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EVALUATION OF DIGITAL WALLET ADOPTION AND CONSUMER PAYMENT PREFERENCES IN EMERGING FINTECH MARKETS

AVALIAÇÃO DA ADOÇÃO DE CARTEIRAS DIGITAIS E PREFERÊNCIAS DE PAGAMENTO DOS CONSUMIDORES EM MERCADOS EMERGENTES DE FINTECH

EVALUACIÓN DE LA ADOPCIÓN DE MONEDEROS DIGITALES Y LAS PREFERENCIAS DE PAGO DEL CONSUMIDOR EN MERCADOS FINTECH EMERGENTES

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Nguyen Cao Ky Duyen
Researcher in Multidisciplinary Studies
Institution: Hanoi - Amsterdam High School for the Gifted

ABSTRACT

Purpose: Digital wallets are payment systems that are software based and help individuals store their credentials in a secure manner. They enable payments, fund transfers, and money collection by the use of smartphones. This has been enabled due to increasing mobile connectivity, financial inclusion, and regulatory reforms in FinTech markets. Design/methodology/approach: This research examines the key determinants of digital wallet adoption and investigates consumer payment choices among digital wallets, cards, bank transfers, and cash in Vietnam. A quantitative cross-sectional approach was employed, involving 520 active mobile payment users selected through stratified sampling. Primary information was obtained using a structured questionnaire, while supplementary transaction-related data were gathered from relevant central bank reports to support the empirical investigation and contextual understanding of digital payment behaviour. Procedurally, wallet adoption was assessed by measuring awareness, Perceived Value (PV), Trust (TR), Convenience (CON), Social Influence (SI), and Perceived Cost (PC) were examined as drivers of Digital Wallet Adoption (DWA), then tracing how adoption shaped usage frequency and method selection through Consumer Payment Preference (CPP). Findings: The collected survey data underwent demographic profiling, descriptive statistics, reliability and validity testing, and Exploratory Factor Analysis (EFA) in Statistical Package for the Social Sciences (SPSS) version 28 (v28), whereas Structural Equation Modeling (SEM) was subsequently carried out in SmartPLS version 4 (v4). Originality/value: Measurement reliability was strong Cronbach's Alpha (CA) up to 0.891. PV (β = 0.284) and CON (β = 0.267) most strongly influenced DWA, which in turn significantly influenced CPP (β = 0.312) in an emerging FinTech market. Wallets dominated small, frequent payments, whereas cash persisted rurally. Trust-building and interoperability remain essential.

Keywords: digital wallet adoption; consumer payment preferences; Emerging Fintech Markets; financial inclusion; technology acceptance; mobile payment trust.

RESUMO

Propósito: As carteiras digitais são sistemas de pagamento baseados em software que ajudam indivíduos a armazenar suas credenciais de forma segura. Elas permitem pagamentos, transferências de fundos e coleta de dinheiro através do uso de smartphones. Isso foi possível devido ao aumento da conectividade móvel, inclusão financeira e reformas regulatórias nos mercados de FinTech. Método/abordagem: Esta pesquisa examina os principais determinantes da adoção de carteiras digitais e investiga as escolhas de pagamento dos consumidores entre carteiras digitais, cartões, transferências bancárias e dinheiro no Vietnã. Um método quantitativo transversal foi empregado, envolvendo 520 usuários ativos de pagamento móvel selecionados através de amostragem estratificada. Informações primárias foram obtidas usando um questionário estruturado, enquanto dados complementares relacionados a transações foram coletados de relatórios relevantes do banco central para apoiar a investigação empírica e a compreensão contextual do comportamento de pagamento digital. Procedimentalmente, a adoção da carteira foi avaliada medindo a conscientização, o Valor Percebido (PV), a Confiança (TR), a Conveniência (CON), a Influência Social (SI) e o Custo Percebido (PC) foram examinados como drivers da Adoção de Carteira Digital (DWA), então rastreando como a adoção moldou a frequência de uso e a seleção de métodos através da Preferência de Pagamento do Consumidor (CPP). Descobertas: Os dados da pesquisa coletados passaram por perfil demográfico, estatísticas descritivas, testes de confiabilidade e validade e Análise Fatorial Exploratória (AFE) no Statistical Package for the Social Sciences (SPSS) versão 28 (v28), enquanto Modelagem de Equações Estruturais (MEE) foi posteriormente realizada no SmartPLS versão 4 (v4). Originalidade/valor: A confiabilidade da medição foi forte com Alfa de Cronbach (CA) até 0,891. PV (β = 0,284) e CON (β = 0,267) influenciaram mais fortemente a DWA, que por sua vez influenciou significativamente a CPP (β = 0,312) em um mercado emergente de FinTech. As carteiras dominaram pagamentos pequenos e frequentes, enquanto o dinheiro em espécie persistiu em áreas rurais. A construção de confiança e a interoperabilidade permanecem essenciais.

Palavras-chave: adoção de carteira digital; preferências de pagamento do consumidor; mercados de fintech emergentes; inclusão financeira; aceitação da tecnologia; confiança em pagamentos móveis.

