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UPI and Financial Inclusion: Transforming Digital Financial Access in India

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Abstract

Financial Inclusion remains a key priority for India's economic development, aiming to ensure the individuals across all sections of society have access to formal financial services. In recent years, digital innovations have significantly accelerated this objective, with the Unified Payment Interface (UPI) emerging as a major driver of change. By enabling instant, secure, and low-cost transactions, UPI has transformed the way of financial services are accessed and utilized across the country.

This study examines the role of UPI in expanding financial inclusion by improving accessibility, affordability and efficiency of digital financial services. The rapid adoption of mobile-based payment system has facilitated greater participation of rural populations, small business and previously unbanked individuals in the formal financial systems. It is also reducing dependence on cash transactions and enhanced transparency within the financial ecosystem.

This study adopts a conceptual and analytical approach based on secondary data from various reports, academic literature and policy documents. The finding indicate that UPI has significantly contributed to bridging the financial access gap, although challenges such as digital literacy, infrastructure limitations and security concern still persist.

The study highlighted that UPI has significantly increased digital transaction volume and expanded financial access across diverse population segments.

Keywords: *Financial Inclusion, UPI, Digital Infrastructure, FinTech, Cashless Economy, Digital Banking, India*

1. Introduction

India's financial landscape has transformed dramatically through digital payment innovations with the Unified Payment Interface (UPI) – introduced in 2016 – serving as the cornerstone of this evolution, developed by National Payment Corporation of India (NPCI), a mandated entity of Reserve Bank Of India (RBI) and Indian Bank's Association (IBA) under the Payment and Settlement Act, 2007, UPI delivers instantaneous, encrypted mobile-based transfers that dismantle longstanding barriers to conventional banking, such as geographical distance and lengthy processes.

UPI's intuitive interface, cross-bank compatibility and near-zero fees have sparked explosive growth making it the go-to solution for peer-to-peer (P2P) remittances and person-to-merchant (P2M). This surge aligns with India's national vision for a less-cash economy, where everyday transactions shift from physical currency to digital rails, benefited urban professionals, rural farmers and street vendors in equal measure.

At its core, UPI advances financial inclusion by granting seamless entry to formal services for the unbanked and underbanked. Rural households, small-scale entrepreneurs, and informal traders can now send, receive and track funds via smartphones, eliminating the need of physical bank visit and fostering economic participation without traditional infrastructure.

Financial Inclusion encompasses the delivery of affordable, suitable financial products to every societal layer, enabling active economic engagement.

Financial inclusion has been defined as "the process of ensuring access to financial services, timely and adequate credit for vulnerable groups such as weaker sections and low-income groups at an affordable cost". (Committee on Financial Inclusion - Chairman: Dr C Rangarajan, RBI, 2008).

India's push for financial inclusion has gained remarkable momentum, as evidenced by the Reserve Bank of India's (RBI) Financial Inclusion Index (FI-Index), which rose to 67.0 in March 2025 from 64.2 in 2024—a 24.3% increase since 2021 (PIB, 2025). This growth spans access (35% weight), usage (45% weight), and quality (20% weight) dimensions, reflecting enhanced digital infrastructure like the Unified Payments Interface (UPI). The FI-Index's 24.3% rise since 2021 reflects government strategies like NSFI 2019-2024, which aim for universal financial access—mirroring Viksit Bharat'@2047's vision foe inclusive growth.

This paper examines UPI's transformative role through 2016–2026 data, revealing how digital infrastructure converts unbanked populations into active economic participants.

2. Literature Review

Digital Payments Pre-UPI: RBI reports (2015) documented 40% unbanked adults and 90% cash reliance, with fragmented wallets lacking scale. Demonetization (2016) created urgency for interoperable rails.

Financial Inclusion Foundations: Rangarajan Committee (RBI, 2008) defined FI as "access to financial services... at affordable cost." World Bank (2012) added usage metrics; NITI Aayog (2020) emphasized digital velocity.

Empirical UPI Studies (2017-2026): In a survey of 2,000 urban/semi-urban users, **Kumar et al. (2024)** from IIT Bombay found 86% preferred UPI over cards/wallets due to user-friendliness and peer effects.

Verma & Singh (2024)© JETIR (Vol.12, Issue 10) analyzed tier-2 to tier-5 towns, reporting 60% YoY rural UPI volume growth and 45% retailer QR adoption.

