

# Comparative Analysis of Customer Satisfaction Based on E-Banking Service Quality Between Private and Public Sector Banks: A Case Study of PNB & AXIS Bank in the Fazilka District of Punjab

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**Abstract-** The digitization of banking has revolutionized service delivery across India, especially in rural and semi-urban areas. This research investigates customer satisfaction with e-banking services in two leading Indian banks: Punjab National Bank (PNB), a public sector bank, and AXIS Bank, a private sector counterpart. The study was conducted in the Fazilka district of Punjab and utilizes the SERVQUAL and e-SERVQUAL models to evaluate service quality dimensions including reliability, responsiveness, assurance, empathy, security, and ease of use. Data from 400 customers (200 from each bank) was collected via structured questionnaires. The analysis reveals that while AXIS Bank excels in responsiveness and user interface design, PNB is perceived as more reliable and trustworthy, especially among rural customers. Recommendations are proposed to bridge service quality gaps and enhance customer satisfaction.

**Keywords:** E-Banking, Customer Satisfaction, Service Quality, Public Sector Banks, Private Sector Banks, PNB, AXIS Bank, Fazilka, SERVQUAL

## 1. INTRODUCTION

### 1.1 Background

E-banking has transformed banking from branch-centric transactions to a seamless, technology-driven experience. Since India's liberalization in 1991, private and public sector banks have invested in digital infrastructures to meet growing customer expectations. Yet, there exists a disparity in how different sectors deliver digital services, particularly in regions like Fazilka, where digital literacy and infrastructure vary.

### 1.2 Research Context

The Fazilka district represents a blend of rural and semi-urban demographics, offering a unique lens through which to examine the digital divide. While PNB has a broader outreach in rural areas, AXIS

Bank has made technological strides in urban pockets. This contrast provides a fertile ground for comparative research.

### 1.3 Research Problem

Despite the growing importance of e-banking, limited research exists that compares public and private sector banks in smaller districts like Fazilka. Understanding service quality disparities and customer satisfaction levels is crucial for policy-making and strategic improvements.

### 1.4 Objectives

- To assess the quality of e-banking services in PNB and AXIS Bank.
- To compare customer satisfaction levels across public and private banks.
- To explore demographic factors influencing e-banking satisfaction.
- To suggest actionable improvements based on regional customer needs.

### 1.5 Research Questions

- What are the key dimensions of e-banking service quality as perceived by customers of PNB and AXIS Bank?
- Are there significant differences in customer satisfaction between public and private sector banks?
- What demographic variables influence satisfaction levels?
- What steps can banks take to enhance service quality in digital platforms?

### 1.6 Hypotheses

- H0: There is no significant difference in customer satisfaction between PNB and AXIS Bank.

- H1: There is a significant difference in customer satisfaction between PNB and AXIS Bank.

## 2. LITERATURE REVIEW

### 2.1 Theoretical Framework

The SERVQUAL model by Parasuraman et al. (1988) serves as the foundation. It includes five dimensions: reliability, responsiveness, assurance, empathy, and tangibles. For digital platforms, e-SERVQUAL adds variables like convenience, system availability, and security.

### 2.2 Global Perspectives

Studies by Jun and Cai (2001) and Zeithaml et al. (2000) indicate that service quality in e-banking significantly impacts customer satisfaction. Trust and user-friendly design are dominant factors in global markets.

### 2.3 Indian Context

Indian researchers such as Gupta & Bansal (2012) and Jham & Khan (2008) have shown that private banks typically outperform public banks in terms of digital innovation and responsiveness. However, public banks maintain strong trust and reliability in rural settings.

### 2.4 Research Gap

There is a scarcity of district-level studies comparing private and public banks in rural India. Most research focuses on urban regions. The Fazilka context offers a new dimension to the understanding of digital service delivery and customer satisfaction.

## 3. RESEARCH METHODOLOGY

### 3.1 Research Design

This study employs a descriptive and comparative research design grounded in quantitative methods. It aims to understand differences in customer satisfaction between PNB and AXIS Bank based on e-banking service quality dimensions.

### 3.2 Population and Sampling

The target population comprises active users of e-banking services in the Fazilka district. A total of 400 respondents were surveyed—200 from Punjab National Bank and 200 from AXIS Bank—using stratified random sampling to ensure equal representation across rural, semi-urban, and urban areas.

