

Debate

The Financialization of Finance? Demonetization and the Dubious Push to Cashlessness in India**C.P. Chandrasekhar and Jayati Ghosh**

ABSTRACT

This Debate contribution describes the promotion of digital rather than cash payments as a form of the financialization of finance, in its role as a payments system, with reference to recent Indian experience. The arguments in favour of reducing cash usage must be seen relative to the costs of digital payments, for both society and individuals. The drastic demonetization episode in India, which removed 86 per cent of the value of notes in circulation at one stroke in November 2016, was partly justified in terms of forcing a shift to cashless transactions. However, such a shift requires that adequate infrastructure be in place in terms of banking and connectivity, both of which are currently lacking in India. The article also identifies other concerns with digital transactions including higher costs and the possibilities of loss of privacy, fraud, identity theft and surveillance. The obsession with digital transactions as a marker of social and material progress is misplaced; it may become yet another means by which finance extracts rentier incomes out of relatively poor populations.

INTRODUCTION

The role of finance necessarily looms large in any discussion of ‘financialization and economic development’, as indicated by the contributions to this Debate. The financialization of a very wide range of economic (and non-economic) activities serves as an expression of this as well as a means of creating and capturing new markets by financial players. This process may be reaching its apogee in the push towards digitization of transactions that is occurring across the world, and particularly in some developing countries.

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While this often appears simply as a move towards greater convenience of transactions, it requires financial companies to be involved in the very process of exchange; the attendant fees (which do not exist for pure currency transactions) make such involvement profitable. We describe this as the financialization of finance (in its role as a payments system), and in this contribution, we consider the recent Indian experience of this phenomenon.

We begin with a brief consideration of the arguments in favour of reducing cash usage, the extent of reliance on cash in different economies and the relative costs (both social and individual) of cash versus non-cash means of payment. Next, we describe the drastic demonetization episode in India, which removed 86 per cent of the value of notes in circulation at one stroke in November 2016. This move was first presented as an attack on corruption; later attempts to justify it were couched in terms of a push to cashless transactions. It goes without saying that this would require adequate infrastructure in terms of both banking and connectivity, and we consider the actual conditions of both in the following section. We then outline some of the other concerns with digital transactions, including not just the higher costs but the possibilities of loss of privacy, fraud, identity theft and surveillance. In conclusion, we suggest that the obsession with digital transactions as a marker of social and material progress may be misplaced and even counterproductive, and that it may instead serve as yet another means for finance to extract rentier incomes out of relatively poor populations.

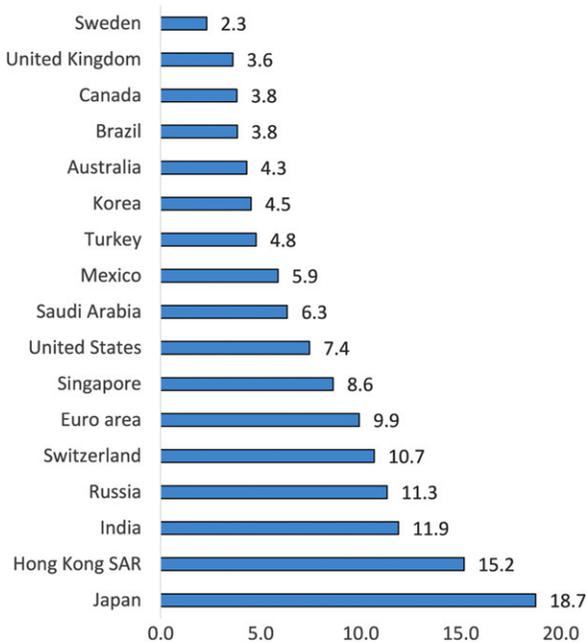
THE PUSH TO CASHLESSNESS AND THE COSTS OF E-TRANSACTIONING

Across the world, many voices now argue for a reduction in currency usage. Proponents of digital transactions typically highlight its various advantages: the reduction of corruption and criminality, since illegal activities tend to be disproportionately funded in cash; convenience and greater ease of transaction; reduction of tax evasion because of the greater ability of fiscal authorities to monitor transactions and thereby incomes; and even greater efficiency for the economy as a whole.

