

DIGITAL PAYMENT ADOPTION IN RURAL BANKING AT CANARA BANK

^{#1}Dr G C VENKATAIAH, *Associate Professor,*

^{#2}KODIGI SAMBA, *MBA Student,*

Department of MBA,

VISWAM ENGINEERING COLLEGE (Autonomous), ANGALLU, MADANAPALLE, AP.

ABSTRACT: This paper looks into the importance of digital payments in rural banking and how technology-driven payment solutions have boosted financial inclusion in India's rural economy, focusing on Canara Bank. The paper looks at how UPI, mobile banking, RuPay cards, Aadhaar-enabled payment systems (AePS), and micro-ATMs can help rural households, farmers, and small business owners gain better access to formal financial services. Furthermore, it assesses infrastructure readiness, technical comprehension, trust in digital platforms, and the ability of government programs, business correspondents, and bank-led initiatives to accelerate adoption. The paper examines network limits, cybersecurity issues, and user knowledge to show how Canara Bank promoted the growth of cash-light, inclusive financial transactions in India and boosted rural digital banking ecosystems.

Index Terms: *Digital Payment Adoption, Rural Banking, Canara Bank, Financial Inclusion, UPI, Mobile Banking, Aadhaar-Enabled Payment System (AePS), RuPay Cards,*

1. INTRODUCTION

Digital payments have transformed bank operations in India, especially in rural areas where currency transactions have been the norm for many years. The proliferation of digital infrastructure, combined with government-led measures to promote bank usage, has resulted in rural banks serving as critical intermediaries in the provision of electronic payment systems to those who do not have access to them. This change is part of a larger initiative to incorporate rural families into the formal financial system by providing secure, transparent, and efficient payment mechanisms.

Rural institutions are critical to the facilitation of digital payments. They accomplish this by using RuPay debit cards, mobile banking, Aadhaar Enabled Payment System (AePS), and the Unified Payments Interface (UPI). These technologies break down geographical barriers by allowing people in rural areas to do basic banking without physically visiting a bank. Rural banks have found it simpler to urge farmers, small business owners, and independent contractors to accept digital payments as cellphones and affordable internet connections become more common.

Due to government guidelines and legislation, rural institutions can now take digital payments with relative ease. Initiatives like Digital India, Direct Benefit Transfer (DBT), and the Pradhan Mantri Jan Dhan Yojana (PMJDY) have made it easier for rural inhabitants to open bank accounts and receive welfare payments online. Rural institutions are now vital for



providing crop-related pensions, subsidies, and perks. People are becoming less reliant on intermediaries and cash handling, and they are more confident in digital payment systems.

Rural banks continue to face a slew of operational and consumer behavior difficulties, despite the growing popularity of digital payments. People do not use it frequently because they are unfamiliar with computing, have an intermittent internet connection, and are concerned about fraud and cybercrime. To ensure that digital payment platforms are easy to use and accessible to new clients, rural banks must invest in customer education, local language interfaces, and aided digital services.

Furthermore, the adoption of digital payments in rural banking has ushered in a shift in how rural populations handle their funds and engage in economic activities. Rural households have attained more financial stability as a result of better saving habits, increased transaction transparency, and easier access to credit information. As digital payment methods evolve, rural banks remain critical to bridging the digital divide and ensuring that all members of India's rural economy have access to financial services.

2. REVIEW OF LITERATURE

Rao, S., & Kulkarni, P. (2025): Rao and Kulkarni assessed the extent to which government-led attempts to improve banking accessibility resulted in faster adoption of digital payments by rural institutions. They observed that rural institutions were gradually integrating Unified Payments Interface (UPI) and Aadhaar-enabled payment systems to give banking services to hitherto underserved groups. Their findings suggest that digital payments minimize the need for cash, which reduces the effectiveness of rural banks and transaction costs. They emphasized that improved digital infrastructure makes financial transactions in rural areas more efficient and transparent.

Patel, M., & Nanda, S. (2024): Patel and Nanda looked at how digital payments affect financial inclusion in rural banking institutions. They observed that rural banks are increasingly using digital payment channels, such as UPI, AEPS, and mobile banking, to communicate with customers in remote places. According to their findings, digital payments shorten transaction times and eliminate the need to visit the bank branch again. They underlined that rural clients can now readily receive government welfare payments, pensions, and agricultural subsidies via internet channels.

