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The Impact of Mobile Payments on Consumer Behavior—A Case Study of the Thai Market

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Abstract

As mobile payments rapidly transform consumer behavior globally, understanding their impact in emerging markets like Thailand is crucial for strategic planning. This study investigates the influence of mobile payments on middle-aged Thai consumers (aged 30–50) using the Theory of Planned Behavior (TPB) as a framework. A questionnaire survey was conducted among 427 mobile payment users in Bangkok, and the data were analyzed using descriptive statistics, reliability and validity tests, correlation analysis, and regression analysis. The results confirmed that attitude, subjective norms, and perceived behavioral control significantly and positively influence mobile payment intention. Specifically, perceived behavioral control emerged as the strongest predictor, followed by attitude and subjective norms. These findings highlight the importance of consumers' confidence in their operational skills, positive perceptions of mobile payments, and social influences in driving adoption. The study validates the applicability of TPB in the Thai context and provides actionable insights for mobile payment platforms to enhance user experience, security, and social acceptance. By addressing these factors, businesses and policymakers can better promote mobile payment adoption among middle-aged consumers, contributing to Thailand's transition toward a cashless society. Future research should expand the sample to other regions and incorporate qualitative methods to deepen understanding of behavioral motivations.

Keywords: *mobile payment, consumer behavior, theory of planned behavior, payment intention*

1. Background

As the global economy advances toward comprehensive digitization, mobile payment systems—an emblematic innovation of financial technology—are rapidly gaining global traction due to their convenience, efficiency, and security. These systems are fundamentally reshaping consumer payment behaviors and business ecosystems (Lai & Liew, 2021). In developing countries, mobile payments not only compensate for the limitations of traditional financial services but also significantly enhance transactional efficiency and foster socio-economic dynamism (Hopalı et al., 2022).

Thailand, as a key economy in Southeast Asia, exemplifies this trend. Its mobile payment market has expanded rapidly, reaching a market size of USD 40 billion in 2023—almost tripling from USD 15 billion in 2018 (Changchit, Cutshall, & Pham, 2024). This growth has been propelled by the proliferation of smart devices, a high internet penetration rate of 98% (DEPA, 2023), and robust governmental support, notably through initiatives such as the PromptPay system. Consequently, mobile payment has become deeply embedded in daily financial routines, particularly among university students and white-collar workers, with more than 80% of these groups utilizing such services regularly (Kaewkitipong et al., 2022).

Despite its widespread adoption, the academic literature remains limited in examining the specific mechanisms through which mobile payments influence consumer payment behavior in Thailand. Most existing studies concentrate on technological adoption models, youth-centric demographics, or macroeconomic effects. This leaves a significant gap in understanding the behavioral dynamics of the middle-aged demographic (30–50 years), a cohort that plays a crucial role in household financial decision-making and technological diffusion. This study seeks to bridge that theoretical and empirical gap by investigating the decision-making mechanisms behind mobile payment use among middle-aged Thai consumers within the broader context of digital transformation.

Trust, perceived security, and platform reliability are pivotal determinants of adoption willingness in this group (Ariffin & Lim, 2022), whereas concerns over technological risks and data privacy remain key inhibitors (Mascarenhas et al., 2021). From a managerial perspective, enterprises aiming to enhance user retention and loyalty must adopt strategies emphasizing service transparency, system differentiation, and continual optimization. Empirical studies in Thailand further demonstrate that mobile payment has evolved

from a supplementary tool into a mainstream financial medium, accelerated by the convergence of digital infrastructure development, changing consumer behaviors, and state-led digital initiatives such as "Thailand 4.0" (Chuchuen & Chanvarasuth, 2022).

The COVID-19 pandemic has further catalyzed this digital shift, accelerating the transition toward a cashless society, which Thailand aims to realize by 2026 (Thirawat, 2022). The foundation for this transformation was laid by policy measures such as the 2016 Electronic Transactions Act (Thirawat, 2021), which established legal safeguards and regulatory frameworks for electronic payments. Complementary initiatives, such as the PromptPay system, have drastically lowered user entry barriers by enabling free mobile-based fund transfers using phone or ID numbers, thereby facilitating widespread adoption (Zheng & Angasinha, 2023).

This growth is also underpinned by the impressive technological landscape. By 2023, Thailand achieved a 98% internet penetration rate and a mobile device penetration rate of 141%, indicating that, on average, every 10 individuals possess over 14 mobile devices (Jongwanich, 2023; Nurdiana, Hariyani, & Boedirochminarni, 2023). Such infrastructure has led to an increased frequency and normalization of mobile payment usage. According to a Nielsen survey, bank transfers—particularly through mobile platforms—are now the most commonly used transaction method, accounting for 42% of usage among digitally active populations (Kaewkitipong, Chen, Han, & Ractham, 2022).

