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Citizens' Acceptance of E-Government Service: Examining E-Tax Filing and Payment System (ETFPS) in Tanzania

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Abstract

Electronic tax filing and payments system (ETFPS) is a kind of foundational information technology application in the initial stage of E-government in developing countries. By introducing variables like system quality and perceived security, as well as decomposing important variables like social influence and perceived behaviour control, this study integrates Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) to explain the factors motivating the acceptance of ETFPS in Tanzania. Empirical outcomes demonstrate that system quality significantly influences perceived usefulness and perceived ease of use of ETFPS. Perceived usefulness and perceived ease of use significantly influence the users' attitude towards accepting ETFPS, which further affects their behavioural intention. Moreover, perceived security, mass media influence, and external facilitating condition have a significant impact on the users' behavioural intention. The user's intention determines their actual use of ETFPS. This study further provides some managerial implications for policymakers to design and promote further acceptance and use of ETFPS.

Keywords: E-Government Acceptance, E-Tax Filing and Payments System (ETFPS), Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), Tanzania

Introduction

Electronic government (E-government) implies the use of information communication technology, such as wide area network, mobile computing, and the Internet to transform government functionalities and access to services by citizens (Nengomasha et al., 2010). E-government is popular in developed countries and is gradually finding its way into some emerging economies. However, the use of E-government in some developing countries, such as in the African continent, is still at initial stages (Nengomasha et al., 2010). For example, in Tanzania, tax filing and payment are implemented in two ways: physical tax filing and payment and electronic tax filing and payment. The physical tax filing and payment method is time-consuming, exhausting, and at risk for errors. It involves much paperwork and has limited transparency. By contrast, the electronic tax filing and payment method has made it possible for Tanzanian government through its tax agency to advance its operations in a digitised manner, which has ensured the provision of high-quality services at lower cost. Besides, electronic tax filing and payments can assist not only in monitoring business and individuals transactions, but are also capable of tracking and recording financial transactions of

businesses and individuals for tax collection purposes to combat noncompliance (Kira, 2016). Despite the benefits of electronic tax filing and payments, some citizens show unwillingness to accept this new way, and are still using traditional methods. The percentages of tax income returns being filed and paid by individuals in Tanzania gradually increased from 68% in 2013 to 73% in 2017 (Tax Agency Department, 2017). Consequently, the goal of government to reach 90% of all citizens and business tax income return being filed and paid electronic is not yet reached (Tax Agency Department, 2017). Moreover, the Tanzania revenue authority board reported that the filing of income tax was conducted more manually than through the online method (Tanzania Revenue Report, 2017). A study on the adoption of e-tax system in Tanzania showed that people were more satisfied with manual methods when dealing with the government agency (Sichone et al, 2018). Additionally, that study also found that the users use e-tax system to check fine information, but not to make electronic filing. As a result, even with the introduction of electronic tax filing and payments system (ETFPS) in Tanzania, the acceptance and use of e-tax system is moving very slowly. The challenge of lower utilization remains and has overwhelmed government (Sichone et al, 2018). To a certain extent, the success of e-tax system implementation depends largely on identifying what factors influence citizens' acceptance and use of this system, and addressing them.

Problem Statement

Many studies have been conducted on e-government services adoption and have made enormous contribution to increasing the understanding of e-government services use (Bhuasiri et al., 2016; Chen et al., 2015; Dwivedi et al., 2017). In those studies, a number of theories such as Diffusion of Innovation Theory (DIT) (Rogers, 1962), Theory of Planned Behaviour (TPB) (Ajzen, 1991), Technology Acceptance Model (TAM) (Davis, 1989) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) have been used to explain the acceptance of e-government systems. Further, the scholars have integrated these theories to deepen understanding of e-government acceptance and use (Azmi and Bee, 2010; Sichone et al, 2018; Stafford and Turan, 2011). Among these theories, TAM generally is viewed as the main theory and many scholars integrate TAM with other related theories. For instance, some studies integrate TAM with TPB, UTAUT, IS Success model, and so on (Nasri and Charfeddine, 2012; Sichone et al, 2018; Veeramootoo et al, 2018).

In general, e-tax systems are usually the first e-government services to be adopted in many countries and regions. Most of the studies investigate e-tax systems in developed countries like U.S.A. (Carter et al., 2011), emerging economies like Taiwan, China (Bhuasiri et al., 2016), Hongkong, China (Venkatesh, Thong, Chan, Hu, Brown, 2011), and developing countries like Malaysia (Azmi and Bee, 2010). Although all of these investigations have given precious insights into e-tax system acceptance, gaps still exist as most of them have overlooked some aspects of e-tax system acceptance. First, some additional variables are required to strengthen the integration of TAM and TPB that is viewed as the primary theoretic basis to explore e-tax systems by many studies. Second, although TAM and TPB are important theories in acceptance behaviour understanding (Susanto and Goodwin, 2013), there is still need to decompose these theories' variables to increase the understanding of acceptance behaviour of IS use. Based on the study by Nasri and Charfeddine (2012), TPB originally developed to explain users' acceptance behaviour of IS fails to predict acceptance behaviour indeed. Therefore, decomposition of the theories' variables is very important rather than depending on their traditional variables. Third, some developing counties in Africa and Latin America have been overlooked by researchers (Bhuasiri et al, 2016; Carter et al. 2011). Previous studies primarily focused on the contexts of emerging economies or developing countries in East Asia or East-south Asia (Azmi and Bee, 2010; Bhuasiri et al., 2016; Venkatesh et al, 2011), ignoring other developing countries such as those in Africa and Latin America. There is a lot of heterogeneity among different developing countries because of geographic and cultural differences. More important, with the rapid development of ICT devices and systems, previous studies focus on IS use in the latter years of the 1990s to the beginning of 2000 or even recently (Nasri and Charfeddine, 2012; Stafford and Turan, 2011; Veeramootoo et al., 2018), whose

conclusions may not be applied to developing countries like Tanzania.

