Bank Accounts For The Unbanked: Evidence from a Big Bang Experiment

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Abstract

How the 2.5 billion unbanked individuals around the world can be brought into the formal financial system is a question of policy and academic interest. We provide new evidence on this question from India's PMJDY program, a"big bang" shock that supplies bank accounts to virtually all of its 260 million unbanked. We find significant takeup over time and convergence to the levels in non-PMJDY accounts of similar vintage although the newly banked are poor, unfamiliar with banking and undergo no literacy training. The results suggest that the unbanked have latent demand for banking. Alternatively, supply stimulates its own demand.

"If you build it, he will come." – Field Of Dreams, 1989 Film.

1 Introduction

We present evidence from "PMJDY," a financial inclusion program in India launched in August 2014. The program aimed to give bank accounts to all of India's unbanked and is of historically unprecedented scope. The 260 million unbanked individuals it targeted are significant in absolute number and as a fraction of the 2 billion unbanked worldwide. The program easily achieved its target within 2 years.

Our study examines whether the PMJDY accounts are actually used by the newly included. We address this question using a high quality proprietary dataset on the transactional activity in the newly opened accounts. We track usage for up to 7 quarters from opening. The sample ends two weeks before India's currency demonetization shock in November 2016. Thus, usage data do not reflect spillover effects from the demonetization exercise.

We examine activity levels and the types of transactions that drive this usage. We examine in particular whether activity is driven by bread-and-butter uses consistent with normal banking usage. Whether such usage should be seen is not a priori clear and largely depends on the economics driving exclusion. It is possible that banking may just not be salient for the unbanked, who are drawn from the lowest income strata around the poverty line. The lack of usage may also arise due to gaps in accountholder literacy or basic awareness about formal banking institutions or the basic technology of using bank accounts for transactional or savings purposes. The PMJDY program was not preceded by interventions to remove these sorts of gaps.

It is convenient to view uptake as comprising an extensive margin, i.e., opening a bank account, and the intensive margin, which is actually using the account. The extensive margin is essentially eliminated by the PMJDY program, as accounts are opened for all the unbanked. Thus, the empirically interesting question is about

account usage. It is possible that the unbanked have a known demand curve for financial services. If so, activity should spike relatively quickly. On the other hand, the demand curve may be latent. If so, demand must be discovered through a learning by doing or learning by usage. If so, activity should show up as a gradual diffusion process typical of technology adoption (Rogers (2003)). Even in this scenario, if the net benefits – perceived or real – are low, usage should build up and decline over time. What type of usage pattern we observe then becomes an empirical question. It informs three issues, viz., whether inclusion reflects demand or supply gaps, whether learning by doing occurs, and finally, whether usage tapers off or continues after the initial learning phase. Ours is a study in "Fin Tech" technology adoption for those at the bottom of the pyramid.

Our specifications analyze transactional activity in a random sample of PMJDY accounts and conduct a similar analysis for non-PMJDY accounts opened around the same period. We find that the transactional activity in the PMJDY accounts increases over time. Within 2 years, the activity levels in PMJDY accounts appear to converge to those in the non-PMJDY accounts owned by people of substantially greater means. Activity is related to but not exclusively driven by priming through government benefit transfers. Unobservables such as demographics of the newly included are also unlikely to be the sole explanation for the increasing usage because our models incorporate accountholder fixed effects. The evidence is consistent with the hypothesis that a significant number of the unbanked have latent demand for financial services from the formal sector that is realized through a learning-by-doing process.

Relevance to Policy Issues Our analysis is relevant to research and policy issues in financial inclusion. Demirgüç-Kunt, Klapper, Singer, and Van Oudheusden (2015) and World Bank data from its 2014 Global Financial Development Report notes that over 2 billion adults are financially excluded. The exclusion is pronounced in developing countries. For instance, bank account ownership is nearly universal at 94% in high-income economies but 66% of individuals in Sub-Saharan Africa, 54% in

South Asia, and 86% in the Middle East do not have bank accounts. The account ownership gap is pronounced among the poorest people.[1]

Inclusion lets individuals enter the formal financial system. By gaining familiarity with institutions and building financial histories, the newly included individuals can access a range of financial products for transactions, savings, credit, and insurance. Doing so can lower the costs of credit, avoid debt traps, encourage investment, and improve household risk management.[2] Thus, inclusion is an important policy priority for many countries and how to achieve it is question of substantive economic interest. We provide evidence on this issue from a simple, large scale experiment.

Relevance to Inclusion Research Considerable academic research asks whether the financially excluded can be brought into the formal financial system and if so, how. If exclusion reflects a chronic lack of demand, supply-side interventions will have little effect. On the other hand, if the unbanked have demand for financial services, latent or explicit, bank account supply should stimulate uptake and activity. Our study has two focal points of interest, the PMJDY program itself, and how we measure impact.

From an experimental viewpoint, we add to a body of work that employs carefully designed randomized controlled trials to assess why there is exclusion and what can be done about it. The PMJDY program provides complementary evidence on a trial but run on the entire population of the excluded. Relatedly, given the (surprisingly) widespread lack of financial literacy, studies ask whether literacy interventions can mitigate inclusion gaps. These have met with limited success. It is not clear what part of literacy is relevant, what is teachable, to whom, through which platform, at what teachable moments, and whether the effects last.[3] If gaps in literacy or trust

[1] See `http://goo.gl/obfXaR`.

[2] The inclusion literature is vast. Channels through which inclusion helps include overcoming time-inconsistent preferences (Ashraf, Karlan, and Yin (2006), Duflo, Kremer, and Robinson (2011)), access to formal credit (Bruhn and Love (2014), Burgess and Pande (2005)), avoiding expensive debt from the informal sector (Aleem (1990), Carrell and Zinman (2014), Melzer (2011)), or accumulation of capital for healthcare and investment (Dupas and Robinson (2013), Dupas and Robinson (2014), Morduch (1995)). Banerjee and Duflo (2007) discuss the economic lives of the poor.

[3] See Duflo and Saez (2004), Ashraf, Karlan, and Yin (2006), Cole, Sampson, and Zia (2011), Carpena, Cole, Shapiro, and Zia (2011), Cole, Giné, Tobacman, Topalova, Townsend, and Vickery

drive exclusion, the supply of accounts is unlikely to lead to sustained activity in the new accounts. On the other hand, if exclusion reflects demand gaps, the new accounts should witness significant ex-post activity. What transpires is an empirical question that we address in the context of the PMJDY scheme.

How we measure program impact is a second point of interest in inclusion research. Much evidence in the inclusion area comes from carefully designed field experiments (e.g., Cole, Sampson, and Zia (2011), Dupas and Robinson (2013)). These studies rely on surveys of account holders to infer usage. We complement this evidence by showing actual usage in bank accounts. Relatedly, policy makers and the banking industry track account dormancy, or the transition from no transaction to one account transaction. However, relatively less is known about the levels of activity once usage starts within accounts that are not dormant, and little evidence using actual transaction logs from accounts. We contribute towards filling in this gap.

Relevance to Technology Adoption Research Technological progress is important in explaining economic growth (Slow (1956), Romer (1990), Aghion and Howitt (1992)). Thus, the adoption of technology has attracted considerable research. Frictions that impede adoption are the focus of several theoretical articles (Griliches (1957), Chari and Hopenhayn (1991), Jovanovic and Nyarko (1996), Jovanovic and Lach (1997)). Empirical work focuses on technologies in different sectors but as Frame and White (2004) note, financial technologies or "Fin Tech" is a notable gap.[4] In their words, "everybody talks about financial innovation, but (almost) nobody empirically tests hypotheses about it.[5]

We also note that the new technology in our study is targeted at the ultra-poor.

(2013), Karlan, McConnell, Mullainathan, and Zinman (2016)). Lusardi (2008) and Lusardi and Mitchell (2009) present evidence on financial literacy.

[4]Conley and Udry (2010) and Bold, Kaizzi, Svensson, and Yanagizawa-Drott (Forthcoming) examine agriculture. For health care, see Dupas (2014), Skinner and Staiger (2015), Chandra, Finkelstein, Sacarny, and Syverson (2016)), and for manufacturing, see Atkin, Chaudhry, Chaudry, Khandelwal, and Verhoogen (Forthcoming)), Manuelli and Seshadri (2014). See Comin and Mestieri (2014) for a review.

[5]This is a version of a dry remark attributed to Mark Twain, "Everybody talks about the weather but nobody does anything about it."

These individuals operate in the cash economy and are unfamiliar with using bank accounts for liquidity management or the storage of savings or with the institutions who deliver these services. Moreover, the target population receives little training in the new technology. Thus, our study helps understand the economics of new technology adoption in services directed at the bottom of the pyramid, in unfamiliar products delivered by unfamiliar institutions, and that involve learning by doing.

Our analysis of actual transactional data is also of relevance to the technology adoption literature. Hall and Khan (2003) and Comin and Mestieri (2014) review the literature on technology adoption. As they point out, a key gap in this literature is the lack of micro-level datasets on actual usage of new technology. Understanding this intensive margin is economically important because the production of innovation is concentrated and episodic. Thus, technological progress that drives economic growth depends on the diffusion of technologies through adoption. This is our focus. We analyze the initial uptake of the new technology as well as its dynamic progression several quarters after adoption.

The Intervention: PMJDY – "Pradhan Mantri Jan Dhan Yojana," or Prime Minister's People Wealth Scheme – was announced on August 15, 2014. Under the scheme, all unbanked people were granted no-frills bank accounts. The scheme formally opened on August 28, 2014. The program initially sought to cover 80 million unbanked individuals within 5 months before India's republic day on January 26, 2015. This target was easily met. The scheme then continued to expand coverage. The PMJDY website now lists coverage at 100% with over 260 million new accounts opened by December 2016. This is a significant economic intervention in a setting where it matters, as India is a country with many unbanked people.

Research Questions, Methods, and Results We ask the following questions. First, does the supply shock results in significant take up? This question is of interest because many government programs witness low take up (Cole, Sampson, and Zia (2011)). Second, do the new accounts remain active and how does the activity level

change with age? Third, what kind of transactions do newly included savings bank account holders engage in? The bank accounts could be used directly to make payments, or account holders could withdraw cash and use it for transactional purposes. We shed light on usage. Fourth, how does the extent and nature of usage in PMJDY accounts compare with non-PMJDY savings bank accounts opened in the normal course? Do we see convergence between the two? Finally, we analyze savings accumulation in the PMJDY accounts to assess whether entry into the formal sector through one route, transactional usage, leads to migration to other services.

Our sample comes from 4 branches of a large public sector bank in India. We focus on accounts opened in the initial phase of the PMJDY program and track activity for roughly 7 quarters until October 24, 2016. Our end point comes well before India's demonetization experiment in November 8, 2016 that declared all high denomination currency illegal for tender. We thus avoid the confounding effects of this second shock. We have 50,427 transactions executed by 3,418 PMJDY account holders in this time period. The sample size is reasonable for drawing inferences and is comparable to prior samples in inclusion research.

We also obtain a sample of non-PMJDY accounts opened before and around the introduction of the PMJDY scheme in the same branches. This sample has 47,055 transactions executed by 2,611 account holders. In this sample, individuals are likely to open accounts due to an underlying banking need and are likely to have greater financial resources. Thus, our prior is that the non-PMJDY accounts set a high watermark for account activity. We examine whether the gap between PMJDY and non-PMJDY accounts shrinks over time.

Our data are drawn from bank records and thus subject to multiple checks and balances by internal and external auditors. The transaction statements we analyze are those seen by account holders if they request access. We do not access account holder identity information due to confidentiality. We observe the transaction date, the balance before and after a transaction, and a brief textual description of the

transaction. We note that the transaction coverage is 100% because banks must maintain details pertaining to all transactions. We thus sidestep the hurdles such as missing data, unresponsiveness, or selectivity in responses that are typical when using follow-up surveys to track usage.

As a first step, we trace the proportion of inactive accounts in the sample. The Government of India considers a zero account balance as an indicator of inactivity. Close to 30% of the accounts in our sample have zero balance at the end of the sample period. This is close to the national average of 26% for October 2016 reported in official government statistics at `http://pmjdy.gov.in`. Textual transaction descriptions indicate that accounts have two types of transactions. Active transactions such as withdrawals from ATMs, cash or check deposits, and cash withdrawal require active involvement of the account holder. Such transactions account for 41% of the PMJDY accounts compared to 46% for non-PMJDY accounts. Passive transactions that do not involve active participation of the account holders are typically interest, bank charges, or subsidy payments to the poor.

We next turn to active transactions. The dependent variable in our tests is the number of active transactions in a time period, which is typically one quarter. The key independent variable is account age specified in quarters. In the baseline specification, the sample comprises all transactions until a quarter n and the right hand side variable is a dummy variable for the quarter n. The estimated coefficient thus captures the increase in activity in n^{th} quarter relative to prior quarters. We repeat the regressions for $n = 1, 2, \cdots, 7$ to shed light on the account seasoning process. Across multiple specifications, we find that number of active transactions per PMJDY account increases with age. While government benefit transfers are not included in the dependent variable definition, we control for them because they could stimulate subsequent withdrawals. To account for unobservable attributes of accountholders that could drive usage, we include accountholder fixed effects.

We examine different types of active transactions and the modes in which these

transactions are conducted. Withdrawals using ATMs account for about 17% of total transactions and 42% of active transactions. These transactions increase significantly with age. Because ATMs are often not equipped to receive deposits and account holders prefer to use tellers to deposit cash, cash deposits tend to be both time and transportation cost intensive. These transactions tend to decrease with age and show a mild increase in amount per deposit. Cash withdrawals at branches do not have significant trends.

We next analyze account balances. PMJDY accounts are primarily intended for transactional purposes and not savings accumulation. Work on mental accounting (Thaler (1999)) suggests that accounts used for one purpose may not transition into other uses due to narrow framing. Additionally, individuals are more likely to use accounts for savings because of unfamiliarity with banks and the inability to trust banks to provide access to cash when needed. Finally, work on self-control suggests that commitment features such as penalties for early withdrawals drive savings (Ashraf, Karlan, and Yin (2006), Gneezy, Meier, and Rey-Biel (2011)). The opposite predictions are suggested by Dupas and Robinson (2013), who show that even commitment-free accounts can induce savings. Moreover, increasing transactional demands can create its own demand for precautionary savings (Keynes (1936)). Finally, changes in account balances may be one signal of improvement in economic condition. being economically better off. We find evidence of balance accumulation in PMJDY accounts. The mean balance per PMJDY account increases from INR 1,795 at the end of quarter 1 to INR 4,127 at the end of quarter 7.

