JMSS Journal of Multidisciplinary in Social Sciences

Journal of Multidisciplinary in Social Sciences
Journal homepage : https://so03.tci-thaijo.org/index.php/sduhs

Determinants of Payment Gateway Efficiency in Thailand's E-Marketplace

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Article info

Article history:
Received: 26 January 2024
Revised: 1 March 2025
Accepted: 10 March 2025

Keywords:
Transaction processing, Payment gateway, E-Marketplace

Abstract

This study investigates the factors influencing the use of payment gateways in Thailand's e-marketplace sector. Given the rapid expansion of digital commerce, understanding the determinants of payment gateway adoption is critical for both businesses and policymakers. A quantitative survey was conducted with 405 Thai respondents who had experience using online payment services. Binary logistic regression was employed to examine the effects of demographic and behavioral variables, including gender, income, expenses, savings, technology acceptance, personalized service, and trust. The results indicate that gender, income, expenses, savings, technology acceptance, and trust significantly influence payment gateway usage. Specifically, higher income and greater expenses increase the likelihood of adoption, whereas higher levels of savings reduce it. Technology acceptance and trust are positively associated with usage, while greater emphasis on personalized service shows a negative relationship. These findings contribute to a deeper understanding of digital payment behavior and offer implications for e-marketplace businesses in designing effective payment systems. They also provide guidance for policymakers in promoting financial inclusion and supporting the sustainable growth of Thailand's digital economy.

Introduction

In the era of digitalization, technology has become a pivotal force in reshaping business models, serving as a catalyst for innovation, value creation, and competitive advantage across various industries (Jangjarat & Jewjinda, 2023; Kraus et al., 2021; Limna et al., 2022; Robertsone & Lapiņa, 2023). Online enterprises, in particular, have witnessed accelerated growth, driven by the proliferation of internet access and digital tools. The steady rise in online users has contributed to exponential expansion within the sector. Contemporary consumers increasingly prefer shopping via digital platforms, including mobile applications and websites (Napawut et al., 2022; Ningsih et al., 2024; Santoso et al., 2023). The shift in purchasing behavior is largely attributed to the widespread use of social networks and the enhanced accessibility of internet services. Both e-commerce and social commerce (s-commerce) have undergone substantial development, intensifying competition among online retailers. Consequently, online sellers are compelled to implement

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innovative digital strategies to attract and retain customers (Asanprakit & Limna, 2023; Limna et al., 2023).

In exploring the critical success factors for e-marketplaces in Thailand, existing literature underscores the pivotal role of trusted payment processing infrastructure. Empirical studies by Mangla et al. (2020), Mollie (2022), and Saetang et al. (2023) highlight that the integration of culturally aligned payment systems is a key determinant of market penetration and consumer adoption. Particularly noteworthy is the implementation of locally preferred payment methods—such as PromptPay and internet banking—which enable secure and seamless transactions for Thai consumers. The regulatory environment, encompassing financial oversight and data protection legislation, further necessitates the adoption of stringent security protocols and privacy safeguards. These findings align with established theoretical frameworks in digital commerce, reinforcing the importance of trust and contextual relevance in payment system design.

From an operational standpoint, several critical variables merit close attention: Thai Baht currency integration, mobile payment functionality, cross-border transaction capabilities, advanced fraud detection systems, robust customer service infrastructure, and competitive fee structures. Empirical evidence, as demonstrated by Brownbridge & Kirkpatrick (2000) and more recently by Buranasujja & Kraiwanit (2022), indicates that sustainable success in Thailand's dynamic e-marketplace ecosystem hinges on strategic payment gateway selection, seamless technical integration, and ongoing process optimization.

The continued expansion of the digital economy necessitates a nuanced understanding of payment processing via payment gateways, particularly within the context of e-marketplaces. The payment experience is a crucial factor shaping both consumer behavior and business success in online environments. Consequently, identifying the key drivers behind payment decisions is essential for both strategic planning and operational efficiency. While prior research has examined various dimensions of payment infrastructures—such as Haykal's (2020) study on the impact of a national payment gateway in Indonesia and Leong et al.'s (2021) investigation into mobile payment adoption in Sarawak, Malaysia—there remains a notable lack of focused inquiry into the specific dynamics of Thailand's e-marketplace environment. This gap highlights the need for further research into the distinctive factors influencing Thailand's digital payment ecosystem.