RESUMEN

Propósito: Las billeteras digitales son sistemas de pago basados en software que ayudan a las personas a almacenar sus credenciales de manera segura. Permiten pagos, transferencias de fondos y recolección de dinero mediante el uso de teléfonos inteligentes. Esto se ha logrado debido a la creciente conectividad móvil, la inclusión financiera y las reformas regulatorias en los mercados de FinTech. Diseño/método: Esta investigación examina los determinantes clave de la adopción de billeteras digitales y explora las preferencias de pago entre billeteras digitales, tarjetas, transferencias bancarias y efectivo en Vietnam. Se empleó un enfoque cuantitativo transversal, involucrando a 520 usuarios activos de pagos móviles seleccionados mediante muestreo estratificado. La información primaria se obtuvo mediante un cuestionario estructurado, mientras que los datos complementarios relacionados con las transacciones se recopilaron de informes relevantes del banco central para respaldar la investigación empírica y la comprensión contextual del comportamiento de pago digital. Procedimentalmente, la adopción de la billetera se evaluó midiendo la conciencia, el Valor Percibido (PV), la Confianza (TR), la Conveniencia (CON), la Influencia Social (SI) y el Costo Percibido (PC) como impulsores de la Adopción de Billeteras Digitales (DWA), luego rastreando cómo la adopción moldeó la frecuencia de uso y la selección del método a través de la Preferencia de Pago del Consumidor (CPP). Hallazgos: Los datos de la encuesta recopilados pasaron por un perfil demográfico, estadísticas descriptivas, pruebas de confiabilidad y validez, y Análisis Factorial Exploratorio (AFE) en el Paquete Estadístico para las Ciencias Sociales (SPSS) versión 28 (v28), mientras que el Modelado de Estructura de Ecuaciones (SEM) se llevó a cabo posteriormente en SmartPLS versión 4 (v4). Originalidad/valor: La confiabilidad de la medición fue fuerte con un Alpha de Cronbach (CA) hasta 0,891. El PV (β = 0,284) y el CON (β = 0,267) influenciaron más fuertemente la DWA, lo que a su vez influyó significativamente en la CPP (β = 0,312) en un mercado emergente de FinTech. Las billeteras dominaron los pagos pequeños y frecuentes, mientras que el efectivo persistió en áreas rurales. La construcción de confianza e interoperabilidad siguen siendo esenciales.

Palabras clave: adopción de billetera digital; preferencias de pago del consumidor; mercados fintech emergentes; inclusión financiera; aceptación de tecnología; confianza en pagos móviles.

1 INTRODUCTION

Rapid development in the field of financial and digital technologies, mobile technologies, and online financial services has caused a considerable change in the financial environment worldwide. The traditional payment systems such as cash, checks, and conventional banking are being supported by the electronic payment system, which is fast, convenient, and efficient (Lavrinenko *et al.*, 2023). The technology behind digital wallets is regarded as a significant advancement in the financial service industry, facilitating consumers in conducting transactions via smartphones and other devices connected to the Internet (Shrestha *et al.*, 2023). The types of activities that can be performed via digital wallets include retail purchases, online shopping, person-to-person payments, utility bills payment, and merchant transactions. In addition, advancements like QR Codes, NFC, encryption, and biometrics have enabled digital payment transactions. (Bhatnagar *et al.*, 2022). Digital wallets generally operate through mobile applications or web-based platforms that facilitate payments using linked bank accounts, payment cards, or stored-value balances, depending on the service architecture (Atayah *et al.*, 2024). The platforms make transactions easier by cutting down the transaction process time, and also providing electronic data, which will help to monitor and manage spending (Ersin and Bildirici, 2024). Digital wallets can be used to increase financial inclusion in emerging FinTech markets as well.

The uptake of digital wallets is dependent on a number of factors including technology, economics and behavior factors (Han *et al.*, 2024). Transaction convenience, transaction speed, merchant acceptance, promotions and incentives, and reliability of services are other factors that impact adoption decisions (Nguyen, 2022). Trust and security concerns play an important role as digital transactions require handling sensitive financial and personal information which may lead to problems like frauds, unauthorized transactions, privacy issues, and hidden fees (Wang *et al.*, 2022). Moreover, factors such as the age of individuals, their income level, educational level, occupation, and geographic location can be taken into account to find out the reasons for variations in payment practices. There are many benefits of using digital wallets, such as ease in transactions, less reliance on cash, traceable payments, and

integration with digital business (Zarifis and Cheng, 2026). Merchants can also benefit in terms of payment processing. Existing problems in mobile payments include cybersecurity, regulation compliance, interoperability, protection of personal information, and disparities in technology literacy (Najaf *et al.*, 2024).

1.1 PROBLEM STATEMENT

The area of digital wallet research and FinTech is more focused on market performance, financial stability, and technological growth without considering the consumers' point of view regarding their adoption and method selection reasons.

1.2 RESEARCH AIM

This research includes perceived value, trust, convenience, social influence, perceived cost, digital wallet usage, and consumer payment preferences into one structural model, focusing on consumer-oriented experiences and decisions for payments in Vietnam's FinTech industry.

Existing research conducted on FinTech and adoption of digital wallets based on theory and SEM framework have considered trust, social influence, and perceived usefulness as key factors but are constrained by limited sample size, lack of sufficient coefficient values, and inadequate contextual scope.

Bailey *et al.* (2022) used the modified Unified Theory of Acceptance and Use of Technology (UTAUT2) method to research the adoption of mobile payments in Latin America. The data gathered from the questionnaire for 186 and 398 respondents respectively were analyzed using Mplus 8.4 and PROCESS. The samples from specific countries restricted the generalization to other regions. Bayram *et al.* (2022) sought to examine the role played by FinTech in fostering sustainable finance and financial inclusion in Turkey. Secondary sources from the platform of the startups, regulatory sources, and the institution's reports assisted in the analysis of the case. These results revealed that contactless payments, microfinance, and digital contracts were some of the methods of inclusion.

Hassan *et al.* (2022) investigated mobile FinTech adoption in Bangladesh through questionnaires collected from 218 respondents. However, the relatively small sample and single-country context restricted generalizability, while numerical

coefficients were not reported. Dimitrova *et al.* (2022) conducted to functional and psychological barriers to adopting digital payments among the customers of banks in Sweden. Data composed complete an online form survey was examined using ordinal regression. The barriers related to privacy and accessibility impacted acceptance customers while barriers related to personalization impacted resistant customers.

Alkhwaldi *et al.* (2022) focused on the adoption intention of FinTechs and electronic loyalty in Jordan within the extended UTAUT model, where they analysed 423 samples AMOS 26.0. Abdul-Rahim *et al.* (2022) investigated the determinants of FinTech adoption, focusing on perceived risks and benefits, fear related with COVID-19, and sustainability to understand consumer acceptance of emerging financial technologies. For that, 400 respondents were selected of 1,279 valid questionnaires, which were collected from December 2021 to February 2022.