Recently, cashlessness has also been promoted on macroeconomic grounds. Rogoff (2016) argues that it would enable the prolonged imposition of negative interest rates, on the mistaken assumption that the latter can lift advanced economies out of stagnation. This argument obviously ignores the effect of fiscal policy on macroeconomic activity and therefore places excessive reliance on monetary policy alone, and fails to recognize how negative interest rates can generate asset bubbles and financial volatility. It also wrongly assumes that negative interest rates can be sustained simply by eliminating cash, that is, doing away with the monetary liability of the central bank. In practice, some other liquidity substitute (such as gold, or even bitcoin) could emerge to ensure that the market interest rate does not fall below zero. From a different perspective, Stiglitz (2016) argues that

Figure 1. Value of Currency in Circulation as Percentage of GDP
(averages, 2011–15)

[Colour figure can be viewed at wileyonlinelibrary.com]



Source: BIS (2016)

current monetary policy in the advanced economies cannot effectively determine the actual level of credit supplied by banks to final users. He suggests that relying solely on electronic money would enable the government to set levels of credit and then auction this credit to banks; the banks would then be forced to lend because they had already paid for the credit and therefore could not keep it idle. But all this would do is determine the total volume of credit; it would not ensure that banks provide credit to those in need of it, or for activities that are considered socially and economically important. The latter goal could be addressed more simply and directly through public banking mobilized to provide and direct appropriate levels of credit.

Both these arguments were made in the context of advanced economies, and assumed highly developed levels of infrastructure, connectivity and cyber-security. In general, there has been a tendency to link reduced currency usage with higher per capita incomes and levels of development. However, currency use does not necessarily decline as countries grow richer or reach more advanced stages of development with larger shares of formal activities, or in countries with lower incidence of corruption. There is no clear relation between per capita income and the value of currency in circulation (see Figure 1), or between levels of corruption and cash in circulation. While some

rich countries, like Sweden, have lower proportions of cash in circulation relative to money GDP, others, like Hong Kong SAR and Japan, have very high ratios — much higher than that of India with lower per capita income. In fact, at 11.9 per cent of GDP, India's average ratio over 2011–15 was not much higher than that of the Eurozone or Switzerland.

Globally, 85 per cent of transactions are estimated to be cash-based, with ratios of around 90 per cent in China, 85 per cent in Brazil and 55 per cent in the United States (BIS, 2016). Economies that are substantially less reliant on cash transactions (such as Sweden, Belgium, France and Canada) tend to have high per capita incomes, are highly urbanized, and have substantial if not universal penetration of banking. But similar countries, like Japan and Germany, use cash for 80 per cent of transactions, suggesting that cultural factors and reasons of expediency also determine the preference for cash. Cash transactions are free in that they involve no charges for buyer or seller; they do not rely on access to modern technology, connectivity or third party involvement; they are private and flexible. These advantages have to be weighed against the disadvantages of holding and carrying large cash balances.

The sense of euphoria about cashlessness in some academic and policy-oriented discussion underplays the fact that digital transactions generate a cost for the transactors. Table 1 provides information from studies conducted by several central banks on the relative cost of different forms of transaction. The costs involved in making payments range from 0.12 per cent of GDP in Finland to 0.99 per cent in Hungary; in four of the six countries, the cost per transaction is lowest for cash payments. Similarly, a study by the European Central Bank found that 'cash payments have the lowest social unit costs of €0.42, followed by debit cards with unit costs of €0.70'. On the other hand, '(d)irect debit costs society €1.27 per transaction and credit transfers €1.92. Most costly to society are cheques, with €3.55 per transaction, followed by credit cards with €2.39' (Schmiedl et al., 2012: 27).

While the costs of cash payments are met substantially by central banks, in digital transactions those executing the transactions generally have to meet the costs. Even when the costs of cash are financed through taxation, a shift to digital transactions would be regressive. Further, digital payments are more costly not because they are inherently so, but because they involve profits for the (usually private) financial intermediaries involved; the cost includes a profit margin, which varies depending on the structure of markets and the regulatory framework. Clearly, shifting to digital transactions facilitates profit extraction by banks and financial technology (fintech) companies that provide these 'transaction services'. Effectively, this is the privatization of some of the benefits of seigniorage. When cash circulates, the benefit accrues to the central bank in the form of seigniorage; if digital transactions replace cash, the benefit accrues to those financial companies providing services facilitating digital payments.

