Does IT work? Information Technology (IT) in Welfare in India

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Abstract

The use of information technology (IT) in public administration is viewed as a significant tool for enhancing transparency and accountability. In popular rhetoric, these continue to be heralded as necessary and sufficient conditions for increasing transparency and accountability. This paper studies the use of various forms of IT such as computerization, public management information systems (MIS), digital ID and biometrics in two welfare programmes in India. This paper aims to (a) use government MIS portals to shed light on the performance of welfare programmes, (b) understand whether recent IT applications have been beneficial or detrimental to programme performance and (c) comment on what extent IT has fulfilled its potential to enhance transparency. We find support for two earlier findings: one, there is no automaticity between use of IT and enhanced transparency or accountability and two, the use of IT may reinforce, even exacerbate, existing power imbalances rather than mitigating them. Further, we find some evidence of 'too much' technology being detrimental to improving administration and accountability.

Introduction

E-government has been variously defined in the literature (Yildiz 2007). Broadly understood here as the adoption of information technology (IT) in government processes to promote transparency and accountability, it has been an important policy objective in India in recent decades. There is a rich literature studying the connection between e-government and accountability of bureaucracies and elected governments. Existing literature has documented the benefits from the use of information technology in government, but equally questions the presumed automatic relationship between more application of information technology and greater accountability (Barata and Cain 2001). As early as 1982, Danziger et al argued that "computing will reinforce the power and influence of those actors and groups who already have the most resources and power" (quoted in Yildiz 2007: p. 648). More recently, Wong and Welch (2004) are more emphatic, "It is simply a myth that e-government will automatically and dramatically change the accountability nature of public organizations." Yildiz (2007) highlights the need for more empirical work from outside the US, the focus of most studies of IT.

This paper looks at the experience of the use of certain information technology initiatives in India: computerization of administrative records for web-based management information systems in two government welfare programmes. After computerization of records, computerization and the creation of a publicly accessible MIS were promoted due to the promise of transparency and accountability, its potential to track government operations such as payments, presumably to improve programme implementation. Here, we use publicly available data from two large e-government initiatives in welfare: one, management information system (MIS) after 'end-to-end computerization' of the Public Distribution System (PDS) across states. Two, in the state of Andhra Pradesh, considered well-suited for such technological applications, the pension MIS was further integrated with an Aadhaar-enabled payment system (AEPS). Aadhaar is an ambitious project to provide a biometrically de-duplicated unique identity number to each resident of India. In Andhra Pradesh, the pension payment system was re-engineered to be compliant with Aadhaar based biometric authentication (ABBA) and AEPS.

The purpose of the analysis was to understand what the MIS and, independently of it, the integration of pension payments and PDS rations with Aadhaar has achieved (or not). We find that the manner in which the data is presented makes it very difficult, in some cases more difficult than before, to use to answer meaningful questions. In this sense, the purpose of computerization and the MIS does not appear to have been fulfilled in the case of these two welfare programmes.

There are four important conclusions one can draw from our analysis: one, putting information online does not automatically improve either transparency or accountability. Two, from the point of view of government, the use of information technology can be capacity-enhancing but equally it can reduce administrative capacity. Three, from the point of view of people, again information technology can be instrumental in obfuscation and disempowerment *or* it may remedy existing power imbalances. Which outcome materializes (for the government or people), depends on various contextual factors. Four, integration of these welfare programmes with Aadhaar has given rise to new problems.

Pensions in Andhra Pradesh

> "I belong to Chuchukunda village, Munagapakka mandal. Due to failure of finger-print authentication, I haven't been paid pension for the last two months. The Panchayat secretary has told us that non-disbursal of pension for three consecutive months results in the pension being cut off permanently, so we came here to express our grief to the Collector. I came here despite my struggle walking as I fear my pension will be permanently cut off. My pension my only source of income. Otherwise there is no other way except death."

> Yallapu Suryakantham's testimony reported in Sakshi newspaper (Visakhapatnam, 13 March 2018).

> "I am entitled to disability pension because of skin-related problems. I have to authenticate the transaction using my fingers, even though my disability exists on the hands and legs. In case of failure, the secretary authenticates the transaction but the procedure is erratic: he sometimes authenticates the transaction or asks us to take it the next month. I have to visit the office 7-10 times to meet the secretary."

> Devi, Ganaparthi village (online testimony)

Newspaper reports from across the country have been littered with news of old age pensioners and other pensioners' hardships in receiving pensions. Most of these difficulties have arisen due to the integration of Aadhaar with the pension disbursal system. However, since news reports are anecdotal, it is difficult to get a sense of the scale of the problem and it has been easy for the government to brush them off as 'exceptional' cases.

In Andhra Pardesh, pensioners were paid cash at their local post office branch until a few years ago. In the first wave of IT reforms, the use of local biometrics was introduced at post offices at the time of disbursing pensions. Simultaneously, the state built its pension MIS. Recently, local biometrics were super-ceded by Aaadhar. This meant a re-engineering of the existing MIS to integrate it with ABBA and of the payment system to integrate with the Aadhaar-enabled Payments System (AEPS).

We start with very simple questions: are pensioners able to use Aadhaar-enabled Payments System (AEPS) and Aadhaar-based biometric authentication (ABBA) to draw their pensions. How many people are unable to get their pension due to AEPS or ABBA? What recourse do these people have and does it work? When they are able to get their pension through ABBA, do they face any problems (e.g., having to make repeated trips) or experience any benefits (e.g., quicker disbursal time). We were also interested in learning about what sort of policy-relevant data analysis can be done using publicly available data on the NTR Bharosa website (the state's pension portal).

Data and Method

This note uses data from the NTR Bharosa website of Andhra Pradesh. We use data for the 10 months (April 2017 to February 2018, excluding October 2017) and for 11 districts out of 13. We try to glean useful information from the data that are publicly available. We scraped the entire data on those who attempted to withdraw using Aadhaar and the Village Revenue Officer (VRO) authenticated transactions that were available for the reference period and reference districts.

The Pensioner ID (PID) is used as the unique identifier for all the information collected regarding a pensioner. The universe consists of all "Pensioners" identified through their unique PIDs. For categorising pensioners and evaluating the attempt-failure matrix, we scraped two tables from NTR Bharosa (DSS3 and DSS1, for Aadhaar transactions and VRO transactions respectively). DSS3 includes those who show up in the Aadhaar attempts set and DSS1 has the info of those who got their pension through the VRO (i.e., it is a table of successful payment through VRO). These PIDs who attempted to withdraw their pension are part of what is termed "Attempts" set here. This suggests that 'attempts' were about 90% of 'pensioners'. The DSS3 table also tells us which PIDs were successful and which ones failed (using Aadhaar). This helps us create two subsets: 'Failed using Aadhaar' and 'Success using Aadhaar' PIDs. If a PID is a 'Failed using Aadhaar' and the PID does not appear in DSS1, then that pensioner is assumed to have failed both routes. These two together give us the matrix of attempt-success reported in the appendix.