The primary objective of this study was to explain the factors that influence ETFPS acceptance in Tanzania. First, this study put forward an integrated model based on TAM and TPB as a theoretic framework for investigating citizens' acceptance and use of ETFPS. Such understanding is required to determine whether the concerns raised about poor acceptance and use of ETFPS are correct; and if so, to understand why these occur and how to remedy them. Second, there is still need to extend and decompose some variables of these theories (Stafford and Turan, 2011; Veeramootoo et al., 2018). Third, there is a scarcity of quantitative research into the acceptance of IS in African environments (Chaouali et al., 2016; Veeramootoo et al., 2018), specifically in Tanzania (Sichone et al, 2018).

Theoretical Background and Research Model

Several prior studies applied TAM and TPB as a framework to explain and predict a diversity of human behaviours in e-government acceptance perspective (Shyu and Huang, 2011; Sichone et al, 2018; Stafford and Turan, 2011). TAM and TPB can be used in many e-government perspectives and produce higher explanatory power relative to other acceptance models (Nasri and Charfeddine, 2012; Sichone et al, 2018; Susanto and Goodwin, 2013). For instance, some studies investigate various e-government acceptance factors by applying TAM and TPB and find out the acceptance is mainly determined by psychosocial factors (Okyere-Kwakye et al, 2016; Sichone et al, 2018). Although TAM and TPB receive a lot of support, numerous studies recommend the extension of these theories to explore e-government acceptance (Nasri and Charfeddine, 2012; Okyere-Kwakye et al, 2016; Sichone et al, 2018). For instance, studies conducted by Sichone et al, (2018) and Susanto and Goodwin (2013) support adding other relevant constructs to investigate particular information systems. In this study, system quality and perceived security were added to investigate the acceptance and use of ETFPS, and social influence and perceived behavioural control are decomposed to deepen understanding on the acceptance and use of ETFPS.

The Technology Acceptance Model (TAM)

In order to enlarge understanding of TRA, Davis (1989) developed TAM which was later found to be better in clarifying individual acceptance of ICT. According to TAM, the individual would accept a specific information system if he/she believes certain things about this system. These beliefs are "perceived ease of use (PEOU) and perceived usefulness (PU)", which are used to explain the individual's acceptance of information system (Davis, 1989; Hamutumwa et al, 2017; Okyere-Kwakye et al, 2016). As a result, Stafford and Turan (2011) recommend that TAM is an essential model to be integrated into some larger theories such as theory of planned behaviour which can take into account related human and social factors.

Theory of Planned Behaviour (TPB)

TPB is an extension of the TRA, which is applied to deal with behaviour over which the individual has incomplete volition control (Ajzen, 1991). According to TPB, the individual's actual behaviours are determined by his/her intention, which is influenced by his/her perceived behavioural control and social norms (Ajzen, 1991). A decade later, in response to changes in the IS environment, various researchers updated the TPB model by decomposing its constructs (Nasri and Charfeddine, 2012; Stafford and Turan, 2011). Decomposed constructs of TPB have been effectively implemented in understanding the individual's use of different technologies (Nasri and Charfeddine, 2012; Sichone et al, 2018; Stafford and Turan, 2011). There have been called to extend TAM and TPB to examine the acceptance of e-government system (Carter et al, 2011; Stafford and Turan, 2011).

Research Hypotheses and Model

The integrated model is composed of major constructs from both TAM and TPB together with system quality and perceived security constructs as indicated

