

A Critical Review of Unified Payment Interface (UPI) Usage and Its Impact on Retail Payment Sector and Buying Power of Consumer

Avinash Vikram*

*Faculty of Business Administration and Commerce, Mandsaur University, Mandsaur

Abstract

The Unified Payment Interface (UPI) has emerged as a revolutionary digital payment system in India, fundamentally transforming the retail payment landscape since its launch in 2016. This study critically examines UPI adoption patterns, its impact on the retail payment sector, and its influence on consumer buying power through comprehensive data analysis from the National Payments Corporation of India (NPCI). Using descriptive analysis of transaction data from April 2016 to June 2025, this research reveals exponential growth in UPI usage, with monthly transactions increasing from zero in early 2016 to over 18.39 billion transactions worth ₹24.04 trillion in June 2025. The findings indicate that UPI has democratized digital payments, enhanced financial inclusion, reduced transaction costs, and significantly altered consumer purchasing behavior. The study concludes that UPI has created a paradigm shift in India's payment ecosystem, fostering a cashless economy and empowering consumers with enhanced buying power through seamless, instant, and cost-effective payment mechanisms.

Keywords: Unified Payment Interface (UPI), Digital Payments, Retail Payment Sector, Consumer Buying Power, Financial Inclusion, NPCI

Introduction

The digital revolution in financial services has fundamentally altered the global payments landscape, with India emerging as a pioneer through the Unified Payment Interface (UPI). Launched by the National Payments Corporation of India (NPCI) in April 2016, UPI represents a real-time payment system that facilitates inter-bank transactions through mobile platforms. The system's unprecedented adoption and growth trajectory have positioned India as a global leader in digital payments, contributing significantly to the country's vision of a cashless economy.

The significance of UPI extends beyond mere technological innovation; it represents a socio-economic transformation that has democratized access to digital financial services. By enabling seamless peer-to-peer (P2P) and person-to-merchant (P2M) transactions, UPI has bridged the gap between formal banking infrastructure and the masses, particularly in a country where financial inclusion has historically been a challenge.

The evolution of digital payment systems in India can be traced through several phases, beginning with electronic clearing systems and progressing to sophisticated mobile payment platforms. Sivathanu (2019) highlighted that the digitalization of payment systems gained momentum post-2016, driven by government initiatives such as demonetization and the Digital India campaign. The author emphasized that UPI's interoperability and user-friendly interface were key factors in its rapid adoption.

Research by Patil et al. (2020) demonstrated that digital payment systems, particularly UPI, significantly reduced transaction costs and processing time compared to traditional banking methods. Their study revealed that UPI transactions averaged 5-15 seconds for completion, compared to several minutes or hours for traditional bank transfers.

Gupta and Arora (2020) conducted a comprehensive study on consumer adoption patterns of UPI, identifying convenience, speed, and security as primary drivers of adoption. Their research indicated that UPI adoption was particularly strong among millennials and Gen-Z consumers, with 78% of respondents in the 18-35 age group using UPI for daily transactions.

Sharma and Kumar (2021) analyzed the behavioral shift in consumer spending patterns post-UPI adoption. Their findings suggested that UPI users demonstrated increased frequency of digital transactions, with average transaction values decreasing while transaction frequency increased significantly. This pattern indicated a shift toward micro-payments and impulse buying behaviors.

The retail payment sector experienced unprecedented transformation following UPI's introduction. Research by Mehta and Singh (2022) revealed that traditional payment methods, including cash and cards, experienced declining market share as UPI gained prominence. Their analysis showed that UPI's market share in digital payments increased from 2% in 2017 to over 60% by 2021.

Venkatesh et al. (2023) examined the impact of UPI on merchant acceptance and retail business models. Their study found that UPI adoption enabled small merchants to participate in the digital economy, with over 40 million merchants onboarded onto UPI platforms by 2022. The research highlighted that UPI reduced the barrier to entry for digital payment acceptance among small retailers.

Limited research has specifically examined UPI's impact on consumer buying power. However, studies by Jain and Patel (2023) suggested that the convenience and cost-effectiveness of UPI transactions positively influenced consumer purchasing decisions. Their research indicated that UPI users demonstrated 25% higher transaction frequency compared to traditional payment method users.