Those who "Failed using Aadhaar" are, it seems, directed to use the VRO route to obtain their pension. Besides this, there are some (approximately 50,000) who use the VRO route without first trying the Aadhaar route (presumably, these are people who have been granted permanent exemption from ABBA, but there is no way of confirming this). Thus, we have another subset that comprises of "VRO attempts" which is followed by "Failed even after using VRO" and "Success through Aadhaar or VRO".[1]

We encountered several difficulties in using the data from the NTR Bharosa portal.

First, figuring out what the data means or stands for is not clear from the website. The presentation of the data is not self-explanatory and there is no associated documentation corresponding to the tables from which the data was fetched (e.g., there are no data dictionaries). For this, we called an official listed on the website to ask which table should be used to calculate failure rates. Data dumps without any supporting documentation are virtually useless for reliable data analysis.

Two, there are gaps in the data. For instance, out of 13 districts in the state, data for Chittoor and Krishna were not available.[2] Apparently, in Krishna district payment is done directly to the bank for majority of the pensioners, whereas for Chittoor we are unable to ascertain from publicly available information why the data is missing.[3]

Three, there is no straightforward way of figuring out an answer to the most basic questions: e.g., how many pensioners face difficulty *each* month, how many face difficulties *sometimes*, what is the cause of these difficulties etc. We attempt to provide tentative answers to a few of these questions here.

Four, there is inconsistency in the aggregated data displayed on the website and what one gets if one adds up (for each month) using the tables which report monthly data. We therefore do not rely on the displayed data, instead we aggregated it for any form of analysis. The data collected has to be cleaned further as there are several null and corrupt entries. Sometimes there are connection timeout issues in the network while scraping the data. Further, the data reported across tables is inconsistent (e.g., even the total number of pensioners sometimes does not match across tables). This suggests that the

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[1] For the entire reference period, 'attempts', 'success using Aadhaar', 'failed using Aadhaar', 'Failed even after using VRO' and 'Success through Aadhaar or VRO' data for each month for each PID is tabulated. This gives us the categorisation of the PIDs (Table 1), VRO attempts table (Table 3) and the entries of the attempt-failure matrix (Appendix 1a and 1b).

[2] Note that Krishna District is considered a 'model' district for Aadhaar applications in Andhra Pradesh.

[3] Another gap was in data availability for October. There are very few transactions in October 2017. It is likely that pensions for the month of October were disbursed in the last week of September.

tables are pulling data from different sources (different aggregates reported on different pages) and that there are minor bugs in the code as well (leading to totalling errors). These 'minor' technical issues have the potential to render the public data meaningless.

Other pertinent questions cannot be answered because of the way in which the data is presented: for instance, for those who are successful in using ABBA to withdraw pensions, we do not know how many attempts were required by them each month before they succeeded. That, along with whether each subsequent attempt was made on the same day or on different days, would be useful to understand what the pensioners' experience has been. It may be possible to do these analysis, but there is not straightforward way of figuring out how. As mentioned earlier, from the information available we cannot say anything about why there are 41 lakh PIDs but only 90% attempt to draw their pension. Even arriving at the basic analysis presented here was possible only because the team included someone with domain expertise and another with coding and scraping skills. As far as we are aware, the government does not use these data to put out basic reports on the performance of the ABBA system or of the pension programme.

Results and observations

We find that out of approximately 41 lakh total pensioners (approximately 37 lakhs for 11 districts), roughly 90% attempt to withdraw their pension each month. There is no information on who the remaining 10% are – pensioners who are no longer alive, or if they are alive, why did they not attempt to withdraw their pension in any particular month.[4]

Out of the total 37.4 lakh pensioners who attempted to withdraw their pension, 91% are always successful in getting their pension (Table 1). When ABBA fails for about 6-10 per cent, it appears that they are asked to approach the Village Revenue Officer (VRO).[5] Table DSS1 of the NTR Bharosa website for 11 districts suggests that there are 8.8 lakh unique PIDs who are paid by the VRO over the entire reference period. Roughly speaking, about 23.6% of pensioners were paid through the VRO at least once (see Table 1). The VRO route means the Village Revenue Officer authenticates with his/her biometrics. There are about 50,000 pensioners who do not try ABBA at all, and are directly given pensions through the VRO route.

Between ABBA and VRO, most pensioners who attempt to get their pension do get it. Less than 1 per cent fail to get their pension through either route. This comes to about 20,000 pensioners each month who try, but fail, to get their pensions. This is in a state that *has* put an override mechanism (i.e., through the VRO) in place.

A third category of pensioners (3.8% of all PIDs) exhibit an "erratic" pattern in the pension withdrawal, i.e., they try and succeed in drawing pension in some months, but not others. This could be because they failed in a particular month, but were successful thereafter, or it could be that they just didn't go in some month and withdrew two months pension together ('clubbing') thereafter.

The fourth category we identify, among the 37.4 lakh pensioners, are about 5.1% who attempted to withdraw their pension at least once during the reference period, but after their last attempt they do not reappear at all in the 'attempts' data set until the end of the reference period. To us, this suggests

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[4] It is possible (based on evidence from Jharkhand) that these are pensioners who failed to link Aadhaar with the pension portal and are no longer able to get their pension (Somanchi and Malhotra, forthcoming).

[5] These failure rates are consistent with the rates admitted to by the UIDAI during the final hearings of the Aadhaar matter in the Supreme Court of India.

that these 5.1% pensioners either gave up or died ("dropouts").[6] It is not possible to tell from the data that are publicly available which of the two it could be.

Figure 1 presents similar statistics, by month – we find that between 7-11 percent of pensioners (among who try to withdraw their pension) fail due to Aadhaar related reasons. Most of these people do manage to get their pension by using the 'override' mechanism. At the end of it, there are 0.5% of total pensioners who failed *each* time they attempted to withdraw their pension ("always failed") over the entire reference period. They did not get their pension even once during the reference period. Each month, approximately 20,000 pensioners fail out of the 33 lakh who attempt to withdraw who attempt and fail.[7] It is worth reiterating that this is in a state that is considered very well equipped to implement such technologies and has a reasonably sympathetic administration.

