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## Measuring service quality gaps in traditional versus online banking in North East India: A SERVQUAL Analysis

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### Abstract

Using the SERVQUAL approach, this study examines the differences in service quality between traditional and online banking services in the North East region of India. A survey of 450 banking customers from Guwahati, Shillong, and Imphal was conducted to assess their expectations and perceptions across five service quality dimensions: tangibility, reliability, responsiveness, assurance, and empathy. The study reveals significant variations in service quality gaps between traditional and online banking in the context of North-East India. Online banking demonstrated superior performance in reliability and responsiveness, while traditional banking excelled in tangibility and empathy. The findings provide valuable insights for banks operating in the North East region to enhance their service delivery across multiple channels, considering the unique geographical, cultural, and infrastructural characteristics of this region. The study contributes to existing literature by demonstrating service quality differentials in an underexplored banking environment of North East India.

**Keywords:** SERVQUAL, North East India, service quality, traditional banking, online banking, gap analysis, customer satisfaction

### 1. Introduction

The North East region of India, encompassing eight states, namely Arunachal Pradesh, Assam, Manipur, Mizoram, Meghalaya, Nagaland, Sikkim, and Tripura, presents distinct challenges and opportunities for the provision of banking services. Over the past two decades, the banking industry in this region has undergone significant transformations driven by technological advancements, government initiatives for financial inclusion, and evolving customer expectations (Kumar & Reinartz, 2020) <sup>[12]</sup>. Digital banking services are increasingly supplementing or replacing traditional brick-and-mortar banking operations, creating a more complex service delivery ecosystem where customers interact with financial institutions through multiple channels (Parasuraman *et al.*, 2019) <sup>[16]</sup>.

The North East region's distinctive characteristics-including difficult terrain, dispersed population, limited physical infrastructure, and diverse cultural backgrounds make service quality measurement particularly crucial for banking institutions. The region's unique demographic profile, with a significant young population and increasing digital literacy, coupled with connectivity challenges in remote areas, creates a complex environment for banking service delivery (Sharma & Das, 2022) <sup>[18]</sup>.

Service quality has emerged as a critical factor for customer satisfaction and loyalty in banking, particularly in regions like North East India where customers often have limited banking options due to geographical constraints (Zeithaml *et al.*, 2021) <sup>[21]</sup>. Developed by Parasuraman, Zeithaml, and Berry in 1988 <sup>[15]</sup>, the SERVQUAL model provides a robust framework for measuring service quality by comparing customer expectations with their perceptions across five service dimensions. While extensive research has been conducted on banking service quality globally, limited studies have systematically examined the differences between traditional and online banking services specifically in the North East Indian context using established measurement frameworks.

This study holds particular significance for the North East region as it can inform strategic decisions regarding resource allocation, service design, and customer experience enhancement across banking channels.

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As financial institutions continue to invest heavily in digital transformation while maintaining physical presence to serve remote communities, understanding the relative strengths and weaknesses of each channel becomes crucial for competitive advantage in this challenging geographical market (Singh & Borthakur, 2022) <sup>[19]</sup>.

## 2. Literature Review

### 2.1 SERVQUAL Framework in Banking

The SERVQUAL model has been extensively applied in banking research across various contexts (Parasuraman *et al.*, 1988) <sup>[15]</sup>. The framework comprises five dimensions encompassing tangibility, which relates to physical facilities and equipment; reliability, defined as the capacity to perform promised services dependably; responsiveness, which denotes the willingness to assist customers promptly; assurance, characterized by the knowledge and courtesy of employees; and empathy, which involves providing caring, individualized attention (Brown & Davis, 2021) <sup>[5]</sup>.

Recent studies have validated the applicability of SERVQUAL in banking contexts, though some researchers have suggested modifications to enhance its relevance for financial services in developing regions like North East India (Anderson *et al.*, 2020) <sup>[11]</sup>. Gap analysis, which examines the difference between customer expectations and perceptions, has proven particularly useful in identifying service improvement opportunities in resource-constrained environments (Wilson & Thompson, 2019) <sup>[20]</sup>.