Nevertheless, a systematic understanding of the nuanced behavioral mechanisms underpinning this shift remains underexplored (Chuchuen & Chanvarasuth, 2022). Research gaps can be identified in three primary areas. First, there is a regional bias: existing literature is disproportionately concentrated on technologically advanced markets such as China and the United States, overlooking the complexities of middle-income Southeast Asian economies, where digital policy advancement often outpaces cultural adaptation. Second, there exists a demographic oversight: studies tend to focus either on “digital natives” (young adults) or “digital refugees” (senior citizens), neglecting the middle-aged group that often acts as the bridge between technological innovation and mass adoption. This demographic typically possesses higher disposable income and holds a central role in household and organizational financial decisions (Zhu, Charoennan, & Embalzado, 2022).

The rationale for focusing on middle-aged consumers (aged 30–50) in Thailand stems from their unique yet understudied role in the adoption and diffusion of mobile payment technologies. While prior research has extensively examined younger "digital natives" or older "digital refugees," middle-aged individuals represent a critical demographic bridge: they possess higher disposable income, influence household financial decisions, and often act as intermediaries in transmitting technological trends across generations. However, the mechanisms driving their payment behavior shifts remain poorly understood, particularly in emerging markets where cultural inertia and rapid digitalization coexist. This gap is significant because middle-aged consumers’ adoption of mobile payments can accelerate broader societal acceptance, yet their reluctance—due to perceived risks or habit persistence—may hinder progress toward cashless economies. By addressing this gap, the study not only enriches theoretical frameworks like the Theory of Planned Behavior but also provides actionable insights for policymakers and businesses aiming to tailor strategies for this pivotal yet overlooked group. Understanding their behavior is thus essential for sustaining Thailand’s digital transformation and replicating success in similar markets.

Understanding their behavior is thus essential for sustaining Thailand’s digital transformation and replicating success in similar markets. Despite the rapid growth of mobile payment adoption in Thailand, current academic research has several limitations that this study aims to address. First, there is a demographic research gap: most existing studies concentrate on younger consumers or technologically advanced users, overlooking middle-aged individuals who play a crucial role in both household financial decisions and intergenerational technology adoption (Zhu, Charoennan, & Embalzado, 2022). Second, while prior research often applies technology acceptance models, few have empirically tested the Theory of Planned Behavior (TPB) within the specific context of middle-aged Thai consumers. This study contributes to the literature by filling these gaps through a focused analysis of behavioral intention among individuals aged 30–50, using TPB as a theoretical lens. In doing so, it not only extends the applicability of TPB to a new demographic and cultural context but also provides practical insights for financial technology platforms and policymakers seeking to increase mobile payment penetration in under-researched yet influential user segments.

2. Objectives

With the rapid global adoption of mobile payment technologies, Thailand—an increasingly significant economy in Southeast Asia—has witnessed growing consumer engagement with mobile payment platforms. Consequently, Thai consumers' acceptance and usage behaviors have garnered considerable interest from both academic researchers and industry practitioners. Despite the considerable growth potential of mobile payment services in Thailand, their penetration rate continues to be influenced by a complex interplay of psychological, social, and infrastructural factors.

To better understand these dynamics, this study adopts the Theory of Planned Behavior (TPB) as a theoretical framework to systematically investigate the determinants of Thai consumers' behavioral intentions regarding mobile payment usage. TPB posits that an individual's intention to perform a behavior is shaped by three primary components: attitude toward the behavior, subjective norms, and perceived behavioral control. Drawing on this framework, the study is guided by the following research objectives:

1) To examine the relationship between consumer attitudes and the intention to use mobile payment services among Thai consumers.
2) To analyze how subjective norms—such as social influences and peer expectations—affect Thai consumers' intention to adopt mobile payments.
3) To investigate the impact of perceived behavioral control—including access to resources and self-efficacy—on consumers' intention to use mobile payment systems in Thailand.

3. Literature Review

The growing prevalence of mobile payments in emerging markets like Thailand has attracted scholarly attention, yet current literature disproportionately emphasizes young consumers, neglecting pivotal segments such as middle-aged individuals (aged 30–50) with moderate incomes—a group critical to understanding widespread adoption due to their influence over household finances and role as a bridge between younger and older generations (Zhu, Charoennan, & Embalzado, 2022). Despite their centrality, studies primarily focus on youth-led adoption or technological affordances, overlooking behavioral drivers specific to this demographic. While Thailand boasts a 141% mobile device and 98% internet penetration rate (DEPA, 2023), adoption among middle-aged users lags behind students and white-collar workers (Kaewkitipong et al., 2022), suggesting latent barriers. Their behaviors are shaped by perceived utility, trust, social norms, and self-efficacy (Ariffin & Lim, 2022; Mascarenhas et al., 2021), further influenced by Thailand's collectivist culture (Lu et al., 2011; Liao et al., 2023).

