



UPI and Economic Transformation of Payment Systems in India

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Abstract:

India's digital payment landscape has undergone a profound transformation with the emergence of the Unified Payments Interface (UPI) as a core digital public infrastructure. This paper examines the growth and economic significance of UPI within the context of India's evolving payment systems. Using secondary data on transaction volume, value, institutional participation, and regional distribution, the study highlights UPI's role in enhancing payment efficiency, reducing transaction costs, and promoting financial inclusion. The findings reveal sustained high growth, widespread adoption across states, and strong participation by banks and fintech platforms. The paper concludes that UPI has become a key driver of India's digital and economic integration.

Key Words: Digital Financial Services, Financial Inclusion, FinTech

Introduction:

India is witnessing a fundamental transformation in the way economic transactions are conducted. Cash and paper-based payment system are changing to digital platform. Unified Payments Interface (UPI) is a domestically developed digital payment system has redefined the country's payment architecture. UPI reflects India's broader vision of Digital Bharat and its aspiration to build a self-reliant, technology-driven economy. UPI has significantly altered the cost, speed, and accessibility of financial transactions. It has reduced transaction frictions for households, firms, and the government by enabling real-time, low-cost transfers across banks. This shift has important economic implications. Faster settlement improves liquidity management. Lower transaction costs support small businesses and informal enterprises. Increased transparency strengthens financial formalisation and tax compliance. Together, these changes contribute to a more efficient payment economy. The rise of UPI also aligns with India's evolving geo-economic position. As global supply chains diversify and digital public infrastructure gains strategic importance, India's UPI model offers an alternative framework for inclusive and scalable payment systems. Its growing international associations reflect India's increasing digital influence in the global economy. At the domestic level, UPI has empowered a young population, supporting start-ups, platform-based services, and innovation-led growth under the 'Make in India' and 'Start-up India' initiatives. From a developmental perspective, UPI has expanded access to formal financial services, particularly for small merchants and first-time users. It has bridged gaps between urban and rural markets and strengthened the delivery of government transfers. In the context of 'Viksit Bharat', UPI represents more than a technological innovation. It is an economic instrument that

supports productivity, inclusion, and structural change. The role of UPI in transforming India’s payment systems holds a huge economic significance.

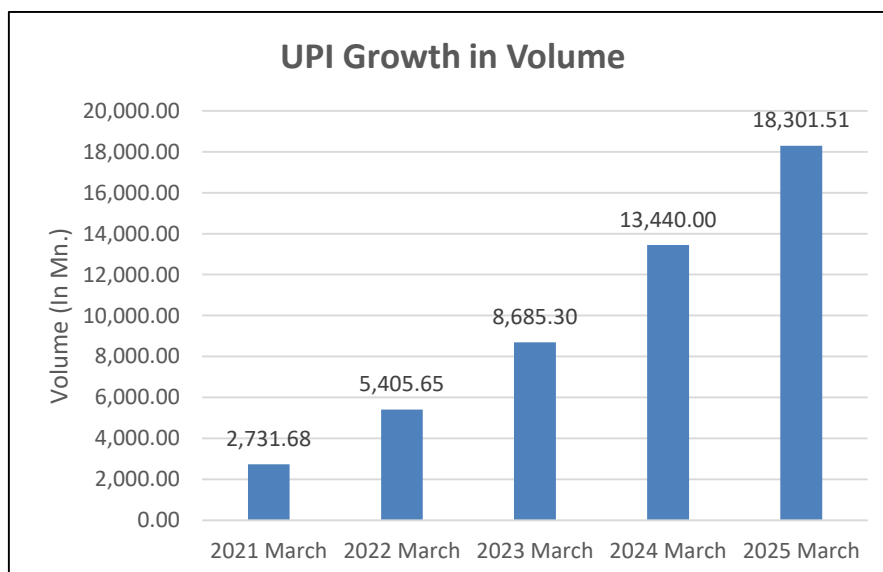
Trends and Growth Patterns of UPI in India:

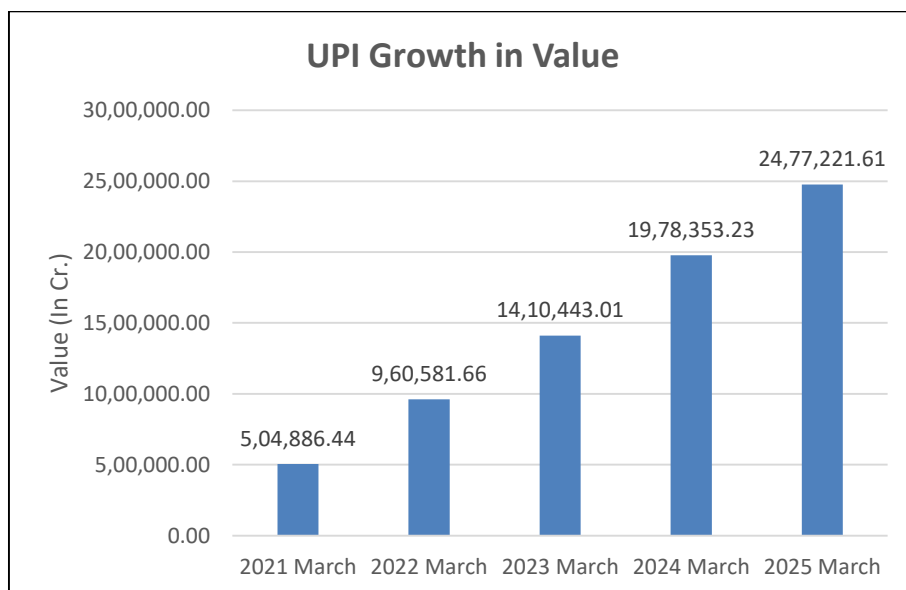
To understand the structural transformation of India’s payment systems, it is essential to examine recent empirical trends in digital transactions. Latest available data offers clear insights into the scale, adoption, and economic relevance of UPI. Also the growth of UPI is a key indicator of country’s economic and digital growth. The growth data in volume and value shows the exceptional performance of the Unified Payments Interface (UPI) in recent years. The trends in transaction volume and value over recent years are the clear indicators of structural shift in the country’s payment behaviour. UPI has evolved from a payment alternative into a dominant digital payment system. The UPI statistics in the following table provides empirical support to understand UPI’s role in reshaping transaction efficiency, market participation, and the broader digital payment ecosystem in India.

UPI Growth Statistics					
	Mar-25	Mar-24	Mar-23	Mar-22	Mar-21
No of Banks live on UPI	661	572	399	314	216
Volume (In Mn.)	18,301.51	13,440.00	8,685.30	5,405.65	2,731.68
Value (In Cr.)	24,77,221.61	19,78,353.23	14,10,443.01	9,60,581.66	5,04,886.44

Table 1: UPI Growth Statistics

Source: <https://www.npci.org.in/product/upi/product-statistics>





The data clearly indicate an exceptional and sustained growth trajectory of the Unified Payments Interface (UPI) in India over the last five years. The number of banks live on UPI increased sharply from 216 in March 2021 to 661 by March 2025, reflecting strong institutional adoption and deeper integration of UPI across the formal banking system. This expansion of participating banks has significantly extended network effects. It helped in making the UPI accessible to users across regions and income groups. Transaction volume rose more than six times, from 2,731.68 million transactions in March 2021 to 18,301.51 million transactions in March 2025, highlighting the rapid shift of households and businesses toward digital, real-time payments. In value terms, UPI transactions grew from ₹5,04,886.44 crore to ₹24,77,221.61 crore during the same period, indicating not only higher usage frequency but also increasing reliance on UPI for higher-value transactions. During March 2023 to March 2024, banks on UPI grew by 43.4 %, transaction volume increased by 54.7 %, and transaction value rose by 40.3 %, reflecting wider adoption among users and merchants. In the latest phase, March 2024 to March 2025, the number of banks increased by 15.6 %, while transaction volume and value grew by 36.2 % and 25.2 %, respectively. Although the growth rate moderated, it signals maturity and sustained expansion at scale.

This growth can be attributed to factors such as zero or low transaction costs, ease of use, interoperability across banks, strong NPCI-led infrastructure, and supportive government policies promoting Digital Bharat and financial inclusion. The rise of smartphones, fintech innovations, and the growing digital literacy among India’s young population have reinforced UPI’s role as the backbone of India’s digital payment ecosystem.

Major UPI 3rd Party Apps:

The data on major UPI third-party applications as of March 2025 reflect how deeply digital payments have become embedded in the daily lives of Indian users, particularly among the mobile-first and youth-driven population. PhonePe and Google Pay together dominate the UPI ecosystem,

accounting for the bulk of customer-initiated transactions in both volume and value. PhonePe alone processed over 8,647 million transactions worth approximately ₹12.57 lakh crore, indicating its extensive reach across urban, semi-urban, and rural markets. Google Pay followed closely with 6,596 million transactions valued at around ₹8.66 lakh crore, highlighting strong adoption among digitally active and younger users who prefer simple, app-based payment solutions. Paytm, with 1,221 million transactions worth ₹1.33 lakh crore, continues to play a significant role, particularly among merchants and users integrated into its broader digital ecosystem. BHIM, despite being the government-backed app, recorded comparatively lower usage, suggesting that private fintech platforms have been more successful in delivering user-friendly interfaces and value-added services. The dominance of these apps reflects India’s rapid mobile penetration, rising digital literacy, and the growing preference for instant, cashless transactions, especially among young consumers who are shaping the future of the country’s digital payment landscape.

