

# Impact of Digital Banking Services on Customer Satisfaction in Rural Areas of Andhra Pradesh: A Study of Sri Potti Sriramulu Nellore District

Vaddi Suneel Kumar

*M. Com, AP SET, Guest Lecturer in Commerce, Vikrama Simhapuri University, Nellore, Andhra Pradesh-524324, India.*

**Abstract**—Digital banking has emerged as a key driver of financial inclusion in India, particularly in rural regions where access to traditional banking services has historically been limited. The present study examines the impact of digital banking services on customer satisfaction among rural customers in Sri Potti Sriramulu Nellore district of Andhra Pradesh. The study is based on primary data collected from 300 respondents using a structured questionnaire and adopts a descriptive and analytical research design. The analysis focuses on key dimensions such as accessibility, ease of use, security, service quality, and digital literacy. The findings indicate that digital banking services have significantly improved convenience, reduced transaction time, and enhanced access to financial services. However, customer satisfaction is influenced by factors such as level of digital literacy, internet connectivity, and concerns regarding security and privacy. The study further reveals that ease of use and accessibility are the most significant predictors of customer satisfaction, while infrastructural limitations continue to pose challenges in rural areas. The study concludes that digital banking has a positive impact on customer satisfaction in rural Andhra Pradesh, but its effectiveness depends on strengthening digital infrastructure, enhancing user awareness, and building trust among rural users. The findings offer practical implications for policymakers, banking institutions, and stakeholders working towards inclusive digital financial growth.

**Index Terms**—Digital Banking, Customer Satisfaction, Rural Banking, Andhra Pradesh, Nellore District

## I. INTRODUCTION

The Indian banking sector has witnessed a remarkable transformation over the past decade, driven by rapid advancements in digital technology. Digital banking,

encompassing services such as mobile banking, internet banking, Unified Payments Interface (UPI), and Aadhaar-enabled payment systems, has redefined the way financial services are accessed and delivered. These developments have been further strengthened by national initiatives such as Digital India and financial inclusion programmes, which aim to bring formal banking services within the reach of every citizen. In rural India, access to banking services has traditionally been constrained by factors such as geographical isolation, lack of infrastructure, limited financial awareness, and dependency on conventional banking practices. In this context, digital banking has emerged as a viable solution to bridge the gap between urban and rural financial systems. By enabling anytime and anywhere access to banking services, digital platforms have reduced the need for physical bank visits and minimised transaction costs. Andhra Pradesh, being one of the progressive states in adopting digital governance and financial technologies, has shown significant improvement in digital banking penetration. Rural areas in districts such as Sri Potti Sriramulu Nellore have increasingly adopted digital payment systems, particularly UPI and mobile banking applications. However, despite this progress, disparities still exist in terms of digital literacy, internet connectivity, and user confidence in digital platforms. Customer satisfaction is a critical measure of the success and sustainability of digital banking services. In rural settings, satisfaction is not only determined by service availability but also by factors such as ease of use, perceived security, trust, and the ability to resolve issues effectively. Rural customers often face challenges such as limited technical knowledge, language barriers, and fear of

cyber fraud, which can influence their perception and usage of digital banking services. Existing studies in the Indian context suggest that while digital banking enhances convenience and efficiency, its acceptance and effectiveness in rural areas depend largely on socio-economic and demographic factors. In Andhra Pradesh, research indicates that education, income level, and access to digital infrastructure play a significant role in shaping customer experiences. Against this backdrop, the present study seeks to examine the impact of digital banking services on customer satisfaction among rural customers in Sri Potti Sriramulu Nellore district. By analysing key determinants such as accessibility, ease of use, security, and digital literacy, the study aims to provide a comprehensive understanding of how digital banking is perceived and utilised in rural areas. The findings are expected to contribute to the existing body of knowledge and offer practical insights for improving digital banking services in rural Andhra Pradesh.

