



To cite this article: S. Jayaprakash Narayanan and Dr. V. Shanmugasundaram (2026). DIGITAL BANKING TRUST AND USAGE DEPENDENCE IN MOBILE BANKING: EXAMINING THE ROLES OF AGE, GENDER, AND PREFERRED FINANCIAL APPLICATIONS, International Journal of Research in Commerce and Management Studies (IJRCMS) 8 (5): 152-161 Article No. 870 Sub Id 1423

DIGITAL BANKING TRUST AND USAGE DEPENDENCE IN MOBILE BANKING: EXAMINING THE ROLES OF AGE, GENDER, AND PREFERRED FINANCIAL APPLICATIONS

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DOI: <https://doi.org/10.38193/IJRCMS.2026.8512>

ABSTRACT

India's mobile-payment expansion sharpens a behavioral question: when does confidence in a banking application become routine dependence? This study analyses questionnaire data collected in May 2026 from 149 mobile-banking users across all zones of Chennai, Tamil Nadu, using convenience sampling to test whether digital banking trust predicts usage dependence and whether age, gender, or preferred application category conditions that relationship. Four trust items and three positively framed dependence items were measured on five-point scales. The negatively framed necessity item was excluded from the primary dependence composite after reliability diagnostics showed that its inclusion reduced alpha from 0.837 to 0.535. Trust showed strong internal consistency ($\alpha = 0.903$), as did the retained dependence scale ($\alpha = 0.837$). Trust correlated strongly with dependence, $r = 0.722$, $p < .001$, and robust ordinary least squares estimation indicated that a one-point increase in trust corresponded to a 0.800-point increase in dependence, 95% CI [0.693, 0.907], $R^2 = 0.522$. The study did not detect statistically reliable moderation by age ($p = .512$), reported gender ($p = .081$), or preferred application category (interaction $ps \geq .615$). Third-party UPI applications were preferred by 116 respondents (77.9%). The evidence tentatively suggests that earned confidence, rather than demographic segmentation alone, is central to repeated mobile-banking reliance. Interpretation remains bounded by convenience sampling, cross-sectional self-report measurement, small institutional-application cells, limited procedural documentation, and the absence of direct PMT measures.

KEYWORDS: mobile banking; digital trust; financial inclusion

1. INTRODUCTION

Mobile banking has become an everyday decision environment in which users repeatedly judge whether an interface, a bank, and a payment intermediary deserve reliance. RBI data locate this behavioral question within exceptional scale: retail digital payments rose from 162 crore transactions in FY2012-13 to more than 16,416 crore in FY2023-24, while the RBI Digital Payments Index reached 445.50 in March 2024 (Reserve Bank of India, 2025a). The Government of India reported 18.39 billion UPI transactions worth Rs 24.03 lakh crore in June 2025 (Press Information Bureau, 2025). Volume, however, cannot reveal whether reliance is grounded in informed confidence, habit, constrained alternatives, or cognitive shortcuts.

Trust can reduce the perceived complexity of a consequential transaction. Users infer competence from reliable execution, integrity from transparent communication, and benevolence from fair remediation. Under urgency, authority cues, warning fatigue, scarcity framing, and visceral panic may compress that reflective process. Protection Motivation Theory (PMT) distinguishes threat appraisal, involving severity and vulnerability, from coping appraisal, involving response efficacy, self-efficacy, and response costs (Rogers, 1975). The present dataset does not directly measure those PMT components; PMT is therefore used as an interpretive framework, not claimed as a tested causal mechanism.

PROBLEM STATEMENT

Indian evidence often explains adoption intention but less often distinguishes favorable trust from post-adoption usage dependence. It is also unclear whether demographic group membership or application preference materially changes the trust-dependence path. This study addresses that focused problem using the supplied primary survey dataset, while resisting unsupported generalization from a modest, non-probability sample.

