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Abstract

The purpose of this study is to validate an integrative model of e-filing continuance usage. The model has its theoretical basis in the IS Success Model and Expectancy-Confirmation Model (ECM). The integrative model is extended by including three moderators: tax complexity, prior experience with other e-government services, and perceived risk. Data were collected via an online survey from a sample of 300 e-filing users in the Philippines. Structural equation modeling was used to analyze the baseline model, while multiple regression was used to analyze the moderating effects. Results suggested that system quality and service quality positively influence user satisfaction. In turn, satisfaction positively influences continuance behavior. Findings also reveal that tax complexity negatively moderates the relationship between system quality and satisfaction, and perceived risk negatively moderates the relationship between satisfaction and continuance behavior. Other theoretical and practical implications for academicians and policymakers in the context of a developing country are further discussed.

1. Introduction

E-government is generally defined as the government's application of information and communication technologies (ICTs) in providing information and services to citizens, businesses, and other government agencies (Layne, & Lee, 2001; Silcock, 2001). Using web-based applications, and more recently, mobile applications (Hung et al., 2013), government-to-citizen interactions have become more efficient and transparent. An impressive e-government service is electronic tax filing or e-filing. Taxpayers who have computer and internet access can file and pay their taxes electronically, which is timesaving and economical compared to the traditional manual filing (Liang, & Lu, 2013). Furthermore, unlike manual filing which is prone to errors in detail and calculation (Wang, 2003), e-filing allows taxpayers to edit the information before submission and to pay electronically. Likewise, e-filing is beneficial for governments. For tax collection agencies, e-filing is far more convenient than manual filing since data is automatically transferred into their computer system (Chang et al., 2005).

Since the commercialization of the internet in the 1990s, the literature on e-government has rapidly expanded (Reddick, 2009). Specifically, researchers have focused on identifying factors that affect the acceptance of different e-government services. However, given their benefits to both the government and its constituents, it is essential to study not only adoption but also continuance usage. While adoption is a significant first step toward the success of an information system (IS), its benefits can only be reaped with its repeated use rather than first use (Bhattacherjee, 2001). Furthermore, several studies have focused on citizens' continuance intention, but intention may not always accurately predict behaviors. It is essential to examine continuance behavior because researchers' goal must be to predict factors that affect actual behavior and not only intention (Bhattacherjee et al., 2008). Moreover, researchers who study IS continuance usage borrowed constructs from technology adoption theories (Akram et al., 2019; Venkatesh et al., 2011). However, these theories and models may not adequately explain continuance usage behavior since they were developed to explain pre-adoption and not post-adoption behaviors (Veeramootoo et al., 2018).

To address these gaps in the literature, this study integrates two prominent models examining post-adoption behaviors - the updated IS Success Model (DeLone, & McLean, 2003) and the extended Expectation-Confirmation Model (ECM) (Bhattacherjee et al., 2008). This study also extends the integrative model by adding tax complexity, prior experience with other e-government services, and perceived risk as moderating variables. The integrative model aims to examine continuance behavior toward e-filing in the context of a developing country such as the Philippines. This study seeks to answer the core question: *What are the key antecedents of e-filing continuance behavior?* With which three sub-questions follow: *How does tax complexity moderate the relationships between the IS quality dimensions and satisfaction? How does prior experience with other e-government services and perceived risk moderate the relationship between satisfaction and continuance behavior?*

2. Review of Literature

In the last couple of decades, continuance usage has been given greater importance after realizing that the success of an IS ultimately depends on its repeated use rather than initial use (Bhattacherjee et al., 2008). Various theories have been employed, sometimes in combinations with one another, to study e-government usage behaviors. This study's proposed integrative conceptual model builds on the constructs of both the IS Success Model and the ECM. It is also extended by including tax complexity, prior experience with other e-government services, and perceived risks as moderators, given their importance in influencing e-filing continuance usage behaviors. The conceptual model is presented in Figure 1. The following sections explain the theoretical foundation of the conceptual model and the development of the nine hypotheses that emanate from it.

