

Individual Taxpayer Perceptions and E-Tax Filing: A Conditional Mediation Analysis

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Abstract

This study investigates the factors influencing individual taxpayers' intentions to use e-tax filing system to address the persistent issue of low tax return filing compliance in Sri Lanka. Based on the insights from the unified theory of acceptance and use of technology, it introduces a moderated-mediation model to address this issue from the perspective of individual taxpayers. The model integrates perceived usefulness, perceived ease of use and personal innovativeness as antecedents of the intention to use e-tax filing, with readiness for technology adoption as a mediator, and perceived risk and self-efficacy of taxpayers as moderators of the indirect effects of these antecedents on the intention to use it. Data were collected from a sample of 390 individual taxpayers using convenience sampling. A structured questionnaire was used to gather the data, which was then analyzed using the PROCESS procedure in SPSS to examine both mediation

Keywords: Advertising attitude, Brand awareness, Emotional appeal strategy in advertisements, FMCG.

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Introduction

The rapid advancements in information and communication technology and the global shift towards digitalization, particularly during periods of self-isolation and contagion, have dramatically changed the way individuals and organizations communicate. These developments have significantly impacted both the public and private sector organizations, requiring them to adapt to the digital age to remain efficient and competitive (Alzahrani et al., 2017). Governments worldwide are now investing heavily in information and communication technology to improve service delivery to citizens. One notable example is e-tax filing, a digital service that allows taxpayers to submit their tax returns online instead of using paper forms. Despite the overall progress in the adoption of electronic technologies, the public sector often struggles to keep pace with these changes, particularly in implementing new technologies to reinvent traditional processes.

The shift to digital public services, such as e-tax filing, has numerous benefits, including reduced government expenditure, enhanced convenience, and more personalized public services. Ideally, these improvements should lead to increased public engagement and compliance with relevant laws and regulations. Previous studies have shown that the introduction of e-tax filing systems has contributed to a rise in tax compliance in several countries (Night & Bananuka, 2020). For example, in Indonesia, the implementation of e-form services resulted in a significant increase in tax return submission, rising from 60% in 2017 to 84% in 2021 (Saptono et al., 2023). Such success stories illustrate the potential of e-tax filing systems to foster greater engagement among individuals and organizations towards the compliance with tax return submission requirement.

However, similar positive outcome has not been consistently observed across all contexts, such as in Sri Lanka, where the implementation of an e-tax filing system has not resulted in a significant boost in the filing of tax return. The Sri Lankan government introduced a Revenue Administration and Management Information System (RAMIS) in 2014 with the goal of enhancing tax compliance and improving the efficiency of tax administration. From the 2018/2019 assessment year, the system allowed for e-tax return filing for both individual and corporate taxpayers. With this technological initiative, taxpayers have been educated on its benefits through awareness sessions, along with user-friendly guides featuring images and videos demonstrating how to use the system. Despite these efforts to promote e-tax filing, tax return submissions, especially among individual taxpayers, remain low. As Table 1 shows, there has been no significant improvement in tax return filing, which suggests that the e-tax filing system alone may not be sufficient to encourage greater compliance with tax return filing among taxpayers.

This study attempts to address this persistent issue of low tax return filing compliance in Sri Lanka. It particularly focuses on the individual taxpayers due to the following reasons. First, unlike corporate taxpayers who typically show a tendency to use professional tax consultants or in-house tax expertise, individual taxpayers often navigate the tax system independently as it is costly for them to use a professional service. This reliance on self-guided processes makes them particularly sensitive to factors such as complexity, fairness, usability, and perceived risks of tax filing systems. Second, during the study period, individual taxpayers are not mandated to file tax

returns electronically, unlike corporations which are required to use digital systems. This optionality allows for an exploration of their preferences and the factors influencing their choice between e-tax filing and traditional paper-based methods. Third, individual taxpayers are more likely to encounter barriers to technological adoption, including limited digital literacy, inadequate access to reliable internet, and discomfort with using technology. These barriers can hinder their adoption of the RAMIS for e-tax filing, underscoring the importance of understanding their perceptions. Fourth, although individual taxpayers contribute a smaller share of tax revenue compared to corporations, they represent a substantial portion of the taxpayer base. Enhancing their compliance can significantly broaden the tax net and improve overall revenue collection efficiency. Fifth, understanding the behavioral intentions of individual taxpayers provides valuable insights for developing inclusive and equitable tax policies tailored to their specific needs and concerns. Such policies can foster greater trust in tax administration, encourage voluntary compliance, and reduce enforcement costs. Accordingly, as noted by Alm and Torgler (2011) and Marandu et al. (2015) for further studies, by focusing on individual taxpayers, this study can contribute to broader discussions on tax compliance, supporting the design of policies and procedures that not only enhance individual taxpayers' compliance but also strengthen the effectiveness of Sri Lanka's tax system as a whole.