Returning to "erratic" pensioners behaviour we look at whether the 'gap' months in attempts are made up by withdrawing two months pension at a time ("clubbing"). In order to do so, we look at the (a) total pension due to the pensioners over this period (April 2017 to February 2018) and (b) total pension withdrawn as per the NTR Bharosa website. For (a), we use an estimate, which is just the official monthly pension amount (Rs. 1000) multiplied by the number of months in the reference period. This assumes that these people did not die during the reference period.[8] We want to check whether while the attempts and success data show high exclusions, pensioners are able to 'catch up' by using the 'clubbing' facility (i.e., by withdrawing their pension in subsequent months). We do the analysis for one sub-district (Agali Mandal of Ananthapur District) where we scraped data on payments received in the past 11 months (April 2017 to Feb 2018).[9]

For payments received (Table 2), Table NTRB13 with Aadhaar and VRO success for Agali Mandal is used. Table 2 reports average pension received by three sets of pensioners: all pensioners, erratic pensioners using only ABBA and erratic pensioners using both ABBA and VRO. We find that among *all* pensioners, widows received about 6% less than their due and old age people received 7.8% less than their due. Table 2, however, also suggests if we look at the subset of "erratic" pensioners (whose share among total pensioners is small), the loss of pension for them is considerable. Over the reference period, they lose about one-fifth of their pension amount.

Table 3 suggests that of those who relied on the VRO route at all, nearly half (43.9%) used it only once during the reference period, whereas 3% (of the VRO PIDs) used the VRO facility each month of the reference period. Presumably these are people who are unable to use the ABBA system. This suggests that each month a different set of people are compelled to use the VRO route, after ABBA fails for them – that there are some people for whom ABBA always fails and there are others for whom it fails sometimes. On a month-by-month basis, about 6-11 per cent of pensioners are forced to use the VRO route (Figure 1). This suggests that while the exemption mechanism plays a crucial role in reducing exclusion due to ABBA, it yet fails to solve the problem entirely.

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[6] The category of 'dropouts' can be further partitioned into 'always successful' () and 'erratic' (), for the period before they disappear from the database.

[7] Interestingly, this is one of the few instances where the aggregates roughly match the number of "pensioners not paid – for the last two months' figure reported in Table NTRB11.

[8] If a unique PID stops appearing in the 'attempts' database, there is no way of telling whether that person is dead or has given up.

[9] The choice of this mandal is entirely arbitrary. Scraping the entire data would have required a lot of time as one needs to drill down to the Gram Panchayat level to get payment details.

The reasons for not being able to use ABBA are given TableDSS8 of NTR Bharosa. A simple tabulation of the number of failures suggests that the main reason (in 78% of the cases) for having to be paid by the VRO appears to be related to biometric failures (see Figure 2). Device and server related errors account for 11.8% of total ABBA failures. Another significant source of errors (9.6%) are related to the Aadhaar numbers itself. This includes invalid and deactivated Aadhaar numbers, non-existent numbers, etc. This provides the first hint of how there *can* be 'too much' technology.

Figure 3 shows that around 60% of all pensioners attempted at all during the reference period. Out of those who attempted at all, 97% got their pension on each attempt that they made ("always successful") in the ABBA and VRO graph, but the 'always successful' figure is much lower if one looks at ABBA only. The graph is an indication of how the integration of the pension payment system with AEPS and ABBA has brought new channels of exclusion, which are not entirely resolved by the exception handling mechanism.

The State of Aadhaar Report (SOAR), prepared by IDInsight, has done two rounds of analysis (in 2017 and 2018) of the publicly available Aadhaar data. According to their analysis, failure rates for both fingerprint authentication and iris authentication are high, ranging from 8-17% and 7-11% respectively.

The distinction between failure rates in 'attempts' and for 'pensioners' is important because it has different implications. If we use the attempts data to calculate failures, then if a person experiences successful authentication on the third attempt, the failure rate will be 66%. In terms of failed *pensioners*, it would be a 0% failure, but a 66% failed *attempts* rate. If it is the same person who repeatedly fails, i.e., the exemption set is well defined, exemption procedures can be specified for them. If each month those who fail are a different set, then a different policy response is required. Similarly, if the high failure rate is driven by frequent attempts ending in a success, the implications are different from a frequent attempts not ending in a success.

In our analysis, we calculate how many pensioners are affected by biometric failures (see Figure 4, x-axis) and we contrast this with the attempts failure calculated by SOAR (y-axis). The SOAR estimates of biometric failure lie above the 45 degree line.

Digitization of the Public Distribution System

The Public Distribution System (PDS) provides heavily subsidized foodgrain (5 kg per person per month) to two-thirds of the Indian population through a network of PDS outlets. Foodgrain entitlements through the PDS became legal entitlements after the passage of the National Food Security Act (NFSA) in 2013.

In the pre-NFSA days, many states did not have a single authoritative list of entitled households (Aman and Agrawal, 2014). PDS sales to entitled households were recorded and remained in paper registers, which those households could not access easily. The government's own machinery for auditing these registers was either non-existent or not functional. To remedy some of these issues, even before the implementation of the NFSA, some states began a move towards 'end-to-end computerization' which was supposed to integrate the entire process from the procurement of grain to its sale to entitled households. Earlier work has demonstrated the positive capacity-enhancing impact of computerization (see Drèze and Khera 2017). The NFSA mandated making these data public through a public portal. The purpose of these portals was to provide easy public access to basic information about entitled households, their transactions etc.

A national PDS portal links to state-wise National Food Security Act (NFSA) websites.[10] As of 15 June, 2018, the website listed 29 states and union territories, with some big gaps (e.g., the link to Tamil Nadu's website was missing). In several cases (e.g., for Andhra Pradesh), clicking on the link opens a blank page or returns an error message. In the case of Andhra Pradesh, even from the state homepage when one clicks on the ePDS or ePOS links it opens a blank page. In yet other cases, it does not lead to the home page of the state website, but an arbitrarily selected page (e.g., for Rajasthan it opened a page with district-wise ration cards of the state website rather than the state hompage; same with Chhattisgarh). There *are* states where the user is directed to the correct page (e.g., Jharkhand, Telengana). It is possible that functional links are buried somewhere on the internet, however, that already defeats an important purpose of such efforts to digitize, viz. easy access to information for users. The national and several state websites are poorly designed with very poor functionality of the most basic functions.

As with social security pensions in Andhra Pradesh, with the PDS too, there has been a move to integrate the MIS as well as the delivery mechanism with Aadhaar. In the case of the PDS, it takes the form of linking family members Aadhaar number with the MIS and using ABBA at the time of the sale of foodgrain. Documenting how the system works in one state, Drèze et al (2017) find that it is 'pain without gain': the integration of ABBA with the PDS has not improved the functioning of the programme on the ground (say, in terms of reduced corruption) but it has increased the transaction costs of beneficiary households.

