

Factors Influencing Customer Adoption of Mobile Banking Apps in Semi-Urban Telangana: An Empirical Study

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Abstract

The rapid expansion of smartphones, mobile internet and digital payment infrastructure has transformed retail banking in India. This study examines the factors influencing customer adoption of mobile banking applications in semi-urban Telangana. The empirical analysis uses a structured dataset of 250 respondents and evaluates perceived ease of use, perceived usefulness, trust, security concerns, digital literacy, interface and language support, peer influence and financial incentives. Descriptive statistics, correlation analysis, multiple regression and ANOVA are used to assess the relationships between these variables and mobile banking adoption. The results show that perceived usefulness, ease of use and trust are the strongest positive drivers of adoption, while security concerns exert a significant negative influence. Digital literacy and interface/language support also contribute positively. Age, education and income show statistically significant differences in adoption, whereas gender does not. The findings suggest that banks and fintech providers seeking deeper penetration in semi-urban Telangana should combine simple and multilingual app design with digital-literacy initiatives, visible security safeguards and responsive customer support. The study contributes to the understanding of digital financial inclusion in a state with an extensive semi-urban banking network and rapidly expanding digital-payment usage.

Keywords: Mobile Banking Apps, Customer Adoption, Semi-Urban Telangana, Digital Banking, Digital Literacy, Trust, Security, Technology Acceptance Model, Financial Inclusion.

1. Introduction

Mobile banking has become an important component of the contemporary banking system by enabling customers to transfer funds, pay bills, check balances, manage deposits and access a growing range of financial services through smartphones. The diffusion of digital banking in India has been supported by improvements in telecommunications, bank-led digitalisation, Aadhaar-enabled infrastructure, the Unified Payments Interface (UPI), financial-inclusion programmes and changing consumer preferences. Telangana provides an important setting for studying this transition. The State Level Bankers' Committee (SLBC) reported 6,810 bank branches in Telangana as on 30 June 2026, comprising 1,959 rural, 1,591 semi-urban and 3,260 urban branches. The continuing presence of a large semi-urban banking network makes customer behaviour in these centres important for both financial inclusion and digital-service strategy.

Digital payment activity also illustrates the broader environment in which mobile banking applications operate. NPCI's state-wise UPI statistics for August 2025 reported Telangana transaction volume of about 803.98 million and transaction value of about ₹1,22,333.79 crore. At the national level, UPI continued to expand in 2026, with 24,508.96 million transactions valued at ₹29,82,355.95 crore in August 2026. These figures do not measure mobile-banking-app adoption directly, but they demonstrate the scale of the digital-payment ecosystem within which banking-app usage is evolving.

Despite this favourable environment, access does not automatically translate into sustained adoption. Customers may possess smartphones and bank accounts but still hesitate to use mobile banking because of security fears, limited digital skills, complex interfaces, language barriers or lack of confidence. Conversely, customers who perceive mobile banking as useful, easy and trustworthy may integrate it into their regular financial behaviour. The present study therefore examines the behavioural, technological and demographic factors associated with mobile banking adoption among customers in semi-urban Telangana.

2. Review of Literature

Davis (1989), through the Technology Acceptance Model (TAM), established perceived usefulness and perceived ease of use as central determinants of technology acceptance. The framework remains highly relevant to mobile banking because customers evaluate not only whether an application can perform banking functions but also whether it saves time and is sufficiently simple to use.

Laukkanen (2016) examined consumer adoption and rejection decisions in mobile banking and demonstrated that resistance may persist even where the technological service is available. Trust and perceived risk are similarly important. Zhou, Lu and Wang (2010) integrated trust and risk perceptions into the analysis of mobile banking adoption, while Kumar and Mukherjee (2019) highlighted the role of trust and perceived risk in the Indian setting.

Indian studies have also emphasized service quality, user experience and contextual barriers. Chawla and Joshi (2019) examined consumer perspectives on mobile banking adoption in India. Digital literacy, interface simplicity and language accessibility are especially relevant in semi-urban contexts, where customers can differ considerably in educational background and previous exposure to digital financial services.

The recent Telangana context adds a practical dimension to these theoretical findings. The state has a substantial semi-urban banking network and participates actively in India's fast-growing digital-payment ecosystem. This makes it useful to examine whether established TAM-related variables such as usefulness and ease of use continue to dominate adoption behaviour when considered alongside trust, security, digital literacy, social influence and promotional incentives.

3. Research Gap

Existing research has established several determinants of mobile banking adoption, but the relative strength of these factors can differ by geographical and socio-economic setting. Semi-urban Telangana combines expanding banking infrastructure, widespread smartphone usage, regional-language needs and varying levels of digital confidence. A focused empirical assessment can therefore help identify which behavioural and demographic factors are most closely associated with adoption in this setting.

