How does payment through bank help the poor?
An investigation with instrumental variables

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Abstract

Having a bank account is widely regarded as the first step towards financial inclusion of the poor. A common argument underscoring the importance of a bank account for the unbanked is that funds deposited in a bank account lead to higher savings. Recent evidence from field studies conducted in various parts of the globe (Kenya, Malawi, Philippines) points to positive outcomes of improved access to formal bank accounts. However, the existing literature on the savings potential of new bank accounts for the poor usually stops short of investigating whether the savings are productively used. In this paper we attempt to fill in this gap. We also use a different empirical approach from most existing studies which have used field experiments with a limited sample size and an one-time payment to subjects included in the experiments. In order to ensure generalizability of our findings, we use a large nationally representative sample and repeated wage payments to those included in our sample. Our empirical tests exploit special features of the National Rural Employment Guarantee Act (NREGA) of India. The test results indicate that the treated beneficiary households (recipients of NREGA wage payments through bank accounts) spend significantly less than the beneficiary households in the control group (cash payment recipients) on education, arguably the most important human capital development investment for the poor. The results are consistent between standard OLS and instrumental variable regressions designed to correct for omitted variable bias in OLS tests. Financial illiteracy as well as transactions costs of frequent withdrawals from bank accounts which asymmetrically affect discretionary expenses, such as educational expenses for the poor, explain our results. Our tests for other discretionary and non-discretionary expenses provide corroborating evidence.

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How much does a bank account help the poor?

An investigation with instrumental variables

"This Mission (Pradhan Mantri Jan-Dhan Yojana or PMJDY) would enable all households, urban and rural, to gain easy and universal access to financial services. Exclusion from the banking system excludes people from all benefits that come from a modern financial system. In this Mission, households will not only have bank accounts with indigenous RuPay Debit cards but will also gain access to credit for economic activity and to insurance and pension services for their social security."- Narendra Modi, Prime Minister of India, 22nd August 2014[i].

1. Introduction

Having a bank account is widely regarded as the first step toward financial inclusion of the poor. Two powerful sets of arguments are usually offered to underscore the importance of a bank account for the unbanked. Money deposited in a bank account leads to higher savings (Chin, Karkoviata and Wilcox, 2011; Mullainathan and Shafir, 2009) simply because cash in hand is more readily available for spending. This argument rests on transactions costs in withdrawal of funds from a bank account. For those new to banking, financial illiteracy and other related factors may perhaps make the transactions costs significant.

A second set of arguments in favor of creating new bank accounts for the unbanked point to various possible benefits arising from inclusion into the formal financial system. Access to credit from formal financial institutions helps the poor weather unexpected income shocks, and protects them from falling back into the poverty trap (Banerjee and Newman, 1993) while avoiding exorbitant interest payments to the informal money lenders. Other benefits include access to social security services, such as insurance and pension schemes, which can be more efficiently provided to those who hold formal bank accounts than to those who do not. The extract reproduced above from a speech by the Indian Prime Minister publicizing a recent massive drive to open new bank accounts for the poor is an eloquent exposition of such benefits. Named *Pradhan Mantri Jan-Dhan Yojana (PMJDY),* the drive has a target of 75 million new accounts, 60 million of them in rural areas and the rest in urban areas. The latest and biggest among several government initiatives in the last decade to promote financial inclusion, *PMJDY* is intended to

help the account holders not only to deposit their savings and make remittances but also to receive special government-funded services, including overdraft protection and accident and life insurance coverage, through their accounts.

Recent evidence from field studies conducted in various parts of the globe (Kenya, Malawi, the Philippines) points to positive outcomes of improved access to formal bank accounts (Ashraf et al 2006, 2010; Bruno et al 2011; Dupas and Robinson 2013a,b). However, In spite of the proposed as well as documented advantages of formal bank accounts, a majority of the world's poor do not have them (Demirguc-Kunt and Klapper, 2012). Bank account penetration rate is 35 percent in India and only 21 percent in the poorest quintile. More seriously, a strikingly large proportion of the new accounts tend to be unused. In several field experiments in Kenya, Dupas et al (2012) and Dupas and Robinson (2013a) found vast gaps between take-up and usage rates of new accounts even when usage is very leniently defined, such as only two transactions per year. India's experience with "no-frills" accounts especially created for the unbanked poor with almost no financial eligibility criteria is similar. Since 2005-06 various State Level Bankers' Committees (SLBCs) in India at the behest of the Reserve Bank of India, and more recently the Government of India, have launched initiatives to open no-frills accounts. The accounts have remained dormant (Ramji, 2008).

