

Determinants of Consumers' Behavioural Intention and E-Wallet Usage Behavior: Evidence from an Extended UTAUT Model via Structural Equation Modeling

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Abstract

The rapid proliferation of digital financial technology is speeding up the acceptance of e-wallets as a favoured payment method owing to their simplicity, quickness, and accessibility. Despite the increasing prevalence of e-wallet services, prior research has yielded inconsistent results regarding the factors influencing consumers' behavioural intentions and actual usage, especially in relation to performance expectancy, effort expectancy, facilitating conditions, trust, and perceived risk. This research enhances the Unified Theory of Acceptance and Use of Technology (UTAUT) model by integrating trust and perceived risk as supplementary antecedents of e-wallet adoption to explain these inconsistencies. Data were gathered using a structured questionnaire sent to 280 e-wallet users in Ho Chi Minh City, Vietnam. The suggested study model was evaluated by Structural Equation Modelling (SEM) to investigate the interrelations among performance expectancy, effort expectancy, social influence, facilitating conditions, trust, perceived risk, behavioural intention, and actual e-wallet use behaviour. The results demonstrate that performance expectancy, social influence, favourable conditions, and trust considerably and favourably affect customers' propensity to use e-wallets. Moreover, facilitating conditions and behavioural intention were identified as having substantial beneficial impacts on actual e-wallet-using behaviour. In the case of an e-wallet, however, effort expectancy and perceived risk do not have a big effect on behaviour intentions. This research enhances the technology adoption literature by enhancing the explanatory ability of the UTAUT framework within the realm of digital payment systems. The results also offer practical implications for e-wallet providers and digital financial service firms by highlighting the necessity to improve service performance, bolster trust mechanisms, enhance supporting infrastructure, and utilise social influence to promote e-wallet adoption and utilisation.

Keywords: UTAUT, E-Wallet, Behavioral Intentions, Use Behavior, Trust, Perceived Risk

1. Introduction

E-wallets are now essential to financial technology owing to the fast digital revolution. Rapid technological development has encouraged many industries, especially the financial sector, to adopt digital technologies and cashless payment systems. Using e-wallets, users may pay for meals, tickets, and taxes. E-wallets have grown rapidly due to cellphones, digital businesses, secure payment methods, and robust service provider networks [1]. In the same vein, over the last several years, the financial services industry, particularly payments, has seen a considerable transformation due to the rapid speed of technological advancements. Digital wallets, often referred to as e-wallets, represent a significant innovation in the financial sector by enabling cashless and cardless transactions. Using mobile wallet applications, users can securely store payment information on their smartphones and buy and transfer money more easily and efficiently. Simultaneously, technology is rapidly advancing, altering how customers participate in financial transactions. Moreover, mobile payments have advanced swiftly as a substitute for conventional payment systems, helping both advanced and emerging nations [2].

Besides, swift advancements in the data and interactions industry, along with the pervasive use of digital devices, led to the digital evolution of financial services and the emergence of diverse e-payment techniques, such as e-wallets, as

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alternatives to conventional physical currency [3], [4]. Likewise, e-wallets function as digital wallets that enable online transactions. The increasing prevalence of smartphones and digital technologies across the globe has contributed to the rapid diffusion of e-wallets, which are now recognised as trusted and widely utilised payment methods in both advanced and emerging economies [5]. The increasing global adoption of electronic wallets is primarily driven by their convenience, efficiency, and cost-saving advantages. In comparison with traditional electronic payment methods, e-wallets provide greater adaptability and convenience, enabling clients to conduct financial activities regardless of time and from any location, hence fostering greater user adoption [6].

The UTAUT framework has been extensively adopted in earlier studies to analyse the underlying factors shaping behavioural intentions (BEI) and e-wallet use behaviour (USB). For instance, research by [7], [8], [9], [10] and [11] explores factors affecting e-wallet BEI. However, these studies did not investigate BEI on the e-wallet USB. Other studies, such as those by [10], [12], [13], and [14], examined variables influencing BEI and e-wallet USB. The findings of [12] and [13] stated that effort expectancy (EFE) had no significant impact on e-wallet BEI. Conversely, the study by [10] and [14] found that EFE positively influences e-wallet BEI, suggesting that customers are more inclined to embrace e-wallets if the system is perceived as easy to use. Similarly, the study by [15] and [16] debated that performance expectancy (PEE) did not impact e-wallet BEI, while the findings by [12] and [13] revealed that PEE had an influence on e-wallet BEI. Thus, further study is required to elucidate these relationships. Besides, former studies indicated that facilitating conditions (FAC) affect e-wallet BEI [10]; nevertheless, the studies by [12], [15] indicated that FAC did not affect e-wallet BEI. Likewise, prior empirical studies indicated that FAC affected e-wallet USB [12], [17]. However, [14] discovered that FAC exerted an insignificant influence on the e-wallet USB. Therefore, further research is needed to clarify these relationships. Besides, the study by [18] has investigated the impact of trust on e-wallet BEI using the UTAUT model; however, [18] has not addressed the perceived risk and FAC' impact on the e-wallet BEI.

