4 FINANCIAL INCLUSION
Increasing access to financial services can lead to improved economic prospects for poor individuals and communities. According to the government, Aadhaar has the potential to promote financial inclusion by addressing certain critical barriers, mainly documentation requirements and physical access to banking services. Understanding whether and how Aadhaar has played a role in increasing financial inclusion is an important area of future research.

A growing body of evidence demonstrates the strong positive relationship between access to formal financial services and economic prospects for poor individuals and communities. Banking the unbanked is a stated priority of the Government of India. Through significant effort on the part of the public and private sectors, Pradhan Mantri Jan Dhan Yojana (PMJDY or “Jan Dhan”)—a central government scheme to drive financial inclusion—has facilitated the opening of 282 million accounts as of March 2017. However, despite this progress, we estimate that more than a hundred million people in India remain excluded from financial services. Further, among those who have recently opened accounts many do not regularly use them, thereby missing out on the economic benefits of financial inclusion.

The government states that Aadhaar has a role in increasing financial access for underserved populations and reducing the cost of processing bank applications. For instance, Aadhaar provides a proof of identity and address, and can overcome the barrier of lack of legal documentation, which accounted for as many as 20 percent of exclusions in India. The development of innovative services and products that use Aadhaar also have the potential to promote financial transfers, banking in remote areas, and mobile banking.

Citing these potential benefits, the government has promoted the widespread adoption of Aadhaar in financial services. Alongside PMJDY and increasing mobile access, Aadhaar forms the core of the government’s financial inclusion drive. Nearly 400 million bank accounts were linked to Aadhaar as of April 2017, and it was used to digitally provide proof of identity to open more than 6 million accounts in March 2017.

In this Chapter, we explore these topics in more detail. We begin with an overview of the trends in financial inclusion. We then evaluate four ways in which Aadhaar is being used to increase financial inclusion, namely e-KYC for account opening, Aadhaar-enabled microATMs for remote banking, Direct Benefit Transfer (DBT), and Aadhaar-enabled payments systems. We close this Chapter with areas for future research that could enable a better understanding of the role of Aadhaar in increasing financial inclusion.
Financial Inclusion Trends

As a step toward fulfilling its commitment to financial inclusion, the Reserve Bank of India (RBI) introduced standards on “no-frill accounts” in 2005. These basic savings accounts were devised as a way to increase access to bank accounts for a wider population. The accounts had an added emphasis on allowing zero- or very low-minimum balance in the accounts at no charge. Seven years later, in 2012, these standards evolved into guidelines on Basic Savings Bank Deposit Accounts (BSBDAs). See Figure 4.1 for a list of characteristics of basic savings accounts.

Despite these efforts, hundreds of millions of people in India were still excluded from financial services as of late 2014. The government has made efforts to reduce that number. Between 2014 and 2016, the financial services sector experienced rapid growth in the overall number of BSBDAs (see Figure 4.2).

Most of the increase in BSBDAs is associated with the Jan Dhan scheme mentioned above. Launched in 2014, PMJDY aims to ensure access to financial services for low-income groups through the use of technology. As of March 2017, 282 million PMJDY accounts and 255 million other BSBDAs have been opened.

In line with the aims of Jan Dhan, the Government of India has continued to turn to technology to accelerate financial inclusion. The government has developed and promoted a triad of solutions, known as the “JAM trinity,” which stands for Jan Dhan, Aadhaar, and Mobile. The next section describes how the government envisions the use of Aadhaar, in particular, may be able to help overcome challenges that continue to exclude people from the formal financial and banking system.

Role of Aadhaar in Financial Inclusion

Despite the progress of PMJDY, the barriers to financial inclusion in India are persistent and include obstacles.
to both the opening and use of accounts within the formal financial system. In Figure 4.3, we outline the key barriers to financial inclusion from the perspective of an individual. This discussion is limited to barriers faced by individuals; it does not include supply-side factors relating to banks or larger financial or policy systems. A broader discussion of more sophisticated financial services such as insurance, while important, falls outside the scope of this report.