### 3.3 Data Collection Instrument

A structured questionnaire was developed based on the SERVQUAL and e-SERVQUAL models. It contained both closed-ended and Likert-scale items evaluating dimensions such as reliability, responsiveness, assurance, empathy, security, convenience, and system usability. The questionnaire was pilot-tested and refined for clarity and reliability.

### 3.4 Data Collection Process

Primary data was collected through direct interaction and digital forms. Respondents were assured of confidentiality and anonymity. Secondary data was obtained from bank records, government reports, and previous studies relevant to digital banking in India.

### 3.5 Tools and Techniques for Analysis

Statistical analysis was conducted using SPSS software. Techniques employed include:

- Descriptive statistics (mean, standard deviation)
- t-tests for comparison of means
- ANOVA to assess variation across demographics
- Pearson's correlation to explore relationships among variables
- Multiple regression analysis to determine the influence of service quality dimensions on customer satisfaction

### 3.6 Validity and Reliability

Cronbach's alpha was calculated to ensure the reliability of the questionnaire, with all key constructs showing values above 0.70. Content and construct validity were confirmed through expert review and literature grounding.

### 3.7 Ethical Considerations

The study followed ethical research standards, including informed consent, voluntary participation, and data confidentiality. The research protocol was approved by the university ethics committee.

## 4. DATA ANALYSIS AND INTERPRETATION

### 4.1 Introduction to Data Analysis

Data analysis provides empirical support to assess customer satisfaction with e-banking services in PNB and AXIS Bank. This section utilizes descriptive and inferential statistical tools to examine the responses of 400 customers. The

findings are interpreted through the lens of SERVQUAL/e-SERVQUAL dimensions to address the study's objectives and hypotheses.

#### 4.2 Descriptive Statistics

A total of 400 valid responses were obtained - 200 from each bank. Respondents were nearly evenly distributed across gender (52% male, 48% female), age groups (18–60+), and area type (urban, semi-urban, rural). Key trends include:

- Age Distribution: 35% of respondents were 26–35 years old, the most active digital banking users.
- Education Level: 68% held at least a bachelor's degree, indicating relatively high digital literacy.

- Device Used for E-Banking: 82% accessed e-banking through smartphones.
- Frequency of Use: 71% used digital banking at least twice a week.

#### 4.3 Comparative Analysis: PNB vs AXIS Bank

##### 4.3.1 Overall Satisfaction Scores

Bank	Mean Satisfaction Score (out of 5)
PNB	3.52
AXIS Bank	4.01

AXIS Bank customers reported higher overall satisfaction, particularly in responsiveness and interface design.

##### 4.3.2 Dimension-Wise Comparison

Dimension	PNB (Mean)	AXIS Bank (Mean)	Difference
Reliability	4.10	3.85	+0.25
Responsiveness	3.25	4.12	-0.87
Assurance	3.78	3.95	-0.17
Empathy	3.40	3.90	-0.50
Convenience	3.20	4.15	-0.95
Security	3.80	3.88	-0.08
Usability	3.18	4.20	-1.02

Key Insight: PNB excels in reliability but lags significantly in responsiveness and usability—critical dimensions for digital platforms.

#### 4.4 Hypothesis Testing

Hypothesis 1:

H<sub>0</sub>: No significant difference in satisfaction between PNB and AXIS

H<sub>1</sub>: Significant difference exists

- t-test Result:  $t = -5.37, p < 0.001$
- Conclusion: Reject H<sub>0</sub>. A significant difference exists; AXIS Bank provides higher satisfaction.

Hypothesis 2 & 3: Relationship between Service Quality and Satisfaction

For PNB:

- Regression  $R^2 = 0.69$
- Strong predictors: Reliability ( $\beta = 0.41$ ), Assurance ( $\beta = 0.31$ )

For AXIS:

- Regression  $R^2 = 0.76$
- Strong predictors: Usability ( $\beta = 0.43$ ), Responsiveness ( $\beta = 0.38$ )

Hypothesis 4:

Demographics like age, education, and location significantly affect satisfaction.

- ANOVA Results:
  - Urban users showed significantly higher satisfaction ( $F = 8.45, p < 0.01$ )
  - Users aged 26–35 had the highest satisfaction rates ( $F = 6.73, p < 0.01$ )

#### 4.5 Customer Feedback Insights

Qualitative feedback from open-ended questions revealed:

- PNB Customers:
  - Appreciate trust and familiarity.
  - Complain about app crashes, poor UI, and delays in customer service.
- AXIS Bank Customers:
  - Praise instant resolution, biometric login, and sleek design.

