CHAPTER 5: SOCIAL PROTECTION
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SOCIAL PROTECTION
The Government of India aims to provide a comprehensive set of safety nets to India's poor, including food subsidies, employment guarantees, and targeted cash transfers. Financial leakages and service delivery issues, however, reduce its effectiveness. The government aims to use Aadhaar’s authentication and fund transfer capabilities to address these problems. Policy-relevant research on the intended and unintended impacts of the use of Aadhaar can provide actionable insights to practitioners.

A third of the world’s ultra poor—those earning below $2 a day—live in India. Successive governments have introduced social protection programmes to alleviate poverty and provide for basic needs. Social protection in India takes many forms, including food and essential commodity subsidies, employment guarantees, and targeted cash transfers. The central government spends more than ₹3 lakh crore ($47 billion) per year on eight programmes that we define as social protection. This is more than a sixth of its entire annual budget, reflecting the scale of social protection programming and the importance the government places on it. While these safety nets have contributed to alleviating poverty, their potential is undercut by financial leakages and service delivery issues, among other reasons.

The government states that Aadhaar has the potential to improve the status quo by curbing certain types of leakages from India’s social protection programmes while improving service delivery. More specifically, Aadhaar can uniquely identify individuals using biometrics, which can remove duplicate beneficiaries and authenticate identity for transactions. Aadhaar can also facilitate direct transfer of social protection benefits to individual bank accounts. This can remove intermediaries who have the potential to siphon funds and reduce payment delays.

Citing this potential for “substantial impact,” India’s central and state governments are adopting Aadhaar in various social protection programmes. The extent of this adoption varies across schemes but has increased steadily over recent years. Today, programmes accounting for more than two-thirds of government spending on social protection use Aadhaar in one or more ways.

The precise impact of Aadhaar’s use-cases in curbing leakages and improving service delivery in India’s social protection programmes is an area for future research. Central and state governments report large savings in social protection programmes from digitisation and removal of fake beneficiaries, partly due to the use of Aadhaar. However, a portion of these savings may accrue from the exclusion of genuine beneficiaries. In addition, the governments of Andhra Pradesh and Telangana report that some beneficiaries are facing transaction difficulties when trying to access benefits using Aadhaar-enabled authentication devices. These reports, while indicative, do not provide a comprehensive view of Aadhaar’s current role in India’s social protection. A comprehensive learning agenda and more open data are essential to understanding whether and how Aadhaar can be used to provide social protection in India.

In this Chapter, we review these topics in more depth. First, we provide a brief overview of social protection in India. Next, we discuss the role of Aadhaar in social protection, and its current state of adoption and performance. We conclude with an agenda for future research aimed at generating useful information for practitioners.
The government intends for India’s social protection programmes to reach a majority of the country’s population. Through these schemes, the government seeks to provide economic security and protection from adverse shocks to India’s poor.

Social protection in India takes many forms and is administered through hundreds of central and state government programmes. For this Chapter, we focus on four important programmes of the central government; together, these four account for more than two-thirds of national social protection spending. We highlight these programmes, given their extensive use of Aadhaar. We list them below and describe them in more detail in Figure 5.1:

1. Food subsidy: Public Distribution System (PDS), dispensing foodstuffs and cooking fuel,

2. Employment guarantee: Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS),

3. Essential commodity subsidy: Cooking fuel subsidy on Liquefied Petroleum Gas (LPG), and,

4. Pensions: Cash transfers to vulnerable populations through the National Social Assistance Programme (NSAP). State-level pension programmes are also discussed where appropriate.

While India’s social protection programmes provide welfare support to millions of individuals, their impact is constrained by several challenges. A major issue is

Figure 5.1: Four major social protection programmes in India

1. Food subsidy: Subsidised foodstuffs and cooking fuel (including rice, wheat, coarse grains, sugar, and kerosene) are provided at government-licensed shops in most villages and urban neighbourhoods in India. This is India’s largest social protection programme and is popularly called the Public Distribution System (PDS). Central government spending on PDS in FY 2015-16 was ₹1,39,419 crore ($20.8 billion).