First, there may be a lack of understanding of the financial sector. This can manifest itself in two ways: either individuals do not know about financial products (such as a bank account), or are provided incomplete information by the banker. Second, for individuals who are willing to open an account, they may be unable to do so because they do not have surplus income, lack the necessary identification documents, or are located at a distance far from the financial service provider. Third, even if an individual opens an account, it can remain unused—retaining no money or facilitating no transactions. Reasons for this include lack of physical or technological access to banks, a preference for cash, or simply inertia.

While Aadhaar’s design and functionality may not help to overcome all barriers of exclusion, the system can address and mitigate some important challenges, particularly regarding access. There are four main ways that Aadhaar can play a role in access to financial services: enabling the opening of a bank account through e-KYC; using authentication and microATMs to encourage remote banking; Direct Benefit Transfers (DBTs) to citizens from the government to encourage the regular use of accounts; and various Aadhaar-enabled systems in the financial services sector to facilitate the movement of money. These are described in the following four sections.

Opening a Bank Account through e-KYC

Across the world, banks are required to obtain acceptable identity and address documents for account openings by individuals. In 2004, the RBI established a set of mandatory Know Your Customer (KYC) procedures for all banks operating within India. In September 2013, the RBI expanded those

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Table: Figure 4.3: Barriers to basic financial inclusion of individuals

<table>
<thead>
<tr>
<th>LACK OF AWARENESS OR UNDERSTANDING</th>
<th>AADHAAR-BASED SOLUTIONS</th>
<th>ROLE OF AADHAAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of understanding about financial products</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Information asymmetries about banking</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UNABLE TO OPEN AN ACCOUNT</th>
<th>AADHAAR-BASED SOLUTIONS</th>
<th>ROLE OF AADHAAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough money to open an account</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Lack of necessary documentation</td>
<td>Yes</td>
<td>Aadhaar-enabled e-KYC</td>
</tr>
<tr>
<td>Distance from a bank / ATM</td>
<td>Yes</td>
<td>Aadhaar-enabled e-KYC + microATM</td>
</tr>
<tr>
<td>Discrimination against low-income customers</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPEN ACCOUNTS REMAIN UNUSED</th>
<th>AADHAAR-BASED SOLUTIONS</th>
<th>ROLE OF AADHAAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference for cash</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Status quo bias or other behavioural biases</td>
<td>Partially</td>
<td>APBS used for DBT</td>
</tr>
<tr>
<td>No access to a bank / ATM</td>
<td>Yes</td>
<td>Aadhaar-enabled microATM; AEPS/UPI</td>
</tr>
<tr>
<td>High transaction costs</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Sources: This table is the authors’ compilation based on the World Bank’s Global Financial Development Report 2014 and supplemented by the World Bank’s Global Findex Database 2014.
procedures to allow the use of Aadhaar biometric and demographic data in a process known as electronic Know Your Customer (e-KYC). 27

**Role of Aadhaar**

Now, Aadhaar is a sufficient form of documentation to open an account through e-KYC. Using e-KYC, one’s Aadhaar number and matching biometrics can be employed to retrieve information (such as an address) from the UIDAI, which is used as proof of identification and documentation for account opening. This instantaneous electronic system has the potential for faster processing, lower material costs, and reduced error rates as well as the ability to provide accurate data for audits by regulators. 29 Further, e-KYC lowers the costs of transactions of KYC processes for banks. 30

**Adoption of Aadhaar**

Since the RBI began accepting e-KYC in September 2013, 15 of 22 private sector banks, 27 of 29 public sector banks, 31 and 36 of 56 regional rural banks began offering e-KYC as a way to open a bank account. 32 According to a UIDAI statement in March 2017, 44.7 million bank accounts had been opened through e-KYC. 33 For comparison, this number is less than 16 percent of the Jan Dhan accounts opened by that date.

