

# Impact of UPI on Digital Transactions in India

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**Abstract:** In today's fast moving world online transactions are becoming a new normal. While cash still commands a significant portion of these transactions, there is no doubt that payment mechanisms such as Unified Payments Interface are fast becoming the new normal with the simplicity and ease, they provide for conducting transactions. The basic objective behind this study is to see the growth of online transactions in India and the impact of Unified Payments Interface.

**Keywords:** Information and Communication Technology (ICT), Digital transactions, Unified Payments Interface (UPI), Online banking.

## 1. Introduction

Introduced in 2016, UPI is considered the best financial innovation in India post-independence by Fortune Magazine. In 2022, it has facilitated around 45 billion transactions worth Rs. 77.94 trillion. Developed by the National Payments Corporation of India it is an instant real time payment system which facilitates both Peer to Peer (P2P) as well as Peer to Merchant (P2M) in interbank transactions. By providing the facility to transfer money from one account to another without the procedure of entering the account number, IFSC code etc each time the system has provided a boom to the Government of India's plan for Digital India.

## 2. Literature Review

Saroy Rajas, Awasthy Sakshi, Singh K. Naveen, Adki M. Sonali, Dhal Sarat (2022) opined in their paper 'The Impact of Covid-19 on Digital Payment Habits of Households' that digital literacy, awareness, post pandemic government income support have played an immense role in digitisation. Apart from these factors 'reluctant switchers' - who once gave up digital modes in the past but returned after the pandemic are also likely to stay because of greater trust from customers, more merchant onboarding, better security and improved infrastructure.

A. Mahesh and Bhat Ganesh (2021) in their paper 'Digital Payment Service in India- A Case Study of Unified Payment Interface' have focused on how UPI by offering advantageous services like instant payment using QR code, payment of various fees and so on has surpassed other methods of digital Payments like Internet Banking despite the challenges it faces in the form of cyber threat and security. UPI has a lot of opportunities in today's digital world due to it's key strength in the form of SIASC - Simplicity, Innovation, Adaptation,

Security and Cost Effectiveness.

The NPCI PRICE Report 2020 concluded that there has been a strong consumer momentum in favour of online banking and digital transactions. Providing the users with knowledge regarding the usage and safety measures of these platforms could play a huge role in shifting India towards a less-cash society.

## 3. Importance of the Study

For decades Information and Communication Technology has changed the way activities are conducted around us. It has provided us real time access to any kind of information we want at any time. It has touched every aspect of our lives - education, health, business, shopping and the banking sector is no exception to it. It has helped in reducing human error, avoiding usage of excess paper, speeding up transactions and providing facilities at our fingertips.

Unified Payments Interface is a part of the ICT driven innovation in the Indian Banking Sector which helps in real time payment from one account to another using Virtual Payment Address (VPA) and KYC linked Mobile number. It also generates QR code for contactless payment. This system has helped to boost online transactions in the economy since its inception in 2016. According to a RBI report in 2011, only six non-cash transactions were conducted per person in the economy while 1 crore retailers accepted card based payments and nearly 15 crore families had no access to any form of banking. Such a scenario was not conducive for the development of the country and hence RBI released a vision statement in 2012. According to the statement, it decided to commit resources towards a safe, efficient, accessible, inclusive, interoperable and authorized payment system in India.

Since its inception UPI has helped to achieve this vision of RBI. It has provided a platform for 24\*7, 365 days a year service without the previous hassle of entering Account Number, IFSC code etc., every time while carrying out an online transaction. This has helped in boosting online transactions in the country along with achieving financial inclusion where even street vendors have started using UPI for accepting payments. It has not only created a payment ecosystem for producers and consumers but also helped in cloud-first and data centric organization and helping to curb the shadow economy. By promoting online transactions among the

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citizens it has also promoted sustainability by saving paper thereby contributing to Sustainable Development Goal 12 - Responsible Consumption and Production to which India is a signatory.

