

## UPI IN THE REALM OF DIGITAL PAYMENTS: A STUDY ON THE GROWING INFLUENCE OF UPI IN RETAIL DIGITAL PAYMENT ECOSYSTEM IN INDIA

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### ABSTRACT

*The Banking sector of India is one of the most important pillars of the Indian economy which not only helps in the development but also in stabilizing the economy in times of inflation or deflation. After the launch of the New Economic Policy of 1991, the Indian Banking sector has undergone several changes with the establishment of new Private Banks in different parts of the country and privatization of the public banks. The Digital Payment system is one of the products of Modern Banking which has seen tremendous growth in the last 10 years with new and innovative payment methods being added to the basket. To support digital payments "The National Payment Corporation of India (NPCI)" created the "Unified Payment Interface (UPI)", which is a simplified cost-effective innovation for providing digital payment services. Technical advancements, fast internet connections and low-cost smartphones have resulted in the growing use of Digital Payments. UPI is a revolutionary technique of sending money using a VPA (Virtual Payment Address) designed by the NPCI to promote a paperless and cashless economy. As a result, its ability to contribute to the attainment of the digital economy must be considered. This research is concerned with comprehending the growth of UPI in the retail online payment ecosystem by investigating various secondary data sources. The research also analyses user's perceptions of UPI service. The findings show that UPI has experienced rapid growth in recent years because of its simplicity, convenience, security and cost-effectiveness and customers' preference for paperless payments over other methods.*

**KEYWORDS:** UPI, Digital Transactions, Digital Payment, Retail Payment, NPCI, Fintech.

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### Introduction

Digital payment also known as online or electric payment is a method of payment in which both the payer and the payee use online channels to transmit and receive money. Digital payments do not include actual cash payments to be done (currency notes). All transactions involving digital payments are conducted online. It is a quick and easy method of payment.

With an increased use of Information and Communication Technology (ICT), the banking sector of India is entering into the modern era. Gradually it is shifting the financial system from paper to virtual mode, allowing for faster, safer and protected fund transfers between bank accounts. Furthermore, ICT enables a wide range of online or electronic payment systems. Currently, available digital payment systems include Debit and Credit cards, Digital wallets, UPI (Unified Payment Interface), USSD (Unstructured Supplementary Service Data), IMPS (Immediate Payment Service), NEFT (National Electronic Fund Transfer), RTGS (Real Time Gross Settlement), AEPS (Aadhar Enabled Payment

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System), and Mobile banking. Among these, the most popular type of digital payment system is UPI (Unified Payments Interface) which is a joint initiative of the National Payments Corporation of India (NPCI), the Reserve Bank of India, and the Indian Banks Association (IBA). It enables users to perform a wide variety of transactions with the help of their smartphones. One can easily transfer money on the UPI network without revealing sensitive account details by using a VPA (Virtual Payment Address). Immediate Payments Service (IMPS) is another NPCI project. UPI is regarded as the more sophisticated form of IMPS.

However, to make UPI payments, users have to get registered on the UPI app and they must also have a bank account. UPI Apps include a variety of Apps such as SBI Pay, PhonePay, G-Pay, Axis Pay, BHIM, and WhatsApp Pay. A current account, like a Point of Sale (PoS) computer, is necessary for commercial companies. Currently, all banks and FinTech firms provide Unified Payment Interface services via their mobile applications.

#### **Pros of Using UPI**

- By setting up a UPI PIN, payments or money transfers can be conducted most securely.
- The UPI is one of the cheapest e-payment systems, it is supported by nearly all banks. Transactions can be conducted using UPI-enabled banks, which are simple and free of charge.
- UPI also allows to transfer money and request money at the same time. It deposits funds into the account in a matter of seconds or transfers funds to another account.
- To encourage UPI transactions, payment applications and banks give cashback incentives.
- Instead of a bank account number or card number, the UPI payment system uses UPI-ID or VPA (Virtual Payment Address) which makes it more secure as compared to other Digital payment methods.