Bermeo-Giraldo *et al.* (2023) examined factors that determine FinTech acceptance among 124 Colombian university students. The research used EFA, CFA, and Cramer's V for the purposes of factor extraction and investigation of their relationships. Financial knowledge and social pressure had positive effects on perceived benefits and digital literacy. However, the small sample size and geographic representation restricted generalizability. Chawla *et al.* (2023) researched FinTech adoption among digital natives in five big cities of India utilizing SEM. Trust perception was tested as the mediating variable. But the number of the sample, path coefficients, and significance were not presented to provide statistical information.

Hassan *et al.* (2023) on Islamic mobile financial services adoption used UTAUT2 after modification. The SEM collected from 310 clients of an Islamic bank. Price, facilitating conditions, social influence and credibility all had a confident effect on adoption. Another research done by Nambiar and Bolar (2023) focused on customer preferences of cardless Automated Teller Machine (ATM) withdrawal over debit cards. Convenience sampling and predictive analytics were used. Usefulness became the determining factor in deciding cardless cash usage instead security. Therefore, single bank limitation reduced the generalizability.

Kraiwanit *et al.* (2023) examined demographic and behavioral determinants of Worldcoin wallet adoption through a questionnaire-based study involving 1,430 respondents from Thailand. The demographic, financial, ownership of wallet, frequency of usage, and social media variables were analyzed through binary regression. All the above-mentioned variables had significant effect on the purpose to

implement. Therefore, no numerical coefficient or significance values were presented, hence limiting the comparisons of their effects. Factors affecting mobile wallet continuance intention were explored by Rahman *et al.* (2024) through examining the connection among these variables and TCT using gamification on a sample of 431 users from Vietnam.

Yang and Jung (2024) examined Mongolia's FinTech ecosystem to identify opportunities and challenges in advancing sustainable finance. Secondary data from government departments, financial organizations, educational institutes, and industry was helpful in carrying out an integrated Weaknesses, Strengths, Opportunities, and Threats (SWOT) analysis with Multi-Level Perspective (MLP). Findings presented opportunities and barriers in strategy implementation. Do *et al.* (2025) examined Generation Z's e-wallet adoption intentions based on surveys conducted among 480 respondents in four Vietnamese cities. All the six aspects had a significant effect on intention except interface design and customer service which had less impact. However, geographical concentration limited the generalizability. Fatorachian *et al.* (2025) explored the issues connected to product-market fit, and regulation, consumer trust in UK-based business-to-consumer FinTech start-ups through surveys, interviews. Findings emphasized the need for approvals by Financial Conduct Authority, data protection and payments efficiency. The weaknesses in this study include absence of sample size and numbers.

Research Gap: Existing studies examine mobile payment adoption (Bailey *et al.*, 2022), digital payment barriers (Dimitrova *et al.*, 2022), and FinTech sustainability (Bayram *et al.*, 2022), but the integrated relationships among value, trust, convenience, social influence, cost, wallet adoption, and payment preference remain underexplored. To overcome these limitations, this research tests a comprehensive model quantitatively by employing a large stratified sample, valid measures, and structural equation modeling, with clear reporting of coefficients and model fit.

2 HYPOTHESIS DEVELOPMENT

The research focuses on exploring the impact of perceived value (PV), trust (TR), convenience (CON), social influence (SI), and perceived cost (PC) on digital wallet adoption (DWA) along with the impact of DWA on consumer payment preference

(CPP). Based on technology acceptance and consumer payment behavior theories, six hypotheses will be examined in Vietnam.

H1: Perceived Value (PV) positively influences Digital Wallet Adoption (DWA).

PV is defined as the consumers assessment of the benefits and costs related to digital wallets usage. The benefits like transaction efficiency, payment flexibility, and convenience can lead to higher perceptions of the usefulness of DWA.

H2: Trust (TR) has a significant positive effect on Digital Wallet Adoption (DWA).

TR stands for the confidence of TR consumers in the dependability, confidentiality, and security of digital wallets services. Whereas, the consumers TR the service providers of digital wallets, they may be more willing to the transactions. This is expected to increase DWA.

H3: Convenience (CON) positively affects Digital Wallet Adoption (DWA).

CON is an abbreviation for the characteristics of speediness and convenience involved with digital wallet transactions. This includes factors such as easy transactions through QR-code scanning and the speed of transactions processing.

H4: Social Influence (SI) positively contributes to Digital Wallet Adoption (DWA).

SI refers to the influence that relatives, friends, co-workers, and other social groups exert on the consumers' decisions about payments. Information from people who recommend something and have better experience can enhance awareness and confidence in DWA.

H5: Perceived Cost (PC) significantly influences Digital Wallet Adoption (DWA).

PC is defined as the consumer perceptions about transaction costs and other costs involved when using a digital wallet. The level of transaction costs can deter a consumer from using a digital wallet. Hence, PC will have an impact on DWA.

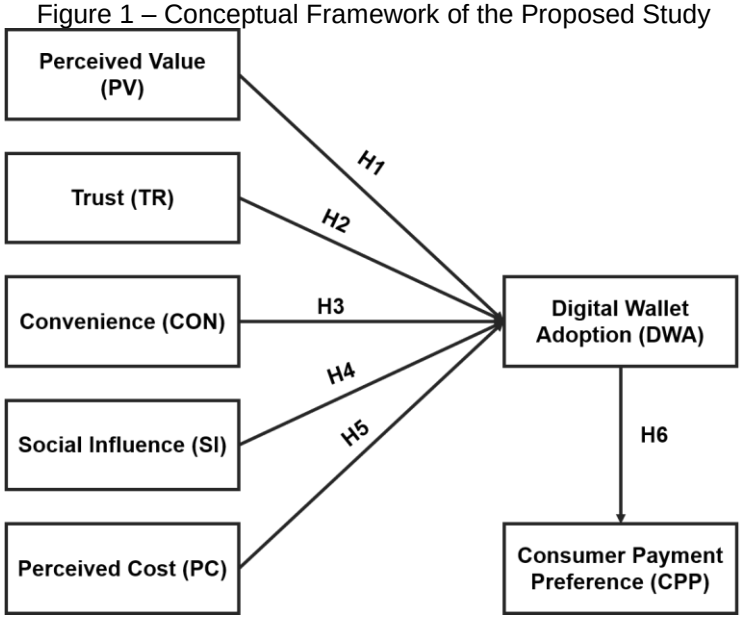
H6: Digital Wallet Adoption (DWA) positively influences Consumer Payment Preference (CPP).

