



Understanding the Impact of Demonetization on Bank
Account Holders from Low Income Households
Final Report

IFMR LEAD
April 2018

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Summary

This study, conducted by IFMR LEAD, attempts to contribute to the ongoing debate of the short-term and long-term effects of demonetization on low income households who, although being formally financially included,¹ are most prone to adverse effects of demonetization policy owing to their socio-economic, demographic and occupational profiles. The objective of this study is to ascertain the trends and patterns of financial and economic behavior post-demonetization as well as understand the difference in adoption and use of digital financial services before and after demonetization. The study was conducted in peri-urban areas of 4 states (Maharashtra, Meghalaya, Tamil Nadu, Uttar Pradesh) across 3 rounds of survey between April 2017 and February 2018. It was conducted among low income households with an annual household income of less than or equal to Rs. 150,000 (approx. \$2300).

The study examined short term changes in financial behavior post-demonetization in terms of bank account usage, credit and savings patterns, expenditure patterns and adoption and use of digital financial services. Our study results suggest that demonetization might have nudged people to tweak their financial behavior depending on the availability of cash, causing substantial discomfort in terms of making necessary expenditures and investments and causing them to resort to alternate payment systems such as bartering and taking credit. Findings from study also suggest adverse effects on finding employment for those working as casual laborers and on temporary employment, as well as delays in payment.

Results from follow-up rounds suggest no change in the use of digital payment methods² and savings behaviour after more than 1 year after implementation of the demonetization policy. A majority of respondents report no change in their formal savings behavior, attributing this to difficulties with accessing and using banking services. Underlying this is the fundamental inability to save due to lack of surplus income. The absence of change in the uptake of digital financial services can be partially attributed to the lack of knowledge about digital products coupled with lack of capability even where some awareness exists. While demonetization does not seem to have a long term impact on savings and use of digital payments, eagerness to learn to use digital payments in Meghalaya is higher relative to other states, suggesting the importance of further exploring specific uses cases for which people across geographies might find digital payments useful.

¹ Financial Inclusion in the context of this study is defined by ownership of bank accounts

² The term “digital financial services” or “digital payments” have not been explicitly defined to study respondents. Rather, reference to specific digital financial activities such as electronic bank transactions and use of debit cards and mobile wallets have been used to give respondents an accurate sense of these umbrella terms.

Introduction and Motivation

On November 8, 2016, the Prime Minister of India, Narendra Modi, announced the demonetization of Rs.500 (\$7.5) and Rs.1000 (\$15) notes, withdrawing overnight 86% (by value) of cash in circulation, with a stated three-fold objective of fighting corruption, eliminating black money and countering money laundering.³ In place of the existing Rs.500 and Rs.1000 currency notes, new notes were introduced into the monetary system; the old Rs.500 note was replaced by new note of Rs.500, Rs.1000 note was discontinued and instead a new denomination of Rs.2000 note was introduced.⁴ The Government issued a deadline of 31st December 2016 to exchange all old notes for new notes at banks and placed several restrictions on withdrawal of money from banks and ATMs during this switch over.⁵ In the three to four months that followed the announcement, there was severe shortage of currency⁶ with banks being unable to meet the currency demand of their customers and Reserve Bank of India (RBI) falling short of printing new notes on a timely basis to supply to the banks, leading to empty ATMs and crowded banks for weeks on end⁷ and amounting to mismanagement of the monetary economic system at the highest level.⁸

This study, conducted by IFMR LEAD, attempts to contribute to the on-going debate of the short and long-term effects of demonetization on low income households who while formally banked, are among the most prone to adverse effects of demonetization policy, owing to their socio-economic, demographic and occupational profiles. The objective of this study is to ascertain the trends and patterns of financial and economic behavior post demonetization as well as understand the difference in adoption and use of digital financial services before and after demonetization. We also aim to provide narrative around the impact demonetization has had on their day-to-day lives in terms of loss of work, inability to repay loans and to save. Lastly, we try and gain insights into people's perception about the demonetization move in terms of benefits and pitfalls associated with the policy and their changing attitude towards cash. In order to gauge both short term and long-term effects, we conducted three rounds of survey administered at regular intervals over a period of 9 months to understand the changing patterns and trends with respect to the financial behavior before and after demonetization.

³ <https://www.bloombergquint.com/opinion/2016/11/08/86-percent-of-indian-currency-void-masterstroke-or-big-blunder>

⁴ <http://economictimes.indiatimes.com/industry/banking/finance/banking/the-new-rs-500-and-rs-2000-bank-notes-you-should-know-this/articleshow/55325873.cms>

⁵ <https://rbi.org.in/scripts/NotificationUser.aspx?Id=10684&Mode=0>

⁶ It took 16 months (March 2018), for the currency circulation to return to pre-demonetization levels.

⁷ <http://www.firstpost.com/business/demonetisation-30-days-a-timeline-of-pm-narendra-modis-grand-indian-currency-show-3146334.html>

⁸ <http://www.economist.com/news/finance-and-economics/21711035-withdrawing-86-value-cash-circulation-india-was-bad-idea-badly>

Six months post demonetization, evidence from several studies⁹ across India suggests significant distress to the Indian economy, with the poor and financially excluded being the most hit due to their over-dependence on cash. Similarly, informal economy constituting of 82% of total employment and predominantly transacting in cash was said to be severely hit by the liquidity crunch, for the first two months that followed demonetization.¹⁰ With the Government witnessing unanticipated disturbance across several sectors of the economy¹¹ and private sector forecasting a deceleration in the growth rate of GDP,¹² the Government re-emphasized its decision by stating that demonetization of currency in the long run, would pave the way for a digital economy¹³ and would provide Indians the much needed push to adopt digital means of financial services in comparison with cash based transactions.

Given the nature and scope of this large scale experiment, wiping out 86% of Indian currency in an overnight mandate and causing huge disruptions across several segments of the economy, it is important to understand the impact of the demonetization policy at the micro level. We have decided to focus our efforts on better understanding the impact on low income households who might have been most adversely affected by the move and contribute to the growing amount of evidence that exists on demonetization, with the hope that it will inform policy decisions made in the future.

⁹ Literature from previous studies are detailed in the next section

¹⁰ <https://rbi.org.in/Scripts/PublicationsView.aspx?id=17447#F16>

¹¹ <https://economictimes.indiatimes.com/news/economy/indicators/demonetisation-impact-on-various-sectors-govt-needs-to-inject-positive-sentiment-led-by-tax-cuts/articleshow/55843771.cms>

¹² <https://www.forbes.com/sites/timworstall/2016/11/19/effects-of-demonetisation-on-indias-gdp-difficult-to-calculate-we-dont-even-know-the-sign/#add97717969f>

¹³ <https://timesofindia.indiatimes.com/india/Less-cash-first-cashless-society-next-PM-Narendra-Modi-appeals-in-Mann-ki-Baat-radio-address/articleshow/55646835.cms>

Literature Review

In the months following the demonetization announcement, various attempts have been made to study and capture the impact of this sudden shock. It is necessary to contextualize these attempts by highlighting that the Indian economy was heavily cash-based with a GDP-to-cash ratio of 12%, and arguably continues to be so, even post-demonetization (though the ratio has fallen dramatically to 9%, this is also due to the decreased cash in circulation).¹⁴ This is correlated to India's substantial informal economy, which contributes a substantial 46% to non-agricultural Indian GDP and encompasses 84% of the non-agriculture jobs (see ILO, 2013). It is common knowledge that many entrepreneurs in the agricultural and retail sector do not have bank accounts and do not primarily transact digitally, do not have the annual income that would qualify for income tax payments,¹⁵ and run their daily business solely based on cash transactions.

To put this into further perspective, 97% of retail transactions in India were cash-based (USAID, 2016). This is despite the huge increase in the number of account holders with the government's flagship financial inclusion program, PMJDY which by default is a digital account (though under 5% of PMJDY account holders utilized services such as online/mobile banking and wallets). In other words, 98% of the account holders preferred to transact using cash, while under 40% of the account holders surveyed reported using debit/ credit cards (Intermedia, 2015). Even 70% of the online shopping was paid for in cash in the 2011-14 period¹⁶ in India. Given this situation, it is natural to expect sizeable negative effects due to the cash crunch caused by demonetization in the short run. Thus, the immediate focus of a majority of the studies on the topic largely revolves around understanding how the major disruption in payments and the sale of goods and services reliant on cash transactions affected people's income and livelihoods, across different sections of the society. Additionally, researchers also try to capture the experience of various segments of the society with regards to their uptake, perception and usage of cashless modes of transacting.

Initial findings suggest that the demonetization had a significant, but highly varied impact across different segments (Microsave, 2017). Among those adversely affected include farmers/ allied sector workers and informal sector workers (including daily wage labour, artisans, etc.). The cash crunch that followed the demonetization prevented these segments from conducting their everyday transactions – including paying wages, and

¹⁴ <https://thewire.in/economy/india-gdp-demonetisation>

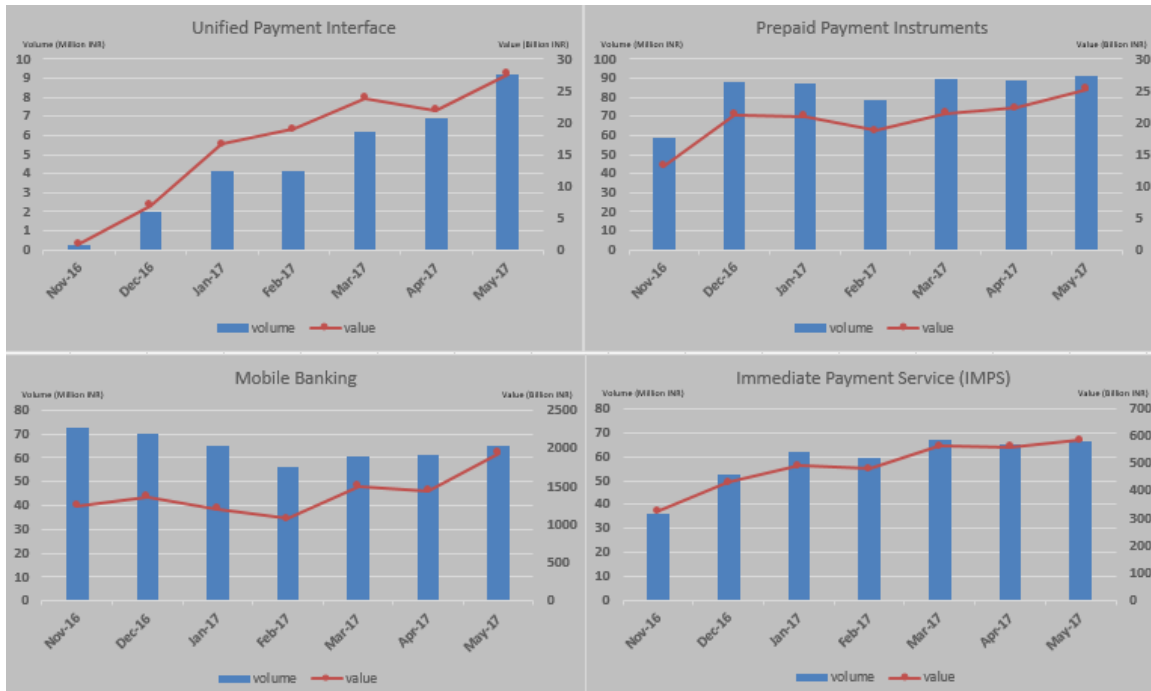
¹⁵ 70% of the population does not have annual income that would qualify for taxation – the first bracket is at Rs 2,50,000. See: <http://www.livemint.com/Politics/AvHvyHVJlhR0Q629wkPS5M/Indias-richest-20-account-for-45-of-income.html>

¹⁶ <https://www.adamsmith.org/blog/the-very-real-impact-of-indias-demonetization>

buying and selling goods. A drop in household incomes immediately post-demonetization was observed, and the largest decrease in terms of employment was seen in the number of days of work, for daily wage labor (IFMR LEAD, 2017). A recovery of income levels to pre-demonetization levels was only seen about three to four months later (IFMR LEAD, 2017). Anecdotal information available suggests that among the various coping strategies used for the exchange of goods and services in this situation included the use of promissory notes, and even resorting to a barter system. As expected, self-employed and salaried employees were among the least affected.

With regards to the uptake and usage of non-cash modes of transacting, an immediate impact was seen. A 2017 CDFI study reports that in the months after demonetization, fewer consumers report “always” relying on cash in transactions with kirana shops and local vendors.¹⁷ The use of cheques increased, since it allowed people to withdraw larger amount using it vis-à-vis using debit cards. People have also started using cheques for smaller transaction ticket size than they otherwise did due to its high acceptability. Furthermore, the usage of Mobile Wallets and E-transactions also increased (Microsave, 2017). While the number of debit cards issued went up by a large number (peaking at 60 million new cards being added in Jan2017), the long queues at ATMs proved to be a disincentive for people to rely on this method of transacting. The usage of the Immediate Payment Service (IMPS) declined in November 2016, but increased thereafter. Lastly, between October 2016 and Jan 2017, the number and volume of transactions using Prepaid Instruments (PPI) increased by over 80% (Medianama, 2017 – based on RBI data). It was also found, that 66% of the people using digital solutions are likely to transition permanently, given sufficient access points, and training are provided (Microsave, 2017).

