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Digital payments in India: The road ahead

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India is a vast country with a population of more than 1.3 billion, with nearly one-seventh of its residents living in rural areas. However, India is blessed with a young demographic profile with half of the population younger than 21 years of age.

Mobile phones have penetrated almost all households, well into the hinterlands. Also, with a significant push to expand the banking network by the government and the Reserve Bank, most of the population is now either banking or within the banking industry's reach. A large share of the newly banked population has started banking activity, and the government benefits (such as those in the forms of subsidies and pensions) are now being directly transferred to the citizens through these accounts. The use of digital modes of payment have also gained steam, though the pace has been gradual and cautious.

On 8 November 2016, the government announced the withdrawal of INR15,440 billion (approximately US$241 billion) worth of domestic currency from circulation, thereby sweeping out 87% of the total currency notes. The measure demonetized the two highest denomination bank notes of INR500 and INR1000. The motivation of the government was to address corruption, black money, counterfeit currency, and terror financing.

Though the country was slowly moving into the digital payment space, cash continued to be the most preferred mode of retail transactions, with almost 78% of all consumer payments being made in cash. The informal sector, in particular, which accounts for 80% of employment and 45% of gross domestic product, continued to depend almost exclusively

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on cash for transactions. To take away 87% of cash from such a cash-dependent economy made the businesses and citizens gasp for alternate solutions. Timely measures and promotional announcements by the government to convert the distress into an opportunity provided digital payment an impetus, yielding immediate fruits. As aptly put by Mowat and Harrabin, challenging the cash market, which is 2,600 years old and still the dominant form of transaction in the world today, would have been as revolutionary as replacing fire or the wheel.

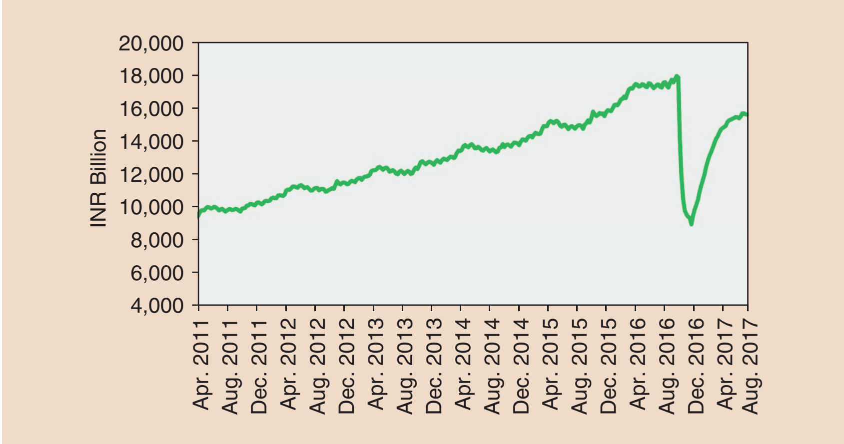

FIG1 Currency in circulation.

Post demonetization, the government and the Reserve Bank of India laid significant emphasis on digital modes of payment by announcing a series of promotional measures, such as rationalization of merchant discount rate (MDR), reduction in tax liabilities for merchants transacting digitally, and promotion of mobile app-based payments in a big way. These measures encouraged the migration of consumers from cash to digital modes of payments. We will now examine how, in the aftermath of demonetization, the digital payment space changed.

Impact of demonetization on ATM and POS usage

With the withdrawal of 87% of the currency in circulation, cash became scarce following demonetization (Fig. 1). People flocked to bank branches to exchange their demonetized currency notes, and the resultant general activity level in the economy fell in the initial first few days and weeks.

With scarcity of cash in the system, the use of debit cards at automated teller machines (ATMs) fell sharply [Fig. 2(a)]. In terms of value, ATM use plunged to its lowest level since 2011, replicating the trend in currency in circulation.

During this time, digital modes of payments began to surge. Debit card use at the point of sale (POS) shows an inverted mirror image of its use at ATMs, with digital transactions spiking both in value and volume [Fig. 2(b)].