The primary objective of this empirical investigation is to conduct a comprehensive examination of the determinant factors influencing payment processing mechanisms within Thailand's burgeoning e-marketplace ecosystem. Employing a robust quantitative methodological framework, this study analyzes a multivariate set of parameters, including demographic variables (with particular emphasis on gender dynamics), economic indicators, technology acceptance metrics, service personalization factors, and trust constructs that collectively shape consumer payment behaviors.

Drawing upon a statistically significant sample size to ensure validity and reliability, the research aims to establish empirically grounded correlations between these variables and payment gateway adoption patterns. The anticipated findings are expected to yield substantive theoretical and practical implications for multiple stakeholder groups, including:

1. E-marketplace operators seeking to optimize their payment infrastructure
2. Financial institutions developing market-specific solutions
3. Regulatory bodies formulating evidence-based policies
4. Industry practitioners implementing consumer-centric payment strategies

Furthermore, this research contributes to the existing body of knowledge on digital payment ecosystems in emerging markets, offering actionable insights for enhancing payment gateway security, efficiency, and user experience in alignment with the distinctive preferences of Thai digital consumers.

Objective

The primary objective of this study is to investigate the critical factors that influence payment gateway efficiency within Thailand's e-marketplace sector. Specifically, it aims to identify how variables such as gender, income, expenses, savings, technology acceptance, personalized service, and trust affect payment behaviors and processes in this context.

Conceptual Framework

The rapid growth of Thailand's e-marketplace sector has significantly reshaped the digital commerce landscape, enabling the seamless convergence of technology, commercial activity, and financial transactions. Central to this transformation are payment gateways, which serve as critical intermediaries connecting

consumers and businesses in the increasingly digital economy. This conceptual framework is designed to examine the key factors that influence the use and effectiveness of payment gateways within Thailand's e-marketplace sector.

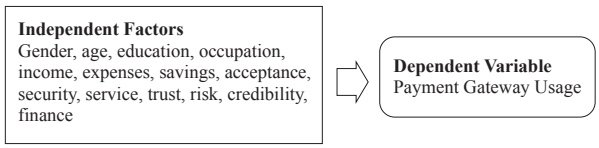

Figure 1 Conceptual Framework

Literature Review

The Impact of the Digital Economy on Business Efficiency and Financial Innovation

The digital economy has profoundly transformed the efficiency and responsiveness of economic activities and business operations through the proliferation of internet-based services. Central to this transformation is the integration of diverse digital technologies into commercial processes, enabling the seamless buying and selling of goods and services within the digitally driven marketplace. These transactions are facilitated by online platforms, allowing consumers to engage in commerce from virtually any location with internet access. Moreover, the digital economy has catalyzed demand for financial innovations, particularly in the realm of financial technology (FinTech), which supports a wide range of banking transactions, including deposits, transfers, and withdrawals (Chen et al., 2022; Gregoric et al., 2024; Limna & Kraiwanit, 2022; Rosário & Dias, 2023). This evolution has significantly influenced consumer behavior, business models, and governmental operations, prompting shifts in organizational practices and operational management.

By leveraging digital technologies, businesses are better equipped to meet evolving customer expectations, reduce production and operational costs, and generate new revenue streams. Additionally, the digital economy contributes to societal advancement and the field of information sciences by promoting continuous data generation and dissemination, fostering innovations and informed decision-making (Brunetti et al., 2020; Skare et al., 2023; Ullah et al., 2023).

The Expanding Role of The Digital Economy

The expanding digital economy is a key driver of economic growth and development, exerting a significant influence on business activities. Through internet-based services such as e-commerce, digital marketing, and digital finance, it enhances operational efficiency and responsiveness. By integrating digital technologies, businesses can effectively navigate this landscape, enabling online transactions that allow consumers to shop from virtually any location with internet access.

In addition, the digital economy has intensified demand for financial innovations, particularly FinTech, to support these transactions (Chen et al., 2022; Gregoric et al., 2024; Limna & Kraiwanit, 2022; Rosário & Dias, 2023). These technological advancements have profoundly reshaped daily life, influencing communication, work, financial practices, and consumer behavior. For businesses, this transformation translates to improved customer service, reduced operational costs, and the creation of new revenue streams. Furthermore, the digital economy contributes to societal progress and the field of information science by promoting the continuous creation and dissemination of information, offering virtually unlimited access to knowledge (Brunetti et al., 2020; Skare et al., 2023; Ullah et al., 2023).