In summary, although previous research has significantly enhanced the comprehension of e-wallet adoption, notable gaps still exist in the literature. First, some former studies focus only on selected UTAUT variables, thereby limiting a holistic explanation of consumers' BEI and e-wallet USB. Second, prior findings concerning the effects of PEE, EFE and FAC remain inconsistent, suggesting that the traditional UTAUT framework may not fully capture consumer behaviour across different contexts. The inconsistent findings reported in prior e-wallet studies may be attributable to differences in contextual factors across research settings. Variations in digital payment infrastructure, levels of technological readiness, financial literacy, and users' prior experience with e-wallet services may influence how consumers evaluate the usefulness, ease of use, and supporting conditions associated with e-wallet adoption. Likewise, differences in cultural environments and stages of digital transformation across countries may alter the relative importance of UTAUT determinants.

Consequently, relationships identified in one context may not be directly generalizable to another, highlighting the need for further investigation in emerging digital payment markets such as Vietnam. Third, while trust has been included in several recent studies, the concurrent incorporation of both trust and perceived risk within the UTAUT model is still restricted. This study addresses research gaps by enhancing the UTAUT model via the incorporation of trust and perceived risk. Besides, these constructs are important because e-wallet services involve monetary transactions and the disclosure of personal information, making trust and risk perceptions central factors in users' adoption decisions. Compared with other UTAUT extensions, these constructs are more directly associated with the uncertainty inherent in digital payment environments.

This study addresses research gaps by enhancing the UTAUT model via the incorporation of trust and perceived risk as supplementary drivers of e-wallet BEI. The research used SEM to conduct a thorough empirical analysis of the interrelations among PEE, EFE, social influence (SOI), FAC, trust, perceived risk (RIS), customers' BEI, and e-wallet USB. The results provide a theoretical contribution by strengthening the ability to explain the UTAUT framework in relation to the adoption of e-wallets. Practically, the research also offers valuable insights for e-wallet providers and digital financial service firms to improve user adoption and encourage usage behavior.

2. Literature Review

2.1. Unified Theory of Acceptance and Use of Technology

According to [19], UTAUT offers a comprehensive model explaining how information technology influences user behavior. The UTAUT framework synthesises eight established frameworks: “Social Cognitive Theory (SCT), Model of PC Utilisation (MPTU), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Motivational Model (MM), combined TAM and TPB, and Innovation Diffusion Theory (IDT)”. By integrating key components from various acceptance theories, UTAUT provides a comprehensive framework for comprehending the process of technology adoption, and it has been shown to account for around 70 percent of the heterogeneity in USB, thereby surpassing other established theories in explanatory power [19]. This framework proposes four key predictors of technology acceptance that explain both BEI and USB, including PEE, EFE, SOI, and FAC [19], [20]. Besides, in empirical analysis, FAC is also a predictor of e-wallet BEI [10], [21]. Additionally, trust is recognised as an essential construct influencing customers’ e-wallet BEI [13], [15], [18]. Similarly, it is acknowledged that RIS is a crucial factor affecting consumers’ e-wallet BEI [17], [22]. Based on the UTAUT framework, this study explores how PEE, EFE, SOI, FAC, trust, and RIS influence customers’ BEI and e-wallet USB.

2.2. Performance Expectancy

PEE denotes “the degree to which an individual believes the system helps improve job performance” [19]. PEE reflects customers’ perceptions that e-wallets make transactions more convenient, effective, and quicker to complete [12]. Researchers have already looked into how PEE affects people’s e-wallet BEI (e.g., [11], [16], [23]). According to [23], PEE has a big effect on people’s e-wallet BEI. If someone thinks that a service will make their life better, they are more likely to use it [17], [24]. Nevertheless, empirical results by [15] indicate that PEE does not affect e-wallet BEI. Therefore, the hypothesis is:

H1: PEE favorably affects consumers’ e-wallet BEI.

2.3. Effort Expectancy

EFE denotes “the degree of ease associated with the use of the system” [19]. Former research has assessed the effect of EFE on e-wallet BEI. EFE has a favourable influence on e-wallet BEI [10], [14]. However, the findings of [12], [13] demonstrated that effort expectations had an insignificant influence on BEI towards e-wallets. Because of the above argument, the hypothesis is made:

H2: EFE favorably affects consumers’ e-wallet BEI.