Here, using data from the Chhattisgarh, Jharkhand, Rajasthan and Tamil Nadu state websites, we attempt to ascertain the scale of digitally recorded sales of PDS grain (wheat and rice) in recent months for which data was publicly available. There are a few other states where such data are available (e.g., Delhi, Telengana, etc) but as the purpose of this paper here is only to illustrate the issues with the way digitization has been implemented, we focus only on these four as they are among the larger states and capture some diversity in other application of technology.

In the case of Chhattisgarh we have digitally recorded PDS sales data from August 2017 to April 2018, Jharkhand (August 2016 to March 2018), Rajasthan (May 2016 to March 2018), and Tamil Nadu (February 2017 to April 2018). In the case of Chhattisgarh, data for earlier months are not publicly available due to server constraints at the state level. In Tamil Nadu, the digital recording of PDS transactions was introduced in January 2017 and scaled up thereon, but the data for the first month was not available.

In Jharkhand and Rajasthan, digital recording of PDS transactions was introduced along with Aadhaar based biometric authentication (ABBA). ABBA requires that each entitled family must have at least one member listed on their PDS ration card Aadhaar-linked to the PDS system, and biometric authentication must work for at least one of such Aadhaar-linked family members at the time of purchase (Drèze, Khalid, Khera and Somanchi 2018). The use of ABBA was scaled up from Ranchi District alone in August 2016, to cover the entire state by early January 2017. For these months the PDS sales are only partially reflected on the state PDS portal. Detailed documentation on the timeline of the rollout of these interventions in different states is not publicly available.

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[10] The National Food Security Act 2013 mandates the provision of subsidized grain to eligible households through a network of 'fair price shops' that form the Public Distribution System (PDS). See Drèze, Gupta, Khera and Pimenta (2018) for more details.

Of the four states for which we have analysed the data, Tamil Nadu uses QR-coded smart cards which require neither online connectivity nor biometric authentication (Khera 2018); Chhattisgarh is in the process of moving from tablet-based photographic authentication to ABBA.

Thus there are three 'models' of digitization here: the base in all four states is (a) digitally recorded PDS sales. On top of this, (b) Jharkhand and Rajasthan use Aadhaar based biometric authentication (ABBA), (c) Tamil Nadu uses QR-coded smart cards, and (d) Chhattisgarh is in the process of moving from tablet-based photographic authentication to ABBA .

The digitally recorded PDS sales data are matched with the offtake figures for the state in the relevant months from the Monthly Foodgrain Bulletin published by the Ministry of Food. This gives us an estimate of the wheat and rice that was lifted by the state under various quota for distribution through the PDS. Matching these two figures – digitally recorded PDS sales and the offtake by the states – gives us what share of PDS grain was not distributed (see Figure 4).

The figure plots the ratio of digitally records PDS sales to offtake by the state. One finds that in the case of the non-ABBA states (Chhattisgarh and Tamil Nadu) the figure is must closer to 100%.[11] In contrast, for Rajasthan and Jharkhand, the series show much more fluctuations, often alternating months can have more than 100%-, and less than 100%-, PDS sales.

The reason behind entitled households not purchasing their share of PDS grain could be either ABBA related (e.g., biometric failures, no family member is Aadhaar-linked, etc.) or it could be for other reasons (e.g., no one was able to go to the shop in a particular month). None of the four states we analyse here provide information on whether the failure to purchase was due to ABBA or non-ABBA reasons on their state portal. Among households that appear successful in purchasing PDS grain as per the digitally recorded PDS sales, we do not know whether they were successful in their first attempt or had to make repeated attempts.

As with pensions, the digitization process (A) has reaped some benefits (e.g., PDS sales are available in the public domain). However, ABBA (B) brings no additional transparency benefits (e.g., Tamil Nadu provides as much information and transparency as Jharkhand and Rajasthan) while it may have given rise to newer problems (see Drèze, Khalid, Khera and Somanchi 2017).

Next, we look at absolute offtake figures for these states, and find that the lower absolute offtake in Rajasthan is one reason that it has been able to achieve high digitally recorded PDS sales. According to the Monthly Foodgrain Bulletin (for 2017-18), among the four states we have studied, Rajasthan has the lowest allocation-to-offtake ratio for wheat and rice combined (around 80%), while the rest were close to 100%. We do not know why the offtake has been less than 100% in Rajasthan, but this points to exclusion of nearly 20% just because the state is not lifting enough grain from the centre.[12]

To crosscheck this, we calculate the entitlement of the states (based on per capita entitlements and number of entitled persons). We find that in Rajasthan, digitally recorded PDS sales are 77% of their total entitlements. This corroborates the suspicion that about 25% of entitled persons are not getting

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[11] In Chhattisgarh PDS grain for April is distributed in March in several years and that explains the nearly 180% sales in March vs. only 20% in April 2018.

[12] One possibility is that the centre only allows lifting of as much grain as is reflected in the ABBA PDS sales in earlier months.

PDS grain that they are legally entitled to. (For the other three states, the corresponding figures are Chhattisgarh 105%, Jharkhand 86% and Tamil Nadu 90%.)

Concluding remarks

The main concern arising from our analysis is that while vast amounts of data are being generated by the government's digitization push, there is a real danger of 'garbage in, garbage out' in the sense that so much of the data cannot be used for any meaningful analysis. This is partly because the documentation of the data files is so poor, partly because those who are collecting and organizing the presentation of the data are not people who have much domain expertise, so they are unable to exercise judgement on what (and how) would be useful metrics to report. One example of this is the distinction between failure rates for pensioners versus failure rates for attempt counts.

Second, in the case of Andhra Pradesh, the provision of an override facility in the form of authentication by the VRO for those pensioners who own biometrics fail is very important. Most other states that are using ABBA (e.g., in the PDS in Jharkhand) have absolutely no override or exemption facility in place. This is disastrous for those who rely on social support (whether in the form of pensions or rations or NREGA wages). It is also illegal – the government itself is breaking the law.

Third, even with the override facility of the raising the 'success' rate, there is an element of uncertainty which can be distressing for already distressed pensioners. Nearly half of those who resorted to the VRO facility were 'one-timers', i.e., they had to use it only once during the reference period. This means that each month there is a fear that the ABBA system will fail them and they'll have to try the VRO route.

Four, even with the override facility of the VRO, 0.5% of pensioners (this comes to about 20,000 persons each month) are denied pension each month. It is ironic that the most vulnerable, in whose name the policy has been introduced, end up paying the price.[13] This suggests that the use of ABBA in pension disbursal and for rations is a technology fetish because there are hardly any demonstrable gains from its use, while there are well documented hardship and exclusion due to it.