According to the Theory of Planned Behavior (TPB), attitude is a key antecedent of behavioral intention. A favorable attitude toward a specific behavior enhances an individual's likelihood of engaging in that behavior (Ajzen, 1985). In the context of technology adoption, Nikolopoulou, Gialamas, and Lavidas (2020) affirmed through the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) that users' attitudes toward a given technology significantly influence their intention to use it. Empirical studies further support this claim in the domain of mobile payments. For instance, Kim, Mirusmonov, and Lee (2010) found a strong positive correlation between consumer attitudes and mobile payment usage intention. Similarly, Chawla and Joshi (2019) demonstrated that positive attitudes significantly enhance consumers' willingness to adopt mobile payment technologies. Building on this foundation, the current study hypothesizes that Thai consumers' positive attitudes toward mobile payment systems will significantly contribute to their behavioral intention to use them:

H1: Attitude positively influences Thai consumers' intention to use mobile payments.

In TPB, subjective norms refer to the perceived social pressure to perform or not perform a particular behavior and are recognized as critical determinants of behavioral intention—especially in collectivist societies where social influence tends to be more pronounced (Ajzen, 1985). Liao, Huang, Zheng, and Xu (2023) emphasized that the role of subjective norms is particularly salient in collectivist cultures, where community and peer influence can heavily shape individual decision-making. Similarly, Lu, Yang, Chau, and Cao (2011) found that in many Asian markets, including Thailand, subjective norms exert a greater influence on mobile payment adoption than in more individualistic societies. Supporting this perspective, Susanto, Solikin, and Purnomo (2022) noted that Thai consumers' intention to use mobile payments is significantly shaped by societal expectations and peer behavior. Given the cultural context of Thailand, this study proposes the following hypothesis:

H2: Subjective norms positively influence Thai consumers' intention to use mobile payments.

Lastly, TPB asserts that perceived behavioral control—the individual's perception of ease or difficulty in performing a behavior—has both a direct and an indirect influence on behavioral intention by enhancing self-efficacy and perceived competence (Ajzen, 1985). Michael, Hungund, and KV (2024) found that perceived behavioral control is a significant determinant of users' intention to adopt digital technologies. In the domain of mobile payments, Chen and Lai (2023) reported that perceptions of ease of use and personal controllability over the payment process positively affect consumers' usage intentions. Ramli (2021) further demonstrated that perceived behavioral control plays a particularly influential role in mobile payment adoption in Asian contexts, where technological infrastructure and digital literacy vary widely. Based on this understanding, the following hypothesis is formulated:

H3: Perceived behavioral control positively influences Thai consumers' intention to use mobile payments.

Based on the above research hypotheses, this study proposes the following research model, as shown in Figure 1.

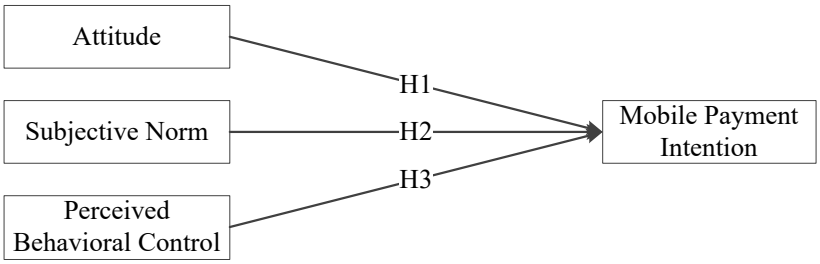

Figure 1 Theoretical model diagram

4. Materials and Methods

4.1 Research Methodology

Quantitative research is a systematic approach that uses numerical data to analyze phenomena. It is primarily employed to measure relationships between variables, test hypotheses, and establish causal inferences. This method involves standardized data collection techniques, such as surveys, experimental research, and statistical databases, and relies on statistical analysis methods (e.g., regression analysis, correlation analysis, analysis of variance) to draw objective and generalizable conclusions. Quantitative research is characterized by its high objectivity, reproducibility, and broad applicability. It is widely used in fields such as marketing, social sciences, medicine, and economics. However, compared to qualitative research, it may be less effective in exploring complex social and psychological phenomena in depth.

