returns, making work easier and being secure the person develops a positive attitude towards an e-tax system and end up adopting it, and this translates into tax compliance. This is supported by the findings of Ondara *et al.* (2016) who concluded that there is a strong relationship between attitude towards electronic tax system and tax compliance, though the author did not explore the mediation effect of adoption towards electronic tax system and tax compliance. Similarly, Kiring'a *et al.* (2017) found that there is a strong relationship between the perception towards online tax filing in terms of ease and simplicity to file and tax compliance. In Uganda, increased usage of the e-tax system by the taxpayers is associated with improvement in tax compliance. This is precise because when a taxpayer uses an e-tax system, for instance, to file returns, pay the tax dues, avoid penalties, comply with the law and register to get a tax identification number; this is likely to play a big role in tax compliance. According to TAM, one's perception of the use of information technology is critical to its adoption. Once information technology is embraced by the owners of SBEs, it is likely that tax compliance will improve. This finding agrees with results of the study on tax compliance by Muturi and Kiarie (2015) which indicated that there is a strong positive correlation between adoption of an e-tax system through online tax registration, online tax return filing, online tax remittance and tax compliance among small taxpayers in Meru County, Kenya.

The mediation path analysis results indicate that the adoption of the e-tax system partially mediates the link between attitude towards an e-tax system and tax compliance. For example, attitude towards an e-tax system such as ease for completion of filing returns and payment, secure and time-saving significantly affect the usage of an e-tax system by a small business taxpayer in terms of filing returns, paying the tax dues and avoiding penalties which partially translate to filing compliance and payment compliance. These agree with the findings of Haryani *et al.* (2015) who suggested that adoption of e-tax systems is greatly influenced by perceived ease of use and perceived usefulness. Similarly, Muturi (2015) who investigated the effects of the online tax system on tax compliance among small taxpayers in Meru County, Kenya, established that when taxpayers remitted, filed and

registered for tax online, this translated to tax compliance. Nonetheless, all the above studies have not studied the mediation effect of adoption of an e-tax system on the link of between attitude towards the e-tax system and tax compliance; the current study is intended to fill the gap.

7. Summary and conclusion

This study aimed to investigate the mediating effect of adoption of an electronic tax system in the relationship between attitude towards electronic tax system and tax compliance of SBEs in a developing country in a single study. This was achieved through a questionnaire survey of 214 owner managed SBEs through managers of these businesses. Results suggest that adoption of electronic tax system mediates the relationship between attitude towards electronic tax system and tax compliance. Overall, the findings of this study have important insinuations for academics as well as practitioners and regulators. This paper contributes to the already existing literature on tax compliance by documenting that the adoption of an electronic tax system is a partial mediator in the relationship between attitude towards electronic tax system and tax compliance. Government through tax authorities may wish to improve tax compliance by sensitizing taxpayers about the benefits of electronic tax systems which may positively change taxpayers' attitude towards electronic tax system and embrace the system and thus tax compliance. Tax authorities need to focus on increasing electronic tax system usage and ensure that there is further training of taxpayers on the importance of tax compliance as well. SBEs' owners and managers may need to ensure that they comply with tax laws, and this is possible if the necessary infrastructures such as computers and qualified personnel are in place.

Like any other study, this study is not without limitations. Given that this study was cross-sectional, monitoring changes in behaviour over time was not possible. The study used a quantitative research approach, and this limits respondents from expressing their feelings fully (Sudman and Bradburn, 1982). Future studies may also use a mixed-method design or qualitative research design. The study was conducted in Uganda, and it is possible that the results of this study can be generalized to developing countries with environments like that of Uganda. Further studies may be conducted in other national settings. However, the results of this study are useful and can be generalized to all small businesses in developing countries with environments similar to Uganda.

References

- Ajzen, I. and Fishbein, M. (1980), *Understanding Attitudes and Predicting Social Behavior*, Prentice-Hall, Englewood Cliffs, NJ.
- Al-Debei, M.M., Akroush, M.N. and Ashouri, M.I. (2015), "Consumer attitudes towards online shopping: the effects of trust, perceived benefits, and perceived web quality", *Internet Research*, Vol. 25 No. 5, pp. 707-733.
- Asianzu, E. and Maiga, G. (2012), "A consumer based model for adoption of E-Tax services in Uganda", *IST-Africa 2012 Conference Proceedings*.
- Auditor General Report (2015), "The report and the opinion of the auditor general", Kampala, Vol. 4.
- Bananuka, J., Nkundabanyanga, K.S., Nalukenge, I. and Kaawaase, T. (2018), "Internal audit function, audit committee effectiveness and accountability in the Ugandan statutory corporations", *Journal of Financial Reporting and Accounting*, Vol. 12 No. 2, pp. 138-157.
- Barati, A., Moradi, P., Ahmadi, B. and Azizpour, P. (2014), "A study of the models for adoption of e-tax returns from the perspective of taxpayers", *Indian Journal of Fundamental and Applied Life Sciences*, Vol. 4 No. S1, pp. 1923-1939.

- Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.
- Bartlett, M.S. (1954), "A note on the multiplying factors for various χ^2 approximations", *Journal of the Royal Statistical Society. Series B (Methodological)*, Vol. 16 No. 2, pp. 296-298.
- Carter, L. and Belanger, F. (2004), "Citizen adoption of electronic government initiatives", *System Sciences, 2004, Proceedings of the 37th Annual HI International Conference*.
- Chan, C.W., Troutman, C.S. and O'Bryan, D. (2000), "An expanded model of taxpayer compliance: empirical evidence from the United States and Hong Kong", *Journal of International Accounting, Auditing and Taxation*, Vol. 9 No. 2, pp. 83-103.
- Chepkurui, C., Namusonge, G., Oteki, E. and Ezekiel, C. (2014), "Factors affecting tax compliance among small and medium enterprises in Kenya", *International Journal of Recent Research in Commerce, Economics and Management*, Vol. 1 No. 3, pp. 60-65.
- Chuttur, M.Y. (2009), "Overview of the technology acceptance model: origins, developments and future directions", *Working Papers on Information Systems*, Vol. 9 No. 37, pp. 9-37.
- Cronbach, L.J. (1951), "Coefficient alpha and the internal structure of tests", *Psychometrika*, Vol. 16 No. 3, pp. 297-334.
- Davis, F.D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, Vol. 13 No. 3, pp. 319-340.
- Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989), "User acceptance of computer technology: a comparison of two theoretical models", *Management Science*, Vol. 35 No. 8, pp. 982-1003.
- Field, A. (2009), *Discovering Statistics Using SPSS*, 3rd ed., Sage, London.
- Golafshani, N. (2003), "Understanding reliability and validity in qualitative research", *The Qualitative Report*, Vol. 8 No. 4, pp. 597-607.
- Guriting, P. and Ndubisi, N.O. (2006), "Borneo online banking: evaluating customer perceptions and behavioural intention", *Management Research News*, Vol. 29 Nos 1/2, pp. 6-15.
- Haryani, S., Motwani, B. and Matharu, S.K. (2015), "Behavioral intention of taxpayers towards online tax filing in India: an empirical investigation", *Journal of Business and Financial Affairs*, Vol. 4 No. 1, pp. 70-76.
- Hatega, G. (2007), "SME development in Uganda", available at: www.uiri.org/sites/uiri.org/myzms/content/e773/e813/SMEDevelopment.pdf (accessed 5 July 2015).
- Hutcheson, G. and Sofroniou, N. (1999), *The Multivariate Social Scientist*, Sage, London.
- Ibrahim, M., Musah, A. and Abdul-Hanan, A. (2015), "Beyond enforcement: what drives tax morale in Ghana", *Humanomics*, Vol. 31 No. 4, pp. 399-414.
- Jahangir, N. and Begum, N. (2008), "The role of perceived usefulness, perceived ease of use, security and privacy, and customer attitude to engender customer adaptation in the context of electronic banking", *African Journal of Business Management*, Vol. 2 No. 2, pp. 032-040.
- Jayawardane, D. (2016), "Taxpayer attitude and tax compliance decision in Sri Lanka", *International Journal of Arts and Commerce*, Vol. 5 No. 2, p. 124.
- Kaiser, H.F. (1974), "An index of factorial simplicity", *Psychometrika*, Vol. 39 No. 1, pp. 31-36.
- Kasipillai, J. and Abdul-Jabbar, H. (2006), "Gender and ethnicity differences in tax compliance", *Asian Academy of Management Journal*, Vol. 11 No. 2, pp. 73-88.
- Kenny, D.A., Kashy, D. and Bolger, N. (1998), "Data analysis in social psychology", in Gilbert, D., Fiske, S. and Lindzey, G. (Eds), *Handbook of Social Psychology*, 4th ed., McGraw-Hill, New York, NY, pp. 233-265.
- Khaddafi, M., Aspan, H., Heikal, M., Wahyuddin, F. and Zatin, H. (2018), "Effect of perception of facilities, intensity of conduct, and satisfaction of Tax Payers to Submission of Letter by E-Filing Notice on Tax Service", *Proceedings of MICoMS*, pp. 583-587.

