Cashless Economy and the Unified Payments Interface: India's Digital Tryst with Financial Inclusion

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ABSTRACT

The Indian government has been pushing for a cashless economy for some time because they believe that it will be user-friendly, rapid, and transparent in addition to yielding more revenue for the government and improving budgeting. In 2016, the government took a significant step toward a cashless economy when it introduced the Unified Payments Interface (UPI), an interoperable payment system that allows users to make online cash transactions from their bank accounts in a matter of seconds. Many factors have led to UPI's rise in popularity, including the government's official policy of demonetization, the lockdown induced by the COVID-19 pandemic, and the extent of mobile phone penetration and internet access within India. This article argues that UPI has increased financial inclusion in India and can be a model for the transition to a cashless economy in other developing countries.

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INDIA STACK: AN INNOVATIVE STEP

In 2015, the Indian government announced its Digital India program aimed at "transforming India into a digitally empowered society."[1] One of the key vision areas of the initiative was to provide mobile phones and bank accounts to citizens to enable them to participate in the digital financial space and hence enable financial transactions to be electronic and cashless.[2] The long-term objectives of making the switch to a cashless economy included transparency, accountability, and market efficiency on the one hand, and curbing nefarious activities such as money laundering and terrorist-financing on the other. The government also considered user convenience, accurate expenditure tracking, budgetary discipline, and payment authentication as additional benefits of such a switch. In the same year, India joined the United Nations' Better Than Cash Alliance, which was described as "an extension of the Indian Government's commitment to reduce cash in its economy."[3]

These steps are part of a technology innovation project known as the "India Stack" (hereafter "the Stack") undertaken by the Government of India. The project seeks to provide solutions relating to inclusion in select areas from identity to data management. The infrastructure created in the Stack is considered a public good, enabling public and private sector innovation and collaboration.

One constituent element of the Stack involved the identification and inclusion of previously missing persons into the formal economy.[4] In order to achieve this objective, the government assigned a unique identification number to every citizen, known as Aadhaar, and opened bank accounts under the government program known as Pradhan Mantri Jan Dhan Yojana (PMJDY). This program facilitated access to banking facilities through the distribution of debit cards and mobile banking.[5] Remarkably, in just ten years, Aadhaar, PMJDY and other government initiatives under the Stack expanded financial access at a level that would have taken half a century without the use of technology.[6]

Today, the initial challenge of bringing people within the ambit of the formal economy has given way to the next stage: retention of people within the formal economy. Despite high enrollment in PMJDY, subsequent usage of bank accounts has remained low.[7] One reason for this is that many found operating a formal account to be more challenging than beneficial, especially when compared to the ease of cash. Another reason is uneven access to technology. Yet another is the low rate of technological and financial awareness among the general population. One way for the government to address these challenges would be to create enabling infrastructures that would allow people to access and maintain their bank accounts and conduct hassle-free transactions in all parts of the country, including rural areas. Such infrastructure could include user-friendly applications in vernacular languages, internet connectivity, or identified liaisons for specific areas who would be available to assist with troubleshooting. At the same time, the government should improve the payment and settlement system of the country to encourage people to use their bank accounts more by offering incentives like discounts and launching sustained awareness campaigns about the safety and transparency of such formal payment systems as well as the risks associated with informal cash-only payments. Retention of people within the formal economy can be achieved through the advent of a cashless economy, the next goal after the successful inclusion of a large chunk of people within the formal economy via the payment and settlement system. The factors contributing to the success of a cashless economy are discussed below.

FACTORS CONTRIBUTING TO THE SUCCESS STORY

The goal of achieving a cashless economy was particularly ambitious given that India had been a predominantly cash-driven economy, with 12.04 percent of its GDP circulating as cash and 72 percent of all payments within the country made with cash as recently as 2018.[8] The government took several steps to achieve its goal. First, in 2016, the government decided to demonetize 500- and 1000-rupee notes, which previously had together accounted for 86 percent of paper currency. This move contributed to a massive push toward the digitization of payments, in turn creating opportunities for fintech companies.[9] While a detailed discussion of the social impact of this move is beyond the purview of this paper, it ought to be noted that despite legitimate challenges to the implementation of demonetization regarding its timing, effectiveness, and adverse impact on the lives of the general population, the entire process improved the operational efficiency and scope of fintech in general, and UPI-based payments in particular, within the Indian economy.