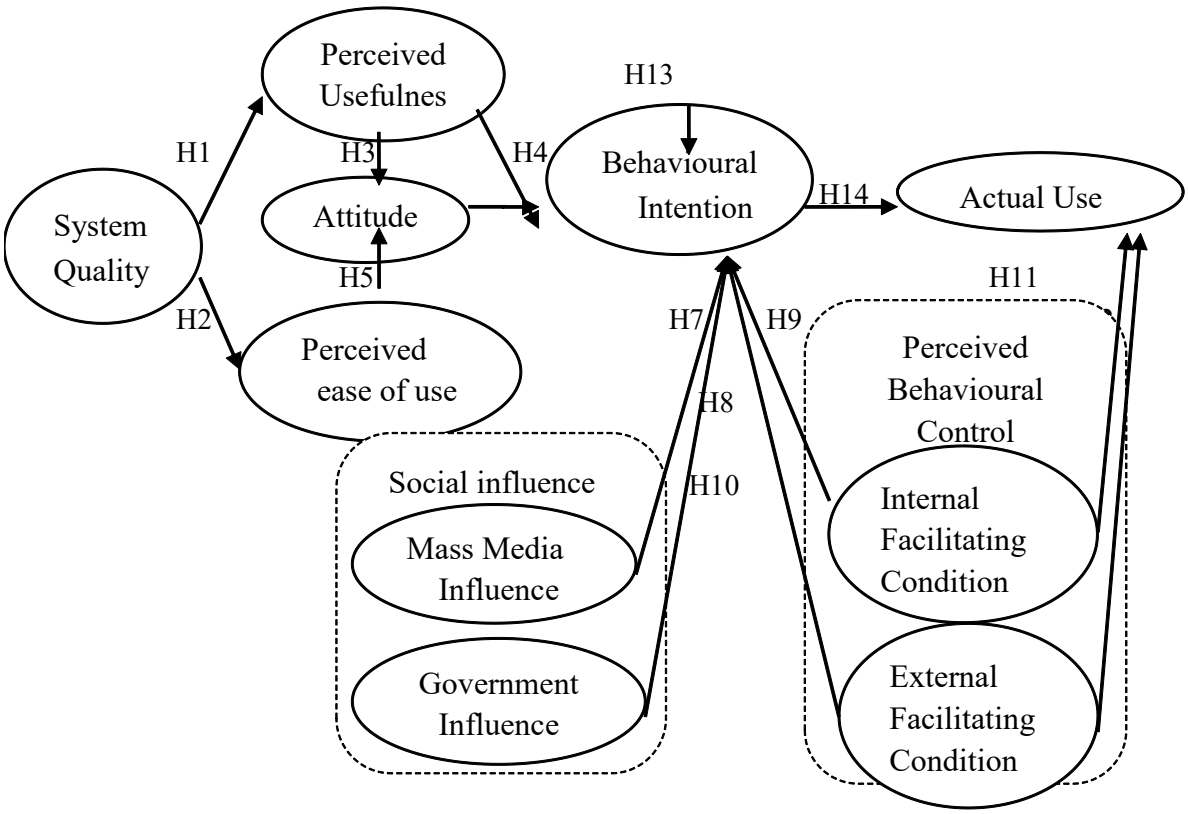

Figure 1: Research model

in Figure. 1. The 14 hypotheses that originate from the model are clarified in the following subsections.

System Quality

System quality is referred to as the extent to which the results of an innovation are fully accessible and able to be communicated to others, as well as the selection of information channels (Delone and McLean, 2003). Prior studies on IS have proven that system quality positively affects the perceived usefulness and perceived ease of use of e-government system (Chen et al, 2015). Specifically, during the initial stage of ICT infrastructure construct in developing countries, ETFPS is expected to be fully accessible, not complex, and be compatible to tax filing and payment for the users to accept this information system. Thus, the suggested hypotheses are stated as:

[H1]. *System quality has a positive significant influence on perceived usefulness on taxpayers' ETFPS use.*

[H2]. *System quality has a positive significant influence on perceived ease of use on taxpayers' ETFPS use.*

Perceived Usefulness

Perceived usefulness (PU) is referred to as the extent to which the individual believes in using a certain system to facilitate job performance and increase output (Davis, 1989). PU has been proven to be an antecedent of attitudes and behavioural intention (Nasri and Charfeddine, 2012; Stafford andTuran, 2011). For instance, studies find that perceived usefulness has a great influence on the individual's attitude and intention on e-government use (Al-Hujran et al, 2015; Okyere-Kwakye et al, 2016). Therefore, this study hypothesizes that:

[H3]. *Perceived usefulness has a positive significant influence on taxpayers' attitude to use ETFPS.*

[H4]. *Perceived usefulness has a positive significant influence on taxpayers' behavioural intention to use ETFPS.*

Perceived Ease of Use

Perceived ease of use (PEU) has been explained as the level of the individual's believing that using a certain information system cannot be very difficult (Davis, 1989). Several prior studies have proven that perceived ease of use has a direct relationship towards attitude (Al-Hujran et al, 2015; Sichone et al, 2018). Hence, the next hypothesis is stated as:

[H5]. *Perceived ease of use has a positive significant influence of taxpayer's attitude to use ETFPS.*

Attitude

Attitude is defined as a degree of the individual's positive or negative feeling towards the particular object or the intention of performing particular behaviour (Ajzen, 1991; Davis, 1989). In the domain of e-tax system, the more favourable attitude towards ETFPS (attitude toward the object), the more favorable the attitude will be towards performing online filing and payment (attitudes towards behavior), and the more likely is the behavioural intention and thus the performance of the behaviour. Also, several recent studies in e-government have supported the relationship between attitude and behavioral intention (Dwivedi et al, 2017; Okyere-Kwakye et al, 2016; Susanto and Goodwin, 2013). The suggested hypothesis is:

[H6]. *Attitude has a positive significant influence on taxpayers' intention to use ETFPS.*

Social Influence

According to TPB, subjective norms refer to the perceived social forces to perform or not to perform a particular behaviour (Ajzen, 1991). Hung (2013) viewed subjective norms as two forms of influence: interpersonal influence and external influence. In the context of developing countries like Tanzania, the investigation of social norms should pay more attention on external influences. Because e-government in those countries is in its initial stage, there are a few people who are familiar with IS, and it is difficult for people to know about IS application from closer social relationships like family members, relatives, friends, and colleagues. By contrast, external relationships may provide them more opportunities to learn about ICT application. For instance, government may train them to use IS device, and mass media also introduce ICT knowledge by public mass. Therefore, this study decomposes social influence into two lower order components: mass media influence and government influence.

Mass media influence refers to local media such as radio, televisions and newspapers influences on behavioural intention towards IS use. Government influence refers to direct and indirect efforts of government sectors that motivate and promote citizen's willingness to use IS. Therefore, the proposed hypotheses are:

[H7]. *Mass media influence has a positive significant influence on taxpayers' intention to use ETFPS.*

[H8]. *Government influence has a positive significant influence on taxpayers' intention to use ETFPS.*

Perceived Behavioural Control

Based on TPB, perceived behavioural control (PBC) explains the individual's perceptions of ease or difficulty of performing the behaviour of interest, and it is assumed to reflect past experience together with possessed resource (such as money, time, skill and opportunities) (Ajzen, 1991). Stafford and Turan (2011) recommended a two-level hierarchical model in which PBC includes two components: self-efficacy and facilitating conditions. In support of Stafford and Turan (2011), Chaouali et al, (2016) decomposed PBC into self-efficacy, resources and technology facilitating condition. But Chaouali et al, (2016) found that decomposing PBC showed weak significant influence towards behavioral intention.