The growth of the internet has propelled e-commerce and other online transactions, establishing e-payments as a key method of payment. Global online trade and e-commerce have been significantly advanced by technological innovations. Efficient payment systems are essential for supporting the increasing volume of online transactions and enabling digital trade to thrive. Payment gateways, as explained by Yakean (2020), facilitate a wide range of online financial transactions through convenient options such as internet and mobile banking, QR codes, e-wallets, PromptPay, and credit/debit cards. E-payments stimulate economic growth by promoting online trade, reducing reliance on cash, and streamlining commercial transactions, thereby contri buting to increased domestic consumption. The COVID-19 pandemic in 2020 further accelerated this trend, dramatically shifting consumer behavior and lifestyles toward online shopping and mobile payments. This transition from cash to digital payments has transformed the financial supply chain and cross-border trade, influencing the expansion of e-commerce. In Thailand, mobile and internet banking have become dominant, even surpassing the use of traditional payment gateways. The country ranks among the global leaders in mobile banking adoption (Suwanragsa et al., 2020; Leesa-Nguansuk, 2021; Ongsakul, 2023).

The adoption of e-payments is a gradual process, beginning with the users' perceptions of system security, which influence trust and ultimately lead to the decision

to use the service. Users often prioritize security measures such as two-factor authentication (2FA), data encryption, and regular application updates to mitigate cyber threats and alleviate concerns about financial fraud. Systems that uphold high security standards build user confidence in online transactions, thereby facilitating the widespread adoption of e-payment technologies (Ardiansah et al., 2020; Pansuppawatt et al., 2024).

Furthermore, trust is a critical factor in technology adoption and the continued use of e-payments. Users who trust the system are more likely to engage in regular online transactions, as they can monitor outcomes in real time—such as successful money transfers or bill payments through digital channels. The credibility of e-payment providers, whether banks or digital platforms, also plays a significant role in building user confidence. Numerous studies have identified security and trust as primary factors influencing both the adoption and sustained use of electronic payment systems (Nguyen & Tran, 2022; Pratiwi et al., 2021; Salloum et al., 2018).

Boonsiritomachai and Sud-On (2023) investigated the factors influencing the frequent mobile payment (m-payments) usage in Thailand, particularly in the context of the government's economic stimulus program during the COVID-19 pandemic. Drawing on the Technology Acceptance Model and Mental Accounting Theory, the study revealed that ease of use, financial and health benefits, enjoyment, and situational conditions significantly shaped consumer attitudes toward m-payment adoption. While a positive attitude alone was found to be insufficient for long-term adoption, continued reliance on the system led to habitual usage. Moreover, perceived convenience, social benefits, trust in the government, and perceived risk did not significantly influence consumer attitudes.

Personal Factors and Digital Consumer Behavior

Personal factors refer to individual characteristics that vary across consumers, including gender, age, education level, income, and spending behavior, among others. These variables have been extensively examined across disciplines such as management, marketing, business administration, psychology for their influence on decision-making processes. In marketing and business management, personal factors are particularly relevant in understanding consumer behavior, especially regarding purchasing decisions and product preferences.

Numerous studies have demonstrated the impact of demographic characteristics on online shopping behavior. For example, Somprasong and Marpracha (2023) found that age and income significantly influenced preferences for online marketing mix elements among consumers in the Thonburi area of Bangkok. Similarly, Samerpithak (2021) identified age, monthly income, marital status, and type of residence as significant predictors of consumer behavior in online shopping within the Bangkok metropolitan region.

In the context of digital payment adoption, Shree et al. (2021) conducted a survey-based study in India, revealing that individual perceptions of digital payment instruments, trust in the payment framework, and confidence in the banking system were key determinants of usage. Older adults were less likely to adopt digital payments, while higher education levels correlated with a reduced reliance on cash-only transactions for groceries and utilities. Income positively influenced digital payment usage for online shopping and gold purchases, whereas lower-income groups preferred cash-on-delivery. Occupation and location also played a role: housewives, the unemployed, and self-employed individuals were least likely to use digital payments, while residents of tier-1 cities were most likely to adopt them.