2. Employment guarantee: The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) assures employment opportunities in rural areas at minimum wages for 100 days a year to anyone who opts in. In drought-prone districts, the guarantee is up to 150 days. The programme is designed for the poor to self-select into it since only those who do not have an alternative to accepting minimum wages will avail themselves of the guarantee. The central government expenditure for MGNREGS was ₹37,341 crore ($5.6 billion) in FY 2015-16.

3. Essential commodity subsidy: Cooking gas, in the form of liquefied petroleum gas (LPG), is provided at subsidised rates by India’s three nationalised petroleum companies. It is largely an urban household subsidy – albeit increasing in its rural coverage – and usually collected by those who can afford a gas stove. Starting in 2015, the government replaced an in-kind subsidy with a cash subsidy. This programme is called PAHAL. Central government spending for PAHAL was ₹19,802 crore ($3 billion) and for the entire LPG programme was ₹21,803 crore ($3.3 billion) in FY 2015-16.

4. Pensions: Under the National Social Assistance Program (NSAP), small monthly cash transfers are provided to the more vulnerable amongst the poor: the elderly, widows, and the disabled. The amounts can be small; for instance, a 70-year-old widow who is below the poverty line in Bihar, one of India’s poorest states, is entitled to ₹300 (about $4.60) per month. This amount is equivalent to about one-third of India’s monthly rural poverty line. The central government expenditure for NSAP in FY 2015-16 was ₹8,616 crore ($1.3 billion). Many state governments use their own funds to run separate pension programmes or top up the amounts received from the central government.

Subsequent to the passage of the Aadhaar Act 2016, the government can require the use of Aadhaar for social protection provision, including these four programmes. Since the Act came into effect, government agencies have issued circulars detailing these requirements. More information on Aadhaar’s role in these programmes is provided at the end of this chapter in the Appendix.
According to the government, Aadhaar can help address the leakage problem in India’s social protection programmes in three ways. One, fake beneficiaries and duplicates can be removed by linking a person’s (unique) Aadhaar number to her or his identity record in each programme’s database. Two, Aadhaar-enabled electronic transactions can authenticate each beneficiary using her or his biometrics, thus reducing the potential for fraudulent transactions. Three, Aadhaar enables direct benefit transfers (DBTs) to beneficiary bank accounts, which can reduce siphoning by middlemen and payment delays. In Figure 5.2, we illustrate which of these use-cases apply to which of the four focal programmes, and their associated budget expenditure in financial year 2015-16.

An additional benefit of Aadhaar, according to the Unique Identification Authority of India (UIDAI), is that it can serve as a common identification platform and provide access to social protection programmes across India, and not just in an individual’s home state. This can be particularly valuable for migrants. However, we do not examine this channel because the government’s social protection benefits have yet to incorporate this feature in a significant manner.

**Table: Budget expenditure and role of Aadhaar in major social protection programmes, Apr 2015 – Mar 2016**

<table>
<thead>
<tr>
<th>Social protection programmes</th>
<th>PDS</th>
<th>MGNREGS</th>
<th>LPG (PAHAL)</th>
<th>NSAP</th>
<th>Other programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aadhaar seeding</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Transaction authentication</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Direct Benefit Transfer</td>
<td>Pilot</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes: “Social protection programmes” comprise of the largest Government of India programmes that include income augmenting cash transfers to the poor or subsidies for the basic needs of food and housing. This is a lower bound estimate. “Other programmes” includes fertiliser subsidy, ICDS, Mid-Day Meals, and Pradhan Mantri Awaas Yojana.

Data sources: Open Budgets India; DBT portal; APOnline portal; TSOnline portal; AePDS AP portal; NSAP portal
Role of Aadhaar

According to the UIDAI, seeding Aadhaar numbers to the databases of social protection programmes can help remove duplicate and “ghost” beneficiaries from programme lists. This in turn can reduce the potential of intermediaries to siphon benefits in the name of these fake beneficiaries, leading to savings for the government.

To eliminate fake beneficiaries in programme databases—using Aadhaar—the government follows a two-step process. First, beneficiary lists are digitised. Some programmes, like MGNREGS, already have digitised records. For older social protection programmes, however, beneficiary lists are maintained locally and need digitisation. In the second step, known as Aadhaar seeding, each beneficiary’s record in the programme’s database is linked to her or his Aadhaar number.