We benchmark the activity in PMJDY accounts relative to non-PMJDY accounts. We find evidence of a narrowing gap in usage. For instance, in quarter 2, the 3,418 PMJDY accounts see 2,427 transactions, which translates into 0.61 transactions per account versus 1.73 transactions per account for non-PMJDY accounts. In quarter 7, there are 1.12 transactions per PMJDY account compared to 1.72 transactions for non-PMJDY accounts. The transactions gap narrows by 43% from 1.12 to 0.60

transactions per quarter. Of course, these results do not account for other differences such as variation in dormancy across the two types of accounts. Regression models that account for these differences show a further narrowing or even greater activity in PMJDY accounts.

Our evidence complements that in current research (see footnote 1), much of which is based on carefully designed randomized controlled trials (RCTs). The PMJDY is also a trial that gives accounts to the unbanked. However, there are three important differences. One, the PMJDY scheme is an experiment that targets the entire population. Such experiments may produce different results relative to RCTs that typically target a few hundred. Large scale experiments can generate far greater awareness and thus uptake, by making financial accounts more salient, or externalities that arise from simultaneous adoption by a large user base. Second, RCTs can vary product features such as withdrawal commitments while the PMJDY program is a uniform no-frills account, a cookie-cutter product. Finally, RCTs in inclusion rely on follow up surveys to assess ex-post usage. We measure outcomes using actual transactions. In balance, our view is that the evidence presented here is complementary to the RCT evidence on why there are inclusion gaps and how to mitigate them.

The rest of the paper is organized as follows. Section 2 reviews the background on Indian banking and financial inclusion. Section 3 reviews the PMJDY program. Section 4 discusses our sample. Section 5 discusses the specification. Section 6 reports the results. Section 7 concludes and suggests directions for future work.

2 Institutional Background

2.1 Indian Banking System

Since India's independence in 1947, its banking sector has seen three phases. Private sector banks are dominant from 1947 to 1969. The second phase of state owned

banking starts in 1969 when most of the banking sector was nationalized. The third phase begins in the mid-1990s when banking is reopened to new private banks. This is the current regime. Private banks coexist with state-owned banks that collectively have about 70% of the banking market (Cole (2009), Demetriades and Luintel (1996)). Many state-owned banks are partially privatized and have minority non-government shareholders who hold stakes of between 20% and 45%. Other banks with low market shares include co-operative banks (Iyer and Puri (2012)) and regional rural banks.

2.2 Financial Inclusion

The Indian state has long been concerned with issues related to inclusion. The perceived lack of inclusion is a central driver of India's banking policies including perhaps its most significant, the 1969 and 1980 nationalizations of virtually the entire banking sector.[6] Post-nationalization policies continue to focus on inclusion, largely through rules concerning branching and lending (Banerjee and Duflo (2014), Burgess and Pande (2005), Cole (2009)).

According to the Findex database maintained by the World Bank (Demirgüç-Kunt, Klapper, Singer, and Van Oudheusden (2015)), most Indian adults do not even have a savings bank account, while the number for China is significantly lower at 36%. The survey reports that 43% of accounts remain dormant. In OECD countries, the dormancy ratio is less than 5%. Demirgüç-Kunt, Klapper, Singer, and Van Oudheusden (2015) conduct a survey to assess why there are such low levels of financial inclusion in developing countries. Nearly 60% of the respondents said that they do not have enough money to open an account. Other reasons include religious beliefs, lack of trust, expenses involved in opening an account, financial institutions located far away, lack of necessary documents required to open an account, lack of

[6]See the book by Ghosh (2015) for an extensive account of the bank nationalization process and the inclusion motivations underlying it. A 2013 speech by RBI Executive Director Dr. Joshi at `http://www.bis.org/review/r131030f.pdf` compactly summarizes inclusion efforts in the decades since nationalization.

need and family member already having an account. Gunther (2016) presents more recent evidence for India based on surveys conducted in India between 2014 and 2016.

2.3 Inclusion Efforts

Successive governments in India and India's central bank, the Reserve Bank of India (RBI) periodically launch measures to increase inclusion (Garg and Agarwal (2014)). Early measures focused on rural branching (Burgess and Pande (2005)). More recent measures include product innovations such as designing no-frills simple savings technology, regulatory changes such as simplifying "know your customer" documentation, compulsory financial literacy programs, and government initiatives such as opening branches of state owned banks. The programs have motivated and in turn been informed by research experiments including ones within India (Cole, Sampson, and Zia (2011)). Financial exclusion nevertheless remains widespread so efforts to expand access to banking continue.

3 The PMJDY Program

The PMJDY program followed a national election in 2014 that led to a switch in political power. Universal financial inclusion was a priority of the BJP, the party that came into power in May 2014. The new Prime Minister of India, Mr. Modi, announced the Pradhan Mantri Jan Dhan Yojana (PMJDY) on August 15, 2014.

PMJDY's objective was to give a basic bank account to all Indian citizens. A secondary aim was to use the accounts for transferring government benefits and cut leakages in the delivery of these benefits. While complete coverage of the hundreds of millions of unbanked seemed ambitious, three factors suggested that it was probably not entirely unrealistic. One, Indian banks had extensive branching networks of over

100,000 branches developed over several decades.[7] Secondly, banks migrated to a digital infrastructure through core banking systems and infrastructure for conducting banking transactions such as payments.[8] Finally, state-owned banks have a significant 70% share of the banking sector. This vast footprint allowed the government to commandeer the relevant technical, managerial, and clerical resources of the state-owned banks towards achieving coverage targets.

PMJDY accounts were available to those who did not have a bank account as on August 15, 2014. The minimum required account balance was fixed at zero and there were no fees for maintaining the account. The progress of PMJDY was closely monitored directly by the Prime Minister's office. A dedicated website compiled and posted statistics and awareness was raised through a media campaign.

PMJDY account holders do not receive direct financial incentives to open bank accounts. Beneficiaries are eligible for a life insurance cover of INR 30,000 (about US$ 450).[9] The account also provides a debit card that came with a free accident insurance cover of INR 100,000 (US$ 1,500), provided the card is used at least once in the 90 days prior to filing claims. The process of opening PMJDY accounts is simple (Demirgüç-Kunt, Klapper, Ansar, and Jagati (2017)). Accounts could be opened through branch visits or through agents of banks known as *Bank Mitras*. Banks could not refuse bank accounts for those producing the required identity documents or those who submit attested documents that they do not have other bank accounts and a letter issued by government "Gazetted Officers."

[7] See `http://dbie.rbi.org.in/DBIE/dbie.rbi?site=statistics`

[8] See, e.g., a recent address by RBI Deputy Governor Mr. R. Gandhi, available at `https://rbi.org.in/scripts/BS\_ViewBulletin.aspx?Id=16614`.

[9] The life insurance cover was available to accounts opened in the first wave that ended in January 2015.

3.1 Aggregate PMJDY Data

We report in Table 1 the country wide aggregate data on the PMJDY scheme extracted from the program website `http://www.pmjdy.in`. Panel A reports data on the accounts opened in the initial phase from August 15, 2014 to January 31, 2015, during which 125.5 million accounts were opened. Of these, the share of public sector banks is 78.5%, while regional rural banks and private sector banks account for 17.4% and 4.2%, respectively. The high market share of public sector banks is not surprising given their larger networks especially in the geographic areas where the unbanked reside. When we classify accounts by the value of deposits outstanding rather than the number of accounts, public sector, regional rural, and private sector banks have shares of 77.9%, 15.2%, and 6.9%, respectively. The slightly greater market share in value for private banks is consistent with these banks having locations where wealthier customers reside.

The Indian Prime Minister's office tracks zero balance accounts. A relatively high 67.3% of the accounts have zero balance as of January 31, 2015. This number rapidly decreases, as we discuss below. In the initial phase, public sector banks and regional rural banks have greater proportions of zero balance accounts, 66.6% and 73.1%, respectively, compared to private sector banks, whose zero balance accounts are 57.2% of all accounts opened.

Panel B of Table 1 reports cumulative statistics for both the first and second wave of PMJDY account openings until December 14, 2016. The number of accounts doubles to 259.8 million and the aggregate account balance increases more than 700-fold from about INR 1 billion in January 2015 to INR 741 billion as of December 14, 2016. Thus, wave 2 not only expands the number of accounts but more than proportionately increases account balances. The Panel B data show that the fraction of zero balance accounts decreases from 67% to 23.2% between 2015 and 2016. The decrease in zero balance accounts is particularly pronounced for public sector and

regional rural banks, whose zero balance account shares drop from 66.6% and 73.1% to 23.4% and 20%, respectively. While the zero balance accounts in private sector banks also decrease, the change from 57.2% to 34.7% is less pronounced.

In 2016, the U.S. Bank Wells Fargo opened about 1.5 million accounts for customers without their consent, likely due to pressure to meet targets for account opening.[10] The PMJDY program exerted similar pressures on banks. The PMJDY was a signature initiative of India's prime minister and the government owned a large part of the banking sector. To what extent are PMJDY fictitious accounts such as those uncovered in the Wells Fargo scandal? The aggregate data provide two (admittedly rough) pointers that fake accounts do not dominate.

One indicator is the fraction of accounts that are seeded with Aadhaar, India's new unique identity card with robust biometrics backing it. Banks could open accounts with Aadhaar or less reliable forms of identification that are more vulnerable to manipulation. Table 1 shows that 55% of the accounts are Aadhaar-seeded. For state-owned banks subject to manipulation pressures, Aadhaar-seeded accounts have a higher market share, 56.8%, versus 43% for private banks and 49.2% for regional rural banks. The more difficult to manipulate biometrics backed accounts are more prevalent at state owned banks. A second indicator is the positive correlation between bank account opening and account use data. If banks boost account totals, entities with more accounts should see greater inactivity. The data in Tables 2 and 3 and Figure 1 suggest the opposite. Banks opening more accounts see more activity.[11]

[10] See, e.g., "Consumer Financial Protection Bureau Fines Wells Fargo $100 Million for Widespread Illegal Practice of Secretly Opening Unauthorized Accounts" at `http://goo.gl/kZHzBz`

[11] A cross-sectional regression, not reported here, gives similar results.

4 The Bank Account Dataset

4.1 Overview

Our data are from a large bank in India. The bank provides us data from a randomly sampled set of PMJDY accounts from four randomly selected branches in four different administrative districts. We also sought a random sample of non-PMJDY accounts opened within one year prior to August 2014 in the same district. Confidentiality restrictions prevent us from disclosing the identity of the bank and the location of the branches. The data provided to us consist of the transaction amount, a coded description of the transaction, and the balance after each transaction. A detailed description of the variables in an account statement is provided in Table 4. The data come from the audited statements used for bank reconciliation and reporting. Entries must tally with other controls such as cash balances on an hourly basis. Thus, our data are accurate and not subject to errors or missing observations.

Table 5 describes our sample. Panel A shows that the 6,029 account holders in our sample conduct 97,482 transactions between September 16, 2013 and November 2, 2016. The sample observations prior to August 2014 pertain to our control sample of non-PMJDY accounts. For the full sample, the mean (median) number of transactions equal 16.17 (10) in the first 7 quarters since opening. The average (median) transaction value is INR 6,620. In our sample, 1,347 accounts, or 22.34% of all accounts, remain inactive in the sample period.

Panel B summarizes data for PMJDY accounts. The PMJDY scheme was formally launched on August 28, 2014, which is the first date in the PMJDY sample. Our sample has 3,418 PMJDY accounts and 50,427 transactions. For non-PMJDY accounts reported in Panel C, the sample begins on September 16, 2013. There are 47,055 transactions executed by 2,611 unique savings account holders in this sample.

The mean transaction amount in PMJDY accounts equals INR 1,557, which is

lower than the average of INR 12,142 for non-PMJDY accounts reported in Panel C.[12] These data suggest that PMJDY account holders are poorer. This is a form of time-invariant unobserved heterogeneity that can be controlled through accountholder fixed effects. Because non-PMJDY accounts are likely driven by a transactional need, these accounts are more likely to have higher transactional activity initially. The data support such a view. The average PMJDY account holder in our sample executes 14.75 transactions in the first 7 quarters of account opening versus 18.02 transactions for the non-PMJDY accounts. 29.78% of the PMJDY accounts are inactive throughout the sample period compared to 12.6% for non-PMJDY accounts.

4.2 Transaction Description

A transaction is a field in one line in a bank account statement. Substrings in this field indicate the type of transaction involved. For instance, ATM cash withdrawals contain the sequence *ATM WDL*. Similar mnemonics characterize other transaction types, which we parse to identify the transaction type. Table 6 gives data on transaction types in our sample. ATM withdrawals account for 17.37% for PMJDY accounts and 21.42% of transactions for non-PMJDY accounts. Cash deposits or withdrawals are the next most frequent transactions, representing 17.76% (14.75%) for PMJDY (non-PMJDY) accounts. Conversations with the bank managers reveal that account holders are unfamiliar with and somewhat wary of banks and prefer to wait in line and deposit cash instead of using ATMs, even if ATMs are programmed to accept deposits, which they are often not.

Table 6 also shows that active transactions other than ATM withdrawals and cash transactions, deposits and withdrawals are infrequent. Transactions using checks are more likely in non-PMJDY accounts but are relatively rare for PMJDY accounts, perhaps reflecting the differences in financial sophistication in the two populations.

[12] At the exchange rate of USD 1 = INR 68, the mean balances for PMJDY and non-PMJDY accounts equal about $23 and $178, respectively.

There is very little usage of accounts for mobile payments or for POS (point of sale) charges both for PMJDY and non-PMJDY accounts. These statistics suggest that during our sample period, there are not economically meaningful shifts to a cashless economy. Instead, accounts are used to store and withdraw cash for onward use in economic transactions.

We define the dummy variable ACTIVE for transactions that require active account holder participation. Other transactions are passive. An important category of passive transactions includes direct benefit transfers from government program aimed at the poor. These are welfare and subsidy schemes such as that for LPG (liquefied petroleum gas used for cooking), old age pensions, student scholarships, and assistance for building a house. Funds released through these welfare schemes have often been subject to leakage.[13] One objective of opening PMJDY accounts was to reduce these leakages. Benefit transfers account for 21.60% (15.16%) of all transactions in PMJDY (non-PMJDY) schemes, reflecting that PMJDY account holders are poorer. The other passive transactions are interest payments and bank charges and "bulk credit" transactions. These include interest payments and charges such as mobile banking charges or ATM maintenance fees. Such transactions account for 34.70% (32.95%) for the PMJDY (non-PMJDY) transactions.