DWA reflects consumers' getting and use of digital wallet services, while CPP indicates their preference for digital wallets over alternative payment methods. As consumers gain increased exposure to digital wallets and realize their ease and convenience, they may prefer them for daily transactions. This means that there will be an impact of digital wallet adoption on CPP.

2.1 CONCEPTUAL FRAMEWORK

Figure 1 presents a conceptual framework illustrating the relationships among five independent variables and two outcome constructs. PV, TR, CON, SI, and PC are hypothesised to influence DWA. Subsequently, DWA is proposed to affect CPP. The directional arrows represent the hypothesised relationships examined through SEM.

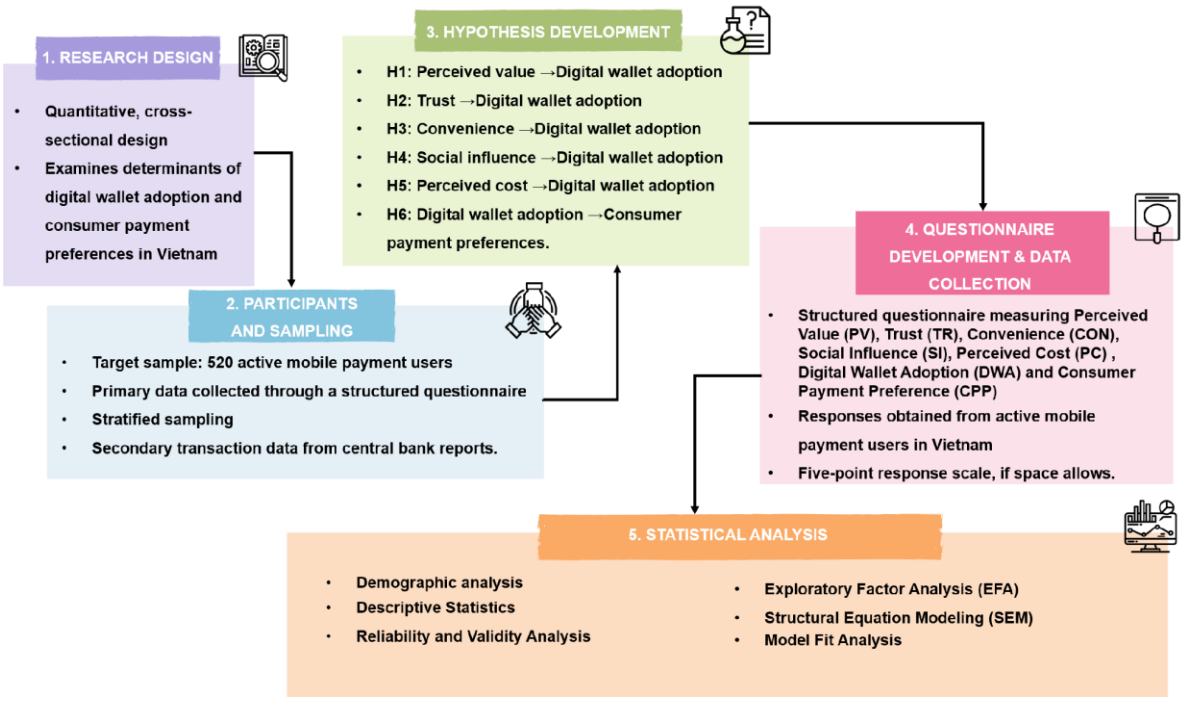
Figure 1 – Conceptual Framework of the Proposed Study



3 MATERIALS AND METHODS

A quantitative and cross-sectional designs were used for the purpose of finding out the drivers behind digital wallet adoption and the effects of adoption on consumers' payment preferences in Vietnam. As shown in Figure 2, there were six steps involved in this methodology: research design, determination of population, sample selection, survey data collection, measurement of constructs, and data analysis. Data were collected from users of mobile payments via a survey questionnaire at one point in time.

Figure 2 – Research Design and Analysis Process



3.1 STUDY AREA AND POPULATION

Vietnam is one of the growing markets in FinTech because it has digital payment services being incorporated into the changing financial services industry. The target group consisted of people who engaged in mobile payments using applications or digital wallets while carrying out their transactions. The selected respondents would consist of those who can use their experience in analyzing the benefits, security, and cost involved with the digital wallet services. This research aims to explore how they perceive and prefer the digital wallet services.

3.2 SAMPLE SIZE AND SAMPLING TECHNIQUE

The survey data were gathered from 520 participants actively using mobile payments in Vietnam. A stratified sampling technique was used to make sure all major segments of the respondents were appropriately represented in the population of interest. The population was correctly stratified, and thereafter, a sample was selected from the strata in the way discussed above. It was expected that through this technique, a wider range of respondents would be included in the sample but at the same time reduce the risk of oversampling a certain category of the respondents.

3.3 DATA ALLOCATION

The primary data was gathered using a survey questionnaire which measured seven different constructs including PV, TR, CON, SI, PC, DWA, and CPP. The results of the questionnaires were the primary source of data, and the secondary source of data was the central banks in relation to the payments system of Vietnam.

3.4 MEASUREMENT INSTRUMENTS

All the variables involved in the research were measured through the use of a structured questionnaire on seven constructs: PV, TR, CON, SI, PC, DWA, and CPP. The questionnaire contained questions regarding consumer perception of benefits, security, convenience, social influences, and cost, and adoption behavior. Preference for payment items included the preference of digital wallets compared to cash, debit/credit card, and bank transfers.

