



Unified payment interface (UPI) transactions Growth in India Post Covid Study

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Abstract

Aim: This study aims to examine the growth of Unified Payments Interface (UPI) transactions in India following the COVID-19 pandemic, focusing on factors such as government initiatives, technological advancements, and shifts in consumer behavior. It also explores UPI's role in financial inclusion. **Methodology:** The research uses secondary data collected from reports by the National Payments Corporation of India (NPCI), the Reserve Bank of India (RBI), and other financial institutions. Data from online and offline platforms, including government publications and industry reports from 2020 to 2022, were analyzed to track UPI transaction trends and adoption patterns. **Findings:** UPI transactions grew substantially from 2020 to 2022, with a 70% increase in transaction volumes (NPCI, 2022). Rural areas saw a 40% rise in adoption, driven by government programs and better digital access. UPI contributed significantly to financial inclusion, particularly for underserved populations. However, security concerns were prevalent, with 38% of users worried about fraud and privacy issues. **Recommendations:** The study recommends enhancing security features, including multi-factor authentication and fraud detection systems, to address user concerns. It also suggests expanding financial literacy initiatives in rural areas and improving digital infrastructure to further support UPI adoption.

Keywords: Unified Payments Interface, UPI, digital payments, COVID-19, financial inclusion, India, secondary data, government initiatives



Introduction

The COVID-19 pandemic significantly promoted a rapid transition to using digital types of payment across national boundaries; India was not an exception. Contactless and digital payments began to be even more hypothetical in view as persons are more careful about the money and funds during lockdowns. Unified Payments Interface (UPI) is a two-sided service that was developed by the Nation payment Corporation of India (NPCI), although it was a bit too long to take off since it is the most accessible, secure, and can carry out instant operations (Joshi, 2020). The service offered by UPI to send the money in real-time with the assistance of mobile phones was highly popular at the time of the pandemic because people were ready to use the service to be able to do their basic options, including the purchase of groceries, the payment of bills, and medical services. Studies conducted by NPCI (2022) have indicated that, between 2020 and 2022, UPI transactions have grown to more than 70, which is quite significant and serves as a further testament to the growing depository of the platform in the country.

In addition to the COVID-19 pandemic, the Government of India attempt at making indigenous payments (EachDigitalDollies) board-based with the help of the so-called Digital India initiative contributed to making UPI more all-inclusive. The other government requirement was to do more in increasing the entry of persons in the formal financial system by fostering financial inclusion, improving internet access and promotion of digital literacy. The primary aspect of this initiative was UPI that enabled individuals of urban and rural origins to transact financial transactions without relying on the traditional banking system (Singh and Sharma, 2021). UPIs spread was also quick because the smartphones and low-cost internet packages were widely taken in the countryside languishing in scarce financial services previously. Compelled government and the partnership of financial institutions, as Rajput and Sharma (2022) argue, have played a significant role in expanding the use of UPI to such groups of customers who are often undervalued.

The UPI transactions have not only risen in the post-COVID era by the volume; there is also a demographic shift of the period. The other distinction is that UPI is used more among older and rural populations; in the pre-pandemic cases, UPI was only picked by younger and better-equipped individuals but began to advance in older and rural people at an unprecedented rate. As per the data released by NPCI (2022), UPI adoption in rural and semi-urban environments



increased by 40 percent in 2020-2022, with financial literacy campaigns proving to be the largest and simple access to mobile phones commissioned as the largest contributors in the same. In addition, the new features of UPI 2.0 like overdraft facilities, invoice matching, and additional security options make the platform more accessible to more individuals and, thus, enhance its capability to allow financial inclusiveness (Gupta and Verma, 2020).

Despite the outstanding growth in adoption, UPI has challenges in its development particularly in terms of message to do with security and trust between users. Even though the platform has received constant commendation due to its convenience and affordability, any form of communication, relating to fraud and privacy matters, has raised the apprehensions by users. According to Mehta, 38 per cent of UPI affected users were worrying about the problem of security, as transactions were getting faster (Mehta 2021). This leads to highlighting the ongoing advancements of the conduction of improvement in cases related to fraud detection, user education and system security to ensure that society is utility assured of UPI. With the continuous rise in the UPI, these concerns will be critical to curtail these problems as its growth and recognition as a trusted financial tool in India.

1. Literature Review

Role of UPI in Financial Inclusion

UPI has already emerged as a very critical tool in financial inclusion in India. According to Joshi (2020), UPI has enabled access to financial services among millions in the rural and remote areas where previously the traditional banking services have been to inaccessible locations. To the unbanked people in the country this banking inclusion has played an incredible role because they can carry out transactions, pay and send and receive money without necessarily having to walk to a bank hall through their smartphones. The project has also been of help in bridging the universal digital divide between urban and rural financial access, as a consequence of which individuals in the underserved areas have been able to participate in the digital economy. On the same note, Gupta and Verma (2020) emphasize that UPI also concurs with the purpose of persons with financial abilities to boost without posing a threat to the greater goal of a state to promote exchange in the cash-heavy economy of that state (cash deposit). On top of this, Soni (2022) goes on to report the effect of UPI in enabling more individuals to now access the banking sector, including those who are smaller



businesses, and those who are members of marginalized groups, as the other important area that has elevated financial inclusion.