5 Account Seasoning Specification

A key question in this paper concerns the uptake of banking services in the PMJDY accounts. We estimate specifications in which the samples include all transactions up to and including quarter q, $\forall q \geq 2$. We regress a transactional activity measure y_{ikq} on a dummy variable $\delta_{k,q}$ that takes the value 1 if the transaction is in the quarter q and zero otherwise. The specification is thus

[13] A former prime minister of India, Rajiv Gandhi, once remarked that "...If [the] Central government releases one rupee for poor, only 10 paisa (i.e., 10%) reaches them." See, e.g., `http://zeenews.india.com/home/is-corruption-in-our-dna_725837.html`.

$$y_{ikq} = \alpha + \gamma_i + \beta_{k,q}\delta_{k,q} + \varepsilon_{ikq} \qquad \forall \ q \leq n, \tag{1}$$

where k is PMJDY or non-PMJDY. The coefficient $\beta_{k,q}$ denotes the intensity of usage of accounts in quarter q relative to prior quarters. γ_i is a fixed effect that controls for unobservable heterogeneity across accountholders i. We estimate models separately for PMJDY and non-PMJDY accounts and also models with interactions of account age with the PMJDY dummy variable. For the PMJDY sample, we test whether the coefficient $\beta_{PMJDY,q}$ increases over time. For the sample with both PMJDY and non-PMJDY accounts, we test whether the difference $\beta_{k=PMJDY,q} - \beta_{k=non-PMJDY,q}$ increases over time. Such a finding would indicate increasing PMJDY activity relative to non-PMJDY accounts. The standard errors are clustered at account holder level and adjusted for heteroskedasticity.

The dependent variable in our preferred specification is the number of transactions in an account. We choose this variable rather than transaction value as it is more agnostic to the levels of wealth and income of account holders. For completeness, we display estimates of models with other dependent variables such as final account balances or type of transactions (e.g., ATM transactions or debit transactions). We initially estimate linear regressions and we later show estimates of Poisson models to account for the fact that transactions are count data as well as zero-inflated models that allow for excess mass at zero. We include a dummy variable for whether there is a government direct benefit transfer in the current or previous quarter.

6 Results

If the unbanked have positive demand for financial services, the PMJDY accounts should display positive activity, and, potentially, savings that increase with account age. Alternatively, exclusion could reflect the lack of demand, due to the lack of

resources, illiteracy, health reasons, or blind beliefs about the unsuitability of banks. Additionally, following Tzioumis and Gee (2013), agency problems at banks could impede usage. Bank employees under pressure to meet account opening targets could perhaps focus on opening bank accounts and not account usage. If so, new accounts could display limited activity.

6.1 Univariate Analysis

In Panel A of Table 7, we report data on activity levels in PMJDY accounts. Transactions are from quarters 1 through 7 after account opening. The total number of active transactions increases from 2,102 in the first quarter to 3,728 in quarter 7. The number of transactions per account per quarter increases from 0.61 in quarter 1 to 1.12 in quarter 7. Thus, by the end of quarter 7, the PMJDY account holder transacts once per quarter on average.

Panel B of Table 7 presents data for non-PMJDY accounts. While we sample 2,611 such accounts, the exact opening date of the account is available for only 1,475 of these accounts, which constitute our non-PMJDY sample in the regressions. Interestingly and in contrast to the PMJDY accounts, the number of active transactions decreases with age. The total number of transactions between quarter 1 and quarter 7 decreases from 3,143 to 2,254 and the number of active transactions per account per quarter declines from 2.13 in quarter 1 to 1.72 in quarter 7 for non-PMJDY accounts. Figures 3 and 4 plot these results. The differential pattern for PMJDY and non-PMJDY accounts suggests that usage differences between the two account shrink with age. We characterize this more formally using regressions.

We analyze the extensive margin, or the transition from no use to first use in Table 5. 1,018 out of 3,418 PMJDY accounts, or 29.8% of the accounts do not transition into positive use versus 329 out of 2,611, or 12.6% for non-PMJDY accounts. Figure 2, which plots the non-parametric Kaplan-Meier survival estimates for the event of

the first active transaction, characterizes this difference more formally. The time-to-first-use shows small and persistent differences between PMJDY and non-PMJDY accounts. Thus, PMJDY accounts are *less* likely to start usage. Given that the PMJDY accounts are less likely to be used, the activity levels in Table 7 understate the true convergence in usage of the account holders who actually transact.

The differences in extensive versus intensive margin provide a useful characterization of the barriers to financial inclusion. The unbanked poor targeted in PMJDY show significant static friction in beginning to use their accounts. However, once initial usage starts, PMJDY accounts display increased activity. The data are consistent with a learning-by-doing mechanism for technology adoption by the poor.

The data also speak to why literacy interventions do not necessarily improve inclusion, a puzzle noted by Cole, Sampson, and Zia (2011). The process of using accounts for transactions requires expense of a fixed amount of effort, whose benefits are perhaps ex-ante unclear to the unbanked. A different point is about what these benefits are and how they can be learnt. If the primary usage of accounts is transactional, the relevant literacy dimension is liquidity management. Account holders must learn that banks provide a safe storage technology and ready access when funds are needed. In determining required balances, individuals must forecast fluctuations in transactional cash demand, transaction costs associated with usage, stock-out costs, and develop trust in cash in bank relative to cash in hand.

Financial literacy for liquidity management is different from literacy for savings accumulation, which requires, is tested, and is delivered through training on interest rates and compounding (Cole, Sampson, and Zia (2011)). Different metrics of literacy may be necessary for different uses (Lusardi and Mitchell (2009)). A related question is how the skills can be delivered to the poor. Our evidence that there is significant takeup suggests that even without training, experiential learning that comes from actual use of bank accounts aids uptake.

6.2 Regression Evidence

Table 8 presents estimates of Equation (1). In Panel A, the dependent variable is the number of transactions per account while Panels B and C use value transacted per account per quarter and value per transaction per account, respectively. To facilitate interpretation, observe that each row in the Table represents a coefficient from separate estimation of Equation (1). For example, the row labeled "Quarter = 3" compares average activity in quarter 3 to all preceding quarters.

Our preferred specification is in Panel A of Table 8. The results in column (1) results pertain to all PMJDY accounts. We find that the activity level of PMJDY accounts increases with age. For instance, in quarter 7, there are 0.226 more transactions than the average of prior quarters. We note that the model includes individual fixed effects. Thus, we control for time-invariant factors such as age, education, gender, personal financial circumstances or literacy, or geographic distances or transportation difficulties in accessing bank accounts that can explain usage as well as sources of unobserved heterogeneity. In columns (2) and (3), we analyze accounts receiving or not receiving government benefit transfers. Activity increases in both types of accounts.

We next compare the PMJDY and non-PMJDY estimates. Columns (4) to (6) in each panel of Table 8 report these results. Unlike the coefficients for PMJDY accounts, the non-PMJDY account coefficients are *negative*. That is, account usage in non-PMJDY accounts decreases over time, especially in accounts without direct government benefit transfers. Thus, the increasing trend in transactions in PMJDY accounts is not a generic feature of accounts opened in the normal course of business. We examine this hypothesis formally in difference-in-difference settings.

Panels B and C report activity measures by value. The PMJDY results in columns (1) to (3) display mixed significance but are directionally similar to those based on the number of transactions. For instance, in Panel B, the value transacted per account in quarter 7 exceeds the average for prior quarters by INR 1,910. For the same period,

Panel C shows that the value per transaction increases by INR 281.

6.3 PMJDY versus non-PMJDY Accounts

Table 9 presents the regression estimates of a difference in difference specification. We estimate Equation (1) for the combined sample of PMJDY and non-PMJDY accounts but with interaction terms in which the age in quarters is interacted with a PMJDY account dummy variable. To save space, we only report the coefficients of interest, viz., for the PMJDY-age interaction term. As in Table 8, we report results for all accounts and those receiving or not government assistance in columns 1, 4 and 7, columns 2, 5 and 8, and columns 3, 6 and 9, respectively.

The main results are in column (1). We find that the difference-in-difference coefficients are consistently positive and statistically significant. For instance, the coefficient for all transactions for the PMJDY accounts is 0.502 for quarter 2 and 0.977 for quarter 7. The evidence affirms the univariate statistics in which PMJDY activity increases over time. The results in columns (2) and (3) suggest that the government benefits transfer program does not drive the difference in difference results. In fact, column (3) suggests greater increase over time for accounts without benefit transfers.

The remaining results in columns (4) through (9) are for the value of all transactions and value per transaction. In contrast to the models with the number of transactions as the dependent variable, the value specifications do not show convergence between PMJDY and non-PMJDY accounts. Only 2 out of 36 coefficients are significant. This is unsurprising. The persistence in value differences likely reflect equally persistent income and wealth differences between PMJDY and non-PMJDY account holders.[14] In our view, the results reinforce why activity counts are probably better metrics of usage in the 2-year time horizon studied here.

[14]The difference is consistent with the univariate statistics in Table 5 where the average transaction size for PMJDY account holders is INR 1,649 versus INR 13,275 for non-PMJDY account holders, an 8X difference.

6.4 Deposits and Withdrawals

We next examine the types of transactions for which PMJDY accounts are used. We focus on 4 categories: withdrawals, deposits, ATM transactions, and cash deposits and withdrawals at branches. These represent the major categories of transactions in our sample. We start with deposits and withdrawals. If the PMJDY accounts are primarily safe savings vehicles, withdrawals are likely to happen only when there are unplanned expenditures or the event for which the funds were saved in the first place occurs. We would then expect to see an increase in deposit transactions with time but not withdrawals. On the other hand, if the account holders use the accounts as convenient transaction vehicles, withdrawals should increase with account age.[15]

Table 10 reports the estimates of Equation (1) for deposits and withdrawals for PMJDY and non-PMJDY accounts separately. The asymmetry between deposits and withdrawals is a dominant feature of PMJDY accounts. In Panel A, we find that the number of deposit transactions decrease with age but Panel B shows that the number of withdrawal transactions increase with age. Conversations with bank officials suggest that the results are best explained by the time costs of each type of transaction. For deposits, account holders tend to visit branches and wait in queues for service. ATMs are not used for deposits for three reasons. One, they require more sophistication. Two, not all ATMs accept deposits. Third, PMJDY account holders are relatively indigent and worry about machine malfunctions. Seeking redressal is time consuming. Moreover, a stock-out from temporary loss of cash is costly for the poor. Account holders thus accumulate cash balances and visit banks only after a threshold is crossed. Withdrawals are straightforward and executable at many ATMs, so they increase with time.

In Table 10, we find that non-PMJDY accounts also see decreases in the number

[15]Transactions costs can drive the results. However, 3 transactions per month are free for PMJDY account holders while the fourth transaction and beyond attracts a transaction fee of INR 10 per transaction, or 0.6% of the median transaction amount of INR 1,649 for PMJDY accounts in Table 5. The typical usage is far less than the threshold of 3 transactions per month.

of deposits but the coefficients tend to be more negative than for PMJDY accounts. For instance, in quarter 7, the PMJDY coefficient for deposits is -0.043 while the non-PMJDY coefficient is more than three times larger at -0.170. Transaction values are occasionally significant and have positive values for PMJDY accounts, while they tend to be negative and insignificant for non-PMJDY accounts. The Panel B results for withdrawals reveal similar differences. Withdrawal transactions increase for PMJDY accounts as they age but decrease for non-PMJDY accounts.

The formal difference in difference specifications are in Table 11. While both specifications show positive coefficients, the deposit coefficients are consistently positive while the withdrawal specifications are significant only towards the end of the sample period. In both cases, the specifications suggest greater activity in PMJDY accounts relative to non-PMJDY accounts.

6.5 ATM and In-Branch Transactions

We next estimate Equation (1) for ATM usage. The results are in Panel A of Table 12. We find that the usage of ATMs and value measures increase with account age for PMJDY account holders. For instance, PMJDY account holders have an average of 0.171 transactions more in quarter 7 relative to previous quarters. The *increase* in value per transaction ranges from INR 40 to INR 95 and INR 166 to INR 646 for value per quarter per account. The non-PMJDY accounts do not display these trends: none of the coefficients are significant. The data suggest that PMJDY but not non-PMJDY account holders increase ATM usage over time.

The increased usage of ATMs by PMJDY account holders is perhaps surprising. Demirgüç-Kunt, Klapper, Singer, and Van Oudheusden (2015) find that distance to the bank is one of the important reasons for lack of demand for formal financial services among the poor. ATMs help reduce this distance and hence, are likely to be used actively by the PMJDY account holders. On the other hand, using ATMs

requires some basic literacy and familiarity with handling machines. In addition, there is no live help available in ATMs, which may deter their use by PMJDY account holders. Yet, they use ATMs. The findings are consistent with the learning by doing by the poor in adopting basic technology applications relevant to banking.

Given the increased usage of ATMs with age, we expect the number of (non-ATM) cash deposit and withdrawal transactions to come down over time for PMJDY accounts. We report the results in Panel B of Table 12. The coefficients for the number of transactions are negative but not always statistically significant for PMJDY accounts and are insignificant economically and statistically in quarter 7. We find similar trends in non-PMJDY accounts although the results are now significant for 6 out of 7 quarters suggesting decreasing non-ATM transactions for non-PMJDY account holders. We also examine the value per quarter and value per transaction per quarter. Most coefficients are not significant. The greater usage of ATM transactions displaces non-ATM transactions only marginally for PMJDY account holders.

6.6 Account Balances

We examine the accumulation of balances in PMJDY accounts. Prior research (e.g., Rosenzweig and Wolpin (1993)) shows that the poor find it difficult to smooth consumption. Savings can help by allowing the poor to avoid consequences such as fire sales of productive assets. The literature establishes that the inability to save is not solely due to the lack of income. For instance, short term temptations and time inconsistent preferences lead to insufficient savings, which can be mitigated by savings technologies including those without withdrawal restrictions (Dupas and Robinson (2013, 2014)). Whether PMJDY accounts, which have no minimum balance requirements nor any restrictions on withdrawals, witness balance accumulation is thus an empirically interesting issue.[16]

[16]Withdrawals by check are free. There is charge of INR 10 per withdrawal after 3 free withdrawals. In the Demirgüç-Kunt, Klapper, Ansar, and Jagati (2017) survey, savings and sending or receiving money is the most common reason for opening PMJDY accounts.