2.4. Social Influence

SOI depicts how much positive views and suggestions from significant others affect a person’s BEI to implement a method [19]. SOI denotes the perception of technology by an individual’s societal resource community, including relatives and close companions, whether positively or negatively, as well as their expectations of being acknowledged or accepted [20], [25]. Prior research has analyzed how SOI affects consumers’ e-wallet BEI. Empirical evidence from [17], [22] demonstrates that SOI positively and significantly enhances e-wallet BEI. Similarly, [11] confirmed that SOI significantly contributes to the promotion of the e-wallet BEI. Accordingly, the following hypothesis is developed:

H3: SOI favorably affects consumers’ e-wallet BEI.

2.5. Facilitating Conditions

FAC indicates whether sufficient organizational arrangements and technical support exist to facilitate consumers’ adoption of information technology [19]. To address users’ issues, the necessary software and hardware resources required for system operation must be provided first. Users are expected to use information technology. From the perspective of users, FAC encompasses the availability of firm-provided resources, customer support, and enabling infrastructure that reduce usage barriers and support effective and sustained technology adoption [14]. Additionally, earlier research suggested that FAC affects e-wallet BEI [10]; however, the studies by [12], [15] suggested that FAC had no such effect on e-wallet BEI. Similarly, earlier empirical research showed that FAC influenced the e-wallet USB

[12], [17]. Nevertheless, [14] found that FAC had a negligible impact on the e-wallet USB. Accordingly, the hypotheses are developed:

H4: FAC favorably affects consumers' e-wallet BEI.

H5: FAC favorably affects consumers' e-wallet USB.

2.6. Trust

It is well known that trust is a crucial psychological concept that has a big impact on BEI, especially in situations where there is ambiguity, perceived danger, and dependence on outside systems [26]. Trust denotes the cultivation of a favorable view grounded in dependability and reliance on an individual or institution [3], [27]. The notion of trust transcends human relationships, considering technological connections as a key factor in adopting technological behaviour [28], [29]. Trust means a user believes the e-wallet will work if expected [30]. Confidence in e-wallet transactions fosters consumer attraction and retention [31]. Trust is a person's evaluation of information after acquiring, analyzing, and interpreting it, leading to diverse conclusions. If users can benefit from and avoid potential risks associated with online services, technology systems will be trusted [32]. Trust is a characteristic of connections between persons or organisations that influences mutual norms and interactions within formal systems [33]. Trust is described as the readiness of people to embrace vulnerability due to optimistic expectations about others' intentions or actions in contexts marked by interdependence and risk [13]. Individuals who trust technology are more inclined to use e-wallets [34]. Previous research confirms that trust boosts e-wallet BEI [13], [26], [35]. Thus, the hypothesis is put forth:

H6: Trust positively affects consumers' e-wallet BEI.

2.7. Perceived Risk

RIS represents an expression for a person's fear of possible harm associated with using an e-wallet, particularly with private information and financial assets. This notion impedes individuals from using e-wallets [21]. RIS is also a state in which consumers experience anxiety due to their inability to foresee the result of their transaction [36]. Prior studies have expanded to include RIS as an additional variable affecting e-wallet BEI [15], [17], [22]. Clients see risk as the main element influencing their e-wallet BEI, and they are worried about the protection of their personal information [37]. In light of the above explanation, the authors proposed the subsequent hypothesis:

H7: RIS adversely influences users' e-wallet BEI.

2.8. Behavioral Intention and Use Behavior

Intention refers to customers' inclination to be willing or prepared to make future purchasing decisions. BEI is the most accurate reflection of customer behaviour. By exhibiting informed BEI, customers can help firms understand real consumer behaviour [38]. BEI is the purpose of an individual to use technological devices to accomplish a certain goal [19]. USB denotes the actions performed by users, which may occur unconsciously. Within information systems research, USB corresponds to the actual utilization of technology [13]. In line with the UTAUT framework, users' BEI is a key determinant of their actual e-wallet usage. Numerous empirical studies have repeatedly proven that BEI significantly and favourably affects e-wallet USB [12], [13], [39]. These results lead to the development of the hypothesis:

H8: BEI positively affects consumers' e-wallet USB.

The hypotheses developed for the proposed Model are illustrated in [figure 1](#).

