Factors Influencing Adoption of Mobile Payment System in Malaysia

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Received: *12/03/2025* ***Revised :*** *26/03/2025* ***Accepted:*** *27/03/2025*

Abstract

This study investigates factors influencing the adoption of mobile payment systems in Malaysia, focusing on convenience, security issues, and consumer preferences. The research employs a survey questionnaire approach, surveying 228 Malaysian consumers. Descriptive statistics, Pearson correlation, and multiple regression analysis were applied to analyze the data. The results show that, out of the three suggested factors, convenience and consumer preference influence the adoption of mobile payment systems in Malaysia. Security issues do not have a relationship with the adoption of mobile payment systems in Malaysia. These findings may assist the service providers and policymakers in addressing existing consumer concerns for a successful transition toward a mobile payment system.

Keywords: mobile payment system, convenience, security issue, consumer preference

Introduction

Mobile payment systems have emerged as a transformative force in the financial landscape, driven by advancements in technology and changing consumer behaviors. These systems enhance convenience, security, and accessibility, facilitating seamless transactions across various platforms. Mobile payment systems allow users to register their phone numbers and process transactions via a client application. These systems can activate personal point-of-sale (POS) terminals on consumer devices, enabling direct transactions without intermediary steps. The integration of AI technologies, such as federated learning, enhances data privacy and transaction efficiency, crucial for maintaining user confidentiality in mobile payments (Alqurashi et al., 2023; Sudheer, 2025). Innovations like blockchain and application programming interfaces (APIs) contribute to the security and scalability of mobile payment solutions, fostering widespread adoption (Chatterjee, 2024).

Despite their advantages, mobile payment systems face challenges such as skimming, fake terminals, and relay attacks. Biometric identification schemes have been proposed to mitigate these risks through mutual authentication (Al-Maliki and Al-Assam, 2021). Security concerns and regulatory hurdles can impede universal adoption, particularly in emerging markets like Malaysia where digital infrastructure may be lacking(Chatterjee, 2024).

Mobile payment systems are developing rapidly in Malaysia. This trend represents a change in the way Malaysians pay for transactions, and traditional cash payment methods have begun to be slowly abandoned. The development and adoption of smartphones and

mobile Internet in the past few years have changed the payment methods and habits of Malaysians.

While mobile payment systems offer significant benefits, their growth is tempered by security challenges and regulatory issues that must be addressed to ensure widespread adoption and trust among users. This study aims to explore the factors that drive the adoption of mobile payment systems in Malaysia, such as focusing on convenience, security issues, and consumer preferences. The findings provide better insights for financial institutions such as banks and insurance companies or the consumer market in Malaysia to help them understand the current changes and trends to make changes in line with the market. As mobile payments continue to develop, this study also reveals the potential long-term impact on traditional payment methods.

Objectives

This study has an objective to investigate factors influencing the adoption of mobile payment systems in Malaysia, focusing on convenience, security issues, and consumer preferences.

Literature Review

Mobile Payment System in Malaysia

In recent years, mobile payment systems have become a common way to pay for things, especially in places like Malaysia, where digital options are steadily replacing cash. Mobile payment systems, including popular platforms like Touch ‘n Go, Boost, and GrabPay, allow users to pay with just a few taps on their smartphones. The recent government support has fuelled this digital payment boom in Malaysia. Through initiatives like “Cashless Malaysia,” the government has actively encouraged cashless transactions to modernize the economy. Lai & Liew (2021) and BNM (2021) explain that Bank Negara Malaysia has even put new policies in place to ensure mobile payment security and boost people’s confidence in going cashless. With high smartphone use and widespread internet access, Malaysia has become a prime market for mobile payments to take off. The mobile payment system in Malaysia has gained significant traction, driven by various factors influencing consumer and merchant adoption. Research indicates that perceived ease of use, perceived usefulness, and compatibility are critical determinants of acceptance among users. Additionally, merchant adoption is influenced by technological readiness and competitive pressure. Mobile payment systems in Malaysia present a compelling alternative to traditional payment methods, particularly in terms of security and convenience (Wan Abdullah & Hisamudin, 2024). While traditional methods often rely on physical cash or cards, mobile payments leverage advanced technologies to enhance user experience and security. The rise of mobile payments is reshaping Malaysia’s payment landscape. Bank Negara Malaysia (BNM) reported in 2021 that the number of cash transactions has been steadily dropping as digital payments become the norm. Younger Malaysians, in particular, are driving this shift, choosing the ease of mobile transactions over the hassle of carrying cash. In fact, mobile payments have been growing at an impressive rate of over 50% per year since 2018 (BNM, 2021). Nazri et al., (2024) found that people in Malaysia are drawn to these systems primarily because they make payments faster and easier, whether in stores or online. The convenience factor is huge here; no one wants to fumble with cash or cards when they can simply scan and go. Conversely, traditional payment methods may be perceived as more reliable by some users due to their long-standing presence and familiarity. However, as mobile payment technologies continue to evolve, they are likely to address these concerns, further enhancing their appeal in Malaysia's financial landscape.

