# Determinants of E-wallet Acceptance Among Low-Income Group in Malaysia: a Pilot Study

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#### ABSTRACT

Developing acceptance of e-wallets among low-income groups is challenging due to factors such as financial limitations, digital literacy gaps, and concerns about security and usability. This study proposes a relationship model using a quantitative research design to validate the hypothesized factors and establish their interconnections. The key determinants influencing e-wallet acceptance include performance expectancy, effort expectancy, and facilitating conditions, with behavioral intention serving as a mediating factor. To ensure the reliability and validity of the research instrument, a two-step verification process was conducted. First, a panel of experts reviewed the questionnaire during the validation phase, and their feedback was incorporated. Second, a pilot study was conducted to examine the instrument's consistency using Cronbach's Alpha coefficient reliability screening in SPSS 29 software. The results confirmed that all items were reliable, with a Cronbach's Alpha coefficient exceeding 0.7, indicating strong internal consistency.

*Keywords :* E-Wallet Acceptance; Low-Income Groups; Pilot Study,; Questionnaire

#### A. INTRODUCTION

The rapid growth of digital payment systems has transformed how people conduct financial transactions worldwide. Among these innovations, e-wallets have emerged as a convenient and secure method for making payments. However, despite their widespread adoption, low-income groups continue to face significant barriers in embracing this technology. Factors such as limited digital literacy, financial insecurity, and lack of infrastructure can hinder the acceptance of ewallets among this demographic. Understanding the key factors that influence ewallet adoption is crucial to bridging the digital divide and fostering financial inclusion.

The Unified Theory of Acceptance and Use of Technology (UTAUT) provide a robust framework for investigating technology adoption behaviors. This

study focuses on three primary determinants from the UTAUT model: performance expectancy, effort expectancy, and facilitating conditions, with behavioral intention acting as a mediating factor. Performance expectancy reflects the perceived usefulness of e-wallets in improving financial transactions, while effort expectancy refers to the ease of use and perceived simplicity of the technology. Facilitating conditions involve the availability of resources and external support to aid adoption. Behavioral intention serves as a critical mediator, influencing the actual use of e-wallets among low-income users.

To ensure the accuracy and reliability of the research instrument, this study employs a pilot study using Partial Least Squares Structural Equation Modeling (PLS-SEM) and SPSS for data analysis. The pilot study aims to test the questionnaire's reliability and validity, providing essential insights before conducting a full-scale study. By evaluating these constructs, the research seeks to identify the core drivers of e-wallet acceptance and inform policy-makers, service providers, and stakeholders on strategies to promote digital payment adoption among low-income populations.

The objective of this study is to assess the reliability and validity of a questionnaire designed to measure the acceptance of e-wallets among low-income groups and explore the influence of performance expectancy, effort expectancy, and facilitating conditions, mediated by behavioral intention. This paper is structured into five sections. Following this introduction, Section Two presents the literature review and the theoretical model. Section Three outlines the research methodology, including questionnaire design and validation procedures. Section Four reports the pilot study results, while Section Five discusses the findings, contributions, and implications before concluding the paper.

By addressing these research gaps, this study contributes to the growing body of knowledge on technology acceptance and offers practical insights for increasing e-wallet adoption in low-income communities.

### **B. THEORITICAL**

In this study, the research framework is underpinned by theory that explains the variables such as performance expectancy, effort expectancy and facilitating conditions towards the acceptance of e-wallet. Hence, this section describes the theoretical orientation that helps to better understand the underpinning theories that support the research. At the same time, the theoretical orientation would help provide a clearer understanding on the relationship of the determinants of e-wallet acceptance. The Unified Theory of Acceptance and Use of Technology (UTAUT): UTAUT is a model developed by Venkatesh et al. (2003) to provide a unified explanation of technology acceptance and usage behavior. It combines key constructs from eight existing models, including the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), and Innovation Diffusion Theory (IDT), offering a comprehensive framework for understanding user behavior toward technology.

