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FINTECH-ENABLED SERVICE DELIVERY IN INDIAN BANKING: A COMPARATIVE CUSTOMER-SIDE ASSESSMENT OF PUBLIC AND PRIVATE SECTOR BANKS

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ABSTRACT

Purpose: Indian banks now deliver most retail services through digital channels, yet evidence on how customers judge the quality of that delivery, and whether public and private sector banks differ in customers' eyes, remains thin. This study assesses customer evaluations of fintech-enabled service delivery and the barriers that constrain it, and compares perceived performance across the two bank groups.
Methodology: A cross-sectional survey of 100 purposively selected bank customers was analysed with Wilson confidence intervals, sign tests, one-sample Wilcoxon signed-rank tests and exact binomial and chi-square tests.
Findings: Evaluations were clearly positive: 79.6% agreed that online banking saves time and 68.4% were satisfied with their bank's fintech services. Assurance lagged, with only 54.1% regarding online banking as safe and 35.7% undecided. Technical problems and app failures were the most frequently cited barrier (42.7%), well ahead of lack of awareness (18.8%). Customers did not favour either sector (27.6% public vs. 26.5% private, p = 1.00), and 44.9% rated both as equal.
Originality and implications: The study identifies a reliability–assurance gap: value is recognised, but system reliability and perceived security now limit service delivery more than access does. Banks in both sectors should compete on uptime and visible security rather than on feature breadth.

Keywords: Fintech, Digital Banking, E-Service Quality, Public And Private Sector Banks, Customer Satisfaction

INTRODUCTION

Financial technology (fintech) has moved most retail banking from the branch counter to mobile applications, the Unified Payments Interface (UPI), internet banking and Aadhaar-enabled authentication. Total digital payment volume in India rose from about 164.4 billion transactions in 2023–24 to about 281.7 billion in 2025–26, and value from ₹2,428.2 lakh crore to ₹3,251.0 lakh crore Reserve Bank of India (2026). In October 2026 alone, UPI processed 25.47 billion transactions worth ₹31.53 lakh crore National Payments Corporation of India (n.d.).

Digitalisation has not been uniform. Private sector banks are usually described as early movers in digital platforms, whereas public sector banks serve more rural and first-time customers on older core systems Khanna and Sood (2023), Koti et al. (2025). An RBI survey of 25 commercial banks and 68 non-banking financial companies found customer experience to be the main driver of digital adoption, and cybersecurity, data privacy and third-party risks to be its main challenges Reserve Bank of India (2024). Indian research has focused on adoption, financial inclusion and bank performance Asif et al. (2023), Grover and Aggarwal (2026), Song et

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Transparency: The authors affirm that this manuscript presents an honest, accurate, and transparent account of the study. All essential aspects have been included, and any deviations from the original study plan have been clearly explained. The writing process strictly adhered to established ethical standards.
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al. (2023). Much less is known about how customers judge digital service *delivery* after adoption, what most often obstructs it, and whether they see public and private banks differently. This study addresses that gap. It contributes an e-service quality framing of post-adoption evaluation, an inference-based analysis of customer survey data, and customer-side evidence on the public–private comparison.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

FINTECH, BANK SECTORS AND SERVICE DELIVERY

Fintech has made the interface of banking technological, so customers now experience service quality through system availability, speed and design rather than through staff conduct Parasuraman et al. (2005). Interoperable public infrastructure such as UPI also places customers of all banks on the same payment rails, which narrows differentiation at the payment layer Reserve Bank of India (2024). Evidence on institutional effects is mixed. Recent Indian studies suggest that private banks gain more from fintech. Gowtham et al. (2026) attribute this to their greater agility and lighter regulation, and Grover and Aggarwal (2026) find that fintech shapes income diversification differently in the two sectors, citing private banks' organisational responsiveness and cost efficiency. Song et al. (2023) reported that fintech competition first depressed and then, through technology spillovers, restored the profitability of Chinese banks. Asif et al. (2023) linked fintech to wider financial inclusion in India. Jasani (2023)

Comparative studies do not agree on which sector delivers better digital service. Khanna and Sood (2023) found private banks ahead on digital adoption in Punjab. Koti et al. (2025) found that service quality had a stronger effect on mobile banking satisfaction among public sector bank customers, and Arora and Banerji (2024) showed that service quality drives experience, satisfaction and loyalty in public banks' digital channels. Banerjee and Dey (2026) found digital banking customers in northern India broadly satisfied with service quality. Sector differences therefore appear specific to particular dimensions, which calls for assessing several delivery outcomes together.