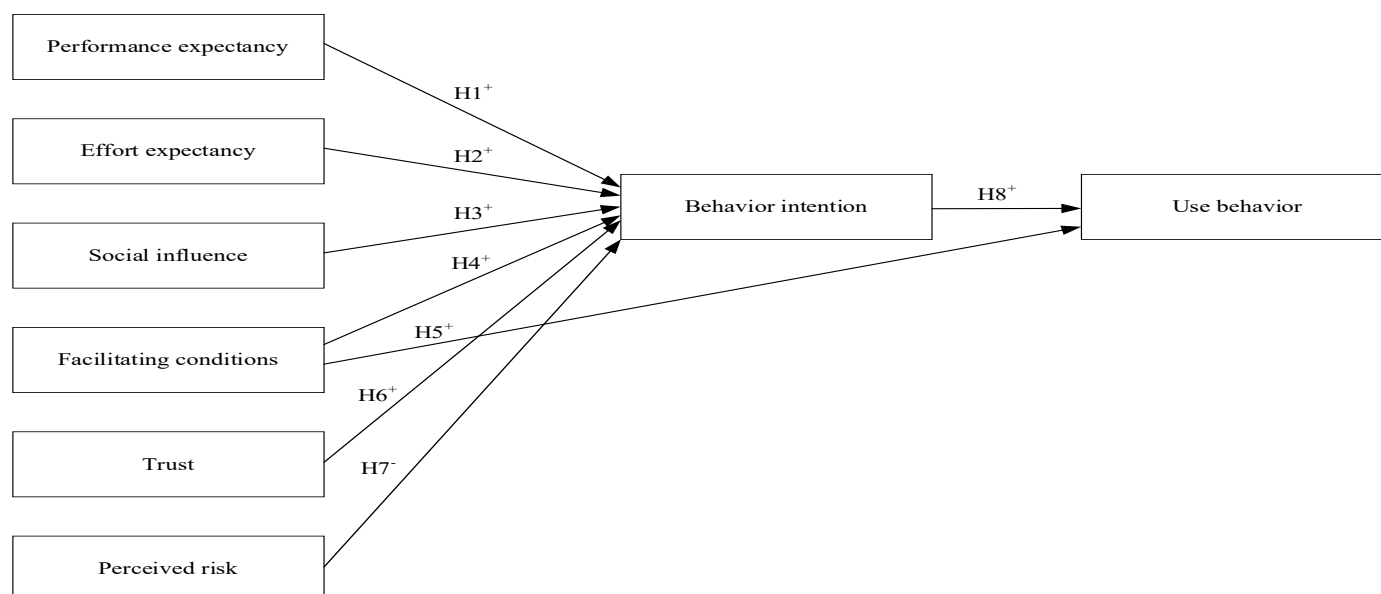


Figure 1. Research Framework

3. Methodology

3.1. Data Collection

A strategy known as purposive sampling was used in order to acquire data from individuals who use e-wallets in Ho Chi Minh City, Vietnam, through a Google Forms–based survey. Participants were eligible to participate if they were at least 18 years old, resided in Ho Chi Minh City, Vietnam, and had prior experience using an e-wallet. Although purposive sampling enabled the collection of responses from relevant users, the findings should be interpreted with caution because the sampling approach may limit the representativeness and generalizability of the results. The rejection of 20 out of the 300 received answers was due to insufficient information. Men accounted for 143 (51.1%) of the 280 participants, while women accounted for 137 (48.9%). The majority of participants are aged 18 to 20 and 21 to 30, comprising 19.3% and 76.1% of the total, respectively. Monthly income (million/VNND) among participants ranged across four categories, with 26.1% earning less than 5, 31.4% earning 5–<10, 36.1% earning 10–<20, and 6.4% earning at least 20. Information regarding the participants’ demographic background is detailed in [table 1](#).

Table 1. Sample Characteristics

Profile		Frequency	%
Gender	Male	143	51.1%
	Female	137	48.9%
Age	18–20	54	19.3
	21–30	213	76.1
	>30	13	4.6
Income monthly (MIL/VND)	< 5	73	26.1
	5 – < 10	88	31.4
	10 – < 20	101	36.1
	> = 20	18	6.4

3.2. Measurement

The measures applied in this research were modified to take into account findings from earlier studies and adjusted to reflect the e-wallet environment. PEE, EFE, and SOI were adapted from [\[11\]](#) and consisted of 3 items each. The sources

for FAC (4 items), BEI (4 items), and USB (3 items) were [12]. Trust (TST) was conceptualised and measured through 4 indicators adopted from [34]. RIS was assessed using four variables derived from [15]. A Likert scale was used to collect all survey responses. Table 2 displays the measurement details.

