



An analysis of India's digital payment trends before and after COVID-19

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Abstract

This study looks at how digital payment systems in India have changed over time. It compares the period before the pandemic, from FY 2018-19 to FY 2019-20, with the post-pandemic era, from FY 2020-21 to FY 2024-25. The research examines the growth of important digital payment methods like the Unified Payments Interface (UPI), Immediate Payment Service (IMPS), National Electronic Funds Transfer (NEFT), and card-based transactions. Using secondary data from reliable sources such as the Reserve Bank of India (RBI), National Payments Corporation of India (NPCI), and government reports, the paper highlights major changes in transaction volumes and values. The findings show a significant increase in digital payment adoption. This growth has been largely fuelled by more people using smartphones, supportive government policies, and changes in consumer behaviour due to the pandemic.

The study provides useful insights into how digital finance is evolving in India and offers policy suggestions to maintain this growth.

Keywords: Digital payments, upi, imps, neft, covid-19, rbi, india, financial technology, payment systems, digital economy

Introduction

Digital payments have become a key part of India's financial landscape, especially in the last decade. With new technologies, regulatory changes, and the rise of smartphones and internet services, India has seen remarkable growth in digital transactions. The introduction of systems like Unified Payments Interface (UPI), Bharat Interface for Money (BHIM), and Immediate Payment Service (IMPS) has changed financial transactions by providing seamless, real-time payment solutions.

The COVID-19 pandemic served as a major driver in speeding up the move to digital payments. Social distancing rules, lockdowns, and hygiene concerns led both consumers and businesses to embrace contactless payment methods. As a result, digital payment platforms grew significantly, with many users entering the digital space for the first time.

According to the Reserve Bank of India (2023), UPI alone handled over 100 billion transactions in the fiscal year 2022-23. This underscores the vast scale of digital transactions after the pandemic. This study aims to compare the growth of digital payments before and after COVID-19, focusing on key transaction modes and assessing their impact on India's financial system.

Objectives of the Study

The main goals of this research are:

1. To look at the growth trends of digital payment systems in India before and after COVID-19.
2. To study transaction volumes and values for major digital payment methods, including UPI, IMPS, NEFT, and debit/credit cards.
3. To identify the key reasons people are adopting digital payment systems after the pandemic.
4. To provide policy suggestions for improving the digital payment infrastructure in India.

Review of Literature

1. Growth of Digital Payments in India

Singh and Dutta (2020) observed that the introduction of UPI changed India's payment system by enabling fast and

low-cost transactions. They noted that government initiatives like Digital India and demonetization in 2016 set the stage for widespread digital use.

According to Kapoor *et al.* (2021), the COVID-19 pandemic sped up this trend. Their study found that hygiene concerns and restrictions on movement were the main reasons for the rise in digital payments, especially among small merchants and new users.

2. UPI and Contactless Payments

Sharma and Verma (2022) highlighted UPI's rapid growth. They pointed out its ease of use, ability to work with different systems, and zero-cost transaction model as major factors behind this success. They also noted that UPI's integration with various financial service apps helped maintain its leading position.

3. Policy and Regulatory Support

Patel (2021) emphasized how active government policies, such as eliminating Merchant Discount Rates (MDR) and promoting QR-code-based payments, boosted digital transactions.

4. International Comparisons

According to a report by the World Bank (2022) ^[6], India's digital payment adoption is much higher than in several developing economies. The report highlighted the role of India Stack, an open digital infrastructure, as a key factor in promoting financial inclusion.

5. Identified Gaps in Existing Literature

- Limited comparative analysis over multiple years, covering both pre- and post-pandemic periods.
- Few studies evaluating multiple payment methods together.
- Lack of time-series based secondary data analysis in the Indian context.