Because of the above findings, this study decomposed PBC into two components: internal facilitating condition and external facilitating condition. Internal facilitating condition refers to ability and knowledge of IS use that can enhance or prohibit intention and use of ETFPS. The more knowledge and experience of ICT, the stronger willing the individual has to use e-government.

External facilitating condition is defined as the level to which the individual believes that an organisation and technical infrastructure is available to support the use of the system. When the individual has access easily to available computer, Internet and expert assistance, he or she will prefer to use IS. From the above discussion, this study hypothesizes that:

[H9]. *Internal facilitating condition has a positive significant influence on taxpayers' intention to use ETFPS.*

[H10]. *External facilitating condition has a positive significant influence on taxpayers' intention to use ETFPS.*

[H11]. *Internal facilitating condition has a positive significant influence on taxpayers' actual use of ETFPS.*

[H12]. *External facilitating condition has a positive significant influence on taxpayers' actual use of ETFPS.*

Perceived Security

Perceived security refers to the individual's perception of the extent of protection against the threats on IS use that pressure individual acceptance of e-government (Carter et al, 2011). Perceived security can be online security which is more about the protection of the individual's transacting information and Internet security. Therefore, the decision to accept ETFPS or not is based on the belief regarding the security of transacting information and reliable Internet infrastructure. Hence, the suggested hypothesis is stated as:

[H13]. *Perceived security has a positive significant influence on taxpayer's intention to use ETFPS.*

Behavioral Intention

Behavioural intention is defined as the individual's willingness to use or not use a particular information system (Ajzen, 1991; Davis, 1989). The literature also recognises intention as an important determinant of actual behaviour in IS use (Shyu and Huang, 2011). Prior studies also find that the actual behavior is significantly affected by behavioural intention (Shyu and Huang, 2011; Wang and Shih, 2009). Therefore, the last hypothesis is proposed as follows:

[H14]. *Behavioural intention has a positive significant influence on taxpayers' actual use of ETFPS.*

Methodology

Due to the absence of sampling frame, simple random sampling method was utilized to select the sample. The tax agency helped the researchers by randomly selecting participants from its database and sending invitation letters and questionnaires by e-mail. The researchers also visited some entities and randomly distributed the invitation letter and the survey questionnaires. In this study, 447 copies of the questionnaire designed were randomly distributed. Thirty-nine questionnaires were discarded due to incompleteness. Overall 408 questionnaires were completed, making a response rate of 78%.

Data collection lasted two months (June and July) at the cities of Dar es Salaam and Morogoro. The first city is the hub of business and is the first city to introduce ETFPS. The second city is located closer to the first city; therefore, it also has a high rate of business participation. The questionnaire was initially prepared in English and then translated into Swahili because Swahili is the main language used in the country. After that, translation back into English was done to ensure the validity, and attention was paid to detect any misinterpretation due to the translation. The questionnaire was pretested with 39 taxpayers from another city (Dodoma), which was not a survey area of this study. The items that were recognised as being problematic were modified before the formal survey. Two methods were used to collect the completed copies of the questionnaire. The taxpayers who received the surveys at their business entities were instructed to complete the survey and return it to the survey collector at the same place. Those who had received the e-mail survey returned their completed copies by e-mail back to the Tax Agency, and the survey collector got them from the agency department of ETFPS. The confidentiality of survey responses was put into consideration for all taxpayers.

The questionnaire consisted of sections A and B. Section A addressed the demographic characteristics of the participants such as age, gender and education. Section B consisted of questions related to the variables of the study. A five point likert scale (1 = strongly disagree and 5 = strongly agree) was employed to obtain participants' professional views on IS use. The study standardised the items to generate the scores for the constructs. *System quality (SQ)* was designed to measure the accessibility of the system and the system fit with the taxpayers' way of working with four items adopted from Chen et al. (2015). *Perceived usefulness (PU)* was composed of perceived usefulness strength, based on the extent of users' believing in ETFPS facilitating job performance and increasing output, with four items adopted from (Davis, 1989; Nasri and Charfeddine, 2012). To measure *perceived ease of use (PEOU)*, four items from (Davis, 1989; Nasri and Charfeddine, 2012) were adopted. This scale assesses the extent to which taxpayers perceive ease of use, ease to learn and operate, ease to get access to do what they want to do, and clear and understandable interaction with ETFPS. A*ttitude (AT)* was composed of attitude strength (e.g., the feeling or emotions generated during the ETFPS use influences the intention keep on using it) with five items from (Ajzen, 1991; Dwivedi et al, 2017). *Mass media influence (MMI)* was composed of mass media influence strength with three items (e.g., whether they hear, watch and read ETFPS information, and whether advertisement influences their intention towards ETFPS use). *Government influence (GVMI)* assessed the extent to which government motives and incentives influence user's intention of using ETFPS with four items. Four items were used to measure *internal facilitating condition (INTFC)*; the participants were asked to rate the extent to which availability of skill, knowledge, control and ability influence their intention and actual use of ETFPS. To measure *external facilitating condition (EXTFC)*, three items were used to ask participants to rate the extent to which external facilitating condition influences their intention and actual use of ETFPS. *Perceived security (PS)* was measured with three items from Carter et al, (2011). *Behaviour intention (BI)* was measured as self-reported behaviour with four items from Shyu and Huang (2011). *Actual use (AU)* was lastly measured as how frequently taxpayers' actual behaviour of using ETFPS with three items from Shyu and Huang (2011), as well as Wang and Shih (2009).

