

Impact of UPI on the Indian Banking System

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ABSTRACT

The rapid growth of UPI has significantly transformed the Indian banking system with the Unified Payments Interface emerging as a major driver of this transformation. In 2016 UPI was introduced by the National Payments Corporation of India (NPCI) UPI has enhanced as real time 24/7 fund which can transfer money directly between bank accounts through mobile applications. This study aims to analyse the impact of UPI on the Indian banking system, focusing on operational efficiency, customer experience and financial inclusion.

The research adopts a descriptive and analytical method using a mixed methods approach. Primary data was collected through a structured questions which was distributed through Google Forms receiving 63 responses from various age groups including students customers and business users. Secondary data was obtained from RBI and NPCI reports academic journals and published research paper. By the own survey we found the percentage wise result of UPI. The results indicate that UPI has significantly improved transaction speed, and it has made the users more convenience and accessible for the money transactions particularly among the 18–25 age group which is the majority of users according to the primary data. Most respondents agreed that UPI has made banking transactions easier and faster. While overall satisfaction levels remain high even when a considerable number of users reported issues such as transaction failures and server related problems. trust in UPI services remains strong even though some hesitation exists for high value transactions.

The study concludes that UPI has made changes in the Indian banking ecosystem by enhancing digital adoption and reducing the dependence on cash promoting financial structure and modernizing the banking operations. However improvements in technical are necessary to ensure long term sustainability and users must be confidence in making the digital payment environment.

Key words: National payments corporation of India, Customer Experiences, Banking Modernization, RBI Reports

INTRODUCTION:

Digital payments in India have experienced exponential growth transforming the economy into a digital first ecosystem largely driven by the Unified Payments Interface (UPI). As a global leader in real-time payments. India processes millions of transactions with UPI dominating in volume. Key methods include UPI, mobile wallets, banking cards. UPI stands for Payments Interface an instant payment system developed by India's National Payments Corporation of India (NPCI). It enables 24/7 money transfers directly between bank accounts using a mobile app, often with just a unique UPI ID. It simplifies payments

by allowing users to send money without needing bank account numbers or IFSC codes using features like Virtual Payment Addresses . Unified Payments Interface (UPI) has revolutionized traditional banking by enabling instant 24/7 peer-to-peer (P2P) and person-to-merchant (P2M) transactions directly from bank accounts via mobile apps. It has drastically reduced reliance on physical cash, cards, and ATMs, while promoting financial inclusion and offering a secure, low-cost, interoperable payment system. There are no studies which measures the impact of UPI on the financial inclusion in India. UPI can be used in more than one way which is an innovation to suit the Indian requirement especially to the hoi polloi. The studies which cover UPI are mainly for Open API and its relevance of the banking or for the financial transaction . The serious requirement of assessment of the situation study and lack of any study on such lines are the main motivation of this study. Other ways to make payments through UPI include scanning the recipient's QR code and inputting the recipient's mobile number. The payment methods you can utilise depend on the features of your chosen UPI mobile application. However most digital apps offer both options enhancing interoperability where your mobile device effectively serves as your bank account. This seamless integration is one of the standout benefits of UPI payments. This study aims to analyse the impact of UPI on the Indian banking system .

About National Payments Corporation of India (NPCI)

National Payments Corporation of India (NPCI), an umbrella organisation for operating retail payments and settlement systems in India is an initiative of Reserve Bank of India (RBI) and Indian Banks Association (IBA) under the provisions of the Payment and Settlement Systems Act 2007 for creating a robust Payment & Settlement Infrastructure in India. Considering the utility nature of the objects of NPCI it has been incorporated as a “Not for Profit” Company under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013) with an intention to provide infrastructure to the entire Banking system in India for physical as well as electronic payment and settlement systems. The Company is focused on bringing innovations in the retail payment systems through the use of technology for achieving greater efficiency in operations and widening the reach of payment system .

Objectives:

To examine the effectiveness of UPI's two-factor authentication system in ensuring secure digital transactions in India.

Analyse the impact of 24/7 real-time fund transfer facility on customer convenience and banking operations.

To study how the removal of beneficiary addition requirements has improved transaction efficiency compared to traditional banking systems.

