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Impact of Digital Payments on Financial Inclusion in India

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Abstract:
Digital payments have emerged as an important mechanism for deepening financial inclusion in India by reducing transaction costs, improving access to government transfers and enabling customers to use formal bank accounts more regularly. This study examines the relationship between the expansion of digital payments and financial inclusion through descriptive and trend analysis of secondary data obtained from official sources. Retail digital-payment transactions increased from 162 crore in 2012–13 to more than 16,416 crores in 2023–24, representing an approximately hundredfold increase over twelve years. The Reserve Bank of India Digital Payments Index rose from its March 2018 base value of 100 to 516.76 in September 2025. Financial access expanded alongside this growth: as of 7 October 2026, the Pradhan Mantri Jan-Dhan Yojana covered 59.54 crore beneficiaries, including 46.24 crore beneficiaries at rural and semi-urban centers and 33.20 crore women beneficiaries. Deposits amounted to ₹3.21 lakh crore, while 41.75 crore RuPay cards had been issued. The findings show that digital-payment expansion has coincided with wider account access and greater opportunities for active participation in the formal financial system. However, descriptive evidence does not by itself establish causality. Unequal connectivity limited digital literacy, cyber fraud, failed transactions and inadequate grievance redressal continue to restrict inclusive usage. Digital payments can support meaningful financial inclusion only when payment infrastructure is complemented by assisted banking, consumer protection, financial literacy and access to savings, credit, insurance and pension services.

Keywords — Digital payments, financial inclusion, UPI, PMJDY, rural finance, RuPay, financial literacy, India.

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I. INTRODUCTION

Financial inclusion refers to the affordable availability and effective use of appropriate financial products and services, including transaction accounts, savings, credit, insurance, pensions and remittances. India's policy approach has gradually moved from expanding basic account ownership to encouraging regular and productive usage. PMJDY, Aadhaar-enabled authentication, mobile connectivity and interoperable payment systems have together created a platform through which low-income households can enter and use the formal financial system [1], [2].

Digital payments may bridge the gap between account access and account usage. UPI, the Aadhaar Enabled Payment System, RuPay cards, mobile banking, the Bharat Bill Payment System and Business Correspondent channels allow customers to transact beyond conventional branch premises. The RBI Digital Payments Index increased from 100 in March 2018 to 516.76 in September 2025, signalling substantial progress in payment enablers and payment performance [3].

The central research issue is whether this expansion has produced deeper and more equitable financial inclusion or has primarily increased convenience for users who were already financially connected. This paper examines the available evidence, focusing on rural households, women, small farmers, informal workers and micro-enterprises.

II. PROBLEM STATEMENT AND RESEARCH GAP

India has achieved extensive bank-account coverage and rapid digital-payment growth. Yet transaction volume and account ownership do not necessarily establish meaningful inclusion. An account is developmentally useful when it supports regular payments, savings, responsible credit, insurance, pension participation and financial resilience. State-

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level and household-level differences in connectivity, device ownership, literacy, consumer protection and access to cash-in and cash-out points may cause unequal outcomes.

Much of the existing discussion treats account ownership or aggregate digital transactions as sufficient evidence of inclusion. Fewer studies distinguish basic access from effective usage or examine how assisted channels, grievance redressal and gender control over mobile devices affect outcomes. The present study addresses this gap through a multidimensional interpretation of inclusion and a cautious assessment of descriptive evidence.

III. OBJECTIVES OF THE STUDY

- To examine the growth pattern of digital payments and major financial-inclusion indicators in India.
- To assess whether digital-payment expansion has coincided with greater usage of formal accounts and services.
- To examine the rural, gender and institutional dimensions of digital financial inclusion.
- To identify barriers that limit safe and sustained digital-payment usage.
- To suggest policy measures for improving the developmental impact of digital payments.

IV. RESEARCH QUESTIONS

- Has digital-payment expansion been accompanied by wider access to and usage of formal financial services?
- Through which channels can digital payments deepen financial inclusion?
- What barriers prevent rural households, women and micro-enterprises from obtaining equal benefits?
- What roles can Government, RBI, NABARD, banks and rural institutions play in closing these gaps?

V. REVIEW OF LITERATURE

A. Access, Usage and Quality

Financial inclusion is multidimensional. Access indicators measure the availability of accounts and service points, while usage indicators capture the frequency and depth of interaction with financial products. Quality includes affordability, reliability, suitability, safety and grievance resolution. A rise in account numbers without corresponding use may therefore overstate inclusion.

B. Digital Payments and Transaction Costs

Digital payments can lower the monetary and time costs of travel, queueing, remittances and merchant transactions. Interoperability and QR-based acceptance reduce entry costs for small merchants. Digital government payments may also improve speed and traceability, provided beneficiaries can retrieve or use funds locally without unauthorised charges.

C. Account Usage and Wider Financial Services

Receipt of wages, remittances and benefits can convert a dormant account into a transaction account. Repeated use may create records of cash flows that support formal savings and credit assessment. However, a digital footprint must be used transparently and with informed consent; customers with irregular or limited histories should not be mechanically excluded.