From the Diffusion of Innovation Theory's perspective, this low level of compliance could be due to the e-tax filing system's characteristics, the users' (taxpayers') characteristics, and external environmental factors (Kaminski, 2011). This study is directed to addressing this issue by focusing on the individual taxpayers' perspective. The unified theory of acceptance and use of technology (UTAUT) has been extensively applied in previous studies to examine an individual's intention to use a new technology such as e-tax filing (Al-Mawali et al, 2022; Momani, 2020; Venkatesh et al., 2016). It indicates four factors that lead to an individual's intention to use a new technology, which are performance expectancy, effort expectancy, social influence and facilitating conditions. However, previous studies have often examined these factors in isolation, without capturing the complexity of their interactions. This approach limits a comprehensive understanding of how they collectively influence individual taxpayers' intentions to use e-tax filing. As a novel attempt, this study integrates these factors within a moderated-mediation model, positioning taxpayers' readiness for technology adoption as a mediator, and their perceived risk and self-efficacy towards the e-tax filing as moderators in the model. This approach offers a more holistic perspective on how these factors drive taxpayers' intentions to use the system.

Table 1: Income Tax Return Filing Compliance

	Year of Assessment	Category	Compliance up to one month from the due date
Before introducing RAMIS	2017/2018	Corporate	51%
		Individual	38%
	2018/2019	Corporate	50%
		Individual	38%
After introducing RAMIS	2019/2020	Corporate	46%
		Individual	31%
	2020/2021	Corporate	26%
		Individual	21%
	2021/2022	Corporate	34%

Individual	38%
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Source: Annual Performance Report – 2022, Inland Revenue Department.

Addressing this issue from the perspective of individual taxpayers, this study provides insights on psychological and contextual factors that are critical for the successful adoption of new systems. Accordingly, the findings are expected to contribute to the field by informing policy decisions, improving the design and implementation of e-government services, and ultimately enhancing compliance level of tax return filing requirement. The reminder of the paper is organized as follows. Section 2 reviews the relevant literature and develops the hypotheses. Section 3 details the research methodology. Section 4 discusses the characteristics of the study sample, the measurement quality of the constructs of the conceptual model, and the hypothesis testing results. Section 5 concludes with the theoretical and practical implications of the study.

Literature Review

The unified theory of acceptance and use of technology (UTAUT)

The UTAUT, developed by Venkatesh et al. (2003), serves as a robust theoretical framework to explain the factors influencing the acceptance and use of technology. It consolidates key elements from several preceding models, such as the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) to present a more comprehensive view of technology adoption. At its core, it is designed to predict user intentions and their subsequent behavior toward using new technology, making it an invaluable tool in understanding various adoption scenarios.

The UTAUT framework is built on four core constructs which are performance expectancy, effort expectancy, social influence and facilitating conditions. Performance expectancy represents the belief that using a particular technology will lead to enhanced performance or outcomes. This construct mirrors perceived usefulness in TAM and is often the strongest determinant of user intention. Effort expectancy refers to the ease of use associated with the technology, as TAM's perceived ease of use. It measures how easy or difficult individuals perceive the technology to be when they engage with it. Social influence captures the impact that the opinions of significant others (such as colleagues, family, or authority figures) have on a person's decision to adopt technology. This component acknowledges the power of social pressure in influencing technology acceptance. Finally, facilitating conditions represent the availability of necessary resources, infrastructure, and support that enable users to adopt and effectively use the technology.

In the context of e-tax filing system, UTAUT provides an effective framework for exploring the factors that drive taxpayers' intentions to use the system. Performance expectancy can be linked to emphasize the perceived usefulness of the e-tax filing system with the associated benefits such as improved efficiency and convenience. Effort expectancy measures its perceived usefulness as to how easily taxpayers feel they can navigate the system, while social influence can capture the role of societal or peer pressure in encouraging adoption. Facilitating conditions, such as the availability of support or digital infrastructure, determine whether taxpayers feel adequately

equipped and ready to use the system. Since the moderated-mediation model proposed in this study attempts to address the issue of low level of individual taxpayers' compliance in filing tax returns from their perspectives, their perceptions influencing the intention to use e-tax return filing, implied by UTAUT are considered in the model as follows.

Effects of perceived usefulness, ease of use, and personal innovativeness on intention to use e-tax filing

Perceived usefulness is a critical determinant of technology adoption, particularly in the context of e-government services like e-tax filing systems. Silva & Senevirathne (2020) support the idea that perceived usefulness and perceived ease of use directly influence the adoption of new technologies. This relationship is supported by TAM and UTAUT, where perceived usefulness and perceived ease of use consistently emerges as a significant predictor of users' behavioral intentions (Ozgen & Turan, 2007). The findings of Kimathi & Zhang (2019) further reinforce this, showing that users' attitudes towards e-tax filing systems are strongly influenced by perceived usefulness and ease of use, which subsequently impacts their intention to adopt the system. The study by Azmi & Bee (2010) also highlights that for taxpayers to voluntarily use e-tax filing, the system's perceived usefulness is crucial, as it significantly influences their intention to use. Similarly, according to Bojuwon (2015), perceived ease of use directly impacts income taxpayers' attitudes toward adopting an e-tax system. In addition, personal innovativeness refers to an individual's willingness to try out new technologies, which plays a significant role in the adoption of e-tax filing systems. Nisha et al. (2016) identified individual innovativeness as a significant driver in e-tax adoption, indicating that individual taxpayers who are more open to new technologies are more likely to use e-tax filing systems. This is further supported by Nisha et al. (2018), who found that personal innovativeness is crucial in capturing taxpayers' overall perceptions of e-tax filing services. Accordingly, the model proposed in this study positions these three perceptions of taxpayers - perceived usefulness, perceived ease of use and personal innovativeness as antecedents of taxpayers' intention to use e-tax filing. However, it posits that these antecedents do not exert a direct influence on the intention to use e-tax filing. Instead, their impact is mediated through the taxpayers' readiness for technology adoption.