Table 1. The Costs of E-payments in Different Markets

	Cash	Debit cards	Credit cards	Total
Dutch National Bank				
Share of transactions by volume (%)	86	13	1	100
Share of transactions by value (%)	56	40	4	100
Cost per transaction in €	0.3	0.49	3.59	
Cost as % of GDP	0.48	0.11	0.04	0.65
National Bank of Belgium				
Share of transactions by volume (%)	84	15	1	100
Share of transactions by value (%)	61	35	4	100
Cost per transaction in €	0.53	0.55	2.63	
Cost as % of GDP	0.58	0.11	0.04	0.73
Bank of Finland				
Cost as % of GDP	0.12	0.12		0.24
National Bank of Hungary				
Share of transactions by volume (%)	77	4	1	82
Share of transactions by value (%)	12	0	0	12
Cost per transaction in €	0.26	0.72	2.84	
Cost as % of GDP	0.8	0.12	0.07	0.99
Central Bank of Sweden				
Share of transactions by volume (%)	71	25	4	100
Share of transactions by value (%)	39	50	11	100
Cost per transaction in €	0.5	0.33	0.48	
Cost as % of GDP	0.3	0.08	0.02	0.4
Reserve Bank of Australia				
Share of transactions by volume (%)	77	11	12	100
Share of transactions by value (%)	48	26	26	100
Cost per transaction in €	0.34	0.41	0.74	

Source: Schmiedl et al. (2012)

THE INDIAN DEMONETIZATION EPISODE

International experience has shown that the transition to a cashless economy tends to be slow, and is influenced greatly by the spread of banking services. Special efforts by the government to facilitate and popularize cashless transactions can assist this process, but only to a limited extent. This is what makes the Indian government's recent attempt to force cashlessness onto an unprepared population particularly striking.

The most extreme of monetary experiments to have occurred anywhere in the world in recent history was the demonetization of supposedly 'high-value' notes (of Rs 500 and Rs 1,000) in India on 8 November 2016, with only four hours' notice. All such notes were to be handed into bank accounts, but at first only a minuscule proportion was exchanged into legally valid currency notes, with many restrictions put on such exchange and on the withdrawal of currency. The process of remonetization by the Reserve Bank of India (RBI) was very limited and slow, such that even nine months after the move, just 85 per cent of the value of the demonetized currency had been replaced in circulation. This resulted in a severe liquidity crunch for many months, with a serious impact on economic activity.

The move was ostensibly directed towards the elimination of ‘black money’ and corruption, the spread of counterfeit notes and their use in the financing of terrorist activities. It did not actually meet any of these goals. The attempt to flush out black money was based on the mistaken notion that such black money constitutes a stock of currency wealth rather than a continuous flow of illicit or quasi-legal transactions, and that those holding such currency stocks would not dare to return them to banks for fear of being caught. In the event, such optimism proved to be completely misplaced, as the RBI (after spending an inordinate amount of time — nine months — ‘counting the received notes’) admitted that 99 per cent of the notes had come back into the banking system; much of the remaining 1 per cent was currency held in Nepal and with co-operative banks that had yet to be counted (RBI, 2017). Meanwhile, the new notes proved just as susceptible to counterfeiting, as they had no additional security features, and there appeared to be no obvious impact on the incidence of corruption — most of which probably did not involve cash transactions in any case.

While it did not meet its stated goals,¹ the move did result in major disruption of the economy, loss of jobs and incomes, and considerable material distress (Ghosh et al., 2017; Reddy, 2017). Since more than 95 per cent of transactions were estimated to occur in cash before this move, the result was the expropriation of purchasing power for a considerable period of time, which froze a number of markets, diminished demand, disrupted economic activity and led to loss of livelihood and employment. Even the government’s own Economic Survey (Ministry of Finance, 2017) recognized that the shortage of cash constrained economic activity for some time and noted evidence of distress, for example in increased demand for work in the rural employment scheme. While official ‘quick estimates’ of GDP do not adequately capture informal activities that account for at least 85 per cent of the work force, even they suggested a significant deceleration in economic activity, from annual growth of 7.5 per cent in July–September 2016 to 5.7 per cent in April–June 2017 (CSO, 2017). The impact on employment and livelihoods will only be known with the release of large employment survey data, expected in late 2018; however, quick surveys done by private agencies have found significant job losses (Vyas, 2017).