Total currency in circulation before demonetization, on 4 November 2016, was INR17,977 billion and, as per the latest data from the Reserve Bank, the currency in circulation on 1 September 2017 stood at INR15,649 billion. With rapid remonetization, the Reserve Bank has already replaced 87% of the total currency. Even with the replacement of a substantial portion of currency, the use of debit and credit cards at the POS has not plunged back to the predemonetization level. There appears to be some stabilization in the increased level of digital payments through debit and credit cards. This shows that the demonetization shock had a significant impact in changing habits for at least few people (Figs. 3 and 4). Whether this is a structural shift in the behavior of customers brought in by the experiment of demonetization and/or if this is a new normal in digital payments is too early to establish with certainty.

During demonetization, the government provided several incentives to retailers and banks to spread the

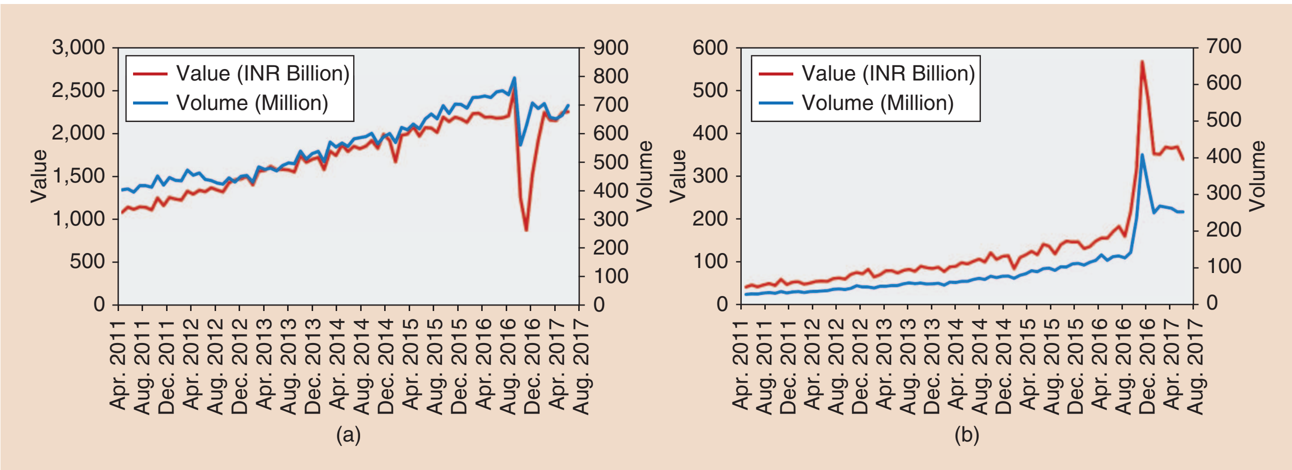

FIG2 Debit card use at (a) ATMs and (b) POS.

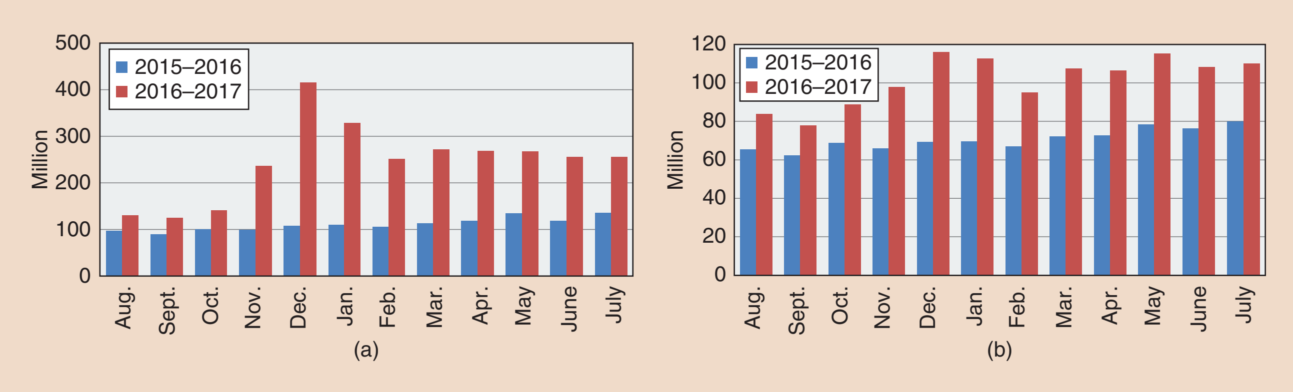

FIG3 The total volume at POS through the use of (a) debit cards and (b) credit cards.