To evaluate the role of linking multiple bank accounts within a single UPI platform in simplifying financial management for users.

To assess the contribution of UPI in facilitating bill payments, recurring payments (AutoPay) and digital financial services.

Review of Literature

Unified Payment Interface (UPI) technology, the Indian banking system has ushered in an era of transformation. UPI has many impact on India bank system . UPI has revolutionized the digital payment landscape in India. UPI, developed by the National Payments Corporation of India (NPCI), offers a real-

time payment system facilitating inter-bank transactions through a single mobile application for multiple bank accounts. The rapid proliferation of digital payment systems has fundamentally transformed banking and financial services globally, with India emerging as a prominent case study due to the widespread adoption of the Unified Payments Interface (UPI).UPI has bridged the gap between rural and urban areas by allowing access to banking services via mobile phones, bringing previously excluded populations into the formal financial system. the potential risks and opportunities posed by the Digital Rupee to the traditional banking sector, particularly concerning deposit Mobilization this study highlights its critical role in promoting financial inclusion

- Evolution and Future Potential
- Challenges in Adoption
- Merchant Adoption
- Impact on Banking Operations
- Transformation of Digital Payments

A substantial body of work emphasises that digital payment systems tend to reduce transaction frictions, increase transparency, and facilitate formal financial inclusion [2,7,8].Data show UPI transactions rose sharply from 915.2 million in FY 2017-18 to several thousand crores in later years. According to RBI's Payment System Reports, UPI's share of digital payment volume has surged from 34% in 2019 to 83% in 2024.Rural Reach Studies observed a 60% YoY increase in rural UPI transactions. Around 70% of digital payment transactions in India now occur through UPI. JICLT it has Lack of long-term comparative data Reduction in cash-based transactions and shadow economy. Major shift toward digital-first financial infrastructure. Cyber fraud and phishing threats in digital banking systems Transformation of Banking Operations Banks are shifting from traditional, branch-heavy models to digital-centric approaches. With over 15 billion transactions monthly as of late 2024, UPI has dramatically increased transaction speeds and volume. Its interoperable QR code system has made digital payments ubiquitous, from large retailers to small vendors. UPI has also boosted competition among fintech companies and bank .UPI has strengthened financial inclusion and convenience It has fundamentally altered the Indian banking system toward digital operations It drives competition and innovation in financial technology Security and customer trust are central themes in research According to research by NPCI and RBI reports, UPI emerged as a game changing innovation because it allowed real time, interbank transactions through mobile application Studies show that small merchants, street vendors, and rural users adopted UPI due to QR-code-based payments.

Impact on Indian Banking system

Operational Efficiency: Automation and digital platforms have reduced transaction processing time and operational costs. Online banking services allow customers to perform transactions without visiting branches.

Customer Experience: Mobile banking applications and personalized services powered by analytics have improved customer satisfaction and accessibility.

Financial Inclusion: Digital payment systems and government initiatives have enabled banking access for rural populations and previously unbanked individuals.

Risk Management: Banks use artificial intelligence to detect fraud, monitor suspicious activities, and improve credit risk assessment.

Methodology:**1. Research Design**

- The study will adopt a Descriptive and Analytical Research Design using a mixed-methods approach. Quantitative Component: Used to analyse numerical data such as transaction volume, value, growth rates, and user demographics to identify trends. Qualitative Component: Used to understand user perceptions, experiences, satisfaction levels, and the challenges faced with UPI.
- Rationale: This approach allows for a holistic understanding, combining broad data trends (secondary) with in-depth user expert insights (primary) to evaluate the transformation of the banking landscape.

2. Scope of Study (Impact of UPI on Indian Banking System)

- Temporal Scope: The study focuses on data from the financial year 2017-18 to 2024-25 (incorporating the rapid adoption phase).
- Geographical Scope: India (encompassing both urban and rural user experiences).
- Thematic Scope:
- Transformation of Banking: Evaluation of how UPI has shifted consumer behaviour from traditional cash ,ATM-based banking to digital-first, 24/7 banking.
- Operational Efficiency: Impact on bank operating costs, reduction in physical branch transactions, and modernization of backend systems.
- Financial Inclusion: Role of UPI in bringing unbanked populations into the formal banking system.
- Security & Challenges: Analysis of security frameworks, fraud risks, and technical failures (server downtime).