Data Analysis and Research Result

The demographic characteristics of participants are shown in Table 1, which indicates that about 58.8 % were male. The majority of participants were aged between 41 and 50. Furthermore, for the participants' education level, 22.7% were at primary level; 30.9% were at secondary level; 21.1% were at undergraduate level; 15.2% were at graduate level; and 10.1% at postgraduate level. The participants' occupations comprised 72.8% (self-employed) and 27.2% private organisation employees (NGOs and MNEs). The participant's reported the following amount of monthly income: 22.8% received less than 1,000,000 Tshs; 21.3% received 5,000,000-10,000,000 Tshs; 41.0% received 20,000,000-30,000,000 Tshs;

Table 1: Demographic characteristics of the participants (N=408)

Demography	Category	Frequency	Percentage (%)
Gender	Male	240	58.8
	Female	168	41.2
Age	20-30	61	14.9
	31-40	108	26.4
	41-50	184	45.1
	51-60	55	13.6
Education	Primary	93	22.7
	Secondary	126	30.9
	Undergraduate	86	21.1
	Graduate	62	15.2
	Postgraduate	41	10.1
Occupation	Business (Self-employed)	297	72.8
	Private sector (NGOs and MNEs)	111	27.2
Monthly Income	< 1,000,000 Tshs	93	22.8
	5,000,000-10,000,000 Tshs	87	21.3
	20,000,000-30,000,000 Tshs	167	41.0
	40,000,000-50,000,000 Tshs	61	14.9
Network channels	Dial up	64	15.7
	LAN (Local area network)	58	14.2
	Broadband (ADSL, Cable modem)	286	70.1

and 14.9% received 40,000,000-50,000,000 Tshs. The participants' network channels for accessing ETFPS were 15.7% dial up, 14.2% LAN (Local area network), and 70.1% broadband (ADSL, Cable modem).

Reliability and Validity

There are several methods, e.g. regression modeling and analytical hierarchy processing, to analyse the factors influencing the individual's acceptance behaviour of e-government (Dwivedi et al, 2017; Veeramootoo et al, 2018).

Reliability and validity assessment ensures that the multiple indication of each latent variable in the model converge to measure a single construct. Internal consistency, convergent and discriminant validity are assessed by using the composite reliability index and the average variance extracted (AVE) (Hair et al, 2006). According to Hair et al, (2006), a reliability score of Cronbach's Alpha coefficient 0.60 is considered as acceptable range, with 0.70 chosen (explained variance of the 50%); indicators below 0.40 were removed from the model. The square root of AVE of a particular construct must be higher than its correlation with other constructs. Commonly, the AVE should be greater than 0.50. This study started with performing principle axis factoring analysis on 41 observed items to analyse the factors structure. The coefficient value of KMO (Kaiser–Meyer–Olkin) Measure of Sampling Adequacy is 0.91 and Bartlett's Test of Sphericity is significant ($P = 0.001$), which suggests that the data were adequate for factor analysis (Kaiser, 1974). Table 2 shows internal consistency of each construct. In this study, the standardised factor loadings are above the level of 0.50, and most of them are greater than 0.70. The value of Cronbach's Alpha coefficient and composite reliability (CR) for all constructs is greater than 0.70, and the AVE is greater than suggested level of 0.50.

Table 2: Results of confirmatory factor analysis

Items	Loading	Cronbach's α	CR	AVE
System Quality (SQ)		0.92	0.93	0.76
SQ1. ETFPS is available 24 hour	0.90			
SQ2. ETFPS fit well with my style of work	0.91			
SQ3. ETFPS fit well with the way I work	0.87			
SQ4. ETFPS is ease to access	0.79			
Perceived usefulness (PU)		0.90	0.90	0.86
PU1. ETFPS is useful to my filing and payment	0.86			
PU2. ETFPS is conveniently in filing and payment	0.87			
PU3. ETFPS enhances the efficiency of filing and payment	0.81			
PU4. ETFPS simplify filing and payment process	0.80			
Perceived ease of use (PEOU)		0.85	0.85	0.59
PEOU1. It is easy to use the ETFPS	0.80			
PEOU2. Learning to operate ETFPS is easy	0.88			
PEOU3. It is easy to do what I want with ETFPS	0.71			
PEOU4.Interaction with the ETFPS is clear and understandable	0.65			
Attitude (AT)		0.97	0.97	0.86
AT1. Using ETFPS is good idea	0.90			
AT2. Using ETFPS is a wise idea	0.90			
AT3. I feel more comfortable using ETFPS	0.94			
AT4. I like the idea of using ETFPS	0.91			
AT5. It is pleasure to use ETFPS	0.93			
Mass Media Influence (MMI)		0.89	0.89	0.72
MMI1. Advertising from TV, Radio and newspaper every time recommended using ETFPS	0.85			
MMI2. Full reports from mass media and advertisement insisted using ETFPS to be significant	0.87			
MMI3. Reviews, news articles and advertising suggesting ETFPS use is a better choice	0.82			
Government Influence (GVMI)		0.92	0.92	0.75
GVMI1. Government sanctioned ETFPS use in Tanzania	0.86			
GVMI2. The Tanzania government is vigorous in campaigning ETFPS use	0.84			
GVMI3. Government of Tanzania stimulates the ETFPS use	0.86			
GVMI4.The Tanzania Government educates users of ETFPS	0.89			
Internal Facilitating Condition (INTFC)		0.79	0.84	0.57
INTFC1. I have knowledge to use ETFPS	0.67			
INTFC2. I am skilfully able to use ETFPS	0.69			

