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An examination of tax service quality with the use of online tax systems: A structural equation modelling analysis

Kosal Song[1*]
[1]CamEd Business School, Phnom Penh, Cambodia; skosal@cam-ed.com (K.S.).

Abstract: This study investigates the relationships between Tax Quality Service (TQS), Perceived Ease of Use (PEOU), and online tax system usage (OTSU) using Structural Equation Modeling (SEM). The research tested four hypotheses (H1–H4) to explore both direct and indirect effects among these variables. Findings reveal that TQS has a strong and significant direct impact on OTSU (path coefficient = 0.784, $p < 0.001$), suggesting that high-quality service delivery positively influences system usage. TQS also significantly affects PEOU (path coefficient = 0.837, $p < 0.001$), indicating that better service quality enhances users' perception of system usability. Furthermore, PEOU has a very strong direct effect on OTSU (path coefficient = 0.926, $p < 0.001$), highlighting the crucial role of system usability in driving user adoption. Importantly, PEOU was also found to mediate the relationship between TQS and OTSU (indirect effect = 0.775, $p < 0.001$), demonstrating that ease of use serves as a key channel through which service quality impacts system usage. These results support a theoretical model that integrates service quality and technology acceptance, emphasizing the need to improve both service delivery and system usability to increase user engagement and successful technology adoption.

Keywords: *Online tax system usage, Perceived ease of use, SEM, Tax quality service.*

1. Introduction

Taxation plays a fundamental role in national development by providing governments with the revenue needed to finance public goods and services. In Cambodia, as in many developing countries, strengthening tax administration is crucial for improving domestic resource mobilization and reducing dependency on foreign aid. Over the past two decades, the Cambodian government, through the General Department of Taxation (GDT), has made notable progress in reforming the tax system. These reforms include the introduction of new tax laws, expansion of the tax base, digitalization of tax services, and capacity building for tax officials. However, despite these efforts, concerns remain about the quality of tax services and the level of taxpayer satisfaction. Tax service quality refers to the effectiveness, efficiency, and fairness with which tax services are delivered. It encompasses aspects such as the clarity of tax information, ease of compliance, professionalism of tax officers, accessibility of services, and responsiveness to taxpayer concerns. In Cambodia, perceptions of tax service quality are often mixed. While some progress has been made—particularly with the introduction of online services like e-filing and e-payment—many taxpayers still face challenges such as limited access to information, complex procedures, long processing times, and perceived corruption or favouritism.

The importance of tax service quality lies not only in enhancing the efficiency of tax administration but also in promoting voluntary compliance. When taxpayers perceive the tax authority as professional, transparent, and fair, they are more likely to comply willingly with tax laws. Conversely, poor service quality can lead to distrust, tax evasion, and reduced government revenue. In Cambodia's context, where the informal economy is still significant and tax morale remains low, improving the quality of tax

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* Correspondence: skosal@cam-ed.com

services can play a vital role in strengthening the relationship between the government and citizens. Recent studies in other developing countries have shown that enhancing tax service quality can lead to better compliance and improved revenue collection. However, there is limited empirical research focusing specifically on Cambodia. Most available studies tend to concentrate on tax policy or revenue trends rather than the experiences and perceptions of taxpayers regarding service delivery.

As such, there is a clear need to explore this area in more depth. This study aims to fill this gap by examining the current state of tax service quality in Cambodia from the perspective of taxpayers. It will assess key dimensions of service quality, identify strengths and weaknesses in the current system, and provide recommendations for improvement. By understanding how taxpayers view and interact with the tax system, the study can contribute to ongoing reforms and help build a more transparent, accountable, and service-oriented tax administration in Cambodia. In conclusion, improving tax service quality is essential for achieving broader economic goals and fostering a culture of tax compliance. As Cambodia continues its development journey, ensuring that tax services meet the needs and expectations of its citizens will be crucial for sustainable growth and effective governance.

2. Literature Review

In recent years, governments worldwide have increasingly adopted e-filing tax systems to enhance the efficiency of tax collection, promote compliance, and reduce evasion. As a result, questions surrounding these systems' effectiveness and user satisfaction have garnered substantial academic interest. Key areas of focus include Tax Service Quality (TSQ), Perceived Ease of Use (PEOU), and Online Tax System Usage (OTSU). This study formulates four hypotheses to explore how tax service quality and perceived ease of use influence system usage and overall satisfaction.