Promoting Cashlessness

To deflect attention from the negative consequences of its policy, the government claimed that the shift from cash to bank accounts would enable

1. There were other, more political, goals that may have been served by this move: creating a public impression of fighting corruption without undertaking some less dramatic but more effective measures; stealing a march on Opposition parties ahead of important regional elections; and so on.

more tax collection in future (still an untested claim) and, most importantly, that the move would reduce dependence on cash transactions in favour of digital transactions. Such digitization of exchange was presented as a silver bullet that could deliver solutions to all problems, at once fighting corruption, ending poverty, modernizing society and even ensuring sustainable development. Therefore, along with measures to restrict cash-based exchange, the government sought to promote and incentivize non-cash transactions. These measures ranged from the purely coercive (not putting enough currency notes back into the system, imposing limits on cash withdrawals from bank counters and ATMs, banning cash transactions of more than Rs 200,000), to the threatening (declaring that all withdrawals of cash beyond a certain limit would be monitored by the tax authorities), to the placatory (reducing or eliminating charges for digital transactions when dealing with public agencies, offering to speed up the installation of point-of-sale machines), to the incentivizing (offering tax benefits and discounts for certain transactions, periodic 'lucky draws' with financial rewards for those who made cashless transactions).

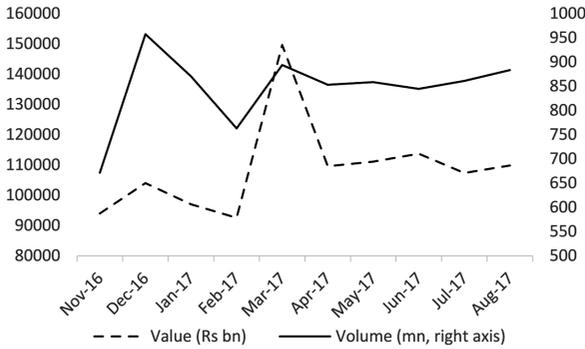
Even before the demonetization exercise, efforts had been underway to accelerate digitization. One such effort (which received relatively little attention) was launched shortly before the demonetization exercise: a joint venture between the United States Agency for International Development (USAID) and the Indian Ministry of Finance, funded by major global banks, information technology companies and their foundations, and known as 'Catalyst: Inclusive Cashless Payment Partnership'. Its mission is 'to solve multiple coordination problems that have blocked the penetration of digital payments among merchants and low-income consumers'.² The organizations supporting this initiative 'are mostly IT- and payment service providers who want to make money from digital payments or from the associated data generation on users' (Häring, 2017). Obviously, such companies would substantially benefit from the creation of new markets resulting from the enforced shift away from cash-based transactions.

However, at the time of writing, in late 2017, it appears that this combination of measures has met with very limited success; as the currency crunch eased, people reverted to cash spending. Figure 2 shows that the number of cashless transactions rose sharply in December 2016, but thereafter has been lower, with little increase since March 2017.³ Meanwhile, values of digital payments peaked in March 2017, and fell thereafter.

2. See the press release of 14 October 2016: www.usaid.gov/india/press-releases/oct-14-2016-usaid-launches-catalyst-drive-cashless-payments-india

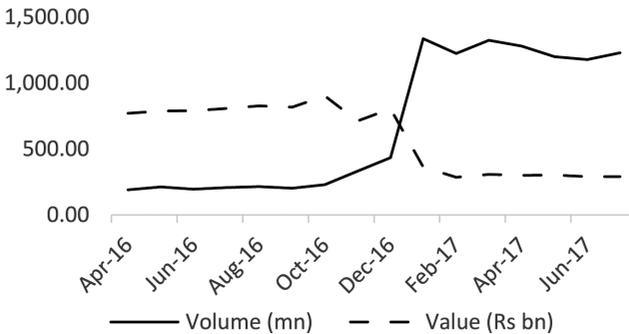
3. These numbers are probably over-estimates as they involved some double counting. For example, when money is transferred through a NEFT transfer from a bank account to a mobile wallet and that e-wallet is then used to make purchases, all of those transactions are counted separately and included in the total.