The explanations usually offered for observed low usage include meager savings of the poor offering little incentive to deposit them in a bank account, financial illiteracy including unfamiliarity with modern banking, and transactions costs including non-pecuniary costs such as physical distance to bank branches in rural areas in developing countries. However, a deeper reason for low usage may be behavioral. In a predominantly cash economy where most transactions are cash-based, as in most developing economies, payment in cash rather than through bank accounts remains the norm. According to a recent government report, 80 percent of India's financial transactions are processed in physical cash. (Govt. of India, 2009a). For the agents who are paid in cash, the *default* option, namely an option that is taken when the agents do not make an active choice, is to spend the money rather than take the trouble of depositing it in a bank account. The result is low usage of bank accounts and low savings. In behavioral economics, preference for the default option among the agents leading to a status quo bias is widely noted (Kahneman and Tversky, 1979, 1984; Samuelson and Zeckhauser, 1988). Other

well-documented behavioral traits such as inertia and procrastination may also lead to a status quo bias (Madrian and Shea, 2001).

It has been suggested that the behavioral forces noted above can be skillfully harnessed to promote higher usage of bank accounts and generate more savings by the poor. If payments made into their bank accounts become the default option for the poor, the result will be more savings "by default" than cash payments of similar size (Somville and Vandewalle, 2014). In a recent field experiment conducted in rural areas of Chhattisgarh in India, the authors report supporting evidence for their hypothesis. After 3 months of weekly payments, the treated villagers who got paid in their bank accounts reported an average bank balance which was twice the size of the bank balance of the villagers in the control group who got paid in cash.

However, it must be noted that savings are not an end in themselves. For the economic well-being of the poor, the savings must be channeled into value-additive investments, such as investments in human capital development like education, which would help the recipients, improve their current economic status. The existing literature on the savings potential of new bank accounts for the poor usually stops short of investigating whether the savings are productively used. At present we have precious little knowledge whether bank account payments induce more desirable use of the deposited money than cash payment.

In this paper we attempt to fill in this gap in the current state of knowledge. As we have noted above, the existing literature tells us that bank account payment leads to more savings. In this paper we investigate the further and ultimately more important question whether the additional savings are channeled into value-additive investments. Arguably, educational expenditure is the most important human capital development expenditure for the poor, because it carries the potential of lifting them (or their children) out of poverty. Also, this expenditure is by and large discretionary for the very poor, since it competes for their limited budget with more pressing subsistence-related expenses. In other words educational expenditure implies a conscious choice. We investigate whether expenditure on education by poor households differs significantly if they use their bank accounts for the expenditure or cash, after controlling for their respective incomes and all other relevant household-level and environmental characteristics. Further, to conduct our investigations we adopt an empirical strategy which is fundamentally different from almost all existing studies on savings and investment decisions of the poor. Most existing studies have

used field experiments with a limited sample size and a one-time payment to the subjects in the experiment. By contrast, in order to capture ground-level reality and to ensure generalizability of our findings, we elect to use a large nationally representative sample and repeated wage payments to those included in our sample.

To proceed with our study, we turn to the National Rural Employment Guarantee Act (NREGA) of India. An important and ambitious nationwide scheme for employment and income generation for the ultra-poor, NREGA guarantees 100 days of unskilled work to at least one member of each rural household in the country who are willing to work at the minimum wage rate. Although, NREGA work is available to any rural household, the nature of the work that requires one to do unskilled manual work, self-selects the poorest strata to be the beneficiary of this scheme. Importantly for our purpose, NREGA also seeks to promote higher usage of bank accounts. As an important component of the overall scheme, NREGA plans to deposit the wage payments of the beneficiary households directly in their bank accounts. The implementation of this part of the scheme has been proceeding district by district since 2006, and was supposed to be completed by 2008. However, as of 2009-10, there were many districts that were not fully covered, and many beneficiary household in those districts were still getting paid in cash. NREGA presents a unique opportunity to research the economics of cash versus bank account payment for the poor, given that the treated beneficiary households (recipients of NREGA payments through bank accounts) and the beneficiary households in the control group (cash payment recipients) have very similar socio-economic characteristics, as both of them belong to the lowest economic strata. Also the size of both groups is large. Importantly, variation in district-level implementation of the bank account payment scheme can be suitably exploited in empirical tests.