Dzogbenuku et al. (2022) explored the impact of digital payments on the financial well-being of the rural poor in Ghana, emphasizing on the moderating roles of age and gender. Their quantitative study found that security, ease of use, and convenience, were positively associated with customer satisfaction. Moreover, satisfaction mediated the relationship between trust and digital payment experience. Gender and age shaped user priorities: men emphasized ease of use, women valued security, younger users valued convenience, while older users focused on safety.

Gendered Dynamics of Mobile Payment Adoption

Yang et al. (2023) conducted an empirical investigation into the gender-specific effects of mobile payment adoption on household e-commerce expenditure patterns in China. Utilizing data from the 2017 Chinese General Social Survey, the researchers employed an instrumental-variable-based Tobit model to account for selection bias and endogeneity. Their findings revealed that mobile payment adoption significantly increased online shopping expenditures among female consumers, while no comparable effect was observed for male users. These results underscore the non-neutrality of mobile payment impacts across gender lines and suggest that gender-specific promotional strategies may be necessary

to enhance adoption and optimize e-commerce engagement. The study contributes to a nuanced understanding of how digital financial tools intersect with household consumption behaviors in a rapidly digitizing economy.

The findings present substantial practical implications for industry stakeholders. First, they highlight the effectiveness of gender-differentiated marketing strategies in promoting mobile payment. Second, they emphasize the importance of recognizing and leveraging the symbiotic relationship between mobile payment systems and e-commerce platforms. From a policy standpoint, the research advocates for regulatory frameworks that facilitate platform integration while simultaneously promoting robust competition and fostering technological innovation within the sector.

While traditional consumer behavior theories emphasize attitudes, motivations, and decision-making processes, digital environments introduce new complexities—particularly the role of technology acceptance, perceived ease of use, and online trust. For instance, applying models such as the Technology Acceptance Model (TAM) or Unified Theory of Acceptance and Use of Technology (UTAUT) could help explain how consumers' perceptions of payment gateways are influenced by factors such as usability, security, and trustworthiness. Additionally, theories like the Online Trust Model could provide insight into how trust—both in the e-marketplace platform and in the payment gateway itself—affects consumer decision-making. Expanding the theoretical framework to incorporate these perspectives would allow for a more holistic view of the factors influencing payment gateway usage. It would also help contextualize the study's findings within a broader academic discourse on digital consumer behavior, making the research more comprehensive and applicable to both business and policy implications.

Zhang & Khan-Am (2020) conducted a study on factors influencing Thai consumers' choice of online shopping and found that customers who shop online differ in terms of gender, monthly income, daily time spent shopping online, and the number of online purchases made in the current year. These factors were found to influence customers' intentions when choosing to make online purchases. Additionally, online shopping behaviors related to perceived risk, perceived ease of use, perceived benefits, and experience had an impact on customers' attitudes toward online shopping.

Key factors such as trust, technology acceptance, and security concerns must be examined to understand how enhancements in these areas can improve the effective use of payment gateways. Currently, the Bank of Thailand (BoT) plays a central role in developing and regulating the payment system, which serves as a crucial mechanism for supporting the nation's economic activities. The BoT ensures that these operations proceed in a secure and stable manner, facilitating financial transactions for financial institutions, government agencies, the private sector, and the general public. A robust payment system contributes to economic and financial stability and promotes sustainable and inclusive development.

Enhancing the efficiency of payment gateways by streamlining transaction processes, minimizing load times and simplifying the user interface may result in an improved user experience and increased adoption rates. This is particularly relevant for users who prioritize convenience and speed in online shopping. Concurrently, strengthening the security of payment gateways through advanced encryption methods, multi-factor authentication, and fraud detection mechanisms can address consumer concerns regarding online transaction safety. As highlighted in this study, trust in the payment process is essential. Reinforcing these security measures can help build consumer confidence and encourage broader usage of payment gateways (Bank of Thailand, 2023).

