UPI's Contribution to Digital Payments Expansion in India

[1]Km Sonam Varun, [2]Prof. Pratima Gupta

[1]Ph.D Research Scholar, [2]Associate Professor
[1]Department of Economics,
[1]Dr. B. R. Ambedkar University, Agra, India

Abstract: The UPI (Unified Payment Interface) method has been used for money transactions or exchange of money in India since 2016. This platform plays a major role in the growth of the Indian digital economy. After COVID-19, transactions increased regularly at the retail level in the country. It is a more sustainable platform for financial and digital inclusion and economic growth of our country. This study will explore the contribution of the Unified Payment Interface (UPI) of the digital payment system in India's ecosystem. This study is based on secondary data, such as the Reserve Bank of India (RBI) reports, websites, and journals. The study highlights that UPI transactions increased regularly between 2016 and 2026, supported by expanding QR code infrastructure and increased adoption. The main objectives of this study examine the contribution of UPI to India's digital payment growth and analyses the growth trend of UPI. According to RBI-recorded data UPI transaction volume grew by nearly 30% in 2025-26 alone, and by approximately 13,400 times over the full 2016-17 to 2025-26 period, reflecting its dominance in retail payments. This paper concludes that UPI is the backbone of India's digital payment ecosystem and plays a vital role in the economy, increase strengthen financial inclusion, market efficiency, and digital economic growth.

Keywords: UPI (Unified Payment Interface), RBI (Reserve Bank of India), Digital Payment System, QR code, financial inclusion.

1. INTRODUCTION

1.1 Background of Digital Payments in India

India's journey toward digital payments gained significant momentum post-liberalization, but the real inflection point came after the demonetization exercise of November 2016, which disrupted the cash-centric economy and accelerated demand for alternative payment methods. Before UPI, digital payments in India were fragmented, slow, and largely limited to net banking, NEFT, RTGS, and mobile wallets, each operating in silos with limited interoperability. Over the past few years, India has witnessed a historic transformation in the digital ecosystem. India has shifted from a cash–based system to a digital payment system, accelerated by increasingly affordable internet infrastructure, technology, and fintech support with the help of government inclusion programs and the emergence of innovative payment methods. Among all digital payment systems, UPI (Unified Payment Interface) has emerged as a revolutionary growth in India's financial technology landscape. UPI was launched in 2016 by the NPCI (National Payments Corporation of India). It is a very easy, instant, and interoperable method for money transactions that allows users to make money transactions directly between bank accounts using mobile apps. Earlier payment systems were complicated because they needed account details, IFSC codes, and long verification steps. India is an innovative leadership continues to change the payment landscape in the world's markets. UPI instant payment system is breaking records. A PwC report estimated that the UPI method will process a billion transactions by 2027. UPI popularity is driving dramatic growth in digital wallet value (The Global Payment Report 2024).

1.2 Emergence of UPI (Unified Payment Interface)

The UPI is an Indian instant payment system developed by NPCI in April 2016. It facilitates interbank peer – to-peer (P2P) and person-to-merchant (P2M) transactions through mobile devices by instantly transferring funds between two bank accounts using a unique UPI ID. It runs as an open-source API on top of the Immediate Payment Service (IMPS) and is regulated by the Reserve Bank of India (RBI).