Sharma, N., & Verma, R. (2023): Examined the extent to which farmers who connect with rural banks use digital payment systems. They pointed out that digital payments had significantly accelerated crop payments, purchase settlements, and subsidy payments. Their findings suggest that direct digital transfers reduce the likelihood of producers requiring commission brokers, middlemen, or cash-based settlement methods. They noted that digital payments enable producers to better track their revenues and boost the transparency of their income. According to their findings, farmers can more easily obtain formal financing from rural banks when transaction records are established utilizing digital platforms.

Reddy, K., & Pillai, M. (2022): Evaluated the impact of rural banks' use of the Unified Payments Interface (UPI) on the everyday financial management of rural households. They



discovered that the usage of UPI has grown significantly in villages due to its simplicity, quick settlement, and interoperability with all institutions. According to their poll, an increasing percentage of rural inhabitants use UPI for small-scale transactions such as sending money to acquaintances, purchasing products from neighboring shops, and paying utility bills. They underlined that eliminating actual cash handling speeds up transactions and lowers branch travel expenses.

Bhatia, R., & Kaur, H. (2021): conducted an investigation into the adoption of digital payment systems by rural institutions during the initial phases of extensive digitization programs. They emphasized that early adoption rates were low since people were used to using cash, lacked resources, and had little expertise of digital technologies. Their research found that rural clients were less likely to use digital payment platforms due to their fear about technology and lack of confidence. They claimed that pilot programs by rural institutions were critical for individuals' progressive acclimation to digital technologies.

Ramanathan, P., & Iqbal, A. (2020): Investigated the obstacles that rural banks face when offering digital banking and payment services. They found that a large proportion of rural institutions lacked qualified personnel to support digital transaction systems. Their findings revealed that the technology and methodology used in the early stages of adoption were problematic. They underscored the importance of enhancing the organization's internal capabilities and personnel readiness in order to provide high-quality service. Clients were frequently afraid to connect with banks since they were unable to provide immediate support, according to their research.

3. DIGITAL PAYMENT ADOPTION IN RURAL BANKING



Mobile Banking–Based Payments

Rural consumers can use USSD services or bank-supported mobile apps to pay bills, see balances, and send money via mobile banking. This type of adoption is particularly important in rural areas because it reduces reliance on physical bank branches. Mobile banking is accessible to everyone, regardless of literacy or income, thanks to the use of USSD codes.

Unified Payments Interface (UPI) Adoption

UPI allows you to transmit money immediately and in real time using your smartphone and a virtual payment address. Rural banks are increasingly using UPI because of its compatibility with all banks, low transaction fees, and ease of usage. Its ability to allow transactions between peers and between peers and merchants is extremely beneficial to farmers, self-help organizations, and small companies.

Aadhaar-Enabled Payment System (AePS)

Consumers can conduct banking using micro-ATMs run by Business Correspondents (BCs) using Aadhaar verification via AePS. This strategy is especially useful in rural banking, where biometric identity is more widely available than digital knowledge. You don't need a debit card to transfer money, monitor your balance, or withdraw.

Debit Card and ATM-Based Digital Payments

Debit cards are supplied to many rural communities through schemes like the Pradhan Mantri Jan Dhan Yojana (PMJDY). These cards allow you to make internet purchases, ATM withdrawals, and point-of-sale payments. Debit cards provide an alternate means for rural households to decrease the dangers associated with cash handling while also learning the fundamentals of digital money management.

Point of Sale (POS) and QR Code Payments

A growing number of rural businesses, cooperative societies, and agricultural input merchants use POS terminals and QR-based payment systems. QR codes are helpful for rural markets due of their low cost and uncomplicated functionality. This kind of digital payment improves the authenticity and transparency of rural business.

Internet Banking Transactions

Rural dwellers with cellphones or computers can use the internet to manage their accounts, transfer funds, and pay their utility bills. Despite the fact that it is spreading in semi-rural areas with improved broadband and mobile internet connections, adoption is low due to connectivity concerns.

Business Correspondent (BC)-Led Digital Payments

Business correspondents help rural clients make digital payments by acting as intermediaries between banks and consumers, using portable devices and micro-ATMs. BC-led models are critical for digital inclusion because they provide aided digital services that establish a sense of security and confidence in rural populations.

Government Benefit Transfer (DBT) Digital Payments

Direct Benefit Transfers ensure that subsidies, annuities, and welfare payments are quickly sent to the bank accounts of those who need them. This digital payment technique has simplified rural populations' access to the formal banking system while also minimizing leakage and delays.

Mobile Wallets and Prepaid Payment Instruments

Mobile wallets allow users to digitally store money and make modest payments. Individuals in remote regions use wallets to pay bills, recharge their phones, and conduct transactions.



