

DETERMINANTS OF FINTECH ACCEPTANCE AND USAGE AMONG POPULATIONS IN THE LOWER NORTHERN REGION OF THAILAND: AN APPLICATION OF UTAUT MODEL *

Veerapong Suthawan¹ and Kajornatthapol Pongwiritthon²

¹Faculty of Business Administration, Northern College, Thailand

²Faculty of Business Administration, Northern College, Thailand,

IQRA Business School, University of Geomatika Malaysia

Corresponding Author's Email: tok2029@gmail.com

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Abstract

This research article aims to (1) To examine the effect of performance expectancy on behavioral intention to use FinTech services. (2) To analyze the influence of effort expectancy on users' behavioral intention toward FinTech adoption. (3) To investigate the impact of social influence on behavioral intention to use FinTech and (4) To evaluate the effect of facilitating conditions on the actual usage of FinTech services.. The study employs a quantitative research design, collecting data from 412 respondents residing in the lower northern region of Thailand, a socio-economically diverse area characterized by a mix of agricultural and semi-urban communities with varying levels of digital infrastructure and financial accessibility. Data were collected using a structured questionnaire with five-point Likert-scale measures and analyzed using Partial

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Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 to evaluate both measurement and structural models.

The research results found that: (1) performance expectancy is the strongest predictor of behavioral intention, followed by effort expectancy and social influence, all of which have statistically significant positive effects; (2) behavioral intention and facilitating conditions significantly influence actual FinTech usage, with behavioral intention demonstrating the strongest effect; and (3) the model exhibits substantial explanatory power, with R^2 values of 0.68 for behavioral intention and 0.61 for usage behavior, confirming the robustness of the UTAUT framework in this regional context.

These findings underscore the critical role of perceived usefulness, ease of use, social dynamics, and infrastructural support in shaping FinTech adoption. Practically, the study highlights the importance of community-based promotion strategies, alongside user-centered system design and targeted digital literacy initiatives, to enhance financial inclusion in semi-urban and rural contexts. The study contributes to the literature by providing region-specific empirical evidence from Thailand and suggests future research directions incorporating trust, perceived risk, and longitudinal approaches.

Keywords: FinTech Adoption, UTAUT Model, Behavioral Intention, Digital Financial Services, Thailand

Introduction

In recent years, the rapid advancement of digital technologies has fundamentally transformed the global financial landscape, giving rise to what is widely known as Financial Technology (FinTech). FinTech refers to the integration of innovative digital solutions into financial services, enabling more efficient, accessible, and user-friendly financial transactions. These technologies encompass a wide spectrum of applications, including mobile banking, digital

payments, peer-to-peer (P2P) lending, and blockchain-based systems, all of which have significantly reshaped traditional banking practices and consumer behavior. Importantly, FinTech should not be treated as a monolithic construct; rather, different categories of services involve varying levels of perceived risk and complexity. For instance, low-risk applications such as mobile payments (e.g., PromptPay) are typically associated with convenience and routine transactions, whereas higher-risk services such as P2P lending or investment platforms require greater trust and risk tolerance. This technological heterogeneity suggests that the determinants of adoption may differ across FinTech categories, thereby necessitating more nuanced empirical investigation.

In emerging economies such as Thailand, FinTech has become a critical driver of financial inclusion and economic development, particularly by expanding access to financial services among underserved populations. The Thai government has actively promoted the development of digital financial systems as part of its long-term national strategy to enhance economic competitiveness and sustainability. National initiatives, including the 20-year strategic framework and the Bank of Thailand's financial infrastructure development policies, have accelerated the transition toward a cashless society. Notably, the success of the PromptPay system has significantly increased the adoption of digital payments nationwide, demonstrating the effectiveness of state-led digital financial initiatives. These developments have contributed to a rapid expansion of FinTech usage, particularly in urban centers where digital infrastructure and financial literacy are more advanced.