- Express concern about hidden charges and aggressive upselling.

#### 4.6 Summary of Findings

- AXIS Bank is ahead in technology-driven dimensions like responsiveness and usability.
- PNB retains strength in reliability and trust, particularly in rural areas.
- Service quality dimensions have a strong predictive relationship with customer satisfaction.
- Age, education, and urban/rural status significantly influence satisfaction levels.

### 5. DISCUSSION

#### 5.1 Interpretation of Key Findings

The study confirms that e-banking service quality significantly influences customer satisfaction, but the effect varies between public and private sector banks. The comparative evaluation of Punjab National Bank (PNB) and AXIS Bank in Fazilka reveals nuanced insights into user behaviour, expectations, and service performance.

##### a) AXIS Bank's Performance

AXIS Bank, representing the private sector, shows higher customer satisfaction, particularly in:

- Responsiveness: Fast resolution of queries via digital channels.
- User Interface (Usability): Intuitive mobile apps, smooth navigation, and biometric authentication.
- Convenience: Quick transactions, 24/7 service access, and multi-device support.

These findings are consistent with prior research (Gupta & Bansal, 2012; Jham & Khan, 2008), where private banks were found to outperform public sector banks in service delivery innovation and responsiveness.

##### b) PNB's Performance

Punjab National Bank scores better on:

- Reliability: Consistent services, fewer transaction errors.
- Trust & Security: Strong brand equity and public confidence, especially among older and rural users.

These dimensions align with historical trust in public sector institutions and validate previous literature suggesting that public banks enjoy credibility in less digitized regions (Singh & Kaur, 2018).

#### 5.2 SERVQUAL and e-SERVQUAL Dimensions Revisited

The empirical analysis aligns with the SERVQUAL and e-SERVQUAL frameworks:

- Tangibles and Usability matter more in private banks.
- Reliability and Assurance dominate in public banks.
- Empathy and Security are transitional; both sectors struggle to balance personalization with automation.

The distinction is stark in digital empathy—AXIS excels in chatbot guidance and user suggestions, while PNB offers a more standardized and impersonal digital experience.

#### 5.3 Influence of Demographics

- Urban vs. Rural Divide: Urban users rated digital services more favorably, likely due to better internet access and digital exposure.
- Age Factor: Younger users (26–35) showed higher satisfaction—suggesting they are more adaptive and digitally fluent.
- Education: Those with higher educational qualifications were more comfortable using advanced app features.

This reinforces the Technology Acceptance Model (TAM), which suggests that perceived ease of use and usefulness are key adoption factors, especially in semi-urban and rural India.

#### 5.4 Role of Regional Context: Fazilka

The Fazilka district, being semi-urban with significant rural areas, presents specific challenges:

- Digital awareness is growing, especially among the youth, but older or less educated customers still struggle.
- Connectivity issues in rural areas reduce satisfaction despite efforts by banks to digitize.

This contextual insight is crucial. Without tailored strategies, even high-quality digital services can fail to satisfy rural users. Banks must localize their e-banking strategies by aligning with regional user behavior and constraints.

#### 5.5 The Public–Private Divide: Strategic Implications

This study highlights a clear strategic divide:

- Private banks focus on user experience, speed, and personalization—key for digital natives.

- Public banks emphasize reliability and coverage—important for users in rural and lower-income groups.

However, both sectors have room for improvement:

- PNB must modernize its user interface and train staff in digital complaint resolution.
- AXIS must strengthen trust and transparency, especially regarding fees and financial advice.

#### 5.6 Alignment with National Goals

The study supports the goals of Digital India, Jan Dhan Yojana, and financial inclusion, by identifying:

- Gaps in digital literacy and access.
- Strengths in public trust and private sector innovation.
- Regional disparities that must be addressed to create a truly inclusive digital banking ecosystem.

#### 5.7 Theoretical Contribution

This research extends existing frameworks by:

- Validating SERVQUAL/e-SERVQUAL in a rural–urban blended context.
- Incorporating regional socio-economic variables into service quality modeling.
- Providing evidence from a district-level case, which is rare in Indian banking literature.

### 6. CONCLUSION AND RECOMMENDATIONS

#### 6.1 Conclusion

The study set out to examine and compare customer satisfaction with e-banking services between a public sector bank (Punjab National Bank) and a private sector bank (AXIS Bank) in the Fazilka district of Punjab, using the SERVQUAL and e-SERVQUAL frameworks.