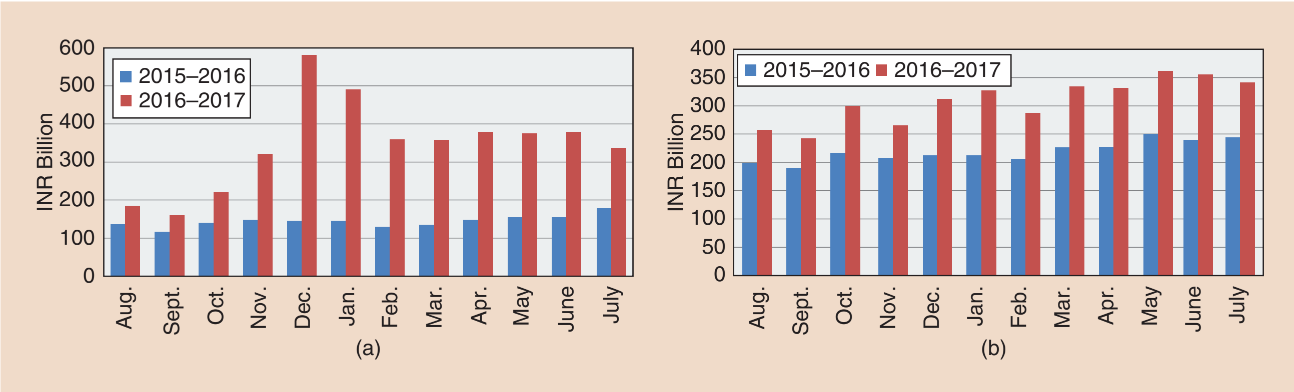

FIG4 The total value at POS through the use of (a) debit cards and (b) credit cards.

POS network. As a result, POS deployment increased rapidly (Fig. 5), which is also a factor attributing to increased use at the POS, as seen in Figs. 3 and 4.

Impact of demonetization on mobile payments

Even before demonetization, the use of cards at the POS was a well-established mode of digital payment that was largely restricted to big cities and organized retail. However, post-demonetization, with a scarcity of cash, the need for digital payments was felt throughout the country by every individual. Though, in smaller towns, in the absence of adequate POS infrastructure, the use of cards at the POS could not be instituted immediately, recourse to mobile payments, as an alternate, got a big thrust.

The major advantage of mobile payments is in its nondependence on POS or mobile POS terminals for making person-to-merchant payments, where both sides have a mobile device to make a digital transaction. Post-demonetization, even smaller merchants used mobile payments as a simple means to conduct retail transactions (person-to-person) digitally. Encashing on the scarcity in the availability of cash, mobile wallet companies, led by Paytm, on-boarded several merchants and customers to their platforms through aggressive campaigning and outreach. This, coupled with the ease of operations in carrying out m-Wallet transactions, helped in attaining a sharp uptick in the period immediately following demonetization [Fig. 6(a)].

Other than m-Wallets, the new mobile payment apps, Unified Payments Interface (UPI) and Bharat Interface for Money (BHIM), brought in by the National Payments Corporation of India (NPCI), gave a boost to mobile payments. Their promotion and use saw surges in payment service (IMPS) volumes from December 2016 [Fig. 6(b)]. UPI and BHIM

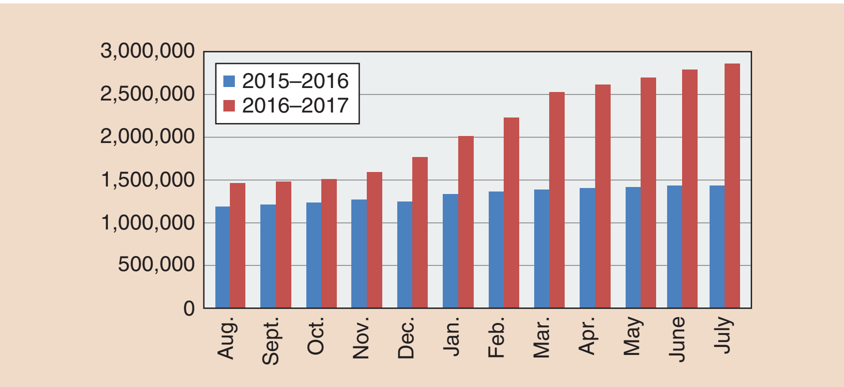

FIG5 The number of POSs.

operate on an IMPS technology, which is a 24/7 payment product of NPCI.