1.3 Role of UPI in India

UPI (Unified Payments Interface) is a real-time and fast payment system controlled by NPCI. It is a service available 24×7. Reserve Bank of India highlighted that UPI is the largest contributor in terms of the payment transfer process. During H1 2025, UPI accounted for an 84.8% share of total payment transactions by volume. Shoeing it dominance in retail payments. This indicates that UPI has become the backbone of digital payments in India due to its convenience, interoperability, and low-cost nature. According to the RBI (Reserve Bank of India) payment system report (June 2025), India's digital payments ecosystem has grown exponentially in the last period. This ecosystem is supported by accessibility, acceptance infrastructure, and strong user adoption. UPI has played a transformational role by enabling faster, secure, and low-cost transactions and promoting a cashless economy and strengthening India's digital ecosystem. The Unified Payments Interface (UPI) has emerged as the most significant retail digital payment method in India, contributing strongly to the country's digital transformation. This study examines the contribution of UPI to India's growth and infrastructure expansion. And its share in total digital payments using secondary data from RBI payment reports and websites. The RBI report indicates that UPI accounts for the highest share of total payment transactions in terms of volume. Initially introduced on a limited scale, it has evolved into a system that processes billions of transactions daily. UPI has significantly reduced its reliance on cash, facilitated seamless micro-transactions, and enhanced financial inclusion. Moreover, it has contributed to the formalization of the economy and established global benchmarks in digital financial innovations.

1.4 Purpose and Objectives of the Study

The primary objective of this study is to examine UPI's qualitative contributions to India's economic landscape and to understand the trajectory of its international expansion. The study focuses on themes such as financial inclusion, digital empowerment of small businesses, and UPI's growing role in cross-border transactions. The digital payment is reshaping financial ecosystems worldwide, and India stands at the forefront of this transformation. The study focuses on the Unified Payments Interface, which is an instant real–time transaction platform, and its impact on digital economy adoption across the nation. Although UPI's rapid growth is widely acknowledged, there is a research gap in systematically linking empirical national data to policy outcomes, financial inclusion, and economic modernization.

1.5 Scope of the study

This study focuses on examining the remarkable development and expansion of the UPI in India and its role in transforming the country's payment system. It is limited to a descriptive analysis of UPI's role from its inception in 2016 to 2025. It analyses the evolution of UPI from its launch in 2016 to the last few years, highlighting its contribution to promoting a cashless economy, financial inclusion, and digital economic development. The scope of the research includes the analysis of UPI transaction volume and value, adoption patterns among customers and merchants, technological developments, government initiatives, and changing behaviour of DP users. According to the research, the impact of UPI on retail payments, mobile wallets, and P2P as well as P2M transitions.

2. Conceptual Framework

This conceptual framework of the UPI (Unified Payment Interface) explains how are provide features through the mixing of banks, online digital applications, consumers, and payment infrastructure. UPI plays the role of an intermediary platform that enables real-time payment transactions between accounts through a single mobile device using a Virtual Payment Address, QR codes, and bank details.

2.1 What is UPI?

UPI is a real–time, interoperable payment system that enables users to link multiple bank accounts within a single mobile device or application, and perform seamless fund transfers round-the-clock. Unlike the traditional banking system, UPI operates 24/7, including on public holidays, and requires only a Virtual Payment Address (VPA) for transactions.

2.2 How does UPI work?

UPI functions on a two-factor authentication model, where a user initiates a transaction through a UPI-enabled application such as Google Pay, PhonePe, or BHIM, enters the recipient's UPI ID, and authenticates with a PIN. The transaction is processed in real time through the IMPS backbone, eliminating the need for card numbers or bank details.

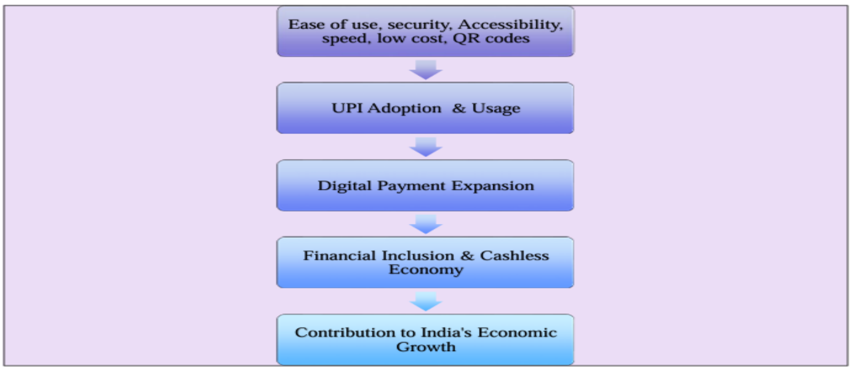
2.3 Key features of UPI

UPI's distinguishing features include instant fund transfer, interoperability across banks and apps, QR-code-based merchant payments, UPI Lite for low-value offline transactions, and the recently introduced UPI 3.0 with advanced capabilities. As of October 2024, the RBI increased the UPI transaction limit from 5,000 Rs. to 10,000 Rs. for UPI 123PAY, further broadening its usability.