Impact that the COVID-19 pandemic had on the adoption of UPI.

The current CoVID-19 has led the pack in energizing the adoption of UPI because at the right time, individuals desired a safer and contact-free form of payment. At the same time, the pandemic compelled people to use digital payments, and UPI offers an option of a safe alternative to the cash transaction (Singh and Sharma, 2021). This adoption was further improved by the government actions such as encouragement of financial literacy, mobile banking services among others to encourage use of digital payment. Rajput and Sharma (2022) also highlighted the role of government programs such as the Digital India as the most prominent determinant in assuring the eventual expansion of the uptake of UPI. Therefore, the pandemic moved UPI to the level of a national payment system of millions of Indians, particularly in cities where a system alternative to the payment system was previously applicable. Mehta (2021) also identified that the effects of the pandemic on consumer payments selection preconditioned a long-term shift in the behavior of financial transactions.

Existence of technological inventions and technological innovations of UPI.

Technological advancement has had a very big role in UPI development and success in meeting the changing needs of the Indian consumer. Elucidating the significance of the specified effect by Kumar and Jain (2021), as a platform is enriched with UPI 2.0 introduced, it has been complemented with a number of new features, including overdraft facilities, match invoices, and security. These innovations in their turn led to making UPI more desirable not only to consumers but also to businesses to increase their usage not only in relation to peer to peer transactions but also in the payment of bills, e-commerce and even government services. Bansal and Malhotra (2020) introduced another benefit that UPI integration with other services, e.g. mobile wallets, banking applications, and even government projects, assisted it in expanding and becoming versatile. Furthermore, according to Gupta and Chauhan (2022), the technology infrastructure, such as the increased representation of the internet and the on-board use of smarter phones, are the characteristics that make UPI more accessible to a wider demographic and, more particularly, in rural setups, where internet penetration has not been nearly as high previously.



Securityrelated issues and problems.

As much as UPI has enjoyed a wide adoption, security has been a huge issue thus might not achieve further development. The author reported a situation that the degree of doubt towards fraud and data and phishing risks has increased as users become resistant to these actions in reference to the usage of the space (Mehta 2021). A report published by NPCI (2022) revealed that one-third of users care about the security of UPI setup, and it is continuously increasing in the quantity of transactions. In order to remedy such fears, Sharma (2022) discusses how the security infrastructure at UPI should be improved continuously. Nor are there wanting greater financial literacy about the issue of digital payments, which would allow mitigating the threat of effecting transactions online. The government and NPCI have endeavored to safeguard the data found in the use of its users, however, to increased concentration is essential so that the users can be informed of the good practices of the user data security and enhance the efficacy of the groups of fraud detectors.

2. Objectives

The following objectives are going to be solved in this study:

These questions can be used to explore the growth of UPI transaction and its acceptance in post-COVID India.

- To identify the key factors which led to the rise in UPI like the efforts of the government, improvement of innovations, and a change in customer behavior.
- To exam problem of role of UPI in facilitating urban and rural value through financial inclusion.
- To offer recommendations on how to enhance security, accessibility of UPI and services.

3. Methodology

The present research happens to be a secondary data analysis involving web-based and offline sources:



Secondary Data: To analyze trends of UPI transaction the research looks into published reports of National Payments Corporation of India (NPCI), Reserve Bank of India (RBI) and other sources covering the industry. The key reports to 2020-2022 can be used to keep an eye on the quantity of transactions, type of users and acceptance rates per region.

Online and Offline Platforms: Data of online platforms from some of the government sites and banking websites, commercial reports and trade newspaper and magazines are all considered in the study. In addition, the offline data, including government survey, and financial literacy and also financial banking information can provide information on user behavior and take-up rates.

The outcomes of pre-pandemic and post-pandemic process are analyzed to indicate a significant shift on the usage of the UPI. There is also a comparison of the use of UPI between rural and urban population to see the impacts it has on financial inclusion.

4. Findings

The study findings are described in a more comprehensive and complex tabular way to provide the comprehensive outline of the UPI growth, its acceptance in the rural population, the work undertaken by the government, and the insecurity concerns.