#### **Cons of using UPI**

- For small transactions, UPI payment is a good option. But when transferring a larger sum, a different method of online transfer is preferable
- Safety may be compromised if someone reveals his personal information such as date of birth, UPI PIN, or any other information to anyone
- It may take a long time (often more than 48 hours) to settle the transactions if the bank server is down.
- The maximum daily transaction limit for UPI transactions is one lakh rupees and for verified merchants, it is two lakh rupees. Also, the total number of UPI transactions in a single day is limited to 20 which may vary across banks.
- A fast internet connection is a must to use the UPI service in case slow internet transactions get stuck in the midst.
- India is a developing country and many people do not hold any bank account or do not know how to use simple and safe financial services. However, low literacy rates and unclear factors have contributed to people refusing to utilize or having difficulty utilizing banking services. As a result, we needed to overcome these obstacles and simplify the payment procedure.
- UPI is an abstraction over standard fund transfer mechanisms such as IMPS. It aids in the concealment of important account information while also making the consumer's life easier. Also, unlike debit cards and net banking, UPI is quick and free. Hence the study is conducted to determine how the UPI as a digital payment service has performed in the last few years and what is its position in the digital payment ecosystem. It also studies the user's perception of UPI service which helps in understanding, discussing, and bringing forth the factors that drive the UPI transaction.

#### **Literature Review**

By 2026, the value of online payments in India is predicted to reach up to \$10 trillion, up from the current \$3 trillion, and cash transactions will decline subsequently. Online payment will represent 2 out of every 3 payment transactions by the year 2026, according to a **PhonePe Pulse-BCG** report titled *"Digital payments in India: A \$10 trillion potential"*.

According to **Karthik Raghupathy** (Head of Strategy and Investor Relations at PhonePe), “UPI has hastened India's migration to online payments”. Unsurprisingly, UPI has seen a 9x increase in transaction volume over the past three years, from 5 billion in FY19 to over 46 billion in FY22, accounting for more than 60% of non-cash transaction volumes in FY22.

“By 2026, 65% of transactions in India will be conducted digitally, up from the current 40%, and the country will be a major source of payment flows”, according to **Prateek Roongta** (Managing Director and partner at Boston Consulting Group).

### **Digital Payment**

Online payments are transactions carried out using digital tools, such as mobile wallets, virtual currency coins like Bitcoin, and various other methods of electronic payment. Digital Banking or FinTech Banking means the use of technology to accomplish smooth financial transactions [1]. A payment transaction in a seamless system is considered a “digital transaction” if no cash is used to complete at least one of the two legs, if not both (i.e., payer or receiver or both). This covers transactions that involve the transfer or receipt of money via a digital or electronic medium by both the sender and the recipient [2]. As the popularity of digital payment among consumers has increased, bank clients' tastes have changed from a paper-based payment approach to an online approach. E-payment technologies in the retail industry have played a very important role in contributing to increased ‘financial inclusion’. Businesses are utilizing digital payment systems to capitalize on the new opportunities afforded by the digitized economy. However, several challenges are hindering digital payment adoption that must be addressed right away [3]. In India, the relationship between the nation and its currency has changed as a result of the increased use of E-payment methods in retail commercial operations. This is demonstrated by the quick uptake of retail online payment methods including e-wallets, IMPS, UPI, and others. Even while cash is still king, it is increasingly seen as a way to store money as a form of asset rather than a way to conduct transactions. Future payments would be made according to the speed, convenience, and competitiveness of the medium used. Cash has always been seen as the king in the eyes of the common man, but with the advent of the UPI payment system, digital has now been elevated to the status of a deity. Cash is still king, but it is less and less seen as a means of making payments and more and more as a way to store money as an economic asset. “IMPS and UPI are 2 rapid payment platforms that have expanded retail online payments in India” [4]. Since demonetisation, India's e-payment infrastructure has expanded significantly. According to the **RBI**, “between 2014-19, digital payments grew at a compound annual growth rate (CAGR) of 61% in volume and 19% in value”. The growth of disruptive market participants, innovative payment systems, ongoing technological improvements, and regulatory initiatives have all contributed to and sped up the development of the online payment ecosystem [5].