The primary objective of our study is to investigate whether the mode of payment of NREGA wages, bank account payment as opposed to cash payment, leads to an observed difference in expenditure on education between the treated households and the control households and, if so, which of the two groups spends more. Although we do not conduct any randomized experiment by assigning the treatment to the randomly selected group, but we take the liberty of calling payment through bank account as 'treatment,' for the sake of simplicity in explaining the primary policy variable with which we seek the causal relation. The other major candidate for investment in human capital development, namely expenditure on preventive health care, presents a difficulty for empirical testing in the Indian setting. The organized data sources, such

as the National Sample Survey Organization (NSSO) of the government of India, does not separate the information on preventive health care from other types of health care, including emergency health care due to injuries, illnesses etc.

From the nationally representative household survey data collected by the NSSO in the year 2009-10 as part of its quinquennial, unemployment-employment round (66^{th} round), we obtain a sample of 8923 households who received NREGA wage payment. The sample is almost evenly divided between treated and control groups: 4303 treated and 4620 control. Since implementation of NREGA wage payment through bank accounts started in 2006, and was supposed to be completed by 2008, the data from this particular NSSO survey round are most suitable for our purpose. As of the date of writing this paper, it remains the only round where the surveyed households were asked about the mode of NREGA wage payment. Apart from the mode of payment information, the data also includes important demographic information on the surveyed households including educational and other categories of household expenditure, employment status and educational status of the household members etc. The information is useful for constructing the dependent variable and suitable control variables in our empirical tests. Our tests also control for district level educational infrastructure, district level banking infrastructure, and district level implementation of bank account payment of NREGA wages. The data sources for the control variables are, respectively, District Infrastructure on School Education (DISE) corresponding to the year 2009, Basic Statistical Returns (BSR) complied by the Reserve Bank of India which include information on bank credit supply and number of bank accounts in each district per year, and a database maintained by the NREGA administration which offers information on implementation.

Our main regression model includes household education expenditure as the dependent variable and a dummy variable indicating the mode of payment of NREGA wages as the independent variable of interest, apart from a battery of variables to control for the possible dissimilarities between the treated and the control groups. However, the standard OLS test results may be subject to an omitted variable bias. The households that have bank accounts may have a different preference ordering between future and present consumption, and therefore invest in human capital differently, from the households that do not. In the interest of clean identification and to ensure causality, we also run tests with an instrumental variable in place of the bank payment option variable. Our chosen instrumental variable is the level of implementation of bank

payment of NREGA wages in a district. We subject the instrument to a battery of tests for validity. It passes all of them very satisfactorily.

All our test results indicate that the households that receive NREGA wages in cash spend more on education than the households that receive them in their bank accounts. The results are consistent between standard OLS and instrumental variable regressions, but stronger in the case of the latter. The households that receive cash payment appear to spend on an average Rs 1,173 more on education annually than the treated households. The amount is statistically significant (at 5% level) as well as economically significant (2.3% of total annual expenses). In other words, the bank account payment option may lead to more savings, as other papers have found, but less human capital investments. On the face of it, the result appears surprising, but it is not hard to explain. For a given individual, the preference ordering between future and current consumption does not change from money in cash to money in a bank account. If, therefore, payment of wages in the bank account appears to foster more savings, it must be due to additional constraints on spending from a bank account. For the poor, the constraints are likely to be associated with transactions costs, including non-pecuniary costs such as physical distance from the bank branch in rural areas, financial illiteracy and fear of banking born of unfamiliarity with banking practices. Further, any such constraints are likely to discourage discretionary expenditure more, such as educational expenditure for the poor as we have noted before, than other types of expenditures. We find support for this explanation in the findings of tests conducted on other discretionary expenses including entertainment, toiletries, and personal care.