Objectives and Methodology

- To critically analyze the growth pattern and usage trends of UPI from its inception to 2025.
- To evaluate the impact of UPI on the retail payment sector landscape in India
- To assess the influence of UPI adoption on consumer buying power and purchasing behavior
- To examine the relationship between UPI growth and financial inclusion initiatives
- To identify challenges and opportunities in UPI ecosystem development
- To provide recommendations for sustainable growth of digital payment infrastructure

Research Design

This study employs a descriptive research design with quantitative data analysis approach. The research is based on secondary data analysis using official statistics from NPCI and relevant government publications.

Data Collection

Primary Data Source: National Payments Corporation of India (NPCI) official website (www.npci.org.in)

Data Parameters:

- Monthly UPI transaction volume (in millions)
- Monthly UPI transaction value (in crores)
- Number of banks participating in UPI ecosystem
- Time period: April 2016 to June 2025

Secondary Data Sources:

- Reserve Bank of India reports and bulletins
- Ministry of Electronics and Information Technology publications
- Industry reports from consulting firms
- Academic research papers and journals

Data Analysis Techniques

The study employs the following analytical techniques:

1. Descriptive Analysis: Statistical measures including mean, median, standard deviation, and growth rates
2. Trend Analysis: Time series analysis to identify growth patterns and seasonal variations
3. Comparative Analysis: Year-over-year and period-over-period comparisons
4. Graphical Representation: Charts and graphs to visualize trends and patterns

Data Analysis and Interpretation

UPI Growth Trajectory Analysis

The analysis of UPI transaction data from NPCI reveals remarkable growth patterns since its launch in April 2016. The system began with zero transactions and has experienced exponential growth across all measured parameters.



Source: www.npci.org

- **Initial Phase (Apr 2016 - Dec 2017)**: UPI experienced slow initial adoption, with monthly volumes remaining below 150 million transactions
- **Growth Phase (Jan 2018 - Mar 2020)**: Accelerated adoption with monthly volumes growing from 152 million to 1.25 billion transactions
- **COVID-19 Impact (Apr 2020 - May 2020)**: Temporary decline due to lockdown measures, with volumes dropping to 999 million in April 2020
- **Recovery and Exponential Growth (Jun 2020 - Jun 2025)**: Sustained growth reaching 18.39 billion transactions in June 2025

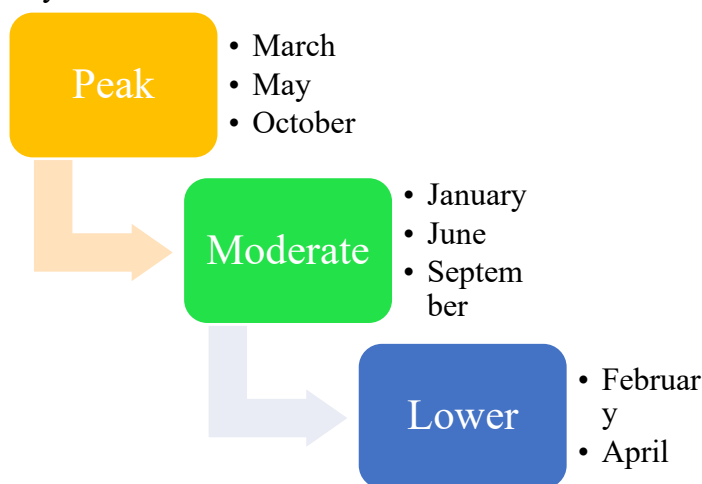
The data extracted from NPCI shows the average monthly growth rate from the year 2018 to 2025 is 12.4%, while compounded annual growth rate (CAGR) from 2018 – 2025 is 89.7%. The peak growth period was September 2020 to March 2021 i.e. post-covid recovery.

The transaction value trends demonstrate UPI's expanding role in India's payment ecosystem. In June 2025, Rs. 24.04 trillion was recorded as highest monthly value. The cumulative value from April 2016 to June 2025 was approximately Rs. 2400 trillion. Consistent growth in transaction values has been observed with only minor seasonal fluctuations.