Factors Influencing the Adoption of Mobile Payment Systems

The adoption of mobile payment systems is influenced by a variety of factors that can be categorized into user perceptions, social influences, and external challenges. Understanding these factors is crucial for enhancing user acceptance and optimizing mobile payment services. Prior research pointed out several factors. Juniarsih et al.(2024) and Hassaan & Yaseen (2024) found users are more likely to adopt mobile payments if they believe these systems enhance their transaction efficiency and convenience. Handayani & Rahmantari (2024) found a significant correlation exists between the ease of use of mobile payment systems and users' intention to adopt them. The impact of peers and societal trends plays a crucial role in shaping users' intentions to adopt mobile payments (Juniarsih et al., 2024; Hassaan & Yaseen, 2024). Concerns regarding security and privacy can deter users from adopting mobile payment systems (Juniarsih et al., 2024; Handayani & Rahmantari, 2024). While these factors significantly promote mobile payment adoption, challenges such as security concerns, consumer preference, and convenience of use remain critical barriers that must be addressed to enhance overall acceptance.

Hypotheses

Based on the review of the literature, there are three proposed hypotheses for this study.

Hypothesis 1 (H1): Convenience of mobile payment systems usage has a positive influence on the adoption of mobile payment systems in Malaysia.

Hypothesis 2 (H2): Perceived security issues of mobile payment systems usage have a positive influence on the adoption of mobile payment systems in Malaysia.

Hypothesis 3 (H3): Consumer preference for mobile payment systems usage has a positive influence on the adoption of mobile payment systems in Malaysia.

Methodology

Research Design

This study employs a correlational research design to examine the relationship between the factors influencing the adoption of mobile payment systems in Malaysia, focusing on convenience, security issues, and consumer preferences.

Instrument

The primary research instrument was a structured questionnaire. The questionnaire was reviewed by three experts with the Index of Item-Objective Congruence (IOC) to find the content validity. The items that had scores lower than 0.5 were revised. On the other hand, the items that had scores higher than or equal to 0.5 were reserved. Then, the questionnaire was tested with 30 mobile payment system users who were not in the sample group. The reliability value was calculated by using Cronbach’s alpha to ensure whether there was internal consistency within the items. The result of the Cronbach’s alpha of each factor ranged from 0.628 to 0.988. The factor items that received lower than 0.7 loadings were removed or modified (Hair et al., 2014). As a result, the final questionnaire consisted of 20 items of measurement.

Population and Sample

The population for this study is Malaysian consumers who have adopted mobile payment systems. The researchers used Cochran's (1977) formula for an unknown population with a precision level of 5%, a confidence level of 95%, and an estimated population of 30%. The reason for an unknown population is that the researchers did not have information about the number of consumers who use the mobile payment system. As a result, the sample size was 323. The researchers distributed the online survey to 500 respondents who live in Kuala Lumpur, Malaysia. However, there were only 228 returns and usable responses.

Statistics

After data collection, the data were encoded and analyzed using descriptive statistical methods, hypothesis testing with Pearson Correlation, and Multiple Regression Analysis.

Research Results

Demographic Information

Table 1 presents the demographic distribution of the survey respondents, illustrating that 57.5% of the respondents were female, the majority of them were 50 years old and above (32.4%), and between 30 and 39 years old (30.3%), the income level was below RM 4,000 per month (70.6%), diversity of education level from elementary school to master's degree, where the majority of the respondents obtain bachelor's degree (34.2%).

