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Electronic payments in India – the UPI revolution

The Reserve Bank of India (RBI, the Indian central bank), through its umbrella organization National Payments Corporation of India (NPCI), launched the Unified Payments System (UPI) in April 2016. UPI is a system that powers multiple bank accounts into the mobile applications of participating banks or into the applications developed by third party fintech companies. There is also a payment app developed by NPCI called Bharat Interface for Money (BHIM) that allows to do payment without going through the bank online systems. The UPI is a centralized system that lets bank accounts easily transact with one another. It eliminates the need to enter personal information and the bank account number every time a transaction is made. Transaction limit on UPI per day is INR 100k (USD 1,200), but each bank or mobile application can set its own limit as well.

Payment revolution in India started in 2009 when NPCI was formed as an initiative to standardize payment mechanisms across the country. Looking at the lay of the land, an RBI study concluded in 2011 that an individual citizen only conducted six non-cash transactions per year on average, even though 10 million retailers accepted card-based payments. The importance of finding ways to cut underground circuits and “black money” (black money in India refers to money earned and not declared, hence on which income taxes and other taxes have not been paid) was also noted. A clear solution was to transfer a large number of transactions to a non-cash format, as per NPCI.

In 2016, two critical events to reach that goal. The first and most reported one was the 2016 demonetization drive which was undertaken to solve the black money issue in India: Overnight, INR 500 and INR 1,000 bank notes were demonetized across the country, without any advanced warning.



The second and more discreet action was the launch of UPI after four years of development by NPCI. Opening a UPI account is very easy. All that is needed is a bank account, a smartphone connected to the internet and a mobile number linked to the bank account. Activation takes around five minutes and subsequent transactions would not need any further input of bank account information. Each UPI registered user is given a unique UPI number. UPI transactions are free of charge for bank-to-bank transfers for all parties. Digital prepaid wallets offered by fintech companies such as Paytm can also be linked to the UPI account, but merchants incur a 0.5% to 1.1% interchange fee on prepaid wallet transactions of over INR 2,000 (USD 24).

During the first six months of the year 2023, UPI had processed INR 83.14 trillion (USD 1 trillion) worth of transactions, accounting for more than half of all Indian digital transactions. Around 70% of the transaction tickets was less than INR 500 (USD 6). If the 2016 demonetization clearly helped early adoption, Covid was also a big factor for volume growth as people were looking to shift from cash to cashless transactions as there was a large increase in e-commerce purchases.

Year	The Value of UPI Transactions
2023 (As of June)	INR 83.14 trillion
2022	INR 125.88 trillion
2021	INR 71.54 trillion
2020	INR 33.83 trillion
2019	INR 18.31 trillion
2018	INR 5.80 trillion
2017	INR 570.16 billion
2016	INR 8.90 billion

Source: RBI, DemandSage – September 2023

Over time, UPI has seen significant additional features come online. In 2022, it became possible for users to start opening an account with their Aadhar card. Aadhar is a government program that was launched in 2009. Under this program, citizens of India and foreign nationals who are Indian residents can obtain a 12-digit unique identity number which acts as a proof of identity through a biometric enabled card. Getting an Aadhar card is easy – the application can be made either in person at numerous enrollment centers throughout the country or through an online platform. The Aadhar card is typically received within six weeks. It is mandatory to use Aadhar to open a bank account. Hence, the Aadhar card is linked to bank accounts and can be used to open the UPI account without inputting the bank account number. If a user has multiple bank accounts, he or she is asked to choose one of the accounts to be linked to UPI. If the user doesn't have a bank account, the UPI account can be linked to a digital prepaid wallet, as previously mentioned.

On that last point, readers may remember that one of the purposes of Aadhar was to allow the entire population of India to gain access to banking services. Nowadays in India, it only takes an Aadhar number and a PAN number (Permanent Account Number, a tax account number delivered by the Income Tax Department to any person who applies for it) to open a bank account.

Consequently, since the Aadhar introduction, the proportion of the Indian population with a bank account has jumped from about 40% in 2011 to 78% in 2021 (for people aged 15 and above). Another purpose of Aadhar was to be able to ascertain someone's identity when delivering cash subsidies, and having payments made directly from the central government to the end beneficiaries, cutting in the process all intermediaries that were responsible for what is aptly called in India "leakages". Direct payments have been used since 2018 to pay all kinds of subsidies to hundreds of millions of farmers, including for purchasing seeds and fertilizers, but beneficiaries were only receiving a fraction of what they were supposed to receive, because of these "leakages".

In late 2022, UPI Lite was also launched. UPI Lite allows for offline transactions through a QR code that can be received through a UPI Lite-enabled app such as Google Pay, PhonePe, Paytm and BHIM. The transaction is completed once the sender's phone goes online. The user must load up money into their UPI Lite accounts before making UPI Lite payments – the upper limit of the amount that can be loaded up is INR 2,000 (USD24) and it can be done twice a day. The transaction maximum on UPI Lite is INR 500 (USD6). This allows UPI to effectively act as a wallet even in areas where the phone network is patchy or for people with limited access to data.

Two significant feature upgrades have happened so far in 2023. First, RBI allowed RuPay credit cards issued by a select few banks in India to be linked to the UPI account, which enables UPI transactions on credit. RuPay is a payment processor created by NPCI as an Indian alternative to Visa and Mastercard. While the Indian credit card penetration is low today with a 4% penetration rate, it is expected to rise. The total number of credit card payments in India is growing at a compounded annual growth rate of over 25%. This adds to the sophistication of the types of payments available through UPI and it may increase the use of credit.

Secondly, in September of this year, UPI-enabled ATM machines were released in India by certain banks. These ATMs allow for cash to be withdrawn using a UPI-enabled app. The user does not need to carry any bank card. He or she only needs a smartphone. The user must select the 'UPI Cardless Cash' option on the ATM and use a dynamic QR code on the app to withdraw the cash. The current transaction limit is INR 10,000 (USD 100) and there is no transaction charges for using UPI ATMs.



Overall, we see the success of UPI as a big positive for the Indian economy. It has turned India from a laggard to a leader in digital payments and cashless transactions adoption in a matter of a few years. UPI is now the largest standardized payment mechanism in the world, and it is galvanizing credit and debit card adoption, e-commerce transactions and retail transactions in general given its ease of use. It also made “black money” circuits in India more difficult to use as transactions can be tracked as they are linked to specific UPI numbers. Given the constant upgrades happening in the mechanism, we can expect the current form of UPI to keep on evolving over the coming years, increasing the adoption rate.

At some point it could potentially become a very powerful policy tool, giving very precise and current insights into the state and dynamics of the Indian economy. It could even become a tool for fast and targeted fiscal policy actions as it unifies people’s unique identity with their bank accounts through a payment system.

Source: The Economic Times, Paytm filings, Forbes, CNBC, Hindustan Times, Business Standard, InCred Research, DemandSage

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