Key conclusions include:

- AXIS Bank outperformed PNB on dimensions of responsiveness, usability, and convenience—attributes highly valued by younger and urban customers.
- PNB showed strength in reliability and trust, particularly among rural customers and older users, but struggled with interface complexity and response delays.
- The relationship between service quality and customer satisfaction was statistically significant in both banks, with variations in the weight of influencing factors.

- Demographic factors such as age, location, and education level strongly influence how customers perceive and rate digital banking services.

- The regional context of Fazilka—a semi-urban and rural blend—plays a critical role in shaping service expectations and satisfaction.

Overall, while private sector banks like AXIS are more digitally agile, public sector banks like PNB still hold relevance through their deep regional penetration and institutional trust. Both banks must tailor their e-banking strategies to meet the evolving expectations of a diverse customer base.

#### 6.2 Recommendations

For Punjab National Bank (PNB):

1. Invest in Mobile App Redesign: Enhance usability by simplifying layout and adding intuitive navigation.
2. Improve Responsiveness: Implement chatbot assistance and 24/7 live support to reduce waiting times.
3. Staff Training: Upskill branch staff in digital service troubleshooting and customer guidance.
4. Localized Digital Literacy Campaigns: Conduct workshops in rural areas to educate users on secure e-banking practices.
5. Grievance Redressal Tracking: Integrate real-time complaint tracking features into mobile and web portals.

For AXIS Bank:

1. Strengthen Trust Factors: Increase transparency regarding hidden charges, privacy policies, and customer rights.
2. Rural Engagement Programs: Partner with local organizations to expand digital inclusion efforts outside urban centers.
3. Elderly User Interface Options: Introduce simplified app modes or large-text settings for older demographics.
4. Data-Driven Personalization: Use analytics to offer custom financial advice, but avoid over-personalization that feels intrusive.

For Policymakers and Regulators:

1. Bridge the Urban-Rural Connectivity Gap: Expand internet access in low-connectivity regions through public-private partnerships.

2. Incentivize Innovation in Public Banks: Offer grants or competitive funding to public sector banks for technological modernization.
3. Mandate Service Quality Metrics: Require banks to publish quarterly digital service performance reports, including customer feedback scores.

### 6.3 Future Research Directions

While this study offers valuable insights, future research could:

- Expand the sample size and include other public and private banks to generalize findings.
- Incorporate qualitative methods (e.g., interviews, focus groups) for deeper understanding of user behavior.
- Conduct longitudinal studies to measure changes in customer satisfaction over time, especially post-technological upgrades.
- Compare urban Tier-I cities vs. rural districts to further study the digital divide.
- Explore the role of fintech partnerships in improving e-banking service quality, particularly for underbanked populations.

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### Annexure-A (Survey form)

Survey for Research Customer Satisfaction Based on E-Banking Service Quality	
1. Name:	Gender:
2. Age:	Education Qualification:
3. Occupation:	Monthly Income:
4. Bank Name and Location:	
5. Do you use E-Banking Applications: Yes/No	
6. Which E banking services do you use: ATM/ Internet Banking/ Mobile Banking App SMS Banking/ UPI/QR-Based Payments/ Bill Payments/Recharge	
7. Frequency of using E banking service: Daily/Weekly/Monthly/Rarely/Never	

8. Reasons for using E banking service: Convenience / Time-Saving / 24/7 Availability / Safety Amid COVID-19/post-COVID / Low Transaction Costs  
(you can choose more than one option)
9. Awareness about E banking service: Fully aware/ Partially aware / Not aware
10. Which device do you use for E banking service: Mobile /Laptop/Tablet/ Feature Phone
11. Give ratings out of 5 (where 1 = Strongly Disagree to 5 = Strongly Agree).

Statement	Score
Mobile app is user-friendly and modern	
Website layout is informative and appealing	
ATMs are clean and well-maintained	
Branch signage and e-kiosks are updated	
Transactions are processed correctly	
Services are available without system failures	
Promised features work as expected	
Minimal delays in fund transfers	
Helpdesk resolves issues quickly	
Chat support/email responses are timely	
Notifications for transactions are instant	
Staff responds quickly to digital queries	
Staff are knowledgeable about e-services	
Customers feel safe in online transactions	
Strong cyber security features are in place	
Regular updates on system security	
Bank understands customer-specific needs	
Customizable alerts and preferences	
Assistance to elderly/low-tech users	
Personalized greetings and services	

Note: The data collected will only be used for research purpose and personal information of any participant will not be shared at any time.