Mediating effects of readiness for technology adoption

Readiness for technology adoption refers to an individual's preparedness to embrace new technologies. Dorasamy et al. (2010) emphasize that a taxpayer's readiness to adopt new technology is a crucial determinant in their decision to use e-tax filing systems. Pane & Simanjuntak (2024) further elaborate on this concept by identifying two perspectives of technology readiness: internal and external. The internal perspective pertains to the cognitive and psychological preparedness of system users, while the external perspective focuses on the resources and support systems that facilitate technology use (Maruping et al., 2017). This external perspective aligns with the facilitating conditions highlighted in the UTAUT. Ahmad et al. (2013) find that such facilitating conditions play a significant role in supporting individuals' intentions to use information systems.

Veeramootoo et al. (2018) argue that information technology readiness is closely related to the quality of the information system, which includes easy access to the internet and user-

friendly websites or platforms. Lallmahomed et al. (2017) support this view, suggesting that successful adoption of a system is largely dependent on readiness and the quality of the information system. It is also supported by the work of Saptono et al. (2023), who found that user satisfaction and readiness play crucial roles in translating the perceived benefits of a system into actual usage intentions. Further, Yusuf et al. (2023) reveal that perceived convenience, security, and confidentiality contribute to enhanced technology readiness, leading to successful adoption of e-filing systems. Thus, from the perspective of system users, their perceived usefulness (PU) and perceived ease of use (PEU) of a new system, and their personal innovativeness (PI) enhance their readiness to adopt the system, which in turn boosts their intention to use it. Given these insights, it is hypothesized that taxpayers' readiness for technology adoption (RTA) mediates the positive effects of PU, PEU and PI on the intention to use (ITU) e-tax filing system, as indicated by the hypotheses H1, H2, and H3.

H1: RTA mediates the positive effect of PU on ITU.

H2: RTA mediates the positive effect of PEU on ITU.

H3: RTA mediates the positive effect of PI on ITU.

Moderating effects of perceived risk

Perceived risk includes dimensions such as financial, cyber, and time risks. As highlighted in the literature, it can alter individuals' readiness to use a new system, eventually influencing their adoption behavior. Consequently, while the three antecedents - perceived usefulness, perceived ease of use and personal innovativeness are expected to enhance readiness for system adoption and thereby increasing the intention to use it, perceived risk can weaken this positive influence of RTA on ITU e-tax filing systems. According to Rifat et al. (2019), perceived risk is inversely related to PU, meaning that higher perceived risks associated with e-tax filing can weaken the belief that the system is beneficial, leading to decline in the readiness to adopt it. For instance, if taxpayers perceive high financial or cyber risks in using an e-tax system, their confidence in the system's usefulness may decline, thereby reducing their intention to adopt the technology. Kamarulzaman & Azmi (2010), perceived risk influences PEU. If users perceive that an e-tax filing system is associated with risks, it weakens their PEU and thereby intention for technology adoption. Hence, even if the system is perceived as ease of use, high perceived risk can dampen the ease of use's impact on intention to use it. Hung et al. (2016) find that highly innovative individuals may hesitate to adopt new systems if they associate significant risks with the systems. For example, if a taxpayer with high PI perceives substantial cyber, financial and time risks in using an e-tax system, their intention to use the technology may decrease. According to the above literature, perceived risk serves as a critical moderator that can diminish the indirect effects of PU, PEU and PI on ITU e-tax filing system. This implies that while taxpayers' PU, PEU and PI enhance their RTA, leading to a higher ITU e-tax filing system, their perceived risk associated with the system weakens this positive influence of RTA on ITU. Accordingly, it is hypothesized that perceived risk (PR) moderates the indirect effects of taxpayers' PU, PEU and PI on ITU e-tax filing system through the mediation of their RTA, as indicated by the hypotheses H4, H5, and H6.

H4: PR moderates the indirect effect of PU on ITU through the mediation of RTA.

H5: PR moderates the indirect effect of PEU on ITU through the mediation of RTA.

H6: PR moderates the indirect effect of PI on ITU through the mediation of RTA.

Moderating effects of self-efficacy

Self-efficacy is the belief in one's ability to successfully perform tasks using technology. Wang (2003) suggests that computer self-efficacy significantly influences the intention to use e-tax filing systems by enhancing the perceived usefulness and ease of use. Gor (2015) further supports this by showing that self-efficacy not only impacts perceived ease of use but also contributes to the credibility and overall acceptance of the system. Based on these findings, it can be argued that taxpayers with higher self-efficacy are more likely to feel ready to adopt new technologies, which in turn strengthens their intention to use the e-tax filing system. Therefore, when taxpayers' RTA is strengthened by their PU, PEU and PI, it leads to a higher ITU e-tax filing system, conditional upon their self-efficacy associated with the system. Accordingly, it is hypothesized that self-efficacy (SE) moderates the indirect effects of taxpayers' PU, PEU and PI on ITU e-tax filing system through the mediation of their RTA, as indicated by the hypotheses H7, H8, and H9.