Adoption of Aadhaar

About three-quarters of the beneficiaries enrolled in the four social protection programmes we discuss have already been seeded with Aadhaar. In Figure 5.3, we show how this varies by programme, from 51 percent to 82 percent. For programmes with a high ratio of Aadhaar seeding, most states—except those in eastern India—have seeded evenly. We illustrate in Figure 5.4 the interstate variation of Aadhaar seeding of MGNREGS beneficiaries. The map looks similar for PDS as well.
Performance of Aadhaar

The Indian government cites large savings in its safety nets portfolio through the removal of ineligible or fake beneficiaries. According to the DBT portal of the Government of India, ₹14,000 crore ($2.1 billion) was saved in the provision of food subsidies by removing 23.3 million fake beneficiaries. The corresponding figure for cooking gas subsidies was ₹26,000 crore ($3.9 billion) and 35 million duplicates. However, according to the Comptroller and Auditor General of India, a body that audits government finances, total savings for cooking gas subsidies were ₹1,764 crore ($263 million). The data and methodology with which the government calculated these savings figures are not in the public domain for all programmes.

Aadhaar’s role in the savings in PDS and LPG, however, may be limited. By 2014, the total number of duplicates eliminated in PDS was 12 million, of which about 2 million were removed using Aadhaar. More recent data on Aadhaar’s role in the savings reported by the DBT portal is not available.

The process of seeding each beneficiary’s Aadhaar number to a programme’s database can lead to unintended exclusion. This can happen through three channels: clerical errors in data entry; inability to reach certain individuals (if they are away from home, cannot travel, or reside in remote areas) to ascertain their Aadhaar number; and inability to include individuals who do not have an Aadhaar number. The extent of exclusion and the contribution of each of these three channels, is an important area of future research.

Authentication to Verify Beneficiaries During Transactions

Role of Aadhaar

The UIDAI can digitally authenticate the identity of an individual using their biometrics. For field-level transactions, such as the provision of food rations or wages in cash, an authentication device can be set up in a distribution centre to verify each beneficiary’s transaction. According to the UIDAI, authenticating each transaction digitally makes it difficult for officials and middlemen to siphon entitlements by fudging identity records, thereby helping to curb leakages.

Adoption of Aadhaar

Currently, three of the four programmes use Aadhaar for field-level transaction authentication: PDS, MGNREGS, and NSAP. In the case of PDS, 35.5 percent of the shops in India designated to deliver the subsidy now have electronic point of sale (ePoS) devices, and are therefore capable of authenticating beneficiaries for each transaction. Similar statistics for the MGNREGS and NSAP are not available. In Figure 5.5, we highlight the wide variation in the adoption of ePoS devices in PDS shops across states.

Performance of Aadhaar

While Aadhaar authentication may reduce leakages, it can also result in beneficiaries—about one in seven in Andhra Pradesh and Telangana over FY 2016-17—facing transaction failures on Aadhaar-enabled ePoS devices. This does not automatically lead to exclusion of beneficiaries from getting access to their benefits, as officials are allowed to manually override the system using paper-based authentication and processes.

Authentication failures can take place in three ways. One, biometric mismatches can lead to a failure in authentication. Fingerprint quality can diminish over time (for example, because of manual labour) or change because of injury, resulting in the Aadhaar database rejecting the print. Intact fingerprints may also go unrecognized because of faulty capture at the time of the transaction. Biometric errors may also reflect fraudulent authentication attempts, which is precisely what the authentication process is attempting to eliminate. According to data available from the governments of Andhra Pradesh and Telangana, biometric mismatches caused 85.9 percent of total authentication failures for the financial year 2016-17. See Figure 5.6 for a breakdown, by programme, of the reasons for authentication failures.
Two, in some cases, an individual’s biometrics are missing from the Aadhaar database, or the beneficiary’s Aadhaar enrolment stands cancelled or inactive. It is unclear why these issues occur. Of the total transaction failures highlighted in the Andhra Pradesh and Telangana data, 4.0 percent can be attributed to such issues.55

Finally, server-related errors and other operational bottlenecks can also lead to transaction failures.56 In Andhra Pradesh and Telangana, these reasons account for 10.1 percent of total failures.