Five, a related point that needs highlighting is that without domain expertise, data (whether big or small) analysis is likely to be skewed or error-ridden (e.g., the SOAR analysis of pension data from Andhra Pradesh). This point has been made forcefully by Kitchin (2014) in the context of the emergence of big data as the next big thing.

There are potentially two responses to the problems highlighted above. One, a 'technocratic' response: increase the tracking by adding more variables that are recorded and reported. Two, a more 'political' response: go back to the drawing board and ask which parts of the digitization process have achieved something positive from the point of view of pensioners and administrators. Digital transaction trails are desirable only to the extent that they help administrators improve the quality of services they are able to provide to pensioners. Based on what little sense one can make of the data on the NTR Bharosa website, two conclusions can be arrived at: one, ABBA has added a new source of exclusion and uncertainty, one that did not exist before. Two, digitization needs careful thought for it

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[13] As far as we are aware, there is no credible data on how many were denied pensions before the introduction of these new technologies at the stage of disbursal.

to be an instrument of more efficient administration, and whether it achieves that in its current form is unclear.

Many of the more meaningful questions just cannot be answered using the data that is publicly available. The suggestion here is not that the government should provide this data but rather than the publicly available data are no substitute or a poor substitute for meaningful evaluation of the use of ABBA in pension disbursals.

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Table 1: Summary table of Pensioners in Andhra Pradesh

Total Unique PIDs in reference period	37.4 lakh
Always successful PIDs	34.1 lakh (91.1%)
Of successful PIDs, number of VRO PIDs	8.8 lakh (23.6%)
Either dead or 'gave up' PIDs	1.9 lakh (5.1%)
'Erratic' withdrawal PIDs	1.4 lakh (3.8%)

Note: This is a summary of all the unique PIDs that appear in the database over the April 2017 to February 2018 period.

Source: Tables DSS3 and DSS1 (https://abdg.aponline.gov.in/NTRBharosa/MIS_Reports/NTRB_Reports/PensionersnotPaidDetailsForLast_twoMonths.aspx), Government of Andhra Pradesh

Table 2: Total pensioners in Agali Mandal

	Old age	Widow

A. Total pensioners
   Erratic
   Erratic through VRO
	1981
	416
	155
		1374
		228
		105

B. Average pension received (average over 11 months)
   Erratic through Aadhaar (total in 11 months)
   Erratic through both (total in 11 months)
	922 pm
	
	8618
	8646
		937 pm
		
		8597
		8686

C. Total pension due (monthly pension * 11)	11000	11000

Proportion (%) of pension due to pensioner (i.e., total pension received * C)
   Erratic
   Erratic through VRO
	7.8
	
	21.7
	21.4
		6.2
		
		21.8
		21.0

Source: Table NTRB13, Government of Andhra Pradesh

Table 3: Summary of attempts at Village Revenue Officer (VRO)

Number of attempts	Number of PIDs
1	387898 (43.9%)
2	154728 (17.5)
3	86770 (9.8)
4	56344 (6.4)
5	39920 (4.5)
6	32320 (3.7)
7	28113 (3.2)
8	29423 (3.3)
9	37571 (4.3)
10	30075 (3.4)
Total	883162 (100)

Source: DSS1 of NTR Bharosa Pensions website (http://ntrbharosa.ap.gov.in/NBP/), Government of Andhra Pradesh