2.4 UPI vs. Traditional Payment Methods

Unlike NEFT and RTGS, which operate on scheduled batches and banking hours, UPI provides instant, round-the-clock settlement. Compared to card–based payments, which require physical infrastructure and charge merchant fees, UPI is largely free, accessible via a basic smartphone, and significantly more inclusive.

Figure 2.5 Features of Unified Payment Interface (UPI)
Features of UPI



3. Global Expansion

UPI is no longer limited to India; it is regularly expanded globally and emerging as a model for real-time digital payments. Through partnerships led by NPCI International Payments Limited (NIPL), UPI has been enabled in many countries to support cross-border merchant payments, QR-based transactions, and remittances. Nations like the UAE, Singapore, Bhutan, Nepal, France, and Sri Lanka have already adopted UPI-linked services, allowing Indian travelers and NRIs to make seamless payments abroad using apps.

UPI is rapidly replacing cash after the COVID-19 pandemic. Cash was overwhelmingly the leading in-person payment process with a 71% share of POS value. By 2023, that had fallen to 18%. This move away from cash is by design of the Digital India program. Globally, QR-code-based payments have become widespread across South Asia due to their simplicity, standardization in expansive operations for merchants, and support for infrastructure from central banks. QR-code-based payment systems are cost-effective for merchants. UPI clearly expanded digital payments in India by quickly increasing its share of total retail payment volume and becoming the default rail for both peer–to–peer and merchant payments (RAI 2025) (JAIN 2025) (Kumar et al. 2022). The solid direct evidence is the time series administrative data work showing sustained volume growth from near-zero shares in 2016-17 to majority shares within a few years (JAIN 2025).

Table 3.1 Growth of UPI transactions in India (FY 2016-17 to 2025-26)

(Volume: in Lakhs, Value: in Crores)

Financial Year	Transaction Volume	Transaction Value
2016 – 17	180	6,961
2017 – 18	9,152	109,832
2018 – 19	53,915	876,971
2019 – 20	125,186	2,131,730
2020 – 21	223,307	4,103,658
2021 – 22	459,561	8,415,900
2022 – 23	837,144	13,914,932
2023 – 24	1,311,295	19,995,086
2024 – 25	1,858,660	26,056,955
2025 – 26	2,416,169	31,423,250

Source: RBI Payment Statements Report.

Interpretation of Table No. 3.1

UPI data from the previous nine years reveals the clear patterns. In 2016-17, the system was in its nascent stage with a total transaction volume of just 180 lakhs. The pace of growth accelerated steadily in each subsequent year, and by 2025-26, the figure had surpassed 24 lakhs crore transactions. This growth demonstrates how UPI evolved from merely an alternative payment method into an integral part of India's daily economic life. Transaction value figures point in the same direction, rising from Rs. 6,961 crores to over Rs. 31 lakh crores.

However, a different image emerges when focusing on the average transaction value rather than just the aggregate figures. This average has consistently declined over the time. While the average value per transaction was in the thousands during the early years, it has now come down to just a few hundred rupees. This indicating that UPI usage is no longer confined to large, formal transactions but has deeply permeated small shops, street vendors, and everyday small-value buy.
In other words, these figures tell a story not only technology adoption but also bear witness to the widening scope of financial inclusion in India.