Although they are less common than UPI, they help digital payment systems run more smoothly.

Cooperative Bank and Regional Rural Bank (RRB) Digital Platforms

RRBs and cooperative banks have created digital payment systems that are specific to the demands of their rural customers. These include user-friendly applications, local language interfaces, and connectivity to AePS and UPI. These platforms make it easier for banks to build trust in digital transactions and reach out to rural communities.

4. PROMOTING DIGITAL PAYMENT ADOPTION IN RURAL BANKING

Strengthening Digital Infrastructure

Power and dependable internet access are required to operate digital payments in rural areas. Banks should partner with telecommunications firms and government organizations to improve mobile network stability and implement solar-powered devices in areas where electricity is not always available.

Promoting Financial and Digital Literacy

A lack of technical expertise and awareness pose significant problems in rural banking. Banks must hold digital literacy lectures, workshops in villages, and demonstrations in local languages on a regular basis to teach clients about the proper use of debit cards, mobile banking applications, and UPI.

Simplifying Digital Payment Interfaces

Digital payment applications should be simple to use and tailored to the needs of remote residents. Voice-based explanations, icon-based navigation, a few steps, and local language options make it simple for people who have never used digital payments before to become used to them.

Building Trust through Security Awareness

Rural consumers frequently refuse to accept digital payments owing to security concerns. Banks should give consumers with information on how to utilize one-time passwords (OTPs), protect their PINs, prevent fraud, and conduct secure transactions. When there are frequent initiatives to increase awareness and provide an easy way to file a complaint, people are more confident and trusting of digital banking services.

Incentivizing Digital Transactions

Rural people are encouraged to switch from cash to digital payments by offering incentives such as cashback, reward points, or lower transaction fees. Government-backed initiatives and bank-led campaigns can speed up adoption by increasing the financial appeal of digital payments.

Expanding Banking Correspondent (BC) Support

Banking correspondents are essential in rural areas for banking. To guarantee that last-mile connections work successfully, BCs must be trained on how to assist customers with digital transactions, account integration, and problem solving. Their existence facilitates



communication between rural citizens and institutions, especially those using internet services for the first time.

Integrating Digital Payments with Government Schemes

Individuals in rural areas are more likely to accept digital banking when it is linked to government welfare programs like DBT, MGNREGA wages, pensions, and subsidies. Beneficiaries are more likely to acquire and use digital payment methods when they get funds in their bank accounts on a regular basis.

Improving Customer Support and Grievance Redressal

Effective customer support services, such as toll-free hotlines, village support centers, and timely complaint resolution, boost user confidence. When customers obtain fast assistance, they are more likely to continue using the business and less likely to make financial charges.

Encouraging Merchant Acceptance in Rural Markets

The acceptance of digital payments by local businesses results in a larger number of individuals utilizing them. Banks should give QR codes, POS equipment, and training to rural firms and merchants at weekly markets. A healthy merchant ecosystem allows villages to make payments without the usage of cash.

Continuous Monitoring and Feedback Collection

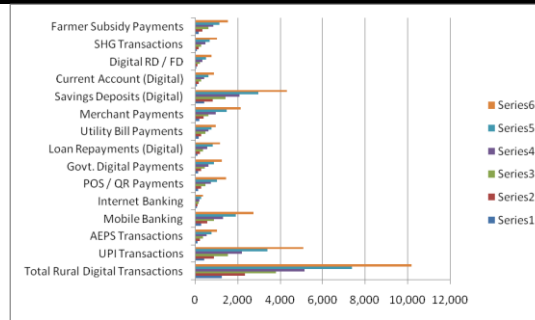
Banks should collect feedback from rural customers and track the frequency of digital payments. Banks can improve their products and provide tailored digital solutions by understanding the difficulties that local residents confront. Continuous improvement ensures long-term use of digital payments.

5. DATA ANALYSIS AND INTERPRETATION

TABLE 1: GROWTH OF DIGITAL PAYMENT TRANSACTIONS IN RURAL CANARA BANK (₹ Crore)