### 2.2 Banking Services in North East India

The North East region presents unique challenges for banking service delivery, including geographical isolation, scattered population centers, and infrastructure limitations (Goswami & Sarma, 2021) <sup>[10]</sup>. Traditional banking in the region relies heavily on human interaction, physical branches, and personal relationships, which are particularly important given the cultural emphasis on trust and community connections in North Eastern societies (Barman & Kalita, 2020) <sup>[2]</sup>.

Government initiatives such as the Northeast Strategic Road Investment Program and digital infrastructure development have gradually improved banking accessibility, but significant disparities remain between urban centers like Guwahati and remote rural areas (Ministry of Development of North Eastern Region, 2021) <sup>[13]</sup>. These conditions create a distinct service quality landscape that differs markedly from metropolitan banking environments.

### 2.3 Traditional Banking Service Quality

Traditional banking services in North East India are characterized by personal interaction, physical branch presence, and human-mediated transactions (Miller & Rodriguez, 2021) <sup>[14]</sup>. Research consistently indicates that traditional banking excels in customer service delivery, particularly in assurance and empathy dimensions, which are crucial in the trust-based banking culture prevalent in North Eastern communities (Bhattacharjee & Nath, 2020) <sup>[3]</sup>.

The physical presence of bank staff enables personalized service delivery and complex problem resolution that may be challenging to replicate in digital environments. This is particularly important in the North East context where customers often prefer face-to-face interactions for financial matters due to cultural preferences and varying levels of

digital literacy (Choudhury & Rahman, 2021) <sup>[7]</sup>.

However, traditional banking faces challenges related to accessibility, convenience, and operational efficiency in the North East region. The geographical constraints and limited branch network make it difficult to provide comprehensive coverage, particularly in remote areas of states like Arunachal Pradesh and Mizoram (Deka & Bhagabati, 2022) <sup>[8]</sup>.

### 2.4 Online Banking Service Quality

Online banking has transformed service delivery by providing customers with 24/7 access to financial services, which is particularly valuable in the North East region where branch accessibility can be limited. Digital platforms demonstrate high reliability and responsiveness, often processing transactions instantly and providing consistent service regardless of geographical location (Chen & Liu, 2020) <sup>[6]</sup>.

However, online banking in North East India faces unique challenges including internet connectivity issues, cybersecurity concerns, and resistance to digital adoption among certain demographic segments (Kalita & Singh, 2021) <sup>[11]</sup>. Research has identified that website design, security, and user-friendliness are critical service quality factors specific to online banking in the regional context (Roberts & Martinez, 2019) <sup>[17]</sup>.

### 2.5 Research Gap

Limited research has directly compared service quality between traditional and online banking in the North East Indian context using standardized measurement frameworks (Borgohain & Das, 2020) <sup>[4]</sup>. Previous studies have primarily focused on adoption rates or general customer satisfaction, rather than systematic gap analysis across service quality dimensions. This study addresses this research gap by providing the first comprehensive SERVQUAL-based comparison of banking service quality in North East India.

## 3. Methodology

### 3.1 Research Design

This study uses a quantitative research approach using the SERVQUAL framework to identify service quality gaps between traditional and online banking in North East India. A cross-sectional survey design was utilized to collect data from banking customers who have experience with both traditional and online banking services in the region.

### 3.2 Sampling and Data Collection

The study population consisted of banking customers from three major cities in North East India: Guwahati (Assam), Shillong (Meghalaya), and Imphal (Manipur). These cities were selected as they represent the primary commercial centers of the region and have adequate representation of both traditional and online banking services.