3. Sources of Data**Primary Data:**

- Survey Questionnaire: Collected directly from UPI users (customers, students, business owners) to analyse user perception and behaviour.
- Structured Interviews: Conducted with bank officials (branch managers/digital banking heads) to understand the organizational challenges and strategic shifts, if necessary.

Secondary Data:

- Reports from RBI & NPCI: Monthly/Annual reports regarding Digital Payment Index, UPI transaction logs, and value/volume trends.
- Bank Annual Reports: To analyse digital adoption and operational costs.
- Academic Journals & Publications: Research papers on Fintech, digital banking, and consumer behaviour.

4 . Data Collection Instrument

- Questionnaire (For Users): A structured, closed-ended questionnaire designed via Google Forms using a 5-point Likert scale.
- Sections: Demographic profile, Usage frequency, Security perceptions, Satisfaction levels, and Technical challenges.
- Structured Interview Guide: A set of predetermined open-ended questions targeting bank officials to gather qualitative insights on the operational impact.

5 . Target Respondents

- The research will target a diverse set of respondents to ensure comprehensive data. Bank Customers (Urban/Rural): To evaluate changes in banking habits, reliance on cash vs. digital, and satisfaction

with UPI services.

- Students: To analyse the high adoption rate among tech-savvy, younger demographics.
- Business Owners/Merchants: Ranging from small vendors to large retailers, to assess the impact of UPI QR codes on transactions and business efficiency.
- Sampling Method: Convenience Sampling for users Sample Size: Suggested 200–500 users for a robust quantitative analysis.

6. Data Analysis Tools

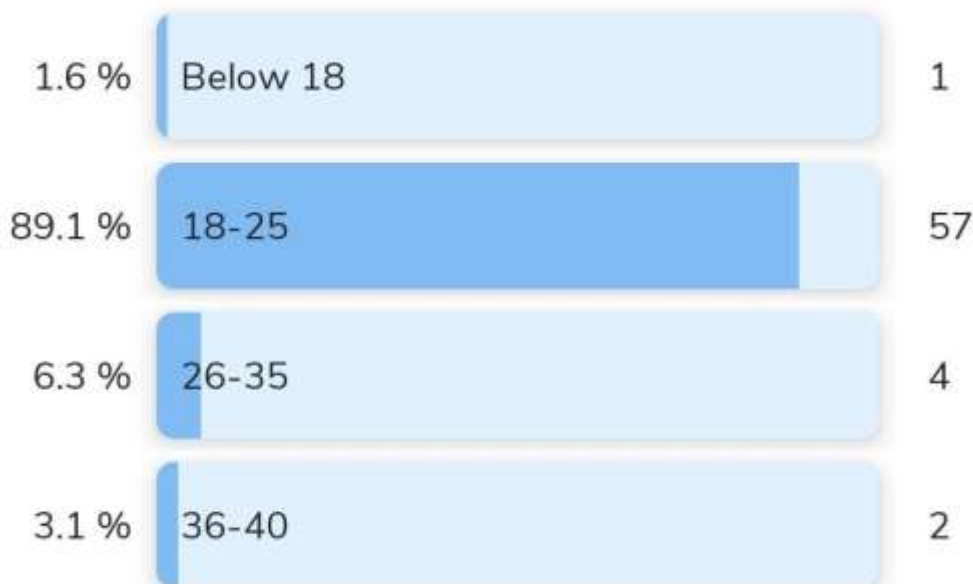
- Descriptive Statistics: Frequency, Percentage, Mean, and Standard Deviation
- Inferential Statistics: Regression analysis or Correlation to determine the impact of UPI volume on financial inclusion (secondary data). using this for methodology.

Data Analysis and Interpretation

The survey was conducted among 67 response using a set of questions through google form including age groups the majority response was from the age group of 18-25 which was 57 response which is 89.1% from 67 response this shows the young adult age group are the primary users of the UPI service- from the age group of 26-35 there was 4 response which is 6.3 and 2 response which is 3.1% from 36-45 age group and according to the survey there was only 1 response for below 18 which has 1.6%.