BARRIERS: RELIABILITY, AWARENESS, SECURITY AND TRUST

Four barriers recur. On *reliability*, Shankar and Jebarajakirthy (2019) found that reliability and privacy/security were the e-banking quality dimensions that built loyalty, with initial trust mediating these effects. On *awareness*, Chan et al. (2022) showed that performance expectancy, effort expectancy, social influence and perceived risk shape the intention to use open banking, and that financial literacy can lower initial trust. On *security* and *trust*, Sharma and Sharma (2019) found that satisfaction mediates the effects of service quality and trust on intention to use mobile banking. Among 345 Indian mobile banking users, Saibaba (2026) found that mobile banking quality had the strongest effect on satisfaction, that trust drove continuance intention, and that perceived risk reduced both. Studies seldom test whether one barrier dominates, yet this is what banks need to know when allocating investment.

THEORETICAL FRAMEWORK

E-service quality theory Parasuraman et al. (2005) holds that customers judge electronic services on efficiency, system availability, fulfilment and privacy. The technology acceptance tradition Davis (1989), Venkatesh et al. (2003), Venkatesh et al. (2012) explains continued use through perceived usefulness, ease of use and facilitating conditions. Expectation–confirmation theory Bhattacherjee (2001), Oliver (1980) links performance to satisfaction: satisfaction follows when expectations are confirmed, and delight requires that they be exceeded. Table 1 maps these constructs to the survey indicators.

Table 1

Table 1 Theoretical Constructs and Survey Indicators

Construct	Theoretical anchor	Survey indicator
Efficiency / usefulness	E-S-QUAL; TAM	Online banking saves time compared with visiting the branch
Privacy and assurance	E-S-QUAL; trust literature	Online banking is safe and secure
Satisfaction	Expectation–confirmation	Satisfaction with the bank's fintech services
Affective response	Expectation–confirmation	Overall feeling about using digital banking (very unhappy to very happy)
Availability and capability barriers	E-S-QUAL; UTAUT	Main challenge faced in using digital banking (nominal)
Comparative sector performance	Institutional comparison	Which bank group performs better in fintech services

Source: Authors' compilation. Outcome items use five-point scales. E-S-QUAL = electronic service quality; TAM = technology acceptance model; UTAUT = unified theory of acceptance and use of technology.

OBJECTIVES, RESEARCH QUESTIONS AND HYPOTHESES

Table 2

Table 2 Research Objectives, Questions and Hypotheses

Objective	Research question	Hypothesis and test
O1: To identify the barriers customers face in using fintech-enabled banking services	RQ1: Which barrier most constrains digital service delivery?	H1: Barrier citations are not uniform, and technical reliability is cited more often than any other barrier (chi-square goodness-of-fit; exact binomial test)
O2: To compare customers' perceptions of fintech service performance in public and private sector banks	RQ2: Do customers judge either bank group to perform better?	H2: The share rating public banks as better differs from the share rating private banks as better (two-sided exact binomial test)
O3: To assess customer evaluations of fintech service delivery outcomes	RQ3: Are evaluations of efficiency, security, satisfaction and affect positive?	H3: For each outcome, positive evaluations exceed negative ones (sign test; one-sample Wilcoxon signed-rank test against the midpoint)

Source: Authors' compilation.

RESEARCH METHODOLOGY

The study used a descriptive, cross-sectional and comparative survey design. Retail customers who used at least one digital banking channel and held accounts with public and/or private sector banks were selected purposively, giving a sample of 100 respondents. A structured questionnaire recorded bank group, length of banking relationship, the main barrier faced, four outcome evaluations on five-point scales (1 = most negative, 3 = neutral, 5 = most positive) and a comparative judgement of public and private banks. Each construct was measured with a single direct item. RBI and NPCI data are used for context only.

Analysis was performed on item-level response frequencies. Non-responses (two per item) and responses matching no listed option were excluded, giving valid $n = 98$ for the outcome and comparative items. One security response of "agree, but concerned about digital fraud" was coded as *agree*. Proportions are reported with 95% Wilson score intervals Wilson (1927). H1 was tested with a chi-square goodness-of-fit test and an exact binomial test, H2 with a two-sided exact binomial test, and H3 with sign tests and one-sample Wilcoxon signed-rank tests against the midpoint, with effect size $r = z/\sqrt{N}$, using Python (SciPy).

RESULTS

RESPONDENT PROFILE

Just over half of the respondents banked mainly with a public sector bank, a quarter with a private sector bank, and the rest with both Table 3. Tenure was mixed, so both long-standing and recently acquired customers are represented.