2.1 Theoretical Foundations

2.1.1 IS Success Model

A widely cited model useful in explaining IS post-adoption behavior is the IS Success Model developed by DeLone and McLean (2003). Originally developed in 1997, DeLone and McLean's extended model presented interrelated constructs that assess the success of IS. The

model postulated that information quality, system quality, and service quality increase users' (intention to) use and satisfaction. In turn, enhanced usage and satisfaction increase net benefits. While the IS success model was used to assess e-commerce success, many researchers have adopted, extended, and applied this model to other IS platforms such as e-learning, financial technology, and e-government. For instance, Teo et al. (2008) studied the continuance intention of e-government by Singaporean citizens. Because his goal was to explore continuance intention, he only adopted five out of six variables from the updated IS Success Model, omitting the independent variable 'net benefits'. Furthermore, he integrated the online trust literature with the model by adding 'trust in government,' 'trust in technology,' and 'trust in e-government websites.' Subsequent studies adopted and extended Teo et al.'s (2008) integrative model. Building upon this methodology, this study adopts four constructs from the updated IS Success Model (information quality, system quality, service quality, and satisfaction). Because the ultimate goal of this research is to predict continuance behavior, 'intention to use' and 'net benefits' were omitted and replaced with 'continuance behavior' from the extended ECM.

2.1.2 Expectation-Confirmation Model (ECM)

On the other hand, the ECM is considered one of the earliest works on IS continuance. It was rooted in the expectation-disconfirmation theory (EDT) developed by Oliver in the marketing literature, which attempted to explain the antecedents of customer satisfaction in product repurchase and service continuance (Oliver, 1980). Drawing from this theory, Bhattacherjee (2001) proposed a model examining IS users' motivations to continue using an IS after their initial acceptance. The model suggests that user satisfaction and perceived usefulness are strong predictors of continuance intention. User satisfaction, in turn, is influenced by confirmation and perceived usefulness. Realizing that intention may not always accurately predict behaviors, Bhattacherjee et al. (2008) extended this model by linking continuance intention to behavior and elaborating the contingent factors (IS self-efficacy and facilitation conditions) that shape both IS continuance intention and behavior. Since its inception, several studies have adopted, extended, and empirically tested the ECM in the context of e-learning (Cheng, 2014; M.-C. Lee, 2010; Tan, & Shao, 2015), mobile applications (Oghuma et al., 2016; Tam et al., 2018; Yuan et al., 2016), and e-commerce (Y. Lee, & Kwon,

2011; Shang, & Wu, 2017). This study adopts two constructs from this model, namely 'satisfaction' and 'continuance behavior.'

2.1.3 Moderating Variables

This study extends the integrative model by adding three moderators: tax complexity, prior experience, and perceived risk. Tax complexity was inspired by the task complexity construct in the User Participation Model by McKeen et al. (1994), prior experience was adapted from the Theory of Innovation Adoption by Rogers (1995), perceived risk was based on Bauer's (1960) work on consumer behavior as risk-taking. Researchers extend existing models for several reasons. First, original models might not adequately explain complex human behaviors, especially when applied in varying contexts. Second, as technology evolves, new factors affecting behavior must be investigated. Third, some variables may not directly or indirectly affect behavior but may strengthen or weaken the relationship between the independent and dependent variables.

2.2 Hypotheses Development

2.2.1 Information Quality

Information quality captures the characteristics of the system's content and includes issues related to information relevance, timeliness, accuracy, completeness, and consistency (DeLone, & McLean, 1992; Seddon, 1997). In the context of e-filing, information quality refers to how good the information in the eBIRForms is in aiding taxpayers in filing and paying their taxes, with as little external help as possible (J. V. Chen et al., 2015). As taxpayers want to guarantee that they are filing their taxes correctly and within the deadline, information must be complete, accurate, clear, and up-to-date (C.-W. Chen, 2010).

Information quality plays a vital role in user satisfaction (DeLone, & McLean, 1992). When the information provided by the system is deemed helpful by the taxpayers, their satisfaction in using the system increases. On the contrary, taxpayers are unlikely to be satisfied if the information is unhelpful. Several studies have proven the relationship between the two (C.-W.

Chen, 2010; J. V. Chen et al., 2015; Floropoulos et al., 2010). Based on the preceding theoretical and empirical discussion, the following hypothesis is proposed:

H1: Information quality positively influences user satisfaction.

2.2.2 System Quality

System quality refers to users' perception of the IS's technical performance (Chang et al., 2005), which can be assessed with its adaptability, availability, reliability, response time, and usability (DeLone, & McLean, 1992; Seddon, 1997). It pertains to how well the users can use the system with as much ease and as minimal problems encountered as possible (J. V. Chen et al., 2015). As tax-filing is already a complex task by itself, the system must not be complicated to use to guarantee that taxpayers choose e-filing over manual filing. Chen (2010) also claims taxpayers try to delay filing their taxes until a few weeks before the deadline. This is why the system must ensure its fast responsiveness despite the large quantities of users at the same time.