¹⁷ http://www.cdfi.in/uploads/Articles/Demonetisation_final_Nov15.pdf

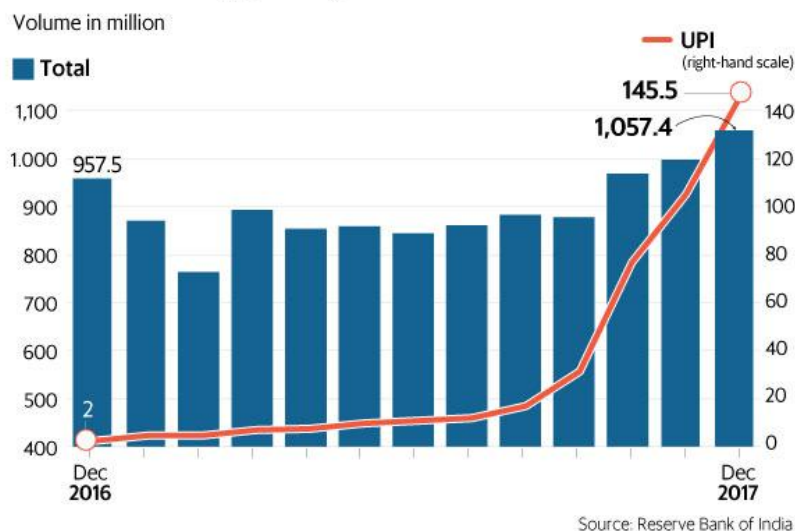


Source: RBI Data

However, data from RBI on digital transactions from November 16 to May 17 suggests that after a sudden spike in the number and value of digital transactions in November and December, there was a steady decline in digital transactions post December, as the cash crunch eased, suggesting that sustaining digitization of financial transactions could prove to be a paramount challenge, in the current ecosystem. The volume of digital transactions increased 42% from 672 million in November 16 to 958 million in December 16 but since then declined 20% over two months to 763 million in February 17. A huge spike in the value of digital transactions was witnessed in March – however the lack of a commensurate increase in the transaction volume suggests that larger amounts of money are being moved through digital channels. Overall, at the end of May 2017, the digital transaction volume remains less than as seen in December 2016. The trend reversed by the end of the year, with digital transactions crossing the 1 billion mark by December 2017, and climbing further 4.73% to 1.11 billion by February 2018.

Tipping point?

Digital transactions in December crossed the 1 billion mark, touching a new peak in terms of volume since the government's demonetization exercise in November 2016. Transactions through the Unified Payments Interface (UPI) also reached a new high, clocking 145.5 million transactions in December.



Source: RBI Data via Livemint¹⁸

The RBI's assessment as of month, year¹⁹ on the impact of demonetization concludes that although demonetization had impact on various sectors of the economy, the impact was short lived and was felt mainly in the two months post the announcement of demonetization. Furthermore, we see a lack of sufficient research documenting the different coping strategies used and also in terms take-up and usage of digital financial service, between rural and urban populations.

The evidence thus far suggests that the demonetization significantly disrupted people's incomes and livelihoods, the impacts being different across different strata of the population. The resulting cash shortage clearly seems to have broadly driven the uptake of cashless/digital financial services in the short run. The next step therefore would be to evaluate the persistence of these trends over a period of time and gain a more nuanced understanding of how the demonetization influenced people's savings and account usage behaviour.

¹⁸ <https://www.livemint.com/Industry/faVYL8TDKPyh1i05HoAYFM/Digital-transactions-cross-1-billion-mark-in-December.html>

¹⁹ <https://rbi.org.in/Scripts/PublicationsView.aspx?id=17447#F16>

Research Objectives

This study aims to provide insights on the impacts of demonetization among low-income bank account holders and their change in behavior, attitudes, and perceptions towards digital payments. This has been done by collecting primary data on key indicators mentioned below across states in all the four regions of the country (North, South, East and West India). Furthermore, a design has been employed which captures the effects of demonetization over time. This includes short term effects on the daily lives of bottom-of-pyramid consumers, and perceived long term effect on digital payments and savings behavior.

The key research questions and indicators are enumerated below:

Key Research Questions	Key Indicators
What was the effect of demonetization on the uptake and adoption of digital financial services?	Usage of: <ul style="list-style-type: none"> • Debit/ credit cards, • Mobile wallets, • Online/ mobile banking
What was the effect on demonetization on savings and account usage?	<ul style="list-style-type: none"> • Savings behavior, • Deposits, • Withdrawals, • Transactions
Did the demonetization announcement cause any inconvenience? What was the opportunity cost of financial transactions post demonetization?	Time taken to: <ul style="list-style-type: none"> • Get to a bank, • Make a transaction - withdraw money, exchange old notes etc. • Visit / use ATMs or banks (withdrawal, travel costs) Cost in terms of : <ul style="list-style-type: none"> • Loss of pay or loss of work day, • Inability to make transactions for daily expenses
What were the methods used to overcome inconveniences caused (if any) by demonetization and how did people make financial transactions?	Alternative methods: <ul style="list-style-type: none"> • For settling bills such as credit from shopkeepers, • Digital payments, • Borrowing from friends and families, bartering products/ services.
What was the effect of demonetization on income generation?	<ul style="list-style-type: none"> • Ability to work, • Ability to find employment, • Payment for work performed
What are your thoughts on demonetization?	Support/ don't support, and why/not? (Qualitative)

Sample Demographics

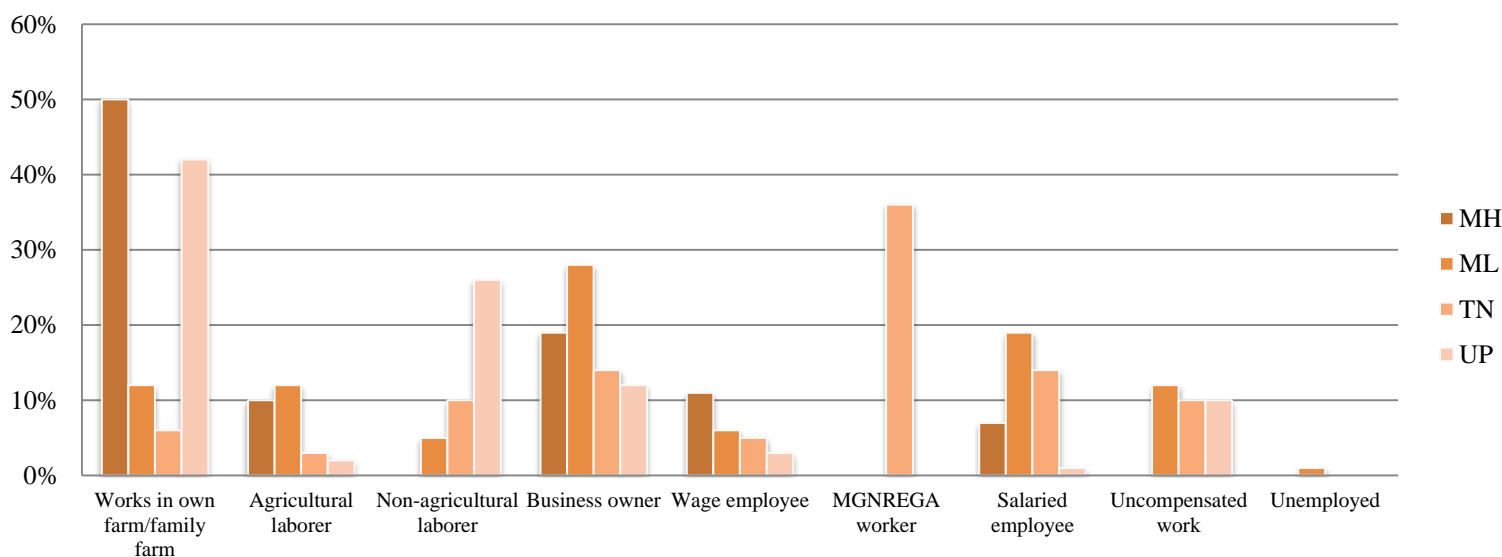
The average household in Maharashtra has 4.6 members, with an annual income of Rs. 80,553. Half the respondents practice agricultural cultivation on their own farm, with business owners²⁰ (19%) and wage employees (11%) being the next most popular occupational categories.

The average household in Meghalaya has 4.4 members, with an annual income of Rs. 94,804. Nearly one-third of the respondents are business owners (28%), with salaried employee (19%) as the second most popular occupational category. In many cases, respondents or their families cultivate their own farmland even though it is not listed as their primary occupation.

The average household in Tamil Nadu is 3.9 members, the smallest across study states. The average household annual income, however, is the highest of all the study states at Rs. 98,599. The most popular occupational categories are MNREGA workers (36%), business owners (14%), and salaried employees (14%).

The average household in Uttar Pradesh has 5.5 members, with an annual income of Rs. 79,600. The state has the lowest annual household income, followed closely by Maharashtra. The majority of respondents (42%) work on their own farm, followed by non-agricultural labor (26%) and business owner (12%). UP has the highest proportion of male respondents (88%) of which 30% are 55 or older.

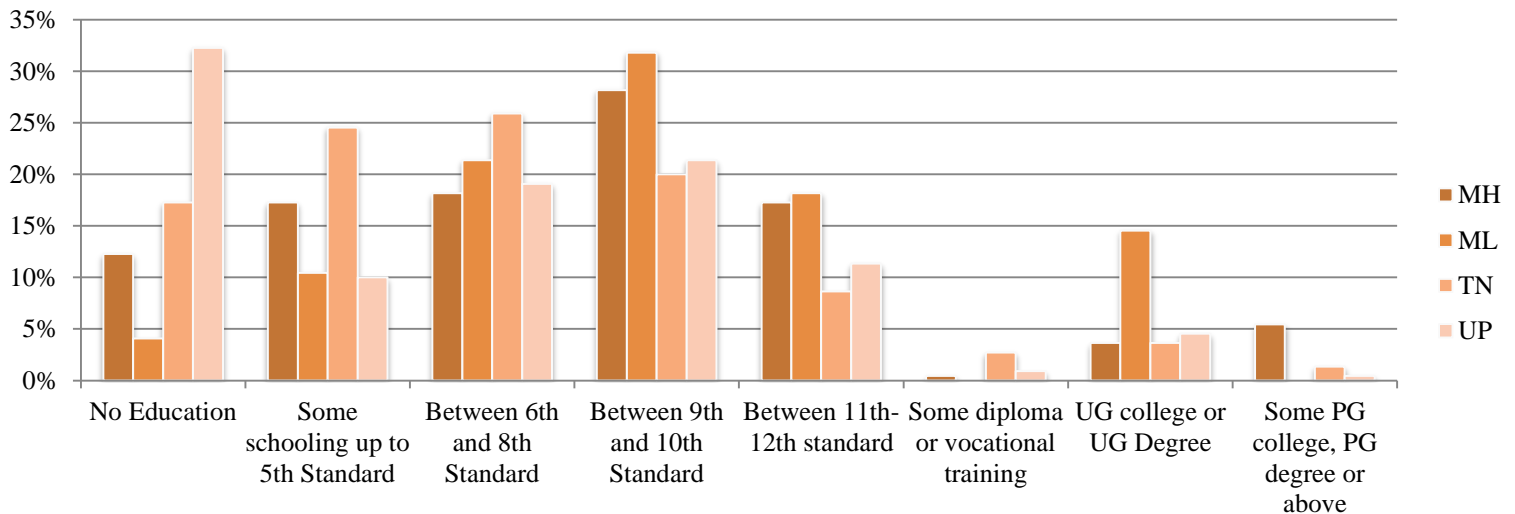
Respondent's Primary Occupation



²⁰ The study defines business owners as those respondents who own and run their own small business.

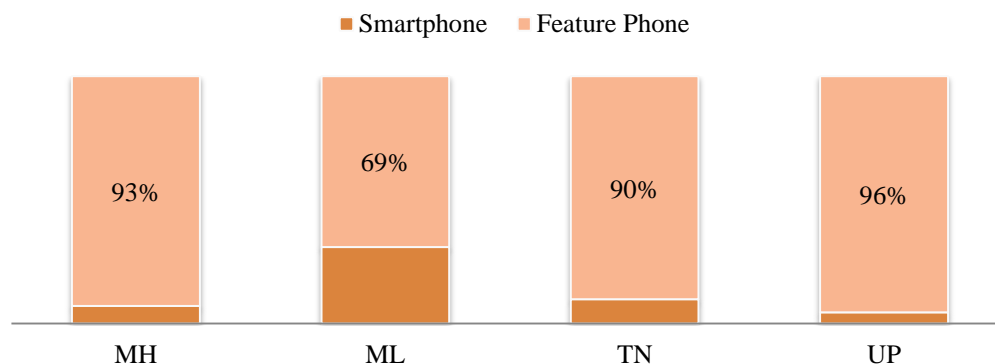
Tamil Nadu respondents are relatively more educated, while Uttar Pradesh has the highest proportion of respondents without any formal education.

