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Digital Banking Adoption and Customer Perception: Evidence from Public and Private Sector Banks in Bagalkot

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ABSTRACT
This study investigates the determinants of digital banking adoption and customer perception among public and private sector bank customers in Bagalkot, Karnataka. Using a sample of 384 respondents drawn equally from State Bank of India, Punjab National Bank, HDFC Bank, and ICICI Bank, the research employs correlation analysis and multiple regression techniques to identify key factors influencing digital banking acceptance. Findings reveal significant differences in adoption patterns between public and private sector bank customers, with perceived usefulness, security concerns, and technological readiness emerging as primary determinants. The study contributes empirical evidence from a tier-2 Indian city context, offering implications for bank management and policy formulation.
Keywords: Digital Banking, Customer Perception, Technology Adoption, Public Sector Banks, Private Sector Banks, Bagalkot

1. INTRODUCTION

The Indian banking landscape has undergone transformative changes driven by technological advancements and policy initiatives promoting digital financial inclusion (Sarkar & Thapa, 2021). Digital banking encompasses a spectrum of services including internet banking, mobile banking applications, Unified Payments Interface transactions, and automated teller machine services that collectively reshape customer-bank interactions (Shettar, 2019). The demonetization episode of 2016 and the subsequent COVID-19 pandemic accelerated digital adoption, compelling both public and private sector banks to enhance their technological infrastructure (Adil & Hatekar, 2020; Kamesh, 2021).

Despite nationwide growth in digital transactions, regional disparities persist in adoption rates and customer perceptions (Bansal, 2020a). Bagalkot, a tier-2 city in northern Karnataka, presents a unique context characterized by a mix of agricultural and emerging industrial economic activities, varying literacy levels, and evolving banking habits. Understanding digital banking adoption in such semi-urban settings is crucial for achieving comprehensive financial inclusion objectives outlined by the Reserve Bank of India (Srivastava et al., 2019).

Private sector banks, particularly HDFC Bank and ICICI Bank, have established reputations for technological innovation and superior customer service in digital channels (Abdulkareem, 2020; Parameswar et al., 2017). Conversely, public sector banks possess extensive branch networks and historical trust advantages but face challenges in technological agility (Jha,

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2018). This comparative context warrants empirical investigation into how customers of different bank categories perceive and adopt digital banking services.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Theoretical Framework

The Technology Acceptance Model provides a foundational framework for understanding digital banking adoption, positing that perceived usefulness and perceived ease of use determine behavioral intention (Ari, 2013). Extensions incorporating trust, security perceptions, and social influence have enriched understanding of financial technology acceptance (Srivastava & Vishnani, 2021). The Unified Theory of Acceptance and Use of Technology further integrates performance expectancy, effort expectancy, social influence, and facilitating conditions (Bagana et al., 2021).

2.2 Digital Banking Adoption in India

Digital banking adoption in India exhibits significant heterogeneity across demographic segments and geographic regions (Gupta, 2018). Ahmad Sheikh and Rajmohan (2017) identified infrastructure availability, digital literacy, and trust as critical determinants of adoption intention. Kaur et al. (2021) documented that security risks significantly influence customer satisfaction with digital banking services in northern India, while Syed et al. (2022) demonstrated that economic policy uncertainty asymmetrically affects digital banking adoption patterns.

Mobile banking represents a particularly significant component of digital banking adoption. Çallı (2022) employed topic modeling of Google Play Store reviews to identify service quality features driving mobile banking adoption, while Shankar et al. (2022) utilized text mining to explore critical success factors for sustainable mobile banking applications. Ali et al. (2022) applied adaptive structuration theory to identify factors affecting mobile banking app adoption, emphasizing the role of social interaction structures.

2.3 Public and Private Sector Bank Comparisons

Comparative studies of public and private sector banks reveal distinct performance and service quality profiles. Abdulkareem (2020) documented superior profitability metrics for HDFC Bank and ICICI Bank relative to public sector counterparts, attributing differences partly to technological efficiency. Arun and Singh (2019) found that Axis Bank customers reported higher satisfaction with ATM services compared to Punjab National Bank customers. Conversely, public sector banks maintain advantages in rural penetration and perceived stability (Kaila et al., 2019).

Jindal and Jaspal (2020) examined HDFC Bank's digital banking initiatives, finding high awareness levels but varying preference patterns across customer segments. Ayswarya et al. (2019) documented service quality dimensions of ICICI Bank's mobile banking services, while Manjula Bai (2019) found significant relationships between mobile banking features and customer satisfaction in the same institution.