Higher system quality may result in higher user satisfaction on e-filing systems (C.-W. Chen, 2010; Rana et al., 2015; Teo et al., 2008). When an IS has a good system quality, users can find their way through the website or application with ease, and they are more likely to achieve their objectives. Therefore, their satisfaction level increases. Based on the preceding theoretical and empirical discussion, the following hypothesis is proposed:

H2: System quality positively influences user satisfaction.

2.2.3 Service Quality

Service quality captures the characteristics of the service provider's overall support that can be assessed by its assurance, empathy, and responsiveness (DeLone, & McLean, 2003). E-government systems were created to provide some form of service to its citizens. It is therefore critical to evaluate its service quality (J. V. Chen et al., 2015). In the context of e-filing, these services may include updating account information, answering inquiries, providing

feedback, and handling applications (C.-W. Chen, 2010; Teo et al., 2008). Since the main function of e-government is to streamline services and make citizens' lives easier, government offices must show a willingness to assist taxpayers and resolve their problems constructively.

Service quality is found to affect user satisfaction. Higher service quality can guide users in successfully filing taxes electronically and leave them satisfied. On the other hand, users may be unsatisfied and resort to using manual tax filing if they cannot resolve their problems through the website or application or feel that the system's staff is unwilling to provide sincere help. This relationship has been validated in several studies on e-filing (C.-W. Chen, 2010; Floropoulos et al., 2010; Rana et al., 2015; Stefanovic et al., 2016). Based on the preceding theoretical and empirical discussion, the following hypothesis is proposed:

H3: Service quality positively influences user satisfaction.

2.2.4   User Satisfaction

User satisfaction is defined as the pleasurable or positive emotional state derived from a subjective evaluation of the expectation-performance discrepancy (Bhattacherjee, 2001; Seddon, 1997). When the performance of an IS exceeds the user's expectation, it results in satisfaction. In turn, satisfaction can translate into return users. Satisfaction was incorporated in both the IS Success Model and ECM. The ECM posits that satisfaction influences users' intentions and behavior to continue using a system (Bhattacherjee, 2001; Bhattacherjee et al., 2008). Similarly, the IS success model suggests that higher user satisfaction will lead to higher intention to use (DeLone, & McLean, 2003).

Several e-filing studies based on the ECM and the IS success have empirically tested the effect of user satisfaction on users' continuance intention. However, there is only a limited number of studies that test the effect on continuance behavior. The proposed model in this study empirically tests the effect of user satisfaction on continuance behavior and not only intention. Based on the preceding theoretical and empirical discussion, the following hypotheses are proposed:

H4: User satisfaction positively influences user continuance behavior.

2.2.5   Continuance Behavior

Continuance behavior is the actual repeated usage of an IS by users. Several studies on continuance usage have examined users' intention to continue using an IS. While intention can be a good predictor of future behavior, it may not always be accurate nor consistent. In the original ECM, Bhattacherjee (2001) only studied continuance intention. However, in the updated ECM, continuance behavior was introduced as the final dependent variable. Bhattacherjee et al. (2008) argued that it is important to examine continuance behavior and not only continuance intention because researchers' goal must be to predict factors that affect actual behavior and not just intention.

2.2.6   Tax Complexity

Complexity, particularly of a task, arises from the ambiguity, uncertainty, and lack of structure surrounding business practice (McKeen et al., 1994). Task complexity has been widely studied in management information systems. McKeen et al. (1994) developed a user participation model and found that task complexity and system complexity have moderating effects on user participation - user satisfaction relationship. That is, as the levels of task complexity and system complexity increase, the effect of user participation on user satisfaction weakens.

McKeen et al.'s (1994) model makes an important contributes to the body of research on information system success by differentiating task complexity from system complexity. A task can be less complex, but the IS can be complex due to how it was developed or the user's lack of training on the technology. On the contrary, the IS can be less complex, but the task can be perceived as complex, depending on the user's understanding of the subject. Building upon this, this study incorporates tax complexity in continuance usage. In the context of tax filing, tax complexity pertains to the perceived sophistication of the tax system (Saad, 2014). This study differentiates the complexity of the tax system, and the complexity of an IS. While IS complexity refers to the perceived level of difficulty in operating a software (Liang, & Lu, 2013), tax complexity refers to the various dimensions of the tax systems - particularly the

computation, forms, legislation, procedures, etc. (AICPA, 1992; Carnes, & Cuccia, 1996; Cox, & Eger III, 2006; Saad, 2014). Several studies found how tax complexity influenced taxpayers' decisions, particularly their tax compliance. However, if none, only a few explored tax complexity in IS adoption and continuance usage, particularly how it moderates relationships. This study proposes including tax complexity in assessing the continuance usage of e-filing.