A second factor that augmented India's cashless economy was the onset of the COVID-19 pandemic and the subsequent lockdown. During India's initial lockdown in March 2020, one of the authors was working in a remote part of a small city in India, where he witnessed first-hand the rise in digital payments. This change reflected the need for social distancing and concerns over the exchange of physical items such as paper notesand accessing enclosed public spaces such as banks and ATMs. By the end of the first lockdown in June 2020, even small-scale merchants such as local vegetable sellers and auto-rickshaw drivers had adopted the technology to a considerable extent and begun accepting payments online. This personal anecdote correlates with data released by the National Payments Corporation of India (NPCI): while digital payments declined by 30 percent during the initial lockdown due to lack of spending, it showed quick recovery once restrictions were lifted and ultimately indicated growth.[10]

The final factor that has encouraged the shift toward digital payments is an increase in mobile phone use and internet access. India has over 1.2 billion mobile phone users, of which 600 million are smartphone users.[11] Another study estimates that India has more than 761 million mobile internet users, of whom 416 million reside in urban areas while 345 million reside in rural areas.[12] Furthermore, India has the fifth cheapest internet prices in the world, which makes it easier for an average Indian citizen to use connectivity-based digital payment networks across different parts of the country.[13] Mobile phones, along with the PMJDY and the introduction of Aadhaar, have been termed the "J-A-M trinity" and are driving financial inclusion in the digital sphere.[14]

The developments in the financial sector, including technology-based solutions, however, did not arise in a vacuum. Rather, they ought to be considered against the backdrop of the regulatory role of India's central bank, the Reserve Bank of India (RBI), which will be further detailed in the following section.

RESERVE BANK OF INDIA, RISE OF NPCI, AND CREATION OF THE UNIFIED PAYMENTS INTERFACE

RBI's policies over the last two decades underlie the availability and market-responsiveness of technology in both PMJDY and Aadhaar. The enactment of the 2007 Payments and Settlements Systems Act led to the creation of the National Payment Corporation of India (NPCI), the Indian regulatory body for payments and settlements. NPCI was designed as a not-for-profit company, the shares of which have been owned by both public and private banks since its incorporation. In 2020, NPCI included non-banks for the first time among its sixty-five shareholders. Government oversight is maintained via public sector banks, which are in turn owned by the Government of India. NPCI's functioning is overseen by the RBI; RBI appoints and approves the Chairperson, Managing Director, and CEO of NPCI and further has placed a nominee director on NPCI's board.[15]

In 2016, RBI launched the United Payment Interface (UPI). UPI is an open application programming interface (API), a technical term for a software intermediary that allows two applications to communicate with one another. It is an interoperable, and instant payment system that allows users to make payments to and from bank accounts across different banks using one mobile application. It allows for payment among businesses, between businesses and consumers, and between private persons. The UPI currently in vogue in India was built on the Immediate Payment Service (IMPS) system developed by NPCI, which allows for instant payments on a 24/7 basis. UPI allows a person to both make and collect payments.

Instant payment systems by themselves are neither new nor unique.[16] For example, IMPS has been available in India since 2010. They allow a user to initiate and settle payments in a matter of seconds on a 24/7 basis rather than the one- to three-day period for reuse that is present in other systems. Studies have shown that instant payment systems, along with cards, are rapidly replacing check and cash payments.[17] However, greater uptake in instant payment systems over the last few years can be explained by the specific combination of features that has driven the widespread adoption of UPI in the Indian context, namely the demonization of 500- and 1000-rupee notes, the COVID-19 pandemic, and an uptick in mobile phone use.