3.5 QUESTIONNAIRE TABLE

The survey included seven constructs related to digital wallet usage that include PV, TR, CON, SI, PC, DWA, and CPP. A number of questions have been posed to gauge the dimensions of each of the constructs on the basis of their conceptual definitions and appropriateness within the research environment. Table 1 shows the measurement indicators that are ranked on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1 – Questionnaire Things Used to Measure PV, TR, CON, SI, PC, DWA, and CPP

Variable	Item Code	Questionnaire Item
PV	PV1	Do digital wallets provide valuable benefits for your everyday payment needs?
	PV2	Do digital wallets help your complete transactions efficiently?
	PV3	Do the benefits of using digital wallets outweigh the effort required to use them?
	PV4	Do digital wallets provide good value compared with alternative payment methods?
TR	TR1	Do you trust digital wallets to process your financial transactions reliably?
	TR2	Do you believe digital wallet providers protect your personal and financial information?
	TR3	Do you feel confident about the security of digital wallet transactions?
	TR4	Do you believe digital wallet providers handle transactions responsibly?
	CON1	Is it easy for you to make payments using digital wallets?

CON	CON2	Do digital wallets allow you to complete transactions quickly?
	CON3	Can you conveniently access digital wallet services whenever you need them?
	CON4	Do digital wallets simplify your everyday payment activities?
SI	SI1	Do suggestions from relatives or peers affect your decision to adopt digital wallets?
	SI2	Do the digital wallet habits of those around you influence your decision to use them?
	SI3	Do individuals whose opinions matter to you approve of your use of digital wallets?
	SI4	Does the increasing acceptance of digital wallets in society encourage you to use them?
PC	PC1	Do transaction fees influence your decision to use digital wallets?
	PC2	Do you consider the service charges associated with digital wallets affordable?
	PC3	Do the costs of using digital wallets affect your willingness to adopt them?
	PC4	Do digital wallets help you reduce the costs associated with everyday payments?
DWA	DWA1	Are you willing to use digital wallets for your everyday payment needs?
	DWA2	Do you regularly use digital wallets to make payments?
	DWA3	Are you willing to incorporate digital wallets into more of your payment activities?
	DWA4	Are you likely to continue adopting digital wallet services when they are available?
CPP	CPP1	Do you prefer digital wallets over cash for suitable everyday transactions?
	CPP2	Do you favor digital wallets over cards or bank transfers for appropriate transactions?
	CPP3	Are digital wallets your preferred payment method for small and frequent purchases?
	CPP4	Would you choose digital wallets over alternative payment methods when convenience and cost are comparable?

3.6 DATA ANALYSIS TECHNIQUES

The relationships between PV, TR, CON, SI, and PC and DWA were considered along with the effect of DWA on CPP among Vietnamese mobile payment users. The analyses were performed using SPSS 28.0 and SEM software and included demographic analysis, descriptive statistics, reliability and validity test, EFA, and model fitting test].

4 RESULTS

The relationships among key factors influencing digital wallet adoption and consumer payment preferences were examined using SEM. Data were examined through demographic analysis, descriptive statistics, EFA, hypothesis testing, reliability

and validity assessment, and model-fit assessment using appropriate SEM software and SPSS version 28.0.

4.1 DEMOGRAPHIC ANALYSIS

This demography will highlight the traits of the participants regarding their age, education, occupation, monthly salary, gender, and location. Table 2 illustrated in the demographic distribution of the participants. The examination of these traits will aid in defining the sample composition and the differences among the participants.

Table 2 – Background Characteristics of the Research Population

$Demographic\ variable$	$Category$	$Frequency\ (n)$	$Percentage\ (\%)$
$Gender$	$Male$	270	51.9
	$Female$	245	47.1
	$Other\ / Prefer\ not\ to\ say$	5	1.0
Age group	$18-25\ years$	145	27.9
	$26-35\ years$	185	35.6
	$36-45\ years$	110	21.2
	$46-55\ years$	55	10.6
	Above 55 years	25	4.8
Education	High school or below	85	16.3
	Diploma / Undergraduate	235	45.2
	Postgraduate	170	32.7
	Doctoral / Other	30	5.8
Occupation	Student	95	18.3
	Government employee	80	15.4
	Private-sector employee	175	33.7
	Self-employed / Business	105	20.2
	Other occupations	65	12.5
Monthly income	$Low - income\ category$	100	19.2
	$Lower-middle - income\ category$	150	28.8
	$Upper-middle - income\ category$	165	31.7
	$High - income\ category$	105	20.2
Place of residence	Urban	335	64.4
	Semi-urban	125	24.0
	Rural	60	11.5

Figure 3 – Demographic characteristics of participants: (a) gender, (b) age group, (c) education, (d) occupation, (e) monthly income, and (f) place of residence