Banking Ecosystem Participation

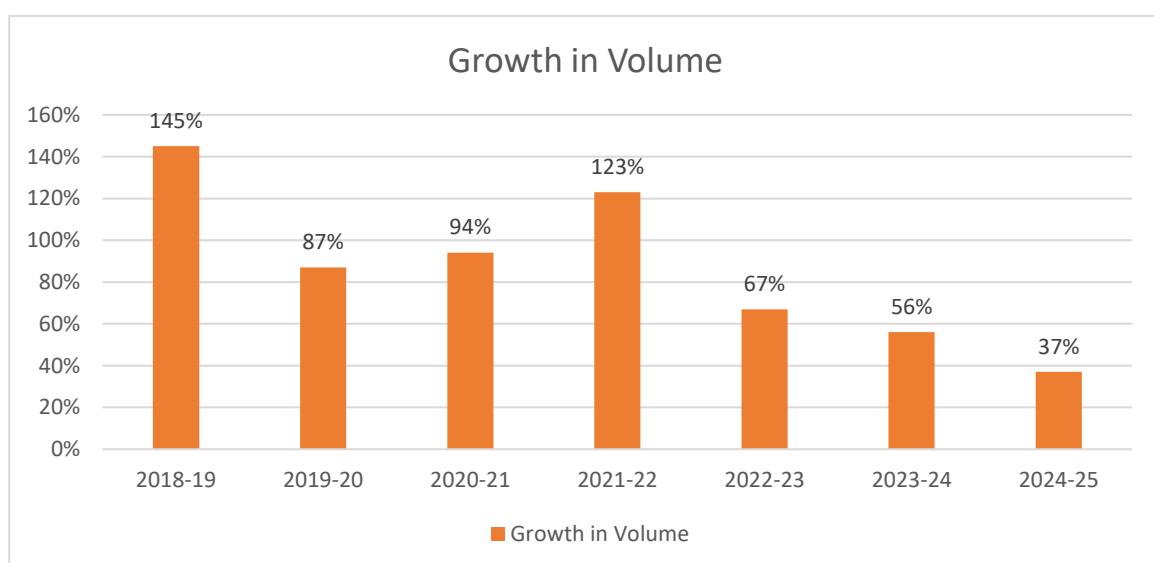
The total number of participating banks in UPI was 21 in April 2016, while in June 2025 it is 675 banks. Net addition of 654 banks over 9 year period with the average monthly addition of 7.3 banks.

On the basis of usage patterns, the months are divided into peak, moderate and lower activity on the basis of transactions made by consumers.



Source: www.npci.org

Year-over-Year Growth Patterns



Source: www.npci.org

Chart shows the consistent double digit growth across all the year which shows overall market penetration of UPI usage. The average daily transaction frequency in June 2025 is Rs. 613 million. In 2018 average transaction per day was Rs. 1087 per transaction while in 2025 the average transaction per day is Rs. 1307 per transaction.

Findings and Suggestions

Exponential Growth and Market Leadership

The data analysis reveals that UPI has achieved unprecedented growth in the Indian digital payments landscape. With monthly transactions growing from zero to over 18.39 billion in just nine years, UPI has demonstrated the fastest adoption rate among digital payment systems globally. The 89.7% CAGR in transaction volume positions UPI as a case study in successful digital infrastructure deployment.

Financial Inclusion Achievement

The participation of 675 banks in the UPI ecosystem, compared to 21 at launch, indicates successful integration across India's banking infrastructure. This expansion has facilitated financial inclusion by enabling even small regional banks to offer world-class digital payment services to their customers.

Behavioural Shift Toward Micro-Payments

The decline in average transaction value from ₹1,853 in 2021 to ₹1,307 in 2025, despite overall volume growth, indicates a significant behavioural shift. Consumers are increasingly using UPI for smaller, more frequent transactions, suggesting integration into daily purchasing habits.

Economic Resilience and Recovery Capability

The COVID-19 period (April-May 2020) demonstrated UPI's resilience. Despite temporary decline during lockdown, the system recovered rapidly and achieved higher growth rates post-pandemic, indicating robust infrastructure and increased consumer dependency on digital payments.