A stratified random sampling technique was employed to select 450 banking customers. Participants were required to have used both traditional and online banking services for at least six months to ensure adequate experience with both channels. Data collection was conducted over three months (April-June 2025) through a structured questionnaire administered both online and offline, considering the varying levels of digital comfort among respondents in the region.

### 3.3 Measurement Instruments

A modified version of the SERVQUAL instrument was developed to assess customer expectations and perceptions across five service quality dimensions relevant to the North East Indian banking context. The instrument comprised forty-four items: twenty-two for expectations and twenty-two for perceptions, rated on a 7-point Likert scale. Separate assessments were conducted for traditional banking and online banking services.

The questionnaire was translated into local languages (Assamese, Khasi, and Manipuri) to ensure cultural appropriateness and comprehension. Pilot testing was conducted with 50 respondents to validate the instrument's reliability and cultural relevance in the North East context.

### 3.4 Data Analysis

Data analysis was conducted using SPSS 28.0 and Python for statistical computing. Descriptive statistics, reliability analysis, and gap analysis were employed to compare service quality across banking channels. ANOVA and t-tests were used to determine statistical significance of differences between groups, with additional analysis considering demographic variables specific to the North East region.

## 4. Results and Analysis

### 4.1 Sample Characteristics

With a response rate of 81.2%, the final sample consisted of 450 respondents. Table 1 presents the demographic characteristics of the sample, including regional distribution.

**Table 1:** Sample Demographics

Characteristic	Category	Frequency	Percentage
Location	Guwahati	178	39.6%
	Shillong	142	31.5%
	Imphal	130	28.9%
Age	18-25	95	21.1%
	26-35	168	37.3%
	36-45	121	26.9%
	46-55	47	10.4%
	56+	19	4.2%
Gender	Male	242	53.8%
	Female	208	46.2%
Education	High School	52	11.6%
	Bachelor's	251	55.8%
	Master's	123	27.3%
	PhD	24	5.3%
Banking Experience	1-5 years	112	24.9%
	6-10 years	164	36.4%
	11-15 years	98	21.8%
	16+ years	76	16.9%
Monthly Income	<₹25,000	89	19.8%
	₹25,000-₹50,000	178	39.6%
	₹50,000-₹75,000	112	24.9%
	>₹75,000	71	15.8%

**4.2 Reliability Analysis:** Cronbach's alpha values for all SERVQUAL dimensions exceeded 0.70, indicating

acceptable internal consistency reliability for the North East Indian context. Table 2 presents the reliability statistics.

**Table 2:** Reliability Statistics

Dimension	Traditional Banking	Online Banking
Tangibility	0.856	0.834
Reliability	0.889	0.871
Responsiveness	0.863	0.887
Assurance	0.878	0.864
Empathy	0.894	0.849
Overall	0.921	0.903

**4.3 SERVQUAL Gap Analysis:** The gap analysis reveals significant differences between customer expectations and

perceptions across both banking channels in the North East context. Table 3 presents the comprehensive results.

**Table 3:** SERVQUAL Gap Analysis Results-North East India

Dimension	Traditional Banking			Online Banking		
	Expectation	Perception	Gap	Expectation	Perception	Gap
Tangibility	6.18	5.94	-0.24	5.92	6.02	0.10
Reliability	6.52	5.71	-0.81*	6.47	6.31	-0.16
Responsiveness	6.41	5.29	-1.12*	6.38	6.25	-0.13
Assurance	6.33	5.82	-0.51*	6.28	5.94	-0.34*
Empathy	6.24	5.98	-0.26	5.98	5.41	-0.57*
Overall	6.34	5.75	-0.59*	6.21	5.99	-0.22*

\* $p < 0.05$

4.4 Regional Analysis

North East region:  
Analysis by city reveals interesting variations within the

Table 4: City-wise service quality gap analysis

City	Traditional Banking Overall Gap	Online Banking Overall Gap	Key Findings
Guwahati	-0.52*	-0.19*	Smallest gaps; better service delivery
Shillong	-0.61*	-0.21*	Moderate gaps; infrastructure challenges
Imphal	-0.67*	-0.27*	Largest gaps; connectivity issues

4.5 Statistical Significance Testing

Independent sample t-tests indicate significant differences between traditional and online banking service quality gaps in the North East context.