In Figure 4.4, we illustrate the growth in the number of e-KYC verifications for financial services over the past year. This data comprises all types of e-KYC tracked by the National Payments Corporation of India (NPCI). The breakdown between various kinds of financial undertakings, such as opening a bank account or buying insurance, is not available.

There are three ways in which it would be helpful to understand the impact of Aadhaar-enabled e-KYC on inclusion within the banking sector: gains or losses experienced by the customer, gains or losses experienced by the banks, and increase in access to and use of banking services by those previously unbanked or underbanked. Research in these areas would be useful to understand Aadhaar’s role to date, and provide data on whether and how this function should be extended.

**Authentication of Identity and MicroATMs**

**Role of Aadhaar**

A microATM is a portable, handheld point-of-sale device that facilitates banking transactions. With Aadhaar-enabled microATMs, an individual’s Aadhaar number and biometrics authenticate identity and allow...
Direct Benefit Transfers (DBTs) from Government to Citizens

Direct Benefit Transfer (DBT) refers to electronic money transfers directly to the bank accounts of eligible citizens in lieu of in-kind or cash subsidies. DBTs have become a priority for both state- and central-level government ministries.

Role of Aadhaar

The Aadhaar Payment Bridge System (APBS) uses Aadhaar-enabled infrastructure to facilitate payments from the government to individuals. The government states APBS is a more efficient way to distribute DBTs because it eliminates the need for intermediaries, thus decreasing the likelihood of leakages and cutting the time between distribution and receipt of payment.

The system is hosted by the National Payments Corporation of India (NPCI) and requires only basic information for each transfer: the transferee’s Aadhaar number and the bank to which the Aadhaar number is linked.

Transferring money requires that eligible individuals first open or have an account. The next steps include the seeding (linking) of the individual’s Aadhaar number to a bank account and the seeding (linking) of the individual’s Aadhaar number to the beneficiary lists of various government programmes, such as an employment guarantee scheme or food subsidies.

Adoption of Aadhaar

While we do not have data on the coverage of microATMs in rural areas, we have it on the prevalence of BCs, which provides an upper-bound estimate under reasonable assumptions. As of 2016, there was 1 BC per 6,630 persons. Kenya, often considered a leader in last-mile delivery of financial services, has a BC-to-population ratio of 1:172.

According to NPCI, the value of transactions conducted through microATMs, using Aadhaar authentication, grew by 26 times in the past year, from ₹86 crore ($12.8 million) in FY 2015-16 to ₹2,282 crore ($341 million) in FY 2016-17. We also have access to the number of transactions, including balance inquiries, mini-statements, withdrawals, deposits, and transfers. There were 345 million transactions in FY 2016-17, representing a nearly four-fold increase from FY 2015-16 (95 million), and twenty-one-times the number in FY 2014-15 (16 million).

More Aadhaar-enabled microATMs in underserved communities could increase access to financial services. However, implementation challenges, such as infrastructure failures (malfunction of microATMs) and connectivity issues (weak Internet), may create barriers that reduce access and usage. Empirical evidence about these barriers and on the impact of microATMs on financial inclusion is an important area for further research.

Adoption of Aadhaar

As of April 2017, nearly 400 million individuals have seeded their bank accounts to an Aadhaar number (see Figure 4.5). In Figure 4.6, we show the growth in PMJDY accounts seeded to Aadhaar since November 2015, by bank type. As of March 2017, public sector banks accounted for 151 million of the 183 million Aadhaar-seeded PMJDY accounts.

DBTs have the potential to increase financial inclusion by encouraging individuals to engage with the banking system. Since funds are directly deposited into accounts, this increases the incentive to use banking services. Field-based evidence to support or refute the effectiveness of DBTs as a gateway to financial inclusion would be an important addition to our understanding of this use-case of Aadhaar. A discussion of DBTs from a social protection point of view follows in Chapter 5 of this report.
Aadhaar-Enabled Systems for Payments and Transfers

Role of Aadhaar

UIDAI, in coordination with NPCI, RBI, and various other entities, has helped to develop several Aadhaar-enabled systems to facilitate the movement of money. Three important systems include the APBS for DBTs, the Aadhaar Enabled Payments System (AEPS) for microATMs, and the Unified Payments Interface (UPI) for mobile banking.