D. Rural and Gender Dimensions

Assisted channels such as AePS and Business Correspondents are especially relevant where smartphone ownership, connectivity or digital capability is limited. Women may possess bank accounts but lack independent access to a handset, registered mobile number or account credentials. Effective inclusion therefore requires control, capability and safe access in addition to ownership.

VI. CONCEPTUAL FRAMEWORK

The conceptual framework treats digital-payment adoption as an enabling factor rather than the final outcome of inclusion. Payment convenience and lower transaction costs may encourage regular account usage, which may create a formal financial history and improve access to savings, credit, insurance and pensions. This pathway is strengthened by connectivity, literacy, merchant acceptance, Business Correspondents and consumer protection, and weakened by fraud, failed transactions, poor networks and social barriers.

TABLE I
CONCEPTUAL PATHWAY FROM DIGITAL PAYMENTS TO FINANCIAL INCLUSION

Input	Transmission Channel	Inclusion Outcome
UPI, AePS, RuPay, mobile banking	Lower cost, convenience, regular account use	Savings, formal credit, insurance and pensions
Acceptance infrastructure and BC network	Local access and assisted transactions	Rural and vulnerable-group participation
Trust, literacy and grievance redressal	Safe and sustained usage	Financial resilience and autonomy

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VII. RESEARCH METHODOLOGY

A. Research Design and Period

The study adopts a descriptive and analytical design based on secondary data. The core trend analysis covers the longest comparable period available for each indicator, principally 2012–13 to 2025–26. Because the underlying indicators have different reporting frequencies and starting years, they are interpreted as parallel trends rather than as a balanced causal panel.

B. Data Sources

The study uses official data from RBI payment-system publications and the RBI-DPI series, PMJDY progress reports of the Department of Financial Services, Government of India financial-inclusion releases, NPCI payment statistics and the World Bank Global Findex framework [1]–[7]. NABARD publications and rural-institution evidence are used to interpret the institutional implications of the observed trends.

C. Analytical Approach

The analytical approach combines growth and trend comparison, institutional analysis and disaggregated interpretation of PMJDY indicators. Digital-payment indicators are treated as enabling variables, while financial inclusion is interpreted through access, usage, quality and progression to savings, credit, insurance and pension services. This separation avoids treating digital transactions simultaneously as both the explanatory factor and the inclusion outcome.

D. Analytical Limitations

The observed trends establish co-movement, not causality. Aggregate national data cannot show whether higher transaction volumes are concentrated among already active users, and state-level digital-payment data are not uniform for all years. The results should therefore be read as verified descriptive findings and policy-relevant associations.

VIII. FINDINGS AND DISCUSSION

A. Rapid Expansion of Digital Payments

RBI reports that retail digital payments increased from 162 crore transactions in 2012–13 to more than 16,416 crore in 2023–24, an approximately hundredfold increase over twelve years [4]. The RBI-DPI rose from 100 in March 2018 to 516.76 in September 2025. The increase reflects progress in payment enablers and payment performance [3]. Together, these indicators show that digital payments have moved from a supplementary channel to a central component of India's retail-payment ecosystem.

B. Expansion of Financial Access

As of 7 October 2026, PMJDY covered 59.54 crore beneficiaries. Of these, 46.24 crore were associated with rural and semi-urban centres and 33.20 crore were women. Deposits stood at ₹3,20,947.17 crore and 41.75 crore RuPay cards were issued [1]. The predominance of rural and semi-urban accounts and the large share of women beneficiaries indicate broad outreach to groups traditionally at risk of exclusion.

TABLE II
SELECTED VERIFIED INDICATORS OF DIGITAL PAYMENTS AND FINANCIAL ACCESS

Indicator	Reference Period	Reported Level
Retail digital-payment transactions	FY 2012–13	162 crore
Retail digital-payment transactions	FY 2023–24	16,416+ crore
RBI Digital Payments Index	Sep. 2025	516.76
PMJDY beneficiaries	7 Oct. 2026	59.54 crore
Rural/semi-urban PMJDY beneficiaries	7 Oct. 2026	46.24 crore
Women PMJDY beneficiaries	7 Oct. 2026	33.20 crore
PMJDY deposits	7 Oct. 2026	₹3.21 lakh crore
RuPay cards issued under PMJDY	7 Oct. 2026	41.75 crore

Source: Compiled from RBI and PMJDY official releases [1], [3], [4].

C. From Account Ownership to Account Usage

The simultaneous expansion of digital payments, PMJDY balances and card issuance is consistent with a transition from basic access to greater opportunity for account usage. Digital receipt of benefits and remittances, QR payments and assisted withdrawals can increase the practical value of an account. Nevertheless, aggregate balances and cards issued cannot establish the frequency or autonomy of use. Accordingly, the findings are interpreted as evidence of expanded opportunity for usage rather than proof of uniform or autonomous use by every beneficiary.

