

Empirical Study Of Bharat Bill Payment System (BBPS) As Another Milestone For Digital Bill Payments In India

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Abstract

The Bharat Bill Payment System (BBPS) is a system initiated by the Reserve Bank of India and overseen by the National Payments Corporation of India (NPCI), merging all fragmented systems of bill payments in India into one secure, regulated digital platform as part of the Digital India flagship initiative. This paper discusses BBPS as an emerging model for digital public infrastructure with emphasis on its regulatory framework, technological architecture, and institutional stakeholders. Drawing upon official documents and a case study from the Delhi National Capital Region (NCR), this paper evaluates the effectiveness of BBPS in terms of financial inclusion, improved service delivery, and enhanced consumer trust. The structured bill payments facilitated by BBPS are well positioned through Unified Payments Interface (UPI) and mobile wallets. It has greatly improved payment efficiency and access through agent networks and Common Service Centers (CSCs). However, awareness about it is still lacking. This study underscores BBPS's potential for mingling with novelties like UPI AutoPay, Central Bank Digital Currency (CBDC), and cross-border payments—a model of scalability for inclusive digitization in developing economies.

Keywords: BBPS, Bharat Bill Payment System, digital payments, financial inclusion, NPCI, RBI, UPI, recurring payments, Delhi NCR, fintech, India, Digital India

1. INTRODUCTION

India has undergone a phenomenal digital adaptation of financial services in the last decade. At the heart of this change is digital payment systems which have been developed not only to increase financial inclusion but also to increase the efficiency of operations. Among such systems, **Bharat Bill Payment System** falls under the category of new initiatives which aimed at fixing a broken ecosystem for bill payments. BBPS was launched in 2016 by **National Payments Corporation of India** and is operated as a centralized platform for bill payments, bringing on board different stakeholders- banks and non-bank entities, utility providers, and consumers. It aims to offer interoperable accessible and secure bill payment services through both physical and digital channels. With increased uptake of technology by citizens, BBPS holds an important place in cashless India with financial inclusion.

2. Evolution of Digital Payments and the Need for BBPS

Prior to the introduction of BBPS, there was lack of standardization or interoperability in India's ecosystem for bill payments. The consumer had to go to different places for different billers, so payments were delayed and more costly with added errors.

A report by the Reserve Bank of India stated that as of 2014, the utility payment segment of the Indian market was largely unorganized since over 70% of all utility payments were made in cash. Even though digital innovations have already played a UPI and IMPS into changing consumer behaviour regarding payments, an end-to-end solution for recurring bill payments was not addressed. BBPS came into being under the Payment System Vision 2012-15 of the Reserve Bank of India to address these structural deficiencies. It aimed to bring together bill payments on a single platform for utility payments, DTH service payments, educational fees, taxes, and so many other categories.

3. Growth and Adoption Statistics

Bharat Bill Payment System was launched in 2017. Since then, it has witnessed exponential growth both in terms of value and volume of transactions:

- In FY 2018-19, BBPS processed 9.2 crore transactions were processed aggregating ₹6,286 crores
- By FY 2022-23, the volume of transactions crossed 1.3 billion and value crossed ₹2.3 lakh crores. (NPCI, 2023).

- The average **monthly transaction volume in 2024** was recorded to be over 200 million.
- Biller Onboarding crossed **25,000 plus 20+ categories** of recurring payments.

Mandated by the government also helped fast adoption of BBPS through Telecom, Electricity & Municipal.

4. Architecture and Key Stakeholders

The BBPS runs within a tiered-run structure and these are its components:

- **BBPCU (Bharat Bill Payment Central Unit):** This is the unit controlled by the National Payments Corporation of India (NPCI) which has the mandate to evolve operational, technical & business standards.

- **BBPOUs (Operating Units):** These are the entities responsible for onboarding billers as well as customers aggregators in the system.

- **Biller Banks and Agent Companies:** This group covers billers who get payments and front-end collection firms—like banks, banking outlets, digital apps, and physical agents.

The platform supports both online and offline ways to pay; internet banking, Unified Payments Interface (UPI), debit and credit cards, Aadhaar-based payment as well. Once a transaction is done, consumers get immediate confirmation plus a standardized receipt—a process that promotes transparency and security (NPCI, 2023).