Adoption of Aadhaar

Aadhaar Payment Bridge System

As discussed above, the APBS allows government agencies to transfer funds to citizens using only their Aadhaar number and bank name. This system is used in subsidy and other social protection programmes. In Figure 4.7, we show the trends in DBT payments made through APBS. Over the past year, APBS DBT payments as a proportion of all DBT payments seem to have remained about one-third of all DBT payments.

Aadhaar Enabled Payment System

The AEPS allows for biometric authentication of transactions by individual users. As discussed above, microATMs using AEPS carried out transactions worth ₹2,282 crore ($341 million) in the fiscal year 2016-17.
Unified Payments Interface

The Unified Payments Interface (UPI) is a system that facilitates banking transactions using mobile phones. Launched in April 2016, UPI allows the usage of an Aadhaar number as a payment address. According to NPCI, there are five channels through which funds can be transferred with UPI, one of which is with an Aadhaar number. UPI features are available on both smartphones and feature phones.

At its sixth month mark, September 2016, about 80,000 transactions, and a total of ₹32 crore ($4.8 million), were processed through the UPI platform. However, at its twelfth month mark, March 2017, 6.4 million transactions and a total of ₹2,425 crore ($362 million) were sent through UPI. It should be noted that in November 2016, the Government of India demonetised the 500- and 1000-rupee notes from circulation, prompting a surge in usage of digital money platforms.

The increase in monthly UPI transactions also coincided with the launch of the Bharat Interface for Money (BHIM) mobile application in December 2016. BHIM is an example of an application that uses UPI. BHIM was designed by NPCI to ease the transfer of digital payments between bank accounts. As seen in Figure 4.8, both the value and volume of BHIM transactions have sharply increased since its launch. The BHIM app now comprises a sizeable amount of overall UPI volume (39 percent) and value (34 percent). The main appeal of BHIM is that it allows people to download one single application for all mobile payments, which can then be linked directly to one's bank account, rather than downloading individual bank apps or other mobile wallet apps. BHIM can also be used on feature phones using the ‘*99# service maintained by NPCI.'
Individuals have the option to send money using the payee’s Aadhaar number as the payment address.\textsuperscript{54} UPI has seen the greatest increase across these three systems (AEPS, APBS, and UPI), as seen in Figure 4.9. UPI had a compound monthly growth rate of 241 percent for the 2016-17 fiscal year. In addition, its average transaction size for the month of March 2017 is seven times that of APBS, and 35 times that of AEPS.

However, it should be noted that all these systems grew steadily throughout the last fiscal year, suggesting increasing adoption of these payment systems in the wider landscape. All experienced an increase in the value of monthly transactions as well as an increase in the average size of transactions.

The average monthly transaction was two times higher in March 2017 compared with April 2016 for APBS, 381 times for UPI, and six times for AEPS.

Payment systems that use Aadhaar have the potential to increase the level of access an individual has to a range of financial tools, including a basic savings account and financial transactions. Access may be limited in areas with low smartphone penetration and weak telecommunications networks. Since these Aadhaar-enabled systems are still new, there is no current data or evidence about expansion of financial inclusion resulting from their use. This is an important area of further research.
Areas for Future Research

Earlier in this Chapter we estimated that there are at least one hundred million unbanked people living in India—and many more remain underbanked. The government has articulated plans to use Aadhaar to help bring these individuals into the formal financial sector, and in doing so, potentially raise their overall welfare.

Research on Aadhaar’s role in expanding access to financial services will be valuable for senior decision-makers in government, regulatory bodies, and the banking sector. Research can guide best practices to expand the reach of financial inclusion to underserved populations. Research can also inform resource allocation decisions on which financial inclusion use-cases of Aadhaar to expand.