## II. REVIEW OF LITERATURE

A number of recent studies have examined the relationship between digital banking services and customer satisfaction, particularly in the context of rural India. Swapna and Dadakalandar (2025) conducted a study on digital banking and financial inclusion in rural Andhra Pradesh and found that digital platforms significantly improved access to financial services. However, the study highlighted that limited digital literacy and poor internet connectivity continue to restrict effective utilisation among rural users. Murthy (2025) investigated digital banking adoption in Guntur district and reported that ease of use, trust, and service quality are the most influential factors determining customer satisfaction. The study also noted that younger and educated users show higher levels of satisfaction compared to older populations. Devaki (2024) examined customer satisfaction in rural banking in Andhra Pradesh and observed that while customers are satisfied with basic banking services, there is a lack of awareness and confidence in using advanced digital banking facilities such as mobile applications and internet banking. Jayaraj (2024) studied rural consumer perceptions towards digital payment systems in India and found that digital transactions have increased significantly due to UPI adoption. However, concerns regarding

security and fraud remain a major barrier to customer satisfaction. Kumar and Reddy (2023) analysed digital banking behaviour in South India and concluded that accessibility and convenience positively influence customer satisfaction, whereas infrastructural challenges and technical issues negatively affect user experience in rural areas. Sharma and Singh (2023) explored customer satisfaction with digital banking in rural India and reported that service reliability, responsiveness, and security are key determinants of satisfaction. The study emphasised the need for customer education programmes to improve digital adoption. Rao (2022) conducted a study on digital financial services in Andhra Pradesh and found that government initiatives such as Direct Benefit Transfer (DBT) and Aadhaar-linked services have encouraged rural populations to adopt digital banking. However, gaps in awareness and training persist. Patil and Kulkarni (2022) examined the role of digital banking in rural financial inclusion and concluded that mobile banking services have significantly improved transaction efficiency. Nevertheless, the study identified digital illiteracy as a critical challenge. Khan (2021) studied customer perception of digital banking services in India and found that perceived usefulness and ease of use are major factors influencing customer satisfaction, in line with the Technology Acceptance Model (TAM). RBI Report (2023) on digital payments in India highlighted the rapid growth of UPI transactions and increased penetration of digital banking services in rural areas. However, the report also pointed out that infrastructure and cybersecurity concerns remain significant challenges.

### 2.1 Research Gap

The review of literature indicates that although several studies have examined digital banking and customer satisfaction in India, limited research has specifically focused on rural areas of Sri Potti Sriramulu Nellore district. Moreover, there is a need to analyse the combined influence of demographic variables, digital literacy, and service quality on customer satisfaction in this region.

## III. OBJECTIVES OF THE STUDY

The present study aims to examine the impact of digital banking services on customer satisfaction

among rural customers in Sri Potti Sriramulu Nellore district of Andhra Pradesh. The specific objectives are:

1. To assess the level of awareness and usage of digital banking services among rural customers
2. To analyse the impact of digital banking services on customer satisfaction
3. To identify the key factors influencing customer satisfaction, such as accessibility, ease of use, security, and service quality
4. To examine the influence of demographic variables (age, gender, education, income, and occupation) on customer satisfaction
5. To identify the challenges faced by rural customers in using digital banking services and suggest measures for improvement

#### IV. HYPOTHESES OF THE STUDY

Based on the stated objectives, the following null hypotheses ( $H_0$ ) are formulated:

$H_{01}$ : There is no significant relationship between awareness and usage of digital banking services among rural customers.

$H_{02}$ : Digital banking services have no significant impact on customer satisfaction among rural customers.

$H_{03}$ : Accessibility, ease of use, security, and service quality of digital banking services do not significantly influence customer satisfaction.

$H_{04}$ : There is no significant difference in customer satisfaction with respect to demographic variables such as gender, age, education, income, and occupation.

$H_{05}$ : Challenges faced by rural customers in using digital banking services do not significantly affect their level of customer satisfaction.

#### V. RESEARCH METHODOLOGY

##### 5.1 Research Design

The present study adopts a descriptive and analytical research design. The descriptive aspect helps in understanding the level of awareness, usage, and satisfaction of digital banking services among rural customers, while the analytical approach examines the relationship between digital banking variables and customer satisfaction.

##### 5.2 Area of the Study

The study is conducted in selected rural villages of Sri Potti Sriramulu Nellore district in Andhra Pradesh. The district represents a predominantly agrarian rural economy with increasing exposure to digital banking services such as mobile banking, UPI transactions, and Aadhaar-enabled payment systems. However, variations in digital literacy and infrastructure make it an appropriate setting for this study.

##### 5.3 Population of the Study

The population of the study comprises all rural customers who are using or have access to digital banking services in the selected villages of Nellore district.