As before, we estimate regression equation (1). The dependent variable in the specification for each quarter is the natural logarithm of the average of the account balance at the end of each month within a quarter. Table 13 reports the results. In column 1, the sample includes all PMJDY accounts and the results show that balances increase. For example, the coefficient reported in row 1, represents the difference in log account balance between quarter 2 and quarter 1 of an account's life. For instance, the account balance at the end of quarter 2 is about 29.2% more than the account balance as at the end of quarter 1. Figures 5 and 6 depict the trends in account balances.

As before, we separate accounts that receive government transfers and those that do not. Table 13 shows that the coefficient is always significant for PMJDY accounts receiving government benefits and the growth estimates range from 10.1% to 40.4%. For the PMJDY accounts not receiving government transfer benefits, the coefficients are significant in quarter 1 and end of time period quarters 6 and 7, in which the coefficients reflect a 15.2% and 27% growth relative to 36.9% and 33.4% growth for accounts with a government transfer. We conclude that using accounts leads to balance accumulation.

Table 13 also analyzes balances in non-PMJDY accounts. These accounts show mixed results and less frequent significance. For instance, 4 out of 7 quarters have significant coefficients for accounts with government transfers, while 1 out of 7 are significant for accounts without such transfers. For a more formal analysis, we estimate a difference-in-difference regression as in equation 1. The dependent variable is log of average of account balance at the end of each month within a quarter. The results are reported in Table 14. As in Table 9, we report only the interaction term coefficients. PMJDY accounts display greater growth in balance accumulation relative to non-PMJDY accounts.

6.7 Poisson Model Estimates

The key dependent variable of interest in our study is the number of transactions. We estimate Poisson regressions in which the number of transactions n_q follows a Poisson distribution $Pr(n_q = k) = \frac{\lambda^k \exp^{-\lambda}}{k!}$ where $\lambda \equiv \lambda(q)$ denotes the transaction event rate per quarter (Cameron and Trivedi (2013)). We also include a model with zero inflation to correct for over-dispersion. Table 15 reports results of the baseline Poisson models. The dependent variable is the number of transactions per account in a given quarter. The independent variable of interest in all models is the age of an account, which we specify as the quarter number since opening, or one plus the greatest integer less than the number of days since opening divided by 90.

Specification (1) in Table 15 is estimated on PMJDY accounts alone. We find that the coefficient for age is positive, indicating that PMJDY account usage increases with age. Specification (2) adds the control for government benefit transfers. This is a dummy variable that takes the value 1 if the account holder has received a benefits transfer in the current and the previous quarter. Such transfers can induce usage through withdrawals. We find that the government benefits transfer itself has the expected positive coefficient and reduces the coefficient for age, which, however, remains significant.

Specification (3) in Table 15 expands the sample to include both PMJDY and non-PMJDY accounts. Of focal interest is the coefficient for the interaction term, viz., age $\times$ the PMJDY dummy variable, which captures the incremental activity change for PMJDY relative to non-PMJDY accounts as accounts age. We find that the interaction term has a positive and significant coefficient. Thus, as accounts age, activity in the PMJDY accounts increase more than it does for non-PMJDY accounts. Specification (4) in Table 15 shows the quarter-by-quarter coefficients for PMJDY accounts alone. These coefficients are positive and significant.

We next characterize the quantitative magnitudes of the Poisson regression results.

Given the coefficient estimates in Table 15, the incremental effect for PMJDY accounts without a government benefit transfer for quarter q is $-0.0492 \times q + 0.118 \times q$. The government benefit transfer increases this value by 0.443. We find that the estimated transaction intensity coefficient λ for PMJDY accounts exceeds that for non-PMJDY accounts by 0.0688 in quarter 1, and the differential increases to 0.4816 in quarter 7. If there is a government benefit transfer, the estimates for quarter 1 and quarter 7 are 0.5118 and 0.9246, respectively. These estimates represent the increase in the quarterly transaction rates.

Table 16 reports the Poisson estimates for deposits and withdrawals separately. The structure of the table parallels that in Table 15. The PMJDY-only samples in columns (1) and (2) show that deposits decrease with account age. Quarters with direct benefit transfers see less deposit activity but do not significantly alter the coefficient for account age. The quarter by quarter results in column (4) shows a similar decrease in account deposits over time. In column (3), we find that the coefficient for the interaction between age and PMJDY is positive. Thus, while both PMJDY and non-PMJDY accounts show fewer deposits over time, the decrease in deposit activity is more pronounced for the non-PMJDY accounts. Columns (5)-(8) deal with withdrawals. We find that withdrawals increase with account age even after controlling for quarters in which there is direct government benefits transfer and increase more for PMJDY accounts relative to non-PMJDY accounts. In terms of economic magnitudes, the transaction intensity for PMJDY accounts over non-PMJDY accounts equals 0.14 in quarter 1 and 1.01 in quarter 7, which increases to 0.76 and 1.63 transactions in periods when there is a direct benefits transfer.

Table 17 reports estimates of a zero-inflated Poisson model. The model accounts for over-dispersion relative to a standard Poisson model. It also helps differentiate between the extensive margin, or the probability of transitioning from no use to positive use, and the intensive margin, or the extent to which the account is used conditional on use. We specify two variables plausibly related to the probability of

zero inflation. One is whether the account is a PMJDY account. As seen in Table 5, the probability of zero balance accounts for PMJDY accounts is more than double the probability for non-PMJDY accounts. The second variable is whether there is a government benefit transfer in a quarter. Such transfers are likely to trigger account activity away from a dormant state.

We find that the extensive margin inflation instruments are significant. The PMJDY dummy variable has a positive coefficient and the government benefit transfer coefficient is negative. In particular, the positive sign for the PMJDY dummy variable indicates that the PMJDY accounts are less likely to migrate out of dormant state. The intensive margin results are in column (3) of Table 17. Curiously, government benefit transfers have a negative effect: they are likely to increase migration away from dormancy but not in increasing usage.

The negative coefficient for the PMJDY dummy indicates that the baseline usage of PMJDY accounts is lower. The key coefficient is for the age-PMJDY interaction variable. It is positive, indicating that PMJDY accounts experience increasing usage over time. As before, the Poisson coefficient estimates can be used to infer economic magnitudes. In quarter 1, the PMJDY accounts have mean transaction rates of 0.11 above non-PMJDY accounts, which increases to 0.78 transactions in quarter 7. If we include government benefit transfers, the coefficients are -0.12 and 0.55 in quarters 1 and 7, respectively.

6.8 Additional Discussion

Our results shed light on the adoption of formal banking by the unbanked. Adoption is not instantaneous. The positive coefficients for quarter 7 suggests that usage is continuing to increase nearly two years from account opening. This is not surprising. Individuals opening PMJDY accounts are relatively poor, historically excluded from the financial system, and are unfamiliar with the operation of bank accounts

or account benefits. In addition, as the survey evidence in Demirgüç-Kunt, Klapper, Ansar, and Jagati (2017) shows, individuals continue to harbor misperceptions that the accounts cost money. Thus, in our view, realized adoption rates probably understate potential usage. Further time series evidence can shed light on this issue, but a key impediment is that another shock, India's currency demonetization, takes place on November 8, 2016. This is just after the end of our sample period. In this sense, we have about as much time series duration as possible without the confounding effects of the second shock.

A contemporaneous study of PMJDY accounts by Agarwal, Alok, Ghosh, Ghosh, Piskorski, and Seru (2017) further underlines the importance of measuring activity over longer time periods. Their sample of 1.5 million accounts is wider than ours but is shorter as it spans only about 3 quarters from account opening. Agarwal et al. find low activity in their narrower time period. For instance, 81% of customers do not make even one deposit, 87% do not make even one withdrawal, 66% receive no money, and 79% send no money in their sample. As they write, "... longer time series data is needed to evaluate the long-run validity of these facts." Our study addresses precisely this gap by providing evidence from a longer panel.

A longer time series also appears to be necessary to assess macroeconomic outcomes of bank lending.[17] If adoption of banking technology itself takes time, it appears reasonable to surmise that its economic effects on outcomes such as employment, education, health or investment growth will also be manifest over longer time periods. Moreover, the new resources brought into the system come largely towards the end of the sample period, as also confirmed by the countrywide PMJDY data. Finally, the administrative constraints in increasing the supply of credit are non-trivial. Banks are administratively overwhelmed by the sheer number of new accounts. To the extent human capital and administrative systems are necessary to increase lending, banks are unlikely to be able to make loans to new entities in a short period of time. Wider

[17]King and Levine (1993), Levine (1997), and Rajan and Zingales (1998) discuss the effect of finance on economic growth.

– rather than longer – samples may be useful in analyzing infrequent transactions such as mobile money transfers and point-of-sale transactions.

Surveys of PMJDY account holders offer interesting external validation for some of our findings. CAFRAL, the research and learning arm of India's central bank RBI, conducted a survey of 313 PMJDY account holders (Aggarwal and Chandra (2015)). The survey finds that the dominant reason for opening PMJDY accounts is to deposit savings, which is cited by 52% of account holders. The next highest reason (23%) is to avail of insurance attached to the accounts, followed by the desire to avail of direct benefit transfers and subsidies (16%). These routine uses are what we find in our sample. Another survey conducted by Microsave (`http://goo.gl/Aj8Trb`) focuses on 4,859 account holders. 88% of accounts are opened through bank "mitra" agents, whose dominant offerings are accounts for savings (94%) or insurance (70%). 79% of respondents report using the "Rupay" ATM card associated with PMJDY accounts. Using accounts for routine purposes is what we too find in our study.[18]

A final point we address concerns heterogeneity in transactional activity across different demographics. The main specification does not report these cuts because fixed effects filter out these unobservables. However, in unreported results, we examine demographics along two dimensions, viz., age and gender. These are dimensions along which there are inclusion gaps (Demirgüç-Kunt, Klapper, Singer, and Van Oudheusden (2015), Gunther (2016)). We find that transactional activity is lower for accounts owned by women but both men-owned and women-owned accounts increase transactional activity over time. The median accountholder age in our sample is close to 32 years. Both accountholders below median age and those above median age show increased account activity over time. The increase is more prominent for younger account holders suggesting that the young have greater take-up in the intensive margin sense. We also examine account balances, and find that they increase across all demographic cuts.

[18]We thank Smita Aggarwal and Pulak Ghosh for pointing us to these survey data.

7 Conclusion

Data on financial inclusion indicate that over 2.5 billion individuals around the world lack a bank account, which represents the most basic form of access to the formal financial system. A question of economic and policy interest is whether the exclusion reflects the lack of demand for banking or that there is underlying demand but insufficient supply of banking. We provide new evidence on this question from an unanticipated big bang shock in the supply of banking services to the unbanked. In 2014, India announced the PMJDY program that aimed to supply bank accounts to virtually all its 260 million unbanked.

We obtain a sample of the newly opened PMJDY accounts and track transactional activity in these accounts. We also obtain a sample of non-PMJDY accounts opened around the same time to assess the differences between PMJDY and non-PMJDY accounts. We report three main findings. First, we find that while about 30% of PMJDY accounts remain unused, 70% of the accounts migrate out of dormancy into active use. Second, activity levels in PMJDY accounts increase over time, a pattern not necessarily seen in non-PMJDY accounts. In many specifications, activity increases in PMJDY accounts relative to non-PMJDY accounts. These findings are especially stark given that non-PMJDY accountholders in our sample appear to be much poorer and have transaction sizes that are one order of magnitude smaller. Finally, we find that the active accounts experience significant increases in cash balances. Government direct benefits transfer aids but does not fully explain usage. Overall, the data indicate that the unbanked learn by doing, and increase usage of accounts for transactions, liquidity management, and increasingly, balance accumulation.

Our study adds to the work on interventions aimed at enhancing inclusion. Conventional financial literacy interventions (e.g., Cole, Sampson, and Zia (2011)) have had limited efficacy in stimulating use. The PMJDY experiment has no explicit incentives or prior literacy interventions to encourage uptake. Yet, we find uptake and

increasing activity. One interpretation, on the lines of Lusardi and Mitchell (2009), is that financial literacy is perhaps multi-faceted. Literacy relevant to savings accumulation is perhaps different from that for using bank accounts for transactions and liquidity management, which may be better understood through actual use.

We also find a difference between the extensive and the intensive margins. PMJDY accounts are less likely to move out of dormancy but once use begins, there is significant activity that increases over time. Our evidence is consistent with a learning by doing view of inclusion. Adopting a new product requires assessment of its benefits relative to adoption costs. Some of this knowledge can come only with experiential learning. Supply can create its own demand, perhaps by raising awareness of a latent demand, as the introductory quote cited in our study suggests.

Finally, our study focuses on a large economy-wide supply shock in the supply of banking. Micro-level evidence on these types of interventions is relatively rare. Our findings can help inform other countries that may consider similar interventions to improve inclusion.