H7: SE moderates the indirect effect of PU on ITU through the mediation of RTA.

H8: SE moderates the indirect effect of PEU on ITU through the mediation of RTA.

H9: SE moderates the indirect effect of PI on ITU through the mediation of RTA.

Figure 1 presents the conceptual model of the study based on the hypotheses formulated from H1 to H9.

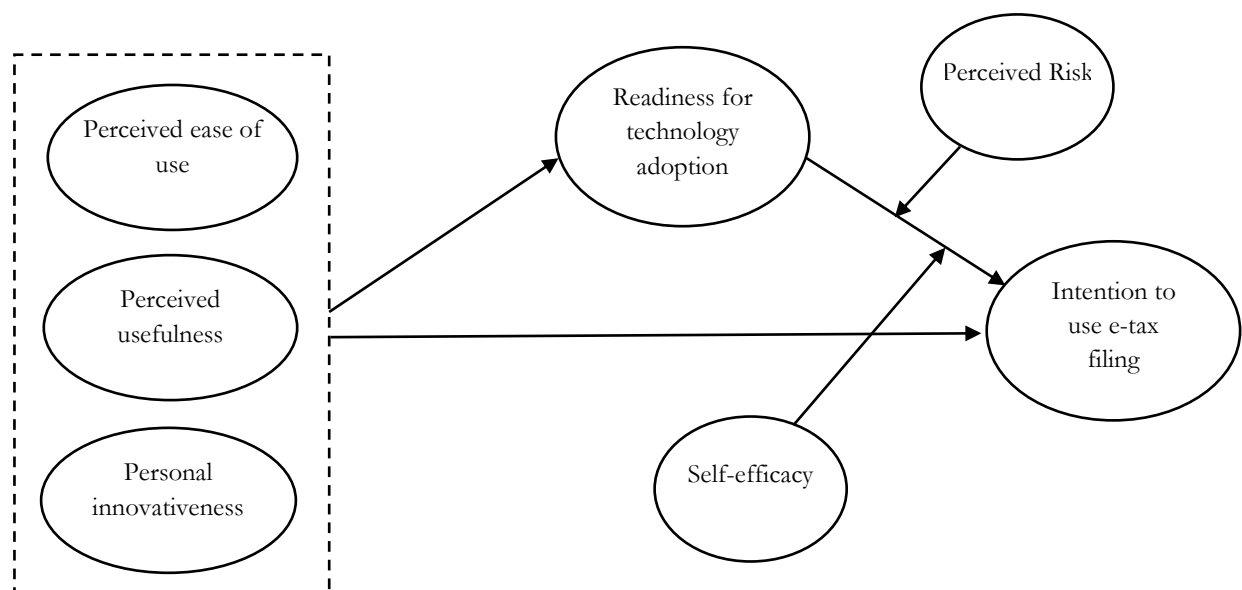


Figure 1: Conceptual model of the study

Methodology

This study uses the cross-sectional survey approach to examine the individual taxpayers' intention to use e-tax return filing. The population of the study is the individual taxpayers in Sri Lanka. As of 30th November 2023, there were about 500,000 individual taxpayers. As recommended by Krejcie & Morgan (1970) in their table of sample selection, the target sample size to represent the population is 384. Data was collected by distributing a self-administrated questionnaire to a sample of 390 taxpayers, selected based on convenient sampling approach. It is important to acknowledge that this non-probability sampling technique may limit the generalizability of the findings. However, appropriate measures were implemented during data collection to ensure demographic diversity, considering factors such as age, gender, income, and education level to create a more representative sample of individual taxpayers in Sri Lanka. Hence, we believe that the data collected provides valuable insights into taxpayer perceptions of e-tax filing. Future studies may benefit from utilizing probability sampling techniques to enhance the external validity and generalizability of the results.

The questionnaire was divided into two sections. The first section was used to collect information about respondents' demographic characteristics. Table 2 describes these characteristics of the respondents in the study sample. The second section was used to measure the research variables using the five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The variables were measured using several items based on the study of Hung (2006). The questionnaire was created using a Google form and distributed online through various social media and emails.

Table 2: Characteristics of the Sample

Characteristic	Category	Percentage (%)
Gender	Male	88.6
	Female	11.4
Age	Less than 25	2.5
	25-39	51.2
	40-55	37.8
	Above 55	8.5
	Others	0.0
Education	Secondary school	2.2
	Diploma	41.8
	Degree	29.9
	Professional qualification	22.9
	Others	3.2
Digital technology usage (per day)	Less than one hour	1.5
	1-4 hours	36.8
	5-10 hours	51.7
	More than 10 hours	10.0
Employment status	Private sector employee	37.3
	Public sector employee	24.9
	Self-employment	33.3
	Others	4.5

Source: Survey results

In the data analysis, the reliability and validity of all variables in the conceptual model were first examined to assess their measurement quality. The reliability was ensured with Cronbach's alpha values. As presented in Table 3, Cronbach's alpha values of all variables are greater than 0.7. The convergent validity was confirmed by the average variance extracted (AVE) values. Table 3 shows that the AVE values are also greater than the acceptable level of 0.5. Employing the Fornell and Larcker criterion, as given in Table 4, the discriminant validity was confirmed. In addition, the variance inflation factor (VIF) values of the constructs are less than the cut-off value of 10, which suggest that the multicollinearity issue are not present (O'brien, 2007). Then, the mediation and moderated mediation hypotheses were examined by applying respectively model templates 4 and 14 in the PROCESS procedure developed for SPSS (Hayes, 2018). It estimates the existence of mediation and moderated mediation effects based on the bootstrap confidence intervals at 95% level. The mediation and moderated mediation effects are significant if the confidence intervals do not contain 0.