Some tax systems are inherently complex. Even if the e-filing system provides relevant, timely, accurate, complete, and consistent information, taxpayers might still experience difficulties in doing complex computations or keeping track of the rapidly changing rules and regulations. The computation and rule complexities that taxpayers experience might influence how they perceive the quality of information. They might feel that the information provided in the system is not helpful, leading to decreased satisfaction. Based on the preceding theoretical discussion, the following hypothesis is proposed:

H5: Tax complexity moderates the relationship between information quality and satisfaction.

Tax complexity might also moderate the relationship between system quality and satisfaction. The e-filing software is might be easy to use and quick to respond to. However, suppose the electronic forms are too long and contain terminologies that regular citizens find difficult to understand. In that case, taxpayers might feel that the system is not user-friendly, leading to decreased satisfaction. Based on the preceding theoretical discussion, the following hypotheses are proposed:

H6: Tax complexity moderates the relationship between system quality and satisfaction.

Similarly, tax complexity might moderate the relationship between service quality and satisfaction. The overall experience of taxpayers in using the e-filing system would reflect the citizens' perception of the government's service quality. If they find the procedure complex despite the promise of efficiency, they might think that the government service is not good enough, hence, affecting their satisfaction. This might lead taxpayers to use alternatives such as hiring a tax agent or manual filing. Based on the preceding theoretical discussion, the following hypotheses are proposed:

H7: Tax complexity moderates the relationship between service quality and satisfaction.

2.2.7 Prior Experience with Other E-Government Services

Based on Rogers' (1995) Theory of Innovation Adoption, prior experience has been found to significantly influence consumers' decision to adopt an innovation (Rogers, 2010). Studies on e-government adoption have found that users' prior experience with government services affects their decision to use an e-government service (Kumar et al., 2007). Warkentin et al. (2002) found that previous experience with other e-government services strongly affects citizens' trust in e-government, which in turn affects their adoption decision. Meanwhile, Chen et al. (2015) found that prior experience with offline government services directly affects citizens' trust in e-government websites, which in turn influences the three IS quality dimensions. Several studies investigating the effects of prior experience with either offline or online government services on adoption have been done. Still, its effects on continuance behavior have yet to be extensively explored.

This study argues that prior experience with other e-government services moderates the relationship between satisfaction and continuance behavior. Even if users are satisfied with the e-filing system, having unfavorable experiences with other e-government services might negatively affect their decision to continue using it. It is important to determine whether prior experience with other e-government services affects their attitude toward e-filing, despite them having different functions and service providers. Based on the preceding theoretical and empirical discussion, the following hypotheses are proposed:

H8: Prior experience with other e-government services moderates the relationship between satisfaction and continuance behavior.

2.2.8 Perceived Risk

Bauer originally introduced perceived risk in 1960 to explain consumer behavior. Consumers cannot anticipate the consequences of their purchasing activities, *"some of which at least are likely to be unpleasant"* (Bauer, 1960). After being validated as a strong predictor of consumer

behavior, it has been adopted in several other areas including in IS. Risk in e-filing pertains to the citizens' beliefs that they might encounter privacy and security issues in filing and paying taxes electronically due to internet-based technology's impersonal and unpredictable nature (Schaupp et al., 2010). Taxpayers might be reluctant to use e-filing since they will be providing confidential information (Akram et al., 2019). Moreover, cyberattacks can happen anytime. The risk might still be present after initial use, particularly in developing countries where cybersecurity is relatively week.

Previous studies have proven that perceived risk significantly influences user adoption of e-filing (Schaupp, & Carter, 2010; Schaupp et al., 2010) and continuance intention (Akram et al., 2019; Veeramootoo et al., 2018). However, only a few studies have examined its effects on continuance behavior. Perceived risk might not always have a significant direct relationship with behavior. This study argues that compared with high perceived risk, low perceived risk strengthens the relationship between satisfaction and continuance behavior. This means that the effects of satisfaction on continuance behavior may differ for the various levels of risk perceptions. Based on the preceding theoretical and empirical discussion, the following hypotheses are proposed:

H9: Perceived risk moderates the relationship between satisfaction and continuance behavior.