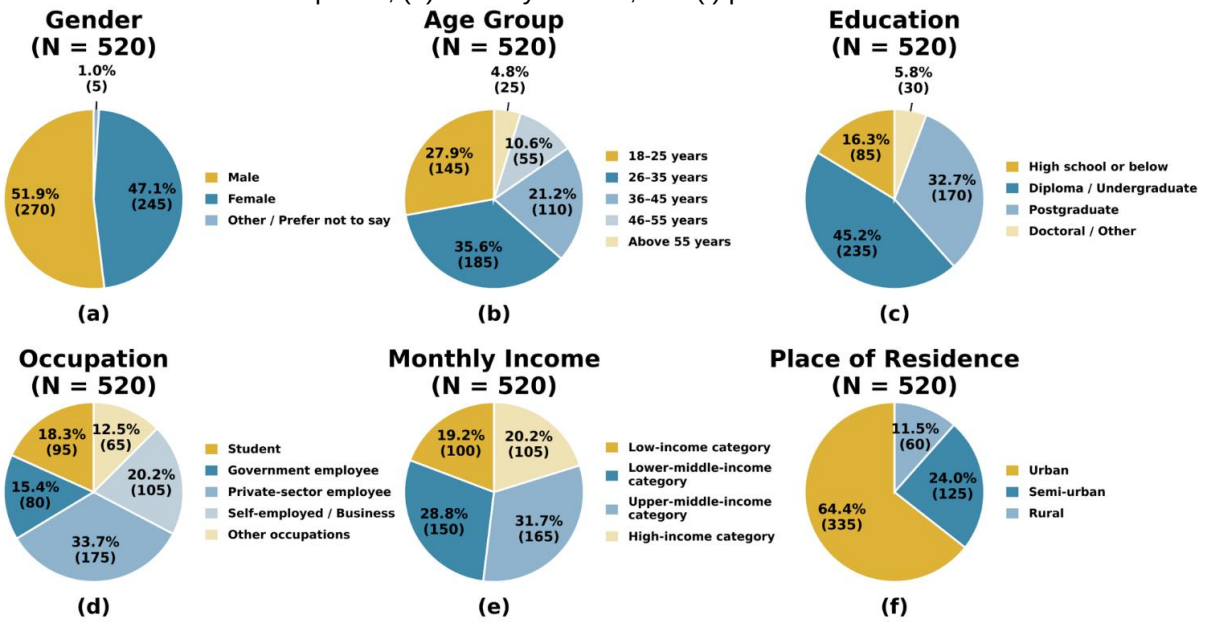


Figure 3(a-f) shows the demographic structure where we find that there are a total number of 520 respondents in the research, and among them, males comprise 51.9%, while females make 47.1%. Among all the age categories, 26-35 age category forms the highest percentage which is 35.6%. Diploma and undergraduate respondents form 45.2%. Employees from private sectors form the majority occupation category which is 33.7%. Upper middle-income respondents form 31.7%.

4.2 DESCRIPTIVE STATISTICS

The survey responses of active mobile payment users in Vietnam were used to find out the motives behind the use of digital wallets and factors that influence user decision in selecting between cashless and traditional methods of payments. The descriptive statistics for PV, TR, CON, SI, PC, DWA, and CPP are shown in Table 3 below.

Table 3 – Summary of Descriptive Procedures for the Study Constructs

Construct	Mean	SD	Minimum	Maximum
PV	3.82	0.74	1.50	5.00
TR	3.71	0.81	1.25	5.00
CON	4.05	0.68	1.75	5.00
SI	3.54	0.86	1.00	5.00
PC	3.42	0.89	1.00	5.00
DWA	3.88	0.73	1.50	5.00
CPP	3.76	0.78	1.25	5.00

Figure 4 – Construct-Level Mean and Standard Deviation

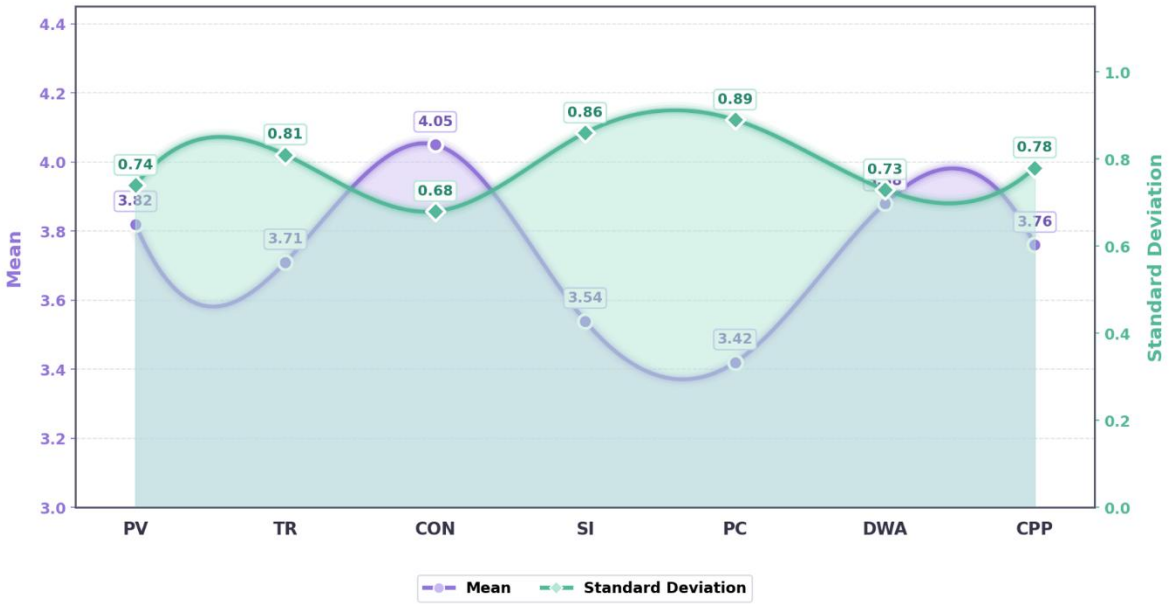


Figure 4 shows the seven constructs under research. CON was rated as the highest construct, with an average score of $M = 4.05$ and a SD of 0.68, reflecting that the respondents found CON. The other variables rated positively included DWA usage $(M = 3.88, SD = 0.73)$ and value $(M = 3.82, SD = 0.74)$. The variables rated negatively included PC $(M = 3.42, SD = 0.89)$ and SI $(M = 3.54, SD = 0.86)$.

4.3 RELIABILITY AND VALIDITY ANALYSIS

This method was applied to ensure the reliability and validity of seven constructs; PV, TR, CON, SI, PC, DWA, and CPP. Reliability of these constructs was assessed using CA and CR while for assessing their convergent validity AVE was used. Findings from this method are presented in Table 4.

$$R_{(t)} = e^{-\lambda t} \quad (1)$$

In Equation (1), $R(t)$ denotes the probability that a system or measurement remains consistent and performs without failure up to time t. The term e is the natural exponential constant. The parameter represent is the failure rate, indicating how quickly reliability decreases. The variable t refers to time or duration. As t increases, the value of $R(t)$ decreases, showing reduced reliability over time.