Table 3: Measures of Reliability, Validity and Multicollinearity of Variables

Variable	Cronbach's Alpha	AVE	VIF
PU	0.711	0.693	1.289
PEU	0.948	0.771	3.946
PR	0.902	0.538	4.001
PI	0.741	0.615	1.158
SE	0.932	0.759	2.868
RTA	0.825	0.767	2.548
ITU	0.914	0.639	

Source: Authors' estimate

Table 4: Fornell-Larcker Criterion Assessment for Discriminant Validity

Construct	PU	PEU	PR	PI	SE	RTA	ITU
PU	0.833						
PEU	0.027	0.878					
PR	0.014	0.638	0.734				
PI	0.239	0.057	0.154	0.784			
SE	0.183	0.702	0.721	0.164	0.871		
RTA	0.232	0.701	0.722	0.168	0.479	0.876	
ITU	0.408	0.540	0.476	0.101	0.213	0.588	0.799

Note: This table presents a comparison between each construct's square root of AVE value (as printed in bold in the diagonal) and its correlations with the other constructs for assessing the discriminant validity. A construct's discriminant validity is confirmed when its square root of AVE is larger than its correlation values with other constructs (Fornell & Larcker, 1981).

Results and Discussion

Descriptive Analysis

The descriptive statistics, as presented in Table 5, provide insights into the respondents' perceptions regarding the e-tax filing system. The high mean value (4.424) with low variability in their responses (Std. deviation = 0.434) for PU indicates that respondents generally view the system as beneficial. However, the lower mean (2.685) with high standard deviation (1.166) associated with PEU suggests a wide range of perceptions regarding ease of use of e-tax filing. PI

has a moderate mean (3.760), reflecting a positive sense of innovation among respondents. The mean values of RTA (2.985) and PR (2.288) are moderate, which indicate that respondents are moderately ready to adopt technology and perceive a moderate level of risk associated with e-tax filing. The positive skewness (0.615) of PR indicates that some respondents have relatively high perceptions of risk towards e-tax filing. SE exhibits a higher mean (3.945) and a relatively large standard deviation (0.946), showing that respondents generally have confidence in their ability to use the e-tax filing system, but their confidence levels vary significantly. The skewness of -0.591 indicates a left-skewed distribution, implying that more respondents rated their self-efficacy as high. ITU has a mean of 3.133 and a standard deviation of 0.714, indicating that respondents generally have a moderate intention to use the e-tax filing system. The negative skewness (-0.488) suggests that more respondents have higher intentions to use the system, despite challenges with ease of use and perceived risks. Skewness and kurtosis values are within the cut-off range of ± 1 and ± 2 respectively for assuming normality. Thus, it can be determined that distributions of all variables are approximately normal.

Table 5: Descriptive Statistics

Variable	Mean	Std. deviation	Skewness	Kurtosis
PU	4.424	0.434	-0.702	1.907
PEU	2.685	1.166	0.240	-1.371
PI	3.760	0.496	-0.331	1.390
RTA	2.985	0.543	-0.081	-0.369
PR	2.288	0.996	0.615	-0.142
SE	3.945	0.946	-0.591	1.429
ITU	3.133	0.714	-0.488	-0.460

Source: Authors' estimate

Mediation Analysis

Table 6 shows the results relating to the direct effects of PU, PEU and PI on ITU, and their indirect effects through the mediation of RTA. The results indicate that PU and PEU have positive influence on ITU both directly and indirectly through the mediation of RTA. Specifically, PU shows a total effect of 0.671 ($p < 0.01$), with a direct effect of 0.471 ($p < 0.01$) and an indirect effect of 0.199 ($p < 0.01$). This direct effect indicates that the perceived usefulness of the e-tax filing system significantly boosts individual taxpayers' intention to use it. The indirect effect suggests that when individual taxpayers perceive the system as useful, their readiness for technology adoption increases, thereby positively impacting their intention to use the system. Similarly, PEU has a total effect of 0.331 ($p < 0.01$), with a direct effect of 0.154 ($p < 0.01$) and an indirect effect of 0.177 ($p < 0.01$). This suggests that when individual taxpayers perceive the system as easy to use, their readiness for technology adoption increases, thereby positively impacting their intention to use the system. Accordingly, supporting the hypotheses H1 and H2, the results indicate that RTA partially mediates the indirect effects of PU and PEU on ITU e-tax filing. However, PI does not have a direct effect ($\beta = 0.002$, $p > 0.05$), but only indirect effect ($\beta = 0.142$, $p < 0.01$) on ITU through the mediation of RTA, which means that while personal innovativeness does not directly increase the intention to use e-tax filing, it however does so by enhancing RTA. Thus, supporting the hypothesis H3, it can be deemed that RTA has full

mediation on the indirect effects of PI on ITU e-tax filing. These results highlight the significance of fostering readiness for technology adoption in individual taxpayers, as this readiness ultimately drives their intention to use new technologies like e-tax filing.