### **UPI (Unified Payment Interface)**

The ‘National Payments Corporation of India (NPCI)’ is in charge of the retail payment and settlement systems in India's payment ecosystem. To enable digital payments in India, NPCI developed a ground-breaking and the most innovative payment tool called the Unified Payment Interface (UPI). It is a digital payment system that allows any member bank's mobile application to carry out various banking operations and retail business payments. Collection requests for “Peer to Peer (P2P)” can be organised and paid depending on convenience and requirement. UPI began as a pilot initiative with 21 participating banks. On April 11, 2016, **Dr. Raghuram G. Rajan** (former governor of RBI), officially inaugurated it in Mumbai [6]. UPI-enabled applications have been submitted to the Google Play store by participating banks since August 25, 2016. As of June 2021 data, there were 227 banks on UPI, with a monthly volume of around 2.8 billion transactions of Rs.5,47,373.17 crore [7]. In 2018, to increase the single transaction cap to two lakh rupees, the UPI platform underwent an upgrade to UPI 2.0. Money may be transferred instantly and with just a few clicks from one bank account to another thanks to the UPI, a technology-enabled payment system. Money can be sent or requested using several payment methods, including VPA, Account Number, Mobile Number & IFSC, QR Code and AADHAR. Simplicity, Innovation, Adoption, Safety, and Cost (SIASC) are the main forces behind UPI [8].

### **Retail Payment**

Retail transactions are those with modest denominations and a significant number of them. Retail payment systems have a variety of characteristics. They are specially designed to handle a high number of low-value individual payments [9]. High-value transactions are separate from retail payments. They are used in many contexts other than only interbank transactions, such as in-person payment using POS machines and internet payment. A wider range of payment options are used in retail purchases,

which include both online and paper-based, in comparison to high-value transactions. The various providers of payment services including banks, post offices, FinTech firms, and others, typically handle retail payments, as opposed to large-value transfers, which are mostly relying on Central bank (RBI) operated NEFT and RTGS systems [10].

### Research Gap

Studies conducted in the past mainly focused on the growth of digital payment as a whole. Very few papers have shown the growth of UPI. The present study analyses the growth of UPI from its inception till the present period (July 2023) along with the user's perception which helped in understanding, discussing, and bringing forth the factors that drive the UPI transaction. Research also provides some suggestions to strengthen the UPI service for the growth of Digital payment in India.

### Objectives of the Study

- To understand the role of UPI in retail digital payments.
- To examine UPI's growth in the ecosystem of digital payments.
- To study user's perception of UPI Service.
- To find the drivers responsible for the growth of UPI in the digital payment ecosystem.
- To suggest measures to overcome the shortcomings in the online payment system and encourage large-scale adoption.

### Methodology

This research is based on exploratory research design. The necessary information is gathered from secondary sources, including government publications, published research articles, and RBI reports, among others. Analysis of UPI growth and prospects in the world of digital payments is based on data gathered. The research also uses Primary data to study the perception of users about UPI service which is collected using a structured questionnaire/schedule including close-ended questions collected from Rural and Urban areas of Lucknow city. A convenience sampling method was adopted to choose the sample units having at least one bank account and a smartphone with an internet connection. 147 samples were collected, out of which 142 samples were appropriate.