Figure 2. Total Digital Payments (India, November 2016 to August 2017)



Source: RBI Bulletin, September 2017 (www.rbi.org.in/scripts/BS_ViewBulletin.aspx)

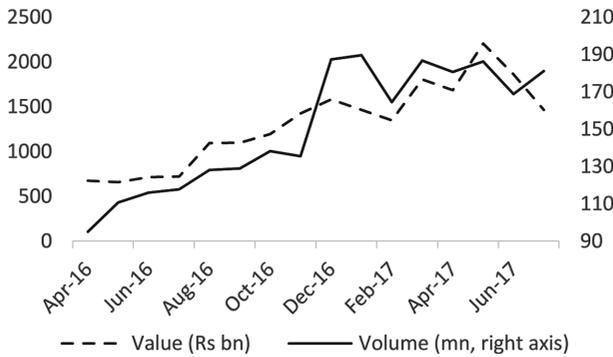
Figure 3. Credit and Debit Card Usage at Point of Sale (India, April 2016 to June 2017)



Source: RBI Bulletin, September 2017 (www.rbi.org.in/scripts/BS_ViewBulletin.aspx)

The relatively small retail purchases that make up the vast bulk of transactions in the country were particularly valorized by the policy, through the government’s emphasis on promoting greater use of credit and debit cards, e-wallets and mobile banking. These obviously offered the possibility of enhanced sales and profits for companies associated with these forms of payment, but the more optimistic expectations of such expansion were belied. While card usage increased substantially in volume terms between November 2016 and January 2017, there was hardly any increase in subsequent months to July 2017 (see Figure 3). Meanwhile, the total value of such transactions plummeted in January 2017 and remained stagnant thereafter. The mobile banking and e-wallet businesses have a somewhat questionable business model, in which greater convenience for users is supposed to justify the charges imposed by the suppliers of these services. Figure 4 shows that both volumes and values of prepaid transactions (including e-wallets)

Figure 4. Use of Prepaid Instruments and Mobile Banking (India, April 2016 to June 2017)



Source: RBI Bulletin, September 2017 (www.rbi.org.in/scripts/BS_ViewBulletin.aspx); Wilson (2017)

and mobile banking had been increasing well before the demonetization of November 2016. Thereafter, digital transactions were more volatile, with deceleration and then decline in value terms and stagnation in volumes, from March to July 2017.

These trends may not surprise those familiar with realities on the ground in India, although they could have been unwelcome news for the government and the banks and fintech companies hoping to profit from this ‘new frontier’ opened up by official policy. It is becoming obvious that, despite active support from the government, digitization of everyday transactions is going to be a slow and constrained process that cannot be forcibly accelerated by demonetization. One important reason stems from the constraints set by inadequate institutional and physical infrastructure.

CONSTRAINTS ON DIGITIZATION

Banking Spread

A basic requirement for the spread of digital transactions is a system in which banking access is universal, so that those transacting digitally can hold deposits that validate those transactions. A critical factor determining access to banking is access to bank branches, which is crucial not only for opening accounts but for many other activities including accessing loans. However, since the introduction of neoliberal economic reforms in India in the early 1990s, many rural branches of banks have closed and the number of small accounts in banks actually reduced, before the no-frills accounts introduced by the UPA government (Mishra, 2017). This is not surprising:

with greater profit orientation, banks typically found the transaction costs involved in operating numerous branches and numerous accounts too high to be attractive. Even when they sought to mobilize deposits from the poor, they preferred to do this through middlemen, using a 'Banking Correspondent' model,⁴ rather than by having direct dealings with millions of customers. A World Bank report of 2015 found that only 53 per cent of the adult population in India had bank accounts and even those suffered a very high dormancy rate (Demirguc-Kunt et al., 2015). The majority of women (80 per cent) did not have bank accounts, and those who did were frequently holders of joint accounts with a male member of their family. Less than 40 per cent of all account holders in India held a debit or ATM card.

The government programme known as Jan Dhan Yojana has attempted to bring all households into the banking system by expanding the number of no-frills accounts, as a first step towards formal financial inclusion.⁵ The official website of the scheme⁶ notes that on 11 October 2017, 304.5 million accounts had been opened, with an average of Rs 2,211 (around US\$ 34) per account. However, a quarter of them had zero balance, while another significant proportion had negligible balances (of Rs 1 or slightly more). Such accounts do not allow for full banking transactions (such as cheque payments and overdraft facilities). Furthermore, many households involved with Jan Dhan Yojana found that physical distance and other forms of lack of access to the nearest bank or ATM restricted the role that institutional banking could play in their lives (Venkatesan, 2015). They rely on intermediaries, such as the Banking Correspondents created by the banks or local middlemen who spring up to fill such gaps. Debit card use is even more limited than banking