We outline two themes for future research that can be applicable for practitioners today:

• Research on how best to implement Aadhaar use-cases for financial inclusion, with a particular focus on take-up, efficiency, connectivity, and infrastructure

• Research on the impact of Aadhaar-enabled use-cases on three dimensions: (1) access to financial services, especially bank accounts, (2) usage of financial services, and (3) welfare impacts of increased access and usage of financial services

More research and publicly available data will be valuable to learn which uses should be expanded and which may have limited potential. A platform aimed at collaboration and sharing such research would be particularly useful to disseminate information and short policy briefs to practitioners. Targeted, high quality research will contribute to a meaningful dialogue among stakeholders on this critical topic.

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


4. One hundred million is a conservative calculation of the remaining unbanked population in India. The current number of unbanked adults in India is not available. We estimate that as of 2014 there were about 420 million unbanked adults in India. This figure is calculated using data from the 2014 World Bank Global Findex database with estimates from the 2011 World Bank Global Findex database and a 2014 World Bank Findex Note on South Asia. This specific calculation and related notes can be found here: http://bit.ly/2r41LJg. Sources listed below. We then calculated the current estimate using this 2014 estimate of unbanked individuals in India (420 million) and then subtracted the number of new accounts opened under PMJDY since 2014 (282 million), resulting in 138 million. This calculation assumes that every new account opened under PMJDY was executed by a previously unbanked person; therefore, it is a highly conservative estimate of the number of unbanked persons. The actual estimate is likely much higher.


8. This statistic was calculated by analysing survey data released by the World Bank (see previous citation). A respondent could pick more than one reason why she or he does not have a financial account, including the lack of “necessary documentation (identity card, wage slip, etc.),” which is the statistic represented here.

The full World Bank question on the Global Findex survey reads:

Question 8: “Please tell me whether each of the following is A REASON why you, personally, DO NOT have an account at a bank or another type of formal financial institution. (Read and rotate A-I) Is it…?
A. Because financial institutions are too far away
B. Because financial services are too expensive
C. Because you don’t have the necessary documentation (identity card, wage slip, etc.)
D. Because you don’t trust financial institutions
E. Because of religious reasons
F. Because you don’t have enough money to use financial institutions
G. Because someone else in the family already has an account
H. Because you cannot get an account
I. Because you have no need for financial services at a formal institution”

9. See sections on Aadhaar Payment Bridge System (APBS) used for digitising Direct Benefit Transfer (DBT) payments; Aadhaar Enabled Payment System (AEPS) used with microATMs that reach rural areas; and the UPI system that provides mobile banking services.

11. The number of Aadhaar-seeded bank accounts is sourced from the “Aadhaar Numbers in NPCI Mapper” on the NPCI homepage.

12. The number of times Aadhaar e-KYC is used to open financial accounts is sourced from the “e-KYC Verification (Successful Txn)” from an NPCI document on retail statistics.


15. Basic Savings Bank Deposit Accounts (BSBDAs) were introduced by the RBI in 2012, replacing “no-frills” bank accounts. BSBDAs removed the requirement for minimum balances. They also allow for ATM usage, electronic payments & receipts, and deposits & collection of cheques. The accounts stipulate no limits on number of deposits, but have a maximum of four withdrawals in a month. ATM/debit cards are considered standard under these guidelines. All these features are provided at zero cost to the account holder. Basic savings bank deposit account holders are not eligible to open another savings account at the same bank.

16. See endnote 4 for a full explanation of this calculation.


18. Data is not yet available for the number of BSBDAs opened in fiscal year 2016-2017. However, growth among non-PMJDY BSBDAs accounts has been slow since the introduction of PMJDY in 2014. Here we have used the number from 2015-2016.