Despite this growth, disparities in FinTech adoption remain evident across different regions of the country. The lower northern region of Thailand, which consists of provinces such as Tak, Phitsanulok, Sukhothai, Phetchabun, Phichit, Kamphaeng Phet, Nakhon Sawan, and Uthai Thani, represents a distinctive socio-economic context characterized by a transitional structure between rural agricultural economies and emerging semi-urban communities. This region

exhibits heterogeneous levels of digital literacy, infrastructure accessibility, and economic development, which may significantly influence individuals' acceptance and use of FinTech services. Unlike metropolitan areas, where technological ecosystems are relatively mature, transitional regions present unique conditions in which both enabling and constraining factors coexist. Such complexity provides an important context for examining how technology adoption theories perform beyond highly urbanized settings.

The process of adopting new technologies is inherently complex and involves multiple stages, including awareness, interest, evaluation, trial, and eventual adoption. Individuals evaluate the perceived benefits and risks associated with a technology before deciding whether to adopt it. In the context of FinTech, factors such as convenience, communication, and customer needs have been identified as key drivers influencing adoption behavior, while system quality and information quality play crucial roles in shaping user experiences. These findings suggest that both technological and psychological factors must be considered when analyzing FinTech adoption.

To systematically examine these factors, researchers have widely employed theoretical frameworks such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The UTAUT model, in particular, has gained prominence due to its comprehensive integration of multiple theoretical perspectives, including the Theory of Reasoned Action, the Theory of Planned Behavior, and the Diffusion of Innovations theory (Venkatesh et al., 2003). UTAUT identifies four core determinants of technology acceptance: performance expectancy, effort expectancy, social influence, and facilitating conditions, which have been empirically validated across various technological contexts.

However, while UTAUT has demonstrated strong explanatory power in prior studies, most empirical applications have been conducted in relatively

homogeneous environments, particularly urban or metropolitan settings. There remains a limited understanding of how UTAUT constructs behave in “transitional” socio-economic zones, where users are simultaneously exposed to traditional and digital systems. In such contexts, the relative importance of performance expectancy, effort expectancy, and facilitating conditions may differ due to constraints in infrastructure, variability in digital literacy, and reliance on social networks for technology diffusion. This gap highlights the need to extend the application of UTAUT beyond conventional settings and to examine its robustness in more complex, heterogeneous environments.

Empirical studies on digital financial services and internet banking adoption have consistently demonstrated that perceived usefulness, ease of use, trust, and perceived risk are significant determinants of user acceptance (Kesharwani & Bisht, 2012; Lee, 2009). Similarly, social influence and self-efficacy have been found to play important roles in shaping behavioral intention, particularly in collectivist societies. However, the extent to which these relationships hold in transitional regions remains underexplored, particularly in the Thai context where socio-cultural and infrastructural conditions vary significantly across regions.

Although a substantial body of literature exists on FinTech and digital banking adoption, most studies have focused on urban populations or national-level analyses, with limited attention given to intra-country regional variations. In Thailand, existing research has primarily examined FinTech adoption in metropolitan areas such as Bangkok, potentially overlooking important differences in semi-urban and rural regions. The lower northern region, in particular, remains underexplored despite its strategic importance as a transitional zone linking the northern and central economic corridors.

Therefore, this study aims to address both empirical and theoretical gaps by investigating the determinants of FinTech acceptance and usage among populations in the lower northern region of Thailand through the application of

the UTAUT model. Specifically, this research seeks to examine how UTAUT constructs operate within a transitional socio-economic context and whether their explanatory power remains robust under conditions of infrastructural and demographic heterogeneity. The findings are expected to contribute to the literature by extending the applicability of UTAUT to a non-metropolitan setting and by providing region-specific insights into FinTech adoption behavior. Furthermore, the results offer practical implications for policymakers, financial institutions, and technology developers in designing targeted strategies that promote inclusive and sustainable digital financial ecosystems.