5. Objectives and Benefits of BBPS

Major objectives of the Bharat Bill Payment System (BBPS) are:

- **Standardization:** To enable a common experience across channels.
- **Interoperability:** To make sure that users can make payments to any biller on any platform.
- **Inclusivity:** To enable payment through digital as well as physical touchpoints.
- **Grievance Redressal:** To provide a structured mechanism for dispute resolution.

Key benefits comprise:

- **Ease:** Users can pay various types of bills at one place.
- **Safety:** Transactions risks are cut down due to end-to-end encryption and National Payments Corporation of India (NPCI) monitoring.
- **Effectiveness:** Faster processing speed and automated reconciliation make operations more functional.
- **Growth:** More than 200 billers plus 20,000+ agent institutions across India (NPCI, 2024).

6. BBPS and Financial Inclusion

BBPS has played a major role in improving financial inclusion, especially in rural and semi-urban areas. Allowing offline payments through business correspondents and local agents bridges the gap of who can participate in digital payments. It was seen that more than 40% of BBPS transactions happened in 2022 from Tier 3 and Tier 4 towns as per data available with the National Payments Corporation of India.

BBPS fits in with the big Digital India push and helps government schemes like the Pradhan Mantri Jan Dhan Yojana and Direct Benefit Transfers (DBT). It has also allowed micro-entrepreneurs and small shops to offer bill payment services which increases their income and improves their financial involvement. (Mehta & Jain, 2021).

7. Role During COVID-19 and Digital Surge

The COVID-19 pandemic accelerated the pace of digital technology adoption in India. Lockdowns and social distancing norms forced people to adopt digital payments more than before. The Bharat Bill Payment System saw a sharp increase in volumes going from 14.6 million transactions in April 2020 to over 33 million by April 2021 (NPCI, 2021).

By adding more billers, like for city taxes, FASTag top-ups, and school fee payments, BBPS made itself a key service. This system made sure there was no break in access to key services during the pandemic, thus helping not just with consumer ease but also with public health goals. Also, BBPS fits with the government's plan for a cashless economy thus reducing use of old payment systems. (Mehta, 2022).

8. Regulatory, Limitations and Market Challenges

Despite remarkable success, certain limitations of BBPS are:

- **Limited awareness in rural areas:** Even though agents are available, many users remain unaware of BBPS services.

- **Integration issues with local billers:** many small utilities and housing associations still use manual processes and remain out of BBPS system.
- **Digital literacy gaps:** Low adoption from the elderly and tech resistant users which remains a challenge.
- **Reliance on agent network:** Offline usage still outweighs app-based interactions, indicating scope for better digital introduction and push.
- **Technical Integration:** Many old legacy systems of billers require upgrades to comply with BBPS protocols.

9. BBPS 2.0: Future Vision

The RBI and NPCI have planned to expand BBPS beyond bill payments to include:

- **Credit card payments**
- **Subscription-based services**
- **Municipal dues and donations**
- **Recurring investment and EMI collections**

There are also proposals to integrate BBPS with cross-border remittances, making it easier for NRIs to pay utility bills for family members in India (RBI, 2022). The use of AI and analytics for predictive billing, fraud detection, and user behaviour tracking is also on the roadmap.

10. BBPS vs. Other Digital Payment Systems: A Comparative Overview

The Bharat Bill Payment System (BBPS) is a dedicated channel for routine bill settling, set up by the RBI and run by NPCI, so it sits apart from general digital payment options such as UPI, mobile wallets, or internet banking (RBI, 2021; NPCI, 2022). Whereas UPI shines in real-time peer transfers and merchant sales and wallets capture low-value everyday tasks, BBPS brings regulated, cross-network processing, live bill view, and even offline access through local agents (Mehta & Sharma, 2023). With a single complaints' hub, ties to UPI AutoPay, and future CBDC links, BBPS is already seen as an early building block of India's digital public stack (NITI Aayog, 2022). Rather than crowd out other channels, BBPS fills the gap for predictable, repeat payments, doing so in a way that is secure, open, and friendly to all users.