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a widely recognized model for understanding how people adopt and use technology. It was designed to be simple, with a limited number of constructs and moderating variables, making it easy to apply across various contexts, particularly for assessing the acceptance of new information systems (Tamilmani, 2021). The extended version, UTAUT 2, includes additional moderating variables that may not be relevant to certain studies (Momani et al., 2018). Given its comprehensive analysis of technology usage, UTAUT is considered the most suitable model for this study (Tamilmani et al., 2021).

Social factors, such as social influence, play a role in technology acceptance. Venkatesh et al. (2012) examined how perceived playfulness interacts with UTAUT constructs like social influence. However, for more complex technologies requiring individual learning, such as e-wallets, social influence tends to be less significant. Since e-wallet adoption often depends on personal experience rather than external encouragement, social influence is not a key factor in this study.

Research by Vernon and Poh Phaik See (2022) indicates that the impact of social influence on consumer behavior remains a debated topic. Social influence refers to how much an individual is affected by the opinions of important others regarding technology use. However, in situations involving voluntary technology adoption, such as e-wallets, social influence becomes less relevant because the decision is primarily based on individual needs and experiences.

Effendy et al. (2022) further highlight that social influence may not be a reliable variable in studies involving diverse groups. For low-income populations, which consist of multiple generations, the effect of social influence can vary widely. For instance, millennials are generally less affected by influential figures when adopting new technologies, making social influence a biased measure in such contexts.

### Performance Expectancy

Reviewing the literature on the factors influencing e-wallet acceptance is crucial to understanding the relationships proposed in this study. One of the most important determinants is performance expectancy, which refers to the belief that using e-wallets will enhance efficiency and simplify tasks. The convenience provided by e-wallets, such as quick and seamless transactions, integration with multiple payment methods, and the ability to make payments anytime and anywhere, significantly influences user acceptance (Taherdoost, 2023). By enabling digital transactions through smartphones, e-wallets eliminate the need to carry cash or physical cards, offering a more practical and accessible payment method.

Another advantage of e-wallets is their ability to organize and securely store payment information. Users can save credit and debit card details within the application, reducing the need to remember card numbers or present physical cards during transactions. This convenience speeds up the payment process and aligns with the modern demand for fast and efficient financial transactions. As a result, e-wallets become an attractive option by offering users a quick, simple, and effective way to manage payments.

Performance expectancy is closely linked to behavioral intention. Users are more likely to adopt a technology if they believe it will improve their efficiency or simplify their tasks. Numerous studies have confirmed this relationship, especially in the context of mobile payments and e-wallets (Al-Amri et al., 2018). For example, when users perceive mobile payment systems as beneficial for financial transactions, their intention to use and adopt these systems increases. This positive correlation highlights the importance of performance expectancy in shaping user behavior toward new technologies.

Several studies consistently identify performance expectancy as a significant factor influencing e-wallet adoption (Puasa et al., 2021; Sutresna et al., 2023; Hoo et al., 2021). However, its impact on behavioral intention may vary depending on contextual factors and user demographics. Venkatesh et al. (2003) define performance expectancy as the degree to which individuals believe that a technology will improve their performance. This concept is supported by research from Martins et al. (2014), Bhatiasevi (2016), and Sarfaraz (2017), which emphasize that performance expectancy is a key driver of cashless payment adoption, as users perceive these systems to enhance transactional efficiency.

### Effort Expectancy

Effort expectancy refers to how easy individuals perceive a technology to be when using it for their daily activities. Davis (1985) defines it as the extent to which a person believes that using a specific system requires minimal effort. Venkatesh et al. (2003) describe it as the degree of ease associated with using a system, drawing from similar concepts in the Technology Acceptance Model (TAM), Model of PC Utilization (MPCU), and Innovation Diffusion Theory (IDT). However, the impact of effort expectancy tends to diminish with prolonged use of technology (Gupta et al., 2008; Chauhan & Jaiswal, 2016). Studies consistently identify effort expectancy as a crucial factor in predicting consumer adoption of information technology, including e-wallets (Wang & Yi, 2012; Amoroso & Magnier-Watanabe, 2012; Yan & Yang, 2015).