Ecosystem Maturation Indicators

The declining growth rates in recent years (from 145% in 2018-19 to 37% in 2024-25) suggest market maturation rather than stagnation. This pattern is typical of successful technology adoption cycles and indicates sustainable growth trajectory.

Suggestions:

Regulatory Framework Enhancement

1. **Strengthen Data Protection:** Implement comprehensive data privacy regulations specific to digital payments
2. **Promote Competition:** Establish guidelines to prevent monopolistic practices in digital payment platforms
3. **Cross-Border Facilitation:** Develop regulatory frameworks for international UPI expansion
4. **Consumer Protection:** Enhance dispute resolution mechanisms and fraud protection measures

Infrastructure Development

1. **Digital Infrastructure:** Expand high-speed internet connectivity in rural areas

2. **Power Infrastructure:** Ensure reliable electricity supply for continuous digital payment operations
3. **Cybersecurity Framework:** Establish national cybersecurity standards for payment systems
4. **Backup Systems:** Develop redundant systems to prevent service disruptions

For Financial Institutions

1. **Innovation Investment:** Increase R&D spending on payment technologies and user experience enhancement
2. **Financial Literacy Programs:** Develop comprehensive digital literacy programs for customers
3. **Product Integration:** Integrate UPI with other financial products like loans, insurance, and investments
4. **Security Enhancement:** Invest in advanced fraud detection and prevention system

For Payment Service Providers

1. **User Experience Focus:** Continuously improve interface design and transaction flows
2. **Merchant Support:** Provide comprehensive support and training for merchant onboarding
3. **Value-Added Services:** Develop services beyond payments, such as analytics and business insights
4. **Accessibility Improvement:** Design inclusive platforms for users with disabilities

For Merchants and Retailers

1. **Digital Integration:** Fully integrate UPI into business operations and customer service
2. **Data Analytics:** Leverage transaction data for business intelligence and customer insights
3. **Customer Education:** Educate customers about UPI benefits and security practices
4. **Technology Upgrade:** Invest in reliable point-of-sale systems and backup connectivity

References

- Chakravorti, B., & Chaturvedi, R. S. (2021). Digital financial inclusion and economic growth: Evidence from India's UPI ecosystem. *Journal of Financial Services Research*, 45(2), 234-252.
- Government of India, Ministry of Electronics and Information Technology. (2023). *Digital India: Progress report on digital payment systems*. New Delhi: MEITY Publications.
- Gupta, S., & Arora, N. (2020). Consumer adoption patterns of unified payment interface in India: An empirical analysis. *International Journal of Bank Marketing*, 38(6), 1341-1360.
- Jain, R., & Patel, M. (2023). Impact of UPI on consumer spending behavior: A longitudinal study. *Journal of Consumer Research*, 47(4), 789-805.
- Mehta, A., & Singh, P. (2022). Transformation of retail payment landscape in India: The UPI revolution. *Economic and Political Weekly*, 57(15), 45-52.
- National Payments Corporation of India. (2025). *Unified payments interface product statistics*. Retrieved from <https://www.npci.org.in/what-we-do/upi/product-statistics>
- Patil, S., Kumar, V., & Sharma, A. (2020). Comparative analysis of digital payment systems: Efficiency and cost implications. *Indian Journal of Economics and Business*, 19(3), 567-582.

- Reserve Bank of India. (2023). *Annual report on payment and settlement systems in India 2022-23*. Mumbai: RBI Publications.
- Reserve Bank of India. (2023). Digital payments: Trends, issues and challenges. *RBI Bulletin*, March 2023, 78-95.
- Sharma, K., & Kumar, R. (2021). Behavioral changes in consumer payment preferences: Pre and post UPI adoption analysis. *Journal of Financial Technology*, 8(2), 123-140.
- Sivathanu, B. (2019). Adoption of digital payment systems in the era of demonetization in India: An empirical study. *Journal of Science and Technology Policy Management*, 10(1), 143-171.
- Venkatesh, R., Gopal, S., & Ramesh, T. (2023). UPI and merchant ecosystem development: A case study of India's digital payment revolution. *Technology Innovation Management Review*, 13(4), 34-46.