Figure 1: Conceptual Model
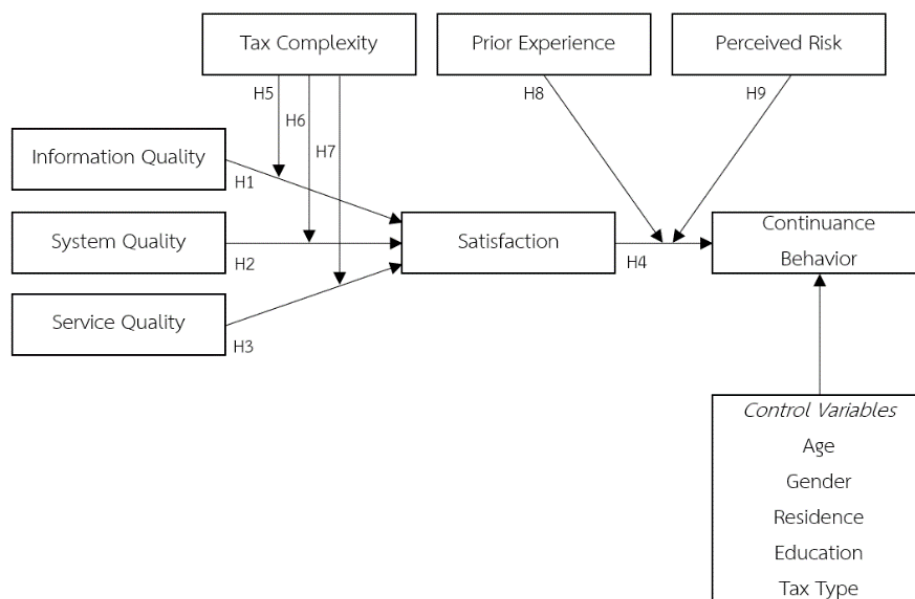
3. Methodology

3.1 Instrument Development

All constructs were operationalized using validated items adapted from previous studies. Some items were slightly rephrased to fit the Philippine context, considering that the items' essence was retained. For instance, Veeramootoo et al. (2018) used *"I could use e-filing at any time within the tax collection deadline"* to measure system quality. It was paraphrased as *"I can download and use the eBIRForms without problems at any time within the tax collection deadline"* since the eBIRForms is not a website but a software. Appendix 1 presents the constructs, measurement items, and where they are adapted from.

All constructs were measured using a seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7). The questionnaire was presented in English because of the following reasons: first, to preserve the items' essence since they were originally in English; second, the eBIRForms is available in English only. A pilot test was conducted with respondents consisting of academic professors and Filipino taxpayers. Slight modifications in the choice of words were made according to the respondents' comments and suggestions.

3.2 Data Collection

A web-based survey was used to collect primary information. A web-based survey was preferred over a paper-based survey because it enables access to diverse populations in the most cost- and time-efficient way. The link to the self-administered questionnaire was posted primarily on social media. Since this study's core objective is to examine continuance usage rather than first-time usage, the respondents were initially asked whether they have previously used the e-filing system. Only those who answered 'yes' were asked to proceed with the survey. Within two months, a total of 300 responses were collected.

Demographic data shows that most survey respondents were female, ages 21-30, living in Metro Manila, and bachelor's degree holders. More than half of the respondents have used the eBIRForms to file individual income tax returns, while the rest used it to file corporate income tax returns (See Table 1).

Table 1: Characteristics of Respondents

Demographics	Category	Number	%
Age	20 or less	4	1.33
	21-30	175	58.33
	31-40	60	20
	41-50	42	14
	51-60	18	6
	Over 60	1	0.33
Gender	Female	217	72.33
	Male	81	27
	Others	2	0.66
Present Address	Metro Manila	189	63
	Outside Metro Manila	111	37
Educational Attainment	Doctoral Degree	8	2.67
	Master's Degree	24	8
	Bachelor's Degree	236	78.67
	Diploma Course	16	5.33
	High School Diploma	16	5.33
Taxpayer Type	Corporate	129	43
	Individual	171	57

4. Results and Findings

4.1 Measurement Model

This study followed the two-step modeling approach to SEM recommended by Anderson and Gerbing (1988). Before testing the conceptual model, a confirmatory factor analysis (CFA) using SPSS and MPlus was carried out to test the scale's reliability and validity. The factor loadings of each item range from 0.62 to 0.99. Based on the criteria established by Hair et al. (2010), convergent and discriminant validity was achieved, with the AVE for each variable exceeding 0.5 (ranging from 0.71 to 0.89). Reliability was achieved with all composite reliability values greater than 0.7 (ranging from 0.91 to 0.97). Furthermore, internal consistency was achieved with each variable's Cronbach's Alpha greater than 0.9 (ranging from 0.90 to 0.97). See Tables 2 and 3.