- Kiring'a, S.E., Jagongo, A., Kiio, J.M., Njuguna, I.M., Muguongo, G.K., Nganyi, M.S., Sei, M.J., Karani-Gichimu, C., Macharia, I., Mwangi, M. and Qiao, Y. (2017), "Impact of online tax filing on tax compliance among small and medium enterprises (MSE) in Kibwezi Sub-County in Kenya", *International Journal of Current Research*, Vol. 9 No. 4, pp. 45196-45206.
- Krejcie Morgan (1970), "Determining sample size for research activities", *Educational and Psychological Measurement*, Vol. 30 No. 3, pp. 607-610.
- Legris, P., Ingham, J. and Collette, P. (2003), "Why do people use information technology? a critical review of the technology acceptance model", *Information and Management*, Vol. 40 No. 3, pp. 191-204.
- McCoon, M. (2011), "Tax compliance in Latin America: a cross country analysis", *Journal of Finance and Accountancy*, Vol. 7 No. 1, pp. 1-16.
- Maisiba, J.G. and Atambo, W. (2016), "Effects of electronic tax system on the revenue collection efficiency of Kenya Revenue Authority", *Imperial Journal of Interdisciplinary Research*, Vol. 2 No. 4, pp. 815-827.
- Marti, O.L. (2010), "Taxpayers' attitudes and tax compliance behavior in Kenya", *African Journal of Business and Management*, Vol. 1 No. 1, pp. 112-122.
- Merima, A., Odd-Helge, F. and Ingrid, H.S. (2013), "To pay or not to pay? Citizens' attitudes towards taxation in Kenya, Tanzania, Uganda and South Africa", *Afrobarometer Working Papers*, Vol. 64 No. 143, pp. 828-842.
- Motwani, B., Haryani, S. and Matharu, S. (2015), "Profession as the determinant on the adoption of e-taxation", *Review of Professional Management- A Journal of New Delhi Institute of Management*, Vol. 13 No. 2, pp. 15-23.
- Musimenta, D., Nkundabanyanga, K.S., Muhwezi, M., Akankunda, B. and Nalukenge, I. (2017), "Tax compliance of small and medium enterprises: a developing country perspective", *Journal of Financial Regulation and Compliance*, Vol. 25 No. 2, pp. 1-19.
- Muturi, H.M. and Kiarie, N. (2015), "Effects of online tax system on tax compliance among small taxpayers in Meru county, Kenya", *International Journal of Economics, Commerce and Management*, Vol. 3 No. 12, pp. 280-297.
- Nawawi, A. and Salin, A.S.A.P. (2018), "Capital statement analysis as a tool to detect tax evasion", *International Journal of Law and Management*, Vol. 60 No. 5.
- Ndekwa, G.A. (2014), "Factors for improving tax compliance among small and medium enterprises in Tanzania", *The International Journal of Business and Management*, Vol. 2 No. 10, pp. 285-290.
- Nkundabanyanga, S.K., Mvura, P., Nyamuyonjo, D., Opiso, J. and Nakabuye, Z. (2017), "Tax compliance in a developing country: understanding taxpayers' compliance decision by their perceptions", *Journal of Economic Studies*, Vol. 44 No. 6, pp. 931-957.
- Nkwe, N. (2013), "Tax payers' attitude and compliance behavior among small medium enterprises (SMEs) in Botswana", *Business and Management Horizons*, Vol. 1 No. 1, pp. 113-137.
- OECD (2010), "Tax compliance and tax accounting systems", Forum on tax administration, Information Note.
- Ojiambo, B. (2016), "Small and medium enterprises (SMEs) supplement", *New Vision*, 22nd September, 2016, (accessed 24 November 2018).
- Ondara, T.G., Kimani, M. and Kwasira, J. (2016), "Influence of online tax filing on tax compliance among small and medium enterprises in Nakuru town, Kenya", *IOSR Journal of Business and Management*, Vol. 18 No. 10, pp. 82-92.
- Osundina, C.K. and Olanrewaju, G.O. (2013), "Welfare effects of taxation on the Nigerian country", *International Journal of Humanities and Social Science Invention*, Vol. 2 No. 8, pp. 76-82.
- Ramlah, H. (2010), *An Integrated Model on Online Tax Adoption in Malaysia*, European, Mediterranean and Middle Eastern Conference on Information Systems.