D. Rural Inclusion and Assisted Models

The rural and semi-urban concentration of PMJDY beneficiaries highlights the potential of digital channels to reduce distance barriers. In areas with weak connectivity or low smartphone ownership, AePS and Business Correspondents can provide assisted access. Their effectiveness depends on local

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availability, liquidity, authentication success, transparent charges and timely complaint resolution.

E. Women's Financial Inclusion

Women constitute more than half of reported PMJDY beneficiaries. Direct credit of benefits can strengthen privacy and control over resources, but ownership alone does not prove autonomy. Independent handset access, control over credentials, digital capability and accessible redressal are essential for effective use.

F. Micro-Enterprises and Formal Credit

QR payments and account-based receipts can improve record keeping for micro-enterprises and provide evidence of cash flows. Such data may support formal credit assessment where conventional financial statements are unavailable. The potential benefit must be balanced with consent, transparent decision criteria, data minimisation and human review of adverse decisions.

IX. MAJOR CHALLENGES

A. Digital Divide

Differences in connectivity, device ownership, data affordability, electricity and digital literacy affect the ability to transact independently. Shared devices and dependence on agents may reduce privacy and increase the risk of misuse.

B. Cyber Fraud and Trust

Phishing, impersonation, fraudulent links, remote-access applications and misuse of credentials can undermine confidence. First-time and low-literacy customers require simple alerts, rapid blocking options and local support.

C. Failed Transactions and Grievance Redressal

A failed or delayed small-value payment may immediately affect access to food, transport, medicine or farm inputs. Service-quality indicators, including failure rates, reversal time and complaint resolution, should therefore accompany volume-based measures.

D. Cash Dependence and Merchant Acceptance

Cash remains necessary where network reliability, local acceptance or customer confidence is limited. Inclusion policy should support voluntary and gradual digital adoption while maintaining dependable cash-in and cash-out arrangements.

E. Privacy and Algorithmic Exclusion

Transaction data may improve cash-flow assessment but can also create unfair profiling, opaque decisions or exclusion of customers with irregular digital histories. Consent and correction mechanisms are necessary safeguards.

X. ROLE OF NABARD AND RURAL FINANCIAL INSTITUTIONS

NABARD, Regional Rural Banks, Cooperative Banks, Primary Agricultural Credit Societies, Self-Help Groups, Farmer Producer Organisations and Business Correspondents can help convert payment access into wider rural financial participation. Priority areas include interoperable infrastructure, secure CBS integration, vernacular capability building, BC training, digital collection systems for value chains and monitoring of failed transactions and customer complaints.

For Gujarat, digital-payment strategies can be aligned with dairy cooperatives, PACS, SHGs, FPOs, agricultural markets and rural micro-enterprises. District-level monitoring should link connectivity, service-point density and digital-payment acceptance with deposit mobilisation, credit access and social-security participation.

XI. POLICY RECOMMENDATIONS

- Measure active usage, dormancy, deposit mobilisation, credit access, insurance and pension participation, rather than relying only on accounts opened or processed transactions.
- Expand reliable connectivity, local merchant acceptance and Business Correspondent availability in underserved villages.
- Retain assisted channels for customers without smartphones and provide accessible, multilingual complaint mechanisms.
- Deliver practical digital financial-literacy programmes covering verification, PIN protection, fraud reporting, balance checks and responsible borrowing.
- Use transaction histories for credit only with informed consent, transparent criteria and the right to correct inaccurate data.
- Develop district-level dashboards combining access, usage, service quality, fraud complaints, gender indicators and formal-credit outcomes.

XII. LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

The study relies on aggregate secondary data and cannot observe individual behaviour, informal cash transactions or control over accounts. Differences in

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indicator periods and limited state-level payment data restrict causal inference. Future work should construct a state-year panel, test fixed-effects models, examine gender and rural heterogeneity and include service-quality indicators. Further research using Gujarat district-level data could offer more granular evidence for cooperative and rural banking institutions.

XIII. CONCLUSION

The verified descriptive evidence shows a substantial expansion of both digital payments and formal financial access in India. Retail digital payments increased approximately hundredfold between 2012–13 and 2023–24, the RBI-DPI reached 516.76 in September 2025, and PMJDY covered 59.54 crore beneficiaries by 7 October 2026. These developments indicate that digital-payment infrastructure has created greater opportunities for rural households, women and small enterprises to use formal accounts.

However, the evidence does not establish that digital payments alone caused deeper inclusion. Transaction growth may coexist with inactive accounts, limited formal credit, weak insurance or pension participation, fraud risks and unequal digital capability. Digital payments should therefore be treated as an enabling mechanism, not as a complete measure of inclusion. Their developmental effect will depend on connectivity, assisted services, consumer protection, financial literacy and the ability of customers to progress from payments to savings, responsible credit, insurance and pensions.

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DATA AVAILABILITY

All data used in this study are drawn from publicly available official sources cited in the reference list.

DECLARATION OF INTEREST

The author declares no competing interest in relation to this paper.

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