Methodology

This study utilized a quantitative research approach, employing closed-ended questionnaires to gather data. The questionnaire items were carefully developed based on reliable and validated sources. Prior to the data collection phase, a pre-test involving 30 respondents was conducted to refine the questionnaire, following recommendations from Sitthipon et al. (2022) and Wattanasin et al. (2024). The measurement tools were assessed for validity, reliability, and accuracy. In research, both reliability and validity tests are essential for ensuring the quality of the instrument. Reliability is typically evaluated using Cronbach's alpha, with a value above 0.70 indicating good internal consistency, meaning the items measure the same construct. For example, a value of 0.85 suggests strong reliability. Validity ensures the instrument accurately measures the intended construct. It can be assessed through methods such as factor analysis for construct validity, where factor

loadings above 0.5 confirm item alignment with the underlying construct. Alternatively, criterion validity can be evaluated by comparing the instrument to an established benchmark. Together, reliability and validity tests help ensure that the measurement tool is both consistent and accurate, thereby strengthening the study's findings.

To ensure ethical compliance, the questionnaire was reviewed by five experts in business and social science, who confirmed its appropriateness for the study. Only participants aged 18 or older were included. Research objectives were clearly communicated to participants, who were also informed of their right to withdraw from the study at any time, in accordance with Jangjarat et al. (2023). Completion of all questionnaire items was required to submit responses, automatically excluding incomplete entries. The study focused on Thai residents aged 18 and above. The sample size was calculated using Yamane's formula, with parameters set at a significance level (p) of 0.5, precision at ±5%, and a 95% confidence level, as recommended by Kraiwanit et al. (2024) and Thetlek et al. (2023), resulting in a minimum sample size of 384 participants. The decision to increase the sample size from 384 to 405 participants was made to improve the reliability and accuracy of the study's results. This adjustment accounts for potential non-responses and incomplete data, which are common in survey research. A larger sample size also enhances statistical power, reduces sampling error, and ensures more generalizable findings. Overall, this approach serves as a precautionary measure to maintain the robustness and reliability of the study, even in the face of unforeseen challenges during data collection.

This study involved 405 Thai residents aged 18 and above, all of whom had experience using e-marketplace payment gateways. Participants were selected through convenience sampling, enabling efficient recruitment via online platforms and social media. The primary inclusion criterion was prior engagement in online shopping through e-marketplaces, with participants required to have made at least one online purchase within the past six months to confirm active usage.

The sample was demographically diverse in terms of gender, age, income, and education, offering a comprehensive perspective of factors influencing payment gateway usage. Most participants reported frequent online shopping and utilized digital payment methods such as credit/debit cards and digital wallets. This diversity in both demographics and technology adoption provided valuable insights into users' perceptions of payment gateway security, trust, and convenience—key constructs aligned with the study's objectives.

Data collection spanned for four months, from October 2022 to January 2023, allowing for the capture of temporal trends and behavioral variations. This extended period enhanced the accuracy and reliability of the findings. Data analysis was conducted using statistical software for both descriptive and inferential analyses. Payment gateway usage in e-marketplace businesses served as the dependent variable, while independent variables included gender, age, income, technology acceptance, security, trust, and personal service. Dummy variables were created for gender (0 = female, 1 = male), technology acceptance (0 = no, 1 = yes), personal service (0 = no, 1 = yes), and trust (0 = no, 1 = yes). Binary logistic regression, following the approach of Shaengchart and Kraiwanit (2023), was applied to examine the relationship between the explanatory variables and the binary outcome variable. This method provided robust insights into the factors influencing payment gateway usage.

Results

Demographic and purchasing behavior data on payment gateway usage in Thailand's e-marketplace sector reveal that the majority of users are females aged 20 to 29, primarily students holding undergraduate degrees. Most participants reported a monthly income exceeding 15,000 Baht, monthly expenses ranging from 7,501 to 15,500 Baht, and monthly savings between 0 and 5,000 Baht. On average, users conducted more than six transactions per month via payment gateways.

Among digital payment methods, E-Wallets, particularly Shopee Pay, emerged as the most preferred option. Popular product categories purchased through payment gateways included fashion items such as clothing, shoes, bags, and accessories like jewelry, necklaces, rings, and watches. The majority of transactions fell within the 0 to 500 Baht range per purchase, indicating a preference for low-to-mid value consumer goods.

Table 1 Omnibus Test of the Model's Performance Using All the Independent Variables

		Chi-square	df	Sig.
Step 1	Step	74.971	14	0.000
	Block	74.971	14	0.000
	Model	74.971	14	0.000

Table 1 presents a chi-square value of 74.971 with 14 degrees of freedom, indicating that the dependent variable is significantly explained by the set of independent variables at the .05 significance level.