4. UPI & Digital Payment

UPI has overall changed the way citizens in India make payments. It has transferred money faster, cheaper, and easier for both individuals and businesses. Based on Scale & Growth, UPI crossed 14 billion transactions per month (2024-25), making it one of the world's largest real-time payment systems, NPCI (2024-25), and RBI Payment System Indicators Report (2024-25). From 1 million transactions in recent months. It has expanded to billions of monthly transactions. Today, UPI contributes more than 80% of India's retail digital payments by volume. UPI is also promoting financial inclusion by bringing millions of users into the formal financial system. It allows customers to make transactions using smartphones, even in low-network areas such as 2G/3G regions. This has been more helpful for shopkeepers, street vendors, and rural populations to accept digital payments instantly without any requirements of complex banking infrastructure (RBI, 2023; NPCI, 2024). Another major impact of UPI is on the democratization of payments. It reduced dependency on plastic cards like credit and debit cards for daily transactions to a single platform. Popular applications such as BHIM, PhonePe, and Google Pay made UPI user-friendly. UPI disrupted traditional banking modes by reducing dependence on cash withdrawals, ATMs, and other methods. Its real-time 24×7 fund transfer facilities have replaced slow banking processes and increased efficiency compared to traditional systems such as NEFT. UPI has supported small businesses and MSMEs, and QR-code-based payment systems have reduced the need for costly POS machines and enabled instant payment settlements, improving cash flow for merchants. It has allowed businesses to integrate payments with the GST and accounting system. (Ministry of MSME, 2023; RBI, 2024) UPI has also supported government initiatives and policy implementation. The demonetization event of 2016 acted as a major catalyst for digital payments, boosting UPI adoption. It improved the efficiency of Direct Benefit Transfer

(DBT) and increased transparency in financial transactions, which helps in reducing black money circulation and improving tax compliance through digital payment records. (Economic Survey, 2017, RBI, 2023-24, Ministry of Finance, 2023). UPI, used mainly for P2P (Person to Person) payments, is now gaining broader acceptance. In merchant transactions, a significant change as companies is drifting away from providing incentives for P2P payments and making it more visible (Kumar et al. 2022). The growing use of UPI for peer–to–merchant transactions, even for very small payments at local shops and vendors, further underscores its role as a transformative force in India's payment system (Jain 2025). Data show exponential growth in UPI adoption, with a marked transaction form P2P to P2M transactions indicating rising commercial integration (RAI 2025).

5. Review of Previous Studies

S No.	Author(s) & Year	Title	Methods	Key Findings
1	Gopika et al. (2026)	Trends Opportunities and Challenges	ARDL error-correlation time - series Model	Internet Penetration app ecosystem growth and BHIM transaction volume significantly influenced long - run UPI growth, while POS terminals and cash circulation were negatively associated indicating substitution from legacy channels toward UPI.
2	Bagde, (2026)	Digital Payments, Financial Inclusion and Rural Development in India: Evidence from UPI Adoption	Panel regression	UPI - led digital payment expansion was significantly associated with better financial accessible and improved rural economic outcomes, extending the evidence beyond simple transaction growth.
3	Jain, (2025)	Digital Payments in India: Trends, growth analysis and prospects.	Growth and CAGR analysis	UPI share of total DP volume increased from 4.44% to 79.87%, while UPI transaction volume grew at 129.5% CAGR supporting the claim that UPI drove most of the expansion in DP usage.
4	Balasundaram, et al. (2025)	The Impact of Digital Public Infrastructure on Financial Inclusion and Economic Growth in Rural India: Evidence from the UPI Revolution	Difference - in - differences	Higher UPI adoption was associated with a 27% rise in business registrations 34% increase in informal borrowing and 29% improvement in digital credit access.
6	Mishra (2024)	Adoption and Challenges of Digital Payment System: A Study of Consumer Perception in Urban and Rural India	Review/ Analytical Study	India contributes significantly to digital payment research UPI growth is influenced by trust, adoption behaviour, and technological barriers. Further growth depends on AI and block chain technologies.