Research has shown that the simplicity and practicality of e-wallets play a significant role in their acceptance. Gbongli et al. (2019), Karim et al. (2020), and Teo et al. (2020) found that effort expectancy strongly influences users' willingness to adopt e-wallets. Nambiar and Bolar (2023) emphasize that people are more likely to use e-wallets when they perceive them as easier as and more convenient than traditional payment methods. Ensuring that e-wallets are user-friendly and intuitive is essential to increasing adoption rates. Al-Amri et al. (2018) highlight the importance of a clear user interface and comprehensive instructions which build consumer trust and confidence in service providers.

The perceived usefulness of e-wallets may vary among low-income users based on their prior shopping experiences. Studies by Salzabella et al. (2021) and Teng and Khong (2021) indicate that users respond positively to e-wallets when the systems are easy to navigate. Consumers value technologies that simplify financial transactions and reduce effort, especially when using digital platforms. Prior research (Martins et al., 2014; Rahi et al., 2018) confirms that effort expectancy is a strong predictor of behavioral intention to adopt e-wallets. When users find e-wallets easy to understand and operate, they are more willing to embrace the technology, especially if it enhances payment efficiency.

Effort expectancy is positively linked to the intention to adopt e-wallets, particularly among low-income groups. To and Trinh (2021) found that the ease of using mobile payment systems directly influences their widespread adoption. Yang et al. (2021) reported a strong relationship between effort expectancy and the willingness of low-income individuals to use e-wallets. However, some studies present conflicting findings. Liébana-Cabanillas et al. (2021) argue that ease of use does not significantly impact the adoption of peer-to-peer (P2P) mobile

payments, especially for users already familiar with technology. Despite these mixed results, the increasing popularity of e-wallets among low-income users can be attributed to their user-friendly design and minimal effort requirements. This study aims to further explore the role of effort expectancy in e-wallet adoption among low-income groups with behavioral intention serving as a mediator.

### **Facilitating Conditions**

Facilitating conditions play a crucial role in influencing the acceptance of e-wallets. This concept refers to the availability of supportive resources and infrastructure that ease the adoption of new technologies (Lu et al., 2003; Bai et al., 2021). When users perceive that they have the necessary resources, such as technical support and training, they are more likely to adopt e-wallets (Yamunah M Mohan, 2022). Chawla and Joshi (2020) also found that facilitating conditions strongly predict users' intention to adopt and consistently use e-wallet services. This suggests that accessible resources and support significantly enhance e-wallet adoption, a finding supported by numerous prior studies.

Usability and user experience are critical in ensuring facilitating conditions encourage technology adoption. In financial technology, a lack of convenience can discourage users from embracing new services (Nicoletti et al., 2017). Users are more likely to adopt new technologies when they find them easy to use and when key resources are readily available (Luarn & Lin, 2005). This is particularly important for groups that may face usability challenges, such as older individuals (Barnard et al., 2013). Supportive environments that prioritize usability are essential to increasing e-wallet acceptance, especially for individuals who are less familiar with digital platforms.

Research on facilitating conditions shows mixed results regarding their influence on e-wallet adoption. While some studies highlight the positive impact of accessible resources (Ouchi et al., 2017), others suggest that high levels of facilitating conditions may reduce user intention (Aransyah et al., 2019; Alaeddin et al., 2018). Bhatiasevi (2016) found no significant relationship between facilitating conditions and mobile banking adoption in Thailand. Friadi et al. (2018) argue that resources and user confidence drive e-money adoption, but users may still view e-wallets as risky. These findings suggest that while facilitating conditions generally support e-wallet acceptance, concerns about security and perceived risks may reduce adoption, particularly among the low-income group in Malaysia.

### **Behavioral Intention**

Behavioral intention plays a crucial role in determining the acceptance of ewallets. It reflects a person's willingness and readiness to adopt e-wallets for financial transactions. Theoretical frameworks such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) emphasize the connection between behavioral intention and technology adoption. These models suggest that when users perceive e-wallets as useful and easy to use, their intention to adopt them increases. Moreover, behavioral intention aligns with change management theories, where early adopters drive broader acceptance. Cultural, societal, and educational influences also shape this intention by increasing awareness and fostering positive attitudes. This makes behavioral intention a vital concept in understanding the adoption of digital payment technologies.