UPI: SINGULAR FEATURES AND REASONS BEHIND SUCCESS

UPI is interoperable, meaning that it operates across banks, thereby allowing a costumer of one bank to transfer money to a customer of another bank on a single platform. Payments are completed via phone number or QR code, effectively eliminating the need to share bank account details. Moreover, as UPI is linked directly to the user's bank account, it does not need to be loaded or topped up with money prior to use. Furthermore, it allows non-banks to make applications that have payment features, so long as the underlying payment product sold or serviced via those applications is supported by banks. This grants customers greater freedom to pick an application provider, which in turn provides user access to the UPI system. Further expanding customer choice, NPCI has required that no single third-party payment application have more than a 30 percent share of overall UPI transactions, thereby preventing concentration of market power.[18]

UPI is owned by NPCI. This is significant because NPCI is comprised of shareholders from both banking and non-banking sectors, meaning that, by extension, UPI has been developed as a collaboration between public and private stakeholders. Its implementation and regulation reflect that collaboration. This duality brings an element of democracy to its function and design, since the government is unable to make unilateral decisions without buy-in from relevant stakeholders.[19]

UPI continues to grow in popularity despite the resurgence of cash post-demonetization in the economy.[20] As of March 2023, 399 banks were using UPI, generating a total transaction value of INR 1,410,443.01 (USD 172 billion) in that month alone. In financial year 2022, UPI accounted for 52 percent of the total digital transactions in India.[21] Furthermore, India has processed 2.7 times more instant payments than China and processed 6.5 times more transactions than the combined total of the United States, Canada, the United Kingdom, France, and Germany in the year 2021.[22] UPI is so popular, in fact, that it has overtaken debit cards, credit cards, and pre-paid wallets as the method of choice for digital payments.[23] Furthermore, cash use in India has declined from 71 percent of point-of-sale transaction value in 2019 to 27 percent in 2022.[24]

Moreover, RBI's Digital Payment Index, which measures the extent of the penetration of digital payments in India, demonstrates the growth in UPI payments.[25] The index takes into account four parameters: payment enablers, payment infrastructure, payment performance, and consumer centricity.[26] RBI released the index for the first time in March 2018; at that time, it had a score of 100. By September 2022, it had a score of 377.46.[27] India is among a select few countries where digital payments have increased as a percentage of the GDP.[28]

As the data shows, UPI is becoming the preferred mode of digital payment. NPCI and RBI are taking further steps to make UPI more accessible. One such step is increasing the availability of UPI in "feature phones," which are phones without the features of a smartphone and, often, without internet connection. Despite these limitations, users of such phones can still access their bank accounts via phone call and proximity sound-based payments, where data is transferred using soundwaves instead of internet connection.[29] This step would enable deeper penetration of UPI in rural areas where people may not have smart phones or where internet connection may not be available. UPI has also expanded in urban areas due to the fact that credit cards and UPI have been linked and the young urban population is the predominant user of credit cards.

UPI: QUESTIONS AND CONCERNS

That being said, there are several questions and concerns that need to be addressed around financial inclusion and retention for a population-dense developing country like India.

The first question regards the charges and costs for its usage and maintenance. At present, authorities have mandated that UPI be free for users and merchants.[30] However, banks and payment platforms incur costs per UPI transaction.[31] In order to meet these costs, the Government of India budgeted approximately INR 1,500 crore (USD 183 million) for reimbursement of charges over the last two financial years.[32] Thus, the question becomes: how can costs be met in the long run without the government having to regularly dip into the exchequer and make budgetary provisions?

One method of recovering costs is to transfer them to users. Some analysts and experts have voiced the concern in the wake of demonetization that asking users of digital payments to pay for transactions when they would not incur similar costs using cash is problematic.[33] This concern was raised when RBI published a discussion paper inviting suggestions on levying charges in payment systems.[34] In response, the ministry of finance issued a statement on Twitter that "UPI is a digital public good with immense convenience for the public & productivity gains for the economy. There is no consideration in Govt to levy any charges for UPI services. The concerns of the service providers for cost recovery have to be met through other means."[35] Despite the ministry's clear stance, banks and payment platforms are still pushing for a market-led fee on UPI transactions.[36] But, any excess charge by service providers is likely to stall the growth of the digital economy and push users back to cash and the informal economy.