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Table 1: Nationwide PMJDY Data : By Bank Type

Table 1 reports aggregate PMJDY data. Panel A reports data as of January 31, 2015 and Panel B reports data as of December 14, 2016. Columns (1)-(3) report the number of accounts, column (4) the number of Rupay cards, and column (5) the aggregate balance under the PMJDY scheme. Column (6) reports the proportion of accounts with zero balance. Columns (7)-(9) presents the proportions of te number of accounts, aggregate balance and zero balance accounts for each bank type. Column (10) reports the number of zero balance accounts. Column (11) reports the number of accounts that are Aadhaar seeded. Data are from the PMJDY website `http://www.pmjdy.gov.in`.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: As of January 31 2015											
Bank Type	**# Accounts Rural**	**Urban**	**Total**	**# Rupay Cards**	**Balance Million**	**% with Zero Balance**	**Market Share #**	**Market Share INR**	**Market Share Zero Balance**	**# with Zero Balance**	**# Aadhaar Seeded**
Public Sector Bank	53.3	45.1	98.4	91.2	817.5	66.6%	78.46%	77.86%	77.59%	65.5	NA
Rural Regional Bank	18.5	3.3	21.8	15.0	159.9	73.1%	17.36%	15.23%	18.86%	15.9	NA
Private Banks	3.2	2.0	5.2	4.6	72.6	57.2%	4.17%	6.91%	3.55%	3.0	NA
Total	75.0	50.5	125.5	110.8	1050.0	67.3%				84.5	NA
Panel B: As of December 14, 2016											
Bank Type	**# Accounts Rural**	**Urban**	**Total**	**# Rupay Cards**	**Balance Billion**	**% with Zero Balance**	**Market Share #**	**Market Share INR**	**Market Share Zero Balance**	**# with Zero Balance**	**# Aadhaar Seeded**
Public Sector Bank	115.2	91.8	207	162.9	579.9	23.4%	79.68%	78.23%	80.36%	48.5	117.6
Regional Rural Bank	38	6.1	44.1	32.9	134.1	20.0%	16.97%	18.09%	14.65%	8.8	21.7
Private Banks	5.2	3.5	8.6	8.1	27.2	34.7%	3.31%	3.67%	4.94%	3.0	3.7
Total	158.4	101.4	259.8	204.0	741.2	23.2%				60.3	143

Table 2: Nationwide PMJDY Data : Public Sector Banks

Table 2 reports PMJDY data for public sector banks as of January 31, 2015. Columns (1)-(3) report the number of accounts, column (4) the number of Rupay cards issued, column (5), the aggregate balance under the PMJDY scheme. Column (6) reports the proportion of accounts with zero balance. In column (7)-(9), we report the market share of number of accounts, aggregate balance and zero balance accounts. Column (10) reports the number of zero balance accounts. Data are from the PMJDY website `http://pmjdy.gov.in`.

Banks	**# Accounts**			**# Rupay Cards**	**Balance Billion**	**% with Zero Balance**	**Market Share #**	**Market Share INR**	**Market Share Zero Balance**	**# with Zero Balance**
	Rural	**Urban**	**Total**							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Allahabad Bank	1.7	0.7	2.4	2.4	0.65	75.8%	2.45%	0.80%	2.79%	1.83
Andhra Bank	1.1	0.7	1.7	1.7	0.66	69.9%	1.74%	0.81%	1.83%	1.20
Bank of Baroda	2.8	3.9	6.7	6.5	6.41	52.3%	6.76%	7.84%	5.31%	3.48
Bank Of India	2.4	3.4	5.8	5.6	2.76	67.0%	5.87%	3.37%	5.91%	3.87
Bank of Maharastra	1.2	0.6	1.8	1.7	1.84	64.6%	1.79%	2.25%	1.74%	1.14
Bhartiya Mahila Bank	0.0	0.1	0.1	0.1	0.05	38.8%	0.06%	0.06%	0.03%	0.02
Canara Bank	4.1	2.0	6.0	6.0	7.38	41.0%	6.13%	9.03%	3.77%	2.47
Central bank of India	4.0	1.2	5.2	4.7	2.02	72.0%	5.31%	2.47%	5.74%	3.76
Corporation Bank	0.9	0.9	1.9	1.7	2.79	37.4%	1.89%	3.42%	1.06%	0.70
Dena Bank	1.5	0.8	2.3	2.2	1.39	68.9%	2.36%	1.71%	2.44%	1.60
IDBI	0.4	0.4	0.9	0.8	0.25	78.4%	0.87%	0.31%	1.03%	0.67
Indian bank	1.5	0.9	2.4	2.3	1.18	63.5%	2.47%	1.44%	2.36%	1.54
Indian Overseas Bank	1.0	1.9	2.8	2.7	0.13	85.0%	2.89%	0.15%	3.69%	2.42
Oriental Bank of Commerce	1.2	0.9	2.1	2.0	8.85	38.2%	2.12%	10.83%	1.22%	0.80
Punjab & Sind Bank	0.8	0.4	1.2	1.1	4.17	53.4%	1.21%	5.11%	0.97%	0.64
Punjab National Bank	5.8	1.4	7.2	6.3	7.77	77.5%	7.29%	9.50%	8.48%	5.56
State Bank of Bikaner and Jaipur	1.0	1.2	2.2	1.9	4.69	55.2%	2.25%	5.74%	1.87%	1.22
State Bank of Hyderabad	0.8	1.5	2.4	2.2	1.02	73.5%	2.41%	1.25%	2.66%	1.75
State Bank of India	10.5	15.3	25.8	22.9	7.38	78.9%	26.24%	9.03%	31.10%	20.38
State Bank of Mysore	0.6	0.2	0.8	0.7	0.03	95.0%	0.78%	0.04%	1.11%	0.73
State Bank of Patiala	0.4	0.7	1.1	1.0	2.32	69.4%	1.10%	2.84%	1.15%	0.75
State Bank of Travancore	0.0	0.3	0.3	0.3	1.24	12.4%	0.33%	1.52%	0.06%	0.04
Syndicate Bank	2.1	1.1	3.2	3.1	2.70	66.1%	3.27%	3.30%	3.25%	2.13
Uco Bank	1.9	1.9	3.8	3.4	3.99	58.4%	3.87%	4.88%	3.40%	2.23
Union Bank Of India	3.1	1.0	4.0	3.8	2.23	68.3%	4.11%	2.73%	4.22%	2.77
United Bank Of India	1.8	1.4	3.2	3.0	7.43	35.0%	3.25%	9.09%	1.71%	1.12
Vijaya Bank	0.7	0.5	1.2	1.1	0.39	63.1%	1.17%	0.48%	1.11%	0.73
Sub-Total	53.3	45.1	98.4	91.2	81.75	66.6%				65.54

Table 3: Nationwide PMJDY Data : Private Sector Banks

Table 2 reports PMJDY data for private sector banks as of January 31, 2015. Columns (1)-(3) report the number of accounts, column (4) the number of Rupay cards issued, column (5), the aggregate balance under the PMJDY scheme. Column (6) reports the proportion of accounts with zero balance. In column (7)-(9), we report the market share of number of accounts, aggregate balance and zero balance accounts. Column (10) reports the number of zero balance accounts. Data are from the PMJDY website `http://pmjdy.gov.in`.

Banks	**# Accounts**			**# Rupay**	**Balance**	**% with Zero**	**Market**	**Market**	**Market Share**	**# with**
	Rural	**Urban**	**Total**	**Cards**	**Billion**	**Balance**	**Share #**	**Share INR**	**Zero Balance**	**Zero Balance**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
City Union Bank Ltd	0.01	0.06	0.07	0.00	0.05	53.6%	1.33%	0.64%	1.24%	0.04
Federal Bank	0.18	0.05	0.23	0.22	0.95	54.4%	4.30%	13.14%	4.09%	0.12
HDFC Bank	0.17	0.77	0.94	0.94	3.51	61.7%	17.98%	48.33%	19.39%	0.58
ICICI	1.78	0.29	2.07	2.03	1.38	44.1%	39.50%	19.05%	30.45%	0.91
Indusind Bank	0.01	0.12	0.14	0.14	0.04	51.2%	2.65%	0.61%	2.37%	0.07
Jammu and Kashmir Bank	0.81	0.10	0.91	0.50	0.97	72.5%	17.38%	13.44%	22.03%	0.66
Karur Vaisya Bank	0.01	0.09	0.09	0.09	0.03	69.6%	1.77%	0.39%	2.15%	0.06
Kotak Mahindra Bank	0.05	0.05	0.10	0.09	0.03	85.0%	1.91%	0.43%	2.84%	0.09
Lakshmi Vilas Bank	0.02	0.05	0.06	0.02	0.01	39.3%	1.16%	0.20%	0.80%	0.02
Ratnakar Bank	0.06	0.03	0.09	0.09	0.01	56.8%	1.72%	0.15%	1.70%	0.05
South Indian Bank	0.02	0.08	0.10	0.05	0.06	50.8%	1.81%	0.81%	1.61%	0.05
Yes Bank	0.01	0.00	0.01	0.00	0.00	85.3%	0.17%	0.04%	0.25%	0.01
Sub-Total	3.23	2.01	5.24	4.59	7.26	57.2%				3.00

Table 4: Variable Descriptions

The variables used in the study are described below.

Variable	Description
Panel A: Variables in an Account Statement	
Customer Code (CIF)	11 digit number; customer identifier at bank level. Used to generate fixed effects
Date	Date of transaction.
Description	One line description of the transaction.
Debit/Credit	D or C; D if the transaction is a debit and C if the transaction is credit.
Amount	in INR; amount of transaction.
Balance	in INR; account balance after the transaction.
Panel B: Variables in Analysis	
PMJDY	Account Description; Accounts opened under Pradhan Mantri Jan Dhan Yojana.
non-PMJDY	Account Description; Accounts opened under Normal Savings Products.
Balance	in INR; Balance of the Account after each transaction.
Transaction per account	in count; Number of transactions made in a given period.
Value per Account	in INR; Total amount of transaction done in a given period.
Value per Transaction	in INR; Total amount of transaction done in a given period divided by its number of transaction.
Government Assisted Quarter	Dummy variable; 1 if the current and the previous quarter has a government transfer, otherwise 0.

Table 5: Sample Construction

Description	Value
A. All Accounts	
Period of observation	Sept 16, 2013 to November 2, 2016
Number of accounts	6,029
Total number of observations	97,482
Number of branches	4
Average number of transaction per account	16.17
Median number of transaction per account	10
Average size of transactions (in INR)	6,620
Number of zero balance accounts	1,347
B. PMJDY Accounts	
Period of observation	August 28, 2014 to October 24, 2016
Number of accounts	3,418
Number of observations	50,427
Average number of transaction per account	14.75
Median number of transaction per account	10
Average size of transactions (in INR)	1,557
Number of zero balance accounts	1,018
Mean (median) end of period balance in INR	1,795 (500)
C. non-PMJDY Accounts	
Period of observation	Sept 16, 2013 to November 2, 2016
Number of accounts	2,611
Number of observations	47,055
Average number of transaction per account	18.02
Median number of transaction per account	10
Average size of transactions (in INR)	12,142
Number of zero balance accounts	329
Mean (median) end of period balance in INR	4,127 (899)

Table 6: Distribution of transactions

Types of transactions in PMJDY and non-PMJDY accounts over first 7 quarters from account opening date.

Variable		All Accounts	PMJDY Accounts	non-PMJDY Accounts
Number of Transactions		97,508	50,427	47,081
Classification	Under each Classification			
Customer Activity		45.78%	41.30%	50.58%
	ATM	19.33%	17.37%	21.42%
	Cash (Deposit & Withdrawal)	16.31%	17.76%	14.75%
	Transactions through Cheque	2.63%	0.40%	5.02%
	Deposit Transfers	3.47%	3.12%	3.85%
	Withdrawal Transfers	0.98%	0.45%	1.54%
	Point of Sale (POS)	0.81%	0.51%	1.14%
	PMJJBY	0.30%	0.39%	0.21%
	PMSBY	0.50%	0.68%	0.31%
	Salary, Pension, TDS etc.	1.49%	0.74%	2.29%
	TDS	0.12%	0.18%	0.06%
	Insurance (incl ECS)	0.12%	0.07%	0.18%
	NPCI (excl LPG Subsidy)	0.15%	0.16%	0.13%
Charges on Banking Services		5.58%	4.64%	6.59%
	PIN Change or Re-issue	0.07%	0.09%	0.05%
	Maintenance Fees	0.10%	0.00%	0.20%
	Charges (SMS, CDM etc.)	4.18%	3.38%	5.05%
	Inter City Charges for Cheque	1.23%	1.17%	1.29%
Bulk Credit Transactions		18.49%	21.60%	15.16%
	LPG Subsidy	6.04%	7.41%	4.58%
	Other State Government Transfers	12.45%	14.19%	10.58%
Interest Payments		28.27%	30.06%	26.36%
Zero Balance Accounts		1.38%	2.02%	0.70%
Miscellaneous (unexplained)		0.49%	0.38%	0.62%

Table 7: Number of Transactions by account age in quarters : PMJDY Accounts

Table 7 reports the number of transactions in each quarter since account opening. For each transaction type, rows (1) - (3) report the number of transactions, number of transactions per account and the ratio of the number of the type of transaction to the total number of transactions in the quarter. In the last row of the Table, we report total transactions per account for a given quarter.

Panel A: PMJDY Accounts								
	Age (in Quarters)							
Variable	1	2	3	4	5	6	7	Total
Number of Accounts	3,418	3,418	3,418	3,418	3,360	3,338	3,321	3,418
Classification								
Active Transactions	2,102	2,427	2,912	3,086	3,031	3,540	3,728	20,826
	0.61	0.71	0.85	0.90	0.90	1.06	1.12	6.09
	43.95%	38.46%	37.71%	35.25%	44.61%	45.13%	45.36%	41.30%
Charges on Banking Services	614	1,055	115	107	141	155	152	2,339
	0.18	0.31	0.03	0.03	0.04	0.05	0.05	0.68
	12.84%	16.72%	1.49%	1.22%	2.08%	1.98%	1.85%	4.64%
Bulk Credit Transactions	410	1,237	1,858	1,400	1,675	2,061	2,253	10,894
	0.12	0.36	0.54	0.41	0.50	0.62	0.68	3.19
	8.57%	19.60%	24.06%	15.99%	24.65%	26.27%	27.42%	21.60%
Interest Payments	619	1,558	2,815	4,133	1,920	2,063	2,051	15,159
	0.18	0.46	0.82	1.21	0.57	0.62	0.62	4.44
	12.94%	24.69%	36.45%	47.21%	28.26%	26.30%	24.96%	30.06%

TABLE 7 (*continued*)

Panel B: non-PMJDY Accounts								
	Age (in Quarters)							
Variable	1	2	3	4	5	6	7	Total
Number of Accounts	1,475	1,475	1,475	1,475	1,418	1,329	1,309	1,475
Classification								
Active Transactions	3,143	2,552	2,535	2,650	2,442	2,465	2,254	18,041
	2.13	1.73	1.72	1.80	1.72	1.85	1.72	12.23
	65.96%	49.92%	56.97%	46.44%	57.42%	56.28%	55.90%	55.17%
Charges on Banking Services	235	806	248	306	233	305	304	2,437
	0.16	0.55	0.17	0.21	0.16	0.23	0.23	1.65
	4.93%	15.77%	5.57%	5.36%	5.48%	6.96%	7.54%	7.45%
Bulk Credit Transactions	249	640	579	688	560	681	584	3,981
	0.17	0.43	0.39	0.47	0.39	0.51	0.45	2.70
	5.23%	12.52%	13.01%	12.06%	13.17%	15.55%	14.48%	12.18%
Interest Payments	748	1,084	1,062	2,041	999	902	859	7,695
	0.51	0.73	0.72	1.38	0.70	0.68	0.66	5.22
	15.70%	21.21%	23.87%	35.77%	23.49%	20.59%	21.30%	23.53%