Respondent's Educational Level



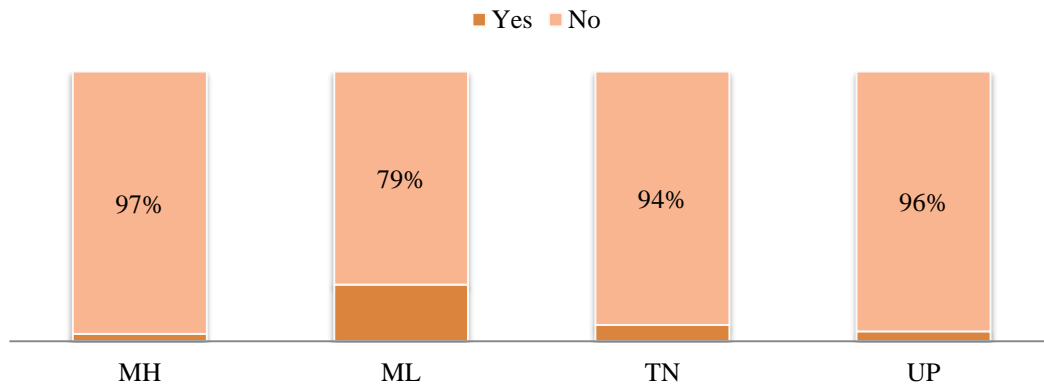
Only 76% of UP respondents have an active mobile connection, the lowest amongst all the study states. All other study states average 95% or higher on this metric. Meghalaya has the highest proportion of respondents with smartphones, while Uttar Pradesh has the highest proportion of respondents with feature phones.

Type of Phone Owned by Respondents



While no respondents report using their phones for financial transactions, Meghalaya has the highest proportion of respondents who use their phone to browse internet, interlinked with the higher prevalence of smartphones in the state.

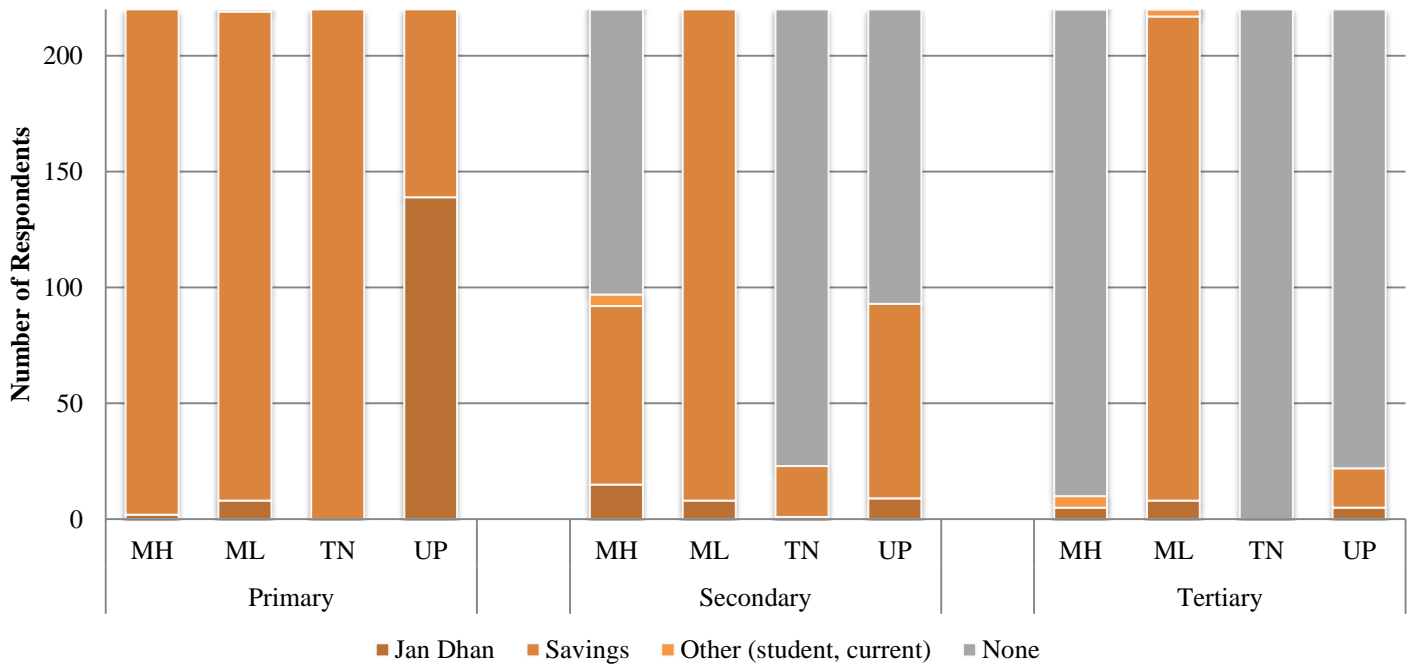
Respondents Using Internet On Their Phones



Financial inclusion

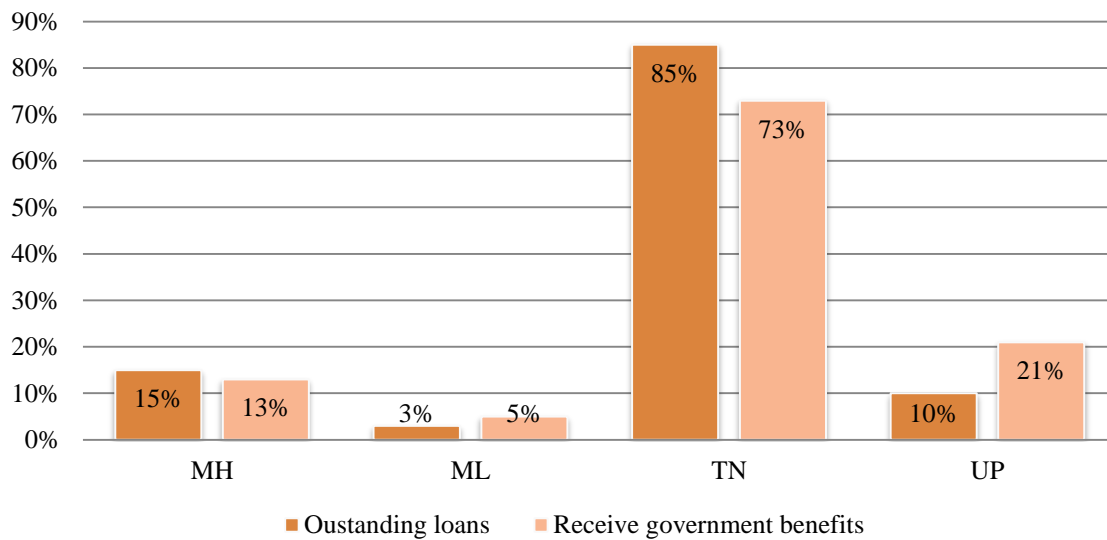
In UP, respondents are most likely to have a Jan Dhan account as their primary account (62%). A Jan Dhan account refers to the zero-balance savings accounts opened under the central government's Prime Minister Jan Dhan Yojana (PMJDY) scheme. In all other states, the majority of respondents have a savings account, Jan Dhan or otherwise, as their primary account.

Bank Account Types by State



In terms of outstanding loans, both formal and informal, Tamil Nadu clearly dominates. The state has the highest proportion of respondents with outstanding loans (85%), followed by Maharashtra (15%), Uttar Pradesh (10%), and Meghalaya (3%). Respondents from Tamil Nadu also received the most benefits from the different government schemes that exists for low income households, with 73% of respondents' household receiving benefits. Meghalaya has the least percentage of respondents receiving government benefits at 5% of the sample, with Maharashtra (13%) and Uttar Pradesh (21%), with results somewhere in between.

Oustanding Loans and Government Benefits



Results

Short-term effects

Transactions

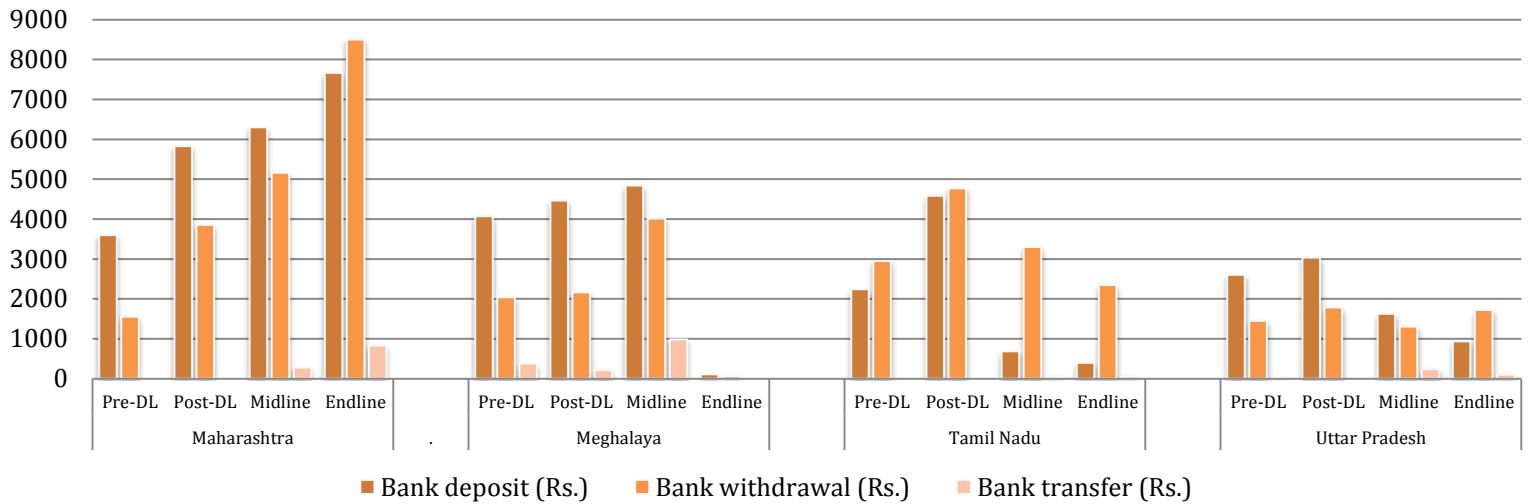
On a scale of 1-10 of how difficult it was to make financial transactions in the two weeks after the demonetization announcement, with 10 being most difficult and 1 being the least difficult, UP respondents reported an average difficulty score of 5.61. This is notably lower than all other study states, which have a slightly higher score. On average, respondents from Maharashtra report experiencing the most difficulty (7.55), followed by Meghalaya (7.50) and Tamil Nadu (7.48).

Across all states, increases in average monthly deposit and withdrawal amounts were seen post-demonetization.²¹ The greatest change was in Tamil Nadu, where deposits more than doubled, followed by Maharashtra which saw nearly 50% increase in deposits. The smallest percentage increases were in Meghalaya (9% for deposits and 6% for withdrawals), while the lowest average deposit and withdrawal amounts both before and after demonetization were in Uttar Pradesh. This could be indicative of the relatively lower levels of financial inclusion in Meghalaya and Uttar Pradesh in terms of access and usage of bank accounts.²² Bank transfers were mostly absent in all states in both periods.

²¹ The deposit of government benefits are not considered bank deposits as they are not transactions initiated by the customer.

²² <https://www.crisil.com/pdf/corporate/CRISIL-Inclusix-Volume-III.pdf>

Average monthly transactions amounts (Rs.)



Between 89% and 100% of all pre-demonetization deposits were done at bank branches, and this stays the same or increases across all states after the announcement. The remainder of deposits are at ATMs/cash deposit machine centres, most common with Tamil Nadu respondents (9%). Bank withdrawals, conversely, are more evenly divided between banks and ATMs across states except Uttar Pradesh: Maharashtra (70% bank, 29% ATM), Meghalaya (58/38%), and Tamil Nadu (48/29%). In Tamil Nadu, another 23% of withdrawals are through business correspondents (BC). After demonetization, withdrawing at bank branches increased by 10% in Maharashtra and 16% in Tamil Nadu.²³

In the months after demonetization, the midline survey recorded marginal increases in monthly transactions across all categories. Bank deposits made by respondents have higher transaction values than withdrawals and transfers in all states except Tamil Nadu, where withdrawals may be higher as a result of a larger number of respondents receiving government benefits electronically. More than 1 year post-demonetization, average bank deposits and withdrawals continue to increase only in Maharashtra. While withdrawal amounts have increased in Tamil Nadu and Uttar Pradesh, they revert to pre-demonetization periods more than one year later.