Table 2. Measurement

Construct	Items	Source
Performance expectancy (PEE)	PEE1. Using an e-wallet would speed up the payment process. PEE2. In any situation, I will utilise an e-wallet. PEE3. I may save time via an e-wallet.	[11]
Effort expectancy (EFE)	EFE1. I could pay easily using an e-wallet. EFE2. I could learn e-wallets easily. EFE3. An e-wallet is flexible in making payment transactions.	[11]
Social influence (SOI)	SOI1. My relatives suggest e-wallets. SOI2. My relatives utilise e-wallets. SOI3. My influencers suggest I should utilise. (Note: In this study, “influencers” refers to friends and relatives who may influence respondents’ behavioural intention regarding e-wallet usage.)	[11]
Facilitating conditions (FAC)	FAC1. I possess the tools required to employ the e-wallet. FAC2. I am aware that using the e-wallet is essential. FAC3. I can utilise the e-wallet with additional devices. FAC4. When I’m having trouble utilising the e-wallet, I may ask for assistance from others.	[12]
Trust (TST)	TST1. Mobile payments are trustworthy TST2. I state that information sent via mobile payment is confidential. TST3. I often receive an immediate confirmation message for the transaction I make. TST4. I am one of those who trust that mobile payment systems are reliable.	[34]
Perceived risk (RIS)	RIS1. The usage of e-wallets is not entirely safe. RIS2. I feel uncomfortable disclosing my private as well as financial details when utilizing the e-wallet. RIS3. Utilising an e-wallet for transactions increases the risk of deception, along with information exploitation. RIS4. In general, utilising an e-wallet is neither safe nor secure.	[37]
Behavioral Intention (BEI)	BEI1. If I possess the e-wallet, I’ll utilise it. BEI2. I would utilise the e-wallet if I got it. BEI3. Using the e-wallet is planned. BEI4. I suggest e-wallets to coworkers.	[12]
Use Behavior (USB)	USB1. I regularly use e-wallets. USB2. I utilise several e-wallet features. USB3. I need e-wallets.	[12]

The research model was analyzed via PLS-SEM in SmartPLS to assess construct validity and test the hypothesized relationships [40].

4. Results and Discussion

4.1. Common Method Bias (CMB)

CMB may occur in answers from numerous respondents with an identical tool for predictor and predicted variables [41]. The Harman single-factor method was implemented to detect CMB in responses. PASW 23 was used to do an exploratory factor analysis, combining all predictor and predicted variables into one factor. A single factor explained 39.5% of the variance, below the 50% criterion, indicating no CMB [37], [42].

4.2. Assessment of Construct Validity

Table 3 evaluates the measuring scale reliability and convergent validity. Both Cronbach's alpha- α and composite reliability-CR scores for all constructions were above 0.70, indicating great internal reliability. Furthermore, substantial factor loadings and AVE values above 0.50 indicated convergent validity. Although RIS3 exhibited a relatively lower factor loading (0.616), it was retained in the measurement model. According to [40], indicators with loadings between 0.40 and 0.70 may be retained if their removal does not substantially improve the construct's AVE and CR. An assessment of item deletion showed that the RIS construct already achieved acceptable reliability (CR = 0.860) and convergent validity (AVE = 0.609). Therefore, RIS3 was retained based on both statistical and theoretical considerations. Thus, results show that the construct validity is adequate [40].

Table 3. Outcomes of Measurement Evaluation

Indicators	Loadings	α	CR	AVEs
PEE1	0.882	0.801	0.883	0.716
PEE2	0.817			
PEE3	0.839			
EFE1	0.820	0.766	0.864	0.680
EFE2	0.841			
EFE3	0.812			
SOI1	0.839	0.796	0.880	0.710
SOI2	0.828			
SOI3	0.861			
FAC1	0.819	0.834	0.889	0.667
FAC2	0.822			
FAC3	0.826			
FAC4	0.799			
TST1	0.802	0.861	0.906	0.707
TST2	0.829			
TST3	0.877			
TST4	0.853			
RIS1	0.908	0.831	0.860	0.609
RIS2	0.769			
RIS3	0.616			
RIS4	0.801			
BEI1	0.798	0.847	0.897	0.686
BEI2	0.822			
BEI3	0.867			
BEI4	0.825			
USB1	0.882	0.847	0.908	0.766
USB2	0.852			
USB3	0.891			

The Fornell & Larcker technique and HTMT criteria assessed discriminant validity. Table 4 gives AVE square roots for PEE, EFE, SOI, FAC, TST, RIS, BEI, and USB, which are greater than their corresponding construct correlations, supporting adequate discriminant validity [43].