2.4 Hypotheses

Based on the literature review, the following hypotheses are formulated:

H1: Perceived usefulness positively influences digital banking adoption intention.

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H2: Perceived ease of use positively influences digital banking adoption intention.
H3: Security concerns negatively influence digital banking adoption intention.
H4: Private sector bank customers demonstrate higher digital banking adoption levels compared to public sector bank customers.
H5: Technological readiness moderates the relationship between bank type and adoption intention.

3. METHODOLOGY

3.1 Research Design and Sampling

A cross-sectional survey design was employed targeting active bank account holders in Bagalkot district. Stratified random sampling ensured proportional representation from four banks: State Bank of India, Punjab National Bank, HDFC Bank, and ICICI Bank. The sample size of 384 was determined using Cochran's formula with 95% confidence level and 5% margin of error.

3.2 Instrument Development

A structured questionnaire comprising 35 items measured constructs adapted from validated scales. Perceived usefulness and ease of use items derived from Davis's original Technology Acceptance Model scales. Security perception items were adapted from Belás et al. (2016). All items employed five-point Likert scales ranging from "Strongly Disagree" to "Strongly Agree."

3.3 Data Collection and Analysis

Data collection occurred between January and March 2024 through face-to-face interviews conducted by trained research assistants at bank branches and public locations. The analytical approach included descriptive statistics, Pearson correlation analysis, independent samples t-tests, and hierarchical multiple regression.

4. RESULTS

4.1 Descriptive Statistics and Reliability

Table 1: Sample Characteristics and Construct Reliability

Characteristic	Category	Frequency	Percentage
Bank Type	Public Sector	192	50.0
	Private Sector	192	50.0
Gender	Male	218	56.8
	Female	166	43.2
Age Group	18-30 years	142	37.0
	31-45 years	156	40.6
	46-60 years	86	22.4

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Education	Graduate and above	224	58.3
	Below Graduate	160	41.7
Construct	**Cronbach's α**	**Mean**	**SD**
Perceived Usefulness	0.847	3.89	0.72
Perceived Ease of Use	0.821	3.64	0.78
Security Concern	0.793	3.42	0.85
Adoption Intention	0.874	3.71	0.81