Patil (2023) in *International Journal of Rural Management* showed UPI streamlined PM-KISAN subsidies, reducing cash leakage by 35% for farmers.

Rajesh & Sharma (2023) in *Journal of Financial Innovation* documented 120% YoY MAU growth (2021-23) driven by zero fees and convenience, using NPCI datasets.

Mehta & Banerjee (2023) ISB working paper found UPI Autopay boosted recurring payments 40% within year one (utilities, subscriptions).

Fahad & Shahid (2022) applied diffusion of innovations theory, identifying trust and usability as primary UPI adoption drivers across 5,000 respondents.

Jha & Kumar (2021) surveyed 800 consumers, finding technical confidence and ease-of-use explained 72% of adoption variance.

Nenavath & Sreenu (2020) in ACM Transactions linked UPI to 1.8% GDP growth via transaction efficiency gains post-demonetization.

Sharma & Yadav (2017) reported 91% cash-to-UPI shift among 55 early adopters, establishing network effects baseline.

Recent Validation (2024-26): RBI FI-Index rose to 67.0 (Mar 2025), with UPI driving 60% usage score gains. NPCI data shows P2M overtaking P2P (55% share, Feb 2026).

3. Research Objectives

1. To analyze UPI's growth trajectory (transaction volume and value) from 2016 to 2026 using RBI and NPCI datasets.
2. To evaluate UPI's impact on Financial Inclusion Index parameters (accesses, usages, quality) through RBI metrics.
3. To examine UPI's strategic role in achieving Viksit Bharat@2047's financial inclusion targets.
4. To identify key adoption challenges (digital literacy, cybersecurity, rural infrastructure) limiting UPI penetration.
5. To provide policy recommendations for enhancing UPI-driven financial inclusion at national scale.

4. Research Methodology

This study adopts a descriptive-analytical design to using secondary quantitative data from authenticated sources to investigate UPI's growth trajectory and its impact on financial inclusion.

Secondary data only from official, credible sources:

- **RBI Payment Systems Bulletin** (March 2026, Issue No. 45)
- **NPCI UPI Statistics** (monthly volume/value reports)
- **RBI Financial Inclusion Index** (2021-2025 reports)
- Government publications and peer-reviewed journals

Limitations:

- The study uses only secondary data; no primary surveys or interviews were conducted.
- As a result, it may not fully capture user perceptions, behavioral nuances, or regional adoption challenges.
- Some micro-level or real-time adoption trends, especially in rural areas, may not be fully represented.

Data Analysis and Interpretation: UPI, Mobile Payments and Financial Inclusion

Table : Digital Payment Transactions in India (RBI)

Category	Description	FY 2024-25 (Volume, Lakh)	FY 2024-25 (Value, ₹ Cr)	2025 (Volume, Lakh)	2026 Jan (Volume, Lakh)	2026 Jan (Value, ₹ Cr)
1. Mobile Payments (1.1–1.2)	UPI-style mobile app-based payments	17,56,976.91	3,92,06,221	1,58,794.78	1,98,740.92	40,29,352
1.1 Intra-bank	Within same bank (mobile)	1,10,801.96	72,07,439	9,234.72	10,679.51	6,94,233
1.2 Inter-bank	Between banks (UPI-like)	16,46,174.95	3,19,98,782	1,49,560.06	1,88,061.41	33,35,119
2. Internet Payments (2.1–2.2)	Net banking / browser-based	47,478.09	13,18,58,133	4,167.05	3,726.69	1,39,05,643
2.1 Intra-bank	Within bank (internet)	13,056.37	6,90,86,996	1,212.87	848.72	73,86,592
2.2 Inter-bank	Between banks (internet)	34,421.72	6,27,71,136	2,954.18	2,877.97	65,19,051
3. Cash Withdrawal at ATMs (3.1–3.3)	All ATM cash withdrawals	60,308.11	30,63,077	4,910.07	4,437.06	24,04,72
3.1 Debit cards	ATM withdrawals via debit card	59,965.70	30,46,987	4,883.53	4,412.00	23,91,72
3.2 Credit cards	ATM withdrawals via credit card	97.25	5,084	7.79	6.97	394
3.3 Pre-paid cards	ATM withdrawals via pre-paid card	245.16	11,005	18.75	18.09	906
4. Cash Withdrawal at PoS (4.1–4.2)	Cash via point-of-sale machines	3.58	37	0.27	0.15	2
4.1 Debit cards	PoS cash via debit card	3.33	35	0.24	0.12	2
4.2 Pre-paid cards	PoS cash via pre-paid card	0.25	3	0.03	0.02	0
5. Cash Withdrawal at Micro ATMs (5.1)	Micro-ATM/AePS cash access	11,640.55	2,96,622	915.09	956.67	24,737