Research objectives and questions

Objective	Research question
O1. Test trust as a predictor of dependence.	RQ1. Does trust predict usage dependence?
O2. Examine age heterogeneity.	RQ2. Does age moderate the trust-dependence path?
O3. Examine gender heterogeneity.	RQ3. Does the path differ by reported gender?
O4. Examine application preference.	RQ4. Do app categories differ in levels or path strength?

2. LITERATURE REVIEW

2.1 Digital Banking Trust and Usage Dependence

Digital banking trust represents confidence that mobile financial services are safe, protective, and suitable for consequential financial transactions. Usage dependence is treated here as post-adoption reliance reflected in regular use, daily financial handling, and preference for the mobile channel over branch attendance. Under Protection Motivation Theory, such reliance can be interpreted cautiously through coping appraisal, particularly users' beliefs that safeguards and institutional responses are effective, that protective actions are manageable, and that the costs of remaining secure are acceptable (Rogers, 1975, 1983). However, the supplied questionnaire did not directly measure perceived severity, perceived vulnerability, maladaptive rewards, response efficacy, self-efficacy, or response costs. Protection Motivation Theory therefore remains an interpretive lens rather than an empirically tested component of the present model.

2.2 Age, Gender, and Preferred Applications

Age may proxy accumulated financial experience, interface familiarity, working-memory demands, and access to assistance. Gender differences, where observed, may emerge from unequal access, social roles, prior exposure, or design assumptions rather than intrinsic dispositions. Application preference also carries institutional meaning. A bank-owned application foregrounds the formal bank relationship; a third-party UPI application foregrounds interoperable convenience; dual-channel use spreads reliance across both. These distinctions warrant empirical tests, but uneven group sizes demand cautious inference.

3. THEORETICAL FRAMEWORK AND HYPOTHESES

The tested model places digital banking trust as the focal antecedent of usage dependence. Age, gender, and preferred application category are moderators. PMT supplies a human-centric interpretive layer: protective confidence should become dependence when users believe that routine transactions are manageable and institutional responses are efficacious. Yet the dataset contains no direct severity, vulnerability, efficacy, or response-cost items. The statistical model therefore tests trust and heterogeneity, not PMT mediation.

H1: Digital banking trust positively predicts mobile-banking usage dependence.

H2: Age moderates the trust-dependence relationship.

H3: Reported gender moderates the trust-dependence relationship.

H4a: Trust and dependence differ across preferred application categories.

H4b: Preferred application category moderates the trust-dependence relationship.

4. METHODOLOGY

4.1 Design, Sample, and Data

A cross-sectional survey was conducted in May 2026 among mobile-banking users residing across all zones of Chennai, Tamil Nadu, India. Data were collected through a structured questionnaire using non-probability convenience sampling. The dataset contained 149 complete records and 11 fields: age category, reported gender, preferred financial application, four trust items, and four dependence-related items. No missing values were detected. A formal sampling frame, invitation count, refusal count, and response rate were not recorded. Accordingly, the findings describe the observed sample and should not be interpreted as population estimates for Chennai or any individual zone.

The questionnaire was presented in both English and Tamil to improve respondent understanding and reduce language-related comprehension barriers. Formal back-translation, cognitive interviewing, pilot-testing, and measurement-equivalence records were not available. The bilingual procedure is therefore reported descriptively and is not presented as a formally validated cross-language adaptation.

4.2 Measures and Data Preparation

Responses were coded from 1 (strongly disagree) to 5 (strongly agree). Trust was the mean of four items addressing transaction safety, protection of financial details, comfort in important financial matters, and bank protection. The primary dependence score averaged three items measuring daily dependence, regular use, and preference over branch attendance. The fourth item stated that mobile banking was not necessary. After reverse coding, that item correlated negatively with the three positive dependence indicators and reduced reliability from $\alpha = .837$ to $.535$. It was excluded from the primary composite and retained as a sensitivity diagnostic. Application descriptions were harmonized into third-party UPI, institutional banking, and dual-channel categories. Age categories were assigned midpoints solely for moderation estimation.