4. A 'Banking Correspondent' or 'Business Correspondent' is a designated individual hired by the bank — for instance, a retired person, shop owner or other local dealer, or any literate/numerate person — to ensure financial inclusion through 'last mile connectivity'. According to the guidelines issued by the RBI, the scope of activities can encompass almost everything banks are supposed to do, including: '(i) identification of borrowers; (ii) collection and preliminary processing of loan applications including verification of primary information/data; (iii) creating awareness about savings and other products and education and advice on managing money and debt counselling; (iv) processing and submission of applications to banks; (v) promoting, nurturing and monitoring of Self Help Groups/Joint Liability Groups/Credit Groups/others; (vi) post-sanction monitoring; (vii) follow-up for recovery; (viii) disbursement of small value credit; (ix) recovery of principal/collection of interest; (x) collection of small value deposits; (xi) sale of micro insurance/mutual fund products/pension products/other third party products; and (xii) receipt and delivery of small value remittances/other payment instruments' (RBI, 2010).

5. The Pradhan Mantri Jan Dhan Yojana (PMJDY), or Prime Minister's People's Wealth Programme (also called National Mission for Financial Inclusion) aims to ensure access to financial services, including banking (savings and deposit accounts), remittances, credit, insurance and pensions, in an affordable manner. Thus far it has largely focused on the spread of no-frills bank accounts, which can be opened with minimal identity and other requirements.

6. See: <https://pmjdy.gov.in/account> (last accessed 20 October 2017).

per se; moreover, holding a debit card does not guarantee that it can be used whenever required, because of the connectivity constraints discussed below.

Another scheme to expand banking access was the introduction of payments banks, licences for 11 of which were granted by the RBI in August 2015. These banks can take deposits of up to Rs 100,000, but cannot give out loans; moreover, they have to invest 75 per cent of their deposits in government securities. This implies that their revenues have to be mobilized through fee incomes, which are to come from the issue of ATM and debit cards that can be used on the networks of all banks, and from the mobile banking business on which the whole system rests, which will allow transfers and remittances, pay bills and make cash purchases. Such a business model necessarily requires the banks to charge relatively high fees to be profitable, making them uncompetitive. Not surprisingly, months after the licences were granted, three of the licensees dropped out, and most of the others had not established operations even two years later. Thus a significant proportion — close to half — of the population still does not have real access to the formal banking system or formal credit services, and therefore continues to rely on informal credit sources that remain largely cash-based.

The Connectivity Constraint

There are severe physical and social constraints to the digitization of transactions in India. These include the fact that most adults in India do not have smartphones and cannot access the internet directly; the general lack of bandwidth and connectivity in many areas and over prolonged periods; inadequate numbers and periodic failures of point-of-sale machines; and insufficient functional literacy in these matters, which forces many people to depend upon intermediaries to make transactions for them. Some stark realities are typically ignored in the overblown discourse on the transition to an economy dominated by digital transactions. India is far from being connected enough to be able to accommodate the digital execution of the billions of transactions that are conducted across the country every day. There are large numbers of people in the country, in the rural areas, in the urban informal economy and among the poor, who are completely outside even the limited digital economy that already exists. For all such persons, arriving at a 'less-cash' world requires clearing both infrastructural and institutional hurdles.

While the percentage of internet users in India rose from a negligible number to 26 per cent between 1990 and 2015, this compares with 50 per cent in China, 90 per cent in South Korea and 75 per cent in the USA (ITU, 2016). An official survey in 2014 found that the proportion of Indian households in which at least one member had access to the internet was 16 per cent in rural areas, 49 per cent in urban areas and 27 per cent in rural and urban areas combined (NSSO/CSO, 2015). Only 7 per cent of low-income

families had access to even one smartphone. Thus, leaving aside factors like language and digital literacy, a combination of inadequate backbone infrastructure and last mile technology, poor data delivery through mobile phones, and the high cost of broadband connectivity together exclude a substantial section of the population from the internet and enablers of digital payments.