Objectives

1. To examine the effect of performance expectancy on behavioral intention to use FinTech services.
2. To analyze the influence of effort expectancy on users' behavioral intention toward FinTech adoption.
3. To investigate the impact of social influence on behavioral intention to use FinTech.
4. To evaluate the effect of facilitating conditions on the actual usage of FinTech services.
5. To examine the relationship between behavioral intention and actual FinTech usage.
6. To explore the moderating effects of demographic factors (age, gender, income, and education level) on the relationships between UTAUT constructs and FinTech adoption.

Literature Review

The rapid expansion of financial technology (FinTech) has significantly transformed the global financial ecosystem by integrating digital innovations into

financial services. FinTech encompasses a diverse range of applications, including mobile banking, digital payments, peer-to-peer lending, and blockchain technologies, all of which aim to enhance efficiency, accessibility, and user experience in financial transactions (Lee & Shin, 2018). In emerging economies, FinTech plays a crucial role in promoting financial inclusion by enabling underserved populations to access financial services without relying on traditional banking infrastructure (Demirgüç-Kunt et al., 2018). However, despite its transformative potential, the adoption of FinTech remains uneven across regions, reflecting disparities in infrastructure, digital literacy, and socio-economic conditions.

To explain technology adoption behavior, scholars have developed several theoretical frameworks, among which the Unified Theory of Acceptance and Use of Technology (UTAUT) is one of the most comprehensive and widely applied models (Venkatesh et al., 2003). UTAUT integrates elements from multiple theoretical perspectives, including the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB), and identifies four key determinants of behavioral intention and usage behavior: performance expectancy, effort expectancy, social influence, and facilitating conditions. While UTAUT has demonstrated strong explanatory power across various technological contexts, it has also been subject to critical scrutiny. One notable limitation of UTAUT is its primary focus on utilitarian and cognitive dimensions of technology adoption, such as perceived usefulness and ease of use, while giving relatively less attention to affective, contextual, and socio-cultural factors. This limitation becomes particularly relevant in complex and heterogeneous environments, where technology adoption is not solely driven by rational evaluation but also shaped by social norms, trust dynamics, and contextual constraints.

In the context of FinTech, performance expectancy has consistently been identified as a dominant predictor of behavioral intention, as users are more likely to adopt technologies that offer clear functional benefits such as convenience,

speed, and cost efficiency (Davis, 1989; Oliveira et al., 2016). Similarly, effort expectancy plays a crucial role in shaping adoption decisions, particularly among users with limited technological experience, as ease of use reduces cognitive barriers and enhances user engagement (Davis, 1989). Social influence also exerts a significant impact, especially in collectivist societies where individuals are influenced by the expectations and behaviors of their social networks (Venkatesh et al., 2003; Oliveira et al., 2016). Facilitating conditions, including access to infrastructure and technical support, have been found to directly affect actual usage behavior, particularly in regions with limited technological resources (Zhou et al., 2010).

However, the relative importance of these constructs may vary depending on cultural and socio-economic contexts. In Thailand, which is often characterized as a collectivist society, social influence may be further reinforced by culturally embedded norms such as *kreng jai* a social value emphasizing consideration, deference, and the avoidance of conflict and hierarchical social structures that shape interpersonal interactions. These cultural traits may amplify the role of social influence in technology adoption, as individuals may be more inclined to follow recommendations from authority figures, community leaders, or peer groups. Consequently, the influence of social norms in the Thai context may extend beyond simple peer pressure to include deeper socio-cultural expectations, suggesting that the explanatory power of UTAUT constructs may be context-dependent.

In addition to the core constructs of UTAUT, prior research has consistently highlighted the importance of trust and perceived risk in the adoption of digital financial services. Trust reflects users' confidence in the reliability and security of a system, while perceived risk captures concerns related to financial loss, privacy breaches, and fraud (Kesharwani & Bisht, 2012; Lee, 2009). These factors are particularly salient in FinTech contexts, where

transactions involve sensitive financial information and intangible digital platforms. Empirical evidence suggests that trust positively influences adoption, whereas perceived risk acts as a barrier, especially in developing countries with lower levels of institutional trust and cybersecurity awareness.