4.3 Statistical Analysis

Analysis comprised frequencies, means, standard deviations, Cronbach's alpha, Pearson correlation, one-way ANOVA with eta-squared, and ordinary least squares regression with HC3 heteroskedasticity-robust standard errors. Interaction models mean-centered trust and age. Gender and application category entered as categorical predictors. Two-sided alpha was $.05$; confidence intervals were 95%. Given the sample size and sparse application groups, observed composite regression was more defensible than an over-parameterized latent multi-group model.

5. RESULTS

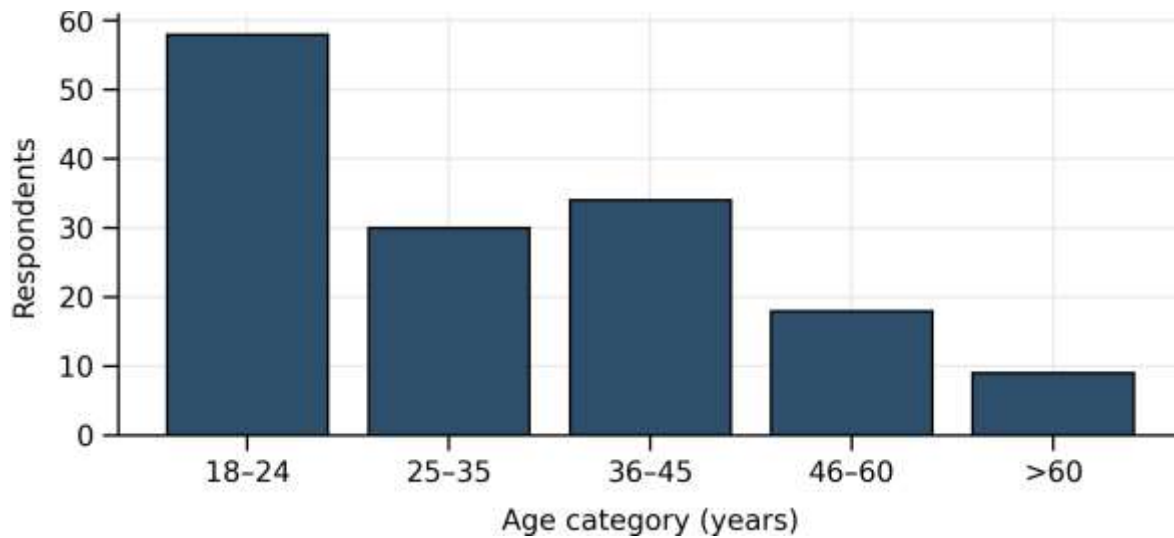
5.1 Demographic Profile

Characteristic	Category	n	%
Age	18–24	58	38.9
	25–35	30	20.1
	36–45	34	22.8
	46–60	18	12.1
	Above 60	9	6.0
Gender	Female	82	55.0
	Male	67	45.0
Application	Third-party UPI	116	77.9
	Dual-channel	21	14.1
	Institutional banking	12	8.1

Note. Percentages may not total 100.0 because of rounding. Gender categories reproduce the supplied response options.

Figure 1

Age Distribution of the Primary Sample



5.2 Reliability and Descriptive Results

Mean trust was 3.743 (SD = 0.913); mean dependence was 3.727 (SD = 1.010). Internal consistency was strong for trust ($\alpha = 0.903$) and acceptable for the retained three-item dependence scale ($\alpha = 0.837$). Trust and dependence were strongly associated, $r(147) = 0.722$, $p < .001$.