4.2 Instruments

In this study, measurement instruments developed by Aboelmaged and Gebba (2013), based on Ajzen's (1985) Theory of Planned Behavior, are used to assess four constructs related to mobile payment: attitude, subjective norm, perceived behavioral control, and behavioral intention. Attitude refers to an individual's overall evaluation of using mobile payment, encompassing perceptions of convenience, security, ease of use, and overall user experience (Ajzen, 1985). For Thai consumers aged 30–50, attitude indicates the degree to which they perceive mobile payment as a convenient, safe, and beneficial method of payment, with higher scores reflecting more favorable evaluations. Subjective norm represents the social pressure individuals perceive from important others—such as friends, family, or colleagues—to use mobile payment (Ajzen, 1985). In this context, it captures the extent of social influence experienced by Thai consumers when deciding whether to adopt mobile payment, with higher scores indicating stronger perceived social pressure. Perceived behavioral control pertains to an individual's self-assessed ability and resources to perform the behavior, including technical skills, information availability, and control over potential barriers (Ajzen, 1985). In the mobile payment context, it reflects how capable Thai consumers aged 30–50 feel in successfully using mobile payment technologies, with higher scores denoting greater perceived competence and control. Finally, behavioral intention refers to an individual's willingness or planned likelihood to engage in mobile payment in the future (Ajzen, 1985). It indicates the strength of Thai consumers' intention to use mobile payment for future purchases or financial transactions, with higher scores suggesting a stronger intention to adopt mobile

payment services. Each construct is measured using a five-item scale, ensuring consistency and reliability in capturing the behavioral tendencies of the target demographic.

4.3 Sampling Method

This study employed a convenience sampling method to survey Thai consumers aged 30 to 50 regarding their mobile payment behavior. Convenience sampling, a non-probability approach, is suitable when time and resources are limited but quick access to a specific population is needed (Etikan, Musa, & Alkassim, 2016). As the research aims to explore behavioral tendencies within a defined age group rather than achieve national representativeness, this method is both practical and contextually appropriate. Participants were required to be Thai permanent residents aged 30–50 who had used mobile payment at least once in the past year, ensuring respondents had relevant experience and cognitive familiarity with the topic. To enhance reach and reduce sampling bias, the study used a dual-channel strategy: online questionnaires were distributed via Facebook and LINE, using targeted advertising to filter users by age and location; offline surveys were conducted in high-traffic areas of Bangkok such as shopping malls, bank branches, and convenience store entrances, with trained staff assisting and small gifts offered as incentives. Both versions of the survey included screening questions to eliminate ineligible participants, and duplicate responses were prevented through IP and device ID tracking. After data cleaning, responses were analyzed statistically. To improve the demographic balance and align with national population trends, quotas were applied based on the 2023 data from Thailand's National Statistical Office, ensuring proportional representation in terms of urban-rural residence (60% vs. 40%), gender (48% male, 52% female), and income levels (monthly income <15,000 THB: 35%, 15,000–30,000 THB: 50%, >30,000 THB: 15%). This approach ensured data validity and improved the generalizability of the findings within the target demographic.

4.4 Minimum Sample Size Calculation

This study utilizes regression analysis for path analysis and therefore requires meeting two sample size criteria. According to the empirical rule, the sample size should be 5 to 10 times the number of measurement items (Hair, Risher, Sarstedt, & Ringle, 2019); with 26 items in the questionnaire, at least 260 valid samples are needed based on the 10-times multiplier. Additionally, the study applies Zhang Guoyou's (2003) formula for unknown populations: $n=Z^2\sigma^2/e^2$, where Z is the z-score representing the standard normal deviate, σ is the standard deviation indicating data dispersion, and e is the acceptable margin of error. A pilot survey conducted on January 12, 2025, collected 104 responses, with 3 invalid, resulting in 101 valid responses. Using a 95% confidence level (Z = 1.960, Z^2=3.842), the maximum standard deviation observed was 0.483 (σ^2=0.233), and the allowable error was set at 5% (e=0.05, e^2=0.0025). Substituting these values, the minimum sample size was calculated as n=(3.842×0.233)/0.0025=358.481, approximately 359. Therefore, to ensure statistical inference of the research hypotheses within a 95% confidence interval and ±5% error margin, at least 359 valid samples are required. Considering both criteria, this study sets a minimum valid sample size of 400 to enhance the reliability and generalizability of the findings.