BBPS vs. Other Digital Payment Systems: A Comparative Overview				
Feature	BBPS	UPI	Mobile Wallets	Internet Banking
Regulation & Oversight	Strong (RBI/NPCI)	Strong (RBI/NPCI)	Medium (under PPI norms)	Strong (RBI)
Security	Two-factor authentication + BBPCU	2FA + UPI PIN	App-based PIN / biometric	Bank login, 2FA, OTP
Grievance Redressal	Centralized mechanism (via BBPOU)	Bank/NPCI-based	Platform-specific	Bank-led support
Compliance Standards	Mandatory KYC, reconciliation, SLAs	Mandatory KYC, reconciliation	Partial KYC allowed (Tier I wallets)	Full KYC
Recurring Bill Payments	✓ Comprehensive	✓ (via AutoPay, limited)	✓ (with selected billers)	✓ (bank-dependent)
Merchant Payments	✗ (Not designed for retail)	✓ P2M	✓ QR & in-app	✓ E-commerce, POS integrations
P2P Transfers	✗	✓ Instant	✓ Intra-wallet	✓ NEFT/IMPS/RTGS

Offline/Rural Accessibility	✓ Agent network, micro-ATMs	✗ Limited	✗ Mostly online	✗ Requires internet access
Bill Presentment + Receipts	✓ Real-time	✗ (Only payment, no invoice)	✓ If integrated with BBPS	✓ PDF, email (bank-dependent)
Primary Purpose	Structured bill payments	Fund transfer + bill pay	Recharge payments +	All banking services
Interoperability	Full	Full	Limited	Limited
Ideal For	Utility bills, EMIs, fees	Person-to-person payments	Quick recharges, small pay	Broad financial services

BBPS which in turn is a parallel to, not a player in the game of, existing digital payment platforms' ecosystem instead which they serve a very important role in the issue of regulated recurring bills with focus on that of inclusion, standardization and security. It's interface with other systems is a sign of a more integrated and inclusive digital payment structure which in turn is pushing India to a cashless economy. Also, at no point does it position itself against UPI or wallets instead it is a complementary system that fills in the void in India's digital payment structure in terms of large scale, regular bill payments which at the same also we see is done in a very standard and inclusive way. As digital adoption grows the convergence of BBP with UPI, wallets and banking systems will also grow which in turn will very much improve the user experience and bring India very close to that of a fully cashless society.

11. Case Study: BBPS in Delhi NCR

The Delhi National Capital Region (NCR) exhibits great digital divides at major levels of urbanization and advancements in the digital world till date, especially in semi-urban and low income areas. Till the advent of BBPS, bill payment landscape was very fragmented; one had to make a physical visit and there was no unified support system. Through integration under the leadership of Reserve Bank of India (RBI) and operational management by National Payments Corporation of India (NPCI), BBPS integrated these big utility providers BSES, Delhi Jal Board etc., facilitating bill payments through mobile applications, banking institutions and local agents. Urban users prefer app-based payment methods. Semi-urban citizens depend more on agents and Common Service Centres.

The BBPS has thus far resulted in on-time payments, lower overhead costs for the service providers, and improved customer satisfaction due to real-time receipts and very effective dispute resolution mechanisms. Multilingual applications and extensive agent networks made by fintech companies, like Paytm, helped drive adoption though with challenges remaining particularly in digital literacy and adequacy of internet infrastructure. The integration of Smart City initiatives speaks to the growing importance of BBPS in the governance of cities.

BBPS has come as a revolutionary innovation for the Delhi NCR region, not only making the process of paying utilities easier but also giving power to the residents to make secure, timely, and transparent payments. Through effective bridging of the gap between urban convenience and rural availability, BBPS has laid a base for an inclusive digital payments ecosystem. Further extension can enable NCR to act as a national example for implementing BBPS in other Tier-1 and Tier-2 cities.

CONCLUSION

The Bharat Bill Payment System (BBPS) marks a revolutionary milestone in the landscape of digital payments in India bringing technology innovation in consonance with regulatory oversight and financial inclusion objectives. Through the system, recurring bill payments have been centralized across sectors-utilities, telecommunications, education, etc.- thereby streamlining user experiences enhancing transparency and expanding access at the last mile to all socio-economic and geographic segments.

The system has access through many channels – apps on phones, Unified Payments Interface (UPI), agents, and Common Service Centers (CSCs) – which helps in reducing the differences in digital access especially in areas that lack good services like Delhi NCR. Also, BBPS makes organizations better for service providers by lowering mistakes and making how they collect money better. Even though there are problems with knowing how to use digital tools, watching agents closely and joining systems together; focused help and good rules can fix these issues.

BBPS shall be integrated with UPI AutoPay, Central Bank Digital Currency, and smart city platforms as a building block of India's maturing digital public infrastructure. As India advances towards a trillion-dollar digital economy, BBPS shall play a big role in recurring financial transactions with trust, efficiency, and inclusion.

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