Table 2 The Model Summary Using All the Independent Variables

Step	-2 log likelihood	Cox and Snell R square	Nagelkerke R square
1	453.370[a]	0.169	0.232

a Estimation terminated at iteration 5 because the parameter estimates changed by less than .001.

Table 2 indicates that the model explains approximately 23.2% of the variance in the outcome, with a significance level of .05.

Table 3 Classification Table for Back Testing Including All the Independent Variables

Observed			Predicted		
			Payment gateway		Percentage correct
			E-wallet	Banking payment	
Step 1	Payment gateway	E-wallet	231	29	88.8%
		Banking payment	90	55	37.9%
	Overall percentage				70.6%

Note: The cut-off value is .500.

According to Table 3, the classification results indicate that the model incorporating all independent variables predicted payment gateway usage in e-marketplace businesses with an accuracy rate of 70.6%. A significance value of .05 indicates that the relationships between the independent and dependent variables are statistically significant at the 5% threshold.

Table 4 Variables in the Model Using All the Independent Variables

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Gender	-0.745	0.271	7.565	1	0.006	0.475
	Age	0.341	0.230	2.198	1	0.138	1.406
	Education	-0.140	0.280	0.250	1	0.617	0.870
	Occupation	-0.443	0.358	1.534	1	0.215	0.742
	Income	0.682	0.230	8.802	1	0.003	1.978
	Expenses	0.595	0.194	9.407	1	0.002	1.814
	Savings	-1.567	0.348	20.238	1	0.000	0.209
	Acceptance	0.841	0.257	10.740	1	0.001	2.319
	Security	-0.022	0.283	0.006	1	0.938	0.978
	Service	-0.609	0.234	6.784	1	0.009	0.544
	Trust	-0.670	0.253	7.019	1	0.008	0.512
	Risk	0.502	0.271	3.430	1	0.064	1.652
	Credibility	0.184	0.312	0.346	1	0.557	1.201
	Finance	-0.316	0.218	2.105	1	0.147	0.729
	Constant	0.801	1.363	0.346	1	0.557	2.228

a Variables entered in Step 1: gender, age, education, occupation, income, expenses, savings, acceptance, security, service, trust, risk, credibility, and finance.

The predictive regression equation of Model 1, as presented in Table 4 is expressed as follows:

$$P = \frac{1}{1+e^{-z}} \quad \text{----------} \quad \textit{Model 1}$$

where P represents the payment gateway in Thailand, and Z = 0.801 – 0.745(gender) + 0.682 (income) + 0.595 (expenses) – 1.567 (savings) + 0.841 (technology acceptance) – 0.609 (service) – 0.670 (trust).

Table 4 presents the significance levels of each independent variable, indicating that payment gateway usage in Thailand's e-marketplace businesses is significantly influenced by gender, income, expenses, savings, technology acceptance, personal service, and trust. In contrast, variables such as age, education, occupation, security, risk, credibility, and finance did not demonstrate statistical significance.

A change in the gender variable to male reduced the likelihood of using a payment gateway to 0.475, representing a 52.5% decrease (1 – 0.475 = 0.525). Each one-unit increase in income raised the probability of usage by 1.978, while a one-unit increase in expenses increased it by 1.814. Conversely, a one-unit increase in savings lowered the probability to 0.209, indicating a 79.1% reduction (1 – 0.209 = 0.791). A one-unit increase in technology acceptance enhanced usage by 2.319, whereas a similar increase in personal service reduced it to 0.544, reflecting a 45.6% decrease (1 – 0.544 = 0.456). Lastly, a one-unit increase in trust decreased the likelihood of payment gateway usage to 0.512, a reduction of 48.8% (1 – 0.512 = 0.488). Variables including age, education, occupation, security risk, credibility, and finance did not exert a significant effect on the dependent variable.

Table 5 Omnibus Test of Model Performance Using Significant Independent Variables

		Chi-square	df	Sig.
Step 1	Step	62.655	7	0.000
	Block	62.655	7	0.000
	Model	62.655	7	0.000

Table 5 reports a chi-square value of 62.655 with 7 degrees of freedom, suggesting that the model significantly explains the variance in the dependent variable at the .05 significance level.