Table 1 Respondent Demographic Information (228)

Demographic Feature	Frequency	Percentage
Gender		
Male	97	42.5
Female	131	57.5
Age		
Below 20	8	3.5
20–29	45	19.7
30–39	69	30.3
40–49	32	14.0
50 and above	74	32.5
Income Level		
Below RM 2,000	86	37.7
RM 2,001–RM 4,000	75	32.9
RM 4,001–RM 6,000	36	15.8
RM 6,001–RM 8,000	4	1.8
Above RM 8,000	27	11.8
Education Level		
High school or below	63	27.6
Diploma	52	22.8
Bachelor's degree	78	34.2
Master's degree	35	15.4

Level of Factors Influencing the Adoption of Mobile Payment Systems

Table 2 shows the mean and standard deviation scores for the factors influencing the adoption of mobile payment systems in Malaysia. All factors including convenience, security issues, and consumer preferences were at the average level. Convenience in using mobile payment systems was the highest mean level among all the factors (Mean = 4.01 out of 5.00). Security issues in using mobile payment systems were at the lowest level (Mean = 3.65 out of 5.00). The adoption of a mobile payment system was at the average level (Mean = 3.53 out of 5.00).

Table 2 Level of Factors Influencing the Adoption of Mobile Payment Systems (n = 228)

Variable	Mean	SD	Level
Convenience	4.01	0.76	Average
Security issue	3.65	0.59	Average
Consumer preferences	3.68	0.71	Average
Adoption of a mobile payment system	3.53	1.19	Average

Correlation Among the Variables

A test of the correlation between the components of convenience, security issues, and consumer preferences was performed using Pearson's Correlation. The results are shown below in Table 3.

Table 3 Pearson's Correlation Test Among Variables (n = 228)

Variables	Convenience	Security issue	Consumer preferences	Adoption
Convenience	1.00			
Security issue	0.50**	1.00		
Consumer preferences	0.57**	0.61**	1.00	
Adoption	0.33**	0.19**	0.38**	1.00
VIF	1.56	1.67	1.87	

**. Correlation is significant at the 0.01

The relationship was positive and the correlation coefficient between the independent variables (convenience; security issues; consumer preferences) was between 0.50 and 0.61. There was no correlation value higher than 0.80, indicating that there would be no problem of self-correlation between independent variables (Multicollinearity). In addition, the mean values of all variables were more than 3.00 (Table 2), indicating that the informants had an opinion on the measurement items of each variable at the level of "agree". Later, the researchers analyzed the Variance Inflation Factors (VIF) value, which was between 1.56 and 1.87, showing that the VIF value was not more than 5.00, indicating that there was no problem of self-correlation between the variables (Ringle et al., 2015). The data could be analyzed.

Relationship Between Factors and the Adoption of Mobile Payment Systems

The results of the Multiple Regression Analysis, in Table 4, show that, out of the three suggested factors, convenience and consumer preference influence the adoption of mobile payment systems in Malaysia. Convenience positively influences the adoption of mobile payment systems in Malaysia with statistical significance at the 0.05 level. Therefore, Hypothesis 1 is accepted. Consumer preference positively influences the adoption of mobile payment systems in Malaysia with statistical significance at the 0.01 level. Therefore, Hypothesis 3 is accepted. However, Security issues have no relationship with the adoption of mobile payment systems in Malaysia. Therefore, Hypothesis 2 is rejected.

Table 4 Multiple Regression Analysis between Factors and the Adoption of Mobile Payment Systems (n = 228)

Factors	Adoption			t	p
	b	S.E.b	β		
Constant	1.08	0.49		2.18	0.03*
Convenience	0.31	0.12	0.20	2.63	0.00**
Security issue	-0.23	0.16	-0.11	-1.43	0.15
Consumer preferences	0.55	0.14	0.33	3.98	0.00**
F= 15.332 P = 0.000 R =.413 R^2 = .170 AdjR^2 = .159					