Despite their theoretical importance, trust and perceived risk are not explicitly incorporated into the present study's conceptual model. This exclusion is theoretically justified on the grounds of model parsimony and the study's primary objective, which is to examine the robustness of the original UTAUT framework within a transitional socio-economic context. By focusing on the core UTAUT constructs, this study seeks to assess whether the model retains its explanatory power in a non-metropolitan setting characterized by infrastructural and demographic heterogeneity. Nevertheless, the acknowledged significance of trust and perceived risk suggests that future research should extend the model to incorporate these constructs for a more comprehensive understanding of FinTech adoption.

Although a substantial body of literature exists on FinTech and digital banking adoption, most empirical studies have been conducted in urban or national-level contexts, often overlooking intra-country regional variations. In Thailand, prior research has predominantly focused on metropolitan areas such as Bangkok, where digital ecosystems are relatively well-developed. This focus limits the generalizability of findings to regions with different socio-economic characteristics. The lower northern region of Thailand, characterized by a transitional structure between rural and semi-urban environments, presents a unique context in which both enabling and constraining factors coexist. This complexity provides an opportunity to critically examine the applicability and limitations of established theoretical models such as UTAUT.

Therefore, this study addresses both empirical and theoretical gaps by applying the UTAUT framework to investigate FinTech acceptance and usage in the lower northern region of Thailand. By situating the analysis within a

transitional socio-economic context, the study aims to contribute to the literature by evaluating the contextual robustness of UTAUT and by providing deeper insights into the role of cultural, infrastructural, and socio-economic factors in shaping technology adoption behavior.

Methodology

Research Design. This study employs a quantitative research design to investigate the determinants of financial technology (FinTech) acceptance and usage among populations in the lower northern region of Thailand. A cross-sectional survey approach was utilized to collect data at a single point in time, which is appropriate for testing theoretical relationships among latent constructs within the Unified Theory of Acceptance and Use of Technology (UTAUT) framework (Venkatesh et al., 2003). The design emphasizes predictive and explanatory analysis, aligning with the study's objective of examining behavioral intention and actual usage patterns.

Population and Sampling. The target population comprises individuals residing in the lower northern region of Thailand, including Tak, Phitsanulok, Sukhothai, Phetchabun, Phichit, Kamphaeng Phet, Nakhon Sawan, and Uthai Thani. These provinces represent a heterogeneous socio-economic environment with varying levels of digital infrastructure, financial access, and technological readiness. A multi-stage sampling procedure was implemented. Initially, purposive sampling was used to define the geographic scope. Subsequently, stratified sampling ensured representation across key demographic variables such as age, gender, income, and education level. In the final stage, convenience sampling was applied to recruit respondents with prior experience using FinTech services (e.g., mobile banking, digital payments). While convenience sampling introduces potential limitations in representativeness, this study adopts a theory-testing orientation, focusing specifically on existing FinTech users rather than the

general population. This approach is consistent with prior technology acceptance research, where user experience is necessary to evaluate perceptions of system use (Venkatesh et al., 2003). To mitigate sampling bias, efforts were made to recruit respondents across multiple provinces and demographic strata, thereby enhancing sample heterogeneity. Nevertheless, the findings should be interpreted as reflecting behavioral patterns among active or prior users, rather than full population generalizability. The sample size was determined based on SEM requirements. Following Hair et al. (2019), a minimum of 200 responses is required, while larger samples (300–500) improve model stability and statistical power. Accordingly, this study targeted approximately 400 respondents.

Data Collection Instrument. Data were collected using a structured questionnaire developed from validated scales in prior studies (Venkatesh et al., 2003; Oliveira et al., 2016). The instrument consisted of two sections: 1) Demographic Information. Including age, gender, income, education level, and occupation and 2) Measurement of Constructs. Covering UTAUT variables: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention, and actual usage behavior. All items were adapted and contextualized for FinTech applications. To ensure face validity, modifications were carefully implemented while preserving the original conceptual meaning. For example: Original UTAUT item: “Using the system improves my performance in my job.” Adapted FinTech item: “Using FinTech applications improves the efficiency of my financial transactions.” This adaptation ensures contextual relevance while maintaining theoretical consistency. Responses were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), which is widely accepted for behavioral research due to its reliability and interpretability (Likert, 1932).