As in survey we included option of gender were the response were almost equally distributed with 51.6% that is 33 response being female and male 48.4% with 31 respondent this shows the balance gender representation providing insight into UPI usage pattern .

Age



Which App do you use frequently ?



The survey results shows that Phone Pe is the most frequently used UPI application with 32 respondents 50.8% preferences . And followed by Google Pay used by 21 respondents 33.3%. A small percentage of 4.8% 3 respondents reported using Paytm. This shows that Phone Pe and Google Pay dominate the UPI market among the respondents showing their strong presence in India's digital payment ecosystem.

UPI has made bank Transactions Easier and Faster



When the survey questions was asked whether UPI has made bank transactions easier and faster ? A majority of responses were expressed positive. 50.0% 32 respondents strongly agreed while 45.3% 29 respondents agreed with the statement. only 4.7% 3 respondents answered with neutral and none disagreed .These shows clearly that UPI has significantly improved the speed and convenience of banking transactions.

Do you Trust UPI for large transaction



Regarding trust in UPI for large transactions 53.1% 34 respondents strongly answered YES that they trust UPI while 10.9% 7 respondents NO. 34.4% 22 respondents remained SOMETIMES and 1.6% 1 respondent NEVER. This shows that majority of users trust UPI a consider portion still has some hesitation when conducting high value transactions.

Have you ever faced issues while using UPI



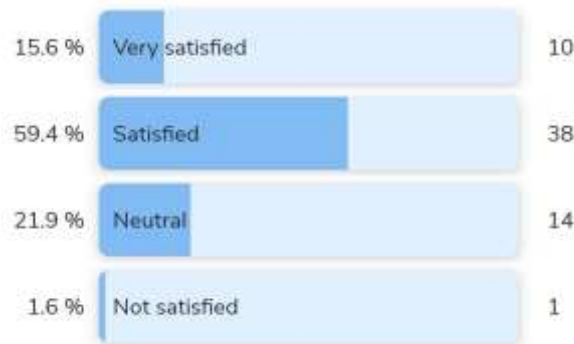
The survey shows that 85.9% 55 respondents have faced issues while using UPI service where 14.2% 9 respondents reported no issues. This indicates that technical or operational challenges are common among users despite widespread adoption.

If “Yes” What kind of issues ?



Among those who faced issues the most common problem reported was Server issues by 61.0% which is 36 respondents and transaction failure 23.7% which is 14 respondents. while 15.3% 9 respondents faced technical error. This shows that transaction failures and server related problems are the major challenges users face while using UPI.

Overall, how satisfied are you with UPI services?



Even while facing certain issues overall satisfaction levels remain positive. 15.6% that is 10 respondents reported being very satisfied 59.4% 38 respondents satisfied and 22.9% 14 respondents neutral. only 1.6% 1 respondent reported being not satisfied. These findings indicate that while technical problems exist users are generally satisfied with UPI services and continue to rely on them for daily transactions.

Conclusion:

The Unified Payments Interface (UPI) introduced in 2016 by the National Payments Corporation of India, has brought a remarkable transformation in the Indian banking system. It has simplified digital payments by enabling instant and seamless fund transfers thereby reducing reliance on traditional banking procedures and cash based transactions. The findings of the present survey highlight several important aspects of UPI usage. The study shows that UPI applications are widely used among young users indicating strong digital adoption among the younger population. Respondents largely agreed that UPI has made banking transactions faster and more convenient reflecting its efficiency and ease of use.

At the same time the survey reveals that while many users trust UPI for regular transactions some remain cautious when it comes to large-value payments. a significant number of respondents reported facing issues such as transaction failures and server related problems. However despite these challenges overall user satisfaction with UPI services remains positive.

These findings indicate that UPI has successfully enhanced accessibility, convenience, and digital engagement within the banking sector. Nevertheless, improving technical infrastructure, strengthening cybersecurity measures, and ensuring system reliability will be essential for sustaining long-term growth. In conclusion, UPI has fundamentally reshaped India's banking ecosystem by promoting digital payments, encouraging financial inclusion, and driving innovation, while also presenting challenges that must be addressed to ensure sustainable development.

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