Research Gap

While many studies have looked at digital payments in India, most have concentrated on consumer behaviour or

specific payment methods like UPI. Few have made a thorough comparison of digital payment trends before and after the COVID-19 pandemic using macroeconomic data. Additionally, there isn't much research that evaluates transaction volumes and values across different payment systems over a long period, covering both pre- and post-pandemic phases. This study aims to address this gap by offering a detailed, data-driven analysis of India's digital payment landscape.

Research Methodology

1. Research Design

This study uses a descriptive research design and secondary data sources to examine the growth of digital payment transactions in India during two different phases:

- Pre-COVID-19 Period: FY 2018-19 and FY 2019-20
- Post-COVID-19 Period: FY 2020-21 to FY 2024-25 (latest available data)

2. Data Sources

The analysis relies on publicly available secondary data from these trusted sources:

- Reserve Bank of India (RBI), Monthly Bulletins, Annual Reports
- National Payments Corporation of India (NPCI), Payment Systems Reports
- Ministry of Finance, Government of India, Economic Surveys
- World Bank, Financial Inclusion Data

- Other Reputed Publications, Industry Reports, Research Papers

3. Variables Studied

1. Transaction Volume (Number of Transactions)
2. Transaction Value (INR Crores)
3. Key Payment Modes:

- Unified Payments Interface (UPI)
- Immediate Payment Service (IMPS)
- National Electronic Funds Transfer (NEFT)
- Debit/Credit Card Transactions

4. Analytical Tools

- Compound Annual Growth Rate (CAGR) analysis
- Percentage growth calculations
- Trend analysis, with graphical representation using line and bar charts

Data Analysis and Interpretation

This section provides an overview of India's digital payment landscape. It focuses on transaction trends before and after the COVID-19 pandemic. The data comes from the Reserve Bank of India and the National Payments Corporation of India for reliability. UPI Transaction Analysis (FY 2018 to FY 2024) The Unified Payments Interface (UPI) has become a major driver of digital payments in India. The table below shows UPI's significant growth in both transaction volume and transaction value.

Financial Year	Transaction Volume (crore)	Transaction Value (₹ lakh crore)
2018-19	375	5.86
2019-20	1,252	-
2020-21	2,233	-
2021-22	4,596	84.17
2022-23	8,371	139.52
2023-24	13,116	187.24

Source: RBI & NPCI Reports, 2024

Interpretation

During six financial years, UPI transactions grew significantly. The transaction volume increased from 375 crore in FY 2018 to over 13,116 crores by FY 2024. Likewise, the total value of UPI payments rose from ₹5.86 lakh crore to ₹187.24 lakh crore. This growth shows a compound annual growth rate (CAGR) of about 89% in

volume and around 86% in value. This indicates a major shift towards digital payment platforms in India.

Other Payment Modes Performance (2024 Data Snapshot)

An analysis of additional payment systems further highlights UPI's dominance.

Payment Method	Average Monthly Volume (lakh)	Average Monthly Value (₹ crore)
UPI	11,15,800	75,37,000
IMPS	1,62,300	19,319
NEFT	2,53,240	1,18,247
Debit Cards	47,510	1,408
Credit Cards	1,22,190	5,564

Source: RBI Monthly Reports, January – June 2024

Interpretation

In 2024, UPI processed the highest volume and value of transactions. It had a monthly average of over 11 billion transactions, totalling more than ₹75 trillion. In comparison, IMPS, NEFT, and card transactions had much lower usage levels. This shows UPI's key role in digital finance.

terms of both usage and transaction value. By FY 2023, UPI accounted for about 83% of all digital payment transactions in India. Its rapid growth comes from ease of use, interoperability, and government-backed incentives like zero merchant discount rates.

2. Accelerated Growth Post-Pandemic

The pandemic period marked a turning point for digital transactions in India. UPI's usage surged as individuals and businesses moved to contactless payment options. The data shows a sharp increase in transaction volumes during and

Findings and Discussion

The analysis reveals several important patterns and insights:

1. Dominance of UPI

UPI has greatly outpaced other digital payment methods in

after the pandemic.