An assessment of the measurement model's overall goodness-of-fit exhibited an adequate model fit as the indices were under the recommended levels. As shown in Table 4, all model-fit indices exceeded the recommended criteria suggested by previous research, thus demonstrating that the measurement model exhibited a good fit with the data collected. The chi-square ratio to degrees of freedom (x^2/df = 2.7) was below the recommended cutoff point of 3 (Bagozzi & Yi, 1988). The other fit indices of the model were within acceptable range with comparative fit index (CFI) = 0.943, Tucker-Lewis Index (TLI) = 0.933, root mean square error of approximation (RMSEA) = 0.077, and standardized root mean square residual (SRMR) = 0.045.

Table 2: Descriptive Analysis, Validity, and Reliability Result

Construct	Items	Mean	SD	Standardized Factor Loading	Composite Reliability	AVE	Cronbach's α
INQ	INQ1	5.24	1.491	0.912	0.95	0.81	0.952
	INQ2	4.95	1.535	0.890			
	INQ3	5.15	1.489	0.932			
	INQ4	4.76	1.618	0.873			
SYQ	SYQ1	4.80	1.611	0.898	0.92	0.74	0.916
	SYQ2	4.86	1.542	0.916			
	SYQ3	5.00	1.623	0.854			
	SYQ4	4.45	1.718	0.769			
SEQ	SEQ1	4.85	1.566	0.946	0.91	0.71	0.900
	SEQ2	4.98	1.493	0.917			
	SEQ3	4.98	1.561	0.886			
	SEQ4	3.80	1.724	0.615			
SAT	SAT1	4.71	1.442	0.941	0.97	0.89	0.971
	SAT2	4.61	1.451	0.964			
	SAT3	4.62	1.415	0.942			
	SAT4	4.76	1.452	0.934			
TC	TC1	3.29	1.478	0.875	0.92	0.74	0.926
	TC2	3.69	1.506	0.921			
	TC3	3.78	1.456	0.819			
	TC4	4.50	1.496	0.822			
PR	PR1	3.67	1.497	0.775	0.93	0.78	0.933
	PR2	4.01	1.512	0.883			
	PR3	3.75	1.567	0.934			
	PR4	3.87	1.589	0.936			
PE	PE1	4.43	1.476	0.870	0.94	0.79	0.945
	PE2	4.55	1.447	0.925			
	PE3	4.41	1.478	0.858			
	PE4	4.34	1.434	0.895			

Table 3: Correlation Matrix

	INQ	SYQ	SEQ	SAT	TC	PR	PE
INQ	1.000						
SYQ	0.752	1.000					
SEQ	0.765	0.806	1.000				
SAT	0.738	0.813	0.896	1.000			
TC	-0.484	-0.625	-0.641	-0.626	1.000		
PR	0.190	0.068	0.057	0.143	-0.024	1.000	
PE	0.323	0.447	0.402	0.494	-0.599	0.143	1.000

Table 4: Fit Indices for Measurement and Structural Models

Fit Index	Recommended Criteria	Measurement Model
Chi-Square / D.F.	<3.0	2.7
CFI	>0.90	0.943
TLI	>0.90	0.933
RMSEA	<0.08	0.077
SRMR	<0.08	0.045

4.2 Baseline Model

SEM using MPlus 7 was utilized to test the baseline model. Of the four hypotheses proposed, three were supported. Among the three IS quality dimensions, system quality ($\beta = 0.242$, $p < 0.001$) and service quality ($\beta = 0.667$, $p < 0.001$) were found to have significant effects on satisfaction. Contrarily, the relationship between information quality and satisfaction was found to be statistically insignificant ($\beta = 0.047$, $p < 0.05$). The results also show significant association between satisfaction and continuance behavior ($\beta = 0.391$, $p < 0.001$). Meanwhile, all control variables (age, residence, education, and tax type) except gender were found to have significant effects on continuance behavior. The hypotheses results are presented in Table 5.

4.3 Moderating Effects

Since SEM analysis is less conducive to testing moderating effects, the moderating effects of tax complexity, prior experience, and perceived risk were tested separately using regression models, as shown in Table 6. Similar data analysis combining SEM and MR was conducted by Bhattacherjee and Lin (2015) and Akram et al. (2019). Tax complexity was found to have moderating effects on the relationship between system quality and satisfaction (β = -0.2864, $p < 0.01$). It did not have moderating effects on the relationships of information quality and service quality with satisfaction. Among prior experience and perceived risk, only perceived risk was found to have a moderating effect on the relationship between satisfaction and continuance behavior (β = -0.0991, $p < 0.01$).