### Analysis and Interpretation

- **UPI Monthly Statistics**

**Table 1: Monthly Growth of UPI (Period: From July 2016 –July 2023)**

Month and Year	Number of Member Banks	Transaction	
		Volume (in mn)	Value (in Cr.)
July 2023	473	9964.26	1533536.44
July 2022	338	6289.37	1063117.04
July 2021	235	3247.82	606281.14
July 2020	164	1497.36	290537.86
July 2019	143	822.29	146386.64
July 2018	114	273.75	51843.14
July 2017	53	11.63	3411.35
July 2016	21	0.09	0.38

Source:<https://www.npci.org.in>

NPCI established the UPI service in 2016 with the involvement of 21 banks. During July 2016, UPI transactions were only 90 thousand rupees which grew to 1.163 crore in July 2017, and from there, UPI transactions and the number of member banks were continuously increasing. The UPI processed 9.96 billion transactions, according to NPCI data in July 2023, which shows a growth of around 58.43 percent as compared to July 2022, the highest ever in a single month since its inception and the numbers are increasing daily. During the Financial year 2022-23, 83.75 billion transactions have been executed on the UPI platform, reflecting a stunning increase of approximately 37.78 billion transactions, representing 82.2 percent annual growth.

- **UPI Position in India's Digital Payment Ecosystem**

**Table 2: UPI Statistics as per NPCI Database (Period: From 2016–17 to 2022–23)**

Year	Total Financial Transactions	UPI Transaction	% of UPI to Total	Total Financial Transactions	UPI Transaction	% of UPI to Total
	Volume (inmn)	Volume (inmn)		Value (in Bn)	Value (in Bn)	
2022–23	1,06,206.04	83,751.14	78.86%	3,22,367.02	1,39,206.78	43.18%
2021–22	64,703.18	45,967.53	71.04%	2,34,607.21	84,175.72	35.88%
2020–21	37,513.45	22,330.65	59.53%	1,65,529.97	41,036.54	24.79%
2019–20	26,493.23	12,518.62	47.25%	1,60,923.65	21,317.30	13.25%
2018–19	16,806.25	5,353.40	31.85%	1,36,719.23	8,769.70	6.41%
2017–18	9,857.60	915.23	9.28%	1,13,552.76	1,098.32	0.97%
2016–17	7,138.40	17.86	0.25%	96,626.07	69.47	0.07%

Source: <https://www.npci.org.in>

Online Banking (NEFT, IMPS, and RTGS), Banking cards like Debit and Credit cards, Aadhaar-based enabled payment systems (AePS), Electronic Wallets, and Unified Payment Interface (UPI) are just a few of the digital payment instruments that are included in India's digital payment ecosystem, according to the RBI database (UPI). According to the recent data of RBI for the Financial Year 2022–2023, UPI accounted for 83.75 billion transactions, which is 78.86 percent of all online payment transactions which was just 0.25 percent in the Financial Year 2016-17 and there is a continuous growth of UPI transactions in the overall digital payment system. This clearly shows the popularity of UPI among other Digital payment options (Table 2). Currently, more than half of all transactions are through UPI in the overall online payment ecosystem. Both the quantity and size of UPI network transactions, as well as other retail online payment transactions, have drastically expanded.

**User's Perception of the UPI System****Table 3: User's Perception of UPI in Rural Areas**

Sl. No	Questions	User's Perception (in Percentage)	
		Yes (%)	
		Rural	Urban
1	Do you think using UPI is more convenient compared to other electronic or digital payment	37%	72%
2	Do you think UPI is more cost-effective compared to other electronic or digital payment	43%	81%
3	Do you think using UPI is safer compared to other electronic or digital payment	24%	63%
4	Do you think UPI transactions take less time compared to other electronic or digital payment	48%	78%

UPI is considered to be the most convenient, cost-effective and time-saving digital payment method as compared to other digital payment methods by the majority of respondents from rural and urban areas. However, when safety is concerned, UPI is not the safest method of digital payment according to the respondents from rural areas.

The rural population does not use UPI or other digital payment options very often, and they are still using cash for most of their transaction even though they all have a bank account and a smartphone with an internet connection.

Digital payment is much more popular in urban and semi-urban areas as compared to the rural. Rural people are hesitant to use e-payment due to a lack of awareness and safety issues. So, it is evident that UPI is getting popular in the overall digital payment system but not in the case of rural areas. And not only UPI but other digital payment methods are also not common in these areas. This needs consideration by the government.