Ever since its introduction UPI has not only gained an active user base in India but it has also been adopted by many countries like Nepal, Bhutan, UAE, UK and Singapore. In the month of August, 2020 UPI surpassed American Express and is predicted to surpass VISA and Mastercard by 2023 according to reports by NITI Aayog.

#### 4. Objectives of the Study

- To study the trend of online transactions in India and the impact of UPI.
- The impact of Covid-19 on online transactions.

#### 5. Research Methodology

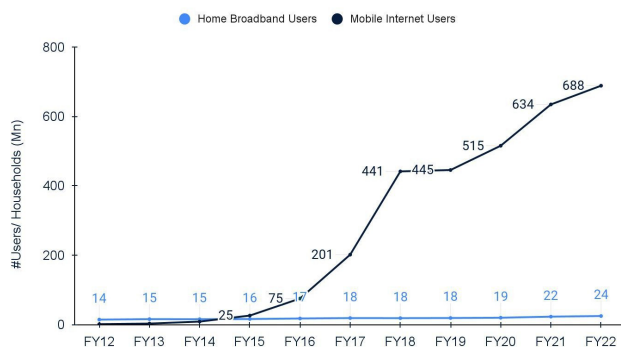


Fig. 1. Growth of mobile internet and bandwidth users in India from 2012-2022

Table 1

Number of banks live on UPI, volume (in million) of transactions and value (in crore) of transactions as of September, 2022

Month	No. of Banks live on UPI	Volume (in Mn)	Value (in Cr.)
Sep-22	358	6,780.80	11,16,438.10
Aug-22	346	6,579.63	10,72,792.68
Jul-22	338	6,288.40	10,62,747
Jun-22	330	5,862.75	10,14,384
May-22	323	5,955.20	10,41,506
Apr-22	316	5,583.05	9,83,302.27
Mar-22	314	5,405.65	9,60,581.66
Feb-22	304	4,527.49	8,26,843.00
Jan-22	297	4,617.15	8,31,993.11
Dec-21	282	4,566.30	8,26,848.22
Nov-21	274	4,186.48	7,68,436.11
Oct-21	261	4,218.65	7,71,444.98
Sep-21	259	3,654.30	6,54,351.81
Aug-21	249	3,555.55	6,39,116.95
Jul-21	235	3,247.82	6,06,281.14
Jun-21	229	2,807.51	5,47,373.17
May-21	224	2,539.57	4,90,638.65
Apr-21	220	2,641.06	4,93,663.68
Mar-21	216	2,731.68	5,04,886.44
Feb-21	213	2,292.90	4,25,062.76
Jan-21	207	2,302.73	4,31,181.89
Dec-20	207	2,234.16	4,16,176.21
Nov-20	200	2,210.23	3,90,999.15
Oct-20	189	2,071.62	3,86,106.74
Sep-20	174	1,800.14	3,29,027.66
Aug-20	168	1,618.83	2,98,307.61
Jul-20	164	1,497.36	2,90,537.86
Jun-20	155	1,336.93	2,61,835.00