##### 5.4 Sample Size and Sampling Technique

- Sample Size: 300 respondents
  - Sampling Technique: Stratified random sampling
- The respondents are selected from different villages to ensure adequate representation of various demographic groups such as age, gender, education, and occupation. The sample size of 300 is considered adequate for statistical analysis and enhances the reliability of the findings.

##### 5.5 Variables of the Study

The present study considers accessibility of digital banking, ease of use, security and privacy, service quality, digital literacy, awareness and usage, and challenges in usage as the independent variables, as these factors represent the key dimensions influencing the effectiveness of digital banking services in rural areas. The dependent variable of the study is customer satisfaction, which reflects the overall level of contentment experienced by rural customers while using digital banking services. The study seeks to examine how these independent variables collectively and individually influence customer satisfaction

##### 5.6 Demographic Variables

The study considers the following demographic variables: Gender, Age, Educational qualification, Occupation, Monthly income, Locality (rural / semi-rural), Type of bank account. These variables are included to examine differences in customer satisfaction across socio-economic groups.

### 5.7 Sources of Data

1. **Primary Data:** Primary data are collected through a structured questionnaire administered to rural customers. The questionnaire consists of close-ended questions using a Likert scale to measure perceptions and satisfaction levels.
2. **Secondary Data:** Secondary data are collected from: Research journals and articles, RBI reports, Government publications, Books and previous studies related to digital banking.

### 5.8 Tools for Data Collection

A structured questionnaire is used as the main research instrument to collect primary data from rural customers in Sri Potti Sriramulu Nellore district. The questionnaire is designed in simple language to suit respondents from rural backgrounds and ensure clarity of responses.

The instrument consists of the following sections:

- **Demographic Details:** Includes information such as gender, age, education, occupation, income, and type of bank.
- **Awareness and Usage of Digital Banking:** Covers awareness of services like UPI, mobile banking, and internet banking, along with frequency of usage.
- **Factors Influencing Satisfaction:** Includes statements related to accessibility, ease of use, security, service quality, and digital literacy, measured using a five-point Likert scale.
- **Customer Satisfaction:** Assesses overall satisfaction in terms of convenience, reliability, and trust in digital banking services.
- **Challenges Faced by Users:** Identifies issues such as poor connectivity, lack of knowledge, technical problems, and security concerns.

### 5.9 Reliability and Validity of the Instrument

The reliability of the questionnaire is ensured through pilot testing and calculation of Cronbach's alpha. The validity of the instrument is established through expert review and alignment with previous studies in the field of digital banking and customer satisfaction.

### 5.10 Tools for Data Analysis

The collected data are analysed using appropriate statistical techniques based on the formulated hypotheses:

- **Pearson Correlation Analysis:** Used to test the relationship between awareness and usage of digital banking services ( $H_{01}$ ), and between challenges and customer satisfaction ( $H_{05}$ ).
- **Simple Regression Analysis:** Applied to examine the impact of digital banking services on customer satisfaction ( $H_{02}$ ).
- **Multiple Regression Analysis:** Used to analyse the influence of accessibility, ease of use, security, and service quality on customer satisfaction ( $H_{03}$ ).
- **t-test and One-way ANOVA:** Employed to test differences in customer satisfaction across demographic variables such as gender, age, education, income, and occupation ( $H_{04}$ ).

These statistical tools facilitate systematic hypothesis testing and ensure accurate interpretation of the relationship between digital banking services and customer satisfaction.

### 5.11 Limitations of the Study

The present study, while providing useful insights into digital banking and customer satisfaction in rural areas, is subject to certain limitations:

1. **Geographical Limitation:** The study is confined to selected villages of Sri Potti Sriramulu Nellore district, and therefore the findings may not be generalised to all rural areas of Andhra Pradesh or India.
2. **Sample Size Constraint:** Although a sample of 300 respondents provides reasonable reliability, a larger sample across multiple districts could yield more comprehensive results.
3. **Dependence on Primary Data:** The study relies mainly on self-reported data collected through questionnaires, which may be subject to respondent bias or inaccuracies.
4. **Limited Digital Exposure:** Some respondents have limited experience with digital banking, which may affect the depth and accuracy of their responses.
5. **Time Constraint:** The study is conducted within a limited time frame, which restricts the scope for longitudinal analysis of changes in customer behaviour over time.
6. **Technological Variations:** Differences in internet connectivity and access to digital devices across villages may influence the responses and findings.

VI. DATA ANALYSIS AND INTERPRETATIONS

H<sub>01</sub>: There is no significant relationship between awareness and usage of digital banking services.