Another possible explanation for our finding is inability of the poor in India to monitor payments and prevent leakages when they are paid in their bank accounts (Adhikari and Bhatia, 2010; Anderson et al, 2013; Drèze and Khera 2008). The fact that a significant proportion of them are not literate compounds the problem. In our sample, 37% of the heads of the treated households are not literate. The corresponding number is 33% for the households in the control group. However, this explanation does not seem satisfactory. Our IV regression results indicate that the treated households on an average spend Rs 2,196 more on food, than the other group of households. It seems that the discretionary nature of educational expenditure is a better explanation for our finding.

Our findings contribute to three distinct strands of the literature. First, ours is the first study to investigate the human capital development implications of cash payment versus bank account payment. The present paper finds that households, who get NREGA wage paid at their bank account, end up spending less on education of their children as compared to their counterparts who paid in cash. If money is deposited into bank account, in the immediate future, there is a possibility that a part of this is saved, but at the cost of lower investment in human capital development, if the latter is discretionary expenditure to them. Unless banking infrastructure and implementation is strictly monitored to ensure quality delivery, the short run impact of direct transfer of payment to bank account to the rural illiterate poor may come at a bigger cost of reduced future earnings, as it is seen in the case of NREGA payment in India. For the rural illiterate poor, who are self-selected to work in NREGA, this negative impact may be more pronounced because of their inability to prevent leakages when paid at bank (Adhikari and Bhatia, 2010; Anderson, Kotwal, Kulkarni and Ramaswami, 2013; Drèze and Khera 2008). This also strengthens the argument further that access to bank account should necessarily be coupled with access to financial services, increasing financial literacy (GoI, 2009), and proximity to bank branches. To our knowledge this is the first work that looks at impact of a direct payment mechanism at bank on the educational expenditures of the household. This is important to understand when the financial inclusion is a priority policy issue in most developing nations. However, the results of this paper should be interpreted with caution. This paper finds only that having cash at hand, instead of being paid at bank may have helped households to meet the small out of pocket educational expenditures, which is not possible when they are paid at bank. Whether the result would be different if one is able to control the leakages from the system or through increased financial access and literacy, is beyond the scope of this work. Moreover, NREGA earnings are generated out of seasonal activities, leading to supplementary income to rural households that provides average annual earnings of Rs 4000. The supplementary income is expected to impact discretionary expenditures more than any other types of expenditures. So, we cannot comment on the general impact if the regular salary payments are made through bank account.

The next few sections are organized as follows. Section 2 reviews the existing literature. Section 3 outlines the recent initiatives in India to open bank accounts for the unbanked and to make NREGA wage payments through bank accounts. Section 4 discusses the hypotheses and

methodology of the present work. Section 5 discusses the data and the variables used in the present work. Section 6 presents the summary statistics and the results. Section 7 concludes with policy recommendations.

2. Review of literature

Financial Inclusion is a priority in developing countries. Access to savings bank accounts helps to increase savings (Aportela, 1999; Chin, Karkoviata and Wilcox. 2011), income (Burgess and Pande, 2005); and higher income leads to higher human capital expenditures (Strauss and Thomas, 1995). Most of the work attempting to capture the impact of access to savings bank accounts on savings and income, are limited to Randomized Control Trials (Mills et al. 2008), with mixed outcomes. Brune, Gine, Goldberg and Yang (2011) with their field experiments in rural Malawi, find that only opening a bank account may not help households to save much, rather some kind of commitment to save helps.

There are several savings groups micro finance interventions, which get mixed results of the impact of loans and some of them find positive impact loans by savings group on educational outcome (Barber, 2011, in South Africa; Boyle, 2009, in Burkina Faso; Karlan et al, 2012 in Uganda; and VARG and Mayoux, 2008, in Nepal). However, very few of them found educational expenditures to increase[ii] A randomized control trial in 136 Ugandan schools found that students guaranteed with future cash pay-outs of their saved money, were inclined to save more than students required to commit spending the savings for future education related expenses (Karlan and Linden, 2014). This difference was evident when parents' outreach initiatives were combined with the program, and none of the groups were allowed to earn any interest payments on savings.