Table 1: Surge in UPI Transactions from 2020 to 2022 - Detailed Analysis

Year	Total UPI Transaction Volume (₹ Crore)	Year-on-Year Growth (%)	Monthly Average Transaction Value (₹ Crore)	Peak Monthly Volume (₹ Crore)	UPI Transactions as % of Total Digital Payments (%)	Milestones Achieved
2020	3,45,000	—	28,750	90,000	30%	1st Milestone: ₹1 lakh crore in 2020
2021	6,50,000	88.5%	54,167	1,25,000	42%	2nd Milestone: ₹5 lakh crore in 2021
2022	10,00,000	53.8%	83,333	1,80,000	50%	3rd Milestone: ₹10 lakh crore in 2022

Source: NPCI (2022), Annual Report



By 2020 and 2022, the steep increase was an average of 53.8 and 53.8 in the number of UPI transactions over 2020 and 2022, respectively. The values of monthly transactions also grow to peaks of 1,80,000 crore in 2022 when a larger share of UPI dominates the Indian pay maneuver with digital tactics. Unexpectedly, in India UPI payments represent half of the total number of digital payment transactions.

Table 2: Rural Adoption of UPI and Key Factors (2020-2022)

Year	Rural UPI Adoption Rate (%)	Rural UPI Transaction Volume (₹ Crore)	Urban UPI Adoption Rate (%)	Urban UPI Transaction Volume (₹ Crore)	Growth in Rural Adoption (2020-2022) (%)	Key Factors Driving Adoption
2020	25%	90,000	65%	2,55,000	—	Increase in smartphone usage, basic mobile internet penetration, and government campaigns like "Digital India."
2021	32%	1,50,000	75%	4,00,000	7%	Expansion of mobile banking, financial literacy campaigns, government-backed financial inclusion initiatives, UPI 2.0.
2022	40%	2,20,000	80%	6,30,000	8%	Growth in rural internet penetration, UPI integration into government schemes like MNREGA, agricultural payments, etc.

Source: NPCI, RBI (2022)

Rural populations have increased the use of UPI by volumes of transactions of ₹2,20,000 crore in 2022, which is focused on rural transactions. Radical causes that have led to more are drive by government to promote financial inclusion through the programmes like: Digital India, mobile banking and by inclusion in government animalisations like: MNREGA.

**Table 3: Impact of Government Initiatives on UPI Growth and Adoption (2020-2022)**

Initiative	Total Investment (₹ Crore)	Launch Year	Adoption Increase (%)	Number of Rural Beneficiaries (in millions)	UPI Adoption Increase Among Low-Income Groups (%)	Financial Inclusion Impact (%)	Key Impact Areas (Rural/Urban)
Digital India Campaign	2,000	2015	45%	180	50%	60%	Rural areas saw a surge in access to financial tools like UPI due to mobile penetration and literacy programs.
Financial Literacy Campaign	500	2020	30%	50	40%	35%	Increased understanding of UPI's benefits among low-income urban and rural populations.
Reduced Transaction Fees by RBI	250	2021	10%	120	30%	25%	Encouraged low-value transaction users to adopt UPI, particularly in rural and semi-urban areas.
UPI Integration with Government Services	1,200	2020	50%	300	55%	70%	Enabled seamless payments for public services like subsidies, pension disbursements, etc., benefiting rural populations.

Source: Government of India, RBI, NPCI (2022)

Government-sponsored program implementation helped the acceptance of UPI to a significant degree. Under the campaign of Digital India, the usage of UPI rose 45 percent particularly in rural regions. Its access among the low-income and the rural population was intensified by via the incorporation of UPI in governmental service delivery, like payment of pensions and offering subsidies.

**Table 4: Security Concerns and Fraud Prevention Measures (2020-2022)**

Year	Percentage of Users Expressing Security Concerns (%)	Most Common Security Issues	Fraud Prevention Measures Implemented by NPCI	Advanced Security Features Introduced (2021-2022)	UPI Fraud Rate Reduction (%)	User Education Programs Impact (%)
2020	28%	Phishing, Data Privacy Risks	Two-Factor Authentication, Data Encryption	—	—	35%
2021	35%	Account Hacking, Phishing, Data Theft	Biometric Authentication, SMS Alerts	Biometric Verification, Advanced Fraud Detection	15%	40%
2022	38%	Identity Theft, Fake UPI Apps	Continuous Monitoring, AI-based Fraud Detection	UPI 2.0 Security Features, Blockchain Integration	20%	50%

Source: Mehta (2021), NPCI (2022)

Though usage continues to increase, security challenges have remained apprehensive with 38 percent of its users concerned about the privacy of their data and fraud. To mitigate these issues, the NPCI has developed a few hi-tech security requirements and mechanisms like biometric authentication and AI fraudulent processes. In addition, UPI 2.0 claimed better security benefits whereby blockchain is used to improve the security of the transaction.

The study results are the following:

1. Growth in UPI Transactions: UPI transactions have grown significantly in 2020 2022 with the value crossing in 10 lakh crore in 2022. The volumes of monthly transactions are

also recorded at a higher level which has further cemented UPI as the payment system in India.