UPI and BHIM

Created by NPCI, the UPI, in its present state, is an excellent innovation for 24/7 digital payments. The UPI platform has already enabled all major banks, through their respective UPI apps, to make digital payments using mobile phones. The simplicity in operating these apps is akin to those of prepaid m-Wallet apps. Unlike m-Wallet apps that operate through prepaid mobile wallets, the UPI apps provide a secure, interoperable, unified fund transfer facility between two bank accounts on users' mobile phones. UPI provides an easy way to complete person-to-person and person-to-merchant transactions. In addition to the standard push feature (payer initiated) used to make payments, UPI has also incorporated the pull feature (a payee-initiated payment, like in credit and debit cards), making it attractive for merchant transactions. It not only has the potential to replace paper-based (cash/checks) transactions but also the National Electronic Funds Transfer (NEFT) and debit cards at POS/e-commerce. The NEFT is a near real-time account-to-account transfer of funds that is operational during the day.

In the development of the UPI product, the architecture envisaged a bank to provide the front-end UPI app and required all communications to be routed through the bank whose UPI app has been installed by a customer. The business model of such a design was similar to that of ATMs. Whenever a UPI app of bank X is used by a customer of bank Y, bank X receives a commission from bank Y for serving its customer. The UPI structure necessitated a bank to identify itself with its UPI app and its app-user routes transactions through this bank even if he or she is not banking with it but instead with a different institution.

This increases complexities and possible frictions in the form of multiple "hops." With many banks currently on the UPI platform, we see various bank-specific UPI apps with different names (such as Kotak's kaypay, Canara's eMpower, SBI's SBIpay, HSBC's SimplePay, BoB's Baroda MPAY, and Axis Bank's AXIS PAY, among others), front-ends, and features.

After being persuaded by the government and, more importantly, because of the catalytic effect demonetization had on digital payments, NPCI promptly brought out its own UPI app, BHIM, for direct use by bank customers. BHIM was dedicated to the nation by the country's prime minister at its launch on 30 December 2016. Through BHIM, NPCI acts as a switch to communicate messages directly between the payer and the payee. At the backend, under the UPI platform, NPCI communicates between the two banks for the financial leg of transactions.

With centrality of operations at NPCI, the primary advantage is that BHIM

- provides a uniform look and feel of the UPI app
- reduces one to two layers of bank involvement in transactions where the UPI app provider bank is neither the payer nor payee bank
- increases efficiency
- brings flexibility to its features
- increases the ease to innovate and improve.

With BHIM transactions surging [Fig. 7(a)], UPI transactions are also picking up [Fig. 7(b)]. With appropriate media campaigns, and acceptability for eCom transactions, UPI and BHIM could be the road ahead for digital payments and, over time, may surpass debit-card-based payments.

A major issue that needs to be resolved is the identification of a balanced fee/revenue model for such a futuristic digital payment platform. With an explicit revenue model for banks (independent of their earlier investments made in various cashless/paperless payment initiatives), it is important that whatever is proposed in this direction has clear considerations of the operational expenses in using cash as a payment mode—not only for banks but for the government and the economy in general. Moreover, if BHIM cannot ensure an inexpensive solution, the product itself will not attract the common person in India. While the need and convenience to go digital is now being felt by most consumers and businesses, including those in the unorganized retail markets, it is the opportune time to think of business strategies that provide long-term solutions.