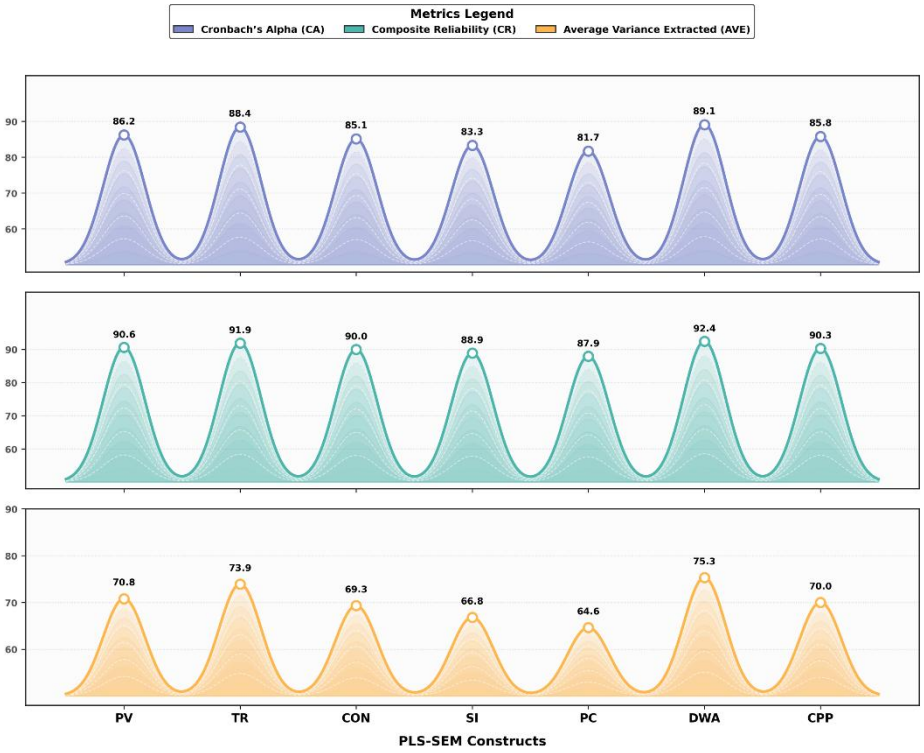
Table 4 – Assessment of Convergent Reliability and Construct Validity

Construct	No. of Items	CA	CR	AVE
PV	4	0.862	0.906	0.708
TR	4	0.884	0.919	0.739

CON	4	0.851	0.900	0.693
SI	4	0.833	0.889	0.668
PC	4	0.817	0.879	0.646
DWA	4	0.891	0.924	0.753
CPP	4	0.858	0.903	0.700

$Note$: $Cronbach's\ Alpha\ (CA), Composite\ Reliability\ (CR), Average\ Variance\ Extracted\ (AVE)$

Figure 5 – Measurement Quality of the Research Constructs



As presented in Figure 5, the consistency of the constructs was established with CA values between 0.817 and 0.891 and comfortably above the minimum threshold of 0.70. The values for CR ranging between 0.879 and 0.924 revealed satisfactory construct reliability, while AVE values of 0.646 to 0.753 were above the minimum level of 0.50. Out of the seven constructs, DWA had the highest CR and AVE values, while PC had the lowest AVE value of 0.646.

4.4 EXPLORATORY FACTOR ANALYSIS (EFA)

The items used in measuring the PV, TR, CON, SI, PC, DWA, and CPP constructs were analyzed using EFA. Factor loading (FL), standard errors (SE), and

variance explained were considered in analyzing the factors. Table 5 depicts the outcomes obtained from these factors.

Table 5 – EFA and Factor Structure of the Study Constructs

Variable	Questionnaire Item	FL	SE	Eigenvalue	Percentage of Variance (%)
PV	PV1	0.812	0.041	2.765	8.64
	PV2	0.846	0.038		
	PV3	0.829	0.040		
	PV4	0.791	0.045		
TR	TR1	0.824	0.039	2.627	8.21
	TR2	0.858	0.036		
	TR3	0.806	0.042		
	TR4	0.835	0.039		
CON	CON1	0.851	0.035	2.710	8.47
	CON2	0.879	0.032		
	CON3	0.823	0.040		
	CON4	0.844	0.037		
SI	SI1	0.783	0.046	2.470	7.72
	SI2	0.817	0.042		
	SI3	0.801	0.044		
	SI4	0.774	0.048		
PC	PC1	0.836	0.038	2.675	8.36
	PC2	0.821	0.041		
	PC3	0.804	0.043		
	PC4	0.792	0.046		
DWA	DWA1	0.847	0.036	2.718	8.49
	DWA2	0.866	0.034		
	DWA3	0.831	0.039		
	DWA4	0.809	0.042		
CPP	CPP1	0.843	0.037	2.692	8.41
	CPP2	0.825	0.040		
	CPP3	0.858	0.035		
	CPP4	0.814	0.041		

The findings from the EFA reveal that the FL range between 0.774 and 0.879, meaning there are significant correlations among the questionnaire variable quantity and their particular hypotheses. The highest FL is recorded in CON2 (0.879), whereas the lowest loading occurs in SI4 (0.774). The eigenvalue values are in the range of 2.470 and 2.765, and the change described by the constructs falls within the range of 7.72% to 8.64%.