While initial methods of transaction were via a visit to the bank or ATM, 1% of the UP sample reporting transacting digitally via phone banking post-demonetization.

²³ An increase in withdrawals at bank branches post demonetization could be because of lack of money in ATMs or crowded ATMs, as witnessed across several parts of the country.

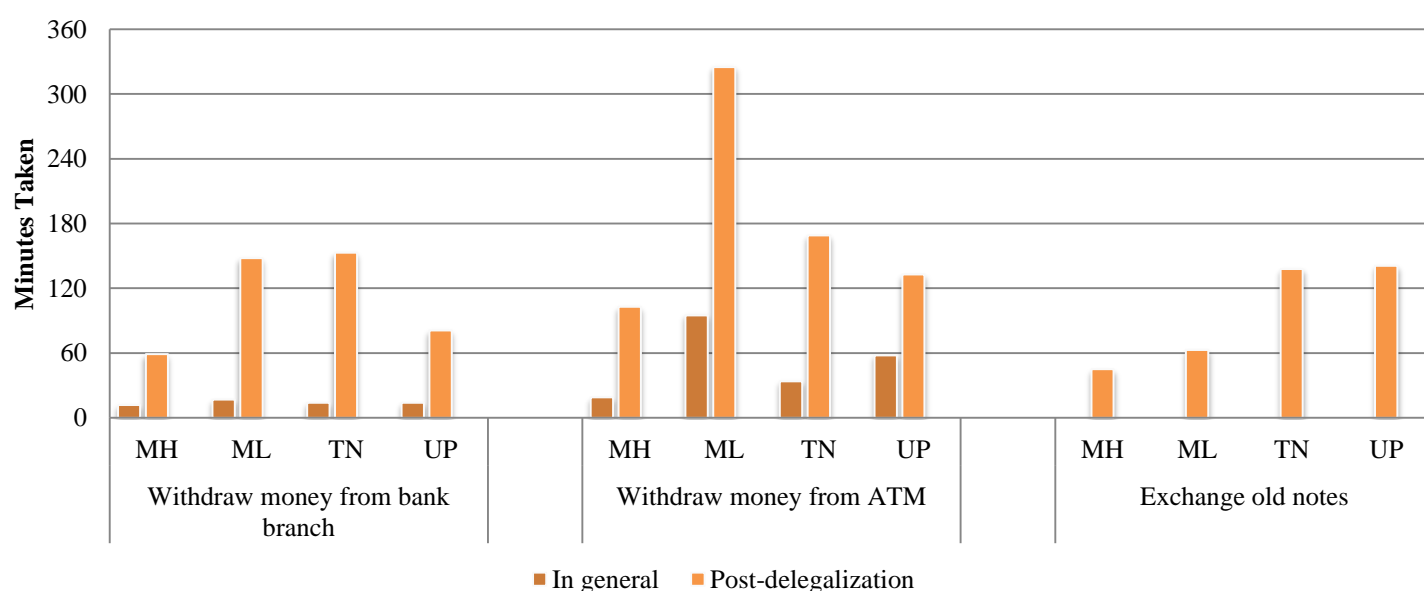
Interestingly, UP is the only state to report any mobile or phone banking with regard to bank deposits or withdrawals.

In the one month post-demonetization, the main alternate methods of payment used were taking credit for shopkeepers and borrowing cash from friends and family. Each method was used 2 to 6 times on average over the period. Bartering products and services was also highly prevalent in Meghalaya, with the average respondent using this payment method 11 times in one month. Meghalaya and UP respondents reported using digital payments 2-3 times, while this mode of payment was absent in Maharashtra and Tamil Nadu. Maharashtra and Meghalaya also reported seldom use of cheques. These results yield an interesting insight, indicating that people reverted to familiar traditions like bartering when faced with a shock, rather than adopting novel methods such as digital payments, especially when the shock is seen as short-term.

Wait times

In all states, demonetization caused significant delays at bank branches and ATMs. In all states, the general wait time to withdraw money from an ATM is 12-15 minutes, which ballooned to an hour's wait time or more in the two weeks after demonetization. Sample areas in Meghalaya and Tamil Nadu were the worst affected, with post-demonetization wait times nearing 150 minutes, or 2.5 hours.

Transaction Times In 2 Weeks Pre/Post Delegalization



While all states reported similar ATM wait times under normal conditions, wait times at bank branches under normal conditions widely varied. Maharashtra was the fastest (20 min, all times approximate) followed by Tamil Nadu (30 min), Uttar Pradesh (60 min), and Meghalaya (90 min). The bank branch wait times after demonetization are therefore best understood as multiples of these values: Maharashtra (5.4x), Meghalaya (3.4x), Tamil Nadu (5.1x), and Uttar Pradesh (2.3x). In this case, Maharashtra and Tamil Nadu were hardest hit.

With regard to the average time taken to exchange old notes at bank branch in the two weeks after demonetization, Uttar Pradesh had the longest wait of more than two hours (141 min), closely followed by Tamil Nadu (138 min). Meghalaya (63 min) and Maharashtra (45 min) fared considerably better.

In conclusion, Tamil Nadu respondents faced relatively more difficulty in terms of wait times across the metrics. While Uttar Pradesh reported least difficulty in transactions two weeks after the demonetization announcement and had post-demonetization wait times which were closest to regular average wait times.

Exchanging old notes

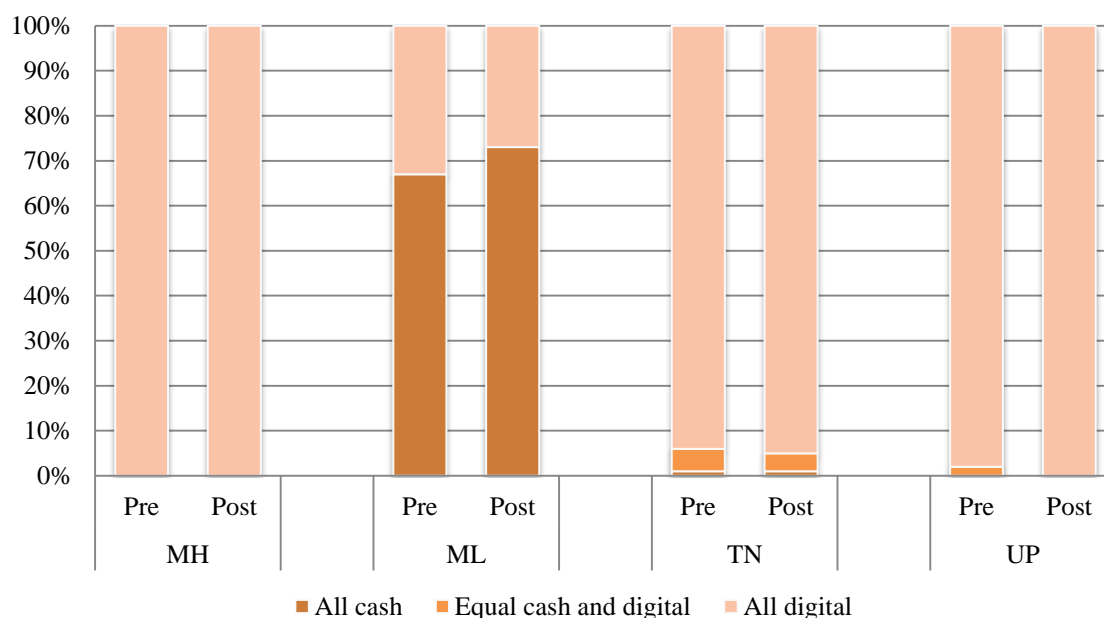
While nearly all respondents from Tamil Nadu and Uttar Pradesh exchanged old notes for new (98% and 95% respectively), these figures were lower in Maharashtra (86%) and Meghalaya (77%). Across states, the most common alternate sources for exchange of notes were petrol pumps and local grocery stores, followed by friends and relatives.

UP was the only state in the sample where respondents reported being asked to deposit money for others (2%), and were offered a chargeable service of exchanging their old notes for new at 2% commission rates.

Government benefits

There is a decrease in the number of respondents receiving government benefits post-demonetization across Maharashtra (21% to 13%), Tamil Nadu (78% to 73%), and Uttar Pradesh (26% to 21%). The decrease this could be driven by the distribution of one-time benefits, such as the housing subsidy, that happened before demonetization. Meghalaya has the smallest proportion of respondents receiving government benefits in both periods (approximately 5%). The range of monetary value of benefits received varies widely, largely dependent on the schemes in which the respondents were enrolled into.

Government Benefits Mode of Receipt: Pre/Post Delegalization



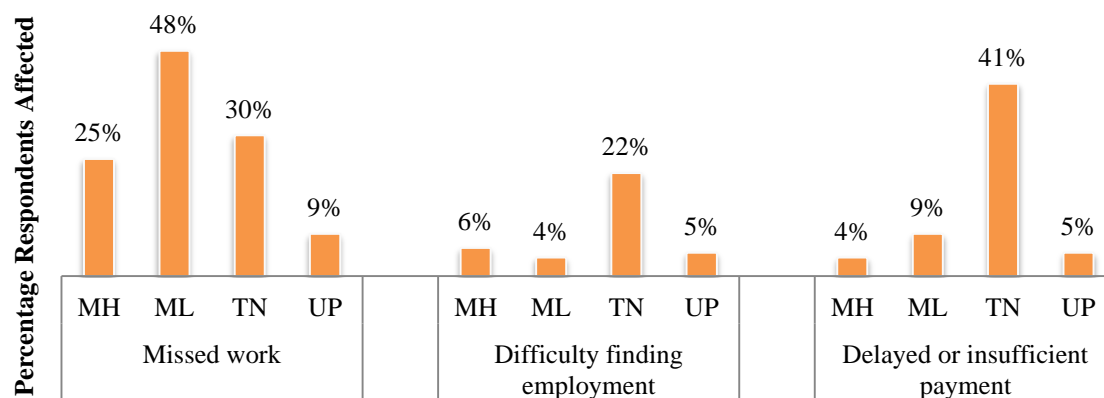
The post-demonetization changes in method of delivery are minimal. Maharashtra respondents receive their Indira Awaas Yojana (affordable housing scheme) and LPG payments all via digital payments. In Meghalaya, 2/3 of respondents receive government payments in cash while the remaining 1/3 receive it digitally. The majority of Tamil Nadu respondents who receive government benefits either receive LPG subsidies or are MNREGA beneficiaries. The vast majority of these payments are received digitally (95%), with 5% or less received in cash. In Uttar Pradesh, 98% of pre-demonetization payments are digital, and this increased to 100% in subsequent period. These trends across all the four states are not surprising as the Government has been pushing for digital payments aggressively under the Direct Benefit Transfer Program, which started in 2013 and gained momentum in 2014-15, and has been successful in digitizing payments for some of the most popular Government programs such as MNREGA, PAHAL (LPG), OAP, etc. with one of the objectives being to accelerating the usage of these bank accounts.

Employment

UP was least impacted in terms of effect on employment, with only 9% of respondents having missed work due to demonetization. Meghalaya was the most affected, with 48% of respondents reporting of having missed work. This correlates to the fact that the state also had the longest waiting times at bank branches, and were located further away from

them. Across states, respondents who missed work were absent for 2-3 days, at a monetary loss of Rs. 325 (UP) to Rs. 759 (Meghalaya).

Employment Metrics After Delegalization

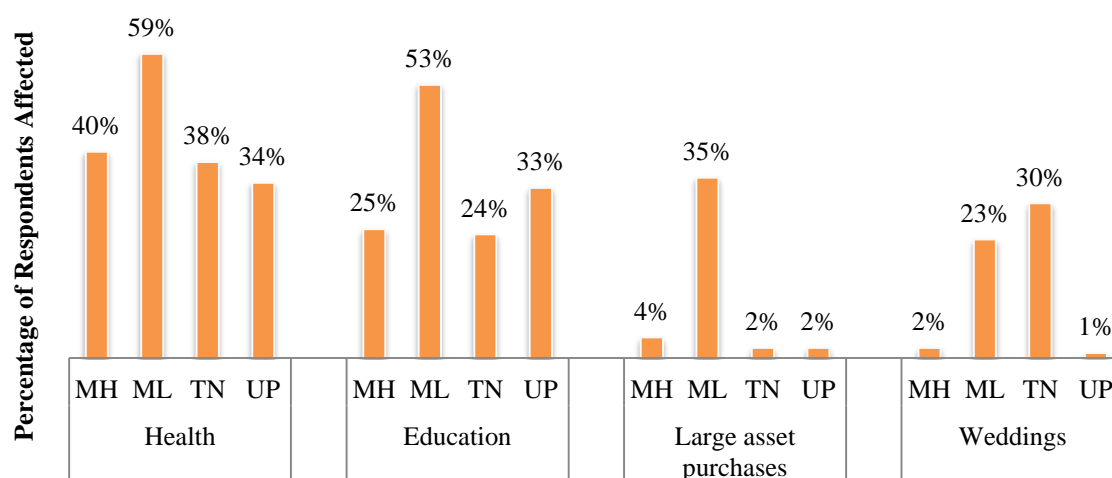


Tamil Nadu has the highest proportion of respondents reporting difficulty in finding work (22%), far higher than all other states, which report about 5% on this metric. This could have to do with the higher percentage of MGNREGA and agricultural labor work in the state, as shown by the respondent's primary occupation. While Tamil Nadu has the most respondents reporting delayed or insufficient payments (41%), the monetary equivalent of this loss averages at Rs. 105. On the other hand, Maharashtra has the fewest respondents with payment issues (4%), but the highest average monetary loss associated with it (Rs. 1611). The majority of payment issues are delayed payments.