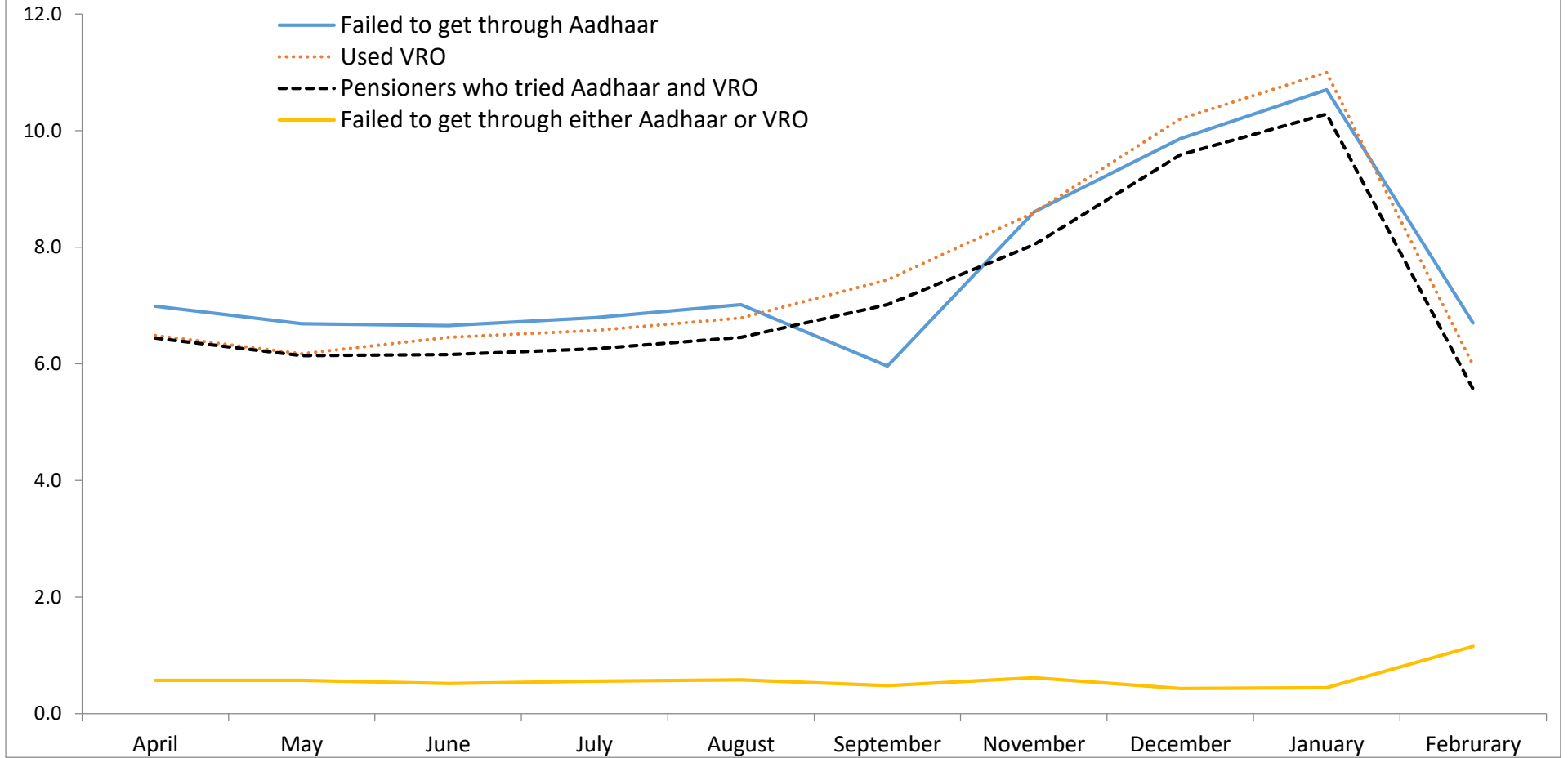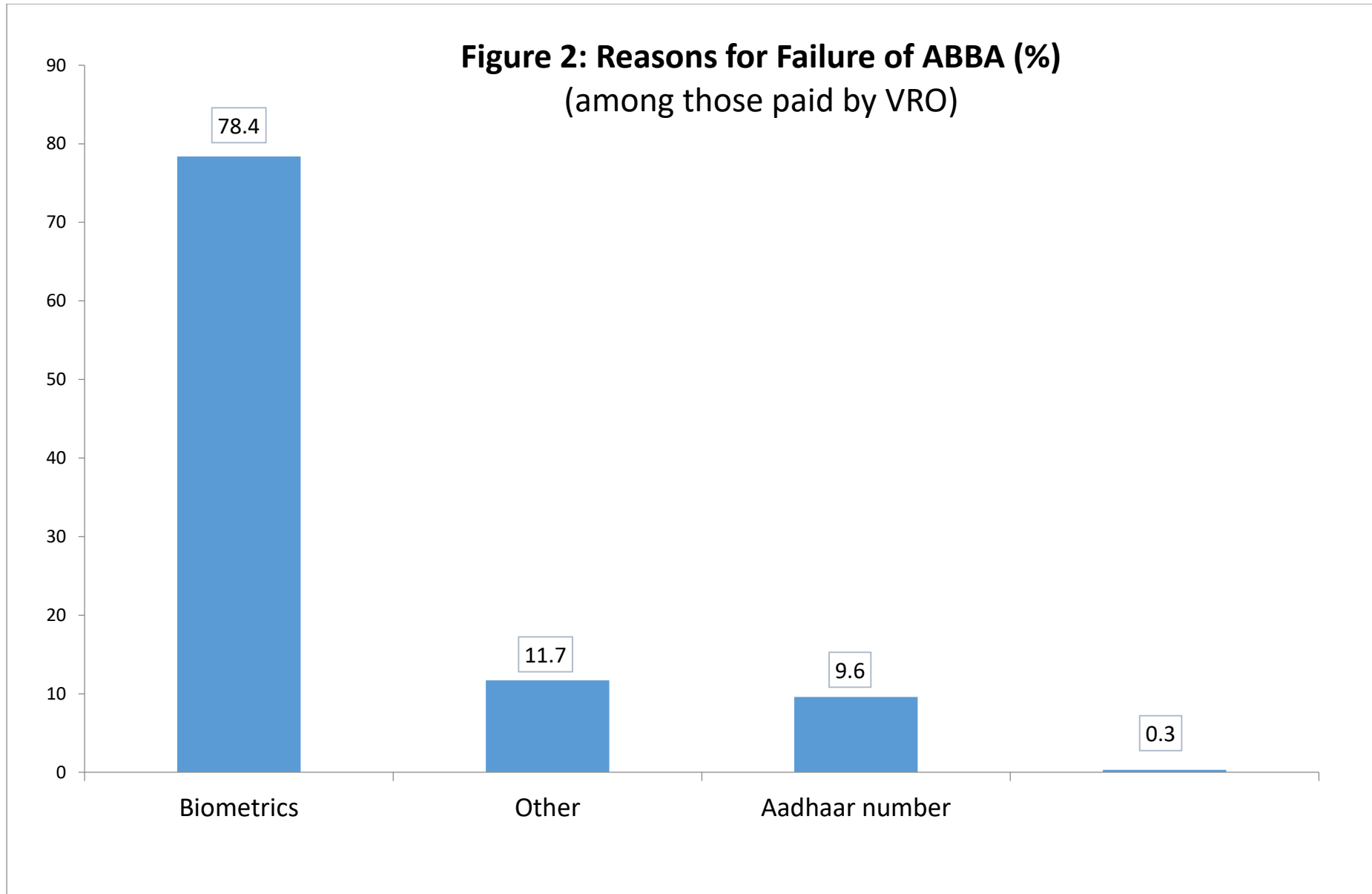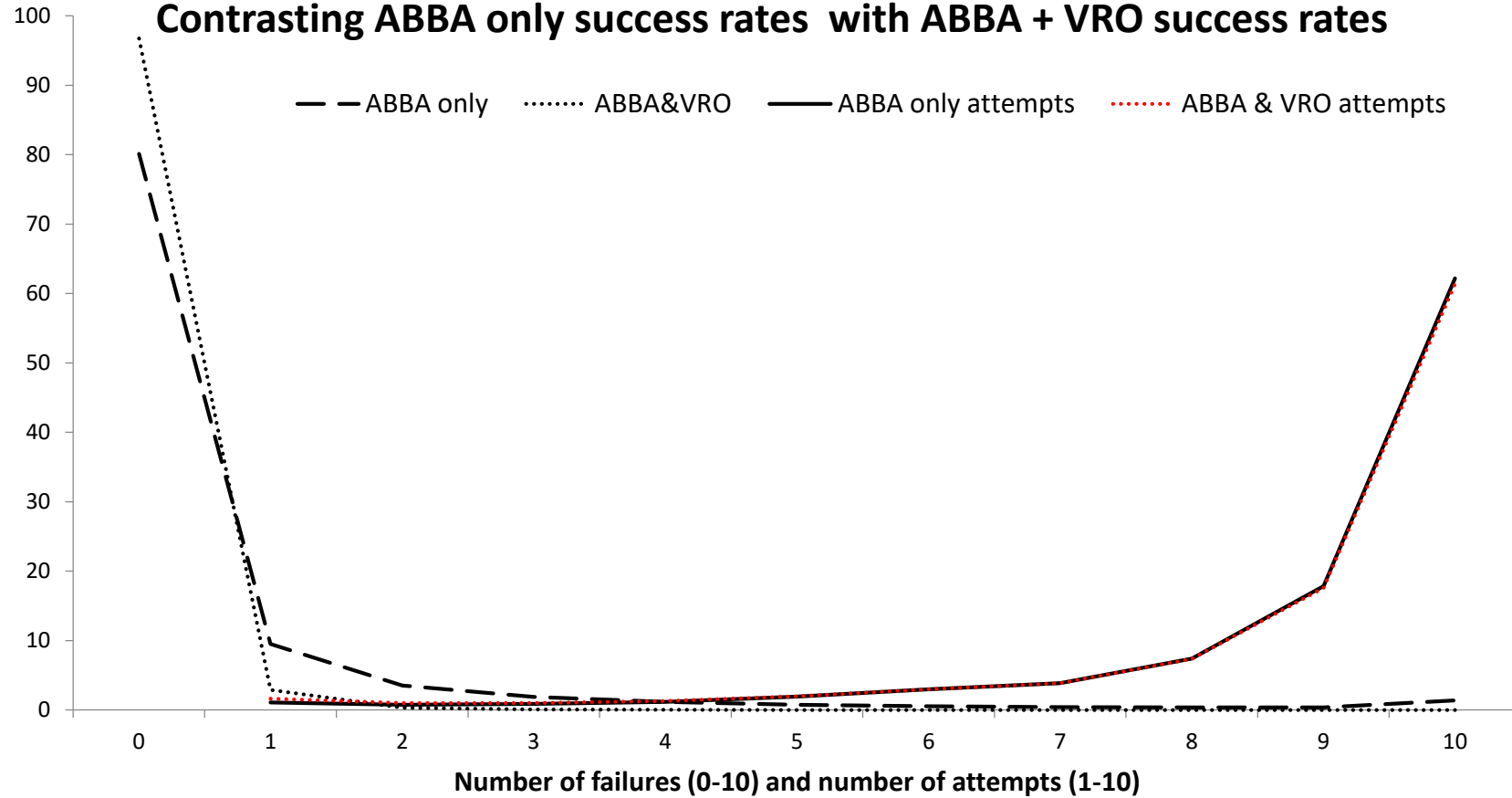# Figure 1: Pensioners' experience with Aadhaar and VRO pension withdrawal