May-20	155	1,234.50	2,18,391.60
Apr-20	153	999.57	1,51,140.66
Mar-20	148	1,246.84	2,06,462.31
Feb-20	146	1,325.69	2,22,516.95
Jan-20	144	1,305.02	2,16,242.97
Dec-19	143	1,308.40	2,02,520.76
Nov-19	143	1,218.77	1,89,229.09
Oct-19	141	1,148.36	1,91,359.94
Sep-19	141	955.02	1,61,456.56
Aug-19	141	918.35	1,54,504.89
Jul-19	143	822.29	1,46,386.64
Jun-19	142	754.54	1,46,566.35
May-19	143	733.54	1,52,449.29
Apr-19	144	781.79	1,42,034.39
Mar-19	142	799.54	1,33,460.72
Feb-19	139	674.19	1,06,737.12
Jan-19	134	672.75	1,09,932.43
Dec-18	129	620.17	1,02,594.82
Nov-18	128	524.94	82,232.21
Oct-18	128	482.36	74,978.27
Sep-18	122	405.87	59,835.36
Aug-18	114	312.02	54,212.26
Jul-18	114	273.75	51,843.14
Jun-18	110	246.37	40,834.03
May-18	101	189.48	33,288.51
Apr-18	97	190.08	27,021.85
Mar-18	91	178.05	24,172.60
Feb-18	86	171.4	19,126.20
Jan-18	71	151.83	15,571.20
Dec-17	67	145.64	13,174.24
Nov-17	61	105.02	9,669.33
Oct-17	60	76.96	7,057.78
Sep-17	57	30.98	5,325.81
Aug-17	55	16.8	4,156.62
Jul-17	53	11.63	3,411.35
Jun-17	52	10.35	3,098.36
May-17	49	9.36	2,797.07
Apr-17	48	7.2	2,271.24
Mar-17	44	6.37	2,425.14
Feb-17	44	4.38	1,937.71
Jan-17	36	4.46	1,696.22
Dec-16	35	1.99	707.93
Nov-16	30	0.29	100.46
Oct-16	26	0.1	48.57
Sep-16	25	0.09	32.64
Aug-16	21	0.09	3.09
Jul-16	21	0.09	0.38
Jun-16	21	0	0
May-16	21	0	0
Apr-16	21	0	0

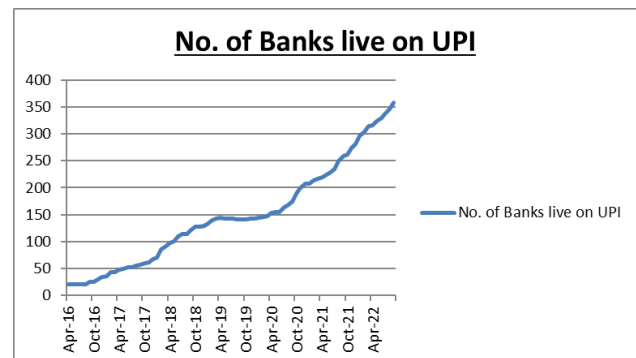


Fig. 2. Number of banks live on UPI from April 16 to September 22

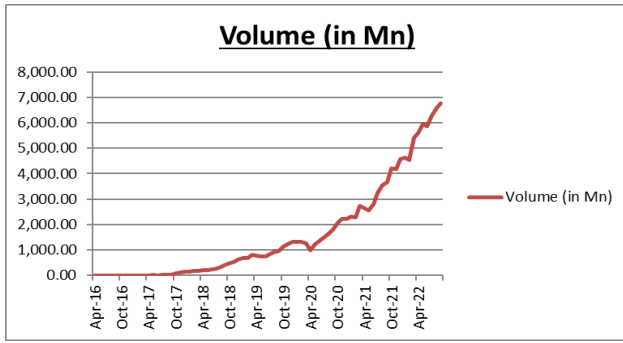


Fig. 3. Volume (in mn.) of transactions from April 16 to September 22

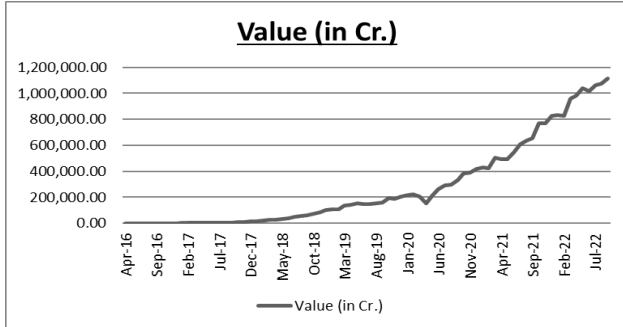


Fig. 4. Value (in cr.) of transactions from April 16 to September 22

Table 2  
Total volume and value of transactions on UPI in a yearly basis (till September, 2022)