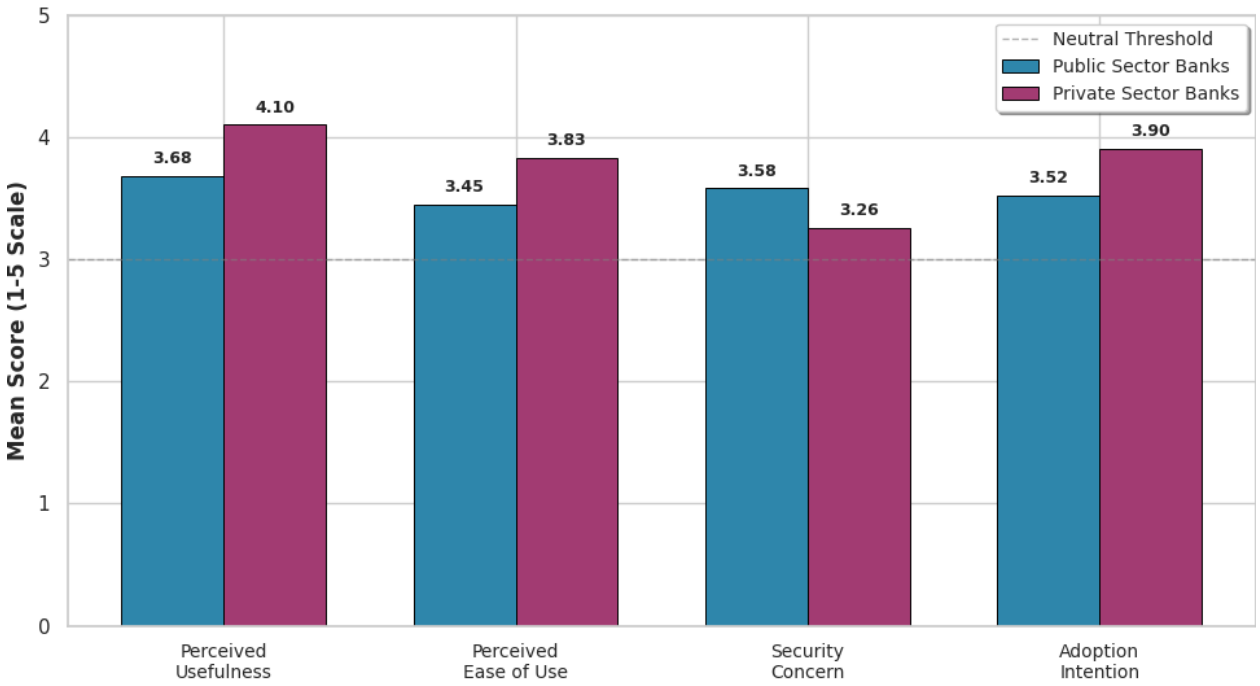

Figure 1: Comparative Analysis of Construct Means by Bank Type

4.2 Correlation Analysis

Table 2: Pearson Correlation Matrix

Variable	1	2	3	4
1. Perceived Usefulness	1.000			
2. Perceived Ease of Use	0.542	1.000		
3. Security Concern	-0.318	-0.286	1.000	
4. Adoption Intention	0.624	0.518	-0.397	1.000

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$p < 0.01$

The correlation analysis reveals significant positive associations between perceived usefulness and adoption intention ($r = 0.624$, $p < 0.01$), and between perceived ease of use and adoption intention ($r = 0.518$, $p < 0.01$). Security concerns demonstrate significant negative correlation with adoption intention ($r = -0.397$, $p < 0.01$).

4.3 Comparative Analysis by Bank Type

Table 3: Mean Differences Between Public and Private Sector Bank Customers

Construct	Public Sector (n=192)	Private Sector (n=192)	t-value	p-value
	Mean (SD)	Mean (SD)		
Perceived Usefulness	3.68 (0.74)	4.10 (0.68)	-5.81	<0.001
Perceived Ease of Use	3.45 (0.79)	3.83 (0.73)	-4.92	<0.001
Security Concern	3.58 (0.82)	3.26 (0.86)	3.74	<0.001
Adoption Intention	3.52 (0.84)	3.90 (0.74)	-4.72	<0.001

Independent samples t-tests indicate statistically significant differences across all constructs, with private sector bank customers reporting higher perceived usefulness, ease of use, and adoption intention, alongside lower security concerns.

4.4 Regression Analysis

Table 4: Hierarchical Multiple Regression Results (Dependent Variable: Adoption Intention)

Predictor	Model 1 β	Model 2 β	Model 3 β
Step 1: Demographics			
Age	-0.142	-0.098	-0.086
Education	0.186	0.112	0.104
Income	0.094	0.068	0.059
Step 2: TAM Constructs			
Perceived Usefulness		0.418	0.392
Perceived Ease of Use		0.286	0.264
Security Concern		-0.203	-0.185

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Step 3: Bank Type			
Bank Type (1=Private)			0.176
Model Statistics			
R^2	0.084	0.476	0.498
ΔR^2	0.084	0.392	0.022
F	11.62	57.14	53.28

