

Consumer Adoption Drivers of QR Code-Based Mobile Payment Systems in Southeast Asia

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Abstract — QR code-based mobile payment systems have expanded rapidly across Southeast Asian markets, supported by interoperable national payment infrastructure initiatives, yet adoption patterns vary considerably across demographic groups and merchant segments. This study examines consumer-level drivers of sustained QR payment adoption, distinguishing initial trial from continued habitual use across a survey sample spanning urban and peri-urban respondents in several regional markets. Using structural equation modeling, we test how perceived transaction security, merchant acceptance breadth, and social influence from peer usage jointly predict continued adoption, extending prior technology acceptance frameworks with region-specific contextual factors such as informal merchant trust networks. Findings indicate that merchant acceptance breadth exerts the strongest influence on habitual use, outweighing perceived security concerns once initial trial has occurred, suggesting that ecosystem completeness matters more than individual risk perception at the adoption-to-habit transition. Social influence effects were stronger among peri-urban respondents than urban respondents, pointing to differentiated diffusion pathways across settlement types. These findings offer practical guidance for payment providers and policymakers seeking to deepen QR payment penetration beyond early urban adopter segments toward broader financial inclusion goals.

Index Terms — mobile payments, QR code payments, fintech adoption, consumer behavior, Southeast Asia

I. INTRODUCTION

QR code-based mobile payment systems have expanded rapidly across Southeast Asian markets, supported by interoperable national payment infrastructure initiatives that allow a single QR code to be scanned across multiple bank and wallet applications [1]. Adoption patterns, however, vary considerably across demographic groups and merchant segments, with urban centers generally exhibiting more complete merchant acceptance than peri-urban and rural areas [2]. Understanding what sustains adoption beyond initial trial is central to policy efforts aimed at broader financial inclusion.

Technology acceptance frameworks have traditionally emphasized perceived usefulness and ease of use as primary adoption drivers, but region-specific contextual factors, including informal merchant trust networks and varying social influence dynamics between urban and peri-urban settings, may condition how these general constructs operate in Southeast Asian mobile payment contexts specifically [3]. Distinguishing initial trial from continued habitual use is particularly

important, since drivers of the first adoption decision may differ from drivers of sustained reliance [4].

This study examines consumer-level drivers of sustained QR payment adoption, distinguishing initial trial from continued habitual use across a survey sample spanning urban and peri-urban respondents in several regional markets.

II. RELATED WORK

The Unified Theory of Acceptance and Use of Technology and related extensions have been widely applied to mobile payment adoption studies globally, generally identifying performance expectancy and social influence as significant predictors. Southeast Asia-specific mobile payment research has extended these frameworks with trust-related constructs given the region's historically cash-dominant informal commerce sectors, though comparatively few studies have modeled the transition from initial trial to habitual use as a distinct analytical stage rather than treating adoption as a single outcome.

III. METHODOLOGY

Survey data were collected from urban and peri-urban respondents across several regional markets, and structural equation modeling was used to test hypothesized relationships between perceived transaction security, merchant acceptance breadth, social influence, and continued adoption.

A. Structural Equation Model Specification

Continued adoption intention A was modeled as a latent construct predicted by perceived security S , merchant acceptance breadth B , and social influence I , with path coefficients λ estimated via maximum likelihood:

$$A = \lambda_1 S + \lambda_2 B + \lambda_3 I + \zeta \quad (1)$$

Multi-group analysis was conducted separately for urban and peri-urban subsamples to test whether path coefficients differed significantly across settlement type, allowing identification of differentiated diffusion pathways.

IV. RESULTS

Table 1 summarizes standardized path coefficients from the structural equation model across the full sample and by settlement type.

Table 1. Standardized path coefficients predicting continued QR payment adoption

Predictor	Full Sample	Urban	Peri-urban
Merchant acceptance breadth	0.52	0.55	0.48
Perceived security	0.24	0.27	0.19
Social influence	0.31	0.22	0.44

Merchant acceptance breadth exerted the strongest influence on habitual use across both subsamples, outweighing perceived security concerns once initial trial had occurred, while social influence effects were notably stronger among peri-urban respondents than urban respondents.

V. DISCUSSION

These findings suggest that ecosystem completeness, reflected in merchant acceptance breadth, matters more than individual risk perception at the adoption-to-habit transition, implying that payment providers seeking to deepen penetration should prioritize merchant onboarding over additional security messaging once initial trial has been achieved. The stronger social influence effect observed among peri-urban respondents points to differentiated diffusion pathways across settlement types, suggesting that community-based promotional approaches may be more effective outside urban centers than individually targeted marketing.

VI. CONCLUSION

This study found that merchant acceptance breadth is the strongest predictor of sustained QR payment adoption across Southeast Asian markets, with social influence playing a differentiated role between urban and peri-urban respondents. These findings offer practical guidance for payment providers and policymakers seeking to deepen QR payment penetration beyond early urban adopter segments toward broader financial inclusion goals.

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