INTFC3. I have control to use ETFPS	0.76			
INTFC4. I have ability to use ETFPS	0.65			
External Facilitating Condition (EXTFC)		0.87	0.87	0.86
EXTFC1. There is a group of people/person to help me when I have problem with the system	0.89			
EXTFC2. Internet is available when am using ETFPS	0.80			
EXTFC3. Accessing EFDs machines is cheaper and easy for me	0.77			
Perceive Security (PS)		0.91	0.91	0.77
PS1. I feel protected using ETFPS for my personal transaction information	0.88			
PS2. I have confidence with the ETFPS internet secured in my filing and payment	0.89			
PS3. Using ETFPS for income tax filing and payment is safer	0.84			
Behavioural Intention (BI)		0.92	0.92	0.73
BI1. Frequently, I will use ETFPS	0.90			
BI2. I will keep on using ETFPS in the future	0.86			
BI3. I will choose ETFPS as my first priority in filing and payment	0.89			
BI4. I want to use ETFPS as much as possible	0.76			
Actual Use (AU)		0.93	0.93	0.81
AU1. Every month I use ETFPS	0.89			
AU2. Every 2 to 6 months, I use ETFPS	0.91			
AU3. I use ETFPS once in a year	0.88			

Table 3 indicates that the square root of the Average Variance Extracted (AVE) of each construct is higher than its correlation value with another construct, which demonstrates perfect discriminant validity in this study. The results indicated that all measures had adequate and strong reliability.

Table 3: Results of discriminant validity test

Factors	Mean	S.D	1	2	3	4	5	6	7	8	9	10	11
Attitude	4.48	1.09	0.92**a**										
Perceived Usefulness	4.81	1.14	.525	0.84**a**									
System Quality	3.71	1.39	.303	.194	0.86**a**								
Government Influence	4.02	1.12	.337	.275	.635	0.87**a**							
Perceived Ease of Use	4.43	0.89	.349	.286	.313	.316	0.77**a**						
Behavioural Intention	4.55	0.98	.583	.581	.081	.193	.295	0.85**a**					
Actual Use	4.65	1.01	.502	.433	.108	.265	.377	.606	0.90**a**				
Mass Media Influence	4.59	1.12	.587	.525	.324	.405	.422	.478	.570	0.84**a**			
External Facilitating Condition	4.67	1.07	.026	.122	-.079	-.047	-.099	.193	-.068	-.044	0.82**a**		
Perceived Security	4.65	0.99	.601	.578	.181	.285	.276	.561	.442	.581	.047	0.87**a**	
Internal Facilitating Condition	3.73	0.67	.042	.086	.124	.085	.020	.008	.022	.050	.031	-.013	0.75**a**

Note: a is square roots of AVE indicated on the diagonal.

Structural Equation Modeling Analysis

Structural equation modeling (SEM) is applied to determine which extent the model fits the relationships with the hypotheses (Veeramootoo et al, 2018). The study reported the model fit first, which is shown in Table 4. The test of overall model fit results reported a probability value of p 0.001, the significant p value indicated that the absolute fit of the model was less than desirable. However, although the ÷2 test of absolute model fit was sensitive to sample size and non-normality, a better measure of fit was chi-square (÷2) over degrees of freedom. This ratio for the proposed model was 2.96, which was within the recommended 1-3 bracket (Hair et al, 2010).

This study also reported some fit indicators. The study reported goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI) and normed fit index (NFI). Hair et al. (2006) found CFI was one of the most stable and strongest fit indices. Also, this study reported root mean square error of approximation (RMSEA) which measures the discrepancy per degree of freedom (Hair et al, 2006). GFI must be at or above 0.90; CFI must be or above 0.90; NFI must be at or above 0.90; while AGFI must be at or above 0.80 (Hair et al, 2006). Finally, RMSEA must be below 0.10, but it has also been recommended to represent a reasonable error of approximation if it is low than more restrictive threshold of 0.08 (Hair et al, 2006). Table 4 indicates these statistics results are consist with recommended levels.

Table 4: Measurement model fit indices for the research model

Fit Index	Structure Model	Recommended values
P	0.001	> 0.05
Chi-square/DF	2.96	< 3.00
CFI	0.93	≥ 0.90
NFI	0.92	≥ 0.90
GFI	0.90	≥ 0.90
AGFI	0.81	≥ 0.80
RMSEA	0.07	≤ 0.08

Hypotheses Test

After the establishment of model fit in the above section, structural equation modeling test continues to estimate path coefficients and other model parameters to maximise explained variances of dependent constructs. R square (*R2*) provided an indication of the predictive power of the independent variables to determine which extent the model fits the relationships with the hypotheses. By calculating path coefficients, the structure model was tested to validate supported or unsupported hypotheses. It was considered that *R2* values of 41%, 38%, 31%, 10% and 3%, are substantial, moderate and weak correspondingly. The model was explained with 63% of the variance in actual use of ETFPS, which was shown in Figure 2.