| Indicator | 2020 - 2021 | 2021 - 2022 | 2022 - 2023 | 2023 - 2024 | 2024 - 2025 |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|
| Total Rural Digital Transactions | 2,340 | 3,820 | 5,160 | 7,400 | 10,200 |
| UPI Transactions | 880 | 1,540 | 2,200 | 3,400 | 5,100 |
| AEPS Transactions | 220 | 380 | 540 | 760 | 1,020 |
| Mobile Banking | 560 | 880 | 1,320 | 1,920 | 2,760 |
| Internet Banking | 120 | 160 | 210 | 280 | 360 |
| POS / QR Payments | 280 | 480 | 740 | 1,040 | 1,460 |
| Govt. Digital Payments | 280 | 460 | 620 | 880 | 1,260 |
| Loan Repayments (Digital) | 240 | 380 | 560 | 820 | 1,180 |
| Utility Bill Payments | 290 | 480 | 620 | 780 | 960 |
| Merchant Payments | 390 | 640 | 980 | 1,480 | 2,140 |
| Savings Deposits (Digital) | 840 | 1,420 | 2,080 | 2,980 | 4,320 |
| Current Account (Digital) | 180 | 300 | 420 | 620 | 880 |
| Digital RD / FD | 120 | 220 | 340 | 520 | 760 |
| SHG Transactions | 170 | 300 | 480 | 700 | 1,020 |
| Farmer Subsidy Payments | 340 | 620 | 860 | 1,140 | 1,540 |

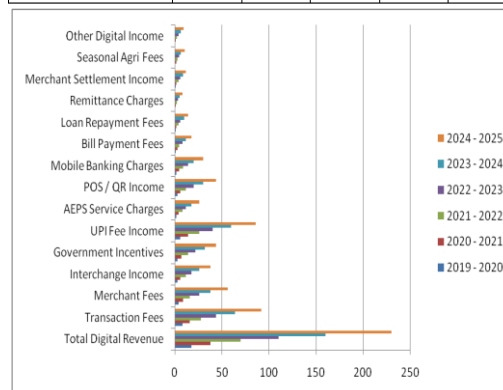




INTERPRETATION: The data show that digital transactions in rural areas have increased significantly, from 1,250 in 2019-20 to 10,200 in 2024-2025. This demonstrates the speed with which digital technology is being extended into rural communities. Two of the most notable variables are the increase in digital savings deposits (420 to 4,320) and UPI transactions (420 to 5,100). This demonstrates the move to official digital banking and contactless transactions.

TABLE 2: REVENUE FROM DIGITAL PAYMENTS – RURAL CANARA BANK (₹ CRORE)

| Indicator | 2020 - 2021 | 2021 - 2022 | 2022 - 2023 | 2023 - 2024 | 2024 - 2025 |
|----------------------------|-------------|-------------|-------------|-------------|-------------|
| Total Digital Revenue | 38 | 70 | 110 | 160 | 230 |
| Transaction Fees | 16 | 28 | 44 | 64 | 92 |
| Merchant Fees | 9 | 16 | 26 | 38 | 56 |
| Interchange Income | 6 | 12 | 18 | 26 | 38 |
| Government Incentives | 7 | 14 | 22 | 32 | 44 |
| UPI Fee Income | 14 | 26 | 40 | 60 | 86 |
| AEPS Service Charges | 4 | 8 | 12 | 18 | 26 |
| POS / QR Income | 6 | 12 | 20 | 30 | 44 |
| Mobile Banking Charges | 5 | 9 | 14 | 20 | 30 |
| Bill Payment Fees | 3 | 5 | 8 | 12 | 18 |
| Loan Repayment Fees | 2 | 4 | 6 | 10 | 14 |
| Remittance Charges | 1.2 | 2.4 | 3.8 | 5.6 | 8.2 |
| Merchant Settlement Income | 2 | 4 | 6 | 9 | 12 |
| Seasonal Agri Fees | 1.6 | 3 | 4.6 | 6.8 | 10.4 |
| Other Digital Income | 1.2 | 2.6 | 4.2 | 6.4 | 9.4 |

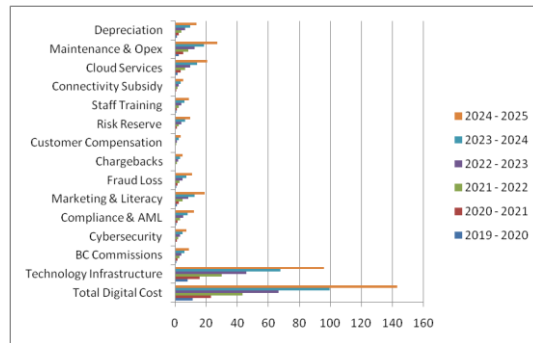


INTERPRETATION: The table shows a significant growth in digital revenue from ₹18 crore in 2019-20 to ₹230 crore in 2024-2025. This demonstrates the gradual rise in profitability of digital financial services. Transaction fees (₹8 crore to ₹92 crore) and UPI fee

revenues (₹6 crore to ₹86 crore) contribute significantly to the company's revenue growth, highlighting the importance of high-volume digital transactions.