Expenditure

Average expenditure on household items in the one month prior and post demonetization more than doubled in Meghalaya, while changing nominally in the other states. Across states, between 25% and 60% of the sample report disruptions in health and education spending due to demonetization, with the most disruptions in Meghalaya. Meghalaya respondents also report postponing purchases of large assets (35%). Tamil Nadu and Meghalaya respondents experienced most disruptions to marriage plans (30% and 23% respectively).

Expenditure: Respondents Affected by Category



Demonetization and savings behavior

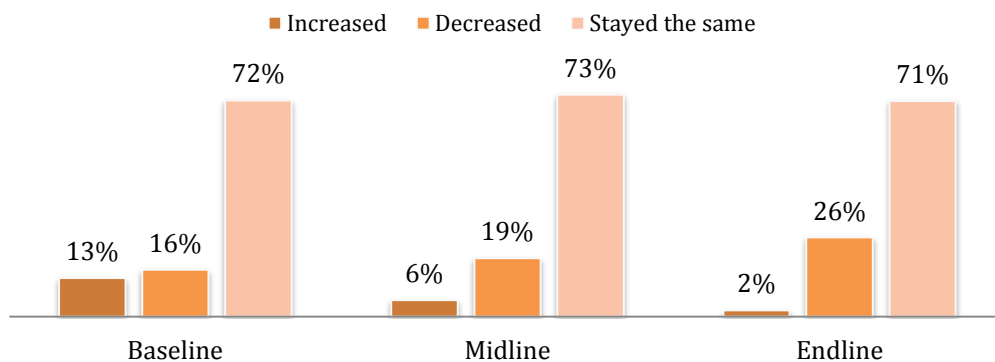
The most common saving methods for Maharashtra respondents are in public sector banks (81%), at home (51%), and in private banks (8%). With regards to demonetization's immediate effect on savings, 34% report a decrease in informal savings and 28% report a decrease in formal savings. As the decrease in one savings form is not commensurate with the increase in another, there is evidence to suggest that consumption may have increased in Maharashtra, if only temporarily.

The most common saving methods for Meghalaya respondents are in public sector banks (66%), government cooperatives (29%), at home (21%), and at the post office (5%). With regards to savings pattern post demonetization, 16% report an increase in informal savings and there is a corresponding 13% decrease in formal savings.

The most common saving methods for Tamil Nadu respondents are at home (89%), in public sector banks (30%), in private banks (28%), at the post office (26%), and in self-help groups (12%). Respondents report a 46% decrease in informal savings and a corresponding 35% increase in formal savings, suggesting a shift towards formal savings in the months after demonetization.

The most common saving methods for UP respondents are in a public sector bank (81%) and at home (21%). With regards to savings trend post demonetization, 28% report a decrease in informal savings and 12% report a decrease in formal savings. As the decrease in one savings form is not matched by the increase in another, there is evidence to suggest that household consumption may have temporarily increased in UP.

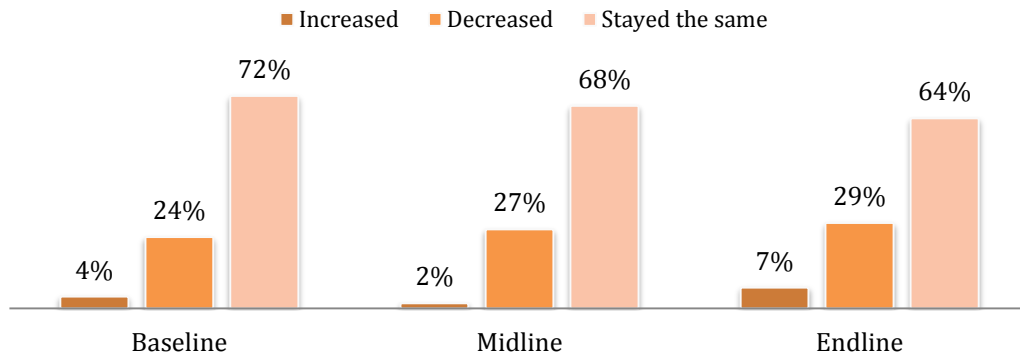
In the last two months, how has your formal savings behavior changed?



Across all states, the majority of respondents reported no change in both formal and informal savings. However, there is an increase over time in the number of respondents reporting that they have decreased their formal savings. There is a parallel decrease in those who report increase in formal savings.

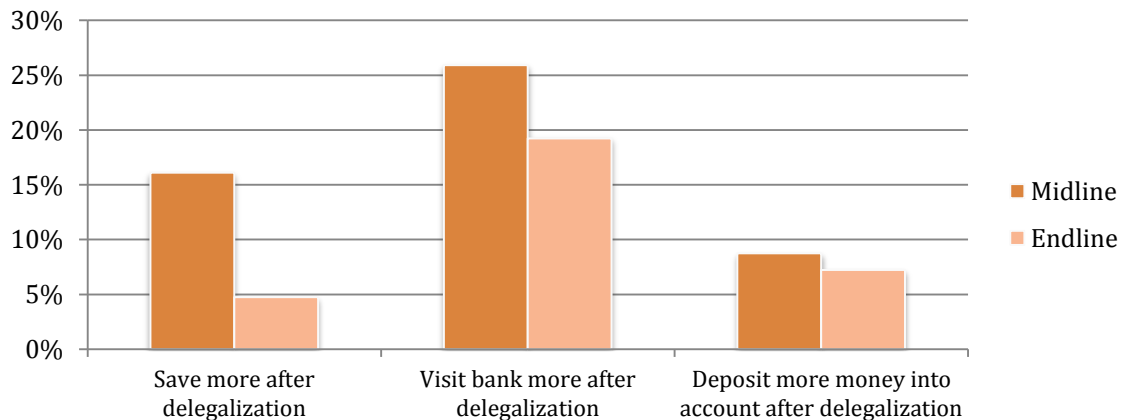
In Meghalaya, informal savings had increased at baseline but later decreased as reported in the follow up round. With regard to formal savings behavior, 35% of Tamil Nadu respondents reported an *increase* in formal savings immediately after demonetization, nearly the same amount reported a *decline* in formal savings the midline conducted in September. In another reversal, more Meghalaya respondents reported increased formal savings in the midline survey.

In the last two months, how has your informal savings behavior changed?



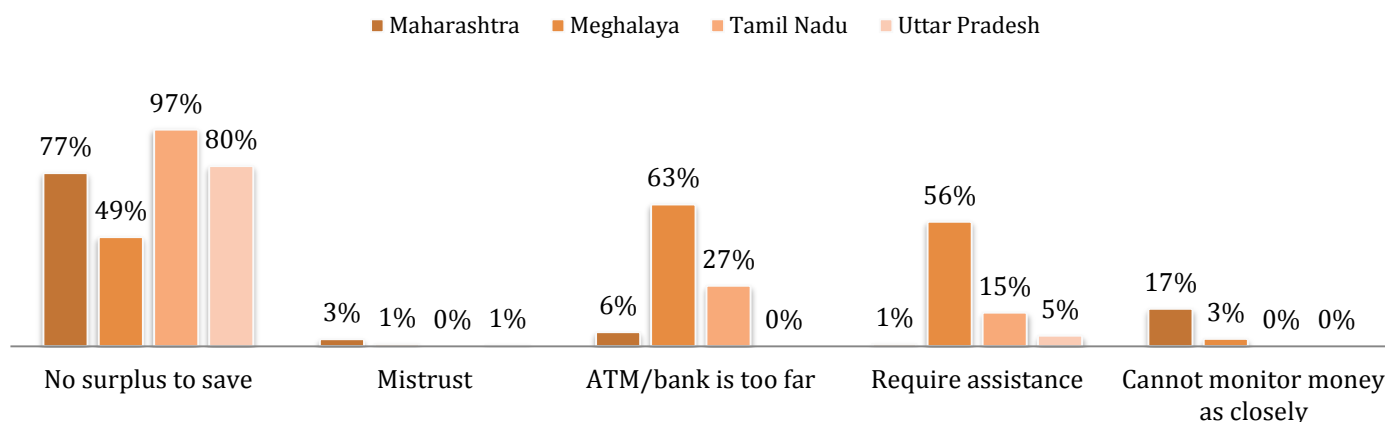
Reported changes in informal savings behavior are similar to changes in formal savings behavior. While amount of individuals reporting an increase in informal savings is relatively minimal across all rounds, there are marginal increases over time in those reporting a decrease in informal savings behavior.

Changes in savings behavior (% affirmative)



Finally, fewer respondents report actively saving more, visiting the bank more, and depositing more money into their account in endline as compared to midline.

What prevents you from saving all your surplus in the bank?



A lack of surplus to save is the primary reason for not saving in all states except Meghalaya, where lack of infrastructure and need of assistance are the main roadblocks.

The midline survey also asked respondents about the effect of GST on household expenditures. In all states except Meghalaya, respondents have reported an increase in household expenditures after GST implementation.

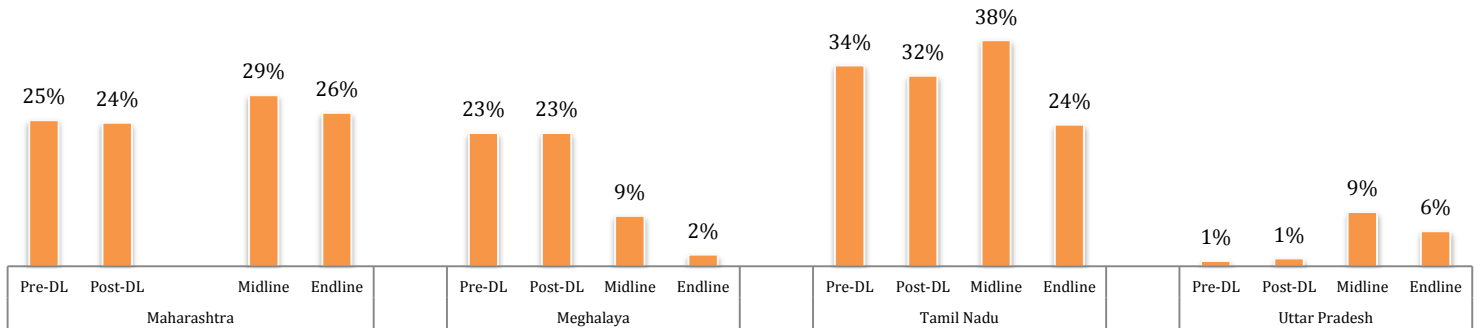
Demonetization and digital financial services

Own use

In all states but UP, between 24% and 34% of the sample uses digital payment methods, with the rates being highest in Tamil Nadu. Uttar Pradesh is most dismal with regard to use of digital financial services. Only 2% of the UP sample reported use of digital payments both before and after the demonetization announcement.

There is almost no change in the proportion of respondents using digital payment methods after demonetization, suggesting that the policy did not lead to increasing the use of digital financial services for this target group. Across states, use of digital payment methods is mostly limited to debit cards, credit cards, and cheques, with online and mobile banking being used only in Tamil Nadu. Debit cards continue to drive the bulk of digital payment, followed by cheques. The use of debit cards fluctuates across time, suggesting that use of digital payment methods is not a consistent behavior and relies on a robust and continuing acceptance network which is currently not present.

Use of debit cards



Respondents report using digital payments for sending money and paying bills and utilities. Unlike all other states, in which 17-35% of respondents use digital financial services to receive money, this is entirely absent in Uttar Pradesh both before and after demonetization.

Meghalaya also demonstrates the highest proportion of digital payment use for weekly household expenditures in the midline survey, though it still only amount to approximately 5% of overall expenses relative to 0-1% in other states. This effect does not persist over time.