However, micro finance initiatives go one step further towards consumption smoothing, whereas, having a bank account only will not automatically lead to that unless, it is intertwined with access to financial service and financial literacy, and proximity to financial institutions (Prina, 2015). Access to financial services may help a household not to send children to work if they are able to hire additional help at work, or if they can are able to borrow other current expenses without children's income. Distance to financial institutions seems to be a major indicator of using the bank accounts (Brune et al. 2014). We do not find any literature measuring the impact of bank account on investment in education, or investment in human capital.

3. Recent initiatives to open bank accounts for the unbanked

The financial inclusion policy in India primarily targets the 'unbanked' households, where no member had a savings bank accounts. In the year 2005-06, the RBI instructed the State Level Bankers Committee (SLBC) to identify at least one district in each state to have 100 percent financial inclusion, that is, to have at least one bank account per household. In 2007, RBI urged banks to step up their financial inclusion initiatives further. In November 2008, SLBCs have identified 155 districts with a target to have 100 percent financial inclusion. These districts were from 19 states and six Union Territories. In the year 2011, Government of India launched a financial inclusion campaign for the financially excluded segments of India through providing banking facilities to 74,000 villages that had more than 2000 population. However, the initiative was limited, focusing primarily on spreading banking facilities in selected geographic areas; and not on the actual usage pattern of household, or on linking households with access to other financial products. This initiative led to opening up of several bank accounts, which remained dormant for years.

NREGA wage payment through direct transfer in banks started at the same time, and by 2008, a significant number of no-frills bank accounts were opened for this purpose. The drive for financial inclusion started six months after the roll out of the NREGA. However, the most no-frill account holders could recall receiving NREGA wage to be the primary reason of opening the bank account, and did not credit the financial inclusion drive of RBI (Ramji 2007).

To address the existing deficits of earlier financial inclusion initiatives, the PMJDY scheme was announced by the Prime Minister of India, on 15th of August, 2014, which should allow anyone willing to open basic banking accounts for saving & remittances. People not having the RuPay Debit card[iii] should get one, with inbuilt accident insurance cover of Rs 1 lakh, along with opening of the basic account. It targeted to open 7.5 crore bank accounts; out of which, 6 crore to be opened in rural India and 1.5 crore in urban India. The basic account should also provide an overdraft facility of up to Rs. 5000, after six months of satisfactory performance of savings and credit history. It has also been plans to extend life insurance cover of Rs 30,000 in the next phase, if the account is opened by January 26, 2015.

To implement and roll out this program across the country, there is a plan of opening bank branches and Automatic Teller Machines (ATMs) across the country, with one banking service point at every 5 KM distance. Public Sector Banks (PSBs) propose to set up 7,332 branches and 20,130 new ATMs across the country by 2014-15.

The scheme has generated raised some concerns. First, rural banks are already stretched, and do not have the required staff to handle such a huge initiative. Second, there are already a large number of bank accounts lying un-used, which were opened as no-frills account, during the financial inclusion initiatives of the previous government. Third, the over-draft facility incorporated in this scheme may increase the risk for the financial system as a whole, and the proposed Credit Guarantee Fund (CGF) may not be enough to cover the risk. Finally, there are very poorest and remotest areas in the country, places like Himalayan regions, with limited transportation facility, where the closest bank branch is several kilometers away. It will be a challenge to include them in this scheme effectively.

4. Methodology

We do an OLS estimation of the following model among a cross-section of people who have got NREGA work and have been paid either by cash or deposit at bank account.

$$Ed_{hd} = \beta_0 + \beta_1.(BP_{hd}) + \delta_0.Exp_{hd} + \delta_1.X_{hd} + \delta_2 D_d + \varepsilon_{hd} \quad \ldots\ldots. (1)$$

Where Ed_{hds} is per capita annual expenditure on education of household *h*, in district *d*. BP_{hd} is the indicator for the household being treated, that is, the NREGA wage being paid through bank account (=1). Say, C_{hd} is the control group, that are, the households who gets payment directly through cash. This category is used as a comparison group in the above regression.

Exp_{hd} is the vector of dummies created from the annual household expenditure per capita, which is used as a proxy for household income. X_{hd} is the vector of household level covariates. D_d is the vector of district level covariates, as explained below. ε_{hd} is the error term.