4.5 Sample

The sample consisted of 427 respondents, with females slightly outnumbering males (52.93% vs. 47.07%), indicating a marginally higher engagement with mobile payment among female users. Age-wise, the majority (59.25%) were between 30 and 40 years old, while the remaining 40.75% were aged 41 to 50. Educationally, most participants held a high school diploma (42.62%) or an associate/bachelor's degree (33.96%), with lower education levels (junior high or below) accounting for 17.10%, and only 6.32% possessing postgraduate qualifications. This suggests that higher-educated individuals tend to adopt innovative technologies such as mobile payments more readily. Regarding income, the largest group (51.76%) earned between 15,001 and 30,000 Thai Baht monthly, followed by 33.72% earning less than 15,000 Baht, and 14.52% earning above 30,000 Baht, indicating that middle-income consumers are the primary users, likely valuing convenience and security. In terms of mobile payment usage duration, 41.69% had more than three years of experience, 27.40% had used it for 2–3 years, 20.84% for 1–2 years, and only 10.07% were new users within one year. These figures suggest that mobile payment adoption in Thailand has matured, with most consumers having gradually accepted this payment method over the past three years.

5. Results and Discussion

As presented in Table 1, the mean score for mobile payment intention was the highest among all measured variables ($M = 3.819$), indicating that the majority of respondents exhibited a strong willingness to adopt mobile payment services. Both subjective norms ($M = 3.751$) and perceived behavioral control ($M = 3.733$) also reported relatively high mean values, reinforcing their central role as predictors within the Theory of Planned Behavior (TPB) framework. In contrast, the mean score for attitude was comparatively lower ($M = 3.345$), yet it remained within the "agree" range on the Likert scale. This suggests that, although respondents held slightly less favorable attitudes toward mobile payments compared to other TPB constructs, their overall perception was still positive. Furthermore, the skewness values of most variables were close to zero and kurtosis levels were low, indicating that the data were approximately normally distributed. This balanced distribution reflects both the appropriateness of the questionnaire design and the heterogeneity of respondents' views, thereby enhancing the reliability and generalizability of the findings.

Table 1 Descriptive statistical analysis of the survey questionnaire

Variable	Min	Max	Mean	SD	Kurtosis	Skewness
Attitude	1	5	3.345	0.874	-0.801	-0.470
subjective norm	1	5	3.751	0.803	-1.086	0.352
perceptual-behavioral control	1	5	3.733	0.797	-0.840	-0.103
Mobile Payment Intentions	1	5	3.819	0.963	-0.913	0.122

As shown in Table 2, the Cronbach's α values for the key constructs are as follows: attitude (α = 0.751), subjective norms (α = 0.850), perceived behavioral control (α = 0.835), and mobile payment intention (α = 0.756). All four constructs exhibit Cronbach's α coefficients exceeding the commonly accepted threshold of 0.70, indicating a satisfactory level of internal consistency reliability (Nunnally & Bernstein, 1994). These results suggest that the measurement scales employed in this study are statistically reliable and appropriate for assessing the constructs derived from the Theory of Planned Behavior.

Table 2 Summary Table of Reliability Analysis

Variable	Number of topics	Cronbachs' α
Attitude	5	0.751
subjective norm	5	0.850
perceptual-behavioral control	5	0.835
Mobile Payment Intentions	5	0.756

To assess the suitability of the dataset for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were conducted, as summarized in Table 3. The KMO value was 0.809, which falls within the "good" range (Kaiser, 1974), indicating that the sample size and variable correlations are adequate for conducting exploratory factor analysis. Furthermore, Bartlett's Test of Sphericity yielded a chi-square value of 5963.421 with 66 degrees of freedom, and the result was statistically significant at $p < 0.001$. This indicates a sufficient level of inter-item correlation and leads to the rejection of the null hypothesis that the correlation matrix is an identity matrix. Collectively, these results confirm that the data are appropriate for factor extraction.

Table 3 KMO and Bartlett's test

KMO		0.809
Bartlett's test of sphericity	approximate chi-square (math.)	5963.421
	degrees of freedom	66
	significance	0.000

Principal Component Analysis (PCA) with Varimax rotation was conducted to examine the underlying factor structure of the scale. Four components with eigenvalues greater than 1 were extracted, explaining a cumulative variance of 67.866%, indicating strong explanatory power (see Table 4). All items loaded significantly on their corresponding constructs, with factor loadings exceeding 0.60, supporting good convergent validity. Specifically, Component 1 represented "Attitude" (5 items, loadings = 0.667–0.803); Component 2, "Perceived Behavioral Control" (5 items, loadings = 0.610–0.771); Component 3, " Mobile Payment Intentions " (5 items, loadings = 0.696–0.885); and Component 4, "Subjective Norms" (5 items,

loadings = 0.618–0.861). These results indicate that the scale has a clear structure, stable measurement dimensions, and strong construct validity.