Table 3

Table 3 Profile of Respondents

Characteristic	Frequency	Per cent	95% CI (%)
Bank group (valid n = 97)			
Public sector bank	50	51.5	41.7–61.2
Private sector bank	25	25.8	18.1–35.3
Both public and private	22	22.7	15.5–32.0
Length of banking relationship (valid n = 95)			
Less than 1 year	22	23.2	—
1–3 years	29	30.5	—
3–5 years	15	15.8	—
More than 5 years	29	30.5	—

Source: Primary survey data. Units: number of respondents and per cent of valid responses. CI = Wilson score interval.

BARRIERS TO FINTECH-ENABLED SERVICE DELIVERY (RQ1, H1)

Barrier citations were far from uniform, $\chi^2(5, N = 96) = 58.25$, $p < .001$ Table 4. Technical issues and app failures were cited by 42.7% of respondents, more than twice as often as lack of awareness (18.8%; exact binomial $p = .004$). Counting the 17.7% who reported all barriers, technical reliability affected about six in ten customers. Process complexity was rarely cited on its own (2.1%). H1 is supported.

Table 4

Table 4 Main Barrier to Using Fintech-Enabled Banking Services

Barrier	Frequency	Per cent	95% CI (%)	Inclusive share (%)[a]
Technical issues / app failures	41	42.7	33.3–52.7	60.4
Lack of awareness	18	18.8	12.2–27.7	36.5
All of the listed barriers	17	17.7	11.4–26.5	—
Security and privacy concerns	11	11.5	6.5–19.4	29.2
Lack of trust in digital services	7	7.3	3.6–14.3	25.0
Complex process / not user-friendly	2	2.1	0.6–7.3	19.8
Total valid	96	100.0		

Source: Primary survey data.

EVALUATION OF SERVICE DELIVERY OUTCOMES (RQ3, H3)

All four outcomes were evaluated positively Table 5, Figure 1. Positive responses outnumbered negative ones on every item, and responses lay well above the neutral midpoint (sign and Wilcoxon tests, all $p < .001$), so H3 is supported. The profile is uneven, however. Time saving and affect were rated highest (79.6% positive each). Satisfaction was broad but shallow: 68.4% were satisfied, only 9.2% strongly so, and 30.6% were neutral. Security was weakest: 54.1% regarded online banking as safe, 35.7% were undecided and 10.2% disagreed. Many customers therefore see the value of digital banking but remain unsure whether it is safe.

Figure 1

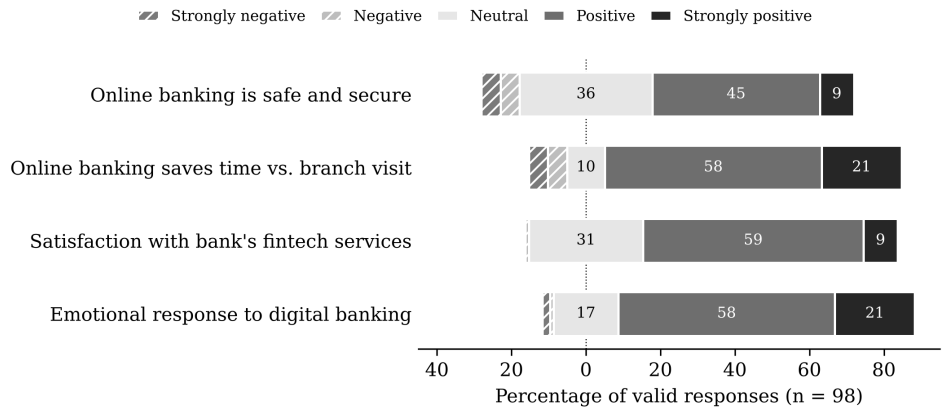

Figure 1 Distribution of Evaluations of Fintech-Enabled Service Delivery

Table 5

Table 5 Customer Evaluations of Fintech-Enabled Service Delivery Outcomes

Outcome (item)	*n*	*M* (*SD*)	Positive % [95% CI]	Neutral %	Negative %	Wilcoxon *z* (*r*)
Affective response to digital banking	98	3.96 (0.79)	79.6 [70.6, 86.4]	17.3	3.1	7.38 (0.82)
Online banking saves time	98	3.86 (0.98)	79.6 [70.6, 86.4]	10.2	10.2	6.21 (0.66)
Satisfaction with fintech services	98	3.77 (0.62)	68.4 [58.6, 76.7]	30.6	1.0	7.62 (0.92)
Online banking is safe and secure	98	3.48 (0.92)	54.1 [44.2, 63.6]	35.7	10.2	4.38 (0.55)

Source: Primary survey data.