7	Gupta, S. (2024)	Revaluation of digital Payment in India		Government initiatives and internet penetration accelerated UPI adoption. UPI improves monetary inclusion especially in rural India.
8	Zehra et al. (2024)	Exploring Consumer Preferences and Behaviour Towards Digital Payment Gateways in India	Survey	Convenience, rewards and perceived security significantly influence UPI adoption and consumer preference.
9	Akilesh, K. U. et al. (2023)	A Study on Impact of Digital Payments on Consumer's Spending Behaviour with Special Reference to Coimbatore City	Empirical Study	UPI enables anytime – anywhere payments, increased consumer spending and support online and offline retail growth.
10	Baig, F. M. et al. (2023)	A Study of Digital Payment Tools and Methods in India	Analytical Study	UPI is replacing traditional payment methods; future growth depends on improving digital infrastructure and reducing technological barriers.
11	Pandey, K. S. (2022)	A Study on Digital Payments System & Consumer Perception: An Empirical Survey	Descriptive study	COVID - 19 accelerated digital payment adoption as consumers shifted from cash to contactless transactions, boosting UPI growth.
12	Kumar & Sofat (2022)	Digital Payment and consumer buying behaviour - An Empirical study on Uttarakhand, India	Empirical Survey	Awareness, availability, behavioural intention, and performance expectancy significantly influence UPI adoption and consumer buying behaviour.
13	Roopal Asati (2022)	Impact of Digital Payment Tools on Online Consumer Purchase Behaviour	Comparative study	Consumer preference shifted rapidly towards UPI due to faster transactions, convenience, ease of use, making it one of the most preferred payment methods.
14	Bhat (2021)	Digital Payment Service in India- A Case Study of Unified Payment Interface	Secondary data case study with SWOT	UPI's share of total financial transaction volume rose from 0.25% in 2016 - 17 to 47.25% in 2019 - 20 indicating that much of India's retail DP growth shifted onto the UPI rail.

6. Findings

UPI is a tool for economic empowerment and economic participation by every user previously excluded from the formal financial system for simply using banking services. In 2024, UPI processed around 172 billion transactions, marking a 46% increase from

117.64 billion in 2023. The average UPI transaction size declined from Rs.1478 in H1 2024 to Rs. 1348 in H1 2025, as UPI is used for daily, small purchases such as from tea stalls and grocery stores to online shopping. This behavioral shift reflects deep penetration of digital payments into everyday life. UPI, in 2023, around 70% of UPI users were from other places, and 80% of newly registered users originated from there. Despite noticeable growth, UPI faces challenges including cybersecurity threats and digital fraud, infrastructural gaps in remote areas with low internet, digital education deficits among elderly and rural populations and concerns over market concentration of dominant applications. These challenges require continued policy intervention and technological investment.

7. Discussion

This Journey of UPI from a pilot payment system in 2016 to the world's leading real-time payment method is a testament to India's capacity for fintech innovation at scale. Its success rests on a combination of government support, institutional backing from NPCI and RBI, widespread smartphone penetration, and reasonable internet access. UPI market is expected to grow of future of India. Which compound annual growth rate (CAGR) of 46% from 2025 to 2030. And the broader Indian fintech market is projected to surpass USD 642.9 billion by 2034. The Integration of UPI with credit lines, RuPay credit cards, and Central Bank Digital Currencies (CBDCs) is expected to further expand its function. The sustain UPI growth, policymakers should prioritize expanding digital infrastructure in rural India, enhancing cybersecurity frameworks, promoting digital education programs, and incentivizing merchant adoption in underserved regions. At the international level, India should regularly leverage UPI as a tool for digital mediation and economic collaboration.

