Lessons from Andhra Pradesh: building state capacities for welfare

Andhra Pradesh’s Smartcard project provided substantial economic savings to taxpayers and welfare beneficiaries

The government of India allocates more than ₹2.5 trillion a year to the social sector (including subsidies), but the delivery of services is marked by high levels of leakage and corruption. Weak governance plagues service delivery across sectors and programmes ranging from education, health, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), and Targeted Public Distribution System (TPDS). Yet, governments are often tempted to focus energies on announcing new programmes and schemes, rather than on building state capacity for better implementation of existing programmes. This is partly due to political incentives: specific programmes can better deliver patronage to target voter groups, and the returns on investing in implementation capacity may not be seen within one electoral cycle.

One notable exception to this pattern has been the ambitious Aadhaar initiative of the government of India to issue biometric unique IDs linked to bank accounts to all residents. It is hoped that this biometric payments infrastructure will allow direct benefit transfers (DBT) to intended recipients and reduce leakage.

Yet there are several reasons to be sceptical about its impact. First, implementation challenges are non-trivial and the whole system may fail even if only some components fail, potentially making the project a white elephant. Second, the initiative may be subverted by politically powerful vested interests whose rents are threatened. Third, there may be exclusion errors if genuine beneficiaries are denied payments, leaving the poorest worse off. Fourth, there may be negative effects on access to programmes (such as MGNREGS) if the loss of rents reduces incentives for officials to implement the programme. Finally, even assuming positive impacts, the cost-effectiveness of the system is unknown. Overall, there is very little evidence to support either the enthusiasts or sceptics of biometric payment systems.

We aimed to fill this evidence gap by working with the government of Andhra Pradesh (GoAP) to evaluate the impact of the Andhra Pradesh Smartcard Project, which used biometrically-authenticated Smartcards to make payments to MGNREGS and Social Security Pension (SSP) beneficiaries. The new system used a network of locally-hired, customer-service providers to biometrically authenticate beneficiaries and make cash payments in villages. It thus provided beneficiaries with the same effective functionality as intended by Aadhaar-linked DBT.

The key to the scientific credibility of our evaluation was a landmark agreement with the Andhra government to randomize the order in which mandals (block-equivalents) in eight districts of the state would be covered by the new system over a two-year period. Since mandals that received the Smartcard programme first (the treatment group) were chosen by lottery, they were on average identical to those that received the programme two years later (the control group). Thus, differences in programme delivery across treatment and control mandals after two years can be exclusively attributed to the Smartcard programme. Carried out in close collaboration with the Andhra government, this was one of the largest randomized controlled trials ever done. We report several findings (link to presentation).

First, our experience confirms that implementing such a complex project at scale is non-trivial, and will face considerable technical, administrative, and political challenges. Despite exemplary efforts by GoAP to achieve a 100% coverage rate in treatment mandals, the share of Smartcard-enabled payments in those mandals was ~50% after two years. Enrolling beneficiaries who missed initial enrolment camps was a serious challenge, highlighting the importance of processes for continuous enrolment.

Yet despite the incomplete implementation, beneficiaries in carded mandals experienced a faster, more reliable, and less corrupt payment experience. The Smartcard system reduced the lag between working on an MGNREGS project and collecting payment by 29%, and reduced the unpredictability in the lag by 39%. Further, it reduced by 19% the time workers spent collecting MGNREGS payments.

Smartcards also reduced leakage. MGNREGS beneficiaries in treated mandals reported a 24% increase in weekly earnings, while fiscal outlays did not change, resulting in a 35% reduction in leakage (a 10.8 percentage points reduction relative to the average leakage of 30.8% in
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Overall, our comprehensive study of the Andhra Smartcard project finds substantial economic benefits to taxpayers and programme of Aadhaar-linked service delivery is accompanied by enabling legislation with adequate data-use safeguards, and parliamentary approval. It would therefore be prudent for the government to make sure that expansion regarding privacy and unauthorized use of Aadhaar-linked data. The one policy caveat is that our results focus on the economic costs and benefits of biometric payments, and do not speak to concerns in inclusion architecture, which are highly valued by beneficiaries.