Data from the governments of Andhra Pradesh and Telangana permit trend analysis of the percentage of unique persons facing failed transactions. For pensioners in Andhra Pradesh, from April 2015 to March 2017, the percentage of individuals facing authentication failure despite repeated attempts has varied considerably, with an average of 17.4 percent. During the same time period, the failure rate has increased and averaged 7.8 percent for MGNREGS in Telangana. While these numbers are for fingerprint authentication, they are slightly lower for iris authentication. In 2011-12, when the UIDAI tested authentication processes, it expected only one percent of beneficiaries to face such difficulties.57 The trends in authentication failures faced by beneficiaries are illustrated in Figure 5.7.

As mentioned above, authentication failures do not automatically translate into exclusion. Field-based empirical evidence on the extent of exclusion, if any, owing to Aadhaar—and its contributing factors—is a vital area of future research. Furthermore, the political economy of curbing leakages by intermediaries using Aadhaar-enabled authentication, and the consequences of the same, are also important to explore.

<table>
<thead>
<tr>
<th>STATES AND UNION TERRITORIES</th>
<th>TOTAL PDS SHOPS</th>
<th>% OF PDS SHOPS WITH ePoS DEVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>28,546</td>
<td>100.0%</td>
</tr>
<tr>
<td>Dadra &amp; Nagar Haveli</td>
<td>62</td>
<td>100.0%</td>
</tr>
<tr>
<td>Daman &amp; Diu</td>
<td>51</td>
<td>100.0%</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>22,400</td>
<td>100.0%</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>25,685</td>
<td>100.0%</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>34,773</td>
<td>100.0%</td>
</tr>
<tr>
<td>Gujarat</td>
<td>17,237</td>
<td>99.1%</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>12,350</td>
<td>98.6%</td>
</tr>
<tr>
<td>Haryana</td>
<td>9,631</td>
<td>97.5%</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>23,379</td>
<td>87.1%</td>
</tr>
<tr>
<td>Andaman &amp; Nicobar</td>
<td>509</td>
<td>57.0%</td>
</tr>
<tr>
<td>Kamataka</td>
<td>20,497</td>
<td>18.9%</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>51,259</td>
<td>16.4%</td>
</tr>
<tr>
<td>Telangana</td>
<td>17,159</td>
<td>9.5%</td>
</tr>
<tr>
<td>Goa</td>
<td>447</td>
<td>9.4%</td>
</tr>
<tr>
<td>Odisha</td>
<td>13,844</td>
<td>7.8%</td>
</tr>
<tr>
<td>Sikkim</td>
<td>1,421</td>
<td>1.4%</td>
</tr>
<tr>
<td>Tripura</td>
<td>1,798</td>
<td>1.4%</td>
</tr>
<tr>
<td>Delhi</td>
<td>2,254</td>
<td>1.2%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>79,402</td>
<td>0.9%</td>
</tr>
<tr>
<td>Bihar</td>
<td>42,117</td>
<td>0.1%</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>79,402</td>
<td>0.9%</td>
</tr>
<tr>
<td>Assam</td>
<td>38,794</td>
<td>0.0%</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>4,877</td>
<td>0.0%</td>
</tr>
<tr>
<td>Jammu &amp; Kashmir</td>
<td>5,970</td>
<td>0.0%</td>
</tr>
<tr>
<td>Kerala</td>
<td>14,335</td>
<td>0.0%</td>
</tr>
<tr>
<td>Lakshadweep</td>
<td>39</td>
<td>0.0%</td>
</tr>
<tr>
<td>Manipur</td>
<td>2,052</td>
<td>0.0%</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>4,651</td>
<td>0.0%</td>
</tr>
<tr>
<td>Mizoram</td>
<td>1,268</td>
<td>0.0%</td>
</tr>
<tr>
<td>Nagaland</td>
<td>1,691</td>
<td>0.0%</td>
</tr>
<tr>
<td>Punjab</td>
<td>16,657</td>
<td>0.0%</td>
</tr>
<tr>
<td>West Bengal</td>
<td>20,278</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>526,377</td>
<td>35.5%</td>
</tr>
</tbody>
</table>