Another huge constraint is the sheer lack of infrastructure such as point-of-sale machines and the associated telecom equipment that enable digital transactions. At the end of December 2016, there were an estimated 760 million debit cards in the country,⁷ and in 2015, India had only 1.1 point-of-sale machines per 1,000 population, compared to 16.6 in China and 21.1 in Brazil (BIS, 2016). The immediate hike in demand for such machines from vendors post-demonetization could not be met without a significant lag, and a further bottleneck was the lack of associated telecom equipment to ensure the security of these transactions, without which increasing volumes of transactions cause systems to become overloaded and collapse periodically. As a result, even in supposedly well-connected metropolitan areas, simple e-transactions take longer, require many attempts for success, and quite often cannot be completed at all.

CONCERNS ABOUT DIGITAL TRANSACTIONS

Along with issues of feasibility, there are other concerns with the digitization of transactions. One of the most worrying is the distributional aspect. The greater reliance on cashless transactions can bring more of the economy under the ambit of the fiscal authorities, and thereby enable greater taxation, which may appear desirable in general. However, insofar as this imposes taxes on transactions per se, it is undeniably regressive and the costs fall disproportionately on the poor relative to their incomes.

What is more significant is the extraction implicit in the fees levied by the banks and fintech companies which provide the services underlying cashlessness, including the mobile or e-wallet companies that appear to have been among the biggest beneficiaries of the demonetization shock. As noted earlier, the shift to e-money would involve all Indians paying for all their transactions, as compared to transactions in cash that do not involve any cost. This amounts to a transfer of income from all consumers and producers, including the poor who really cannot afford it, to banks and a few fintech companies engaged in e-commerce and mobile wallet services. The costs of digital payment are ultimately borne by consumers, even when they are apparently charged to producers or vendors. Charges range from 0.1 per cent to as much as 4 per cent of the value of the transaction; typically the

7. RBI's ATM and Card Statistics for December 2016 (<https://rbi.org.in/Scripts/ATMView.aspx?atmid=70>).

pro rata charges reduce as the value of the transaction increases. Even when these charges appear to be relatively low, they can add up with multiple transactions. Since the poor are more likely to make many small purchases, and typically cannot afford to buy or store purchases made in bulk, they suffer more from these charges and end up paying a non-negligible amount simply for transacting, implying a transfer from their incomes to the profits of the banks and fintech companies. This is therefore one more attack on the already meagre incomes of the poor, low-paid workers, agriculturalists and petty traders, in order to provide surpluses to newer forms of capital. This might be acceptable if it were chosen voluntarily by those affected because of the greater convenience of such transactions, but an enforced shift created by the absence of sufficient currency notes implies an official policy of redistribution away from the people to financial intermediaries. The fact that a few companies were disproportionate beneficiaries of the demonetization has also raised concerns about the role of crony capitalism in this enforced move.

There are also major concerns about cyber-security and privacy — issues that are seen as critically important in most other countries — that were sidelined in the rush to move to electronic platforms. The issues are related: inadequate cyber-security and possibilities of fraud and identity theft; dangers of serious loss of privacy and possible misuse of private data, including by private companies; state surveillance and use of data by political groups in power to oppress not only established criminals but also dissidents and those in opposition; constraints upon the ability to transact at all if the system does not work for technical reasons; and finally, the denial of individual freedom and flexibility implicit in the state-enforced push to privatized digital transactions.

India is one of the five countries considered to be most vulnerable to data theft and associated fraud, and ranks third among countries that are most prone to breakdown or cracking of banking software systems (Subrahmanian et al., 2015). Therefore, in addition to privacy concerns, there are possibilities of fraud, cyber-crime and identity theft. At present none of the e-wallet or mobile payment and banking applications used in India have the hardware security features necessary to make them secure. The danger from possible hackers or other abuse of data is real, especially in the various mobile apps that allow customers to transact electronically without having to use a credit or debit card, or by creating and storing a mobile wallet. The absence of even standard security precautions like two- or three-factor authentication in several such apps makes the potential for misuse or fraud — as well as genuine mistakes — enormous.