Figure 2: Reasons for Failure of ABBA (%)
(among those paid by VRO)

Figure 3: Attempts and Failures:
Contrasting ABBA only success rates with ABBA + VRO success rates

Legend: — ABBA only ········ ABBA&VRO —— ABBA only attempts ········· ABBA & VRO attempts

Number of failures (0-10) and number of attempts (1-10)

Notes: (a) ABBA only and ABBA+VRO success /failurerates for those pensioners who attempted in all ten months . Of those who attempted in all ten months, 80% never encountered a failure using ABBA only, whereas 1.4% failed each time.

Figure 4: Failure rates of biometric authentication, SOAR vs. our estimates (April-December 2017)
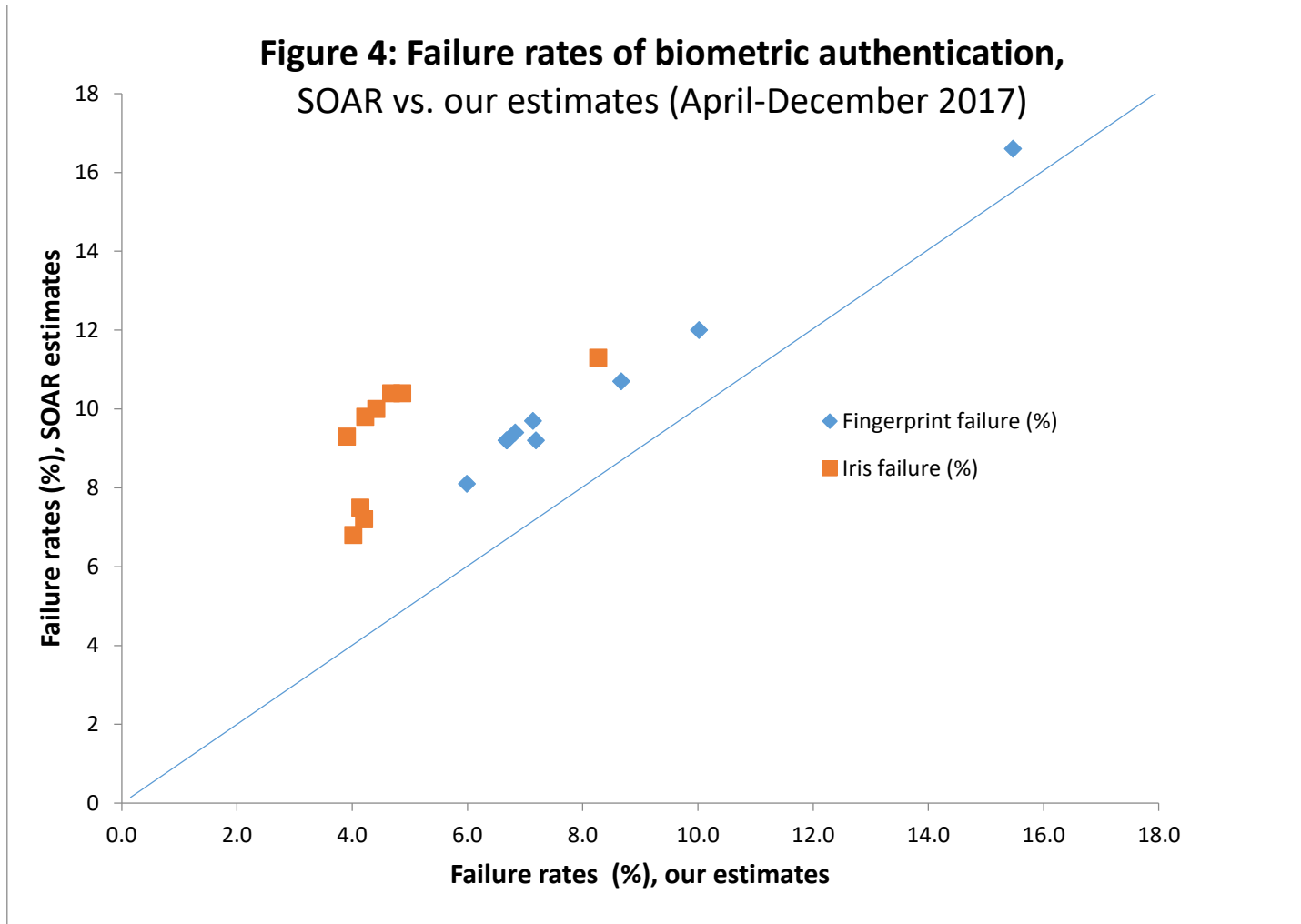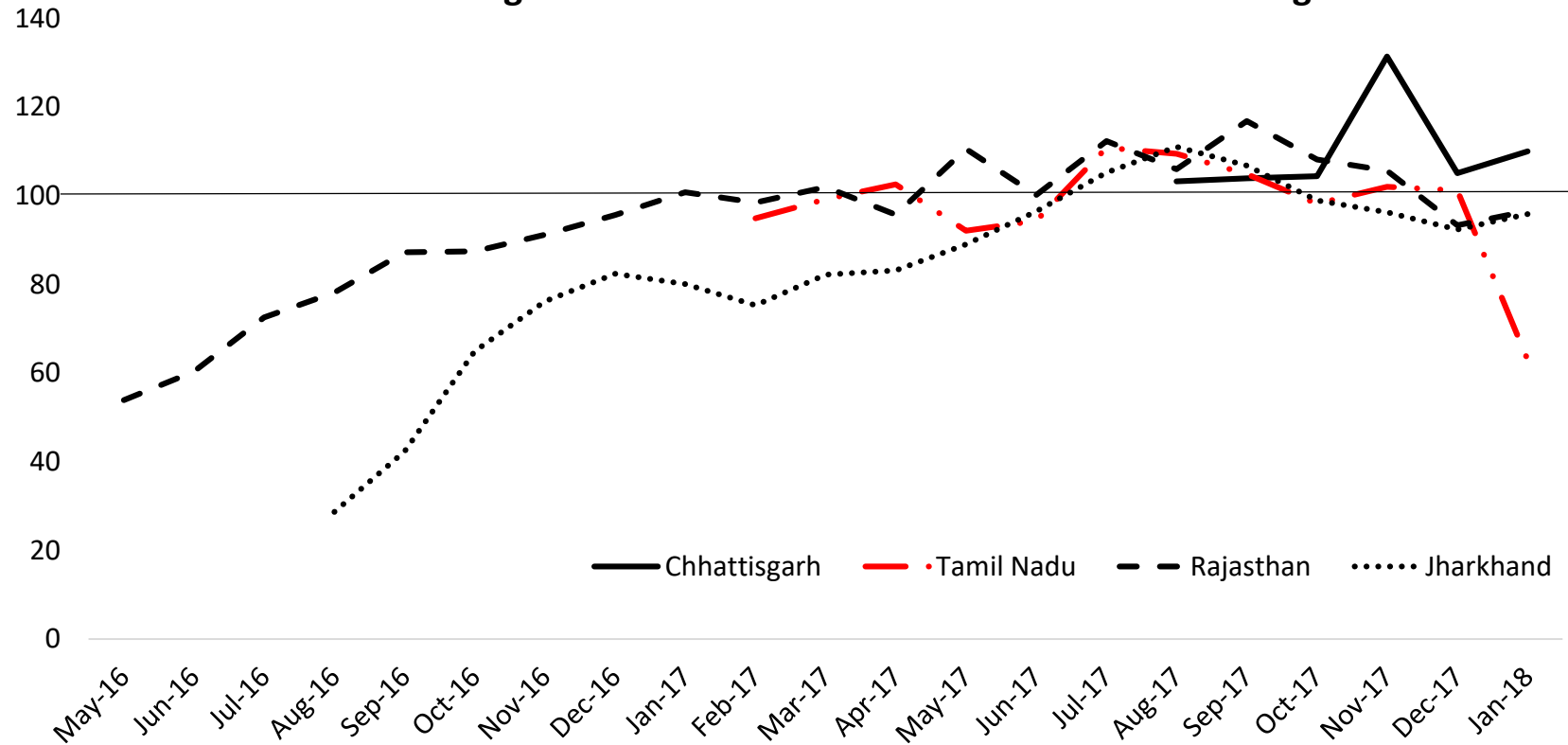
Figure 5: ABBA Sales as % of state offtake of PDS grain