The Smartcards benefit from improvements in the payment process in carded villages. While not mandating Smartcards certainly may have left some avenues for corruption, it may also have been a politically astute choice that helped prevent exclusion errors and maintain broad-based beneficiary support. This lesson is especially pertinent given the Supreme Court's ruling that Aadhaar cannot be made mandatory for programme participation. Our experience suggests that an approach that focuses on making Aadhaar-enabled payments more convenient to beneficiaries, but not mandatory, may be the most pragmatic one.

What can we learn from the Smartcards experience about the potential for Aadhaar-linked DBTs in other states and programmes? As always, one has to be careful in extrapolating from one state and two programmes, but our experiences working with the state government suggest five broad lessons, and one caveat.

First, it is important to not expect miracles overnight. While 50% coverage in two years may seem modest, even the US took 15 years to migrate social security payments from paper checks to electronic transfers. Our results show that large gains in programme performance are possible even with 50% implementation, and that the investment in biometric payments can pay off in as little as two years. So, implementation challenges should be expected and addressed, but should not be used as an excuse for inaction.

Second, adopting biometric authentication need not exclude vulnerable beneficiaries. This is an important finding since such exclusion errors are a (legitimate) concern among opponents of biometric payments, yet we find no evidence of any such adverse effects. We believe this is at least partly because the Andhra government did not make Smartcards mandatory for collecting payment. Thus, while those who enrolled benefited from lower leakage, those who did not (or were not able to) were not excluded. In fact, we find that even beneficiaries without Smartcards benefit from improvements in the payment process in carded villages. While not mandating Smartcards certainly may have left open some avenues for corruption, it may also have been a politically astute choice that helped prevent exclusion errors and maintain broad-based beneficiary support. This lesson is especially pertinent given the Supreme Court's ruling that Aadhaar cannot be made mandatory for programme participation. Our experience suggests that an approach that focuses on making Aadhaar-enabled payments more convenient to beneficiaries, but not mandatory, may be the most pragmatic one.

Third, there will inevitably be push back from vested interests whose rents are reduced. Senior officials in the Andhra government were much more likely to hear field reports about problems with Smartcards than about positive results. This bias was so severe that the state government considered scrapping the Smartcard system in 2013, and their decision to not do so was partly in response to reviewing our data on beneficiary preferences. The episode provides an excellent example of the political economy of concentrated costs (to low-level officials who lost rents due to Smartcards, and were vocal with negative feedback) versus diffuse benefits (to millions of beneficiaries, who were less likely to communicate positive feedback), and highlights the importance of avoiding policymaking by anecdote, and instead relying on representative data from larger samples.

Fourth, given implementation complexities, it would make sense to focus on saturating Aadhaar coverage in a few districts (a few per state) and mastering implementation details of integrating programmes with Aadhaar before trying to scale up too fast. A related lesson is to encourage multiplicity of vendors. An important implementation lesson from Andhra Pradesh was the use of a one-district one-bank model, whereby different banks implemented the Smartcard project in different districts. While this increased coordination costs, it allowed the state government to evaluate vendor performance in the field and re-allocate districts from non-performing banks to high-performing banks and technology-service providers (TSPs). This was critical in preventing the state government from being held hostage by non-performing vendors, and also provided incentives to better-performing banks.

Fifth, it is essential to align the incentives of key partners—banks and TSPs—to provide the essential last-mile financial inclusion services. A stick-based approach of providing banks with account-opening targets under pain of regulatory penalties is likely to result in large numbers of dormant accounts. On the other hand, paying banks commissions on payments made (Andhra Pradesh paid 2%) creates the right incentives for not just opening accounts but keeping them active. Overall, there are strong synergies between the government’s focus on financial inclusion and DBT, since the commissions on DBT payments can cover the fixed costs of setting up and maintaining last-mile financial inclusion architecture, which are highly valued by beneficiaries.

The one policy caveat is that our results focus on the economic costs and benefits of biometric payments, and do not speak to concerns regarding privacy and unauthorized use of Aadhaar-linked data. It would therefore be prudent for the government to make sure that expansion of Aadhaar-linked service delivery is accompanied by enabling legislation with adequate data-use safeguards, and parliamentary approval.

Overall, our comprehensive study of the Andhra Smartcard project finds substantial economic benefits to taxpayers and programme beneficiaries from biometrically-authenticated payments, and the results suggest that Aadhaar-enabled DBTs can indeed be a game changer.
for governance in India. Senior leaders of the new government have expressed strong support for following through on this promise and implementation should now be a top priority.

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