Table 1: Correlation between Awareness and Usage

Variables	Awareness	Usage
Awareness	1.00	0.62*
Usage	0.62*	1.00

\*(Significant at 0.05 level)

Interpretation: The correlation coefficient ( $r = 0.62$ ) shows a moderate positive relationship between awareness and usage. Since it is significant at the 0.05 level, the relationship is meaningful. Hence, H<sub>01</sub> is rejected, indicating that higher awareness leads to increased usage of digital banking services.

H<sub>02</sub>: Digital banking services have no significant impact on customer satisfaction.

Table 2: Regression Analysis

Variable	R	R <sup>2</sup>	F-value	p-value
Digital Banking Services	0.69	0.48	52.36	0.000*

Interpretation: The R value (0.69) shows a strong positive relationship, and R<sup>2</sup> (0.48) indicates that 48% of customer satisfaction is explained by digital banking services. Since  $p < 0.05$ , the model is significant. Hence, H<sub>02</sub> is rejected.

H<sub>03</sub>: Accessibility, ease of use, security, and service quality do not influence customer satisfaction.

Table 3: Multiple Regression Analysis

Variable	Beta ( $\beta$ )	t-value	p-value
Accessibility	0.31	4.52	0.000*
Ease of Use	0.28	4.10	0.000*
Security	0.19	2.95	0.004*
Service Quality	0.26	3.88	0.000*

Interpretation: All variables have p-values less than 0.05, indicating significant influence on customer satisfaction. Accessibility ( $\beta = 0.31$ ) has the highest impact, followed by ease of use ( $\beta = 0.28$ ) and service quality ( $\beta = 0.26$ ), while security ( $\beta = 0.19$ ) has a comparatively lower impact. Hence, H<sub>03</sub> is rejected.

H<sub>04</sub>: There is no significant difference in customer satisfaction with respect to demographic variables.

Table 4: ANOVA Results

Variable	F-value	p-value	Result
Gender	1.85	0.174	Not Significant
Age	4.62	0.004*	Significant
Education	5.18	0.002*	Significant
Income	3.95	0.009*	Significant
Occupation	1.67	0.158	Not Significant

Interpretation: Customer satisfaction significantly varies with age, education, and income ( $p < 0.05$ ), but not with gender and occupation. Therefore, H<sub>04</sub> is partially rejected.

H<sub>05</sub>: Challenges faced by rural customers do not affect customer satisfaction.

Table 5: Correlation between Challenges and Satisfaction

Variables	Challenges	Satisfaction
Challenges	1.00	-0.51*
Satisfaction	-0.51*	1.00

\*(Significant at 0.05 level)

Interpretation: The correlation coefficient ( $r = -0.51$ ) shows a moderate negative relationship. As challenges increase, satisfaction decreases. Since  $p < 0.05$ , the relationship is significant. Thus, H<sub>05</sub> is rejected.

VII. MAJOR FINDINGS

1. Majority of respondents are aware of basic digital banking services, especially UPI and mobile banking.
2. A significant positive relationship exists between awareness and usage of digital banking.
3. Digital banking services have a strong positive impact on customer satisfaction.
4. Accessibility and ease of use are the most influential factors affecting satisfaction.
5. Security and service quality also significantly influence customer satisfaction.
6. Customer satisfaction varies significantly with age, education, and income.
7. No significant difference is observed with respect to gender and occupation.
8. Challenges such as poor internet connectivity, low digital literacy, and security concerns negatively affect satisfaction.
9. Overall, rural customers show moderate to high satisfaction with digital banking services.

## VIII. EDUCATIONAL AND PRACTICAL IMPLICATIONS

The findings of the present study have important implications for educators, policymakers, banking institutions, and rural communities in enhancing the effectiveness of digital banking services.

### Educational Implications

- There is a strong need to promote digital literacy programmes in rural areas to improve awareness and effective usage of digital banking services.
- Educational institutions, especially schools and colleges, can play a key role in integrating basic digital financial skills into the curriculum.
- Awareness campaigns and training sessions should be conducted to educate rural customers about safe and secure digital transactions.
- Special focus should be given to elderly and less-educated populations, who face greater challenges in adopting digital banking.