Table 6: Mediation Analysis Results

Path	Total effect	Direct effect	Indirect effect			
			Effect	LLCI	ULCI	t-statistic
PU→RTA→ITU	0.671**	0.471**	0.199**	0.027	0.335	2.613
PEU→RTA→ITU	0.331**	0.154**	0.177**	0.076	0.274	3.471
PI→RTA→ITU	0.144	0.002	0.142**	0.008	0.271	2.152

Note: This table presents the results relating to the indirect effects of perceived usefulness (PU), perceived ease of use (PEU) and personal innovativeness (PI) on intention to use (ITU) e-tax filing through the mediation of readiness for technology adoption (RTA), as indicated by the hypotheses H1, H2 and H3. ** and * indicate the significance at 1 percent level and 5 percent level respectively. The confidence intervals at lower level (LLCI) and upper level (ULCI) are given at 95%. The number of bootstrap samples is 5,000.

Moderated-mediation Analysis

Table 7 presents the results relating to the moderated-mediation analysis, introducing PR as a moderator in the indirect effects of PU, PEU, and PI on ITU through the mediation of RTA. The results shown in Panels A, B and C of Table 7 enable to examine whether PR moderates the paths PU→RTA→ITU, PEU→RTA→ITU and PI→RTA→ITU respectively. With respect to the path PU→RTA→ITU, as shown in Panel A, the index of moderated mediation is statistically significant at the 5 percent level. Thus, supporting the hypothesis H4, it implies that PR moderates the indirect effect of PU on ITU through the mediation of RTA. Following the approach suggested by Aiken & West (1991), this moderated-mediation effect can be further examined at lower (M -1 std), mean (M), and higher (M +1 std) levels of PR. As presented in Panel A of Table 7, the indirect effect of PU on ITU is significantly positive only at the lower and mean levels of PR ($p < 0.01$). It indicates that the indirect effect is moderated only at the lower and mean levels of perceived risk, with no moderation present at the higher level of perceived risk. It also appears that this indirect effect diminishes with the increase of the perceived risk. At the lower level of PR, the indirect effect of PU on ITU is 0.199 ($p < 0.01$) which decreases to 0.118 ($p < 0.01$) at the mean level of PR, and further diminishes to 0.037 and becomes insignificant at the higher level of PR. Accordingly, it appears that the indirect effect of PU on ITU is stronger at lower level of PR and absent at higher level of PR. Thus, individual taxpayers are less likely to use e-tax filing system when their perceptions of risk towards the system increase, even if they perceive it as useful and are ready for technology adoption.

Panels B and C of Table 7 shows that the patterns discussed above are consistent across the indirect effects of PEU and PI as well. The index of moderated mediation is statistically significant at the 5 percent level for the indirect effects of both PEU and PI, which therefore support the hypotheses H5 and H6. These indirect effects are however moderated only at the lower and mean levels of PR, with no moderation present at the higher level of PR. These indirect effects appear to have decreased with the increase of the perceived risk. Thus, these results suggest that increase in the level of PR weakens the indirect effects of PEU and PI on ITU through RTA. Thus, individual taxpayers with are less likely to use e-tax filing system when their perceptions of risk towards system increase, even if they perceive it as easy to use, feel

personally innovative and are ready for technology adoption. Accordingly, mitigating perceived risk towards the e-tax filing is essential to strengthening its intention to use among the individual taxpayers.

Table 7: Mediation Analysis Results Conditional on Perceived Risk

	Effect	Standard error	95% Confidence Interval		t-statistic
			LL	UL	
Panel A: Indirect effect of PU on ITU through RTA conditional on PR					
Index of moderated mediation	-0.081*	0.042	-0.178	-0.008	-1.929
Lower level (M -1 std) of PR	0.199**	0.088	0.029	0.379	2.261
Mean level (M) of PR	0.118**	0.055	0.016	0.231	2.145
Higher level (M +1 std) of PR	0.037	0.043	-0.049	0.125	0.860
Panel B: Indirect effect of PEU on ITU through RTA conditional on PR					
Index of moderated mediation	-0.085**	0.029	-0.144	-0.031	-2.931
Lower level (M -1 std) of PR	0.256**	0.061	0.141	0.376	4.197
Mean level (M) of PR	0.171**	0.053	0.068	0.273	3.226
Higher level (M +1 std) of PR	0.087	0.059	-0.032	0.204	1.474
Panel C: Indirect effect of PI on ITU through RTA conditional on PR					
Index of moderated mediation	-0.056*	0.033	-0.131	-0.001	-1.697
Lower level (M -1 std) of PR	0.163*	0.084	0.007	0.340	1.940
Mean level (M) of PR	0.108*	0.057	0.005	0.230	1.895
Higher level (M +1 std) of PR	0.052	0.038	-0.006	0.138	1.368

Note: This table presents the results relating to the indirect effects of perceived usefulness (PU), perceived ease of use (PEU) and personal innovativeness (PI) on intention to use e-tax filing (ITU) through the mediation of readiness for technology adoption (RTA) and conditional on perceived risk (PR), as indicated by the hypotheses H4, H5 and H6. ** and * indicate the significance at 1 percent level and 5 percent level respectively. “std” denotes standard deviation. The number of bootstrap samples is 5,000.