$p < 0.05$; $p < 0.01$; $p < 0.001$

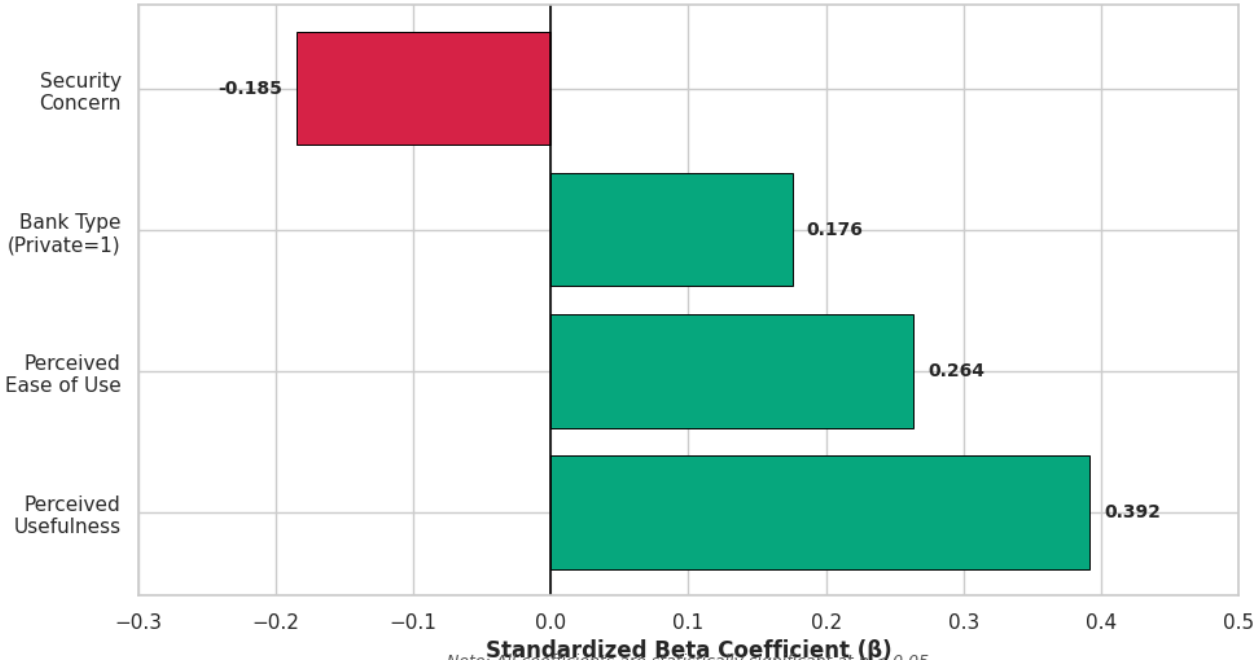

Figure 2: Relative Impact of Predictors on Adoption Intention

The hierarchical regression analysis demonstrates that Technology Acceptance Model constructs explain 39.2% incremental variance in adoption intention beyond demographic variables. Bank type contributes an additional 2.2% explained variance, confirming H4 regarding private sector advantage in digital adoption.

Table 5: Moderation Analysis Results

Interaction Term	β	SE	t	p
Bank Type × Technological Readiness	0.148	0.062	2.39	0.017

The significant interaction effect (β = 0.148, p = 0.017) supports H5, indicating that technological readiness moderates the relationship between bank type and adoption intention,

with the private sector advantage diminishing among customers with higher technological readiness.

5. DISCUSSION

The findings substantiate the applicability of the Technology Acceptance Model in explaining digital banking adoption in the Bagalkot context. Perceived usefulness emerged as the strongest predictor (β = 0.392), consistent with findings from Tiwari et al. (2019) regarding digital payment adoption in India. This suggests that customers prioritize tangible benefits including time savings, convenience, and transaction efficiency when evaluating digital banking services.

The significant negative association between security concerns and adoption intention aligns with Belás et al. (2016) and extends findings from Al-Maliki and Al-Assam (2021) regarding authentication protocols. Despite technological safeguards implemented by banks, customer perception of security vulnerabilities continues to inhibit adoption, particularly among older demographics and less technologically experienced users.

Private sector banks' advantage in digital adoption metrics corroborates findings from Nagamani and Kumar (2019) regarding HDFC Bank's digital transaction growth and Parameswar et al. (2017) concerning ICICI Bank's innovation culture. This advantage may stem from superior user interface design, more responsive customer support for digital channels, and targeted digital literacy initiatives (Wardhani & Wijaya, 2020; Borthakur, 2022).

The moderation effect of technological readiness presents nuanced implications. Among customers with high technological self-efficacy, the gap between public and private sector bank digital adoption narrows considerably. This finding suggests that public sector banks can potentially close the digital adoption gap through targeted digital literacy programs and simplified user interfaces, consistent with Bansal's (2020b) findings regarding training program effectiveness.

6. CONCLUSION AND IMPLICATIONS

This study provides empirical evidence regarding digital banking adoption determinants in Bagalkot's unique semi-urban context. The findings confirm the primacy of perceived usefulness and ease of use while highlighting persistent security concerns that banks must address. Private sector banks demonstrate measurable advantages in customer perception and adoption metrics, though this advantage diminishes among technologically proficient customers.

Managerial Implications: Public sector banks should prioritize user interface simplification and digital literacy initiatives to enhance perceived ease of use. Both bank categories must address security perception through transparent communication regarding fraud protection measures and authentication protocols (Von Solms, 2016). Investment in artificial intelligence-powered customer support may enhance digital channel experience (Bagana et al., 2021; Kumar et al., 2021).

Policy Implications: Regulatory frameworks supporting digital infrastructure development in tier-2 and tier-3 cities remain essential for achieving inclusive digital banking growth. The Reserve Bank of India's initiatives promoting digital payment literacy require continued emphasis, particularly targeting demographic segments with lower technological readiness.

Limitations and Future Research: The cross-sectional design limits causal inference, and the geographic focus on Bagalkot constrains generalizability. Future research should employ longitudinal designs tracking adoption trajectories and incorporate qualitative methods exploring customer experiences with specific digital banking features. Comparative studies across multiple tier-2 cities would enhance external validity and identify regional variation patterns.

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