Behavioral intention serves as a mediator between the acceptance of ewallets and its influencing factors. It represents an individual's willingness to engage in a specific behavior, such as using e-wallets (Al-Rahmi et al., 2021). This intention is shaped by factors like perceived usefulness, ease of use, social influence, and facilitating conditions. Research indicates that strong behavioral intentions are directly linked to higher rates of technology adoption (Chresentia & Suharto, 2020). Thus, behavioral intention bridges the gap between the factors that influence e-wallet adoption and users' actual behaviors. As a result, understanding its mediating role is essential in explaining how external factors translate into real-world acceptance and usage patterns.

While the mediating role of behavioral intention in e-wallet adoption has been understudied, a few existing studies highlight its significance. For instance, Xie and Lin (2014) found that the intention to use e-wallets mediates customer acceptance. Venkatesh et al. (2012) also showed that behavioral intention mediates the impact of facilitating conditions on technology adoption. However, Widayat et al. (2020) observed that many users lack the intention to fully embrace e-wallets as their primary payment method. Recent research by Oanh et al. (2023) in Vietnam identifies key factors affecting behavioral intention, including perceived usefulness, usability, reliability, risk, and technological familiarity. Given these findings, the current study proposes behavioral intention as a mediator to further examine its influence on e-wallet acceptance among lowincome groups.

### Theoretical Model

The conceptual framework in this study outlines the relationships between key factors influencing e-wallet acceptance among low-income groups. It is based on both conceptual and empirical discussions, drawing from the UTAUT2 and TAM theories. The framework examines how performance expectancy, effort expectancy, and facilitating conditions (independent variables) affect e-wallet acceptance, with behavioral intention acting as a mediator. This study targets lowincome groups in selected Malaysian states, encompassing various genders, generations, and life background reflected in the demographic section of the questionnaire. The framework was developed by integrating existing theories with new variables proposed by previous research is despicted in Figure I.



Figure I. The conceptual framework relationships between key factors influencing e-wallet acceptance among low-income groups

### C. METHODOLOGY

According to the study's overview, the current study is descriptive in nature, a form of research design that is solely theoretical in nature and involves the collection, analysis, preparation, and presentation of data in an intelligible way. Consequently, a cross-sectional study design was chosen to investigate the factors influencing retirement financial planning. Data was gathered using a questionnaire technique to determine low-income groups' opinions regarding the validity of the study variables.

Questionnaire design: This study uses a primary data collection approach through survey questionnaires to gather quantitative data. A questionnaire is a tool that directly involves the targeted sample, requiring respondents to answer formulated questions (Sekaran & Bougie, 2013). It is suitable for cross-sectional surveys and operationalizes the study's variables, including performance expectancy, effort expectancy, facilitating conditions, behavioral intention, and e-wallet acceptance, based on previous research. The questionnaire, adapted from Choi (2015), includes 24 questions divided into six sections with demographic questions in Section A. The instrument is designed with clear, simple language to ensure relevance and accuracy, drawing on validated measurements from earlier studies to make the questions easy to understand and answer.

Variable	Sources	No. of Items
Performance	Ngau, (2020);	6
expectancy	Taherdoost (2023)	
Effort expectancy	Liu (2019)	6
Facilitating	Ngau (2022);	6
conditions	Aransyah et al.	
	(2019); Barnard et	
	al. (2013).	
Behavioral intention	Ngau (2020); Liu	6
	(2019); Lim et al.	
	(2022); Yang et al.	
	(2021).	
Acceptance of E-	Rosli et al. (2023);	6
wallets	Hamzah et al.	
	(2023)	

	Table I. C	Juestionnaire	items	and	sources
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### Validation

Validation of the questionnaires was carried out in two steps before their final distribution to ensure the items were clear and acceptable to respondents. The first step involved presenting the questionnaire to three academic experts from UiTM for content and language validation, as well as one industrial expert from a gig workers' association for content validation. Based on the feedback and suggestions provided by the experts, the researcher made the necessary modifications before proceeding with the distribution.