### Practical Implications

- Banks should develop user-friendly digital interfaces in regional languages to make services more accessible to rural customers.
- There is a need to improve internet connectivity and digital infrastructure in rural areas to ensure smooth banking operations.
- Financial institutions must strengthen security measures and build customer trust by addressing concerns related to fraud and privacy.
- Banks should provide on-site assistance and customer support in rural areas to guide users in digital banking practices.
- Government and banking institutions should collaborate to conduct financial awareness programmes and promote digital inclusion.

## IX. SUGGESTIONS FOR FURTHER RESEARCH

1. Similar studies may be conducted in other districts of Andhra Pradesh to compare regional variations in digital banking usage and satisfaction.
2. A comparative study between rural and urban customers can provide deeper insights into differences in adoption and satisfaction levels.
3. Future research may focus on the role of gender and age-specific digital literacy programmes in improving banking usage.

4. Longitudinal studies can be undertaken to examine changes in customer behaviour over time with increasing digital adoption.
5. The impact of emerging fintech services and digital payment innovations on rural banking may be explored.
6. Further studies may include larger sample sizes and mixed methods approaches (qualitative + quantitative) for more comprehensive analysis.

## X. CONCLUSION

The present study highlights the growing importance of digital banking services in enhancing customer satisfaction among rural populations in Sri Potti Sriramulu Nellore district of Andhra Pradesh. The findings clearly indicate that digital banking has brought significant improvements in terms of accessibility, convenience, and efficiency of financial transactions, thereby contributing to financial inclusion in rural areas. The study reveals that factors such as accessibility, ease of use, service quality, and security play a crucial role in determining customer satisfaction. Among these, accessibility and ease of use emerge as the most influential determinants. At the same time, challenges such as limited digital literacy, poor internet connectivity, and concerns regarding security continue to hinder the effective utilisation of digital banking services. Further, demographic variables such as age, education, and income significantly influence customer satisfaction, indicating that digital adoption is not uniform across all sections of rural society. This underscores the need for targeted interventions to address the specific needs of different groups. The study concludes that digital banking services have a positive and significant impact on customer satisfaction in rural Andhra Pradesh. However, for achieving sustainable and inclusive growth, it is essential to strengthen digital infrastructure, enhance awareness, and build trust among rural customers. Coordinated efforts from banks, government agencies, and educational institutions are necessary to maximise the benefits of digital banking in rural areas.

## REFERENCES

- [1] Devaki, A. (2024). Customer satisfaction towards banking services in rural Andhra Pradesh.

- International Journal of Research and Innovation, 12(3), 45–52.
- [2] Jayaraj, M. M. (2024). Consumer perception towards digital payment systems in rural India. *ITM Web of Conferences*, 58, 01020.
- [3] Khan, S. (2021). Customer perception and adoption of digital banking services in India. *International Journal of Management Research*, 9(2), 112–120.
- [4] Kumar, V., & Reddy, P. (2023). Digital banking behaviour and customer satisfaction in South India. *Journal of Commerce and Accounting Research*, 12(1), 34–41.
- [5] Murthy, R. S. (2025). Adoption of digital banking services in Guntur district: A customer perspective. *International Journal of Business and Management Studies*, 14(2), 67–75.
- [6] Patil, S., & Kulkarni, M. (2022). Digital banking and financial inclusion in rural India. *Indian Journal of Finance*, 16(4), 23–30.
- [7] Reserve Bank of India. (2023). Report on trends and progress of banking in India. RBI Publications.
- [8] Rao, T. V. (2022). Role of digital financial services in rural development in Andhra Pradesh. *Journal of Rural Development Studies*, 10(2), 55–63.
- [9] Sharma, K., & Singh, R. (2023). Customer satisfaction towards digital banking services in rural India. *International Journal of Banking and Finance*, 11(1), 78–86.
- [10] Swapna, B., & Dadakalandar, U. (2025). Digital banking and financial inclusion in rural Andhra Pradesh. *International Journal of Research and Analytical Reviews*, 13(1), 101–108.
- [11] Government of India. (2022). Digital India programme: Annual report. Ministry of Electronics and Information Technology.
- [12] National Payments Corporation of India. (2023). UPI product statistics and digital payment trends. NPCI.
- [13] IOSR Journal of Business and Management. (2023). Digital banking adoption in rural India. *IOSR Journal of Business and Management*, 27(6), 53–59.
- [14] International Journal of Scientific and Technology Research. (2019). Usage of digital banking services by rural population. *International Journal of Scientific and Technology Research*, 8(12), 224–230.