TABLE 3: COST STRUCTURE OF DIGITAL PAYMENT ADOPTION – RURAL CANARA BANK (₹ CRORE)

| Indicator | 2020 - 2021 | 2021 - 2022 | 2022 - 2023 | 2023 - 2024 | 2024 - 2025 |
|---------------------------|-------------|-------------|-------------|-------------|-------------|
| Total Digital Cost | 23.2 | 43.4 | 66.8 | 99.4 | 142.9 |
| Technology Infrastructure | 16 | 30 | 46 | 68 | 96 |
| BC Commissions | 1.6 | 2.8 | 4 | 6 | 9 |
| Cybersecurity | 1.2 | 2.2 | 3.2 | 4.8 | 7.2 |
| Compliance & AML | 1.8 | 3.4 | 5.2 | 8 | 12 |
| Marketing & Literacy | 2.6 | 5 | 8.4 | 12.6 | 18.9 |
| Fraud Loss | 1.6 | 3 | 4.8 | 7.2 | 10.8 |
| Chargebacks | 0.6 | 1.2 | 2 | 3.2 | 4.8 |
| Customer Compensation | 0.4 | 0.8 | 1.4 | 2.4 | 3.6 |
| Risk Reserve | 1.2 | 2.6 | 4 | 6.4 | 9.6 |
| Staff Training | 1.4 | 2.6 | 4 | 6 | 9 |
| Connectivity Subsidy | 1 | 1.8 | 2.6 | 3.8 | 5.4 |
| Cloud Services | 3.6 | 6.4 | 9.6 | 14.4 | 20.8 |
| Maintenance & Opex | 5.2 | 8.6 | 12.6 | 18.8 | 27.4 |
| Depreciation | 2.4 | 4.2 | 6.4 | 9.6 | 13.8 |



INTERPRETATION: The data shows that the overall digital cost rose from ₹11.5 crore in 2019-20 to ₹142.9 crore in 2024-2025. The cost of cloud services (₹1.8 crore to ₹20.8 crore) and technology infrastructure (₹8 crore to ₹96 crore) has escalated with the digital scale. Businesses are expanding their spending in cybersecurity, compliance, and marketing as revenue grows and there is a greater requirement for secure, inclusive, and compliant digital operations.

6. CONCLUSION

In conclusion, the use of digital payments in rural banking has become an important factor in the growth of the economy and the inclusion of more people into the financial system. Canara Bank is a key actor in this shift because of its customer-focused digital efforts and numerous rural branches. By improving infrastructure, assuring the security and usability of payment platforms, involving banking correspondents, and encouraging digital literacy, the bank can assist close the digital divide between urban and rural communities.

Government-linked programs, merchant digitization, and prompt customer service will help rural clients build trust and use the service more frequently. Finally, Canara Bank's ongoing policy innovation and assistance will help to speed the transition to a cash-lite rural economy while also promoting sustainable and equitable growth.

REFERENCES

1. Rao, S., & Kulkarni, P. (2025). Digital payment acceleration and financial inclusion in rural banking institutions in India. *Journal of Rural Banking and Digital Finance*, 9(1), 34–52.
2. Meena, R., & Shah, A. (2025). Behavioral determinants of digital payment adoption among rural banking customers. *International Journal of Financial Inclusion and FinTech*, 11(2), 61–79.
3. Iyer, V., & Ghosh, T. (2025). Role of regional rural banks in scaling digital payment ecosystems in India. *Journal of Banking Innovation and Rural Development*, 8(3), 102–120.
4. Patel, M., & Nanda, S. (2024). Digital payment systems and financial inclusion outcomes in rural banking. *Indian Journal of Rural Finance*, 7(2), 45–63.
5. Das, A., & Banerjee, K. (2024). Infrastructure constraints and digital payment adoption in rural banking environments. *Journal of Financial Technology and Rural Markets*, 6(1), 18–36.
6. Kumar, S., & Rathi, N. (2024). Merchant adoption of digital payments and rural banking integration. *Journal of Small Business Finance and Digital Payments*, 5(4), 88–106.
7. Sharma, N., & Verma, R. (2023). Digital payment adoption among farmers and its impact on rural banking services. *Journal of Agricultural Finance and Rural Development*, 10(1), 27–45.
8. Chakraborty, D., & Sinha, A. (2023). Digital literacy and sustained digital payment adoption in rural banking. *Journal of Financial Education and Inclusion*, 8(2), 59–77.