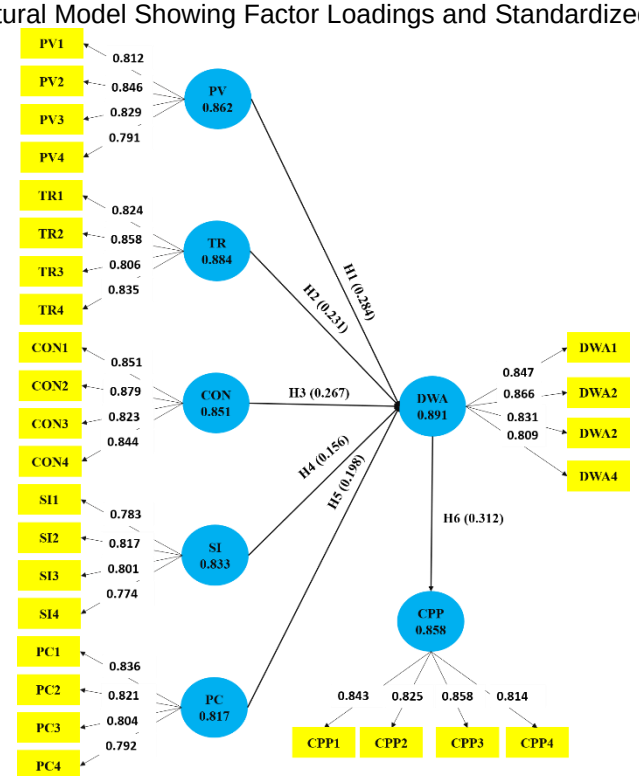
4.5 STRUCTURAL EQUATION MODELING (SEM)

The SEM analysis outcomes were active in establishing the proposed relationship among PV, TR, CON, SI, PC, DWA, and CPP. Table 6 indicates that the hypothesised relationships were statistically significant, demonstrating that the proposed factors influence DWA and CPP.

Table 6 – SEM-Based Hypothesis Evaluation and Structural Relationship Outcomes

Hypothesis	*Path*	*Standardized β*	*Standard Error*	*CR*	*P − value*	*Significant or not*
H1	PV → DWA	0.284	0.052	5.462	<0.001	Significant
H2	TR → DWA	0.231	0.047	4.915	<0.001	Significant
H3	CON → DWA	0.267	0.050	5.340	<0.001	Significant
H4	SI → DWA	0.156	0.045	3.467	<0.001	Significant
H5	PC → DWA	0.198	0.048	4.125	<0.001	Significant
H6	DWA → CPP	0.312	0.056	5.571	<0.001	Significant

Figure 6 – Structural Model Showing Factor Loadings and Standardized Path Constants



The outcomes of the physical method shown in Figure 6 indicate that all six proposed relationships are statistically significant ($p < 0.001$). DWA is positively

related to CPP ($\beta = 0.312$), whereas PV ($\beta = 0.284$) and CON ($\beta = 0.267$) positively impact adoption.

4.6 MODEL FIT ANALYSIS

The overall suitability of the amount and structural models was evaluated using SEM. Model fit was tested using a number of statistical tests such as χ²/df ratio, CFI, PGFI, RMR, GFI, AGFI, NFI, and RMSEA. These results have been provided in Table 7.

Table 7 – Statistical Indicators Evaluating Model Adequacy

Fit Index	*Recommended Value*	*Measurement Model*	*Structural Model*	**Interpretation**
χ^2/df	< 3.000	1.68	1.71	*Good fit*
GFI	≥ 0.900	0.912	0.908	*Good fit*
AGFI	≥ 0.800	0.876	0.872	*Acceptable fit*
NFI	≥ 0.900	0.921	0.918	*Good fit*
CFI	≥ 0.900	0.965	0.962	*Good fit*
PGFI	≥ 0.600	0.692	0.701	*Good fit*
RMR	≤ 0.080	0.043	0.047	*Good fit*
RMSEA	≤ 0.080	0.049	0.051	*Good fit*

Note: *Chi – Square to Degrees of Freedom* (χ^2/df), *Goodness of Fit Index* (*GFI*), *Adjusted Goodness of Fit Index* (*AGFI*), *Normed Fit Index* (*NFI*), *Comparative Fit Index* (*CFI*), *Parsimony Goodness of Fit Index* (*PGFI*), *Root Mean Square Residual* (*RMR*), *Root Mean Square Error of Approximation* (*RMSEA*)

Both the amount and organizational methods presented suitable fit. The χ^2/df values (1.68 and 1.71) were below 3.00, CFI values (0.965 and 0.962) indicated strong fit, and RMSEA (0.049 and 0.051) and RMR (0.043 and 0.047) met the measures. GFI and NFI exceeded 0.900, confirming the proposed model's overall suitability.

5 DISCUSSION

The elements of digital wallet adoption and to examine how adoption shaped consumer payment preferences across wallets, cash, cards, and bank transfers in an emerging FinTech market. Previous researchers' drawbacks, the geographic location of a small number of cities limited the generalizability of the outcomes (Do *et al.*, 2025). Path coefficients and significance values were not given, making it difficult to conduct

statistical analysis (Chawla *et al.*, 2023). Secondary data analysis had no quantitative validation (Bayram *et al.*, 2022), limited to a single bank made the preference dependent on that particular service (Nambiar and Bolar, 2023), and inconsistent results regarding trust (Rahman *et al.*, 2024). Moreover, the theory of preference payment adoption has been broadened, and variables like PV, TR, CON, SI, and cost have been tested using a comprehensive model. In terms of practicality, the value, convenience, security, and cost transparency would require improvement from FinTech companies, whereas the regulatory bodies could provide interoperability of infrastructure.

6 CONCLUSION

To understand the usage of digital wallets and the payment preference of consumers in Vietnam, a quantitative approach was used whereby the data on 520 mobile payment users was collected using stratified sampling method. The survey data was then analyzed to empirically prove the hypothesized relationships between constructs of the research. In general, the measurement model was found to have good reliability and convergent validity since the values for CA ranged between 0.817 and 0.891; CR between 0.879 and 0.924 and AVE between 0.646 and 0.753. Model adequacy was indicated $by\ \chi^2/df = 1.71, CFI = 0.962,$ and $RMSEA = 0.051. (PV;\ \beta = 0.284),\ (CON;\ \beta = 0.267), (TR;\ \beta = 0.231), (PC;\ \beta = 0.198),$ and (SI; β = 0.156) significantly influenced DWA, with all relationships achieving p < 0.001. DWA has shown to be a positive influence on $(CPP;\ \beta = 0.312).$ However, these results need to be treated with caution due to the research being cross-sectional, conducted in one country, and using self-report measures. Future research can employ the use of longitudinal designs, country comparisons, demographic variables, and actual payments made by the consumers.

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