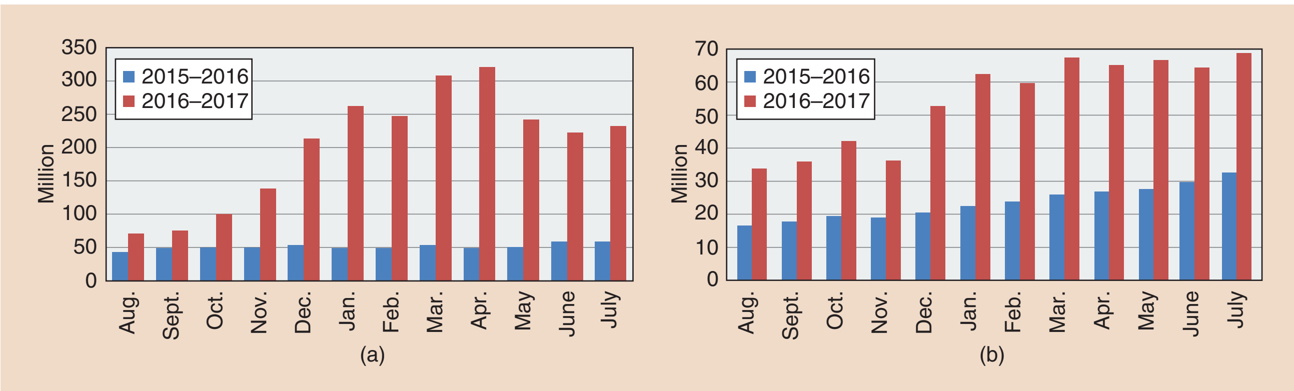

FIG6 The transaction volume through (a) m-Wallet and (b) IMPS.

BharatQR

After the launch of digital payment systems like UPI and BHIM, a new retail payment method was rolled out using quick response (QR) codes. BharatQR is the latest initiative to boost retail digital transactions by serving as a smart way for making payments across merchant outlets. It aims at enabling seamless payments for buyers by using a "scan to pay" method instead of swiping a debit or credit card at POS machines.

A QR code is a small, square-shaped printed code that is made up of grids of several tiny black squares. These types of codes store the required information and trigger a designated process when they are scanned by a camera in a smartphone.

BharatQR developed by joint efforts of NPCI, MasterCard, Visa, and American Express has great potential in the retail digital payment space. The interoperability of BharatQR ensures that a customer possessing an account at any bank will be able to directly pay the merchant who may have his or her account in any other bank. The merchant will only need to display a single QR code instead of having multiple QR codes of different payment partners corresponding to each credit card, debit card, or UPI platform.

A customer is required to use BHIM or a banking app with BharatQR functionality. At the physical merchant establishment or e-commerce site, the customer will only need to open the app and scan the merchant's BharatQR. He or she will then enter the amount (if it is not already embedded in the BharatQR) and authenticate the transaction. The amount is instantly transferred from customer's account to the merchant's bank account. Both the merchant and the customer will receive instant notification of the payment. BharatQR aims to eliminate the need of having a separate POS card-swiping machine at the merchant outlet.

While data suggests the stabilization of IMPS transactions after achieving sharp growth, as UPI, BHIM, and BharatQR pick up, the use is expected to post healthy growth in the future as well.

Policy measures for promoting digital payments

In the aftermath of the cancellation of the legal tender character of old INR500 and INR1000 notes, there has been a surge in digital transactions through use of credit/debit cards and mobile phone apps. To further accelerate this process, the central government took several measures incentivizing the promotion of a digital and cashless economy in India. Some of the measures that continue are summarized in the following section.

Government initiatives

a) Directions have been issued to all central government departments and central public sector undertakings to ensure that transactions fee/MDR charges associated with payments through digital means will not be passed on to the consumers. State governments and their organizations were also advised to consider absorbing the transaction fee/MDR charges related to digital payments, and the consumer should not be asked to bear it.

b) Railways through the suburban railway network are incentivizing digital payments by way of a discount up to 0.5% to customers for monthly or seasonal tickets. All railway passengers buying online tickets through digital means are given free accidental insurance coverage of up to INR1 million. For paid services (e.g., catering, accommodation, and retiring rooms) being offered by railways through their affiliated entities/corporations to the passengers, it is providing a discount of 5% for the payment of these services through digital means.

c) Public sector insurance companies are providing incentives, by way of discount or credit, up to 10% of the premium in general insurance policies and 8% in new life policies sold through customer portals if the payment is made through digital means.

d) The central government petroleum public sector undertakings are providing incentives by offering a discount at the rate of 0.75% of the sale price to consumers on the purchase of petrol/diesel if the payment is made through digital means.