There is little change across periods in whether respondents seek out others for assistance with digital transactions. In Tamil Nadu, around two-thirds of the sample report seeking assistance in both before and immediately after demonetization. Respondents reported turning most often to family, business correspondents and friends. In UP and Meghalaya, the majority of respondents report not needing any help, largely also because they simply do not use any digital financial services for their day to day financial transactions and those who do, reach out to friends and family. In Maharashtra, 56% of respondents report not requiring any assistance before demonetization, but this increases to 88% after demonetization, suggesting that respondents in MH might have more interest in looking for alternative source of making financial transactions.

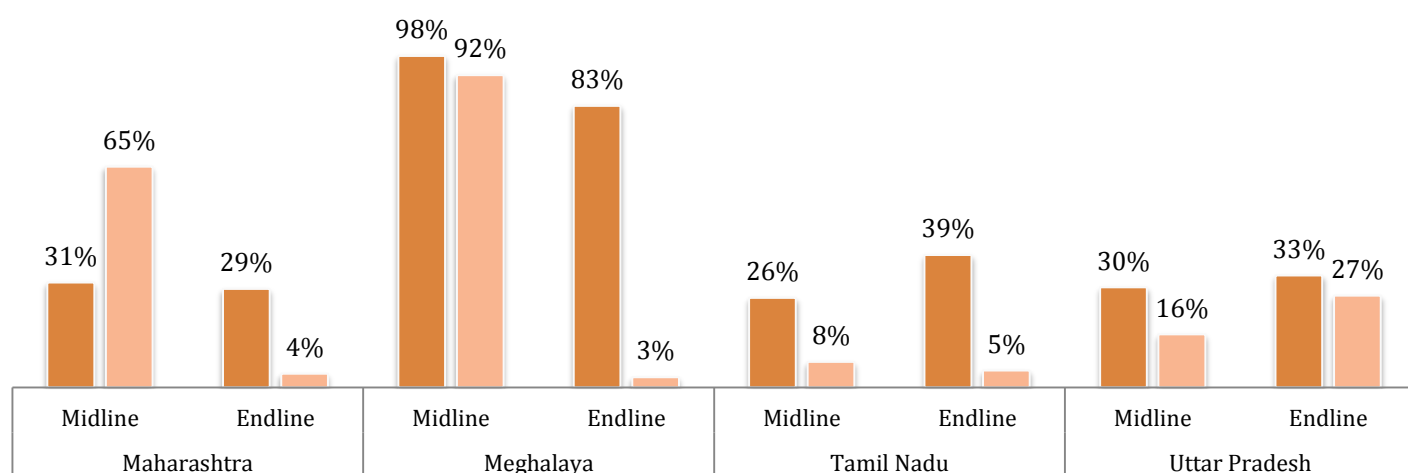
Respondents report that the primary reason for not using digital payments is lack of knowledge about how to use them, ranging from 41% in Meghalaya to 91% in UP. We might expect this to correspond with higher rates of seeking assistance with digital

payments, but the opposite is the case as seen above. This could be a cultural effect where general lack of awareness about such products precludes the majority of the community from being able to use such services. While lack of technical knowledge is the primary impediment to DFS use across the study states, the infrastructure roadblocks in terms of network connectivity and inadequate acceptance of digital payment methods among vendors in UP in particular are striking, with percentages much higher than in other states.

Meghalaya respondents are nearly universally enthusiastic about adopting digital payments, and report that there is an acceptance infrastructure in place if they choose to do so. While this latter fact is not corroborated by the focus group discussions, which report minimal digital payment use amongst vendors, the enthusiasm to learn is matched by the fact that Meghalaya respondents consider it significantly *easier* to use digital methods as compared to other states, which average 4.25 on a scale of 5 when asked to rate difficulty of using digital payments based on perception or actual experience. The comfort with using digital means is corroborated by the high smartphone penetration in Meghalaya relative to the other states. The enthusiasm for learning to use digital payments is constant more than one year after demonetization, except in Meghalaya, where perceived difficulty of using digital payments increases from 2.99 to 3.85 on average.

Willingness to adopt digital payment methods

■ Willingness to learn to use digital methods ■ Awareness of local vendors who accept digital payments



In general, the proportion of respondents interested in adopting digital payment methods remains higher than the proportion who believe that such payment methods are accepted in their vicinity. This pattern persists across time in all states except Maharashtra. Uttar Pradesh is the only state in which there is an increase over time in the perceived acceptance of digital payments by local vendors.

Awareness

In the midline survey, respondents were asked whether they were aware of specific innovations to facilitate digital payments and developments that has the potential to transform the financial services ecosystem. As a proportion of total respondents, Maharashtra demonstrates a relatively high awareness of new financial entities such as payment banks and small finance banks, and the BHIM app tool for transactions. Meghalaya also has some respondents who are aware of these innovations, whereas respondents in Tamil Nadu and Uttar Pradesh are the least aware. UPI and the USSD platform remain little known. In the endline, payment banks and small finance banks are recognized by upwards of 98% of Tamil Nadu respondents, indicating a recent awareness campaign in the survey area. There are also innovations for which awareness decreases across time. It is likely that recognition of such services is short-term and respondents forget about them when they do not come into persistent use or become popular.

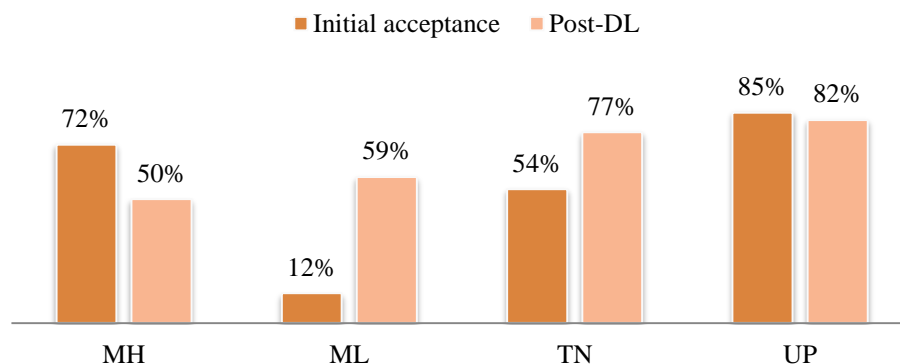
Vendor use

With regard to vendors' use of digital payments, UP respondents report an initial spike in acceptance immediately after the demonetization announcement (71% noticed an increase in digital payment options amongst vendors). This does not seem to be a sustained effort, as only 23% report that vendors continued to use (offer??) digital payments after the exchange period ended. Other states report less dramatic initial increases in vendors' use of DFS, from 3% in Maharashtra to 22% in Tamil Nadu. These conversions seem more long-term than in UP however, with 12% of Maharashtra and 17% of Tamil Nadu respondents reporting that the digital payment methods continue to be available.

Perspectives on demonetization

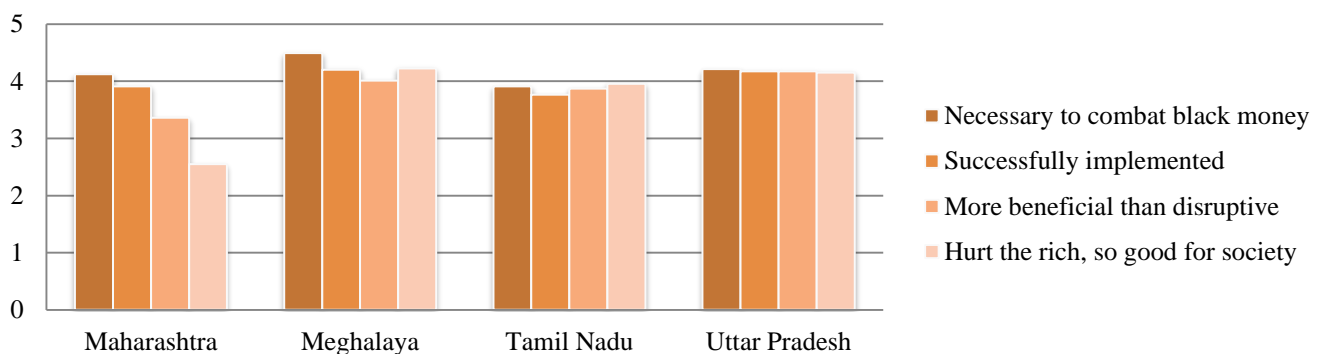
Of all the states, Uttar Pradesh reports the highest trust in cash, both before and after demonetization (4.49 and 4.10 out of 5, respectively), with there being somewhat of a decline in this regard. The acceptance rates are also highest here: 85% of respondents agreed with the policy immediately after the announcement, and 82% continue to do so. Meanwhile, Maharashtra respondents report a decrease in acceptance rates (72% initial acceptance vs. 50% current acceptance), where perhaps an initial enthusiasm for the policy is clouded with doubts on its efficacy. Tamil Nadu respondents report almost the exact opposite (54% initial vs. 77% current).

Policy acceptance rates



Meghalaya has the lowest trust in cash, both before and after demonetization (2.55 and 2.67 out of 5, respectively). Despite the overall low trust, respondents from the state report a stark increase in acceptance of the demonetization policy from 12% initially to 59% currently. Based on the qualitative reasons given by respondents, this can be partially attributed to the fact that the initial inconveniences post-announcement have now subsided. The chart below compares respondents' opinions on demonetization across all states. While UP respondents do not necessarily agree with the policy *more* than all other states, their opinions are more uniformly in support of it.

State-wise Opinions on Delegalization (5 = Completely Agree)



Statewise remarks

In line with previous reports on financial inclusion in India, Meghalaya ranks lowest amongst the study states in terms of access to bank account, penetration of bank branches and ATMs and number of outstanding loans in the region. In spite of the state's poor financial inclusion performance, our study respondents report use of digital means for making payments and receiving money. This disparity could be because our selection criteria requires respondents to have bank accounts, which in this lowest-ranking state could be more well-informed or relatively financially savvy. Compared to other states, fewer respondents from Meghalaya generally report lack of knowledge about digital financial services. Instead, they cite security concerns with using digital payments. The initial rejection of demonetization in this state is likely prompted by personal inconvenience due to long wait times and disruptions in expenditure, the resolution of which could have brought increased acceptance of the policy. Self-reported trust in cash remains high, and there is evidence for a shift to informal savings after demonetization.

Results from Uttar Pradesh paint a picture of enthusiastic support for demonetization policy, but there is limited evidence for uptake of digital financial services. While a small percentage of the UP sample uses digital payment methods, the spike in vendor use was not sustained and the vast majority lack knowledge about these payment methods and trust in digital financial services remains low.

As supported by the literature, Tamil Nadu emerges as the most financially sophisticated of the four study states, with high prevalence of government benefits through direct benefit transfer, outstanding loans along with minimal use of online and mobile banking. There is however, a marked decline in trust of cash. Qualitative questions indicate that respondents support the policy in theory, but were less supportive of its implementation than in other states.

In Maharashtra, there is evidence of a temporary shift to consumption in the aftermath of demonetization and a marked decline in acceptance rates over time. Additionally, there is no strong evidence pertaining to uptake and use of digital financial services post demonetization both on the demand and supply side. Some of the popular channels of digital payments such as debit card, mobile wallet, etc. don't seem to have caught up among our study respondents in MH.

Overall, we see substantial variation in the four states on indicators pertaining to occupation patterns, income and credit and savings behavior. This is largely because of the difference in the demographic, socio-economic and financial inclusion levels of each of these states, as reflected in our data.

In terms of digital payments, although there is some statewise variation in payment methods adopted before and after demonetization and average number of transactions per month post demonetization, the difference is too small to support the case of increase in digital financial services and transition to a less-cash eco-system. We see very small changes across states in terms of behavior pertaining to digital financial transactions and are therefore skeptical about the effects of demonetization on adoption and usage of digital financial services among our study sample. One interesting trend that comes out of the data is the fact that our respondents use digital financial methods the most at the time of receiving money, with 40%, 24% and 17% of our TN, ML and MH respondents receiving money in digital forms rather than cash. While this indicates towards a supply side push either by Government in sending benefits through direct transfers or employers while crediting salaries, it also indicates the potential of devising incentives and mechanisms for low income households to retain their money in digital forms rather than encashing it. This could be in the form of enabling infrastructure in terms of merchant acceptance of digital payments, increase in inclusive mechanisms such as insurance and credit through digital modes and so on, while also ensuring that the awareness or digital literacy is boosted among such households. Digital payments are only one of the several digital financial services that exist today and methods could be devised to retain the money in its digital form to increase the likelihood of acceleration of digital financial services. However, given that a large part of our sample was from rural and peri-urban areas (that were on the periphery of larger towns/cities) with an average monthly income of approximately Rs. 7000, they face substantial barriers in retaining cash in its digital form and using cashless methods for financial transactions. This is discussed in further detail in the concluding section.

Qualitative Insights on Financial Behaviour

In order to supplement the quantitative data collected through structured interviews, we also implemented a qualitative component alongside the midline survey, using the Focus Group Discussion (FGD) format on both the demand and supply side of the spectrum to gauge a holistic understanding of changes in financial behaviour post demonetization. On the demand side, we conducted FGDs among groups of women and men, separately to assess if there were any gender based differences in experiences and perceptions related to demonetization. On the supply side, we conducted FGDs among small-scale merchants and retail shop-keepers operating in the study area. A total of 12 FGDs were conducted, 3 per state across each of the 4 states included in the study.