Table 5: Structural Model Results (Direct Effects)

Relationship	Std. Estimate	SE	T-Values	P-Values
INQ → SAT	0.046	0.053	0.859	0.390
SYQ → SAT	0.244	0.059	4.100	0.000***
SEQ → SAT	0.667	0.059	11.266	0.000***
SAT → CB	0.391	0.048	8.184	0.000***
AGE → CB	0.103	0.052	2.000	0.045*
GEN → CB	0.032	0.051	0.623	0.533
RES → CB	0.121	0.050	2.391	0.017*
EDU → CB	-0.139	0.050	-2.776	0.006**
TPT → CB	0.212	0.051	4.181	0.000***

p < 0.05 *
p < 0.01 **
p < 0.001 ***

Table 6: Moderation Analysis Results

Predictors	Outcome (SAT)				
	p	se	t	LLCI	ULCI
INQ*TC	0.0979	0.0236	-1.6605	-0.0856	0.0073
SYQ*TC	0.0075**	0.1064	-2.6926	-0.4958	-0.0771
SEQ*TC	0.2922	0.0190	-1.0999	-0.0583	0.0165
Predictors	Outcome (CB)				
	p	se	t	LLCI	ULCI
SAT*PE	0.2717	0.0355	1.1012	-0.0307	0.1089
SAT*PR	0.0032**	0.0334	-2.9687	-0.1648	-0.0334

p < 0.05 *
p < 0.01 **
p < 0.001 ***

5. Discussion, Implications, Limitations, and Recommendation

5.1 Discussion

Hypothesis 1 that proposed a positive relationship between information quality and user satisfaction was rejected by the study findings. This result is consistent with previous research (Teo et al., 2008; Veeramootoo et al., 2018). As citizens repeatedly use the tax filing software, they become more knowledgeable about using an IS. As a result, information quality becomes less important than system quality and service quality (Veeramootoo et al., 2018). Furthermore, the information provided by the eBIRForms is limited to guidelines and instructions for filling out forms. However, supplemental information can be easily accessed through the tax bureau's website and social media account.

Findings provided support for Hypothesis 2, proposing a relationship between system quality and user satisfaction. This finding is in line with the findings of Teo et al. (2008), Wang and Liao (2008), Rana et al. (2015), and Chen (2010). Despite being familiar with navigating the software, users expect more useful functions that can ease the task. Furthermore, for web-based IS, users focus specifically on ease of access and loading speed. The unpredictable

internet traffic affects user satisfaction during each use. Because several taxpayers delay filing returns until a few days before the deadline (C.-W. Chen, 2010), complaints about the inaccessibility of the eBIRForms when it is near the tax filing deadline have been raised by several users online.

Results suggested that service quality significantly influenced satisfaction, which is coherent with the findings of Wang and Liao (2008), Floropoulos et al. (2010), Rana et al. (2015), and Stefanovic et al. (2016). This supports the long-established argument in the marketing literature that service quality is a significant antecedent of customer satisfaction. Service quality encapsulates the goals of both information quality and system quality - to ensure that e-filing is more efficient than the traditional method. Moreover, users have individual issues about tax filing. Therefore, responding to service requests appropriately and promptly is a significant component for users to complete their tasks.

Satisfaction was found to be a significant determinant for continuance behavior, providing support for Hypothesis 4. Several studies have proven that satisfaction is an important antecedent to continuance intention. In turn, it is continuance intention that influences continuance behavior. However, this study found that satisfaction itself can influence behavior and not only intention. This corroborates with Bhattacherjee and Lin's (2015) finding after extending the original ECM and linking satisfaction directly to continuance behavior.

Findings rejected Hypotheses 5 and 7, disproving the moderating effects of tax complexity on the relationships between (1) information quality and satisfaction, and (2) service quality and satisfaction. The tax system's complexity did not influence taxpayers' perception of the information in the e-filing system and the government's service quality, hence affecting their satisfaction. However, Hypothesis 6, postulating the moderating effect of tax complexity on the relationship between satisfaction and continuance behavior, was accepted. This validates this study's argument that the complexity of the tax system is different from IS complexity, but users might mistake it as a shortcoming of the e-filing system. The complexity of tax filing as a task is another issue that has to be addressed separately. If not, it will be difficult to improve user satisfaction and continuously use e-filing despite enhancing the UI/UX of the system.