Table 4. Fornell & Larcker

	BEI	EFE	FAC	PEE	RIS	SOI	TST	USB
BEI	0.828							
EFE	0.563	0.824						

	BEI	EFE	FAC	PEE	RIS	SOI	TST	USB
FAC	0.677	0.525	0.817					
PEE	0.702	0.530	0.626	0.846				
RIS	-0.130	-0.043	-0.067	-0.048	0.781			
SOI	0.669	0.595	0.565	0.618	-0.009	0.843		
TST	0.678	0.620	0.656	0.649	-0.104	0.639	0.841	
USB	0.679	0.592	0.630	0.607	-0.082	0.628	0.712	0.875

Furthermore, the HTMT ratios presented in [table 5](#) are all below 0.9, providing additional evidence of construct distinctiveness [\[44\]](#).

Table 5. HTMT

	BEI	EFE	FAC	PEE	RIS	SOI	TST	USB
BEI								
EFE	0.693							
FAC	0.806	0.657						
PEE	0.852	0.665	0.766					
RIS	0.123	0.061	0.069	0.104				
SOI	0.813	0.764	0.692	0.775	0.086			
TST	0.791	0.765	0.771	0.779	0.090	0.769		
USB	0.800	0.733	0.746	0.735	0.088	0.766	0.832	

4.3. Model Fit Assessment

The model's fit was assessed via SRMR and NFI. [Table 6](#) displays the results of the model fit. The SRMR value of the estimated model was 0.065, which is below the recommended threshold of 0.08, indicating a favourable model fit [\[45\]](#). Furthermore, the NFI value was 0.785, indicating a reasonable fit of the suggested study model. Consequently, the model proved to be appropriate for hypothesis testing [\[40\]](#).

Table 6. Model Fit

	Saturated Model	Estimated Model
SRMR	0.055	0.065
d_UIS	1.209	1.698
d_G	0.563	0.607
Chi-square	939.135	988.869
NFI	0.796	0.785

4.4. Assessment of Hypothesis

As illustrated in [table 7](#) and [figure 2](#), hypotheses were tested via bootstrapping with 5,000 samples. Hypotheses H1, H3, H4, H5, H6, and H8 showed significant effects with T-values > 1.96 and P-values < 0.05 and were therefore accepted. In contrast, hypotheses H2 and H7 were not statistically supported and were rejected.