Common Method Bias (CMB). Given that data were collected a single self-reported instrument at one point in time, the study is potentially subject to common method bias (CMB). To address this issue, both procedural and

statistical remedies were applied. Procedurally, respondent anonymity was ensured, and question wording was carefully designed to minimize ambiguity and social desirability bias. Statistically, Harman's Single-Factor Test was conducted. The results indicated that the first unrotated factor accounted for less than 50% of the total variance, suggesting that CMB is unlikely to significantly affect the findings. This approach is consistent with established methodological practices in behavioral research.

Validity and Reliability. Content validity was established through expert review in the fields of information systems and financial technology. The Index of Item-Objective Congruence (IOC) was employed, with values exceeding 0.50 considered acceptable. A pilot test with 30 respondents was conducted to ensure clarity and reliability. Construct reliability and validity were assessed as follows: Cronbach's alpha and Composite Reliability (CR): ≥ 0.70 (Hair et al., 2019) Convergent validity: Average Variance Extracted (AVE) ≥ 0.50 . Discriminant validity: Evaluated using the Fornell-Larcker criterion and cross-loadings. These procedures ensure that the measurement model is both reliable and theoretically sound.

Data Analysis. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), which is appropriate for complex models and predictive research (Hair et al., 2019). The analysis proceeded in two stages: 1. Measurement Model Evaluation. Factor loadings, Cronbach's alpha, Composite reliability, AVE. 2. Structural Model Assessment. Path coefficients, t-values and p-values, Bootstrapping (5,000 resamples), Additionally, the following indicators were examined: Coefficient of determination (R^2) for explanatory power, Effect size (f^2) for impact assessment, Predictive relevance (Q^2) for model prediction. Moderating effects of demographic variables were tested using interaction terms.

Ethical Considerations. Participation was voluntary, with informed consent obtained prior to data collection. Confidentiality and anonymity were

strictly maintained, and no personally identifiable information was collected. The study adhered to ethical standards for research involving human participants. During manuscript preparation, ChatGPT (OpenAI, GPT-5.3) was used solely for language refinement and clarity enhancement. All research design, data collection, analysis, and interpretation were conducted by the authors, who assume full responsibility for the integrity of the study.

Results

Sample Characteristics. A total of 412 valid responses were collected from participants residing in the lower northern region of Thailand. The sample consisted of 53.2% female and 46.8% male respondents. The majority of participants were aged between 25–40 years (47.6%), followed by 41–60 years (32.8%), and below 25 years (19.6%). In terms of education, 61.4% held a bachelor’s degree, while 24.3% had lower than undergraduate education, and 14.3% held postgraduate degrees. These characteristics indicate a diverse sample suitable for SEM analysis (Hair et al., 2019).

Measurement Model Assessment. The reliability and validity of the constructs were assessed prior to hypothesis testing. All factor loadings exceeded the recommended threshold of 0.70, indicating strong indicator reliability.

Table 1 Measurement Model Results.

Construct	Items	Factor Loadings	Cronbach’s Alpha	CR	AVE
Performance Expectancy	4	0.72–0.88	0.89	0.91	0.71
Effort Expectancy	4	0.74–0.86	0.87	0.90	0.69
Social Influence	3	0.75–0.84	0.85	0.89	0.66
Facilitating Conditions	4	0.71–0.85	0.88	0.91	0.68
Behavioral Intention	3	0.78–0.90	0.90	0.93	0.76