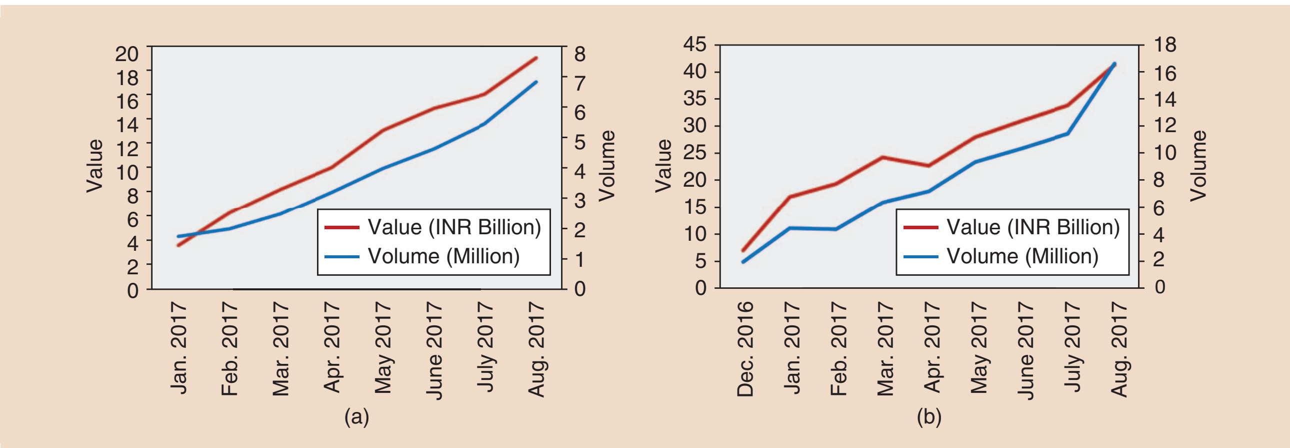

FIG7 Mobile payments through (a) BHIM and (b) UPI.

The central government took several measures incentivizing the promotion of a digital and cashless economy in India.

Tax benefits for transacting digitally at merchants' locations

a) For small and medium tax-paying merchants (with annual sales not exceeding INR20 million), instead of the present presumptive income being 8% of their annual sales, for all sales transacted through non-cash means, only 6% would be treated as the presumptive income.

b) For card transactions of values not exceeding INR2000, the 18% goods and services tax on the merchant discount fees is waived.

Measures taken by the Reserve Bank

a) The limit of a semiclosed prepaid payment instrument (PPI) with minimum details have been enhanced from INR10,000 to INR20,000.

b) The permission given to banks to issue PPIs has been extended to a larger set of entities/employers for onward issuance to their staff/employees/contract workers. This was previously permitted only for corporations listed on stock exchanges.

c) MDR on debit cards has been capped at 1% of transaction amounts. However, for small transactions up to INR1000 and for transactions in the range of INR1000–2000, MDR has been capped at 0.25% and 0.5%, respectively.

d) The resilience of the Indian payments and settlement systems has been enhanced by strengthening the consumer protection framework in digital payments.

Referral Schemes for BHIM and UPI

a) Customer referral scheme—the scheme is intended to incentivize an existing BHIM/UPI user to bring new users to the BHIM/UPI platform and encourage them to transact using BHIM/UPI with other users or refer new users to BHIM/UPI. The cash-back bonus is paid to both the referrer and the new user of BHIM/UPI (referee) with the referral being considered efficacious only after three successful financial transactions performed by the referee.

b) Merchant incentive scheme—this scheme applies to all merchants who receive payments on BHIM/UPI. The "Reward" section in the BHIM/UPI app displays the cash-back received to the merchant. Both push- and pull-based payments qualify for these rewards. Once the merchant accepts more than 20 valid payments from at least 20 unique customers, he or she becomes eligible for cash-back rewards.

The way forward

The government of India is promoting digital economy in a big way. The catalytic push from demonetization has hastened migration toward digital payments and has given a boost to new innovations. However, the ease in the availability of cash by progressive remonetization impacted the mood of many in returning back to cash. Further efforts are essential to enhance the use of digital payments going forward. The desirable way forward would be to ensure that

- transactions are user friendly and secure
- communication is seamless
- there is parity in transaction cost vis-a-vis cash and checks
- behavioral and cultural change among the people of India is fostered by building awareness toward digital payments
- benefits from advancements in technology feed into the development of a robust payment ecosystem that is easily scalable. This will help the country both in considerable cost savings by less use of cash and in helping the government to plug tax leaks by increasing accountability.

Acknowledgment

The data used in the figures (as of 11 September 2017) is from the Reserve Bank of India and the NPCI. The views expressed in this article are those of the authors and not necessarily of the institutions to which they belong.

Read more about it

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