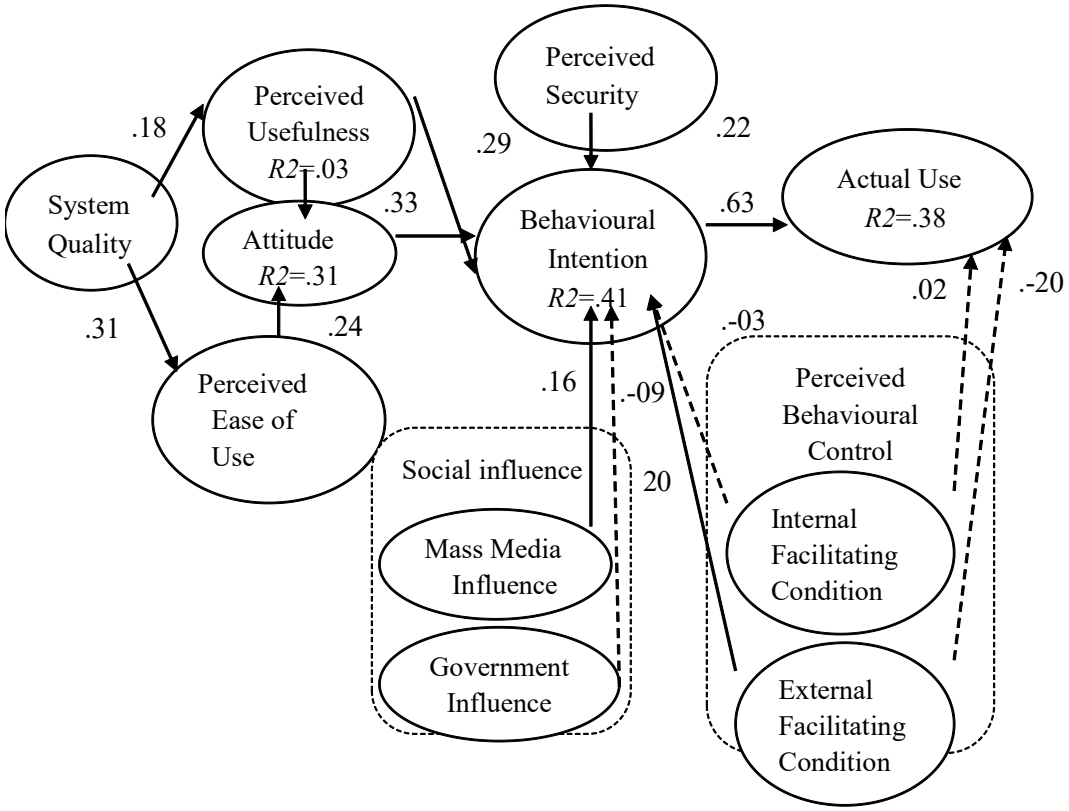

Figure 2: Test results of validated research model

Table 5 indicated that 10 hypotheses were significantly supported and 4 hypotheses were unsupported hypotheses. First, system quality positively influenced perceived usefulness at significant level of (β=0.18, $p < 0.001$) and perceived ease of use at significant level of (β=0.31, $p < 0.001$), thus supporting H1 and H2. Then, perceived usefulness positively influenced attitude at significant level of (β=0.48, $p < 0.001$) and behavioural intention at significant level of (β=0.29, $p < 0.001$), therefore supporting H3 and H4. Moreover, perceived ease of use positively influenced attitude at significant level of (β=0.24, $p < 0.001$) hence supporting H5. Furthermore, both attitude (β=0.33, $p < 0.001$) and mass media influence (β=0.16, $p < 0.001$) were found to significantly influence behavioural intention to use ETFPS, therefore supporting H6 and H7. Also, both external facilitating conditions (β=0.20, $p < 0.001$) and perceived security (β=0.22, $p < 0.001$) positively and significantly influenced behavioural intention to use ETFPS, hence supporting H10 and H13. Behavioural intention positively and significantly influenced actual use of ETFPS at significant level of (β=0.63, $p < 0.001$), consequently supporting H14. However, government influence negatively influenced behavioural intention and external facilitating condition negatively influenced actual use, which demonstrated H8 and H12 were not supported in this study. In addition, internal facilitating conditions had no significant influence on both behavioural intention and actual use, which means H9 and H11 were not supported.

Table 5: Path coefficient of the research model

Description of Hypothesis	Coefficients	CR	Sig.	Results
System Quality—->Perceived Usefulness (H1)	0.18	3.46	***	Supported
System Quality —->Perceived Ease of Use (H2)	0.31	5.79	***	Supported
Perceived Usefulness—->Attitude (H3)	0.48	10.92	***	Supported
Perceived Usefulness—->Behavioural Intention (H4)	0.29	5.90	***	Supported
Perceived Ease of Use—->Attitude (H5)	0.24	5.14	***	Supported
Attitude—-> Behavioural Intention (H6)	0.33	6.53	***	Supported
Mass Media Influence—->Behavioural Intention (H7)	0.16	3.68	***	Supported
Government Influence—-> Behavioural Intention (H8)	-0.09	-2.45	*	Not Supported
Internal Facilitating Condition—->Behavioural Intention (H9)	-0.03	-.61		Not Supported
External Facilitating Condition—->Behavioural Intention (H10)	0.20	4.35	***	Supported
Internal Facilitating Condition—->Actual use (H11)	0.02	.44		Not Supported
External Facilitating Condition—->Actual use (H12)	-0.20	-4.23	**	Not supported
Perceived Security—->Behavioural Intention (H13)	0.22	5.06	***	Supported
Behavioral Intention—->Actual use (H14)	0.63	11.96	***	Supported

Note: ***significant level and CR: critical ratio,* $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$.

Discussion and Implications

This study presented a theoretical model to explore the factors that influence affective and cognitive perception of the citizens in the use of ETFPS. By integrating TAM with TPB, this study investigated the effect of some important factors such as system quality, perceived security, mass media influence, government influence, and internal and external facilitating conditions. Empirical test was applied to test the effect of the above factors on ETFPS, based on Tanzania's environment.