Table 6 The Model Summary Using Significant Independent Variables

Step	-2 log likelihood	Cox and Snell R square	Nagelkerke R square
1	465.687[a]	0.143	0.197

a Estimation terminated at iteration number 5 because the parameter estimates changed by less than .001.

Table 6 shows that the model explains approximately 19.7% of the variation in the outcome, with a significance level of .05.

Table 7 Classification Table for Back Testing Including Significant Independent Variables

Observed			Predicted		
			Payment gateway		Percentage correct
			E-wallet	Banking payment	
Step 1	Payment gateway	E-wallet	230	30	88.5%
		Banking payment	90	55	37.9%
Overall percentage					70.4%

Note: The cut-off value is .500.

Table 7 indicates that the model, incorporating all independent variables, predicted payment gateway usage in e-marketplace businesses with an accuracy rate of 70.4%, based on a cut-off value of .500 (50%).

Table 8 Variables in the Model Using Significant Independent Variables

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Gender	-0.712	0.256	7.707	1	0.006	0.491
	Income	0.802	0.210	14.596	1	0.000	2.231
	Expenses	0.564	0.186	9.219	1	0.002	1.757
	Savings	-1.533	0.348	19.419	1	0.000	0.216
	Acceptance	0.817	0.227	13.000	1	0.000	2.264
	Service	-0.418	0.194	4.648	1	0.031	0.658
	Trust	-0.506	0.189	7.199	1	0.007	0.603
	Constant	0.228	0.750	0.092	1	0.761	1.256

a Variables entered in Step 1: gender, income, expense, saving, acceptance, service, and trust.

The predictive regression equation for Model 2, as presented in Table 8, is expressed as follows:

$$P = \frac{1}{1+e^{-z}} \qquad \text{----------} \qquad \textit{Model 2}$$

where P represents the payment gateway in Thailand, and Z = 0.228 – 0.712 (gender) + 0.802 (income) + 0.564 (expenses) – 1.533 (savings) + 0.817 (technology acceptance) – 0.418 (service) – 0.506 (trust).

Table 8 presents the significance levels for each independent variable, indicating that payment gateway usage in Thailand's e-marketplace businesses is significantly influenced by gender, income, expenses, savings, technology acceptance, personal service, and trust.

A change in the gender variable to male reduced the likelihood of using a payment gateway to 0.491, representing a 50.9% decrease (1 – 0.491 = 0.509). Each one-unit increase in income resulted in a 2.231 increase in usage, while a one-unit increase in expenses raised usage by 1.757. Conversely, a one-unit increase in savings lowered the probability to 0.216, indicating a 78.4% decrease (1 – 0.216 = 0.784). A one-unit increase in technology acceptance enhanced usage by 2.264. In contrast, a one-unit increase in personal service reduced usage to 0.658, a 34.2% decrease (1 – 0.658 = 0.342), and a similar increase in trust decreased usage likelihood to 0.603, representing a 39.7% reduction (1 – 0.603 = 0.397).

Discussion

Several independent variables—gender, income, expenses, savings, technology acceptance, personal service, and trust—significantly explain variations in payment gateway usage within Thailand's e-marketplace. Gender emerged as a particularly influential factor; male users were less likely to adopt payment gateways than female users. This finding aligns with Kraiwanit et al. (2023), who identified gender as a significant predictor of online activity among older Thai adults. Further support for this gender-based disparity is found in Yang et al. (2023), who reported that mobile payment adoption significantly increased online shopping expenditure among women but not men.

Both income and expenses positively influence payment gateway usage, whereas savings exert a negative effect. These findings align with Shaengchart et al. (2023), who observed a strong association between income levels and individuals' internet access and usage patterns, noting that higher-income individuals are more likely to engage in work-related and high-speed digital activities. Similarly, Thetlek et al. (2023) found that monthly income positively correlates with participation in the token economy, while a higher savings rate is negatively associated with digital engagement—suggesting that individuals with lower savings are more inclined to adopt emerging financial technologies. Additionally, Shree et al. (2021) found that individuals with lower incomes tend to prefer cash payments upon receiving goods, highlighting a persistent reliance on traditional payment methods among economically constrained consumers.