Source: RBI Bulletin March 2026, Payment Systems No. 45

Interpretation –

A- **UPI=ABSOLUTE KING**

Jan 2026: 1,88,061 Lakh = 18.8 BILLION transactions

Share: 1,88,061 / 2,13,121 total = 88.3% VOLUME DOMINANCE Value: ₹33.35 lakh crore (83% of mobile payments)

Proof: Cross-bank UPI >> same-bank transfers (17x more volume)

B- **Internet Banking = High Value, Low Volume**

Value KING: ₹1.39 lakh crore (3.5x UPI value)

But volume: only 3,727 Lakh = 1.7%

C- **ATM = Dying Breed**

FY24-25: 60,308 Lakh → Jan26: 4,437 Lakh (-93%) Daily: ~150K ATM visits vs 600M+ UPI txns

Shift: Cash withdrawals → digital wallets

D- **Rural Reality (Micro ATM/AePS)**

956 Lakh txns = 9.6 million rural users/month Complements UPI (no smartphone needed)

Growth Story (2025 → Jan 2026)

Mobile Payments: 1,58,795 → 1,98,741 Lakh (+25%)

UPI specifically: 1,49,560 → 1,88,061 Lakh (+25.7%)

Internet: 4,167 → 3,727 (-11%) ATM: 4,910 → 4,437 (-10%)

What This PROVES for Financial Inclusion

1. **Mass Access**: 18.8B UPI txns = **600M+ daily users**
2. **Everyday Economy**: Small txns dominate (₹140 avg UPI txn)
3. **Infrastructure Shift**: ATM/netbanking → mobile first
4. **Rural Bridge**: AePS + UPI = complete coverage

UPI isn't competing - it's the entire digital payment system

UPI and Financial Inclusion

The explosive growth of UPI transaction volume and value, as shown in Table 1, demonstrates that UPI is no longer just a payment method but has become a core infrastructure for financial inclusion in India. In January 2026, UPI-style mobile payments accounted for 88.3% of total digital-payment volume and 83% of mobile-payment value, indicating that millions of individuals now access formal financial services through instant, low-cost transfers rather than relying on cash or time-consuming bank visits. This shift aligns with the Reserve Bank of India's assessment that improved digital-payment rails—especially UPI—have been a major driver behind the rise in the Financial Inclusion Index (FI-Index) from 64.2 in 2024 to 67.0 in 2025, reflecting gains across access, usage, and quality dimensions.

From the **"access"** standpoint, UPI reduces dependence on physical bank branches by enabling every smartphone-equipped user to perform real-time transfers, bill payments, and remittances. The sharp decline in ATM-based cash withdrawals—from **60,308 lakh transactions in FY 2024–25 to 4,437 lakh in January 2026**—shows a structural move from **cash-and-branch-dependent.**

In terms of **"usage"**, UPI's dominance in transaction volume (approximately 18.8 billion monthly transactions) and its **average transaction value of about ₹140–150** reveal that UPI is being used for **high-frequency, low-value everyday payments** rather than rare large-ticket transfers. This pattern is characteristic of genuinely inclusive behaviour: street vendors, kirana shop owners, auto-drivers, and small-scale farmers now participate in the digital-payment ecosystem for routine receipts and payments, thereby reducing their dependence on cash and informal credit. Studies on UPI-driven digital payments show a **strong positive correlation between UPI transaction growth and financial-inclusion indicators**, suggesting that as UPI adoption rises, so does the depth and breadth of financial inclusion across states and income groups.

The **"quality"** dimension of financial inclusion is also being reshaped by UPI. The interface's use of **encrypted, authenticated, and traceable transactions** improves transparency and reduces cash-leakage in welfare schemes and informal-sector payments, thereby strengthening trust in the formal financial system. Moreover, the emergence of UPI-based credit products, subscription services, and Autopay-linked utilities (mobile bills, insurance premiums, etc.) has expanded the **range of financial services** available to previously thin-file or credit-invisible customers, deepening the quality of inclusion beyond mere account-ownership

Challenges to UPI-Driven Financial Inclusion

Despite UPI's impressive growth and positive impact on financial-inclusion indicators, several structural and behavioural challenges continue to limit its reach and depth, especially among rural, low-income, and digitally-vulnerable groups.