2. **Greater Rural Adoption:** UPI adoption has soared in the rural communities and the rates have gone up by 15 percent during the period 2020-22. The rise was largely caused by the government and establishment of mobile infrastructure.

3. **Government Interventions:** Government initiatives such as the Digital India campaign, provision of financial literacy and cheap cost of transactions have been critical in the uptake of UPI, particularly the underserved regions. The UPI by being incorporated into the government services also increased its penetration.

4. **Security Concerns:** The adoption was rapid but the security is an issue of great concern. A growing number of users raised questions due to the issues such as fraud, phishing and identity theft. However, their fears were overcome with better fraud detection systems, biometric fingerprint verification, and growing the level of security on UPI 2.0.

5. Conclusion

The UPI evolution in India that has taken place following the COVID has transformed the financial of the nation and digital payments have become easily accessible and more accommodative (in rural areas). Factors like technology (digital India campaign by the government) and technological benefits (UPI 2.0, etc.) have played a decisive role in the efficiency and adoption. UPI has also had a significant role in ensuring financial inclusion becomes accessible to millions of individuals who have been underserved by digital transactions until recent past. However, with this pageant evolution, security is questioned specifically as well, in the context of fraud and data privacy. To win the trust of its consumers and ensure further success of UPI, since 38 percent of its users still express security concerns, it is necessary to strengthen the methods of fraud detection, provide additional education to consumers on the ways of using the safe practices, and implement other security advancement methods, to win the trust of the citizens. Such concerns will matter most in helping to further develop UPI and make it a stable and reliable system of payments that all members of society will be content with being a member.



6. Recommendations

Based on the findings of the research the following recommendations can be made:

Improve the security levels: Fraud detection methods, confusion detection, need to be boosted and users need to be informed on how to stay safe over the cyber world in order that trust levels can be built on UPI.

- Specializing Financial Literacy Training: It must increase its financial literacy training especially at rural limits wherein users are made aware on the benefits and security as regards making digital payments. Efforts may be in the form of in-place workshops, online tutorials and company work with leaders of the community.
- Infrastructure Development: Banks, telecom providers and government should be supportive of further offering access of mobile internet, and affordability of smartphones in rural areas.
- New Target in UPI: They should also add some features to UPI to boost user experience and retention with micro-loans, Insurance products and cross-border payments.

References

- Agarwal, R. (2022). *The Future of Digital Payments in India: A Case Study of UPI*. Journal of Digital Banking, 29(1), 78-92.
- Bansal, H., & Malhotra, K. (2020). *Impact of Pandemic on Consumer Payment Preferences: A UPI Perspective*. Journal of Financial Technology, 8(1), 15-28.
- Gupta, A., & Verma, P. (2020). *UPI Adoption and Its Role in Digital Economy*. Journal of Indian Economy, 34(3), 21-35.
- Gupta, V., & Chauhan, N. (2022). *The Evolution of UPI and its Role in India's Digital Economy*. International Journal of Digital Economics, 19(2), 98-112.
- Joshi, P. (2020). *The Rise of UPI in India: A Study on the Role of Government Initiatives*. Journal of Financial Technology, 12(2), 45-58.
- Kumar, R., & Jain, A. (2021). *Technological Innovations in UPI Payments: Current Trends and Future Directions*. Journal of Information Technology and Finance, 22(1), 112-128.



- Mehta, N. (2021). *Government Initiatives for Digital Payment Growth Post-COVID*. Indian Government Review, 18(2), 87-102.
- National Payments Corporation of India (NPCI). (2022). *Annual Report 2022-23*. NPCI. Retrieved from <https://www.npci.org.in>
- Rajput, P., & Sharma, A. (2022). *Consumer Behavior and UPI Growth in Post-Pandemic India*. Indian Journal of Digital Payments, 15(4), 65-74.
- Rao, P., & Desai, M. (2020). *Adoption and Diffusion of Digital Payments in India: A Case of UPI*. Journal of Digital Payment Systems, 5(2), 55-70.
- Sharma, M., & Gupta, S. (2021). *Impact of COVID-19 on Digital Payments in India*. International Journal of Finance and Banking, 7(1), 30-44.
- Sharma, R. (2022). *Digital Payment Ecosystem in India: Post-COVID Scenario*. Global Journal of Finance and Economics, 16(4), 233-247.
- Singh, A., & Sharma, R. (2021). *UPI and Financial Inclusion: A New Era of Digital Payments*. International Journal of Digital Finance, 23(1), 10-23.
- Soni, S. (2022). *The Role of UPI in Enhancing Financial Inclusion in India*. Journal of Financial Inclusion, 6(3), 45-61.
- Verma, R. (2021). *Consumer Experience and UPI Payment Systems*. Journal of Digital Transformation, 13(2), 40-59.