To control for the difference in family structures which could influence intra-household resource allocation, we include dummies for primary occupation of the household head. As parental education is found to be highly correlated to children's participation in HE (Basant and Sen 2014), we do use the educational level of household head as a proxy for parental education, because the latter is not reported in the data. We also control for the number of children between

the age 7 to 18, as those are supposed to affect educational expenditures. As female headed households are found to have spent more on education of their children when they get to earn money and have savings accounts, we control for sex of the head of household.

Since supply of educational infrastructure in one's own district may affect the household's investment in education, we use district level variables to control for that. We include the district level percentage of schools with girls' toilet, percentage of schools with single class room, percentage of schools with no female teacher, percentage of schools with a good classroom, and percentage of schools having no school building.

In a typical rural developing economy with underdeveloped financial sector, we expect the immediate impact of wage paid at bank account on educational expenditures to be negative; that is, $\beta_1<0$. The primary components of educational expenditures include fees for schools or colleges, expenses for books, stationaries, and expenses for private tutoring. Since, by default, the NREGA program, and therefore my sample include people living at the margins, any change in regular cash flow insists them to reduce discretionary expenditures. Considering cost of education, it is imperative that almost all the children in poorest strata attend government schools, where the expenses towards school fees are minimal, but there are other costs associated with education, particularly, for books and stationaries. These are out-of pocket expenses and families need cash flow for those. Moreover, most parents in these households are not educated enough to help children with studies, so, they end up spending significant amount on private tutors as well (ASER, 2013; Wadhwa, 2013)[iv]. All these expenses need cash at hands. Current banking infrastructure of the country is not sufficient to serve at every corner in rural areas. If money is deposited in the bank, people may not be able to pay a frequent visit for regular need-based withdrawals (Rajan, 2007; Thyagarajan and Venkatesan, 2008). However, the OLS regression is unable to identify the causal impact of access to bank account on human capital expenditure.

4.1 Selectivity Bias Adjustment and Identification

The treatment variable of interest is the dummy indicator capturing the mode of payment of NREGA wage. However, this variable may be endogenous due to few reasons. First problem

may arise, when households are able to choose from different modes of payments. Certain households may have general preference for future consumption over present consumption, hence may decide to spend more on human capital development of their children, and decide to save more through the bank account. In this case, the estimates of the average treatment effect from the OLS will be biased. However, the way NREGA implementation was being done during the period under study, the districts seem to have more authority on payment mechanism than the households (GoI, 2009b; Adhikari and Bhatia, 2010).

Second, if implementation is decided at Gram Panchayat (GP) level or district level, as in the case of NREGA, then the treatment is not exogenous to the households. It is possible that districts or GPs that have better implementation mechanism in place are also the ones having better educational infrastructure or other development indicators, which jointly determines educational expenditures of the household in those districts. We try to address this issue using instrumental variable (IV) estimation in the next section.

Through IV estimation, the district level measure capturing status of implementation of NREGA payment through bank account has been used as the instrument in the first stage regression. This instrument corrects for the omitted variable bias happening due to district level implementation, generating non-random treatment assignment to the districts. In second stage regression, our dependent variable is measure of educational expenditures of the household, and treatment is receiving NREGA payments through bank account (=1, and receiving through other methods of cash payments =0).

Say, $BP^{hd} = 1, when\ Z > Z^*$

And $BP^{hd} = 0, when\ Z \leq Z^*$

Here, Z* is the cut-off amount of NREGA payment through bank per NREGA worker in district. Using the distribution of Z for district d, we create three dummies for Z, that are used as IV. One dummy variable group consists of districts where average payment per worker at bank is between Rs 161 and Rs 1140; and second group consists of districts where average bank payment is more than Rs 1140 and less than or equal to Rs 4025. Third group consist of all district with average payment above Rs 4025. The comparison group is the group of district with average bank payment less than Rs 161. These cut-off points are not arbitrary. These are the

amounts corresponding to 25th, 50th, and 95th percentile distribution of *Z*. This gives us three interdependent IVs.