Table 2 Group Means and Omnibus Tests

Group	n	Trust M	Dependence M
Age: 18–24 years	58	3.67	3.53
Age: 25–35 years	30	3.70	3.92
Age: 36–45 years	34	3.87	3.96
Age: 46 – 60 years	18	3.82	3.67
Age: Above 60 years	9	3.75	3.56
Gender: Female	82	3.69	3.63
Gender: Male	67	3.81	3.85
Application: Dual-channel	21	3.86	3.62
Application: Institutional banking	12	3.19	3.19

Application: Third-party UPI	116	3.78	3.80
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Note. Age differences were not significant for trust, $F(4, 144) = 0.30$, $p = .878$, eta-squared = .008, or dependence, $F(4, 144) = 1.35$, $p = .253$, eta-squared = .036. Gender differences were not significant for trust, $p = .424$, or dependence, $p = .178$. Application differences were not significant for trust, $p = .083$, or dependence, $p = .122$.

5.3 Hypothesis Testing

H1 was supported. Robust regression showed that trust positively predicted dependence, $b = 0.800$, $SE = 0.054$, $t = 14.67$, $p < .001$, 95% CI [0.693, 0.907]. Trust alone explained 52.2% of dependence variance.

Figure 2

Observed Trust and Usage Dependence

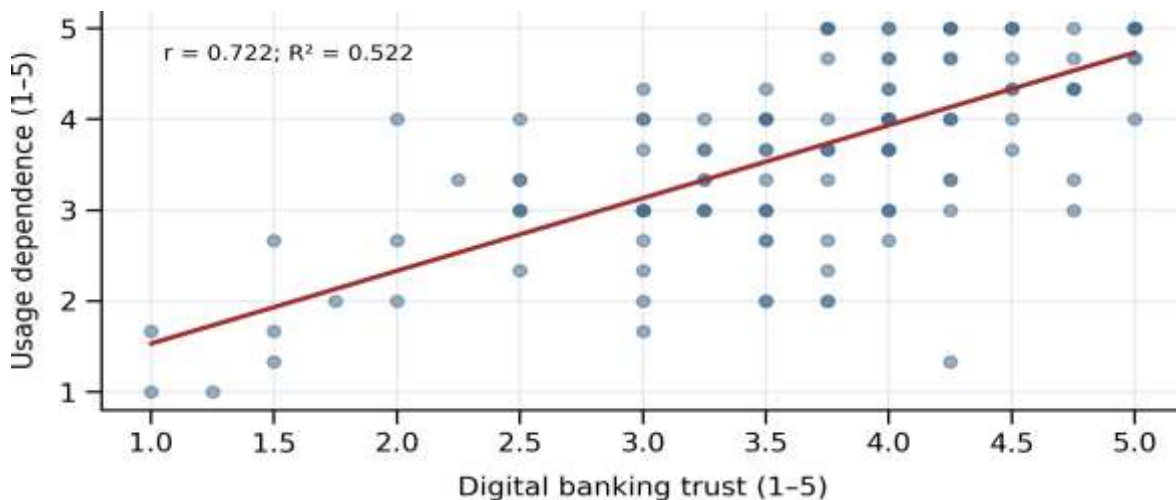


Table 3 *Moderation Tests*

Hypothesis	Interaction b	95% CI	p	Decision
H2: Trust x age	0.003	[-0.006, 0.012]	0.512	Not supported
H3: Trust x male	-0.197	[-0.418, 0.024]	0.081	Not supported
H4b: Trust x institutional	0.051	[-0.513, 0.615]	0.859	Not supported
H4b: Trust x third-party	-0.097	[-0.477, 0.282]	0.615	Not supported

H2 and H3 were not supported. The age interaction was negligible, and the gender interaction did not cross the .05 threshold. H4a was not supported by omnibus mean comparisons. H4b was also unsupported: neither institutional nor third-party UPI preference changed the trust slope relative to dual-channel use. Wide confidence intervals around application interactions reflect small institutional and dual-channel cells.