	Total Volume (in Mn)	Total Value (in Cr.)
2016	2.65	893.07
2017	418.8	57020.87
2018	3746.32	585710.45
2019	10,787.54	18,36,638.18
2020	18,880.89	33,87,744.72
2021	38,744.55	71,59,285.80
2022	51,600.12	89,10,587.82

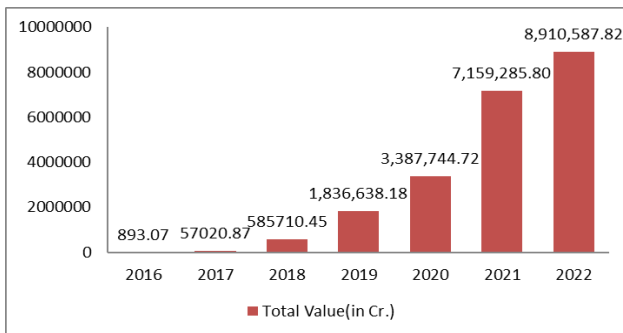


Fig. 5. Growth in value of transactions (in crore)

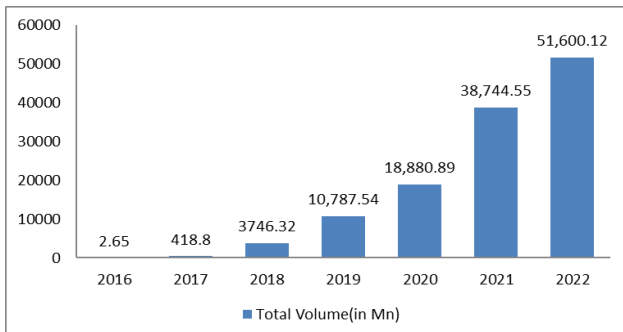


Fig. 6. Growth in volume of transactions (in million)

Table 3  
Percentage change in the volume and value of transactions in a yearly basis

Year	Δ Vol. (in mn.)	Δ Vol. (%)	Δ Val. (in cr.)	Δ Val. (%)
2017-18	3327.52	794.54	528689.58	927.19
2018-19	7041.22	187.95	1250927.73	2113.57
2019-20	8093.35	75.02	151106.54	84.45
2020-21	19863.66	105.21	3771541.08	111.33
2021-22 (Upto Sept.)	12855.57	33.18	1751302.02	24.46

As we can see from the above analysis (Table 3), the percentage change in volume and value of transactions has increased in 2020-21, thereby implying that the pandemic acted as a catalyst in the growth of UPI.

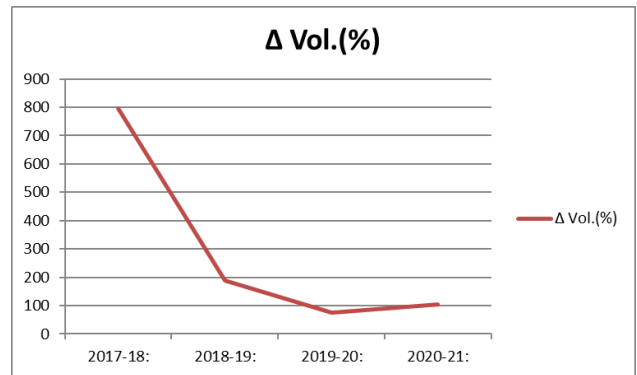


Fig. 7. Trend in change in volume of transactions (in %)

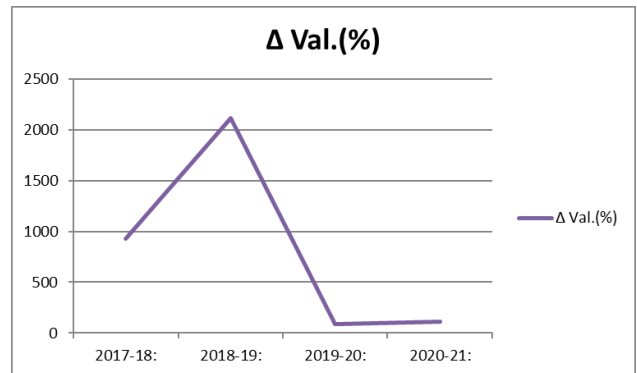


Fig. 8. Trend in change in value of transactions (in %)