Meghalaya

Consumer Insight on Savings and DFS Behaviour

Questions were administered to understand the changes in formal and informal savings post demonetization and the reasons for the same. Insights from Meghalaya suggested that both men and women were quite receptive to using formal financial services for their savings and did not view informal savings methods, such as savings at home or savings with a friend/money lender to be safe. However, respondents reported that they often found it difficult to save at a bank on a regular basis, since the nearest bank was 5 km away and was often too crowded. Respondents also seemed to be fearful of high value currency notes being banned again and therefore felt that it was much easier to save at a bank securely rather than hold cash at hand and indulge in informal savings behaviour. Despite these perceptions, respondents in Meghalaya faced considerable challenges with regard to making transactions at bank and visiting bank, which in turn discouraged them from using formal financial services. Respondents reported lack of operational management in banks leading to over-crowded banks and pending requests. They also shared instances where banks turned the status of their accounts from active to dormant due to inactivity, leading to difficulties in withdrawing government benefits or wage payments that were transferred into their accounts. Lastly, respondents reported lack of cash at ATMs and therefore being unable to withdraw their money on a timely basis. Overall, all these factors led to a negative perception about availing banking services and despite the positive externalities of making formal savings, people were forced to save at home and look for other alternative sources. These factors also led to lack of take up and usage of DFS since efficient banking services are a pre-requisite for usage of DFS, which severely lacked in Meghalaya and the residents faced critical supply side challenges in access and usage of DFS.

Merchant Insight on DFS Behaviour

Merchants were administered questions pertaining to the adoption and usage of digital financial methods for accepting and making payments. These referred to the different channels such as EPoS machines, mobile wallets and other digital payment instrument that the merchants could potentially offer to their customers for completing transactions. Responses received from Meghalaya suggested that the small scale vendors and merchants did not see the need for these services and hence there was a lack of demand for DFS adoption and use. In this context, demonetization did not seem to have a substantial effect on change in behaviour with regard to adoption and usage of DFS. Although awareness regarding the different digital channels of financial services increased across the board, people seemed to have misconceptions with regard to the usage of these channels, some of the most common one being additional taxes on digital transactions. Lastly, respondents on both demand and supply side mentioned that they would be interested in learning and gathering knowledge on DFS, with help from a third party, so as to gradually transition to digital platforms.

Uttar Pradesh

Consumer Insight on Savings and DFS Behaviour

Insights from FGDs conducted among groups of men and women in UP suggest similar trends. People reported very little to no change in patterns related to formal and informal savings post demonetization. Respondents mentioned that they belonged to low income households and therefore the remaining surplus after managing household expenses was saved at home or was spent for other consumption smoothing purposes. Respondent also cited high transaction cost pertaining to visiting bank to make savings, which they did not find worthwhile in engaging.

In terms of awareness pertaining to channels of DFS, most of the respondents had heard about the use of debit cards for withdrawing money and making digital transactions. This was largely due to the fact that respondents were given Rupay cards along with their Pradhan Mantri Jan Dhan Yojna (PMJDY) accounts which had contributed in increasing awareness about usage of cards. However, respondents were not aware of other DFS channels even post the demonetization announcement. Some of the most common barriers to take up and use of DFS was lack of awareness about the different channels for DFS,, apart from the most common modalities of debit card and cheques, lack of money among poor and low income households, infrastructural barriers in terms of accessing banks and lack of ownership to smartphones and internet access.

Merchant Insight on DFS Behaviour

Small scale vendors and shop owners who were interviewed in UP, did not use any digital methods of payments, such as mobile wallets, card and other prepaid instruments, at the time of the FGDs. They also mentioned that they did not find any demand on the

consumer side, which was one of the primary reasons cited for lack of usage of DFS. Other barriers pertained to lack of adequate information or awareness about ways in which these services could be used and the behavioural stickiness with use of cash instead of digital methods, as many respondents mentioned being more comfortable with transacting in cash.

Tamil Nadu

Consumer Insight on Savings and DFS Behaviour

Similar to trends seen in UP, respondents, both male and female cited no change in their savings behaviour in terms of both formal and informal savings post demonetization. Most of the respondents mentioned that they earned barely enough to sustain their daily livelihoods and hence did not actively engage in any saving activity on a regular basis. Specifically, respondents in Tamil Nadu seemed averse to engaging in formal savings due to commonly cited reasons such as distance to the bank, lack of money to save, high transaction cost and difficulty in understanding banking procedures. One interesting insight that came from the respondents was also the fact that bankers discouraged them to engage in regular banking transactions and often did not treat them with adequate respect and attention that a customer deserves. Similar results has also been cited in a previous IFMR banking audit study that highlights significant barriers to banking for low income individuals (Mowl & Boudot, 2014).²⁴ In terms of informal savings, while both male and female respondents confirmed no changes in their informal savings behaviour, respondents mentioned actively participating in informal chit fund schemes²⁵ in the event of any surplus money. However, this trend remained the same both before and after demonetization.

In terms of uptake and usage of DFS channels, respondents (both male and female) mentioned using their debit cards for withdrawal of money. Female respondents increasing cited using the services of Business Correspondents (BCs) for withdrawal of their money, mostly during receiving Government benefits or wage payments under the National Rural Employment Guarantee Act (NREGA) scheme, while male respondents would directly withdraw the money at ATM centres. The respondents were not aware of any other digital methods for making financial transactions. Barriers to take up and usage of DFS that were cited were similar to results from other states. Some of the most commonly cited reasons being lack of awareness and illiteracy. Respondents mentioned not seeing the need to make any digital transactions, since the value and volume of weekly/monthly transactions in total were relatively low and preferred to use cash for the same. Overall, respondents did not perceive any short term effects of demonetization on

²⁴ Barriers to Basic Banking: Results from an Audit Study in South India- <http://foundation.ifmr.co.in/2014/09/30/barriers-to-basic-banking-results-from-an-audit-study-in-south-india/>

²⁵ Chit fund schemes are informal savings group that are popular in South India. To read more about this scheme, refer to this article- <https://www.economist.com/blogs/banyan/2012/11/chit-funds-india>

the adoption of DFS channels, although they seemed to think that this trend might change in the next 5 to 10 years, with the younger generation being more comfortable with technology (including smartphones and usage of internet).

Merchant Insight on DFS Behaviour

Merchant insights from FGDs in Tamil Nadu highlighted that none of the local shopkeepers/vendors used digital methods for accepting or making payments. The trend remained the same both before and after demonetization. In terms of managing liquidity crunch immediately after demonetization, respondents mentioned that they sold goods on credit as well as acquired goods for their stock on credit. Some of the most common barriers that the respondents mentioned for lack of use of DFS channels were limited use case/need for DFS channels and lack of knowledge and awareness in terms of ways in which these methods could be used. Shopkeepers also highlighted the nature of transactions to be one of the reasons for not using these methods, since the value of these transactions were relatively low value and both consumers and merchants did not see the need to use these methods for their daily transactions. Merchants also mentioned using cash to buy their daily stock from wholesalers and for paying daily instalment on their loan amounts to private money lenders and hence cited the need for cash to maintain smooth operations of their business, thereby did not see the need to push for digital channels of financial transactions. (indirectly discouraging the use of digital methods for financial transactions.)

Maharashtra

Consumer Insight on Savings and DFS Behaviour

With regard to savings behaviour post demonetization, male respondents reported saving more at banks. However, there was no change in formal savings behaviour among female respondents. In terms of informal savings, both male and female respondents mentioned little to no change in their preference for informal savings. While respondents did recognize the benefits of formal savings mechanisms, they highlighted challenges with visiting banks in terms of the time and monetary cost, which discouraged them from using banks. They also mentioned unstable source of income as a reason for lack of adequate savings.

In terms of uptake and usage of DFS, male respondents reported greater willingness to use debit cards while female respondents continued to use cash for their transactions. However, both male and female respondents were aware of the use of debit card for digital transactions. They attributed this to the *Rupay* debit cards received under the PMJDY program. In terms of reasons for lack of adoption of DFS, responses were in line with other states, with commonly cited reasons such as lack of awareness, lack of enough money, infrastructural barriers in terms of accessing bank and banking services. Overall, respondents did not see any short term or long term effects of demonetization on use of

DFS, however, male respondents did perceive an overall increase in the ‘demand’ for digital payment methods in the areas they lived and worked in.

Merchant Insight on DFS Behaviour

Discussions with shop-keepers, vendors, etc. in the study areas highlighted promising results in terms of take up and usage of DFS. Respondents confirmed higher incidences of digital payments through EPoS machines and mobile wallets for their day to day business activities post demonetization. They attributed the take up and use of DFS to the demonetization announcement and cited liquidity crunch and increase in customer demand to be some of the primary factors for the same. The length of this effect lasted at least through the time the discussions were conducted. They mentioned that close to 25 and 50 percent of their customers used debit cards and mobile wallets for payments, respectively. While merchants highlighted some considerable challenges with use of DFS in terms of additional tax charges for digital payments and longer wait times for processing transactions, they believed that the demand for DFS would sustain in the longer run.

Limitations

State-specific site selection methods

While the study states, districts, and blocks were chosen in a methodical manner, due to lack of secondary data the study locations within the districts were chosen based on field visits at the discretion of the research team. Once teams reached the field, several of the block headquarters did not have an adequate mix of agricultural and non-agricultural households to fulfill the screening criteria. Therefore, the focus shifted outside the town's boundaries. In collaboration with local leaders, the research team identified village panchayats to suit the study criteria. Since a random and systematic procedure could not be maintained, this introduced the possibility for bias due to the qualitative nature of site selection.

Identification of non/agricultural households

The survey sample is evenly divided between agricultural and non-agricultural households. The definitions used to verify the status of a survey household vary slightly across study states, as below:

- Maharashtra: “Does the head of household’s occupation involve cultivation on own land?”
- Meghalaya, Uttar Pradesh: “Does the household depend on own or rented land for income?”
- Tamil Nadu: “Does the family own a farming land and are you in farming activities anytime during the year?”

Measuring causal impact of demonetization

It must be noted that our study does not measure causal impact of demonetization on economic and financial lives of study respondents. Causal impacts are best measured using experimental designs so as to isolate the impact of an intervention on one group and comparing it to the counterfactual group by measuring the difference in the outcome variables of interest. However, given the macro nature of demonetization policy, it becomes impossible to measure the causal impact. Rather, we rely on self-reported data from respondents on financial behavior before and after demonetization to assess the change that demonetization might have had on the financial and economic lives of the study participants. Therefore, the usage of words such as ‘effect’, ‘impact’, ‘change’ refer to the descriptive and qualitative inferences we make through our data rather than quantitative and causal references.

Conclusion

There is no evidence to suggest that there was any change in financial behavior post demonetization in terms of bank account usage, credit and savings patterns, expenditure patterns and adoption and use of digital financial services in the long term. Our study results suggest that in the short-term, demonetization might have forced people to tweak their financial behavior depending on the availability of cash, causing substantial discomfort in terms of making necessary expenditures and investments. Findings from this study also suggest adverse effects on finding employment for those working as casual laborers and on temporary employment. Anecdotal evidence from the study supports the finding that demonetization did have significant short term impact on the livelihood of low-income financially included study respondents.

Results from follow-up rounds suggest little to no change in savings behaviour after more than 1 year post-implementation of the demonetization policy. A majority of respondents report no change in their savings behavior, attributing this to difficulties with accessing and using banking services. Across states, limited savings behavior can be attributed to lack of income to save, and use of digital financial services is limited by lack of knowledge.