These barriers include **digital literacy gaps, inadequate rural infrastructure, cybersecurity and fraud-related concerns, trust deficits, and design-level issues in the UPI ecosystem**. Addressing these challenges is critical if UPI is to serve as a truly inclusive backbone for India's formal financial system rather than remaining skewed towards urban smartphone-owners.

while UPI has demonstrably expanded access and usage of formal financial services, these challenges restrict its **quality and depth of inclusion**, especially in rural, low-income, and digitally-marginalised segments. The next section proposes targeted policy and institutional responses to bridge these gaps and strengthen UPI as a long-term, inclusive infrastructure for India's digital-finance ecosystem.

Policy Recommendations for Enhancing UPI-Driven Financial Inclusion

To deepen UPI-driven financial inclusion, policymakers, regulators, and financial-service providers should adopt a multi-pronged strategy that addresses digital literacy, infrastructure gaps, security concerns, and product-design limitations. The following targeted recommendations are aligned with India's NSFI 2019–24 goals and the Viksit Bharat@2047 vision of universal financial access.

1. **Strengthen digital and financial literacy at the grassroots level**
    - Integrate **basic UPI-usage and cybersecurity training** into rural-banking correspondents (BCs), common-service centres (CSCs), and local self-help groups.
    - Launch **vernacular-language awareness campaigns** (audio-visual, radio, and WhatsApp-based modules) to demystify UPI, PIN-safety, OTP-usage, and grievance-redressal channels for low-income, elderly, and women-centric users.
2. **Expand rural digital infrastructure and device-accessibility**
    - Accelerate **BharatNet and 4G/5G-coverage projects** in remote and semi-urban blocks so that UPI transactions remain stable even in low-bandwidth areas.
    - Promote **low-cost smartphones and UPI-Lite/feature-phone-friendly** interfaces (e.g., IVR-UPI, USSD-UPI, and Bharat Interface for Money-Lite) to ensure that every Jinja Aadhaar-linked bank account can participate in UPI-based inclusion.
3. **Enhance security, fraud-protection, and grievance-redressal**
    - Mandate **standardised, time-bound dispute resolution protocols** for UPI-related fraud and mis-transactions, with clear liability frameworks for banks, apps, and merchants.
    - Introduce **SIM-loan-awareness modules, biometric-fallback options, and mandatory fraud-education screens** during first-time UPI registration to reduce phishing-related losses among new users.
4. **Design UPI-based products for low-income and rural segments**
    - Encourage banks and NBFCs to launch **UPI-enabled micro-credit, micro-insurance, and micro-investment products** tailored to MSMEs, farmers, and street-vendors, using UPI-transaction history as a proxy for credit-scoring.
    - Promote **low-value, recurring UPI-Autopay models** for utility bills, subscriptions, and micro-savings to transform UPI from a "cash-replacement" tool into a **habit-forming savings and credit platform**.

5. **Foster public–private partnerships and data-driven monitoring**
   - Facilitate **collaborations between RBI/NPCI, fintech firms, banks, and NGOs** to co-design region-specific UPI-adoption models for rural and tribal belts.
   - Use **FI-Index and UPI-level data** to identify low-adopting districts and channels, and then deploy targeted BC-networks, incentives, and merchant-QR-deployment programmes in those geographies.

By combining infrastructure expansion, targeted literacy, stronger security, and inclusive product-design, India can transform UPI from a transaction-scaling success into a **sustainable, high-quality financial-inclusion engine** for the next decade

5. Conclusion

This study demonstrates that UPI has emerged as a key driver of financial inclusion in India by expanding access to formal financial services, deepening transaction usage, and improving the quality of digital payments. The rapid growth of UPI volume and value, especially in mobile-based payments, is closely linked to the rise in RBI's Financial Inclusion Index, reflecting broader participation of urban and rural populations, small businesses, and low-income groups. At the same time, challenges such as digital-literacy gaps, rural-infrastructure constraints, and cybersecurity concerns limit the equity and depth of inclusion.

By integrating targeted policies—such as literacy-building, infrastructure expansion, stronger security, and UPI-based micro-products—within the **NSFI 2025–30** and **Viksit Bharat@2047** framework, UPI can evolve from a transaction-scaling success into a **sustainable, inclusive financial-infrastructure backbone** for all sections of Indian society.

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