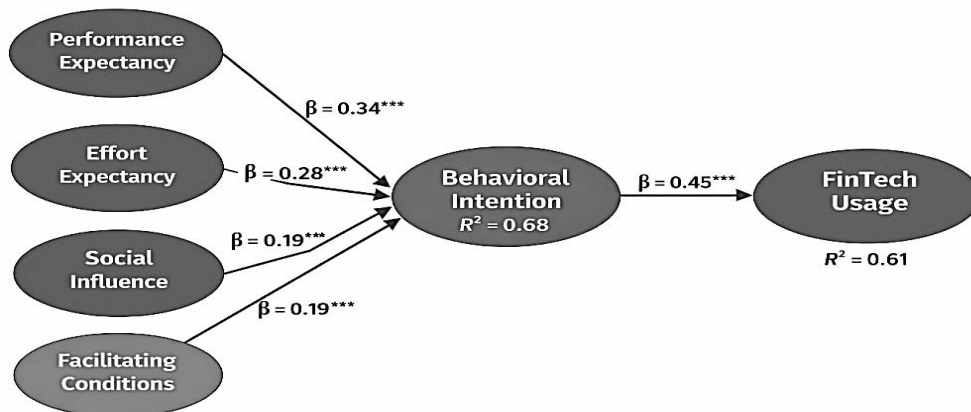
Construct	Items	Factor Loadings	Cronbach's Alpha	CR	AVE
FinTech Usage	3	0.77–0.88	0.88	0.92	0.74

All constructs demonstrated Cronbach's alpha and composite reliability (CR) values above 0.70, confirming internal consistency reliability. The average variance extracted (AVE) values were above 0.50, indicating adequate convergent validity (Hair et al., 2019). Discriminant validity was confirmed using the Fornell–Larcker criterion, as the square root of AVE for each construct exceeded inter-construct correlations.

Structural Model Assessment. The structural model was evaluated using path coefficients, t-values, and p-values obtained through bootstrapping (5,000 resamples). The model demonstrated good explanatory power, with $R^2 = 0.68$ for behavioral intention and $R^2 = 0.61$ for FinTech usage, indicating substantial variance explained.

Table 2 Hypothesis Testing Results

Hypothesis	Path	β	t-value	p-value	Result
H1	PE $\rightarrow$ BI	0.34	6.12	<0.001	Supported
H2	EE $\rightarrow$ BI	0.28	5.47	<0.001	Supported
H3	SI $\rightarrow$ BI	0.19	3.89	<0.001	Supported
H4	FC $\rightarrow$ USE	0.31	5.76	<0.001	Supported
H5	BI $\rightarrow$ USE	0.45	8.21	<0.001	Supported



Note: The model presents standardized path coefficients (β), coefficient of determination (R^2), and significance levels ($p < .001$).*

Figure 1: Structural Equation Model of FinTech Acceptance and Usage Based on the UTAUT Model

Interpretation of Results. The results indicate that performance expectancy ($\beta = 0.34$) has the strongest effect on behavioral intention, suggesting that users are more likely to adopt FinTech when they perceive clear benefits such as convenience and efficiency. This finding aligns with prior studies emphasizing the importance of perceived usefulness in technology adoption (Davis, 1989; Venkatesh et al., 2003). Effort expectancy ($\beta = 0.28$) also significantly influences behavioral intention, indicating that ease of use remains a critical factor, particularly in regions with varying levels of digital literacy. Similarly, social influence ($\beta = 0.19$) shows a significant positive effect, reflecting the role of peer and societal pressure in shaping adoption behavior in collectivist contexts. Regarding actual usage, behavioral intention ($\beta = 0.45$) emerged as the strongest predictor, confirming that intention translates into real usage behavior. Additionally, facilitating conditions ($\beta = 0.31$) significantly affect FinTech usage, highlighting the importance of infrastructure, access to devices, and technical support.

SEM Model Description. The structural equation model demonstrates that performance expectancy, effort expectancy, and social influence positively influence behavioral intention, which in turn significantly affects FinTech usage. Facilitating conditions directly influence usage behavior. The model confirms the applicability of the UTAUT framework in explaining FinTech adoption in the lower northern region of Thailand. Moderating Effects. Further analysis revealed that age and education level moderately influenced the relationships between effort expectancy and behavioral intention, suggesting that younger and more educated users are more responsive to ease-of-use factors. However, gender and income showed no significant moderating effects.