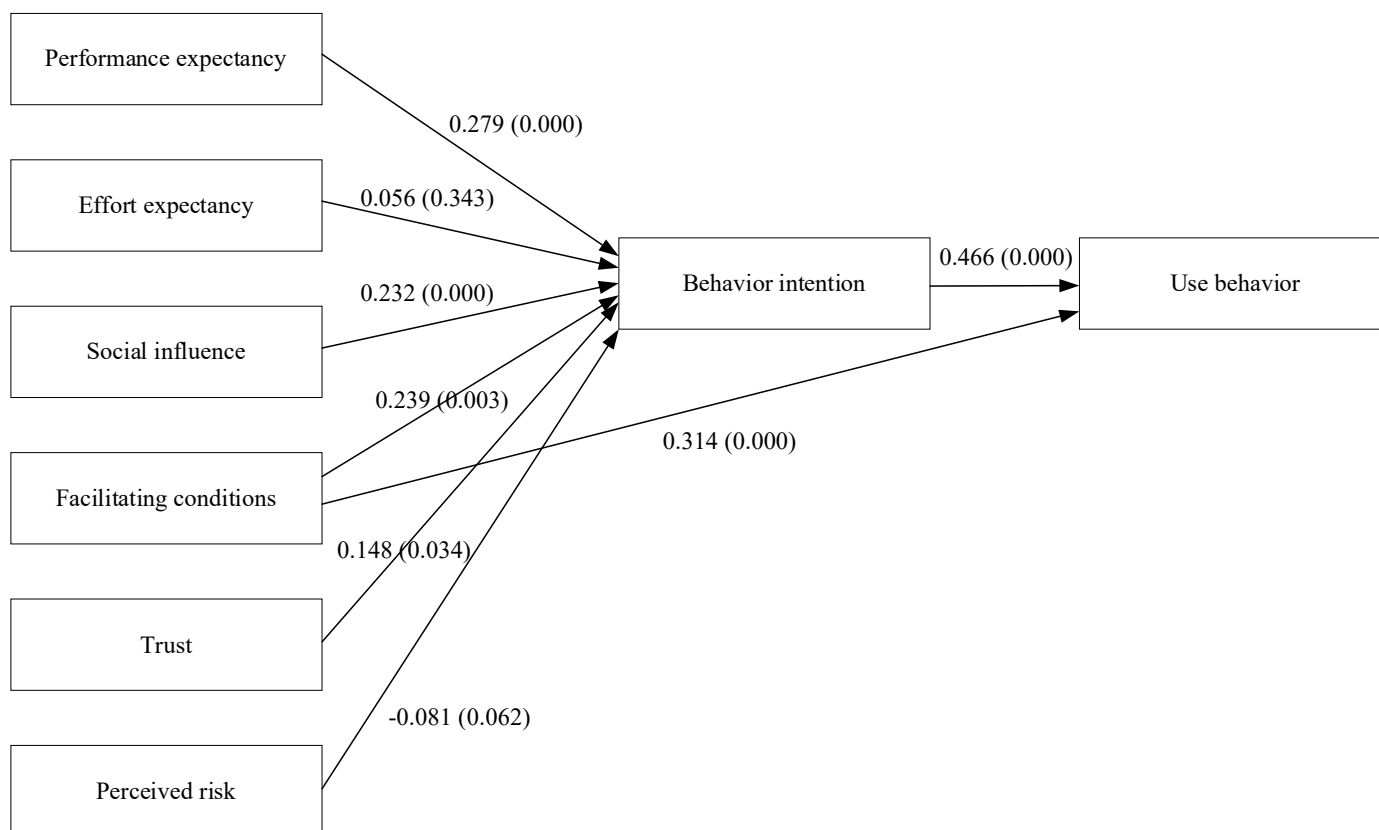


Figure 2. Path Analysis Results

4.5. R^2 , Q^2 , f^2

Table 7 and figure 2 illustrated that the R^2 value for BEI (0.656) is regarded as substantial, whereas the R^2 value for USB (0.514) is regarded as moderate for variance measurement [40]. Likewise, table 7 demonstrates that all Q^2 values have considerable predictive relevance, as they are higher than zero, thereby verifying the model's predictive relevance outside of the sample. Additionally, the PLS path model's significant predictive accuracy is demonstrated by all Q^2 values exceeding 0.50 [46]. According to the f^2 effect sizes in table 7, PEE was the most important variable and had a medium-small effect in BEI, followed by FAC, SOI, and TST. Besides, there was no effect size in BEI for EFE and RIS. In the same vein, BEI exhibited an effect size that was medium in USB, followed by FAC [47].

Table 7. Findings of Hypothesis Evaluation

Path	Estimated parameter	T values	P values	Findings	f^2		R^2	Q^2
H1: PEE -> BEI	0.279	4.150	0.000	Verified	0.105	BEI	0.656	0.433
H2: EFE -> BEI	0.056	0.949	0.343	Reject	0.005	USB	0.514	0.385
H3: SOI -> BEI	0.232	3.551	0.000	Verified	0.074			
H4: FAC -> BEI	0.239	2.939	0.003	Verified	0.081			
H5: FAC -> USB	0.314	3.852	0.000	Verified	0.110			
H6: TST -> BEI	0.148	2.122	0.034	Verified	0.025			
H7: RIS -> BEI	-0.081	1.864	0.062	Reject	0.019			
H8: BEI -> USB	0.466	5.418	0.000	Verified	0.242			

4.6. Discussion

The findings show that PEE improved e-wallet BEI the most (t-value = 4.150), given that e-wallets facilitate faster and more efficient transactions. Therefore, the present study supports the conclusions of [37]. These findings indicate that the PEE associated with e-wallet services significantly supports users' daily activities by enhancing transaction efficiency, reducing time and effort, and enabling more convenient payment experiences. Although previous studies

by [15] and [16] reported insignificant effects, the mixed findings in the literature suggest that the influence of PEE may vary across different research settings and user groups. Further studies are needed to identify the contextual factors that may explain these differences.

The analyses reveal that EFE did not exert a significant influence on e-wallet BEI (t-value = 0.949). The finding is associated with [12], [13], but stands in contrast to the evidence presented by [10], [14]. One plausible explanation is that respondents had considerable prior exposure to e-wallets, leading to greater familiarity and comprehension, which may weaken the role of EFE. Furthermore, most respondents were below 30 years of age, a cohort widely regarded as flexible and receptive to FinTech innovations. As a result, customers don't think about how easy or complicated e-wallet use is [12].

The findings confirm that SOI significantly improved e-wallet BEI (t-value = 3.551). This supports prior research by [11] and [13], which emphasized the important role of SOI in technology adoption behavior. The data imply that good advice and support from close companions, family, coworkers, and social circles increase e-wallet adoption. Therefore, greater perceived SOI enhances individuals' confidence and strengthens their BEI toward e-wallet services.

The results indicate a beneficial impact of FAC on e-wallet BEI (t-value = 2.939), aligning with the data provided by [10]. The results demonstrate that the accessibility of assistance and resources for e-wallets affects consumers' e-wallet BEI; nevertheless, the research conducted by [12], [15] indicated that FAC had not had such an impact on e-wallet BEI. These inconsistent findings suggest that the influence of FAC may depend on users' perceptions of available support and their reliance on external resources when adopting new technologies. Future research may further examine factors that strengthen or weaken this relationship.