2.1. Tax service quality (TSQ) and perceived ease of use (PEOU)

Tax service quality refers to the extent to which tax authorities fulfill taxpayer expectations regarding responsiveness, accuracy, reliability, empathy, and assurance (Rahman et al., 2018). It also encompasses users' perceptions of how effectively tax authorities facilitate smooth, transparent, and accessible digital interactions [1].

A growing body of research supports the positive relationship between TSQ and PEOU (H1). Mustapha and Obid [2] found that service quality significantly enhances perceptions of ease, thereby encouraging system use. Similarly, Rahman, et al. [3] identified responsiveness, assurance, and system efficiency as critical e-service dimensions that improve user satisfaction. Sheng and Liu [1] further demonstrated that high-quality online services increase customer satisfaction and loyalty, suggesting that service quality enhances the perceived ease of using digital systems.

H_1: Tax service quality has a positive significant relationship with perceived ease of use.

2.2. Perceived ease of use and online tax system usage (OTSU)

Building on the Technology Acceptance Model (TAM) introduced by Davis [4] numerous studies have confirmed that PEOU significantly influences users' willingness to adopt digital systems (H2). Mustapha [5] observed that when users find systems easy to understand and navigate, their likelihood of consistent usage increases. Mpinganjira [6] using logistic regression, demonstrated that PEOU is a critical determinant in the adoption of e-filing systems by individual taxpayers.

Further evidence comes from Shen and Chiou [7] who found that temporal distance and perceived risk moderate the PEOU–usage relationship, with perceived risk weakening the effect. Susanto and Aljoza [8] highlighted that in developing countries, trust and social norms amplify the influence of PEOU on behavioral intention. Mensah [9] confirmed that positive electronic word-of-mouth (eWOM) strengthens this relationship in mobile government (m-government) contexts.

Hung, et al. [10] through structural equation modeling, validated PEOU as a key predictor of system usage in Taiwan. Mustapha and Sheikh [11] also reaffirmed that features such as interface

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design and system functionality directly impact perceptions of ease and utility. These findings align with Davis [4] TAM, which posits that PEOU and perceived usefulness jointly drive user acceptance.

H_2. The perceived ease of use has a positive significant correlation with online tax system usage.

2.3. Tax service quality (TSQ) and online tax system usage (OTSU)

The third hypothesis (H3) proposes a direct relationship between tax service quality and online system usage. Chang, et al. [12] identified system quality and service responsiveness as key drivers of system adoption. Similarly, Wang [13] found that perceived efficiency and trustworthiness significantly influence user engagement with e-filing platforms.

Zakaria, et al. [14] revealed that Malaysian taxpayers who viewed the Inland Revenue Board's services positively were more likely to use the online system. In the United States, Barrios [15] noted that ease of access and helpful service agents increased uptake of Free File programs. Azmi, et al. [16] highlighted that while perceived risk poses a barrier, effective service delivery can alleviate such concerns. Santhanamery and Ramayah [17] added that optimism bias—users' belief that they will encounter fewer problems—encourages continued usage when paired with quality service experiences.

H_3. Tax service quality has a significant positive relationship with online tax system usage.

2.4. Mediating effect of perceived ease of use (PEOU) on TSQ and OTSU

The fourth hypothesis (H4) examines the mediating role of PEOU in the relationship between TSQ and OTSU. Mustapha and Obid [2] emphasized that even high-quality services cannot ensure sustained usage unless the system is user-friendly. Veeramootoo, et al. [18] similarly found that the benefits of service quality are more effectively translated into behavioral intention and usage when the platform is perceived as easy to use.

Naidoo and Leonard [19] observed that service quality and loyalty incentives result in continued e-service use only when the system is intuitive. Ilias, et al. [20] echoed these findings among Labuan taxpayers, underscoring the importance of user-centered design and support services. [21] found that system quality, ease of use, and personalization jointly enhance satisfaction, which subsequently increases system usage.