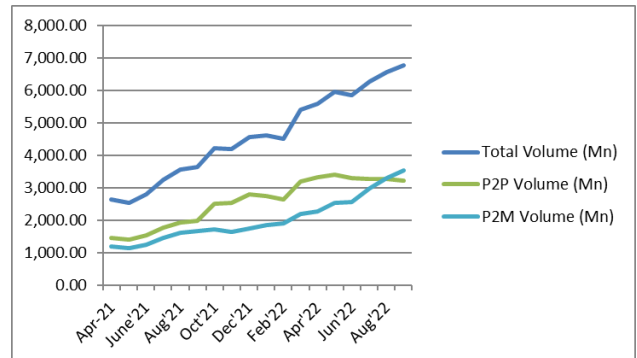


Fig. 9. Trend in the volume of P2P and P2M transactions

Table 4  
Number of P2P and P2M transactions in both volume and value:

Month	UPI P2P and P2M Transactions					
	Total		P2P		P2M	
	Volume (Mn)	Value (Cr)	Volume (Mn)	Value (Cr)	Volume (Mn)	Value (Cr)
Apr-21	2,641.06	4,93,663.67	1,448.53	4,11,827.19	1,192.53	81,836.48
May'21	2,539.57	4,90,638.65	1,396.99	4,03,884.58	1,142.58	86,754.07
June'21	2,807.51	5,47,373.17	1,550.08	4,47,775.59	1,257.43	99,597.58
July'21	3,247.82	6,06,281.14	1,781.79	4,93,664.08	1,466.03	1,12,617.06
Aug'21	3,555.55	6,39,116.95	1,945.80	5,16,207.43	1,609.74	1,22,909.52
Sep'21	3,654.30	6,54,351.81	1,981.03	5,28,973.37	1,673.26	1,25,378.44
Oct'21	4,218.65	7,71,444.98	2,507.12	6,21,400.74	1,711.53	1,50,044.24
Nov'21	4,186.48	7,68,436.11	2,547.94	6,18,101.55	1,638.54	1,50,334.56
Dec'21	4,566.30	8,26,848.22	2,812.00	6,69,127.56	1,754.30	1,57,720.66
Jan'22	4,617.15	8,31,993.11	2,757.61	6,67,270.65	1,859.54	1,64,722.46
Feb'22	4,527.49	8,26,843.00	2,631.65	6,63,841.98	1,895.84	1,63,001.03
Mar'22	5,405.65	9,60,581.66	3,201.15	7,77,823.30	2,204.50	1,82,758.36
Apr'22	5,583.05	9,83,302.27	3,319.85	8,05,925.89	2,263.20	1,77,376.39
May'22	5,955.20	10,41,520.07	3,408.55	8,27,153.68	2,546.65	2,14,366.39
Jun'22	5,862.75	10,14,384.31	3,302.67	8,00,412.50	2,560.08	2,13,971.81
Jul'22	6,288.40	10,62,991.76	3,289.15	8,32,265.84	2,999.25	2,30,725.92
Aug'22	6,579.63	10,72,792.68	3,289.26	8,33,370.86	3,290.37	2,39,421.82
Sep'22	6,780.80	11,16,438.10	3,233.61	8,62,049.27	3,547.19	2,54,388.83