Notes: Chandigarh, Puducherry, and Dadra & Nagar Haveli (partially) are conducting a pilot of Direct Benefit Transfers in lieu of in-kind PDS benefits. The period of this data is not available. The data was presented in Parliament on April 2017. Data source: Response to Lok Sabha Unstarred Question 6046: PoS devices in Fair Price Shops.
### Figure 5.6: Reasons for authentication failure of transactions on Aadhaar-enabled devices in Andhra Pradesh and Telangana, Apr 2016 – Mar 2017

<table>
<thead>
<tr>
<th>CATEGORY OF FAILURE REASONS</th>
<th>PENSIONS (ANDHRA PRADESH)</th>
<th>MGNREGS (TELANGANA)</th>
<th>MGNREGS (ANDHRA PRADESH)</th>
<th>WEIGHTED AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biometric mismatches</td>
<td>84.2%</td>
<td>94.8%</td>
<td>84.3%</td>
<td>85.9%</td>
</tr>
<tr>
<td>Aadhaar database related errors</td>
<td>15.7%</td>
<td>2.2%</td>
<td>2.3%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Server connectivity and operational errors</td>
<td>0.1%</td>
<td>3.0%</td>
<td>13.4%</td>
<td>10.1%</td>
</tr>
</tbody>
</table>

Notes: The three categories have been grouped from 86 error codes provided by the UIDAI for authentication failures. Biometric mismatches may also include fraudulent attempts. Total number of transaction failures were used to calculate the weighted average. Data is not available for pensions in Andhra Pradesh for April 2016. Pensions (Andhra Pradesh) refers to the NTR Bharosa programme, while data for MGNREGS in Telangana and Andhra Pradesh also includes Social Security Pensions data from the two states. Data sources: MGNREGS (Telangana): TSOnline portal, Pensions (Andhra Pradesh): NTR Bharosa portal, MGNREGS (Andhra Pradesh): APOnline portal.

### Figure 5.7: Percentage of beneficiaries with failed transactions, after multiple attempts, using fingerprint and iris in Andhra Pradesh and Telangana, Apr 2015 – Mar 2017

![Graph showing percentage of beneficiaries with failed transactions](image)

% of beneficiaries with failed transactions

<table>
<thead>
<tr>
<th>Total beneficiaries in millions</th>
<th>Apr '15</th>
<th>Oct '15</th>
<th>Apr '16</th>
<th>Oct '16</th>
<th>Mar '17</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average failure %
- FP (AP): 17.4%
- IRIS (AP): 14.4%
- FP (TG): 7.8%
- IRIS (TG): 7.0%

Notes: AP & TG refer to Andhra Pradesh and Telangana, respectively. Pensions AP refers to the NTR Bharosa programme, while data for MGNREGS TG also includes Social Security Pensions data. Data sources: MGNREGS TG: TSOnline portal, and Pensions AP: NTR Bharosa portal.
Direct Benefit Transfers to Reduce Intermediaries

DBTs refer to the electronic transfer of funds from the government to an individual’s bank account. Central and state-level governments have steadily transitioned existing cash-based social protection programmes (like MGNREGS or NSAP) to DBTs or have converted in-kind social protection programmes to equivalent-value DBTs (like the PAHAL initiative with LPG - refer to Figure 5.3). Chandigarh, Puducherry, and parts of Dadra and Nagar Haveli are also piloting the transition of in-kind social protection of PDS into cash. Currently, the government has highlighted 499 social protection programmes as “DBT-eligible,” of which 243 have converted to DBT payments. In Figure 5.8, we show the increasing trend in this transition since March 2015.

Role of Aadhaar

By enabling DBTs, the government states that Aadhaar can help curb leakages. Using the Aadhaar Payment Bridge System (APBS), the government can directly transfer benefits to uniquely identified individuals’ bank accounts. This can eliminate fake beneficiaries, and certain tiers of intermediaries, potentially reducing their ability to siphon funds.