24. According to the Ministry of Finance, 73 percent of villages are more than five kilometers from the nearest bank branch. Note: This statistic was calculated by taking the inverse of the statement in Spreading JAM across India’s Economy that stated in rural India “only 27 percent of villages have a bank within 5km.” “Spreading JAM across India’s Economy.” Annual Survey Report. Economic Survey. Ministry of Finance, Government of India, 2016. http://indiabudget.nic.in/es2015-16/echapvol1-03.pdf.


26. As of February 2017, 25 percent of all bank accounts opened under PMJDY had a balance of zero rupees. Further, a 2014 survey found that 43.3 percent of those with bank accounts had not deposited or withdrawn money from them in the previous year.
27. The Reserve Bank of India (RBI) initially adopted know-your-customer (KYC) norms for banks in 2002 for the purposes of identifying and flagging suspicious transactions. In 2004, with recommendations from the Financial Action Task Force (FATF) on Anti-Money Laundering (AML) standards and on Combating Financing of Terrorism (CFT), RBI strengthened its KYC requirements by providing a specific list of acceptable identity and address documents for account openings by individuals. In July 2013, the letter from the UIDAI containing Aadhaar details was included as an acceptable document for proof of identity and address. In September 2013, RBI incorporated the use of Aadhaar e-KYC as an acceptable KYC measure, predicated upon banks having the necessary equipment and infrastructure in place to conduct the consent-based authentication per the UIDAI guidelines.


28. According to the UIDAI, financial services entities have authorised the use of Aadhaar e-KYC as a legal KYC document, which includes: Reserve Bank of India, Insurance Regulatory and Development Authority, Pension Fund Regulatory and Development Authority, and Securities and Exchange Board of India.


31. Public sector banks are defined here as “Nationalised Banks,” “SBI and its Associates,” and “Other Public Sector Banks.”


35. The Business Correspondent model was initiated by the RBI in 2006 to extend banking services to areas where bank branches may not be present. Business correspondents (BCs) were initially limited to employees of NGOs, microfinance institutions, and post-offices; however, in late 2010, the RBI allowed banks to enter an agreement with any individual to become a BC. The RBI has stated that a “fundamental principle” of the model is that a BC should be a resident of the area she or he is serving. Per RBI guidelines, a BC is allowed to provide the following services: awareness promotion of banking products and financial literacy; processing of loan applications; provision of micro-credits; collection of interests and deposits; sale of financial products, including micro-insurance, mutual funds, pension products; accepting and disbursal of remittances and other payments; and the distribution of cash.


Bhaskar, P. Vijaya. Circular from the Reserve Bank of India (RBI). “Financial Inclusion by Extension of Banking Services
36. While we do not have comprehensive data on microATMs, we do have some coverage data from government sources. The DBT Mission coordinated a village-wise mapping exercise, along with NIC and other departments. They found, “...only 174,691 out of 640,947 lakh villages (27%) have been covered by either Bank Branch, Bank Mitra, ATM, Post Office or Common Service Centre (CSC)—meaning many villages (and therefore people) remain uncovered.


37. In so much as a BC is unlikely to possess two microATM devices.

38. This number may be less meaningful given India’s high population density (Kenya’s population is more sparsely distributed and therefore may need more BCs—and thus a smaller ratio—to achieve adequate coverage). A better metric may be the number of BCs within a given unit of geography or the spatial density. Unfortunately, the spatial density of BCs within India is still only 17 percent of the Kenyan ratio.


41. APBS payments are tied to one’s Aadhaar number and her or his bank identification number. The usual form of electronic transfer, National Electronic Funds Transfer, or NEFT, requires three data points: name, bank account number, and an 11-digit alphanumeric code (IFSC) of the bank branch. Some bank account numbers do not have a standardised number of digits. By contrast, Aadhaar always has 12 digits, and the last digit can be used to verify the remaining 11 (see Chapter 2).


45. Four types of transactions are possible with AEPS: balance check, cash deposit, cash withdrawal, and Aadhaar-to-Aadhaar Fund Transfer.