Table 8: Regressions Explaining Active Transactions

Table 8 reports OLS estimates of several regressions. The dependent variable in each regression is the number of transactions in quarter q or value of transactions or value per transaction. The explanatory variable of interest is a dummy variable that takes the value of 1 for transactions executed in q and zero otherwise. Each cell in the table is thus estimated from a separate regression and reports the regression coefficient, t-statistic, and # observations. In columns (1)-(3), the sample comprises PMJDY accounts. In column (4)-(6), the sample comprises non-PMJDY accounts. We report separate estimates for all accounts, accounts receiving government or agency bulk transfers, and accounts not receiving such transfers. ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	PMJDY Accounts			non-PMJDY Accounts		
VARIABLES	All	Govt	No Govt	All	Govt	No Govt
	Panel A: Transactions per Account					
Quarter == 2	0.084**	0.045	0.106**	-0.420***	-0.443***	-0.408*
	(2.5732)	(0.8914)	(2.5226)	(-2.8826)	(-3.3337)	(-1.9428)
	6,952	2,778	4,174	2,950	1,116	1,834
Quarter == 3	0.159***	0.288***	0.089**	-0.310*	0.273	-0.611***
	(4.8704)	(5.3629)	(2.1893)	(-1.8672)	(1.6427)	(-2.5833)
	10,428	4,167	6,261	4,425	1,674	2,751
Quarter == 4	0.123***	0.113**	0.129***	-0.116	0.269**	-0.337*
	(3.4351)	(2.1592)	(2.6995)	(-0.9618)	(2.0639)	(-1.9334)
	13,904	5,556	8,348	5,900	2,232	3,668
Quarter == 5	0.066*	0.196***	-0.009	-0.267**	0.202	-0.508***
	(1.9331)	(3.0472)	(-0.2398)	(-2.3291)	(0.9998)	(-3.6649)
	17,322	6,887	10,435	7,318	2,737	4,581
Quarter == 6	0.187***	0.294***	0.125**	-0.185	0.401**	-0.511***
	(4.5453)	(4.3184)	(2.4091)	(-1.5661)	(1.9846)	(-3.5148)
	20,718	8,207	12,511	8,647	3,228	5,419
Quarter == 7	0.226***	0.310***	0.174***	-0.236**	-0.111	-0.307***
	(5.0929)	(4.3946)	(3.0506)	(-2.2167)	(-0.4579)	(-3.261)
	24,097	9,525	14,572	9,956	3,711	6,245

TABLE 8 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)
	PMJDY Accounts			non-PMJDY Accounts		
VARIABLES	All	Govt	No Govt	All	Govt	No Govt
			Panel B: Value per Account			
Quarter == 2	1019	-567	1950*	27720	-5793	45043
	(1.1765)	(-0.3653)	(1.8944)	(0.6348)	(-0.917)	(0.6806)
	6,952	2,778	4,174	2,950	1,116	1,834
Quarter == 3	891	609	1042	-25411	62630	-70663*
	(1.5252)	(1.0017)	(1.2463)	(-0.7465)	(0.9857)	(-1.7736)
	10,428	4,167	6,261	4,425	1,674	2,751
Quarter == 4	-595*	-378	-720	-445	25690	-15450
	(-1.6698)	(-0.637)	(-1.6135)	(-0.0377)	(1.269)	(-1.0624)
	13,904	5,556	8,348	5,900	2,232	3,668
Quarter == 5	1091**	2710**	140	-13255	9140	-24751*
	(2.1388)	(2.3101)	(0.3298)	(-1.1273)	(0.3921)	(-1.8801)
	17,322	6,887	10,435	7,318	2,737	4,581
Quarter == 6	655*	722	616	-3693	27474	-21001*
	(1.8182)	(1.1174)	(1.4387)	(-0.35)	(1.3995)	(-1.7159)
	20,718	8,207	12,511	8,647	3,228	5,419
Quarter == 7	1910***	1313	2279***	-14804*	-21214	-11153
	(3.1379)	(1.3703)	(2.8961)	(-1.6902)	(-1.0709)	(-1.4175)
	24,097	9,525	14,572	9,956	3,711	6,245
			Panel C: Value per Transaction			
Quarter == 2	302*	262	326*	8662	-698	13500
	(1.8238)	(0.7995)	(1.8145)	(0.7985)	(-0.5632)	(0.8209)
	6,952	2,778	4,174	2,950	1,116	1,834
Quarter == 3	252*	82	343*	-6180	3389	-11099
	(1.8305)	(0.4405)	(1.8399)	(-1.0736)	(0.7111)	(-1.3268)
	10,428	4,167	6,261	4,425	1,674	2,751
Quarter == 4	-128	63	-238**	1050	2315	324
	(-1.5534)	(0.4161)	(-2.4624)	(0.664)	(1.109)	(0.1482)
	13,904	5,556	8,348	5,900	2,232	3,668
Quarter == 5	240**	429**	129	-222	4719	-2758**
	(2.2484)	(2.1186)	(1.0692)	(-0.1658)	(1.4973)	(-2.2751)
	17,322	6,887	10,435	7,318	2,737	4,581
Quarter == 6	123	227	63	48	2080	-1080
	(1.5275)	(1.633)	(0.6326)	(0.0401)	(0.9017)	(-0.7888)
	20,718	8,207	12,511	8,647	3,228	5,419
Quarter == 7	281**	440**	183	-732	-105	-1088
	(2.512)	(2.0475)	(1.4859)	(-1.1623)	(-0.1155)	(-1.2934)
	24,097	9,525	14,572	9,956	3,711	6,245

Table 9: Regressions For Combined Sample of PMJDY and non-PMJDY Accounts

Table 9 reports OLS estimates of regressions in which the dependent variable is the level of activity in a quarter for a bank account. The independent variable of interest is a dummy variable for quarter j, $j = 2, \cdots, 7$ that takes the value of 1 for a transaction executed in quarter j and zero otherwise, interacted with a dummy variable PMJDY that takes the value of 1 if the account is opened under PMJDY scheme and zero for non-PMJDY accounts. The individual quarter and PMJDY variables are included but their coefficients are not reported. The sample comprises all accounts with active transactions. In columns (1)-(3), we report transactions per account, in columns (4)-(6), the value per account and in columns (7)-(9), the value per transaction per account. ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	Transactions per Account			Value per Account			Value per Transaction		
Quarter == 2 & PMJDY	0.502***	0.482***	0.516**	-25,658	2,866	-43,093	-6,846	3,533	-13,174
	(3.537)	(3.720)	(2.404)	(-0.622)	(0.339)	(-0.652)	(-0.666)	(1.169)	(-0.802)
Quarter == 3 & PMJDY	0.639***	0.115	0.959***	10,741	-53,835	50,159*	3,038	77.67	4,855**
	(4.815)	(0.616)	(5.319)	(0.413)	(-0.998)	(1.942)	(1.350)	(0.0158)	(2.369)
Quarter == 4 & PMJDY	0.579***	-0.0203	0.959***	-6,049	-43,101	17,085	-2,355	-670.6	-3,335
	(4.249)	(-0.110)	(5.104)	(-0.235)	(-1.160)	(0.492)	(-0.632)	(-0.163)	(-0.612)
Quarter == 5 & PMJDY	0.727***	0.0660	1.107***	8,104	-31,049*	30,928	-1,119	-3,309	-26.01
	(4.835)	(0.253)	(6.086)	(0.355)	(-1.917)	(0.881)	(-0.304)	(-1.494)	(-0.00451)
Quarter == 6 & PMJDY	0.817***	-0.0696	1.345***	650.8	-52,701	32,634	-1,427	-1,906	-1,194
	(4.761)	(-0.243)	(6.341)	(0.0250)	(-1.532)	(0.900)	(-0.358)	(-0.461)	(-0.202)
Quarter == 7 & PMJDY	0.977***	0.441	1.296***	13,919	-9,081	28,051	-468.2	116.7	-874.3
	(6.549)	(1.536)	(7.830)	(0.678)	(-0.996)	(0.865)	(-0.127)	(0.0454)	(-0.153)
Observations	34,053	13,236	20,817	34,053	13,236	20,817	34,053	13,236	20,817
R-squared	0.568	0.653	0.507	0.434	0.503	0.409	0.404	0.600	0.388
Controls				Govt Assisted Quarter					
Fixed Effects				Account					
Government assisted A/c (Yes/no)	All	Yes	No	All	Yes	No	All	Yes	No

Table 10: Active Deposits and Withdrawals

Table 10 reports OLS estimates of regressions in which the dependent variable is the level of activity in a quarter for a bank account. In Panel A, we examine active deposits, while in Panel B, we examine active withdrawals. The independent variable of interest is a dummy variable for quarter j, $j = 2, \cdots, 7$ that takes the value of 1 for a transaction executed in quarter j and zero otherwise. Each cell in the table is thus estimated from a separate regression and reports the regression coefficient, t-statistic, and # observations. In columns (1)-(3), the sample comprises PMJDY accounts. In column (4)-(6), the sample comprises non-PMJDY accounts. ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	PMJDY Acounts			non-PMJDY Accounts		
VARIABLES	Transactions per Account	Value per Account	Value per Transaction	Transactions per Account	Value per Account	Value per Transaction
	Panel A: Active Deposits					
Quarter == 2	-0.125***	390	303	-0.629***	3961	15003
	(-7.0635)	(0.8351)	(1.5092)	(-18.2242)	(0.1756)	(0.6851)
	6,952	6,952	6,952	2,950	2,950	2,950
Quarter == 3	-0.056***	256	203	-0.233***	-25148*	-17291
	(-3.8959)	(0.8395)	(1.1927)	(-8.8511)	(-1.8304)	(-1.3828)
	10,428	10,428	10,428	4,425	4,425	4,425
Quarter == 4	-0.070***	-448**	-199**	-0.189***	-4199	454
	(-5.765)	(-2.3533)	(-2.0593)	(-8.0787)	(-0.8242)	(0.1324)
	13,904	13,904	13,904	5,900	5,900	5,900
Quarter == 5	-0.026**	710**	354**	-0.176***	-7256	-5690
	(-2.126)	(2.5053)	(2.5385)	(-6.8268)	(-1.2847)	(-1.43)
	17,322	17,322	17,322	7,318	7,318	7,318
Quarter == 6	0.020	385*	157	-0.117***	-5983	-3352
	(1.4259)	(1.7631)	(1.3607)	(-4.0897)	(-1.3166)	(-0.9463)
	20,718	20,718	20,718	8,647	8,647	8,647
Quarter == 7	-0.043***	595*	377*	-0.170***	-5447*	-4962*
	(-3.3037)	(1.9225)	(1.807)	(-5.5931)	(-1.8644)	(-1.8326)
	24,097	24,097	24,097	9,956	9,956	9,956

TABLE 10 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)
	PMJDY Acounts			non-PMJDY Accounts		
VARIABLES	Transactions per Account	Value per Account	Value per Transaction	Transactions per Account	Value per Account	Value per Transaction
Panel B: Active Withdrawals						
Quarter == 2	0.209***	629	179	0.208	23759	7228
	(9.5534)	(1.5036)	(1.0282)	(1.5077)	(1.0868)	(1.0003)
	6,952	6,952	6,952	2,950	2,950	2,950
Quarter == 3	0.216***	634**	203	-0.077	-263	-2873
	(9.1834)	(2.0878)	(1.5793)	(-0.4935)	(-0.0105)	(-0.7161)
	10,428	10,428	10,428	4,425	4,425	4,425
Quarter == 4	0.194***	-147	-118	0.072	3754	1352
	(6.7617)	(-0.7975)	(-1.393)	(0.6549)	(0.4384)	(1.0417)
	13,904	13,904	13,904	5,900	5,900	5,900
Quarter == 5	0.092***	381	40	-0.090	-5998	1601
	(3.4695)	(1.5634)	(0.4562)	(-0.8852)	(-0.7748)	(1.2928)
	17,322	17,322	17,322	7,318	7,318	7,318
Quarter == 6	0.167***	270	39	-0.068	2290	-194
	(5.2093)	(1.513)	(0.5222)	(-0.6619)	(0.2916)	(-0.2089)
	20,718	20,718	20,718	8,647	8,647	8,647
Quarter == 7	0.269***	1315***	325***	-0.066	-9357	365
	(7.2945)	(3.889)	(2.8521)	(-0.7756)	(-1.257)	(0.663)
	24,097	24,097	24,097	9,956	9,956	9,956

Table 11: Active Deposits and Withdrawals: PMJDY and non-PMJDY Accounts

Table 11 reports OLS estimates of regressions in which the dependent variable is the level of activity in a quarter for a bank account. In Panel A, we examine active deposits, while in Panel B, we examine active withdrawals. The independent variable of interest is a dummy variable for quarter j, $j = 2, \cdots, 7$ that takes the value of 1 for a transaction executed in quarter j and zero otherwise, interacted with a dummy variable PMJDY that takes the value of 1 if the account is opened under PMJDY scheme and zero for non-PMJDY accounts. The individual quarter and PMJDY variables are included but their coefficients are not reported. The sample comprises all accounts with active transactions. In columns (1)-(3), we report transactions per account, in columns (4)-(6), the value per account and in columns (7)-(9), the value per transaction per account. ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Active Deposits			Active Withdrawals		
VARIABLES	Transactions per Account	Value per Account	Value per Transaction	Transactions per Account	Value per Account	Value per Transaction
Quarter == 2 & PMJDY	0.508***	-2,473	-13,295	-0.00626	-23,185	-6,019
	(13.63)	(-0.116)	(-0.644)	(-0.0472)	(-1.116)	(-0.871)
Quarter == 3 & PMJDY	0.433***	23,479**	10,334	0.206*	-12,738	37.40
	(11.16)	(2.234)	(1.449)	(1.775)	(-0.599)	(0.0191)
Quarter == 4 & PMJDY	0.433***	11,343	-1,286	0.146	-17,392	-3,510
	(10.84)	(0.882)	(-0.126)	(1.241)	(-1.044)	(-1.424)
Quarter == 5 & PMJDY	0.498***	16,864	5,255	0.229*	-8,760	-4,062*
	(12.00)	(1.257)	(0.512)	(1.752)	(-0.839)	(-1.700)
Quarter == 6 & PMJDY	0.516***	16,733	3,936	0.300**	-16,082	-2,636
	(11.09)	(1.242)	(0.377)	(2.025)	(-0.999)	(-0.964)
Quarter == 7 & PMJDY	0.528***	17,437	6,297	0.448***	-3,518	-2,833
	(11.04)	(1.422)	(0.611)	(3.734)	(-0.392)	(-1.170)
Observations	34,053	34,053	34,053	34,053	34,053	34,053
R-squared	0.570	0.401	0.414	0.531	0.461	0.405
Controls			Govt Assisted Quarter			
Fixed Effects			Account			
Government assisted A/c (Yes/no)			All			