Adoption of Aadhaar

DBTs do not depend exclusively on Aadhaar and can be sent through other platforms. It is possible to send funds directly to individual bank accounts using the National Electronic Funds Transfer (NEFT) and other means. While the proportion of APBS-enabled payments is increasing, they are still a minority compared with other forms of electronic transfer, such as NEFT. See Figure 5.9 for a breakdown, by programme, of this trend. Similarly, business

Figure 5.8: Growth in number of schemes transitioning to DBT, Mar 2015 – May 2017

<table>
<thead>
<tr>
<th>Number of DBT schemes</th>
<th>Number of eligible schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar ’15: 34</td>
<td>May ’17: 243</td>
</tr>
<tr>
<td>Mar ’16: 59</td>
<td></td>
</tr>
<tr>
<td>May ’17: 243</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Have not initiated transition to DBT</td>
</tr>
<tr>
<td></td>
<td>Have transitioned to DBT</td>
</tr>
</tbody>
</table>

correspondents are able to provide doorstep-banking services using other handheld devices that do not use Aadhaar’s biometric capabilities.66

**Figure 5.9: Proportion of electronic payments using Aadhaar and non-Aadhaar payment systems, Apr 2016 – Mar 2017**

<table>
<thead>
<tr>
<th>Funds disbursed (₹ crore)</th>
<th>Non-Aadhaar electronic payments</th>
<th>Aadhaar electronic payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGNREGS</td>
<td>33,504</td>
<td>75%</td>
</tr>
<tr>
<td>LPG (PAHAL)</td>
<td>14,556</td>
<td>75%</td>
</tr>
<tr>
<td>NSAP</td>
<td>7,750</td>
<td>81%</td>
</tr>
</tbody>
</table>

Note: For MGNREGS, LPG, and NSAP, the electronic payments form 70.5, 66.8, and 81.6 percent, respectively, of the total budget allocation for these programmes in FY 2016-17.

Data sources: DBT portal, Open Budgets India

**Performance of Aadhaar**

More research is required on Aadhaar’s performance in facilitating provision of social protection programmes through DBTs in India. It is valuable to understand whether and how the transition to Aadhaar-enabled DBTs, compared with other forms of electronic transfers, can lead to further reductions in leakage, minimize payment delays, and improve the overall experience for beneficiaries.

**Areas for Future Research**

Aadhaar has a significant and expanding role in India’s social protection programmes. The government aims to use Aadhaar to reduce leakages and improve service delivery. In order to answer the government’s questions on whether and how Aadhaar can improve social protection outcomes, we recommend a practitioner-oriented research agenda, combined with more publicly available data.

In particular, a practitioner-oriented research agenda can provide actionable insights for administrators at the centre and state levels on a) how to strengthen implementation, b) whether and how much Aadhaar can curb leakages and improve service delivery in a particular context, and c) reduce any unintended consequences, such as exclusion of genuine beneficiaries.

To this end, we outline three important themes for future research in social protection that can be directly useful for practitioners today:

- Representative estimates on whether genuine beneficiaries are excluded and, if so, what the contributing factors are: to design strategies that reduce exclusion

- Research on implementation topics related to Aadhaar; for example, technology preparedness, beneficiary time-use and experience, personnel training, and connectivity infrastructure: to strengthen implementation

- Evaluations that examine the impact of each Aadhaar use-case on financial leakages and service delivery: to facilitate decisions on which use-cases to expand

More publicly available data on Aadhaar use-cases—especially transaction or beneficiary-level data (after appropriate anonymisation)—will help advance such research. Practitioners releasing more data will enable researchers to uncover important empirical insights. These in turn can benefit practitioners to improve implementation strategies, creating a positive cycle of collaboration.
To maximise the impact of practitioner-oriented research, we recommend:

- Framing research questions in collaboration with practitioners
- Being responsive to decision-making schedules and other practitioner constraints
- Presenting insights in succinct documents and in-person meetings
- Providing follow-up support to translate research to action on-the-ground
APPENDIX 5.1: Spotlight on PDS

Food subsidies—subsidised foodstuffs and cooking fuel, including: rice, wheat, coarse grains, sugar, and kerosene—are provided at government-licensed shops in most villages and urban neighbourhoods in India. This is India’s largest social protection programme and is popularly called the Public Distribution System (PDS). Central government spending on PDS in FY 2015-16 was ₹1,39,419 crore ($20.8 billion). As of March 2017, there were 232 million ration cards (the identification document—one for each family—required for PDS) in India. The total food grain allocated under the PDS in 2015-16 was 52.34 million tonnes, of which 94.8 percent was utilised by the system.