- Ritsatos, T. (2014), "Tax evasion and compliance; from the neo classical paradigm to behavioral economics, a review", *Journal of Accounting and Organizational Change*, Vol. 10 No. 2, pp. 244-262.
- Sekaran, U. (2003), *Research Methods for Business*, John Milley and Sons, New York, NY.
- Shajari, M. and Ismail, Z. (2010), "Notice of retraction a comprehensive adoption model of e-Government services in developing countries", *Advanced Management Science (ICAMS)*, Vol. 2, pp. 548-553.
- Simuyu, K.E. and Jagongo, A. (2019), "Impact of online tax filing on tax compliance among small and medium enterprises in Kibwezi Sub-county in Kenya", *International Journal of Current Research*, Vol. 9 No. 1, pp. 45196-45206.
- Singh, V. (2003), *Tax Compliance and Ethical Decision-Making: A Malaysian Perspective*, Pearson Malaysia.
- Sudman, S. and Bradburn, N.M. (1982), *Asking Questions: A Practical Guide to Questionnaire Design*, 3rd ed., Jossey-Bass, San Francisco, CA.
- Terkper, S. (2003), "Managing small and medium-size taxpayers in developing economies", *Tax Notes International* 13 January 2003.
- UBOS (2011), "Report on the census of business establishments 2010/2011", Uganda Bureau of Statistics.
- Wasao, D. (2014), "The effect of online tax system on tax compliance among small taxpayers in east of Nairobi tax district", Unpublished Masters of Science project, submitted to University of Nairobi, Kenya.
- Yusof, A.M.N., Ming, L.L. and Bee, W.Y. (2014), "Tax non-compliance among SMCs in Malaysia: tax audit evidence", *Journal of Applied Accounting Research*, Vol. 15 No. 2, pp. 215-234.
- Zaidi, S.K.R., Henderson, C.D. and Gupta, G. (2017), "The moderating effect of culture on e-filing taxes: evidence from India", *Journal of Accounting in Emerging Economies*, Vol. 7 No. 1, pp. 134-152.

Appendix 1**Electronic tax system and tax compliance**

Item	Component
I have positive feelings for e-tax system	0.861
I find it better to use e-tax system than the manual system of tax compliance	0.856
E-tax system has made our life easy in terms of tax compliance matters	0.821
Using e-tax system improves service delivery	0.808
E-tax returns are difficult to file	0.786
The e-tax system is safe, secure and comfortable to use	0.774
Using e-tax system is convenient and time saving	0.766
E-tax system is essential in accomplishing my work	0.752
<i>Eigen values</i>	5.171
<i>Percentage variance</i>	64.638
<i>KMO = 0.920; approximately chi-square = 1,044.725; Bartlett's test of sphericity: df = 78; Significance = 0.000</i>	
Extraction method: principal component analysis	

87**Table A1.**
Factor structure for attitude towards electronic tax system**Appendix 2**

Item	Component
I use the e-tax system to pay tax dues	0.835
I use e-tax to be on time in complying with tax laws	0.813
I register for the tax identification number through the e-tax system	0.808
I use electronic tax system	0.782
I use the e-tax system to file returns	0.778
I use e-tax system to avoid tax penalties	0.776
I equip myself with computer skills to deal with my tax matters	0.765
My business computers are connected with internet for purposes of handling tax issues	0.728
<i>Eigen values</i>	4.943
<i>Percentage variance</i>	61.791
<i>KMO = 0.875; approximately chi-square = 1,026.622; Bartlett's test of sphericity: df = 28; Significance = 0.000</i>	
Extraction method: principal component analysis	

Table A2.
Factor structure for adoption of electronic tax system

88	Item	Component	
		Regulatory compliance	Payment compliance
	We state all taxes when declaring returns	0.830	
	We declare all income for tax assessment to URA	0.809	
	We have received a notice of assessment from URA	0.799	
	We always submit returns to URA and in addition submit hard copies of the return	0.741	
	When our accounts are not audited on the due date of filing returns, we apply for extension of due date. Once the due date is granted, we file within the granted period	0.711	
	We file returns on the due date	0.643	
	Upon filing returns, we register payment and proceed to pay	0.542	
	We pay taxes on time	0.503	
	We pay taxes on the due date upon filing returns		0.791
	We pay actual tax assessed to URA		0.790
	We pay our URA dues first before any other bills		0.777
	Our business has been exempted from paying withholding tax		0.718
	URA officials always come to our business to demand tax due		0.702
	<i>Eigen values</i>	5.515	1.965
	<i>Percentage of variance</i>	31.987	25.250
	<i>Cumulative percentage</i>	31.987	57.536
	<i>KMO = 0.881; approximately chi-square = 1,233.289; Bartlett's test of sphericity: df = 78; Significance = 0.000</i>		
	Extraction method: principal component analysis		
	Rotation method: varimax with Kaiser normalization		
	Source: Primary data		

Table A3.
Factor structure for
tax compliance

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