Table 5: Statistical significance of gap differences

Dimension	Mean Difference	T-Statistic	p-value	Effect Size (Cohen's d)
Tangibility	-0.34	-3.128	0.002*	0.294
Reliability	-0.65	-5.847	0.000*	0.550
Responsiveness	-0.99	-8.923	0.000*	0.839
Assurance	-0.17	-1.423	0.156	0.134
Empathy	0.31	2.789	0.005*	0.262

\* $p < 0.05$

4.6 Correlation Analysis

Correlation analysis examining relationships between service quality dimensions and overall customer satisfaction in the North East context.

Table 6: Correlation analysis results-North East India

Dimension	Traditional Banking	Online Banking
Tangibility	0.567**	0.421**
Reliability	0.798**	0.834**
Responsiveness	0.734**	0.809**
Assurance	0.656**	0.587**
Empathy	0.712**	0.467**

\*\* $p < 0.01$

4.7 Visual Analysis



Fig 1: Service quality gaps comparison

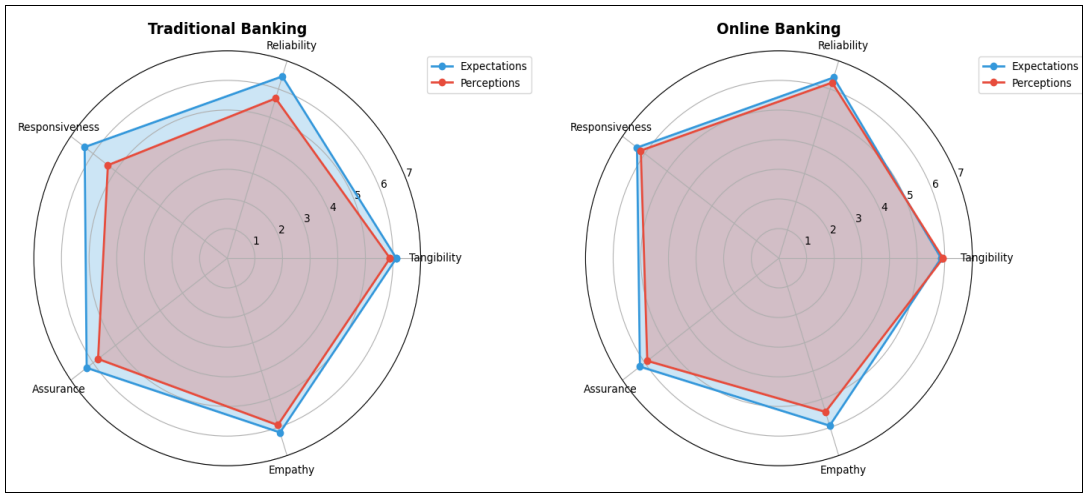


Fig 2: Radar Chart for service quality comparison



Fig 3: Service quality performance matrix

5. Discussion

5.1 Key Findings in North East Context

The study demonstrates significant service quality performance differences between traditional and online banking in North East India. Online banking performs superior in reliability and responsiveness dimensions, while traditional banking excels in empathy and shows comparable performance in tangibility and assurance. The largest gap in traditional banking is in the responsiveness dimension (-1.12), indicating that customers perceive traditional banking processes as significantly slow and inefficient in the North East context. This finding aligns with regional challenges including limited branch networks, infrastructure constraints, and operational inefficiencies in remote areas (Deka & Singh, 2021) [9]. Conversely, online banking shows minimal gaps in reliability (-0.16) and responsiveness (-0.13), suggesting that digital platforms meet customer expectations for

consistent and prompt service delivery despite connectivity challenges in some areas. However, online banking shows a significant empathy gap (-0.57), highlighting the difficulty in providing personalized, caring service through digital channels in a relationship-oriented banking culture typical of North East India.