In February 2017, the Department of Food and Public Distribution issued a notification stating that an eligible beneficiary is “required to furnish proof of possession of Aadhaar number or undergo Aadhaar authentication.” Those who do not possess an Aadhaar number are required to make an application by 30 June 2017.

With this notification in place, Aadhaar is being used for seeding beneficiaries to PDS databases, for transaction-level authentication and, in a limited way in certain union territories, for direct benefit transfers. As mentioned in the chapter, about 72 percent of PDS ration cards have been linked to Aadhaar and 35 percent of PDS shops have ePoS machines. There is, however, large inter-state variation in the adoption of Aadhaar in the PDS. In Figure 5.10, we illustrate that there is a cluster of states (in the top-right) where most shops are equipped to use Aadhaar for transaction authentication and most beneficiaries have been seeded with Aadhaar. These states can or already do use Aadhaar for PDS delivery. For almost all the remaining states, only a small proportion of shops are equipped with ePoS devices.

Figure 5.10: State-level variation in Aadhaar usage in PDS

Data source: Food and Civil Supplies Annual Report, Question No. 6046 in Lok Sabha
APPENDIX 5.2: Spotlight on MGNREGS

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) assures employment opportunities in rural areas at minimum wages for 100 days per year to anyone who opts in. In drought-prone districts, the guarantee is up to 150 days. The programme is designed for the poor to self-select into it since only those who do not have an alternative to accepting minimum wages will avail themselves of the guarantee. The central government expenditure for MGNREGS was ₹37,341 crore ($5.6 billion) in FY 2015-16. Through this programme, the government provided employment to 72.3 million beneficiaries in 2016-17.

Aadhaar is used in the MGNREGS for seeding of beneficiaries, transaction-level authentication, and direct benefits transfer. While nearly 81 percent of the 109 million beneficiaries have been seeded with their Aadhaar number, only about 37 percent receive their payments through Aadhaar-based methods (see Figure 5.11). The majority of Aadhaar-seeded beneficiaries continue to receive their wages through the electronic fund management system (e-FMS), cash, or other modes of payments. Under the e-FMS, the funds are disbursed to the master account of the nodal bank, which then credits the accounts of the beneficiaries.

As we illustrate in Figure 5.12, there is significant inter-state variation in the usage of Aadhaar for the MGNREGS. On the right side of the figure, we see that a large number of states have high percentages of beneficiaries seeded with Aadhaar; however, there is high variation among the states in terms of the percentage of Aadhaar-based payments.

Figure 5.11: Aadhaar Usage in MGNREGS, as of Mar 2017

<table>
<thead>
<tr>
<th>% of payments converted to Aadhaar-based payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total beneficiaries</td>
</tr>
<tr>
<td>Beneficiaries without Aadhaar-seeding</td>
</tr>
<tr>
<td>Aadhaar-seeded beneficiaries receiving payment through non-Aadhaar-based payment</td>
</tr>
<tr>
<td>Aadhaar-seeded beneficiaries receiving payment through Aadhaar-based payment</td>
</tr>
</tbody>
</table>

% of total

19%        44%        37%

Data source: MGNREGS MIS
Figure 5.12: State-level variation in Aadhaar usage in MGNREGS, as of Mar 2017

% of payments converted to Aadhaar-based payments

% of beneficiaries seeded with Aadhaar

Data source: MGNREGS Portal: Aadhaar Demographic Verification Status Report
APPENDIX 5.3:
Spotlight on LPG PAHAL

Cooking gas, in the form of liquefied petroleum gas (LPG), is provided at subsidised rates by India’s three nationalised petroleum companies, referred to as Oil Marketing Companies (OMCs). These three companies service nearly 181 million active LPG connections in the country, resulting in a national LPG coverage of 71.7 percent as of March 2015. The coverage in rural areas, 46 percent, is lower than the national average.