The second question is: how can customers in rural India be reached? As noted above, UPI is available on feature phones without internet connection. However, data show that feature phone users adopt UPI more slowly than smartphone users do.[37] This gap can be explained by the fact that feature phone users face difficulties with learning and implementing UPI in their daily lives.[38]

Finally, there are also privacy concerns about digital fraud and lack of clarity regarding the collection and storage of user data.[39]

These challenges can be mitigated by the provision of government support services and improved financial and digital literacy. These initiatives have to be backed by the government because only the government has the resources and reach to spread UPI across the country. Financial service providers are well positioned to play an assisting role because of their ability to provide customized solutions that cater to specific demographics, given that they possess data on these various groups. Without this increase in financial and digital literacy, no digital payment solution or practice will prove to be sustainable. One such step that has been taken is the introduction of a 24x7 helpline called "DigiSaathi," which provides help to customers on digital payment products in Hindi and English.[40]

While these questions are addressed, the next step forward in UPI adoption is to expand its use globally. Expansion should be prioritized in countries with a large Indian diaspora that needs to transfer money to India and/or countries experiencing significant tourism from India. NPCI has already taken active measures in this direction by incorporating a subsidiary, NPCI International Payments Limited (NIPL), which has been tasked with bringing a real-time payment system, along with a card scheme, to foreign countries through technological assistance by means of customized support, licensing, and consulting. In its payment vision document, RBI has sought to actively support outreach by collaborating with global authorities, such as central banks in foreign countries and the World Bank. So far, NPCI has entered into a number of collaborations in countries such as France and Singapore to allow users of UPI such as tourists and non-resident Indians to make payments in those countries while also transferring money back to India. This has the potential of increasing the speed and ease of transactions while reducing their financial cost.

ANALYSIS AND ASSESSMENT OF FUTURE RISKS AND CHALLENGES FOR UPI

India's steps toward financial inclusion through digital technologies appear to be paying dividends, with 330 million people having been brought into the digital economy since 2014. However, cash still appears to be vital when it comes to payments in India. Thus, it will be some time before India can come close to being a cashless society. Yet, there is no doubt that UPI has succeeded in bringing many more people within the fold of a formal economy and payment system. Central bank support of the technology has gone a long way toward ensuring that the adverse effects of several of the preliminary obstacles that usually plague a nascent technology and its implementation have been considerably mitigated. Even though UPI has only achieved partial success, it is unprecedented given the enormous size of the Indian population and the accompanying challenges, which include low digital connectivity in remote areas of the country, lack of awareness regarding technology adoption and usage, and poverty, which pushes people toward the informal economy. The Indian government, buoyed by UPI's success, is already considering sharing the technology behind UPI with other countries with less developed economies.

This would transform India's national efforts towards a digital and inclusive economy into a global campaign. In fact, NPCI has already announced linkages with payment networks based in Singapore, Dubai, and the UK. Besides providing remittance fees and thereby benefitting the Indian economy, such linkages are also conducive to decreasing India's current level of dependence on cross-border payment and settlement systems.

Having said that, it is important to remember the multiple risks associated with this technology and its rapid adoption across different sections of the economy. Market power remains concentrated between two players: Google's G-Pay and Walmart's Phone-Pe. That may seriously limit market competition. While NPCI has begun a move to counter such concentration by mandating a 30 percent cap on transactional volumes routed through a single player, the government is yet to enforce the mandate. Another concern is the sheer number of cases of financial fraud taking place via UPI transactions, with 95,000 instances of fraud reported between 2022 and 2023.[41] Linking UPI with cards may address this security concern because card systems are heavily safeguarded by banks. However, if the government intends for UPI to become an integral and popularly accepted part of the economy and the payment and settlement system, it needs to pay careful attention to its digital architecture, fostering an environment conducive to digital and financial literacy. If the government addresses these challenges, then it will achieve UPI's complete financial inclusion within the digital economy.

CONCLUSION

The government's focus on achieving a digital India along with the various other factors discussed above have made India's tryst with digital payments a success story so far. UPI, along with UPI123Pay, as a digital public good, has arguably brought more people within the ambit of the formal economy and enhanced ease of payments. In order to ensure that the success story continues, it is vital that the government address questions regarding the costs of the transactions and market power among the players. The authors firmly believe that India is ready to be an important power in the digital payments sector both domestically and internationally. ***f***

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