Table 12: ATM and Branch Transactions

Table 12 reports OLS estimates of regressions in which the dependent variable is the level of activity in a quarter for a bank account. In Panel A, we examine ATM transactions, while in Panel B, we examine deposits and withdrawals at bank branches. The independent variable of interest is a dummy variable for quarter j, $j = 2, \cdots, 7$ that takes the value of 1 for a transaction executed in quarter j and zero otherwise. Each cell in the table is thus estimated from a separate regression and reports the regression coefficient, t-statistic, and # observations. In columns (1)-(3), the sample comprises PMJDY accounts. In column (4)-(6), the sample comprises non-PMJDY accounts. ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	PMJDY Acounts			non-PMJDY Accounts		
VARIABLES	Transactions per Account	Value per Account	Value per Transaction	Transactions per Account	Value per Account	Value per Transaction
			Panel A: ATM			
Quarter == 2	0.173***	362***	95***	0.081	43	15
	(8.5935)	(4.633)	(5.4166)	(1.4597)	(0.1847)	(0.4124)
	6,952	6,952	6,952	2,950	2,950	2,950
Quarter == 3	0.101***	317***	87***	-0.006	275	29
	(5.1237)	(4.3077)	(5.0471)	(-0.1125)	(1.096)	(0.8506)
	10,428	10,428	10,428	4,425	4,425	4,425
Quarter == 4	0.131***	166***	40***	0.055	498**	73**
	(4.9255)	(2.764)	(2.6919)	(0.9928)	(1.9623)	(2.2083)
	13,904	13,904	13,904	5,900	5,900	5,900
Quarter == 5	0.083***	252***	53***	0.034	614**	32
	(3.4253)	(3.1759)	(2.862)	(0.5865)	(2.0922)	(0.9509)
	17,322	17,322	17,322	7,318	7,318	7,318
Quarter == 6	0.140***	365***	76***	-0.043	89	-22
	(4.6013)	(4.0981)	(3.9915)	(-0.5952)	(0.2533)	(-0.5823)
	20,718	20,718	20,718	8,647	8,647	8,647
Quarter == 7	0.171***	646***	69***	-0.100	274	25
	(5.3148)	(4.7565)	(3.9385)	(-1.3166)	(0.7419)	(0.6493)
	24,097	24,097	24,097	9,956	9,956	9,956

TABLE 12 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)
	PMJDY Acounts			non-PMJDY Accounts		
VARIABLES	Transactions per Account	Value per Account	Value per Transaction	Transactions per Account	Value per Account	Value per Transaction
Panel B: Cash (Deposit & Withdrawal)						
Quarter == 2	-0.096***	596	527***	-0.368***	-1477*	-590
	(-5.1875)	(1.4889)	(3.0856)	(-11.7791)	(-1.6872)	(-1.2965)
	6,952	6,952	6,952	2,950	2,950	2,950
Quarter == 3	-0.027*	345	272*	-0.202***	-722	-325
	(-1.7429)	(1.2065)	(1.7605)	(-8.7276)	(-0.8154)	(-0.9934)
	10,428	10,428	10,428	4,425	4,425	4,425
Quarter == 4	-0.033**	-351*	-220**	-0.072***	-154	177
	(-2.3654)	(-1.9028)	(-2.443)	(-3.2187)	(-0.2382)	(0.5837)
	13,904	13,904	13,904	5,900	5,900	5,900
Quarter == 5	-0.042***	324	182*	-0.116***	2168	1160
	(-3.1515)	(1.5601)	(1.7142)	(-5.7464)	(0.8848)	(0.972)
	17,322	17,322	17,322	7,318	7,318	7,318
Quarter == 6	-0.021	250	164	-0.071***	552	843
	(-1.5862)	(1.209)	(1.5941)	(-3.1776)	(0.6531)	(1.444)
	20,718	20,718	20,718	8,647	8,647	8,647
Quarter == 7	-0.012	744**	485***	-0.036	867	32
	(-0.9041)	(2.4039)	(3.634)	(-1.2957)	(1.3396)	(0.1217)
	24,097	24,097	24,097	9,956	9,956	9,956

Table 13: Account Balances

Table 13 reports OLS estimates of several regressions. The dependent variable in each regression is the natural logarithm of 1 plus the account balance in INR of an account at the end of quarter q. The explanatory variable of interest is a dummy variable that takes the value of 1 for quarter q and zero otherwise. Each cell in the table is thus estimated from a separate regression and reports the regression coefficient, t-statistic, and # observations. In columns (1)-(3), the sample comprises PMJDY accounts. In column (4)-(6), the sample comprises non-PMJDY accounts. We report separate estimates for all accounts, accounts receiving government or agency bulk transfers, and accounts not receiving such transfers. ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	PMJDY Acounts			non-PMJDY Accounts		
VARIABLES	All	Govt	No Govt	All	Govt	No Govt
Quarter == 2	0.292***	0.404***	0.198**	0.163***	0.457***	-0.057
	(5.4745)	(5.6402)	(2.5619)	(3.4859)	(6.2535)	(-0.9626)
	2,268	1,214	1,054	2,162	1,022	1,140
Quarter == 3	0.134***	0.316***	-0.035	-0.040	0.041	-0.101*
	(3.1096)	(5.6554)	(-0.5423)	(-0.9672)	(0.6023)	(-1.8812)
	4,343	2,443	1,900	3,229	1,523	1,706
Quarter == 4	0.079**	0.101**	0.056	0.149***	0.281***	0.037
	(2.3013)	(2.3607)	(1.0214)	(3.5313)	(4.294)	(0.6879)
	6,426	3,590	2,836	4,277	2,020	2,257
Quarter == 5	0.091***	0.189***	-0.025	0.030	0.245***	-0.152***
	(2.8542)	(4.8637)	(-0.4812)	(0.7017)	(3.9129)	(-2.613)
	8,480	4,730	3,750	5,302	2,510	2,792
Quarter == 6	0.273***	0.369***	0.152***	0.052	0.173***	-0.062
	(8.9881)	(10.4678)	(2.9155)	(1.1815)	(2.8613)	(-0.9898)
	10,654	6,002	4,652	6,220	2,970	3,250
Quarter == 7	0.307***	0.334***	0.270***	-0.028	-0.006	-0.051
	(10.5038)	(9.7886)	(5.286)	(-0.6663)	(-0.1073)	(-0.7983)
	12,796	7,262	5,534	7,121	3,423	3,698

Table 14: Balances: PMJDY and non-PMJDY Accounts

Table 14 reports OLS estimates of regressions in which the dependent variable is the log of 1 plus the account balance in INR at the end of a quarter j. The independent variable of interest is a dummy variable for quarter j, $j = 2, \cdots, 7$ that takes the value of 1 for a transaction executed in quarter j and zero otherwise, interacted with a dummy variable PMJDY that takes the value of 1 if the account is opened under PMJDY scheme and zero for non-PMJDY accounts. The individual quarter and PMJDY variables are included but their coefficients are not reported. The sample comprises all accounts with active transactions. In columns (1)-(3), we report transactions per account, in columns (4)-(6), the value per account and in columns (7)-(9), the value per transaction per account. ***, **, and * represent statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)
VARIABLES	Log(1+Balance)	Log(1+Balance)	Log(1+Balance)
Quarter == 2 & PMJDY	0.1507**	-0.0499	0.3351***
	(2.2779)	(-0.5582)	(3.3875)
Quarter == 3 & PMJDY	0.3158***	0.2521**	0.3501***
	(4.3302)	(2.4983)	(3.2801)
Quarter == 4 & PMJDY	0.1486*	-0.0524	0.3427***
	(1.9330)	(-0.4965)	(3.0545)
Quarter == 5 & PMJDY	0.2423***	-0.0265	0.4705***
	(3.0062)	(-0.2430)	(3.9575)
Quarter == 6 & PMJDY	0.4223***	0.2489**	0.5521***
	(5.0269)	(2.2343)	(4.3707)
Quarter == 7 & PMJDY	0.5885***	0.4525***	0.6904***
	(6.9883)	(4.0584)	(5.4024)
Observations	21,475	10,830	10,645
R-squared	0.8383	0.7187	0.8703
Controls		Govt Assisted Quarter	
Fixed Effects		Account	
Government assisted A/c	All	Yes	No

Table 15: Poisson Model: All Active Transactions

Table 15 reports estimates of Poisson regressions in which the dependent variable is the number of transactions per account in quarter q. The explanatory variable of interest in columns (1)-(2) is q and the sample comprises PMJDY accounts. In column (3), the sample includes PMJDY and non-PMJDY accounts and the variable of interest is the PMJDY account dummy variable interacted with quarter q. In column (4), we report estimates for PMJDY accounts alone but display the estimates for each quarter. We include account fixed effects and a control for whether there is a government transfer in the current or the previous quarter. ***,**,* represent statistical significance at 1%, 5% and 10% respectively.

	(1)	(2)	(3)	(4)
VARIABLES	Transactions per Account			
Age (in Quarters)	0.0915***	0.0708***	-0.0492***	
	(26.03)	(18.67)	(-12.70)	
Age (in Quarters) x PMJDY			0.118***	
			(22.67)	
Govt Assisted Quarter		0.403***	0.443***	0.400***
		(14.88)	(22.65)	(14.55)
Quarter == 2				0.113***
				(3.788)
Quarter == 3				0.249***
				(8.576)
Quarter == 4				0.270***
				(9.229)
Quarter == 5				0.250***
				(8.467)
Quarter == 6				0.402***
				(13.93)
Quarter == 7				0.477***
				(16.71)
Observations	14,938	14,938	22,309	14,938
Number of account	2,148	2,148	3,232	2,148
Accounts	PMJDY	PMJDY	All	PMJDY

Table 16: Poisson Model: By Transaction Type

Table 16 reports estimates of Poisson regressions. In columns (1)-(4), the dependent variable is the number of deposit transactions per account in quarter q. In columns (5)-(8), the dependent variable is the number of active withdrawals. The explanatory variable of interest in columns (1)-(2) and (5)-(6) is q and the sample comprises PMJDY accounts. In columns (3) and (7), the sample includes PMJDY and non-PMJDY accounts and the variable of interest is the PMJDY account dummy variable interacted with quarter q. In columns (4) and (8), we report estimates for PMJDY accounts alone but display the estimates for each quarter. We include account fixed effects and a control for whether there is a government transfer in the current or the previous quarter. ***,**,* represent statistical significance at 1%, 5% and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Transactions per Account							
	Active Deposits				Active Withdrawals			
Age (in Quarters)	-0.0641***	-0.0535***	-0.129***		0.178***	0.146***	-0.00853*	
	(-10.80)	(-8.565)	(-18.92)		(39.71)	(30.07)	(-1.793)	
Age (in Quarters) x PMJDY			0.0709***				0.153***	
			(7.924)				(23.46)	
Govt Assisted Quarter		-0.271***	-0.158***	-0.232***		0.597***	0.620***	0.529***
		(-5.168)	(-4.109)	(-4.431)		(17.90)	(26.30)	(15.51)
Quarter == 2				-0.355***				0.787***
				(-8.761)				(16.11)
Quarter == 3				-0.376***				1.034***
				(-9.084)				(21.87)
Quarter == 4				-0.522***				1.134***
				(-11.87)				(24.05)
Quarter == 5				-0.430***				1.068***
				(-9.984)				(22.46)
Quarter == 6				-0.279***				1.230***
				(-6.640)				(26.21)
Quarter == 7				-0.484***				1.399***
				(-10.95)				(30.23)
Observations	13,778	13,778	21,060	13,778	11,341	11,341	16,696	11,341
Number of account	1,982	1,982	3,052	1,982	1,627	1,627	2,406	1,627
Accounts	PMJDY	PMJDY	All	PMJDY	PMJDY	PMJDY	All	PMJDY

Table 17: Zero Inflated Poisson Model

The table reports estimates of a zero-inflated Poisson regression. The dependent variable is the number of transactions per account in a quarter q. In all columns, the instruments for zero inflation are whether an account is opened under PMJDY or not and a dummy variable for whether there is a government transfer in quarter q. In columns (1) and (2), the explanatory variable of interest for explaining the intensive margin, or the level of transactions conditional on non-zero use, is q. In column (3), we include q, a PMJDY dummy, and the interaction of q with PMJDY, which is the key variable of interest. ***,**,* represent statistical significance at 1%, 5% and 10% respectively.