5.2 Regional Variations

The city-wise analysis reveals important regional variations within North East India:

- Guwahati demonstrates the best service quality performance for both channels, reflecting better infrastructure and market competition
- Imphal shows the largest service quality gaps, indicating challenges in service delivery in more remote areas
- Shillong falls between the two, reflecting moderate infrastructure development



These variations highlight the importance of location-specific service strategies within the North East region.

### 5.3 Cultural and Geographical Implications

The findings reflect the unique cultural and geographical characteristics of North East India:

- **Relationship Orientation:** The superior empathy performance of traditional banking aligns with the region's cultural preference for personal relationships in financial matters
- **Infrastructure Challenges:** The responsiveness gaps in traditional banking reflect the region's geographical and infrastructural constraints
- **Digital Adoption Patterns:** The positive tangibility gap for online banking suggests changing customer expectations in the digital era

### 5.4 Implications for Banking Strategy in North East India

Banks operating in North East India should adopt differentiated strategies based on channel characteristics and regional considerations.

#### Traditional Banking Improvements

- Invest in process automation and staff training to address responsiveness gaps
- Leverage existing strength in empathy and assurance to build customer loyalty
- Focus on operational efficiency improvements in remote branch locations

#### Online Banking Enhancements

- Prioritize personalization and emotional connection features to address empathy gaps
- Maintain competitive advantages in reliability and responsiveness
- Implement region-specific features considering local language and cultural preferences

#### Regional Strategy

- Develop location-specific service delivery models for different cities.
- Invest more heavily in infrastructure support for remote areas like Imphal.
- Consider hybrid service models that combine digital efficiency with personal touch.

### 5.5 Limitations and Future Research

**This study has limitations that should be considered:**

- **Geographical Scope:** The study focused on three major cities and may not fully represent rural banking experiences in North East India.
- **Temporal Constraints:** Cross-sectional design limits causal inferences.
- **Cultural Factors:** Additional dimensions specific to North East Indian banking culture could be explored.

**Future research should:-**

- Include rural areas and smaller towns across all eight North Eastern states.
- Conduct longitudinal studies to track service quality evolution.

- Explore cultural and linguistic factors affecting service quality perceptions.
- Investigate mobile banking and other emerging digital channels.

### 6. Conclusion

This study provides the first comprehensive SERVQUAL-based analysis of service quality gaps between traditional and online banking in North East India. The findings reveal significant performance differences between channels, with online banking excelling in operational dimensions while traditional banking maintains advantages in relationship-oriented aspects.

The research demonstrates that both traditional and online banking face substantial challenges in meeting customer expectations in the North East region, though these challenges differ significantly in nature and magnitude. Banks need to develop region-specific, channel-differentiated strategies to enhance service quality and customer satisfaction across their operations.

**Key recommendations for banks operating in North East India include:-**

- **Channel-Specific Improvements:** Address responsiveness in traditional banking and empathy in online banking
- **Regional Customization:** Develop location-specific strategies recognizing variations between cities
- **Cultural Sensitivity:** Incorporate regional cultural preferences in service design
- **Infrastructure Investment:** Focus on improving service delivery infrastructure in remote areas

This study contributes to service quality literature by demonstrating regional variations in banking service quality performance and provides practical guidance for banking institutions navigating the unique challenges of the North East Indian market. As customer expectations continue to evolve in this dynamic region, banks must continuously monitor and adapt their service quality strategies to maintain competitive advantage and customer satisfaction.

The research has implications for both academic research and practical banking management, suggesting that successful banks in North East India must excel in both traditional and digital service delivery while understanding the unique regional characteristics that influence customer perceptions and expectations.

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