Prior experience with other e-government services had no moderating effect on the relationship between satisfaction and continuance behavior, rejecting Hypothesis 6. Since different government bodies deliver different e-government services, satisfaction or dissatisfaction toward one service was not reflected in other services. On the other hand, perceived risk was found to have a moderating effect on the same relationship, validating Hypothesis 7. The unpredictable nature of the internet causes concerns among users despite previously using e-filing. This is particularly applicable to countries with weak cybersecurity like the Philippines.

5.2 Theoretical Implications

This study is significant in three ways. From a theoretical perspective, it contributes to the literature on IS continuance usage by integrating two prominent post-acceptance models in IS - the IS Success Model and Expectation-Confirmation Model (ECM). This study responds to the call of several researchers to use more relevant theories and models in studying IS continuance intention and behavior instead of borrowing constructs from the technology acceptance and adoption literature. Furthermore, it makes an important theoretical contribution by introducing moderators that can affect strengthen or weaker the relationships - namely tax complexity, prior experience, and perceived risk. As suggested by researchers, existing models must be extended by adding new external variables to explain emerging phenomena, especially since information technology changes constantly.

From a contextual perspective, this study contributes to a better understanding of e-filing usage in the context of a developing country. The Philippines, for instance, still has low technology adoption and usage rates. Furthermore, cybersecurity is weak compared to its neighbors. While studies conducted in other countries proved that perceived risk did not influence continuance usage, this study showed that there are antecedents that might be more applicable to developing countries.

Lastly, from a practical standpoint, this study can provide significant insights for governments, particularly tax collection agencies, on enhancing their services, both electronic and non-electronic, to promote continued use by the citizens. While enhancing the user interface and user experience of tax filing is an important goal, it is equally important to focus on surrounding issues such as simplifying the tax system and improving cybersecurity. If these surrounding issues are fixed, citizens' satisfaction over e-government services will increase, resulting in enhanced usage.

5.3 Limitations and Recommendations for Future Studies

First, the model has its theoretical foundation in the ECM and IS Success Model. Although the study includes variables that are relevant to e-filing continuance usage, it omits some important constructs that could potentially explain user behavior. Future studies could consider extending the study by including concepts about trust, self-efficacy, habit, etc. Second, the tax complexity construct is limited to studies on e-filing. Researchers can extend the study by changing tax complexity to a concept that is appropriate for the IS (e.g., the effects of lesson complexity on e-learning).

Appendix 1: Measurement Items

Constructs	Measurement Items	Adapted From
Information Quality (INQ)	The eBIRForms provides accurate information. The eBIRForms provides sufficient information. The eBIRForms provides reliable information. The eBIRForms provides clear information.	Teo et al. (2008)
System Quality (SYQ)	The eBIRForms is user-friendly. The eBIRForms is easy to navigate. When I prepare and file my tax return, the operation of the eBIRForms is reliable. I can download and use the eBIRForms without problems at any time within the tax collection deadline.	Chang et al. (2005) Veeramootoo et al. (2018)
Service Quality (SEQ)	The eBIRForms provides an improved quality of taxation services. The eBIRForms simplifies and standardizes the taxation process. The eBIRForms ensures the reduction of time for completion of tax filing. The BIR staff is never too busy to respond to my inquiries/requests.	Chen (2010) Veeramootoo et al. (2018)
Satisfaction (SAT)	The eBIRForms has met my expectations in filing my returns. The eBIRForms adequately meets my needs of interacting with the BIR. The eBIRForms is efficient in fulfilling my needs of interacting with the BIR. Overall, I am satisfied with the eBIRForms.	Teo et al. (2008) Veeramootoo et al. (2018)
Tax Complexity (TC)	The terms used in tax return forms are easy for people like me to understand. Tax laws, rules, and regulations are easy for people like me to understand. I have no difficulties keeping up with the changing tax rules and regulations. I have no difficulties computing my taxable income	Saad (2009) Saad (2014)

Constructs	Measurement Items	Adapted From
	and allowances.	
Prior Experience (PE)	When I used a different e-government service, the service process was easy to follow. When I used a different e-government service, the whole transaction was performed in a reasonable amount of time. When I used a different e-government service, I was able to perform and finish my task without issue. When I used a different e-government service, the staff answered my questions promptly.	Chen et al. (2015)
Perceived Risk (PR)	I will feel uneasy psychologically if I use the internet to file my tax. Using the e-filing system may cause my personal information to be stolen. I think it would be unsafe to use the eBIRForms because of privacy and security concerns. I believe that there could be negative consequences by using the e-filing system.	Akram et al. (2019) Carter and Belanger (2005) Schaupp et al. (2010)
Continuance Behavior (CB)	I frequently use the eBIRForms to file my taxes (many times per year).	Bhattacherjee (2008)

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