Table 8 shows the findings relating to the moderated-mediation analysis with SE as a moderator in the indirect effects of PU, PEU and PI on ITU through the mediation of RTA. The index of moderated mediation is statistically significant at the 5 percent level only for the indirect effect of PU, as presented in Panel A of Table 8. Thus, supporting the hypothesis H7, it implies that SE moderates the indirect effect of PU on ITU through the mediation of RTA. This moderated-mediation effect can be further examined at lower (M -1 std), mean (M), and higher (M +1 std) levels of SE based on the results presented in Panel A. The indirect effect of PU on ITU is significantly positive only at the higher and mean levels of SE ($p < 0.01$). It indicates that the indirect effect is moderated only at the higher and mean levels of self-efficacy, with no moderation present at the lower level of self-efficacy. It also appears that the indirect effect increases with the increase of self-efficacy. Panel A shows that, at the lower level of SE, the indirect effect of PU on ITU is insignificant. It increases to 0.176 ($p < 0.01$) at the mean level of SE, and further increases to 0.244 ($p < 0.01$) at the higher level of SE. Accordingly, the indirect effect of PU on ITU is stronger at higher level of SE when compared to lower level of SE. Thus, SE acts as a positive moderator, amplifying the indirect effects of PU on ITU through RTA, which means higher the self-efficacy, greater is the indirect effect of perceived usefulness of e-tax filing on its intention to use through the mediation of readiness for technology adoption. However, as shown in Panel B and C of Table 8, this pattern does not hold true for the indirect effects of PEU and PI, which therefore do not support the hypotheses H8 and H9. Accordingly,

promoting self-efficacy among individual taxpayers can significantly enhance their intention to use e-tax filing when they perceive it as useful and are technologically prepared to use it.

Table 8: Mediation Analysis Results Conditional on Self-Efficacy

	Effect	Standard error	95% Confidence Interval		t-statistic
			LL	UL	
Panel A: Indirect effect of PU on ITU through RTA conditional on SE					
Index of moderated mediation	0.072*	0.044	0.007	0.179	1.636
Lower level (M -1 std) of SE	0.108	0.069	-0.019	0.234	1.565
Mean level (M) of SE	0.176**	0.072	0.016	0.303	2.444
Higher level (M +1 std) of SE	0.244**	0.095	0.030	0.417	2.568
Panel B: Indirect effect of PEU on ITU through RTA conditional on SE					
Index of moderated mediation	-0.021	0.053	-0.075	0.129	-0.396
Lower level (M -1 std) of SE	0.092	0.083	-0.043	0.274	1.108
Mean level (M) of SE	0.172**	0.045	0.060	0.246	3.822
Higher level (M +1 std) of SE	0.152**	0.048	0.075	0.262	3.167
Panel C: Indirect effect of PI on ITU through RTA conditional on SE					
Index of moderated mediation	0.005	0.027	-0.041	0.074	0.185
Lower level (M -1 std) of SE	0.146*	0.086	0.002	0.316	1.698
Mean level (M) of SE	0.151**	0.076	0.010	0.299	1.987
Higher level (M +1 std) of SE	0.156**	0.074	0.013	0.301	2.108

Note: This table presents the results relating to the indirect effects of perceived usefulness (PU), perceived ease of use (PEU) and personal innovativeness (PI) on intention to use (ITU) e-tax filing through the mediation of readiness for technology adoption (RTA) and conditional on self-efficacy (SE), as indicated by the hypotheses H7, H8 and H9. ** and * indicate the significance at 1 percent level and 5 percent level respectively. "std" denotes standard deviation. The number of bootstrap samples is 5,000.

These findings result align with theoretical framework of UTAUT and Diffusion of Innovation Theory, both of which emphasize the role of individual perceptions in influencing technology adoption (Kaminski, 2011; Venkatesh et al., 2003). Further, consistent with earlier studies by Wang (2003) and Azmi and Bee (2010), the results confirm that perceived usefulness, ease of use, and personal innovativeness significantly impact taxpayers' intentions to use e-tax systems. However, as highlighted by Hayes (2018) and further supported by Nisha et al. (2019), the relationship between these factors is not linear. This study reveals that taxpayers' readiness for technology adoption plays a crucial mediating role in shaping their behavioral intentions, a finding that is in line with previous research by Lallmahomed et al. (2017) and Maruping et al. (2017), who stress the importance of facilitating conditions and preparedness for successful technology adoption. In addition, the study highlights the significance of perceived risk as a major barrier, weakening the positive influence of favorable perceptions on taxpayers' intentions to adopt e-tax filing. This finding further supports the studies of Alzahrani et al. (2017) and Dorasamy et al. (2010) who found that concerns about security and privacy act as deterrents to the adoption of digital tax systems. Moreover, consistent with studies by Bojuwon (2015) and Pane and Simanjuntak (2024), this study reinforces that taxpayers' risk concerns reduce their willingness to engage with e-tax systems, reflecting the complex interplay between perceived benefits and risks.