	(1)	(2)	(3)
VARIABLES	Transactions per Account		
Age (in Quarters)	0.0705***	0.0860***	0.0860***
	(27.26)	(31.94)	(23.59)
PMJDY			-0.605***
			(-25.22)
Age (in Quarters) x PMJDY			0.0254***
			(4.917)
Govt Assisted Quarter		-0.252***	-0.234***
		(-18.91)	(-17.51)
Zero Inflation			
PMJDY	0.483***	0.558***	0.478***
	(18.94)	(20.96)	(17.96)
Govt Assisted Quarter		-1.714***	-1.731***
		(-45.64)	(-44.95)
Observations	34,053	34,053	34,053
Accounts		All	

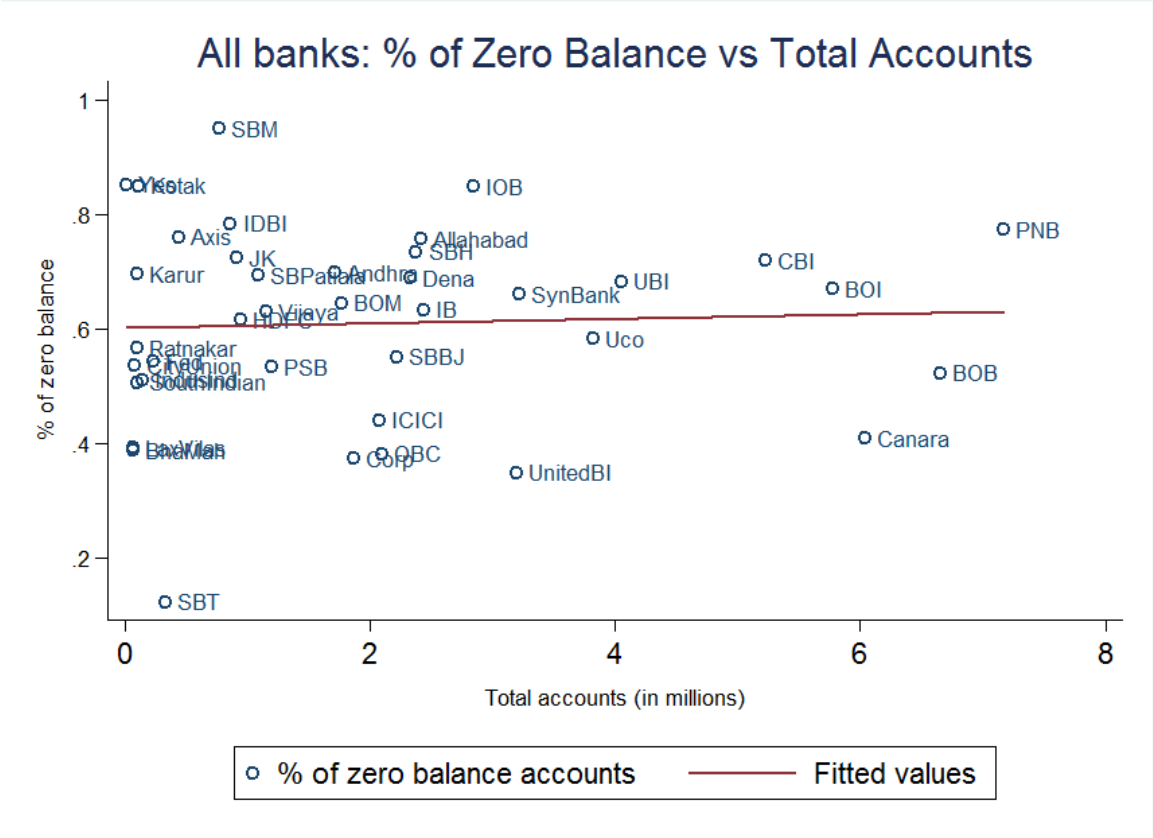

Figure 1: Percentage of zero balance versus total number of accounts opened

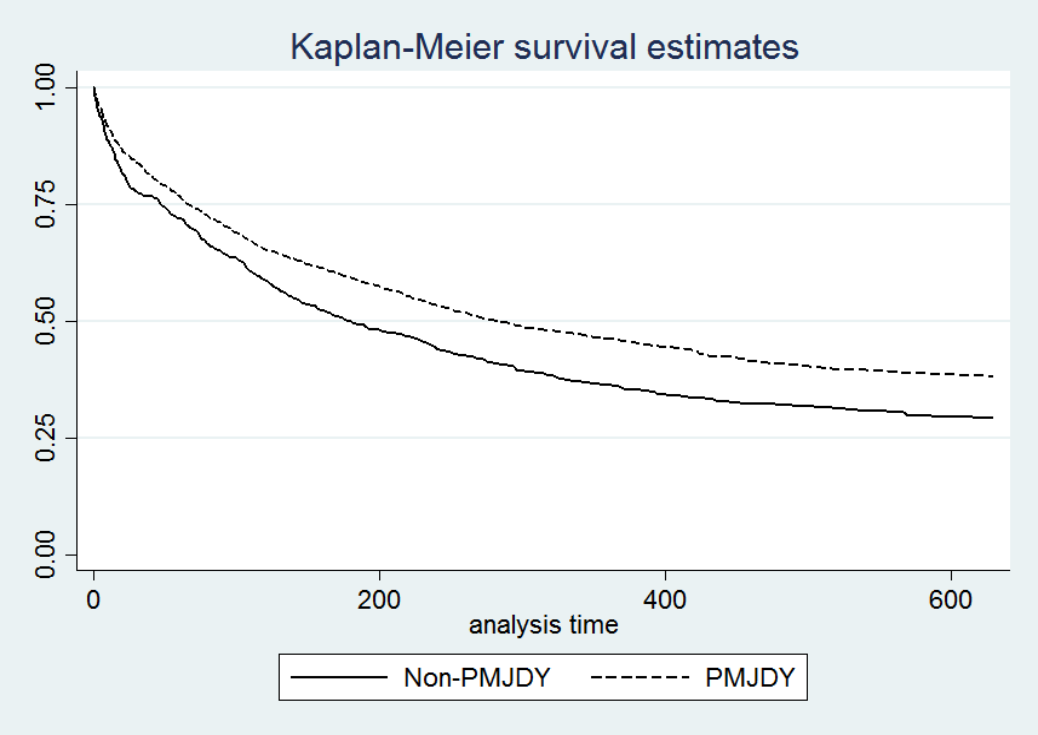

Figure 2: Kaplan Meier Survival Estimates for the hazard of account becoming active

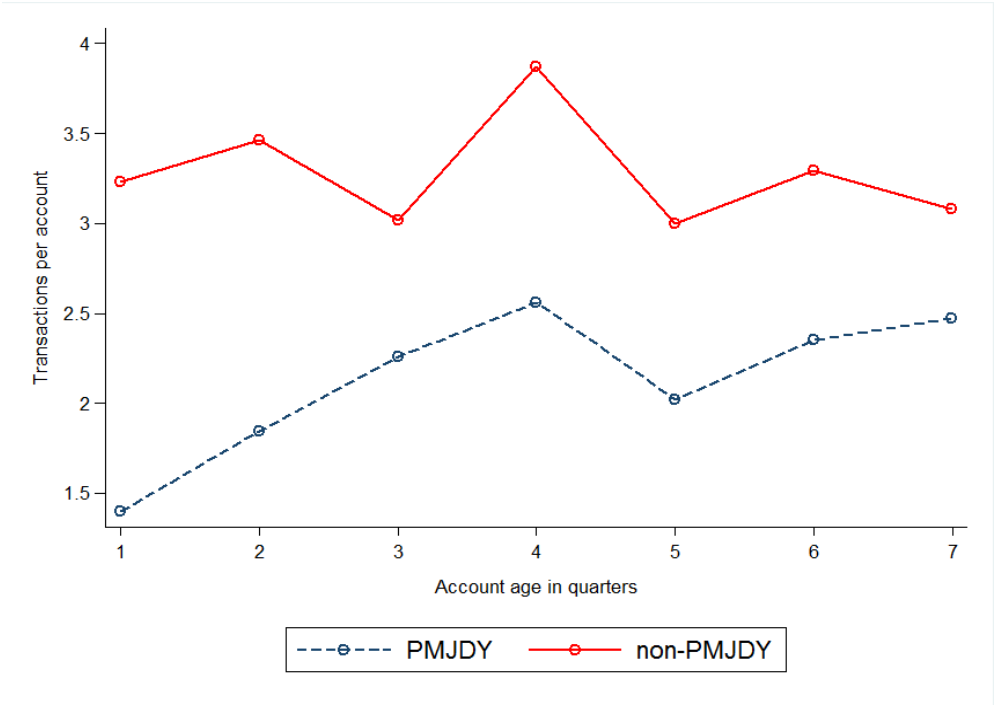

Figure 3: Ratio of total number of transactions to total number of accounts

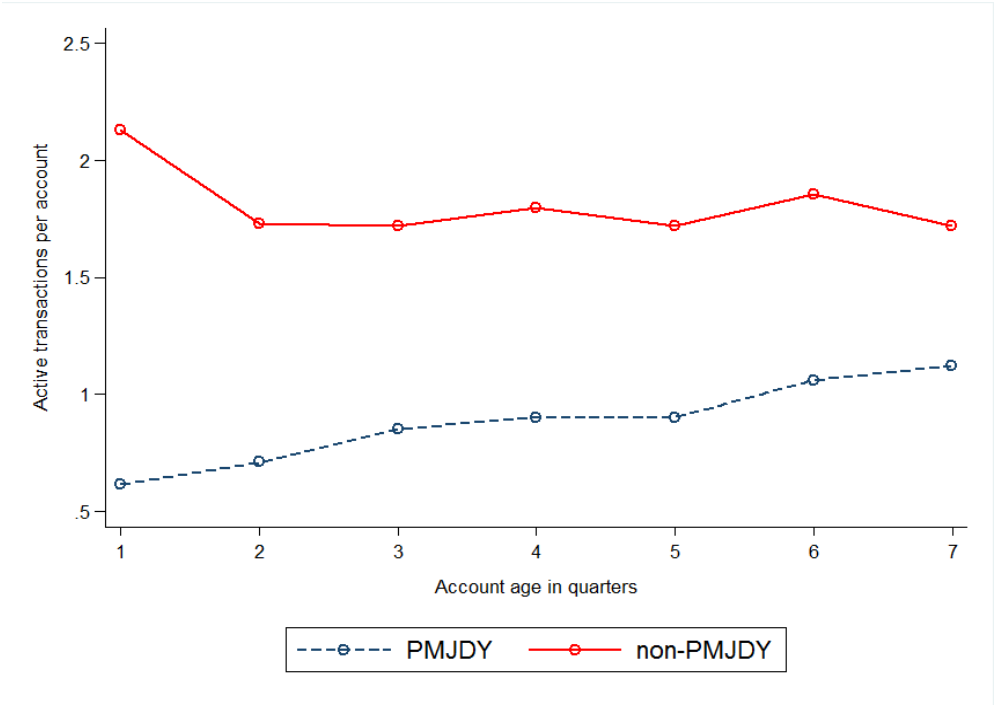

Figure 4: Ratio of total number of active transactions to total number of accounts

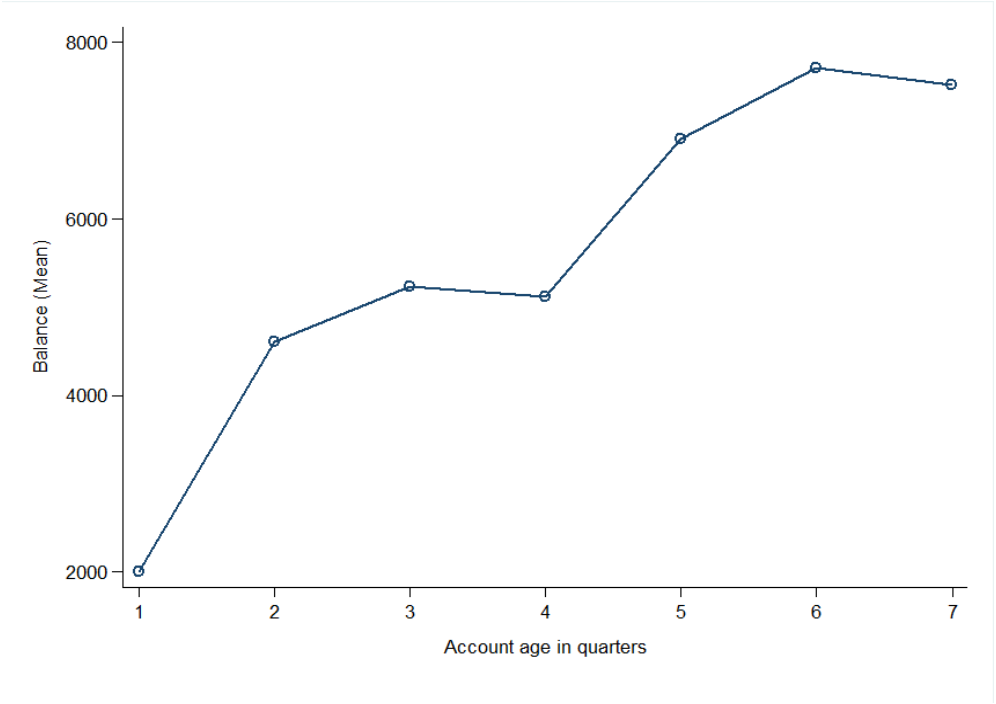

Figure 5: BALANCE: PMJDY

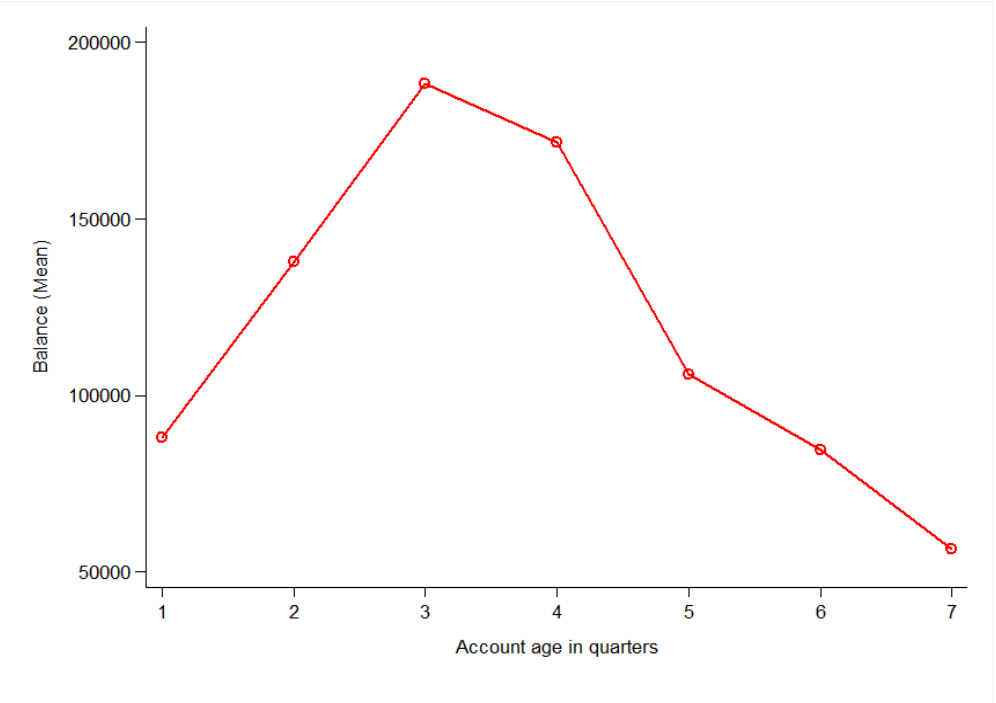

Figure 6: BALANCE: NON-PMJDY