Major UPI 3rd Party Apps (Mar'25)		
Application Name	Customer Initiated Transactions	
	Volume (Mn)	Value (Cr)
Phone Pe	8,647.78	12,57,075.54
Google Pay	6,596.76	8,66,568.18
Paytm	1,221.12	1,32,912.04
BHIM	158.46	20,354.57

Table 2: Major UPI 3rd Party Apps (Mar'25)

Source: <https://www.npci.org.in/product/upi/product-statistics>

Top UPI Member Banks (March 2025):

The data on top UPI member banks for March 2025 underline the central role of large public and private sector banks in sustaining India’s high-volume digital payment ecosystem. The State Bank of India (SBI) leads decisively, processing 4,560.13 million transactions with a total value of ₹6,41,401.91 crore, reflecting its vast customer base, strong rural outreach, and deep integration with government-linked digital initiatives. Among private sector players, HDFC Bank recorded 1,420.57 million transactions valued at ₹2,66,904.71 crore, indicating robust adoption among urban and digitally active users. Public sector banks such as Bank of Baroda, Union Bank of India, and Punjab National Bank together contributed significantly, each crossing 900 million transactions in volume. Their combined performance highlights the success of UPI in bringing traditional banking institutions into a technology-driven payment framework, ensuring scale, trust, and inclusiveness in India’s digital financial system.

Top Members (March 2025)			
Rank	Bank Name	Volume (Mn)	Value (Cr)
1	State Bank of India	4,560.13	6,41,401.91
2	HDFC Bank Ltd.	1,420.57	2,66,904.71
3	Bank of Baroda	1,136.76	1,48,562.72
4	Union Bank of India	1,074.48	1,38,827.30
5	Punjab National Bank	941.02	1,28,385.51

Table3: Top Members (Mar'25)

Source: <https://www.npci.org.in/product/upi/product-statistics>

State-wise UPI Product Statistics (March 2025):

State-wise UPI statistics reveal notable regional concentration as well as widening adoption across India. Maharashtra emerged as the largest contributor, accounting for 2,195.56 million transactions, representing 12.00 % of total UPI volume, with a transaction value of ₹2,54,485.23 crore or 10.27 % of total value. Karnataka followed with 1,092.86 million transactions and ₹1,52,072.42 crore in value, reflecting strong digital penetration and a vibrant start-up and technology ecosystem. Uttar Pradesh ranked third, contributing 962.13 million transactions valued at ₹1,34,045.16 crore, highlighting the rapid expansion of digital payments even in high-population and semi-urban regions. Telangana and Tamil Nadu also showed strong participation, together accounting for over 1.5 billion transactions. These figures demonstrate that while economically advanced states dominate UPI usage, large and diverse states are rapidly closing the gap, reinforcing UPI’s role as a unifying digital payment platform supporting balanced regional economic participation.

Top Participating States (Mar'25)					
Sr. No.	State	Volume (in Mn)	Volume Contribution	Value (in Cr.)	Value Contribution
1	MAHARASHTRA	2,195.56	12.00%	2,54,485.23	10.27%
2	KARNATAKA	1,092.86	5.97%	1,52,072.42	6.14%
3	UTTAR PRADESH	962.13	5.26%	1,34,045.16	5.41%
4	TELANGANA	784.35	4.29%	1,24,966.41	5.04%
5	TAMIL NADU	730.26	3.99%	1,11,554.31	4.50%

Table 4: Top Participating States (Mar'25)

Source: <https://www.npci.org.in/product/upi/product-statistics>

Key Practical Challenges in the Adoption and Sustainability of UPI in India:

Despite its rapid adoption and transformative impact on India’s payment landscape, the Unified Payments Interface (UPI) faces several practical challenges that affect its efficiency and user experience. One major concern is the heavy dependence on stable internet connectivity, particularly in rural and remote areas, which often leads to intermittent transaction failures and user frustration. India’s digital infrastructure varies widely across regions, and weak connectivity remains a barrier to seamless UPI usage, especially for first-time and low-income users. Another significant issue relates to the sustainability of the zero MDR (Merchant Discount Rate) policy. Although UPI’s no-fee structure has driven widespread acceptance, charging no transaction fee can strain revenue models for banks and payment service providers, potentially limiting investments in backend infrastructure and security enhancements. According to industry analyses, recent changes have introduced interchange fees for certain high-value transactions, highlighting the complexity of balancing merchant incentives with ecosystem sustainability. Additionally, the increasing volume of digital payments has raised security and fraud concerns, prompting regulators to explore enhanced authentication methods and risk-based checks in forthcoming guidelines to strengthen protection against misuse and cyber threats. Overall, addressing issues such as connectivity gaps, revenue models, and security frameworks will be crucial for UPI to sustain inclusive and resilient growth.

Conclusion:

The study demonstrates that UPI has fundamentally reshaped India’s payment ecosystem by enabling fast, low-cost, and interoperable digital transactions at an unprecedented scale. The consistent growth in transaction volumes, values, bank participation, and regional penetration reflects UPI’s acceptance across diverse socio-economic groups. UPI has strengthened financial

inclusion, and reinforced India's Digital Public Infrastructure framework. However, issues related to infrastructure capacity, transaction reliability, cyber-security, and ecosystem sustainability require continued policy attention. UPI stands as a transformative economic instrument that aligns with India's long-term vision of a digitally empowered and inclusive economy.

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