COMPARATIVE PERCEPTION OF PUBLIC AND PRIVATE SECTOR BANKS (RQ2, H2)

Almost identical shares named public banks (27.6%) and private banks (26.5%) as the better performer (exact binomial p = 1.00), so H2 is not supported Table 6. The most common response was parity (44.9%), chosen more often than an even split across the three options would predict, $\chi^2(2, N = 97) = 6.33$, $p = .042$. One open-text response described private banks as good but costly in charges, and public banks as low-cost with improving security.

Table 6

Table 6 Comparative Perception of Fintech Service Performance by Bank Group

Response	Frequency	Per cent	95% CI (%)
Public sector banks perform better	27	27.6	19.7–37.1
Private sector banks perform better	26	26.5	18.8–36.0
Both are equal	44	44.9	35.4–54.8
Other (open-text comment)	1	1.0	—
Total valid	98	100.0	

Source: Primary survey data.

DISCUSSION

Technical failures dominated the barriers, while complexity of use was almost never cited alone. In e-service quality terms, the binding dimension is system availability and fulfilment rather than design efficiency Parasuraman et al. (2005), consistent with the role of reliability in e-banking loyalty Shankar and Jebarajakirthy (2019). With UPI handling more than 25 billion transactions a month NPCI (n.d.), customers judge digital banking less on whether they can reach it and more on whether it works every time.

The shortfall on security consisted mainly of neutral rather than negative responses, and few respondents named trust or security as their main barrier. Customers keep using digital channels while withholding a positive judgement on their safety, which fits evidence that trust and perceived risk work through satisfaction and continued use rather than as a simple gate to adoption Chan et al. (2022), Saibaba (2026), Sharma and Sharma (2019). RBI data show reported card, internet and digital payment frauds falling from 13,332 cases in 2024–25 to 293 in 2025–26 Reserve Bank of India (2026). Because these figures are classified by date of reporting, the comparison is indicative only, but it suggests that perceived security may lag behind institutional improvements.

The large neutral share and the small strongly satisfied share indicate confirmation without positive disconfirmation Bhattacherjee (2001), Oliver (1980). Speed and convenience now function as basic requirements: customers value what digital banking does but do not credit their bank with excellence in delivering it.

Contrary to the view that private banks lead digitally Khanna and Sood (2023), customers split evenly, and the largest group saw no difference. The bank-level advantages that private banks draw from fintech Gowtham et al. (2026), Grover and Aggarwal (2026) therefore do not appear to translate into customer-perceived superiority. Shared rails such as UPI narrow the experiential gap at the point of use (RBI, 2024), and customers appear to weigh digital quality against charges, a trade-off that can favour public banks Koti et al. (2025). Because just over half of the sample banked mainly with public banks, part of this parity may reflect affiliation, which the data could not test.

IMPLICATIONS

Where adoption is near-universal, adoption models explain why customers use digital banking but not how well they judge it to perform. E-service quality and expectation–confirmation constructs, particularly system availability and assurance, are better suited to explaining post-adoption evaluation. Where delivery runs on shared public infrastructure, bank ownership may predict customer experience less than is often assumed.

Public sector banks should prioritise core-system modernisation, app stability and fast resolution of failed transactions. Private sector banks can no longer rely on technology alone to stand apart and need to compete on reliability, service recovery and charges. Both groups can convert the large undecided share on security through visible in-app security indicators, transaction alerts and simple fraud reporting, and should address awareness among new account holders. For regulators, the findings support continued emphasis on operational resilience alongside measures that make security visible to customers.

LIMITATIONS AND FUTURE RESEARCH

The purposive sample of 100 customers limits generalisability. Single-item measures precluded reliability and validity testing, so future studies should use validated multi-item scales such as E-S-QUAL. Because the analysis used item-level frequencies, outcome evaluations could not be compared by bank group; respondent-level data would allow tests of independence and multigroup models. The cross-sectional, self-reported, customer-only design also leaves causal ordering open, which future work could address by combining surveys with bank-side outage and grievance data.

CONCLUSION

Customers clearly value fintech-enabled banking: most find it saves time, feel positive about it and are satisfied. Yet technical failures are the most frequently cited barrier, a third of customers are undecided about its safety, and customers see no clear difference between public and private banks. The main constraint on digital service delivery in India appears to have shifted from access to reliability and assurance. Banks that make their digital services consistently dependable and visibly secure are likely to gain most, whatever their ownership.

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