Tabel 4 Summary table of the rotated component matrix

	ingredient			
	1	2	3	4
Attitude 1	0.803			
Attitude 4	0.796			
Attitude 2	0.789			
Attitude 3	0.754			
Attitude 5	0.667			
Perceptual Behavioral Control 3		0.771		
Perceptual Behavioral Control 1		0.732		
Perceived Behavioral Control 5		0.731		
Perceptual Behavioral Control 4		0.681		
Perceptual Behavioral Control 2		0.610		
Mobile Payment Intentions1			0.885	
Mobile Payment Intention 2			0.849	
Mobile Payment Intentions4			0.838	
Mobile Payment Intention 5			0.704	
Mobile Payment Intentions3			0.696	
Subjective norm 3				0.861
Subjective norm 1				0.820
Subjective norm 5				0.701
Subjective norm 4				0.625
Subjective norm 2				0.618
eigenvalue	5.578	4.406	2.278	1.055
Cumulative explanatory power	37.773	46.440	59.515	67.866

As presented in Table 5, the correlation matrix was used to assess the strength and direction of the linear relationships among the key variables. The results indicate that attitude is significantly and positively correlated with mobile payment intention ($r = 0.311$, $p < 0.001$), as are subjective norms ($r = 0.472$, $p < 0.001$) and perceived behavioral control ($r = 0.416$, $p < 0.001$). These statistically significant positive correlations provide preliminary empirical support for the proposed research hypotheses, suggesting that each of the three antecedent variables—attitude, subjective norms, and perceived behavioral control—is meaningfully associated with consumers' intention to use mobile payment services.

Table 5 Correlation analysis matrix

variant	1	2	3
1 Attitude	1		
2 Subjective norms	0.237***	1	
3 Perceptual Behavioral Control	0.320***	0.405***	1
4 Mobile Payment Intentions	0.311***	0.472***	0.416***

To test hypotheses H1 through H3, a multiple linear regression analysis was conducted, and the results are summarized in Table 6. Model 1 included only control variables such as gender, age, education level, monthly income, and duration of mobile payment use. This model exhibited weak explanatory power ($R^2 = 0.015$, Adjusted $R^2 = 0.007$), indicating that demographic and behavioral controls alone have limited influence on consumers' mobile payment intention.

In Model 2, the key independent variables—attitude, subjective norms, and perceived behavioral control—were added. The model's explanatory power increased substantially ($R^2 = 0.326$, Adjusted $R^2 = 0.316$), and the overall model fit was statistically significant ($F = 11.720$, $p < 0.001$), demonstrating that the inclusion of the theoretical constructs from the Theory of Planned Behavior significantly enhances the model's predictive validity.

Regarding individual predictors, attitude had a significant positive effect on mobile payment intention ($\beta = 0.178$, $p < 0.001$), supporting H1, and indicating that a more favorable attitude increases the likelihood of adoption. Subjective norms also exerted a significant positive influence ($\beta = 0.101$, $p < 0.01$), supporting H2, and suggesting that social influence plays a meaningful role in shaping behavioral intention.

Notably, perceived behavioral control emerged as the strongest predictor ($\beta = 0.293$, $p < 0.001$), supporting H3, and underscoring the critical importance of individuals' perceived ease, confidence, and resource availability in driving mobile payment adoption.

Table 6 Summary of regression analysis of mobile payment intention

	DV: mobile payment intention			
	Model 1		Model 2	
	β	p	β	p
Control Variable				
Gender	0.052	0.069	0.059*	0.038
Age	-0.034	0.240	-0.035	0.225
Education	0.020	0.478	0.018	0.520
Monthly Income	-0.001	0.984	-0.004	0.881
Duration of Mobile Payment Usage	-0.002	0.949	-0.001	0.979
Independent Variables				
Attitude			0.178***	0.000
Subjective Norm			0.101**	0.003
Perceived Behavioral Control			0.293***	0.000
R^2	0.015		0.326	
Adj R^2	0.007		0.316	
F	2.011*		11.720***	

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

To summarize, this study collected survey data from 427 Thai respondents aged 30 to 50, and employed multiple linear regression analysis to test the proposed hypotheses. The empirical results, presented in Table 7, provide statistical support for the research model and highlight the key factors influencing mobile payment intention in this demographic group.