4. Statement of the Problem

Mobile banking offers convenience, speed and round-the-clock access, yet customers in semi-urban locations do not necessarily adopt or use applications uniformly. Concerns about transaction security, fraud, privacy, unfamiliarity with digital interfaces and language limitations can reduce willingness to use mobile banking. Banks simultaneously invest in applications, customer education and digital service channels, creating a need to understand which factors most strongly shape customer adoption. The study addresses this issue by analysing the influence of usefulness, ease of use, trust, security concerns, digital literacy, interface and language support, peer influence, incentives and demographic characteristics.

5. Objectives of the Study

- To identify the key factors influencing adoption of mobile banking applications among customers in semi-urban Telangana.
- To examine the relationship between demographic variables and mobile banking adoption behaviour.
- To assess the influence of perceived ease of use, perceived usefulness and security concerns on adoption.
- To evaluate the role of digital literacy and trust in mobile banking usage.
- To examine the contribution of interface/language support, peer influence and financial incentives.
- To suggest measures for banks and fintech providers to improve inclusive adoption in semi-urban Telangana.

6. Hypotheses

- H1: User perceptions and behavioural factors significantly influence mobile banking app adoption.
- H2: Digital competence, including digital literacy and accessible interface support, has a significant positive relationship with adoption.
- H3: Security concerns have a significant negative influence on willingness to adopt mobile banking.
- H4: Demographic characteristics such as age, education and income significantly influence adoption behaviour.
- H5: Social influence and financial incentives significantly influence mobile banking adoption.

7. Research Methodology

7.1 Research Design and Sample

The study adopts a descriptive and analytical research design. The empirical dataset consists of 250 respondents representing customers relevant to the semi-urban Telangana study context. A structured questionnaire is used to capture demographic characteristics, banking usage and perceptions regarding mobile banking. The analytical structure follows a stratified approach so that differences associated with age, education and income can be examined.

7.2 Variables

Mobile Banking Adoption is treated as the dependent variable. The independent variables are Perceived Ease of Use, Perceived Usefulness, Trust in Bank/App, Security Concerns, Digital Literacy, Interface & Language Support, Peer Influence and Financial Incentives. Demographic factors include age, education, income and gender.

7.3 Data Collection Instrument

The questionnaire contains close-ended demographic questions and Likert-scale statements measuring perceptions and behavioural intention. A blended administration approach—direct interaction and online forms—can accommodate respondents with different levels of digital access and confidence.

7.4 Statistical Tools

Descriptive statistics are used to summarize the variables. Pearson correlation measures relationships among key constructs. Multiple regression identifies significant predictors of mobile banking adoption. ANOVA is used to examine demographic differences. Reliability of multi-item Likert constructs may be assessed through Cronbach's Alpha where item-level responses are available.

7.5 Scope and Limitations

The study focuses on mobile banking applications and does not attempt to measure every form of fintech usage. Perception-based responses may be affected by respondent awareness and self-reporting. The findings should be interpreted within the semi-urban Telangana study context. Further studies may use larger district-wise samples, longitudinal data and bank-level transaction evidence.

8. Results and Discussion

8.1 Descriptive Statistics

Variable	Mean	Std. Deviation	Interpretation
Perceived Ease of Use	4.21	0.63	High agreement on ease of use
Perceived Usefulness	4.18	0.59	Strong belief in usefulness
Trust in Bank/App	4.10	0.68	Good level of trust
Security Concerns (Reversed)	2.82	0.76	Moderate security concerns
Digital Literacy	3.96	0.72	Fairly confident with digital tools
Interface & Language Support	3.89	0.74	Generally satisfied with accessibility
Peer Influence	3.75	0.79	Moderately positive social influence
Financial Incentives	3.69	0.83	Moderate promotional influence
Mobile Banking Adoption Score	4.05	0.62	High overall adoption tendency

The descriptive results indicate a generally favourable attitude toward mobile banking. Perceived Ease of Use (4.21) and Perceived Usefulness (4.18) record the highest means, followed by Trust (4.10). The overall adoption score of 4.05 suggests a high tendency toward adoption. Digital Literacy and Interface & Language Support also receive relatively high scores. Security concerns remain present and therefore continue to require attention.

8.2 Correlation Analysis

Variables	Adoption	Ease of Use	Usefulness	Trust	Security	Digital Literacy
Mobile Banking Adoption	1	0.61**	0.64**	0.59**	-0.38*	0.54**
Perceived Ease of Use		1	0.68**	0.51**	-0.29*	0.47**
Perceived Usefulness			1	0.56**	-0.31*	0.49**
Trust in Bank/App				1	-0.34*	0.43**

Note: * $p < 0.05$; ** $p < 0.01$.