To date, the protection of victims of cyber-crime and unauthorized data sharing has been very inadequately addressed in India. As of late 2017 there is no legislation on data breach disclosures or privacy protection. Banks are not required to reveal the extent of any compromise of their security systems, even to those affected by it. In fact, since the liability laws are not

clear on this matter, a bank may or may not be liable for any money that is stolen from an individual's account because of hacking. Similarly, if an online retailer's system is breached and credit or debit card information is taken, there is no compulsion on the part of the retailer to report it; indeed, there is every reason for the retailer to hide such information that would adversely affect its brand. This also means that affected persons whose card data have been stolen and used to make unauthorized purchases may not have any means of finding out how and where the breach occurred. Thus far, the RBI as regulatory authority has been unwilling to make such crucial data available to the public. Only 'unusual' incidents need to be reported, with the reporting banks deciding for themselves what is unusual; the central bank does not disclose which financial institutions are affected, on the grounds that this could undermine confidence in them! Nor has the RBI clarified when it would inform the public, including the customers themselves, of breaches (Kambampati, 2016) so that even those affected directly may not necessarily be informed.

There are also concerns about the use of personal data by private companies. Data have become the big new business globally, to the point that the value of global trade in data exceeded the value of global trade in goods in 2015 (Manyika et al., 2016). In India, much of the push to digital transactions relies on the use of the Unique Identification number (or Aadhaar). Not only is this number based on biometric identity (unlike, say, the social security number in the US) but the government is actively encouraging its use in multiple databases. Since the Aadhaar Act does not specifically prohibit intelligence and law enforcement agencies from searching across datasets using the Aadhaar number, this could lead to profiling and harassment of individuals by various agencies. Also, in contrast to many other countries where the use of such personal data for commercial purposes is expressly forbidden, Aadhaar is actually designed to be used by private companies, to the point that the Unique Identity Authority of India has already entered into agreements with a number of companies providing authentication and identification services using Aadhaar as a platform (Yadav, 2016b). The dangerous potential for the commercial sharing of such data for purposes of profit, and the associated vulnerability of citizens who lose their privacy and can be monitored and targeted, are concerns that at present are simply not being raised sufficiently in the public discourse.

Finally, there are important issues of exclusion and denial of basic rights because of the unanticipated effects of the use of technology, which are also inadequately recognized. The biometric information (fingerprints and iris scans) that forms the basis for identification of Aadhaar is prone to many failures, especially in countries like India where a significant part of the population (the poor, the elderly, those engaged in manual labour) have work-worn hands with changing fingerprints, and where the machines to read iris and fingerprint data may be faulty or simply may not work

as required.⁸ India has already experienced this problem: in the two states of Rajasthan and Gujarat, where biometric testing was introduced for the distribution of rations under the Public Distribution Scheme, it has been estimated that around 30 per cent of valid beneficiaries were denied their rations because of identification problems (Yadav, 2016a), and there have been some recent cases of starvation deaths associated with denial of food rations due to lack of Aadhaar card linkage (Pachisia, 2017). In future it could be possible that people are also denied their basic right to engage in transactions and exchange, because of inadequate currency and enforced reliance upon electronic systems that may not work. Meanwhile, and contrary to the stated aims, such a system does not eliminate the possibility of illicit or extractive behaviour and is still open to exploitation by the corrupt.

CONCLUSION

The Indian experience suggests that the obsession with digital transactions as a marker of social and material progress may be misplaced and even counterproductive. Indeed, policy attempts to push a rapid transition to cashlessness may be both infeasible and regressive. Cashlessness relies on very substantial development of infrastructure, universal access to banking, and strong and reliable internet connectivity — and while it provides convenience, it also can lead to greater monitoring and cyber-insecurity. Even in favourable conditions, it should essentially be a choice rather than an imposition for most small transactions, and the shift must be based on people preferring digital payments for their convenience rather than being driven by the physical absence of cash. There is a deeper issue here: forcing people to go cashless by reducing the currency in circulation amounts to an infringement of their civil liberties even as it transfers incomes to financial intermediaries.

The specific form of financialization exhibited in the enforced push to e-transactions is therefore an extreme example of a coercive strategy that purports to provide convenience and formalization, but actually increases inequality. It assists the generation of profits for financial companies by adding another layer of costs to systems of payment. In doing so, it not only makes those involved in such transactions poorer to that extent; it also renders them more vulnerable to all-encompassing monitoring and surveillance, as well as data and identity theft. This particular form of surplus extraction by finance therefore also poses a challenge to democracy itself.

8. This is one reason why the use of biometric identifiers for essential activities and transactions has been abandoned in countries with large populations (such as China and the US) — problems can occur when the biometrics are not able to identify a person accurately or are subject to errors and failures of different kinds.

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