Table 7 Summary of research hypothesis results

Hypothesis	Results
H1: Attitudes positively influence Thai consumers' intention to use mobile payments	Accept
H2: Subjective Norms Positively Influence Consumers' Intention to Use Mobile Payments in Thailand	Accept
H3: Perceived Behavioral Control Positively Influences Consumers' Intention to Use Mobile Payments in Thailand	Accept

6. Discussion

6.1 Attitudes and Mobile Payment Intentions

The results demonstrate that consumers' positive attitudes significantly enhance their intention to use mobile payments, thereby confirming the assumptions of the Theory of Planned Behavior (TPB) (Ajzen, 1985). Among Thai consumers aged 30–50, the preference for convenient, secure, and economically advantageous payment methods—such as PromptPay and TrueMoney Wallet—contributes to favorable attitudes. These attitudes, formed through the perception of utility and efficiency, subsequently strengthen behavioral intentions, consistent with previous findings (Kim, Mirusmonov, & Lee, 2010; Chawla & Joshi, 2019).

6.2 Subjective Norms and Mobile Payment Intentions

Subjective norms also exert a significant influence on behavioral intention. In Thailand's collectivist cultural context, social influence—from family members, peers, and professional networks—plays a critical role in shaping individual decisions. The widespread adoption of mobile payment, reinforced by government-led campaigns and media exposure, has cultivated a social environment wherein mobile payment use is perceived as normative behavior. This aligns with earlier findings emphasizing the stronger effect of subjective norms in collectivist societies (Lu et al., 2011; Liao et al., 2023).

6.3 Perceived Behavioral Control and Mobile Payment Intentions

Perceived behavioral control emerges as the strongest predictor of mobile payment intention. This suggests that middle-aged Thai consumers' confidence in their technological proficiency, access to mobile devices, and financial self-efficacy significantly enhances their intention to adopt mobile payment systems.

The findings echo the assertions of Ajzen (1985) and support empirical results from prior studies (Chen & Lai, 2023; Ramli, 2021), indicating that operational ease and resource availability are critical facilitators of technology use.

7. Conclusion

This study investigated the behavioral determinants influencing mobile payment adoption among middle-aged Thai consumers (aged 30–50) using the Theory of Planned Behavior (TPB) as its guiding framework. Through quantitative analysis of data from 427 respondents, the research empirically confirmed that attitude, subjective norms, and perceived behavioral control all significantly and positively influence the intention to use mobile payments. Among these, perceived behavioral control emerged as the strongest predictor, underscoring the importance of users' confidence in their ability to navigate digital platforms (Ajzen, 1985; Chen & Lai, 2023; Ramli, 2021).

Importantly, the findings reveal a significant gap in the existing literature: while prior studies have predominantly focused on youth-driven adoption or senior resistance to digital finance (Lu et al., 2011; Zhu, Charoennan, & Embalzado, 2022), the behavioral patterns of the middle-aged segment—particularly those with moderate income—have remained underexplored. This study addresses that oversight by offering a focused analysis of a demographic group that plays a pivotal role in household decision-making and intergenerational technology diffusion.

By aligning the research objectives with an overlooked yet influential consumer group, the study contributes to both theoretical development and practical application. Theoretically, it reinforces the explanatory power of TPB within a culturally collectivist, digitally transitioning context. Practically, the insights provide a foundation for the development of targeted marketing strategies, user interface designs, and policy initiatives tailored to middle-aged users who may be hesitant or inconsistent in their use of mobile payment technologies.

8. Limitations and future research directions

Geographical Limitation: This study's data were collected exclusively from Bangkok, Thailand's economic and technological hub. While this enhances the internal validity of the results, it may limit generalizability to other regions. Future research should incorporate samples from other key cities such as Chiang Mai, Phuket, Khon Kaen, and Songkhla to examine regional variations and improve the external validity of the findings.

Methodological Limitation: Although the questionnaire survey approach facilitates efficient data collection and quantitative analysis, it lacks the depth required to uncover underlying psychological motivations and habitual behavior patterns. Future research should adopt a mixed-methods design, incorporating semi-structured interviews or focus groups to enrich the interpretive depth and validate quantitative insights.

Sample Size and Representativeness: While the sample size of 427 meets basic statistical requirements, it may not sufficiently capture complex behavioral heterogeneity. Future studies should increase the sample size and apply stratified random sampling to ensure demographic representativeness. This would not only reduce sampling error but also enhance the robustness and generalizability of the findings.

References

Aboelmaged, M., & Gebba, T. R. (2013). Mobile banking adoption: An examination of technology acceptance model and theory of planned behavior. *International Journal of Business Research and Development, 2*(1), 35-50.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action Control: From Cognition to Behavior* (pp. 11-39). Berlin, Heidelberg: Springer Berlin Heidelberg.