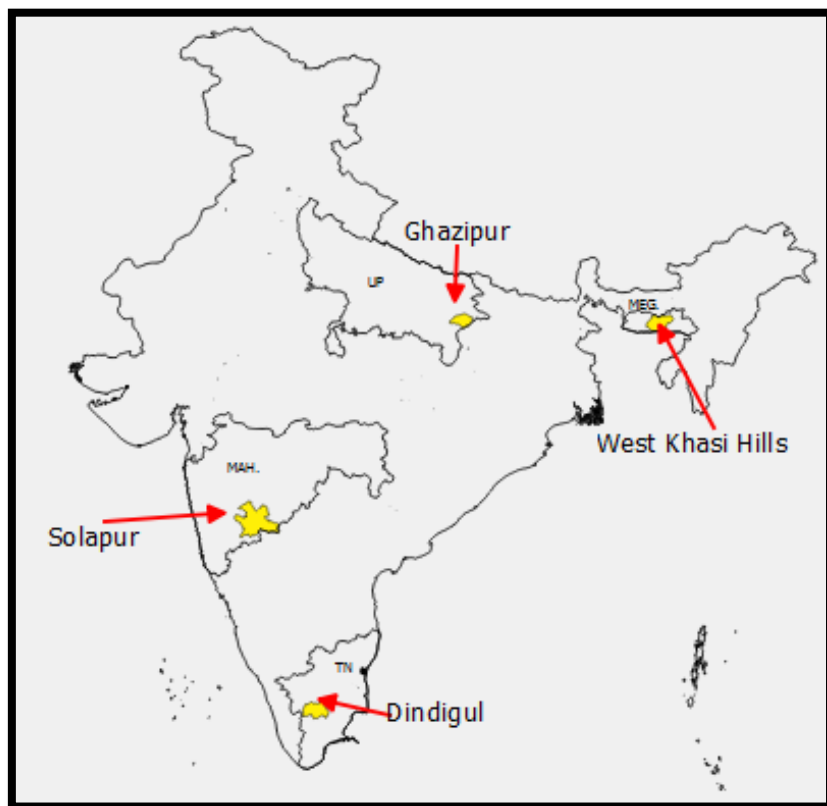
Another of the primary objectives of the study was to provide evidence on the take up and usage of digital financial services post-demonetization. Three rounds of surveys collectively investigate the medium and long term impact of demonetization on digital financial services and find little evidence of a significant impact on digital payments. Our research indicates no evidence of take up and usage of digital financial services among our study respondents, classified as low-income already banked individuals. Digital payments as a means of financial transactions remained negligible among our study respondents across all states. Additionally, adoption and acceptance of digital payment methods on the supply side, i.e., among small shop vendors and other vendors remained low, barring Uttar Pradesh which although showed an initial spike in acceptance of digital payment methods, dropped substantially two months' post demonetization.

Given the context, it becomes important to understand the reasons behind low uptake and usage of digital financial services among the poor and low-income households. While there are several barriers to DFS adoption on both the supply and demand side, our research suggests that low income households function under several constraints that impinge their ability to transition to digital forms of financial services. Some of these constraints relate to lack of adequate knowledge in terms of awareness, financial & digital literacy, lack of trust in digital channels of financial services, behavioural preference towards using cash, inherent infrastructural barriers in rural and remote areas

and limited economic opportunities in terms of employment and income. Indian consumers of the low-income yet financially included segment researched in this study demonstrate interest in digital financial services but are yet to entirely and unanimously embrace digital payments. Further research should aim to identify potential use cases for digital payments amongst this income group across the study states.

Appendix I: Sample Selection

The study was conducted in 4 states to understand the effects of demonetization in different regions of India. In selecting states, studies undertaken by others were considered, as well as the need to cover the different parts of India with a near representative sample. The decision to work in these states was based on ensuring a geographic spread along with qualitative discussions with the IFMR LEAD field team regarding feasibility of collecting primary data in these areas.



Indian states are further divided into districts and blocks. Within each study state, a district was chosen, and within the district a block was chosen. The details of the selection process using secondary data are shared in the Appendix.

Sampling criteria

Within each state, 220 respondents were surveyed for a total of 880 respondents. While the original plan stated 200 surveys per state, extra surveys were added to account for attrition in future survey rounds and invalid phone numbers in midline.

Surveyors approached each household in the survey villages and asked them the screening questions to see if they were eligible for survey. Respondents were invited to participate in the survey if they met the selection criteria:

1. Has a bank account
2. Has opened the bank account before August 1, 2016
3. Has transacted 2 or more times from the bank account since the demonetization announcement
4. Has an annual household income between Rs. 50,000 and Rs. 1,50,000.

District selection

Within each state, two districts at the 50th percentile score at the CRISIL Inclusix index²⁶ were short-listed to ensure that the chosen districts were not on the extremes of the financial inclusion spectrum. The index has district-wise measures of progress on financial inclusion across Indian states between 2009-2011. Senior members of the field team were contacted for feedback on logistic feasibility. The short-listed districts were:

Maharashtra: Parbhani, Solapur
Meghalaya: West Khasi Hills, Jaintia Hills
Tamil Nadu: Tirunelveli, Dindigul
Uttar Pradesh: Bareilly, Ghazipur

Block selection²⁷

Once one district per state was finalized, within each district, data from the 2011 Census of India was used to identify a block with both urban and rural populations. Generally there was only one such block per district as most blocks had only rural populations. In the case of Meghalaya, no block had a non-zero urban population, so the largest block was chosen. The final block selections were:

State	District	Block
Maharashtra	Solapur	Malshiras
Meghalaya	West Khasi Hills	Mawshynrut
Tamil Nadu	Dindigul	Dindigul
UP	Ghazipur	Ghazipur

Site selection

The original plan was to survey in wards at the periphery of the block headquarters, ideally in wards that had been incorporated relatively recently as they are more likely to have a mix of non/agricultural households. Once teams reached the field, several of the

²⁶ <https://www.crisil.com/pdf/corporate/CRISIL-Inclusix-Volume-III.pdf>

²⁷ Further details on site selection can be found in the Appendix

block headquarters did not have both agricultural and non-agricultural populations meeting the screening criteria. Therefore focus shifted outside the town's boundaries. State-by-state details of the final site selection are below.

Maharashtra

Solapur was chosen as the study district in Maharashtra. The chosen block—Malshiras—had a mix of urban and rural populations. As the headquarters of the block was primarily an agricultural area, the field team identified a few areas in around Sadashivnagar—about 5km from Malshiras village. This area was more suited in terms having an appropriate mix of agricultural and business owners. A list of villages and hamlets in and around Sadashivnagar was obtained, and the same was used to conduct the survey.

Meghalaya

Of the two primary regional languages Khasi and Garo, the Garo language was chosen due to availability of language literate surveyors and for logistical reasons. The Garo district closest to the 50% percentile CRISIL score, East Garo Hills. The largest block in East Garo Hills (none of the blocks had urban populations, so the largest block was chosen instead) is Resubelpara. The field team visited the town, which is primarily agricultural, and its neighboring town Mendipathar, which is primarily business, and confirmed that the locations were appropriate for the survey.

Tamil Nadu

Secondary data was used to locate a few panchayats within 5-10 km radius of Dindigul block headquarters. Based on discussions with local staff, the list was narrowed down to town, rather than village, panchayats since these areas were at the periphery of Dindigul block and were a mix of both rural and urban households. A known village officer suggested Seelapadi panchayat on the outskirts of Dindigul town, citing the presence of both agricultural and non-agricultural households, and logistical feasibility. The officer provided a list of villages within Seelapadi, where the survey was finally conducted.

Uttar Pradesh

Within Ghazipur block, the field team moved to the headquarters, Ghazipur town, and used Census data to locate areas that were newly added. The identified areas were Razdepur and Kapoorpur. The team visited these areas and spoke to a ward member in the area. He indicated that the area had little to no population working in agriculture whereas the village panchayats on the town's periphery would. A walk through the town confirmed that, given the layout and size of houses, almost no one was working in agriculture and their incomes would be too high for the study's screening criteria. On the ward member's feedback, the team decided to move to nearby Alampatti village in Khijarabad panchayat. After speaking to the village pradhan and conducting 2 pilot surveys, the team was confident that the population suited the screening criteria. Surveys were conducted across villages in Alampatti panchayat.

Sampling logistics

After the survey, surveyors were asked to take note of whether or not the respondent's household was agricultural. This was defined as a household where the primary source of income is from labor on one's own land.

The study tracked total number of households approached to understand how many were excluded because they did not meet the selection criteria. Approximately 20% of the approached households were not eligible for survey. Of these, one-third did not have a bank account while two-thirds did not meet the income criteria. The breakdown of these results is below:

	Maharashtra	Meghalaya	Tamil Nadu	Uttar Pradesh	Total
Total approached	276	237	306	267	1086
No bank account	1	0	62	5	68
High/low income	49	17	33	42	141
Surveyed	226	220	220	220	886

Instrument design

The survey instrument was designed by IFMR LEAD in March 2017. The finalized questionnaire was translated into local languages (Marathi for Maharashtra, Garo for Meghalaya, Tamil for Tamil Nadu, and Hindi for Uttar Pradesh) and converted into a digital form by IFMR LEAD's software team. The questionnaire took approximately 40-60 minutes to administer, and contained the following sections:

1. Screening
2. Identification
3. Household Roster
4. Income
5. Financial Inclusion and Connectivity
6. Effects of Demonetization

Data collection

Approximately 200 respondents were in each of the 4 study states: Maharashtra, Meghalaya, Tamil Nadu, Uttar Pradesh. The demonetization baseline survey was conducted in April 2017. The demonetization midline survey was conducted by phone in September 2017. The 20-minute survey was focused on respondents' use of digital transactions and savings behavior. The endline survey was conducted in January-February 2018.

The data collection process was divided into the following phases: piloting, training, and data collection.

The piloting was a 1-2 day process in which a member of the research team, the Field Executive (a senior member of IFMR LEAD's field team), and a surveyor visited the selected block to identify the exact location of study. The details of the site selection are explained in the previous sections. They also tested the survey questionnaire in 3-5 households to ensure translations were correct and respondents were interpreting questions as intended. Tamil Nadu and Uttar Pradesh were piloted first and simultaneously, after which the research team finalized minor changes to the survey instrument.

In each location, training was a 4-day process consisting of: 1-2 days reviewing the survey instrument question by question, 1-2 days practicing with the software and mock interviews, and 1 day in the field administering practice questionnaires to locals in an area nearby the final survey location. Once they completed training, the survey teams were considered ready to begin data collection.

In each state, the data collection team consisted of 1 supervisor overseeing the work of 3 surveyors. Data was collected digitally on tablets, with software developed by the IFMR LEAD software team. The teams were supervised by Field Executives who were on-site for the initial phases of data collection: piloting, field training, and start of data collection. In the case of Meghalaya, a Field Executive accompanied the survey team for a majority of the fieldwork, and 4 surveyors were hired to ensure data collection continued apace.

Within a week of completing baseline data collection, the survey team also completed quality checks and informal surveys with local merchants on the impact of demonetization on their use of digital financial services.

Appendix II: Outline for Focus Group Discussions

The following outline were the basis for the focus group discussions conducted with consumers and merchants in each of the 4 study states. In each state, 3 FGDs were conducted—1 with merchants, 1 with female consumers, and 1 with male consumers.

Households

- Savings behavior:
 - Post-demonetization, what has been the change in your formal savings?
 - Post-demonetization, what has been the change in your informal savings?
 - For those who save informally, what are the main reasons for not saving this money in the bank? If access/infrastructure were improved, would you increase the amount you save formally?
- Digital financial services:
 - What digital payment methods do you use?
 - Why did you adopt these methods in particular?
 - For those who do not use any DFS, what are the main barriers to use?
 - What effect (short/long term) did demonetization have on DFS use in the area?

Merchants

- What is the nature of your business?
- Do you offer POS payment options for customers?
 - Since when have you used POS machines and what prompted you to adopt?
 - What proportion of your customers use POS?
- Do you offer mobile wallet payment options for customers?
 - Since when have you used mobile wallets and what prompted you to adopt?
 - What proportion of your customers use mobile wallets?
- In your opinion, what are the biggest barriers to DFS adoption for your customers?
- What effect did demonetization have on your use of digital payment methods?
 - Did you adopt them in the short-term?
 - Do you plan to continue to use them?
 - For those who discontinued, why did you stop offering digital payment methods?

Appendix III: Dipstick Assessment Framework

This outline was drafted to identify potential use cases for digital payments across the study states. While this assessment could not be conducted within the timeframe of the original study, the framework below may be used to develop further studies on the subject.

Respondent Details: State, occupation, income per month, gender

Financial Activity

1. Which financial decisions do you make for your household?
2. Where do you transact, and amongst these where do you see potential for DFS use? (See grid below.)

Awareness

1. Are you aware of any digital financial products? Which ones?
2. Do you know anyone who uses such products? Describe them (age, occupation, use cases).

Usage

1. How easily can you access financial services through a bank branch/banking point/ATM/agent/smartphone/internet? Is DFS a viable and useful alternative?
2. Do you have any fears or hesitation regarding use of DFS? If so, what are they?
3. If you knew how to use DFS, would you use them? Why or why not?

	a. Where do you conduct this transaction?	b. What is the travel time/cost?	c. What types of transactions do you carry out there?	d. How often do you transact there? Per day, week, month, year		e. What is the average size of each transaction?	f. How do you pay?	g. Would DFS be a useful substitute payment method? Which type?
	Bank/financial institution Local market Kirana shop Other (specify) Through others		1. Deposits 2. Payments 3. Other	Frequenc y	Units		1. Cash 2. Credit 3. Digital payment (specify type)	
1. Groceries								
2. Household goods								
3. Utility payments								
4. School fees								
5. Mobile recharges								
6. Remittances								
7. Government benefits								
8. Other (specify)								
<i>For business owners:</i>								
9. Inputs for business								
10. Payments in my shop	N/A							



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