6. DISCUSSION

The empirical pattern is clear but bounded. Trust carries a large positive association with usage dependence, whereas age, gender, and application preference add little evidence of structural heterogeneity. This finding extends adoption-oriented scholarship by showing that confidence is linked not merely to intention but to recurring financial reliance. The result arguably supports a human-centric assurance logic: when users regard a mobile-banking environment as safe, protective, and suitable for important money matters, reliance becomes easier to sustain.

The absence of demographic moderation should not be misread as proof of universal equivalence. The sample overrepresents users aged 18–24 and third-party UPI users; only 12 respondents preferred institutional applications. Power for interactions was therefore limited. Still, the estimates resist a familiar temptation to design trust interventions around age or gender labels alone. Behavioral safeguards may be better directed toward observed coping needs, warning comprehension, prior fraud exposure, and transaction context.

RBI regulation supplies the institutional substrate for such confidence. The 2021 Digital Payment Security Controls directions require governance, authentication, fraud-risk management, customer awareness, and grievance redressal for regulated entities (Reserve Bank of India, 2021). The 2024 directions extend cyber-resilience and payment-security expectations to non-bank payment-system operators (Reserve Bank of India, 2024). RBI's customer-liability framework also provides zero liability in defined unauthorized-transaction circumstances, subject to conditions and timely reporting (Reserve Bank of India, 2017). Compliance alone, however, is not a perceptual outcome. Users encounter regulation through prompts, warnings, dispute journeys, and the felt cost of obtaining help.

7. THEORETICAL IMPLICATIONS

The study separates trust from dependence while demonstrating their empirical proximity. Trust explains more than half of the observed variance in the reliable three-item dependence composite. PMT helps interpret why: coping efficacy and manageable response costs may allow institutional trust to translate into action. Yet direct PMT constructs were absent, so the present evidence cannot adjudicate threat severity, vulnerability, authority bias, scarcity triggers, or visceral panic. Future models should measure those phenomena rather than retrofitting them to trust items.

8. PRACTICAL IMPLICATIONS

Banks and UPI providers should cultivate calibrated trust. Plain-language transaction status, recognizable but non-coercive warnings, accessible complaint pathways, and clear allocation of

responsibility across bank, app, and payment rail can reduce cognitive friction. Repeated alerts should be reserved for genuinely anomalous moments to avoid habituation. The non-significant demographic interactions argue against assuming that one age or gender group is inherently vulnerable. Support should instead be triggered by observable friction, unfamiliar transaction patterns, low self-efficacy, or a reported need for assistance.

9. LIMITATIONS AND FUTURE RESEARCH

The cross-sectional design precludes causal ordering; successful repeated use may build trust. Convenience sampling across all zones of Chennai, the absence of a recorded response rate, and the concentration of young third-party UPI users constrains generalizability. The questionnaire was presented in English and Tamil; however, formal back-translation and measurement-equivalence testing were not documented. The supplied gender measure was binary, and subgroup sizes were uneven. Common-method variance is possible because predictor and outcome items were collected from the same respondents, using the same scale format, at one measurement occasion. The negatively worded necessity item performed poorly after reversal, indicating either a wording effect or a distinction between perceived necessity and behavioral dependence. Future studies should use validated multidimensional scales, formally documented bilingual procedures, preregistration, balanced zone-level recruitment, and longitudinal measurement. Direct Protection Motivation Theory items should assess severity, vulnerability, maladaptive rewards, response efficacy, self-efficacy, and response costs.

10. CONCLUSION

Primary data from 149 users show a strong positive relationship between digital banking trust and mobile-banking usage dependence. Age, reported gender, and preferred application category did not significantly alter that relationship in this sample. Trust appears more behaviorally consequential than broad demographic segmentation, but inference must remain proportional to the design. The most defensible practical aim is calibrated confidence: consumers should be able to rely on mobile banking because protections, interface choices, and remedies are intelligible, not because habit or cognitive pressure suppresses scrutiny.

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