Source: Three month moving average of the ratio of PDS recorded sales, taken from the state PDS portal, to offtake as reported in the Monthly Foodgrain Bulletin, various months. Chhattisgarh (http://khadya.cg.nic.in/corepdsmm/Report_DBT/RptDatewiseIssueDetails.aspx), Jharkhand (https://aahar.jharkhand.gov.in/secc_cardholders/searchRation and https://aahar.jharkhand.gov.in/district_monthly_reports), Rajasthan (http://food.raj.nic.in/DistrictWiseCategoryDetails.aspx) and Tamil Nadu (https://www.tnpds.gov.in/).

Figure 6: Offtake of NFSA grain by states ('000 tonnes)

Source: Monthly Food Grain Bulletin (http://www.dfpd.nic.in/food-grain-bulletin.htm), various issues.

Appendix Table 1a: Aadhaar distribution only (April 2017 to February 2018)

Failure Count / Attempt Count	0	1	2	3	4	5	6	7	8	9	10	Total attempts
1	16111	24210	0	0	0	0	0	0	0	0	0	40321
2	16064	3911	6920	0	0	0	0	0	0	0	0	26895
3	19235	4784	2264	5383	0	0	0	0	0	0	0	31666
4	26319	6124	3004	2081	5487	0	0	0	0	0	0	43015
5	44748	9808	4294	2659	2155	6747	0	0	0	0	0	70411
6	72452	15066	6346	3760	2654	2324	7339	0	0	0	0	109941
7	93627	20172	8385	4640	3144	2536	2371	8037	0	0	0	142912
8	189141	34459	14368	8094	5445	3851	3110	3250	11414	0	0	273132
9	482263	76137	29877	16878	10813	7439	5548	4777	5247	19108	0	658087
10	1839076	218095	80641	43577	26846	17400	11960	9271	7999	8775	31663	2295303
Total attempts	2799036	412766	156099	87072	56544	40297	30328	25335	24660	27883	31663	3691683

Appendix **Table 1b: Aadhaar and VRO disbursals (April 2017 to February 2018)**

Failure Count / Attempt Count	0	1	2	3	4	5	6	7	8	9	10	Total attempts
1	43201	16949	0	0	0	0	0	0	0	0	0	60150
2	34307	1631	1403	0	0	0	0	0	0	0	0	37341
3	35306	1759	138	174	0	0	0	0	0	0	0	37377
4	45140	2283	193	23	47	0	0	0	0	0	0	47686
5	69203	3510	310	35	5	14	0	0	0	0	0	73077
6	104835	6403	559	76	9	1	5	0	0	0	0	111888
7	134471	8692	1131	206	37	6	2	13	0	0	0	144558
8	257122	14744	1994	410	99	22	1	0	0	0	0	274392
9	623737	29962	3706	744	223	47	7	1	0	0	0	658427
10	2221468	66075	6962	1310	327	100	21	6	0	0	0	2296269
Total failure	3568790	152008	16396	2978	747	190	36	20	0	0	0	3741165