### • **Drivers of Digital Payment**

From the study, it is found that the following Drivers lead to the widespread growth of UPI in the Digital Payment Ecosystem:

- **Simplicity:** Sending and receiving money should be as simple as possible. In the case of UPI, users just have to type the UPI-ID of the person to whom they are sending or requesting money on their smartphones. This makes UPI a convenient and simple payment system.
- **Adoption:** Almost everyone in the present world has smartphones and after the 4G Revolution by 'Reliance Jio' they also have internet connectivity at cheaper rates. This makes it possible for large-scale adoption of UPI as a payment system. Also, the sender and receiver don't need to have the same mobile.
- **Security:** One of the main concerns in any digital payment is security. The data is protected between sender and receiver in case of UPI. UPI is also one of the safest digital payment systems as there is no requirement for any details like Bank card number, Account number & IFSC code. Also, while making any payment, an M-PIN has to be entered which is just like an ATM PIN, this makes UPI more secure.
- **Cost** – transaction cost in UPI is zero or even if some banks charge for it, the cost is almost negligible. Also, you don't have to pay any amount to the banks to activate the UPI service. The mobile which you are using for making UPI payments is used for multiple purposes and UPI Payment is one such small purpose.
- **Time** – Transactions get settled in a matter of seconds in case of UPI payment. Also, the process of sending and receiving money is so simple and convenient that it can be done in seconds.

### **Conclusion**

The digital payment ecosystem consists of several transfer options which include banking cards such as mobile banking, credit cards and debit cards online banking (NEFT/IMPS/RTGS), digital wallets, the (AePS), and UPI. UPI provides better benefits through services like Convenient and speedy payments, zero transaction cost and high security. NPCI has added overdraft accounts, one-time payment mandates, and additional security measures to UPI 2.0. It has the distinct benefit of not requiring a beneficiary. Customers can use VPA to perform transactions without giving out technical details like their account number, IFS code, name, etc. Despite cyber dangers and technological hurdles, UPI has many chances in today's digital environment because of its core qualities like Adoption, innovation, simplicity, Security, and Cost-Effectiveness. The majority of individuals are shifting to cashless transactions due to a lack of cash and an approaching cash crisis. The increased usage of smartphones and internet penetration has also resulted in the widespread adoption of online or electronic payment services. People choose contactless payment techniques over other payment choices due to the COVID-19 pandemic outbreak. An interesting new option is a mobile payment system, which is becoming more popular as more people use smartphones and related apps. The acceptance of mobile payment systems is seen to be strongly influenced by the expected performance, social impact, data protection, cost, and safety. Customers benefit from UPI's quick and simple online transactions. However, the biggest disadvantage of UPI is that it is only available to persons who have bank accounts. The rural unbanked populace is deafeningly silent. In the future, user attitudes regarding UPI and other e-payment options might be examined and the findings analyzed using systematic behavior models.

### **Suggestions**

- Increasing consumer and merchant acceptance of digital payments through raising awareness and trust, particularly in tier 3 to 6 cities.
- Enabling suppliers of payment services and other interested parties to develop ethical economics and business.
- Regulation of the relationship between regulated banks and unregulated fintechs by clear and unambiguous rules (e.g., data management, FLDG norms, issuance of co-branded cards, etc.)
- All parties (banks, PSPs, and TPAPs) should make further investments in the nation's payments infrastructure to help reduce technical failures with time and increase customer confidence.

- To further improve client understanding and trust, the following measures could be taken:
- Real-time transaction monitoring, automated decision-making, and the prohibition of fraudulent transactions when they are found.
- To prevent account hacking or use without the user's consent, multifactor authentication (MFA) with linked biometrics is implemented.
- Setting up pre-determined transaction limits for new users will help minimize individual harm while still meeting minimum velocity requirements.
- Also there must be robust grievance redressal mechanisms to handle consumer complaints on time.

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