## D. RESULTS AND DISCUSSION

### Pilot Study Result

The aim of this study is to evaluate the questionnaire for clarity and accuracy. It is essential to test all questionnaires to ensure their feasibility and reliability. As a result, the survey was distributed among gig workers in Negeri Sembilan, Kedah, and Kelantan, with a total of 30 questionnaires distributed, all of which were returned. According to Saunders et al. (2009), a minimum of ten samples is recommended for pilot testing in large-scale research. The demographic details from the responses are presented in Table 2 to provide insights into the characteristics of the study sample, while the reliability of the factors for all items is explained in Table 3.

Demographic Prome of Phot Respondents (11-50)			
Demographic Profile	Frequency	Valid	
	(n=30)	(%)	
Gender			
Male	5	16.7	
Female	25	83.3	
States			
Kelantan	II	36.7	
Negeri Sembilan	13	43.3	
Kedah	6	20	
Monthly Income			
Below RM2,500	23	76.7	
RM2,501 - RM3,170	3	10	
RM3,171 - RM3,970	4	13.3	
Frequency of e-wallet usage in a week			
Once a week	12	40	

**Table 2.** Demographic Information of the Study Sample Demographic Profile of Pilot Respondents (n=30)

Between 2-6 days a week	9	30
Everyday	9	30

 Table 3. Factors Reliability for all Items

Variable	Cronbach's Alpha	N of Items
Performance Expectancy	0.893	6
Effort Expectancy	0.842	6
Facilitating Conditions	0.895	6
Behavioural Intention	0.936	6
Acceptance of E-wallets	0.888	6

Reliability refers to the consistency of a measurement instrument in capturing phenomenon. This study used Cronbach's alpha coefficients, calculated via SPSS 28.0, to assess the reliability of each construct. A value above 0.70 indicates acceptable reliability, with values between 0.7 and 0.9 considered good, and above 0.9 very well. The pilot study achieved a Cronbach's alpha of 0.968, indicating strong reliability for larger samples. Items with item-to-total correlations above 0.35 were retained, while those below were removed. Factor analysis was not conducted due to the sample size being under 100.

#### Discussion

According to the study's findings, the questionnaire is valid for use in the primary investigation and dependable. The reliability of research instruments is increased by a successful pilot study. According to Chua (2022), pilot studies play a significant role in the development of interventions and, when interpreted correctly, can increase the effectiveness and validity of subsequent clinical trials by improving subject recruitment, intervention delivery, and by enabling researchers to more precisely determine the necessary sample sizes. This analysis also enables the researcher to identify and address any weaknesses in the research instrument. Any errors in the research instruments, particularly troublesome items, can be modified or removed to increase the reliability of the questionnaire that will be used in the main study. Additionally, by carrying out this investigation, the researchers are able to ascertain what or how much funding is required for the primary study.

### E. CONCLUSION

This study aimed to assess the reliability and feasibility of a questionnaire for evaluating e-wallet adoption among low-income groups in Malaysia. The pilot test involved 30 gig workers from Negeri Sembilan, Kedah, and Kelantan, with all responses returned and analyzed. The reliability of the measurement tools was evaluated using Cronbach's alpha, yielding a high value of 0.968, indicating strong internal consistency. This suggests that the instruments are suitable for larger-scale studies. The feedback from experts and the results from the pilot study helped refine the questionnaire to ensure its clarity and relevance, ensuring its alignment with the study's objectives. Additionally, people beginning projects using related methodologies and instruments may find some of these procedures and outcomes from both successful and unsuccessful pilot studies to be very beneficial (Karen H. Morin, 2013).

Pilot studies like this one offer valuable insights into the effectiveness of different data collection methods and provide the opportunity to refine instruments before full-scale research. Pilot studies can yield important information about the efficacy of various data collection techniques, depending on the goals of the study and the traits of the target population (Malmqvist et al., 2019). By evaluating the pilot results and making necessary adjustments, this research is now better equipped to examine e-wallet adoption and its key determinants in a larger, more representative sample of low-income groups in Malaysia.

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