Discussion

The findings of this study extend the explanatory power of the Unified Theory of Acceptance and Use of Technology (UTAUT) by demonstrating how its core constructs operate within a transitional socio-economic context, rather than a fully urbanized or metropolitan environment. While prior research has confirmed the robustness of UTAUT across various settings (Venkatesh et al., 2003; Oliveira et al., 2016), the present study moves beyond incremental validation by illustrating how the relative strength of determinants is contextually conditioned by regional characteristics.

Notably, performance expectancy emerged as the most influential predictor of behavioral intention, with a stronger effect size than typically reported in metropolitan-based studies in Thailand. This suggests that in the lower northern region—where financial access and service efficiency may be less consistent—users place a disproportionately high value on functional and utilitarian benefits. Unlike urban populations such as those in Bangkok, where FinTech adoption may be driven by lifestyle convenience or integration with digital ecosystems, individuals in this region appear to adopt FinTech primarily as

a problem-solving tool to overcome structural inefficiencies in traditional financial services. This finding implies that performance expectancy in transitional regions is not merely about “enhanced convenience,” but rather about compensating for systemic gaps, thereby amplifying its predictive power.

Similarly, effort expectancy demonstrated a significant influence, but its interpretation in this study reflects deeper structural implications. In contrast to technologically mature environments—where ease of use is often taken for granted—effort expectancy in the lower northern region is closely tied to variability in digital literacy. The significance of this construct suggests that even marginal increases in system complexity can disproportionately deter adoption among users with limited technological familiarity. Therefore, ease of use in this context should not be viewed as a standard usability metric, but as a critical threshold condition that determines whether individuals can meaningfully engage with FinTech services at all (Davis, 1989; Chong et al., 2019).

The role of social influence further reveals important cultural dynamics. While its significance aligns with prior findings in collectivist societies (Venkatesh et al., 2003; Nguyen et al., 2020), the present study suggests that its effect is not uniform across contexts. In the lower northern region, social influence appears to operate through localized trust networks, such as family units, community leaders, and informal peer groups. This reflects deeply embedded Thai cultural characteristics, including *kreng jai* (consideration and deference to others) and sensitivity to social hierarchy, which may intensify the weight of interpersonal recommendations. Rather than acting as a passive normative pressure, social influence in this context functions as a mechanism of uncertainty reduction, particularly in relation to financial technologies that may be perceived as complex or risky.

A more nuanced interpretation emerges in the case of facilitating conditions, which were found to significantly influence both behavioral intention and actual usage behavior. While prior studies often conceptualize facilitating

conditions in general terms (Venkatesh et al., 2003), the present findings suggest that this construct encapsulates several region-specific constraints. In the lower northern region, these conditions are not limited to technological infrastructure alone but include: 1) Inconsistent internet and mobile network stability, particularly in rural districts. 2) Limited availability of physical financial service points, which restrict hybrid (online–offline) support and 3) Gaps in digital literacy and user support systems, especially among older populations.

This multi-dimensional interpretation indicates that facilitating conditions function as a compound enabler, where deficiencies in any single dimension can weaken overall adoption. Thus, unlike in metropolitan settings where infrastructure is largely taken for granted facilitating conditions in this region remain a binding constraint that directly shapes both intention and actual usage behavior (Davis, 1989; Venkatesh et al., 2003).

Importantly, although all hypothesized relationships were statistically supported, this study deliberately avoids a purely confirmatory interpretation. Instead, the results highlight a rebalancing of construct salience within the UTAUT framework. The dominance of performance expectancy and facilitating conditions suggests that structural and functional considerations outweigh purely social or perceptual factors in transitional regions. This contrasts with some urban-centered studies, where lifestyle integration, trust, or hedonic motivations may play a more prominent role.