As technology acceptance increases, so does the likelihood of payment gateway usage. Personal service and trust also significantly influence this usage, though in opposite directions: an emphasis on personal service tends to reduce usage, while higher levels of trust correlate with increased adoption. These findings align

with Limna et al. (2023), who applied the Technology Acceptance Model (TAM) to explore online purchase intentions via Facebook Live streaming, demonstrating that perceived usefulness and ease of use significantly shape consumer behavior in digital environments. Limna (2023) further highlighted the importance of personalized experiences, convenience, transparency, and customer advocacy in attracting and retaining consumers in competitive online markets. Santo and Marques (2022) found that continued purchase intentions in online stores are shaped by access to information, hedonic motivations, and trust in e-commerce platforms. While perceived online prices positively influenced hedonic motivations, they did not directly affect consumer loyalty. Additionally, Dzogbenuku et al. (2022) revealed that in Ghana, digital payment adoption is positively associated with security, ease of use, and convenience, with customer satisfaction mediating the relationship between trust and digital payment experience.

These findings underscore the multifaceted nature of payment gateway usage in e-marketplaces, shaped by a range of individual factors—including gender, income, expenses, savings, technology acceptance, personal service, and trust—each exerting a distinct influence on payment behavior within Thailand's digital economy.

Factors such as age, education, occupation, security, risk, credibility, and finance were found to have no significant impact on the usage of payment gateways. This outcome may reflect an increased awareness across demographic groups regarding digital transactions, particularly through the use of popular e-commerce platforms like Shopee and Lazada, which may have alleviated concerns related to security. For instance, Chuaychunoo (2016), in a study examining factors influencing consumer purchasing decisions on social media, tested the hypothesis and found that demographic variables such as age, education level, and occupation did not significantly affect decisions to purchase goods via social media. Similarly, Nawi et al. (2019) indicated that the impact of perceived risk on consumers' intention to engage in online shopping varied among individuals, depending on the type of risk. Tandon et al. (2018) reported that security did not significantly affect online shopping behavior. Furthermore, Mamman et al. (2015) concluded that financial risk had no impact on online shopping behavior.

Conclusion

This study provides an in-depth examination of the key determinants influencing payment processes within Thailand's e-marketplace sector, offering findings of notable relevance and insight. Specifically, the results indicate that factors such as gender, monthly income, expenses, savings, technology acceptance, personal service, and trust collectively exert substantial influence on payment gateway usage. These findings hold important implications for a diverse range of stakeholders.

For businesses operating in the e-marketplace sector, these insights can be utilized to attract and retain customers, optimize payment gateway functionality, and enhance trust and satisfaction. Such applications extend to more efficient resource allocation, targeted marketing strategies, and improved service delivery. Policymakers may also draw on these findings to inform regulatory frameworks that support sectoral growth and sustainability. Additionally, these results can guide financial inclusion initiatives, which are increasingly vital within digital economies.

From an academic standpoint, this study contributes a detailed analysis of Thailand's e-marketplace sector, enriching the field of e-commerce by providing empirical evidence and a multidisciplinary perspective. It establishes a foundation for further exploration into the dynamics of e-marketplaces and their broader impact on the digital economy.

Despite its contributions, this study presents several limitations that should be addressed in future research. The use of convenience sampling may introduce bias; employing broader, more representative sampling techniques would enhance generalizability. The cross-sectional design offers only a snapshot in time; longitudinal studies could better capture the evolving nature of these determinants. While correlations were identified, causality remains unconfirmed, necessitating further investigation through experimental or longitudinal methodologies. Mixed-methods approaches, or comparative international studies, may also yield valuable insights. Finally, future research could examine the influence of emerging technologies on e-marketplaces and conduct more nuanced analyses of consumer behavior—particularly in relation to trust and personal service—to inform both business strategies and policy development in this dynamic sector.

Suggestions

Future research should consider exploring the characteristics of individuals who have never engaged in online shopping. This could be achieved through qualitative methods such as individual or focus group interviews, enabling researchers to gather nuanced insights that may inform strategies for online businesses. Moreover, it would be beneficial to investigate additional factors that potentially influence the adoption of payment gateways, including online shopping behavior, user experience, and the quality of customer service. Understanding these dimensions may offer a more comprehensive view of the determinants shaping consumers' decisions to utilize payment gateway services in the future.

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