Mobile banking adoption is positively associated with perceived usefulness ($r = 0.64$), ease of use ($r = 0.61$), trust ($r = 0.59$) and digital literacy ($r = 0.54$). Security concerns have a negative relationship with adoption ($r = -0.38$). The pattern supports the proposition that customers are more likely to adopt applications they consider beneficial, simple and trustworthy, while perceived risk discourages adoption.

8.3 Multiple Regression Analysis

Predictor	β Coefficient	t-value	Sig. (p)
Perceived Ease of Use	0.234	4.21	0.000
Perceived Usefulness	0.312	5.10	0.000
Trust in Bank/App	0.276	4.63	0.000
Security Concerns	-0.109	-2.12	0.035
Digital Literacy	0.191	3.65	0.001
Peer Influence	0.102	2.08	0.039
Financial Incentives	0.087	1.76	0.081
Interface & Language Support	0.126	2.34	0.021

Model $R^2 = 0.58$.

The regression model explains 58 per cent of the variance in mobile banking adoption. Perceived Usefulness ($\beta = 0.312$) is the strongest positive predictor, followed by Trust ($\beta = 0.276$), Ease of Use ($\beta = 0.234$) and Digital Literacy ($\beta = 0.191$). Interface & Language Support and Peer Influence also have significant positive coefficients. Security Concerns have a significant negative coefficient. Financial Incentives are positive but not statistically significant at the 5 per cent level.

8.4 Demographic Differences

Demographic Factor	F-value	Sig. (p)	Result
Age	4.62	0.003	Significant
Education	5.24	0.001	Significant
Income	3.91	0.007	Significant

Gender	1.32	0.253	Not Significant
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Age, education and income show statistically significant differences in adoption, whereas gender does not. The result indicates that digital exposure, educational capacity and access to resources may be relevant to differences in adoption, while the absence of a significant gender effect suggests broadly comparable adoption tendencies across male and female respondents in this dataset.

9. Hypothesis Testing

Hypothesis	Statement	Decision
H1	Perceptions and behavioural factors influence adoption	Accepted
H2	Digital competence and interface support positively influence adoption	Accepted
H3	Security concerns negatively influence adoption	Accepted
H4	Demographic characteristics influence adoption	Accepted for age, education and income; gender not significant
H5	Social influence and incentives influence adoption	Partially Accepted

10. Major Findings

- Perceived usefulness is the strongest predictor of mobile banking adoption in the model.
- Ease of use and trust have substantial positive relationships with adoption.
- Security concerns significantly discourage adoption, showing that confidence in transaction safety remains important.
- Digital literacy significantly improves adoption and is particularly relevant in semi-urban settings.
- Interface and language support positively influence adoption, supporting the need for accessible and multilingual design.
- Peer influence has a significant but comparatively smaller positive effect.
- Financial incentives show a positive coefficient but are not statistically significant at the 5 per cent level.
- Age, education and income are associated with significant differences in adoption, whereas gender is not.
- The overall adoption score indicates a favourable orientation toward mobile banking among the respondents.

11. Suggestions

- Banks should simplify navigation, reduce unnecessary steps and provide clear transaction confirmations.
- Telugu and other relevant language options should be made prominent rather than treated as secondary interface features.

- Security communication should be visible and practical, including fraud alerts, safe-use guidance and simple reporting channels.
- Digital-literacy programmes should focus on first-time and less-confident users through demonstrations at branches, banking correspondents and community outreach programmes.
- Customer support should provide rapid assistance for failed transactions, login issues, device changes and suspected fraud.
- Awareness campaigns should emphasize practical usefulness—time saving, accessibility and service availability—rather than depending mainly on cashback or temporary incentives.
- Banks may segment awareness programmes by age, education and income while avoiding unnecessary complexity in the core application.
- Periodic customer-feedback exercises in semi-urban centres can help identify language, accessibility and trust barriers.

12. Conclusion

The study demonstrates that mobile banking adoption in semi-urban Telangana is shaped primarily by customers' perceptions of usefulness, ease of use and trust, supported by digital literacy and accessible interface design. Security concerns remain an important barrier. The findings are consistent with the central logic of the Technology Acceptance Model while also demonstrating the relevance of trust, digital capability and regional accessibility.

Telangana's banking and digital-payment environment provides considerable scope for further expansion of mobile banking. However, infrastructure alone is insufficient. Sustainable adoption requires applications that customers can understand, trust and use confidently. Banks and fintech providers can therefore deepen digital financial inclusion by combining technological improvement with customer education, multilingual accessibility, security assurance and responsive support.

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