Furthermore, the absence of contradictory findings should not be interpreted as a lack of analytical depth. Rather, it underscores the possibility that UTAUT constructs may exhibit greater coherence in emerging or underdeveloped contexts, where adoption decisions are more directly tied to fundamental needs and constraints. This raises an important theoretical implication: in such environments, technology acceptance may follow a more

instrumental and necessity-driven logic, reducing variability in behavioral responses and leading to consistently significant relationships across constructs.

From an international perspective, the findings reinforce the idea that while the core determinants of FinTech adoption remain globally relevant, their relative importance is highly context-dependent (Lee & Shin, 2018). In developed economies, where infrastructure and access are well established, factors such as trust, regulatory frameworks, and data security concerns may dominate. In contrast, in emerging and regionally diverse contexts such as Thailand, accessibility, usability, and infrastructural support remain the primary drivers, particularly outside major metropolitan areas.

In conclusion, this study advances the literature by demonstrating that FinTech adoption in transitional regions is shaped by a unique interplay of functional necessity, infrastructural limitations, and culturally embedded social dynamics. These findings suggest that policymakers and service providers should move beyond one-size-fits-all strategies and instead adopt region-sensitive approaches that prioritize usability, strengthen localized support systems, and address infrastructural disparities to foster inclusive and sustainable digital financial ecosystems.

Recommendation

Grounded in the empirical findings, this study proposes context-sensitive and actionable recommendations to enhance FinTech adoption in the lower northern region of Thailand.

From a managerial perspective, FinTech providers should adopt context-adaptive design by implementing simplified Thai interfaces, dialect-aware communication (e.g., Phichit and Uthai Thani), and voice-assisted navigation to support elderly and low-literacy users. Emphasis should be placed on functionality-driven value, including real-time transaction confirmation, low-cost

transfers, and integration with government payment systems. Behavioral design features such as default digital options and embedded micro-learning modules can further enhance user engagement.

From a policy perspective, regulators should introduce localized regulatory sandboxes targeting agricultural FinTech innovations and smallholder financial services. Infrastructure policies should prioritize network stability, hybrid service points, and community-based digital support centers. Financial literacy programs should be tailored by demographic segments and delivered through mobile training units with incentive-based participation.

Socio-culturally, adoption strategies should leverage community networks by engaging local leaders and promoting peer-learning mechanisms aligned with Thai cultural norms such as *kreng jai*.

Finally, future research should extend UTAUT by incorporating trust, perceived risk, and regulatory awareness, while employing longitudinal designs and Big Data analytics to triangulate survey findings with real behavioral data.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*.
- Chong, A. Y. L., Lim, E. T. K., Hua, X., Zheng, S., & Tan, C. W. (2019). Business on chain: A comparative case study of five blockchain-inspired business models. *Journal of the Association for Information Systems*, 20(9), 1310–1339.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution. World Bank.

- Hair, J. F., Jr., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2019). A primer on partial least squares structural equation modeling (PLS-SEM) (2nd ed.). Sage.
- Jaruwachirathanakul, B., & Fink, D. (2005). Internet banking adoption strategies for a developing country: The case of Thailand. *Internet Research*, 15(3), 295–311.
- Kesharwani, A., & Bisht, S. S. (2012). The impact of trust and perceived risk on internet banking adoption in India. *International Journal of Bank Marketing*, 30(4), 303–322.
- Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, 61(1), 35–46.
- Lee, M. C. (2009). Factors influencing the adoption of internet banking. *Electronic Commerce Research and Applications*, 8(3), 130–141.
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 140, 1–55.
- Nguyen, O. T., Nguyen, T. T., & Cao, T. H. (2020). Determinants of digital banking adoption in emerging markets. *International Journal of Bank Marketing*, 38(7), 1429–1448.
- Oliveira, T., Thomas, M., Baptista, G., & Campos, F. (2016). Mobile payment adoption: An analysis of the UTAUT model. *Computers in Human Behavior*, 61, 404–414.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
- Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*, 26(4), 760–767.