This study suggested that system quality had a positive and significant influence on perceived usefulness and perceived ease of use on ETFPS use. The finding was in line with previous study of e-filing and payment adoption (Chen et al, 2015). It means the efficiency of e-filing and payment tasks promoted perceived usefulness and perceived ease of use. Therefore, government policymakers are encouraged to keep on updating and advancing the e-tax system by making it easier to access so as to increase its acceptance. Also, government should invest extra resources in improving technical infrastructure to ensure the e-tax system performs efficiently.

The positive significant effects of perceived usefulness on attitude and behavioural intention on ETFPS use were found in this study. It implied that taxpayers perceived ETFPS to be useful for their job performance. Some prior studies also support the positive significant relationship between similar set of determinants (Al-Hujran et al, 2015; Okyere-Kwakye et al, 2016). Perceived ease of use has also been found to have a positive significant relationship with attitude towards ETFPS use. It implies that taxpayers believe that the system is very easy to use.

Furthermore, this study has revealed the significant effects of attitude on behavioural intention, which is consistent with other studies (Dwivedi et al, 2017, Okyere-Kwakye et al, 2016). Mass media influence has a positive and significant influence on behavioural intention on ETFPS use. Therefore, it is recommended that policymakers should take into account marketing ETFPS on radio, television and specific press so as to increase the citizens' awareness of ETFPS. Also, an intensive campaign about ETFPS use might be launched to reach the majority of people through accessible news networks, television, radio programmes, outlets and banners. The citizens' intention towards acceptance and use of ETFPS will increase greatly.

External facilitating conditions were found to significantly influence behavioral intention. This significant influence implies that the intention to use ETFPS depends on quick assistance from the tax agency when citizens encounter system problem. Therefore, this study recommends that government policy-makers should strengthen the system quality. The Tax agency might create a team of technician to provide close assistance for any technical problem during the use of ETFPS. Also, the equipment used for the e-tax system should be kept affordable for users. Consequently, government policymakers might negotiate with telecommunication companies to provide low-cost or even free Internet for the citizens to access ETFPS.

In this study, a strong positive and significant influence between perceived security and behavioral intention indicated that, when the citizens have confidence in the system and feel secure in using ETFPS, the favorable intention towards system use would be enhanced. This argument is consistent with previous studies (Carter et al, 2011). It is recommended that government strengthen ETFPS security so as to protect the citizens' information security and privacy.

Moreover, this study found that behavioural intention had a direct significant effect on actual use of the system. This finding is in line with previous studies (Shyu and Huang, 2011; Wang and Shih, 2009). It implies that the stronger the citizens' intentions to engage in ETFPS use, the more successful they are in the use of ETFPS.

Even though most hypotheses are supported, four of the suggested relationships were not supported in this study. First, government influence was found to have a negligible significant effect on behavioural intention. One possible reason is that ETFPS use is a newly introduced system, so government may have paid more attention on the implementation in different parts of Tanzania and not much effort expended on fostering its acceptance and use by the citizens through change management initiatives. Second, the study found out that internal facilitating conditions have a negative influence on the citizens' intention and actual use of ETFPS. This

implies that certain obstacles such as lack of control, skill and knowledge on ETFPS use prevented them from using ETFPS. Therefore, government policymakers should offer training and education to the citizens so as to enhance their skills in the use of ETFPS. Third, empirical results showed that external facilitating condition was not significant in influencing the citizens' actual use of ETFPS. It assumed that the assistance provided by the tax agency is not as high-quality or quick as the citizens' expectation. Therefore, this study suggests that government policymakers need to improve external assistance for ETFPS use.

This study made three contributions to previous studies. First, it extended previous studies by introducing system quality and perceived security, both of which are seldom emphasised in the integration model of TAM and TPB. Empirical evidence supported that system quality and perceived security significantly affected the citizens' use of ETFPS. Second, this study decomposed two important variables, i.e., social influence and perceived behavioural control, to deepen understanding of the acceptance and use of ETFPS. Specifically, social influence consisted of mass media influence and government influence, and perceived behavioural control consisted of internal and external facilitation conditions. It demonstrated that the effect of mass media influence on the citizens' behavioural intention to ETFPS use is significant. Moreover, external facilitation conditions had a significant effect on the citizens' behavioural intention. Third, this study reexamined empirically the effect of important factors from the integration model of TAM and TPB in developing countries like Tanzania and promoted the explanation ability of TAM and/or TPB that usually was applied into developed counties and emerging economies.

Conclusion

This study investigated the factors that influence acceptance of electronic tax filing and payment system in Tanzania. This was done by integrating TAM and TPB, adding two factors — system quality and perceived security and decomposed TPB variables. Fourteen hypotheses were put forward based on ETFPS context. A structural equation modeling approach was used to test the model. System quality, perceived usefulness, perceived ease of use, attitude, mass media influence, internal facilitating conditions, perceived security and behavioural intention were found to be significant predictors of ETFPS use, while government influences, internal facilitating condition and external facilitating condition were found not to predict actual use. The higher predictive power of the structural model shows that the TAM and the TPB are effective theoretical bases for investigating acceptance behaviour of e-government services such as ETFPS. The model can be applied by other researchers to understand acceptance behaviour in other e-government services. However, because each e-government service has its own idiosyncratic characteristics, researchers must add to the model specific constructs to advance its predictive power (Ranaweera, 2016).

Limitations and Future Research Directions

Although this study has theoretically established and validated the integrated models of TAM and TPB for e-government system acceptance, it had some limitations. The integrated model of TAM and TPB has been validated through consideration of users of the ETFPS. Therefore, future work may show light on other information systems such as government information system, based on social media. Also, some constructs do not show any significance, e.g., the effect of government influence and internal facilitating condition on behavioural intentions and actual use, as well as that of external facilitating condition on actual use; future research may more critically reexamine those constructs.

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