Conclusions and Implications

Conclusions

Addressing a key issue in low tax return filing compliance, this study offers significant insights into the factors that influence the intentions to use the e-tax filing system from the perspective of individual taxpayers. Consistent with previous studies, the study's findings confirm that perceived usefulness, perceived ease of use, and personal innovativeness are critical determinants in shaping taxpayers' intentions to use the system. However, as the findings reveal, these factors do not operate in isolation, rather, they are mediated by the taxpayers' readiness for technology adoption. It means that taxpayers who feel more prepared to engage with technology are more likely to translate their positive perceptions of the system's usefulness and ease of use, and their own innovativeness into a stronger intention to use e-tax filing. This study further highlights the complexity of this phenomenon by examining the moderating effects of taxpayers' perceived risk towards the system and their self-efficacy in using it. Particularly, perceived risk among taxpayers significantly weakens the impact of their positive perceptions of the system's usefulness, ease of use, and personal innovativeness on their intention to use the e-tax filing system. It means that even though the taxpayers are more prepared to engage with technology with their positive perceptions on system's usefulness and ease of use, and their own innovativeness, their perceived risk towards the system weakens these positive effects on intention to use the system. The results also indicate that self-efficacy plays a pivotal role in empowering taxpayers' positive views of the system's usefulness towards their intention to use it.

In conclusion, while taxpayers' positive perceptions of the e-tax filing system's usefulness, ease of use, and their own innovativeness can increase their intention to use the system, the strength of these influences depends on their readiness to embrace new technology, their confidence in using it, and their perceived risks associated with the system. Accordingly, by addressing these psychological and contextual factors, it will be possible to significantly boost the tax return filing compliance through the e-tax filing system in Sri Lanka.

Implications

The findings of the study provide the following theoretical and practical implications. This study contributes to the theoretical understanding of technology adoption by integrating UTAUT with the concept of information technology readiness and extending it through a moderated-mediation framework. By positioning readiness for technology adaption as a mediator, this study offers a deeper understanding of the process by which perceptions of usefulness, ease of use, and personal innovativeness translate into behavioral intentions. This mediation model addresses the limitations of previous studies that examined these factors in isolation, ignoring the complex interactions between psychological and contextual variables that shape technology adoption behaviors. Further, the incorporation of perceived risk and self-efficacy as moderators adds further depth to the theoretical framework. These findings indicate that technology adoption is not a linear process but one influenced by individual differences in risk perception and self-confidence. By showing how these moderators influence the strength of the indirect effects of perceived usefulness, perceived ease of use and personal innovativeness on intention to use e-tax filing through readiness for technology adoption, the study highlights the

importance of considering taxpayers' perceptions in understanding their behavior towards new systems like e-tax filing. Broadly, the moderated-mediation framework suggested in this study can be applied to understand user adoption behavior across a variety of technological innovations in other contexts beyond e-tax filing where readiness, risk perception, and self-efficacy are likely to play critical roles.

The practical implications of this study are particularly relevant for policymakers, tax authorities, and technology developers aiming to increase the use of e-tax filing systems. One of the key findings is that fostering readiness among individual taxpayers is essential to transforming their positive perceptions into actual intentions to use e-tax filing. Consequently, policymakers and tax authorities should prioritize strategies that enhance taxpayers' readiness to use the e-tax filing system. This approach should encompass efforts to improve technical readiness, such as offering free training programs, providing clear and concise guides for using the e-tax filing system, designing a user-friendly interface, and ensuring access to reliable technical support. While the Sri Lankan tax authority has already initiated some of these measures, further improvements are necessary to maximize their effectiveness and ensure widespread use of e-tax filing. It is also equally important to focus on psychological readiness, which involves preparing taxpayers mentally and emotionally to embrace e-tax filing. To enhance psychological readiness, strategies should aim to cultivate a positive mindset and attitudes toward e-tax filing. This includes promoting openness to change by educating taxpayers about the benefits and ease of use of e-tax filing, alleviating concerns regarding privacy and security, and building confidence through assurance and supportive communication. Further, the strategies should focus on reducing fear or anxiety related to technology adoption, encouraging trust in the system, and creating a sense of personal relevance and value in using e-tax filing.

The findings also highlight the critical need to address perceived risk, as many taxpayers may be reluctant to adopt e-tax filing due to concerns about the security of their personal and financial information, potential system failures, or their unfamiliarity with the technology. To mitigate these concerns, technology developers should focus on building trust in the system. This can be achieved by implementing robust security measures, providing clear and transparent communication about data protection policies, and ensuring that users are well-informed about how their information is safeguarded. In addition, offering assurances about the system's reliability and creating opportunities for taxpayers to become familiar with the technology can further reduce perceived risks and enhance their confidence in using e-tax filing. The findings further emphasize the role of self-efficacy as another critical consideration in this phenomenon. Taxpayers with higher self-efficacy are more likely to overcome perceived risks and challenges related to e-tax filing. As such, initiatives aimed at boosting taxpayers' confidence in their ability to use the system effectively should be prioritized. This can include workshops or video tutorials that help taxpayers develop the skills needed to navigate the e-tax filing system independently, as well as personalized support services such as helplines, online chat assistance, and in-person assistance at tax offices.

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