Several other studies provide supporting insights. Santhanamery and Ramayah [22] showed that demographic and personality traits can moderate the PEOU–usage relationship. Aziz and Idris [23] highlighted that a poor user interface can undermine system adoption, regardless of promotional efforts. Schaupp, et al. [24] identified convenience and prior positive experiences as key predictors of U.S. taxpayers' intention to e-file. Bai, et al. [25] noted that long-term usage loyalty is influenced by trust in government systems and continuous service improvement. Abu ELSamen [26] showed that online service quality improves brand equity through enhanced perceived value and customer satisfaction.

Further, broader literature on customer satisfaction [27-29] supports the relevance of trust, responsiveness, empathy, and timely service delivery. These service quality dimensions are essential for fostering satisfaction in e-filing systems designed as customer-centric platforms.

H_4. Perceived ease of use mediates the relationship between tax service quality and online tax system usage.

In conclusion, the literature consistently supports the proposed hypotheses, demonstrating strong interrelationships among tax service quality, perceived ease of use, and online tax system usage. High service quality enhances perceptions of ease, which significantly influences user engagement. Furthermore, PEOU serves as a key mediator, enabling service quality to effectively translate into system adoption and continued usage. These findings underscore the critical importance of integrating service excellence with user-centric digital design to ensure widespread adoption and user satisfaction with e-filing systems.

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3. Methodology

This research employs Structural Equation Modeling (SEM) to examine the direct effect of Tax Service Quality (TSQ) and Perceived Ease of Use (PEOU) on Online Tax System Usage (OTSU). The indirect effect of TSQ on OTSU through the mediation of PEOU is also carried out. There are three constructs include Informativeness (INFO), Responsiveness (RESP), and Reliability (RELI).

Data collection from respondents will be conducted through a questionnaire divided into two sections. The first section gathers demographic information, while the second measures the five constructs. All items in the questionnaire consist solely of closed-ended questions. Furthermore, the items in the second section are measured using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

The evaluation of the model's fit involves conducting reliability and validity assessments. The reliability assessment aims to determine the internal consistency of the model. A composite reliability score exceeding 0.7 for each indicator or manifest variable indicates that the questionnaire instrument has reliable indicators. For convergent validity, it is necessary to achieve a minimum average variance extracted (AVE) value and a Cronbach's alpha of 0.5, as recommended by Hair, et al. [30].

The SEM is notable for two key features: it demonstrates resilience against non-normal data distributions and is effective even with limited sample sizes [31, 32]. In order to evaluate the significant relationship, direct or indirect effect, between latent variables within the context of SEM, the analytical procedure must unfold in two separate stages. The first stage, commonly known as the outer model or measurement model assessment, entails estimating the model while also assessing its reliability and validity. Following this, the second stage, referred to as the inner model or structural model assessment, is dedicated to analyzing the meaningful relationships that exist among the latent variables [30]. A total of 500 questionnaires were distributed to participants, resulting in 430 completed responses, which accounted for 0.86% of the target sample size.

3.1. Research Results

The evaluation of the model's measurement is conducted through the assessment of its convergent and discriminant validities. To determine the presence of convergent validity, the loading factors and Cronbach's alpha for each manifest variable, which serve to measure the corresponding latent variables, are examined, with a minimum threshold set at 0.5. The results of the SEM suggested that all loading factors employed to predict the construct are far more than the threshold of 0.5. Additionally, as shown in Table 1, both the Cronbach's alpha and Average Variance Extracted (AVE) values exceed 0.5. Moreover, the Composite Reliability (CR) for each latent variable is above 0.7, as noted by Hair, et al. [30] indicating the presence of convergent validity.

Table 1.
Construct Reliability and Validity

Construct	Cronbach's alpha	CR	AVE
INFO	0.942	0.802	0.718
RESP	0.807	0.836	0.647
RELI	0.911	0.970	0.791
PEOU	0.790	0.927	0.652
OTSU	0.818	0.983	0.882

The SEM results provide valuable insights into the relationships between TQS, PEOU, and OTSU. Four hypotheses (H1 to H4) were tested, all of which were statistically significant and accepted. The first hypothesis (H1) examined the direct relationship between TQS and OTSU. With a path coefficient of 0.784, a t-statistic of 4.361, and a p-value of 0.000, this indicates a strong and significant positive relationship. This suggests that improvements in the quality of service significantly enhance the overall usage of the technology system. Users who perceive high service quality are more inclined to engage with and use the system effectively. Hypothesis 2 (H2) explored the influence of TQS on PEOU.