3. Relative Position of IMPS And NEFT

While IMPS and NEFT continue to play important roles, especially for bulk and business-related payments, their growth rates have been modest compared to UPI. These systems remain vital but mainly serve niche segments.

4. Supportive Infrastructure and Policy

The government's proactive steps, including the Digital India campaign, the introduction of QR codes, and a focus on fintech partnerships, have been crucial in supporting this growth.

Conclusion and Recommendations

Conclusion

India's digital payments sector has changed dramatically in recent years. UPI has become the backbone of retail digital transactions, replacing traditional payment methods like cards, NEFT, and IMPS. The significant increase in transaction volumes and values shows a lasting change in how consumers and businesses use digital solutions.

Recommendations.

Based on the review, several suggestions aim to improve and support the use of digital payments.

1. Maintain Low-Cost Transactions

Continued backing for zero-cost digital transactions, especially for small payments, can help more merchants and consumers participate.

2. Expand Rural Payment Infrastructure

More investment is needed to provide digital payment services in rural and remote areas, promoting wider financial inclusion.

3. Strengthen Cybersecurity Measures

Improving digital security and fraud prevention tools will be essential to build trust and keep users safe from cyber threats.

4. Promote Financial Literacy

Teaching users about the advantages and safe methods of digital payments can speed up adoption, especially among first-time users and vulnerable groups.

5. Encourage Innovation in Digital Finance

Developing and promoting new payment solutions such as UPI Lite and offline UPI payments can further grow the digital payment field.

Limitations of the Study

Every research study has its own set of limitations, and this analysis is no exception. Although it provides a clear understanding of digital payment trends in India, certain constraints need to be acknowledged:

1. Exclusive Dependence on Secondary Data

The entire analysis is based on data published by authorized bodies such as the Reserve Bank of India and the National Payments Corporation of India. While these sources are reliable, they may not fully capture informal payment practices or undocumented financial activities.

2. Absence of Primary User Insights

This research does not include direct feedback from digital

payment users. As a result, perspectives related to user satisfaction, security concerns, or ease of use are not part of the analysis.

3. Limited Coverage of Payment Methods

The study primarily focuses on major payment channels like UPI, NEFT, IMPS, and card-based transactions. Other innovative payment methods such as mobile wallets, digital lending platforms, and blockchain-based solutions were excluded due to scope constraints.

4. Specific Time Period Covered

The analysis is restricted to data between the financial years 2018 and 2024. Any developments that occurred after this period remain outside the scope of this study.

5. External Economic Influences Not Considered

Broader economic factors, such as inflation rates, shifts in government policy, or international trade conditions, which may indirectly influence digital payment behavior, were not analyzed within this research.

Scope for Future Research

The field of digital payments is changing quickly, creating many chances for academic research. Future researchers can look into the following areas to deepen the understanding of this topic.

1. Incorporation of User Surveys and Interviews

Collecting primary data through structured questionnaires, interviews, or focus group discussions can help capture user experiences, preferences, and concerns related to digital payments.

2. Analysis of Emerging Payment Tools

Future studies can explore the role of new financial products like Central Bank Digital Currencies (CBDCs), UPI Lite, and Buy Now Pay Later (BNPL) schemes, which are becoming popular among certain user groups.

3. Behavioural Aspects of Digital Payment Usage

Research that examines the psychological factors behind digital payment adoption, such as trust, perceived risks, and financial literacy, can offer deeper insights, especially in semi-urban and rural areas.

4. Cross-Country Comparative Studies

Comparative research involving other developing and developed countries can help identify common success factors, challenges, and policy innovations that affect the growth of digital payments worldwide.

5. Long-Term Impact Evaluation

Studies that focus on the long-term effects of digital payment systems on financial inclusion, retail trade, and banking efficiency can help provide a clearer assessment of digital financial technologies.

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