8. Conclusion

This research paper has explored the transformative role of UPI in reshaping of India financial landscape and its growing presence on the global stage. UPI has been a powerful force for economic inclusion in India. By enabling seamless digital payment transactions through a simple way of use such as mobile interface. It brought millions of unbanked and underbanked users into the formal financial system. Its integration with government welfare schemes, Direct Benefit Transfer (DBT), Jan Dhan Yojana ecosystem ensures that financial services reached farmers, daily wage workers, street vendors, and rural households alike. For small businesses, MSMEs, and UPI's QR-code infrastructure eliminated the need for expansive card terminals and cash handling, contributing to the digital empowerment of India's smallest neighborhood shops. Its evolution from a domestic payment system to a globally recognized financial protocol marks a new chapter in India's fintech story. UPI represents India's most significant contribution to the modern financial world. This system has democratized economic participation, empowered millions, and carried India's digital revolution across borders. The story of UPI is, at its heart, the story of India's quiet but extraordinary transformation one transaction at a time.

9. References

1. Gopika et al. (2026). *Government-Led Design and Growth of India's UPI Ecosystem: A Time Series Analysis of Associated Factors.* Journal of Science and Technology Policy Management.

2. R. Bagde. (2026). *Digital Payments, Financial Inclusion and Rural Development in India: Evidence from UPI Adoption.* SSRN Electronic Journal.

3. Balasundaram et al. (2025). *The Impact of Digital Public Infrastructure on Financial Inclusion and Economic Growth in Rural India: Evidence from the UPI Revolution.* Indian Growth and Development Review.

4. Jain (Aashima Jain, 2025). *Digital Payments in India: Trends, growth analysis and prospects.* International Journal of Research in Finance and Management. 8(2)

5. Rai, A.K. (2025). *From Cash to Click: UPI's Role in shaping Digital payments in India.* Commerce Research Review 2(2).

6. Mishra, A. (2024). *Adoption and Challenges of Digital Payment System: A Study of Consumer Perception in Urban and Rural India*. Journal of Informatics Education and Research, 4(3).

7. Gupta, Sonia. (2024). *Revolution of Digital Payment in India*. Journal of Mobile Computing, Communication & Mobile Networks.

8. Zehra, F., Khan, F. S., & Singh, A. (2024). *Exploring Consumer Preferences and Behaviour Towards Digital Payment Gateways in India.* International Journal of Experimental Research and Review.

9. Akilesh, K. U., Raju, H. G. S., Karthikryan, J., Jayasubramanian, D., & Eahambaram, C. (2023). *A Study on Impact of Digital Payments on Consumer's Spending Behaviour with Special Reference to Coimbatore City.* International Journal of Research and Analytical Reviews, 10

10. Baig, F. M., Ammale, V. B., & Deshmukh, A. K. (2023). *A Study of Digital Payment Tools and Methods in India*. International Journal of Research Publications and *Reviews*, 4.

11. Pandey, K. S. (2022). *A Study on Digital Payments System & Consumer Perception: An Empirical Survey*. Journal of Positive School Psychology, 6.

12. Kumar Harish, Sofat and Rajni (2022). *Digital Payment and consumer buying behaviour - An Empirical study on Uttarakhand, India*. International Journal of Electronic Banking.

13. Roopal Asati (2022). *Impact of Digital Payment tools on online Consumer Purchase Behaviour*. In R. Asati. Delhi.

14. Mahesh A & Ganesh Bhat (2021). *Digital Payment Service in India – A Case Study of Unified Payment Interface.* International Journal of Case Studies in Business, IT and Education (IJCSBE), 5(1).

15. *Reserve Bank of India. Payment System Report, 2024*. RBI Publications. https://www.rbi.org.in

16. *National Payments Corporation of India (NPCI). UPI Ecosystem Reports, 2024 - 25.* https://www.npci.org.in

17. *India Brand Equity Foundation (IBEF). UPI Dominates Digital Payments, 2025.* https://www.ibef.org

18. *Whalesbook UPI at 10: India's Digital Payment System Transforms Economy. 2025*. https://www.whalesbook.com

19. *Business Standard. NPCI's International Arm to Take UPI Live in 4-6 New Countries. December 18, 2024*. https://www.business-standard.com

20. *Wikipedia. Unified Payments Interface.* https://en.wikipediaorg/wiki/Unified Payment Interface