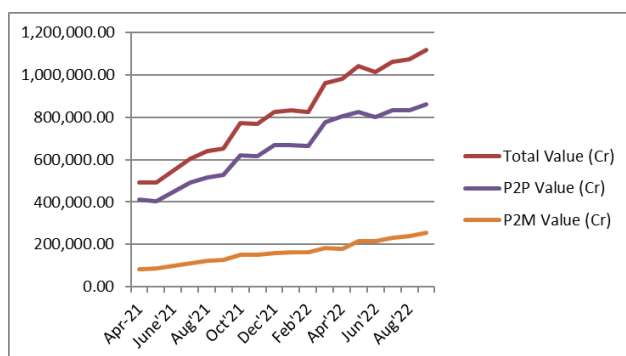


Fig. 10. Trend in value of P2P and P2M transactions

Table 5

Ranking of countries in volume of transactions in real time payment

Countries	Volume (in mn.)
India	48605
China	18549
Thailand	9734
Brazil	8691
South Korea	7351

Having a smartphone today is no longer an obstacle for digital Payments in India. Smartphones of different price ranges are available in the market catering to the need of different consumer groups. This backed by the cheap internet available in India over the last few years has had a huge impact on digital transactions in the economy. According to Indus Valley Annual Report 2022, the cost of 1 GB internet in India has dropped from around INR 268 to INR 6.6. This drop in the price of internet was the result of intense price war post the introduction of Jio. This led to penetration of internet to the lower income groups who couldn't afford it earlier. According to a report published by Internet and Mobile Association of India in 2022, it is estimated that there will be 900 million internet users in India by 2025.

Before the introduction of UPI, making transactions online was cumbersome. Initiating an electronic transaction meant requiring account numbers, branch details, IFSC codes and so

on. UPI solved this problem by providing a simple platform to transfer money with its interoperability. This allowed for easier acceptance of UPI as mode of payment. As of August 2021, UPI forms around 10% of all the retail payments in India. Moreover, the Government with its Digital India program has promoted digitisation across sectors like payment of money directly into the account of beneficiary via digital platforms. This has also created an environment for providing digital literacy to the citizen so that they adopt digital payment methods and go cashless.

Despite its negative effect on various sectors Covid-19 has proven to be silver lining for digital transactions in India. Payment platforms like Google Pay, PhonePe, etc. became a convenient choice of payment during the lockdown due to lack of mobility. Moreover, these firms joined the program initiated by Ministry of Electronics and Information Technology (MeitY) and Ministry of Housing and Urban affairs (MoHUA) to bring the street vendors in India on the digital platform. Covering around 223 cities in the country, the payment aggregators educated the vendors about the speed, convenience, cost saving, transparency and security. This also helped in the financial inclusion plans of the Central Bank and breaking the digital divide as well as improving ease of doing business in the country.

In Financial Year 2021, India accounted for the largest number of real time transactions with 48.6 billion. Comparing it with other developed economies like China (18 billion) it was three times more and almost seven times greater than the combined payments of the leading economies of the world - United States of America, Canada, United Kingdom, France and Germany. While digitisation in different sectors in India is yet to reach the level of most of these countries factors like simplicity, cost savings, increase in digital payments during the pandemic have played a major role in development of digital transactions. Another important factor behind the success is the Immediate Payment Service (IMPS) infrastructure which processes all the transactions along with the centralised facility backed by the Government. This has provided a more

democratic platform when compared to USA where they are yet to introduce a centralised system backed by the federal government though they do have privately owned payment wallets like PayPal.

### 6. Conclusion

While digital payments have witnessed immense growth owing to various factors as stated above there are still certain issues that various stakeholders involved need to put emphasis on.

The increase in adaption to online payment platforms has seen an increase in cases of fraud in the form of identity theft and confidence trickery which have amounted to around 12% and 14.4% respectively of total fraud as per a report by ACI Worldwide. Incidents like these can hamper the confidence of users in these payment platforms. Hence, the Government as well as the Payment Platforms should invest more in AI based technologies to detect such cases as well as educate people more about issues relating to online payments using various awareness programmes.

Another important issue hindering the growth is Cash still remains a comfortable mode of payment for many traders,

elderly people, and individuals who command an share of 58.1 percent of the total payments market. Steps should be taken to bring them into the digital payment's ecosystem.

By conducting transactions online, the overall efficiency of the economy can be improved plus it will bring more liquidity into the financial system. This will help in the economic growth of the country.

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