Ariffin, S. K., & Lim, K. T. (2022). The influence of consumer trust in consumer behavior toward mobile payment applications amongst young professionals. *International Journal of Technology Marketing, 16*(1-2), 5-26.

Changchit, C., Cutshall, R., & Pham, L. (2024). Unveiling the path to mobile payment adoption: Insights from Thai consumers. *Journal of Risk and Financial Management, 17*(8), 315-327.

Chawla, D., & Joshi, H. (2019). Consumer attitude and intention to adopt mobile wallet in India: An empirical study. *International Journal of Bank Marketing, 37*(7), 1590-1618.
Chawla, D., & Joshi, H. (2019). Consumer attitude and intention to adopt mobile wallet in India–An empirical study. International Journal of Bank Marketing, 37(7), 1590-1618.
Chen, C. L., & Lai, W. H. (2023). Exploring the impact of perceived risk on user's mobile payment adoption. *Review of Integrative Business and Economics Research, 12*(1), 1-20.
Chuchuen, C., & Chanvarasuth, P. (2022). The role of trust in mobile payment adoption: A case study of Thailand. *ABAC Journal, 42*(4), 64-77.
Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4.
Hopalı, E., Vayvay, Ö., Kalender, Z. T., Turhan, D., & Aysuna, C. (2022). How do mobile wallets improve sustainability in payment services? A comprehensive literature review. *Sustainability, 14*(24), 16541.
Jongwanich, J. (2023). Readiness of Thailand towards the digital economy. *Journal of Southeast Asian Economies, 40*(1), 64-95.
Kaewkitipong, L., Chen, C., Han, J., & Ractham, P. (2022). Human–computer interaction (HCI) and trust factors for the continuance intention of mobile payment services. *Sustainability, 14*(21), 14546.
Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31-36.
Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior, 26*(3), 310-322.
Lai, P. C., & Liew, E. J. (2021). Towards a cashless society: The effects of perceived convenience and security on gamified mobile payment platform adoption. *Australasian Journal of Information Systems, 25*(3), 79-92.
Liao, C., Huang, Y., Zheng, Z., & Xu, Y. (2023). Investigating the factors influencing urban residents' low-carbon travel intention: A comprehensive analysis based on the TPB model. *Transportation Research Interdisciplinary Perspectives, 22*, 100948.
Lu, Y., Yang, S., Chau, P. Y. K., & Cao, Y. (2011). Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. *Information & Management, 48*(8), 393-403.
Mascarenhas, A. B., Perpétuo, C. K., Barrote, E. B., & Perides, M. P. (2021). The influence of perceptions of risks and benefits on the continuity of use of fintech services. *Brazilian Business Rev iew, 18*(1), 1-21.
Michael, L. K., Hungund, S. S., & KV, S. (2024). Factors influencing the behavior in recycling of e-waste using integrated TPB and NAM model. *Cogent Business & Management, 11*(1), 2295605.
Nikolopoulou, K., Gialamas, V., & Lavidas, K. (2020). Acceptance of mobile phone by university students for their studies: An investigation applying UTAUT2 model. *Education and Information Technologies, 25*, 4139-4155.
Nurdiana, E. D., Hariyani, H. F., & Boedirochminarni, A. (2023). The impact of digitalization and economic openness on economic growth in ASEAN countries. *Jurnal Ekonomi & Studi Pembangunan, 24*(2), 331-345.
Ramli, F. A. A. (2021). Mobile payment and e-wallet adoption in emerging economies: A systematic literature review. *Journal of Emerging Economies and Islamic Research, 9*(2), 1-39.
Susanto, E., Solikin, I., & Purnomo, B. S. (2022). A review of digital payment adoption in Asia. *Advanced International Journal of Business, Entrepreneurship and SMEs, 4*(11), 01-15.
Thirawat, J. (2021). E-commerce in ASEAN: An emerging economic superpower and the case for harmonizing consumer protection laws. *SCJ Int'l L. & Bus., 18*, 39-50.
Thirawat, J. (2022). E-Commerce in ASEAN: An emerging economic superpower and the case for harmonizing consumer protection laws. *South Carolina Journal of International Law and Business, 18*(2), 6-13.
Zheng, F., & Angasinha, C. (2023). A comparison of cashless society between Thailand and China. *Journal of Philosophical Vision, 28*(2), 90-98.
Zhu, B., Charoennan, W., & Embalzado, H. (2022). The influence of perceived risks on millennials' intention to use m-payment for mobile shopping in Bangkok. *International Journal of Retail & Distribution Management, 50*(4), 479-497.