In 2015, the government introduced PAHAL, a scheme to replace the earlier in-kind subsidy with a monetary subsidy. Under this scheme, consumers get LPG cylinders at non-subsidised prices and receive the subsidy, as per their entitlement, directly into their registered bank accounts. Central government spending for PAHAL was ₹19,802 crore (about $3.3 billion) in FY 2015-16.

Aadhaar is used for de-duplication and direct benefits transfer (DBT) under the PAHAL scheme. Before approving a new connection to a prospective consumer, de-duplication is carried out within and between the OMCs. Once approved, the consumer can then purchase LPG cylinders from the OMCs. A DBT is done electronically within 48 hours of purchase. According to the Ministry of Petroleum and Natural Gas, from inception of the scheme to July 2016, of the 1.7 billion transactions, 98.4 percent were successful in transferring money to the bank accounts of the consumers. One of main reasons for the failures was the “involvement of several stakeholders like LPG distributors, the National Payments Corporation of India and banks in the subsidy transfer process.” Another reason given was the mismatch between datapoints on bank account details, Aadhaar number, and the LPG consumer number.

2. This calculation is of the largest social protection programmes of the Government of India that include an income augmenting cash transfer to the poor or a subsidy for the basic needs of food and housing: PDS, urea and nutrient subsidy, MGNREGS, LPG subsidy, ICDS, Pradhan Mantri Awas Yojana, mid-day meals, and NSAP. This is a lower bound estimate. Calculations use 2015-16 actual budget expenditure from the Ministry of Finance.

3. The total budget of 2015-16 is ₹17.9 lakh crore ($267 billion). Social protection expenditure was more than 17.6 percent of this total. Calculations use 2015-16 actual budget expenditure from the Ministry of Finance.


6. Ibid.

7. Ibid.


9. For instance, Aadhaar seeding varies across schemes with only 19% seeding for scholarship schemes and about 80% for MGNREGS and LPG (PAHAL) as of December 2016. The percentage of beneficiaries seeded has been increasing. In MGNREGS, seeding rose from about 52% in September 2015 to about 81% as of February 2017.

10. This calculation is of the major social protection programmes identified by us that are using Aadhaar. Of the eight programmes, the schemes using Aadhaar are: PDS, MGNREGS, LPG Subsidy, ICDS, NSAP and Mid-day meals. These account for ₹2.4 lakh crore of the ₹3.3 lakh crore spent on social protection.


14. PDS alone accounts for 667 million beneficiaries (see Figure 5.3). This estimate is calculated using data from state government PDS portals and census data. As per the Ministry of Consumer Affairs, Food and Civil Supplies Department there are a total of 232 million ration cards.

15. The government spends more than ₹2 lakh crore on the four programmes that form the focus of this Chapter, out of total annual spending of more than ₹3 lakh crore on social protection.


26. “Ghost” beneficiaries refer to individuals who have passed away, but continue to be on the beneficiary list of a programme.


28. Ibid.


31. Ibid.

32. Ibid.


34. Direct transfer of cash benefits to bank accounts are portable as bank accounts can be accessed across India. DBTs are covered in more detail below.


37. It is important to note that in most cases Aadhaar seeding does not weed out individuals who physically exist but are legally not entitled to a particular social protection programme. For example, food subsidies are higher for those below the poverty line. If someone above the poverty line is listed as being below it, Aadhaar isn’t able to correct this. As a rule, Aadhaar doesn’t collect socioeconomic data. The Economic Survey 2016-17 reports that about 40 percent of listed beneficiaries are not entitled to their benefits.


39. Ibid.

40. Seeding figures for DBT (LPG, MGNREGS and NSAP):


47. Ibid.
54. Calculation was done using authentication attempts analysis data from three portals: NTR Bharosa portal, APOnline portal, and TSOnline portal. Error codes provided by UIDAI were used to categorise the errors into three types. Weighted average was calculated using the number of authentication failures for each scheme.
55. Ibid.
56. Ibid.
60. Ibid.
64. Ibid.


73. Two union territories, Chandigarh and Pondicherry, have introduced Direct Benefits Transfer under PDS wherein the subsidy amount is directly deposited in the beneficiaries’ bank accounts. Another union territory, Dadra and Nagar Haveli, has done so partially.


80. Ibid.


82. Ibid.

83. Ibid.