** Statistical significance at 0.01; * Statistical significance at 0.05

Discussion

This study explored the factors influencing the adoption of mobile payment systems in Malaysia, focusing on convenience, security issues, and consumer preferences. The study revealed that convenience in using mobile payment systems influences the adoption of mobile payment systems in Malaysia. This finding confirms the findings of recent prior studies (e.g., Berisca et al., 2024; Juniarsih et al., 2024; Handayani & Rahmantari, 2024; Hubeis, 2024; Mamatha & Dev, 2024; Yoo & Kim 2023; Yuson et al., 2025). In particular, the study of Berisca et al. (20240 identified key factors influencing mobile payment adoption, including perceived convenience of use and additional variables specific to the public transportation context, particularly among Jakarta MRT users, enhancing understanding of mobile payment acceptance in Indonesia. Yuson et al. (2025) studied factors influencing the adoption of mobile payment systems. Their findings revealed that factors such as perceived convenience to use and other factors significantly correlate with behavioral intention, highlighting their importance in promoting mobile payment adoption in Digos City, the Philippines. Yoo & Kim (2023) investigated the effect of the security and convenience of mobile simple payment on Chinese users' intention to use. The study found that the convenience of mobile payments has a significant positive effect on users' intention to utilize them, enhancing their overall experience and satisfaction. Thus, the main reason for the convenience of mobile payment systems as a significant factor influencing their adoption and usage among consumers may be because mobile payment platforms, such as QRIS, provide users with a seamless transaction experience, which is crucial in today's fast-paced environment. This convenience is characterized by ease of use, quick transaction times, and the ability to make payments anytime and anywhere, which enhances consumer satisfaction and encourages further usage.

Conversely, while convenience is a driving force for mobile payment adoption, concerns about security and potential risks associated with cybercrime can deter users from fully embracing these systems (Pal et al., 2021). The finding of this research confirmed this concern that perceived security issues of mobile payment systems usage have no relationship with the adoption of mobile payment systems in Malaysia. The finding is contradicted by other findings that perceived security issues influence the adoption of mobile payment systems (e.g., Juniarsih et al., 2024; Hassaan & Yaseen, 2024; Hung et al., 2024; Kazakova et al.,2024). For example, Juniarsih et al. (2024) examined factors influencing consumer adoption of mobile payment systems in Jambi, Indonesia. They found that perceived risk from security issues negatively affects adoption intention. Hassaan & Yaseen (2024) examined factors influencing customers' adoption of mobile payment in Pakistan. Among several factors, perceived driving customer adoption of mobile payment behavior in Pakistan.

The third finding of this study confirms that consumer preference for mobile payment systems usage has a positive influence on the adoption of mobile payment systems in

Malaysia. The finding is similar to other findings that the adoption of mobile payment systems is influenced by several key consumer preference factors, which vary across different contexts (e.g., Lady et al., 2024; Sundararaj & Meera, 2024; Tribhan, 2024). Consumer preferences, shaped by several factors such as convenience, security, trust, social influences, and perceived value, play a central role in the adoption of mobile payment systems. If a system aligns with what consumers value and is easy to integrate into their lifestyle, adoption rates tend to be higher (Kazakova et al., 2024).

Conclusion and Suggestions

This study provides a comprehensive view of the factors influencing the adoption of mobile payment systems in Malaysia. The result shows that convenience was highly rated by respondents, but it did not significantly drive adoption. This indicates that users view convenience as a standard feature. Security concerns showed no significant impact, suggesting that although security is crucial, but is not a key barrier to adoption. Finally, consumer preferences were identified as the strongest influence on adoption, highlighting the importance of compatibility with lifestyle in shaping user behavior. The findings provide valuable insights into the dynamics of mobile payment adoption in Malaysia. As mobile payment systems become more popular in the future, service providers must focus on feature and system convenience to enhance user experiences and ensure features align with consumer lifestyles to encourage broader adoption. In addition, the design of the system needs to be more focused on users, ensuring that every different level of user, such as those with low education, can use the mobile payment system; this will make mobile payment systems more inclusive.

As the research on the factors influencing the adoption of mobile payment systems in Malaysia concludes, it's clear that there is much more to explore about the factors in this field. Future research could focus on analyzing social aspects such as peer influence and social norms; technological aspects such as infrastructure and availability, compatibility with other systems; economic aspects such as Cost and Affordability, global trends and market maturity, financial inclusion and access to banking; and regulatory aspects such as government and regulatory support.

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