The findings reveal a positive effect of FAC on e-wallet USB (t-value = 3.852), consistent with the evidence presented by [12] and [17]. Within the UTAUT framework, FAC are viewed as directly affecting the e-wallet USB [19]. The findings indicate that the availability of support and resources for e-wallets influences customer use of e-wallets. Nevertheless, the results differ from those of [14], who contended that favourable circumstances had an insignificant influence on e-wallet USB. The mixed findings indicate that the effect of FAC on e-wallet USB may vary according to users' technological readiness and the availability of supporting infrastructure.

Empirical findings reveal that customers' trust is a vital factor in shaping e-wallet BEI, exerting a significant and positive effect ($t = 2.122$). This result is supported by the research of [13], [26], [35]. This outcome indicates that consumers regard e-wallets as a reliable technology in terms of convenience and security. For instance, the implementation of one-time passwords (OTP) requires a password for each transaction, which is automatically sent to the user's registered mobile number, thereby preventing unauthorised access to the e-wallet applications [13].

According to the findings of the empirical investigation, it has been determined that the RIS of consumers has a negative effect on the e-wallet BEI of users ($\beta = -0.081$). However, it hardly affects the e-wallet BEI (t-value = 1.864). This conclusion is supported by the study presented in [15], which also discusses whether risk beliefs are enough to make consumers reject e-wallets. This app's continued use is impacted by variables like a high level of faith in technology, a more significant perceived advantage, and a great user experience. This is the case despite existing worries over the program's security. Nevertheless, additional studies are required to further clarify the role of RIS in e-wallet BEI.

The findings reveal that BEI positively influences e-wallet USB (t-value = 5.353). This result is in line with the UTAUT framework, which proposes a positive relationship between BEI and USB [19]. Similar results were reported by [12], [13], [39]. Accordingly, users who exhibit higher e-wallet BEI have a greater actual e-wallet USB.

5. Conclusions

This study examined what affects consumers' BEI and USB e-wallets. Expanding the UTAUT model to add trust and RIS and utilising Structural Equation Modelling to examine their interactions achieved this. Within the results, there was a disagreement over the important drivers that were hypothesised to impact e-wallet BEI and e-wallet USB. These key determinants were PEE, SOI, FAC, and trust. EFE and RIS, on the other hand, had little effect on e-wallet BEI. The majority of these associations were supported by the findings of the empirical study, notably the substantial impact that PEE and FAC in e-wallet BEI, as well as the considerable influence that FAC and e-wallet USB have.

This study yields valuable insights but also has limitations. This research enhances the UTAUT by including consumer trust and RIS; however, it omits other potentially significant factors, such as habit and pricing value. Omitting these parameters may limit the Model's explanatory capacity. Future studies may provide more extensive frameworks to elucidate e-wallet BEI and usage behavior. Second, the responses were only obtained from those questioned in Ho Chi Minh City, restricting their applicability to other parts of Vietnam or other countries. Subsequent research may use data gathered from participants in other areas of Vietnam or other nations. Third, respondents aged 21–30 years accounted for the majority of the sample. Future research is encouraged to include more participants from older age groups to improve the generalizability and representativeness of the findings. Fourth, although the measurement scales were adopted from prior validated studies and achieved acceptable reliability and validity, some items may not fully align with their intended theoretical constructs and may overlap conceptually with related variables. Consequently, future research should further refine and validate the measurement scales to improve construct clarity and strengthen the robustness of the findings. Fifth, one FAC item may partially reflect users' perceived necessity of e-wallet usage rather than resource availability or technical support. Future research is encouraged to employ measurement items that more closely align with the original UTAUT definition of FAC. Sixth, common method bias was assessed only through Harman's single-factor test.

Future research is encouraged to apply additional techniques, such as full collinearity assessment or marker-variable approaches, to provide a more rigorous evaluation of common method bias. Seventh, this study did not examine the moderating effects of age, gender, experience, and voluntariness of use as proposed in the original UTAUT model. The omission of these variables may limit the explanatory power of the model. Future research should incorporate these moderators to provide a more comprehensive understanding of e-wallet adoption behaviour.

6. Declarations

6.1. Author Contributions

Conceptualization: B.H.D. and D.T.C.; Methodology: D.T.C.; Software: D.T.C.; Validation: B.H.D. and D.T.C.; Formal Analysis: D.T.C.; Investigation: D.T.C.; Resources: B.H.D. and D.T.C.; Data Curation: D.T.C.; Writing Original Draft Preparation: D.T.C.; Writing Review and Editing: B.H.D. and D.T.C.; Visualization: D.T.C.; All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.3. Funding

The authors received no financial support for the research.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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