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Table 2.
Path coefficients.

Hypothesis	Relationship	Path Coefficient	T Statistics	P values	Decision
H1	TQS → OTSU	0.784	4.361	0.000	Accepted
H2	TQS → PEOU	0.837	5.240	0.000	Accepted
H3	PEOU → OTSU	0.926	3.996	0.000	Accepted
H4	TQS → PEOU → OTSU	0.775	3.773	0.000	Accepted

The results show a path coefficient of 0.837, a t-statistic of 5.240, and a p-value of 0.000, reflecting a very strong and significant relationship. This means that when the service quality is perceived as high, users are more likely to find the system easier to use. Service quality can include aspects such as responsiveness, reliability, and assurance, which may contribute to users' comfort and confidence in interacting with the technology. The third hypothesis (H3) tested the direct effect of PEOU on OTSU. The path coefficient of 0.926, with a t-statistic of 3.996 and a p-value of 0.000, indicates an extremely strong and statistically significant relationship. This shows that the easier users perceive the system to be, the more likely they are to use it, highlighting the crucial role of usability in technology adoption and sustained usage. Finally, Hypothesis 4 (H4) assessed the mediating effect of PEOU in the relationship between TQS and OTSU. The indirect path coefficient is 0.775, with a t-statistic of 3.773 and a p-value of 0.000, indicating a significant mediation effect. This means that TQS not only has a direct effect on OTSU but also indirectly influences it through PEOU. The strength of this indirect effect underscores the importance of ease of use as a channel through which service quality exerts its influence on system usage. In essence, when service quality improves, users are more likely to find the system easier to use, which in turn increases their likelihood of using the system. These findings collectively support a model in which both direct and mediated paths play critical roles in influencing user behavior. The results affirm the theoretical framework that integrates service quality and technology acceptance elements and emphasize the importance of enhancing both service delivery and system usability to promote greater system adoption and utilization.

4. Conclusion

In conclusion, the SEM results provide a comprehensive understanding of how TQS, PEOU, and OTSU are interrelated in shaping users' technology engagement. The study's findings affirm that all four proposed hypotheses (H1 to H4) were statistically significant, offering robust support for the theoretical framework linking service quality and technology acceptance. The strong, direct relationship between TQS and OTSU (path coefficient = 0.784, $p < 0.001$) emphasizes that higher service quality directly contributes to greater usage of the technology system. This suggests that users are more likely to adopt and continually use a system when they experience dependable, responsive, and efficient service.

Additionally, the significant path between TQS and PEOU (path coefficient = 0.837, $p < 0.001$) highlights that perceived service quality enhances users' perceptions of ease of use. This indicates that when systems are supported by high-quality service features—such as user support, quick issue resolution, and system reliability—users are more comfortable navigating and utilizing the system. This insight is vital for organizations aiming to improve user experience, as it confirms that service quality not only supports system functioning but also positively shapes user attitudes toward ease of use. Furthermore, the path from PEOU to OTSU (path coefficient = 0.926, $p < 0.001$) demonstrates that systems perceived as easy to use are significantly more likely to be adopted and utilized. Usability, therefore, remains a cornerstone of technology acceptance, reinforcing the idea that intuitive design and user-friendly interfaces are essential for maximizing system usage. Importantly, the mediating role of PEOU in the TQS–OTSU relationship (indirect effect = 0.775, $p < 0.001$) illustrates that ease of use acts as a bridge through which service quality exerts its influence on user behavior. This mediated

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relationship indicates that even when service quality is high, users may not fully engage with a system unless they also perceive it as easy to use.

Overall, these findings underscore the necessity of a dual focus on both service quality and system usability to achieve optimal levels of technology adoption and usage. The study highlights the importance of designing systems that are not only supported by high-quality service infrastructure but are also perceived as easy and intuitive to operate. This dual emphasis is particularly critical in environments undergoing digital transformation, where successful technology integration depends on users' willingness and ability to engage with new systems. Ultimately, the model presents a practical roadmap for organizations seeking to boost system usage by investing in both the quality of service delivery and the user experience.

Transparency:

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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