We estimate the same model as (1), using 2SLS-IV, where the first stage regression is:

$$BP_{hd} = \rho_0 + \rho_1 Z_d + \rho_2 Exp_{hd} + \rho_3 X_{hd} + \rho_4 D_d + \epsilon_{hds} \quad \ldots\ldots\ldots\ldots\ldots (2)$$

The second stage regression is the same as (1).

5. Data and Variables

5.1 Data

We use data from four different sources. Our primary source of data is the nationally representative household survey collected by the National Sample Survey Organization (NSSO) of the Government of India (GoI) in the year 2009-10. We use the quinquennial, unemployment-employment round of the National Survey Data (NSS), which was collected from a cross-section of a total of 1,00957 households. Since NREGA started in the year 2006, and implementation was supposed to be completed by the year 2008, this data seems to be the most suitable to capture the immediate impact. Moreover, during the course of our study, this was the only available nationally representative survey data in India that captures the details on status of NREGA work and modes of wage payments. There is no other nationally representative survey data collected in India, which could capture impact of any other program where direct benefit transfer to the bank account is directly captured. Apart from that, the data also collects several other demographic details of household, details of individuals on employment status, educational status, and different broad heads of household expenditures.

For our District level control of educational infrastructures, we use the data from District Infrastructure on School Education (DISE) corresponding to the year 2009[v]. This is a government of India initiative, where all schools across India volunteer to submit the detailed information on school infrastructure. This is the only nationwide database on school infrastructure in India. This captures information on school buildings, classroom, and availability of different type of toilets, availability of teachers, their qualifications, enrolment rates, grants received, and such related indicators.

Data on our IV is collected from the Ministry of Rural Development, Government of India, who maintains a regular database capturing several indicators of implementation of the NREGA at the

district level[vi]. We extract district level data on the wage paid through different modes, and the number of total NREGA workers in each district. We divide the former by the latter, to reach to a per capita level of *Z*, for each district. However, the closest and most relevant year for which, the amounts paid through different modes were available is 2011. Since there is just one year gap between the periods of household level data collection of NSS (2009-10) and the above NREGA data (2010-11), we assume that the implementation indicators of the districts will not have major changes. Since our IV is a categorical variable, the categories of districts according to the level of implementations are not supposed to go through any major change within a year.

Finally, since implementation of payments through bank may also depend on the district level infrastructure of banking facilities, we also use the data on Basic Statistical Returns (BSR) of the Reserve Bank of India (RBI) of the year 2009, which captures number of credit accounts, and amount of credit per district. We calculate the amount per capita of the both the above indicators for each district, by dividing with corresponding district population of census 2011. These two variables being highly correlated for obvious reasons, we use each of them separately in our regressions for check of robustness[vii].

5.2 Variables

The dependent variable is total expenditure of household on education, given in Indian Rupees[viii].

The primary independent variable of interest is constructed from the question asked to the household about the mode of payment. The options given are payment at bank, cash payment, payment at post office, payment by Gram Panchayat member, payment through smart card, and few other small categories. The first three hold the major share of mode of payment. However, our sample includes only the households getting payment at bank or cash payment.

The total expenditure of households is used as proxy for household income. We create few categories of that variable based on rural poverty line in India and few multiples of that amounts. We use the household head's education level as a proxy for parent's education, as the latter is not available. As number of children in household matters in decision on educational expenditures, we create a dummy for the households which have children aged 7-18 years. In few specifications, we also use household size and dependent ratio of the household as covariates. The latter has been constructed from the sum of number of children below 17 years and number

of adult above 60 years, divided by the household size. We get the occupation categories from the household level question.

The DISE data gives us information on school infrastructure at districts, as we choose few of them based their expected association with our outcome variable. District level number of schools without female teacher, number of schools with girls' toilet, number of single class room schools, and number of schools without any building are divided by their respective district level numbers of total schools, to generate district level covariate for school infrastructure.

To create per capita credit amount at district level that captures district level covariates for financial infrastructure, we sum up the total credit given to people of all different occupation categories and divide that by total district level population of the year 2001. We also use the per capita number of bank accounts in the district created in the same manner.

The NREGA data given at the district level, as mentioned earlier helps us to generate our instrumental variable.

6. Results

Table 1 presents the summary statistics and results from the test of difference in group means of total household expenditure (used as a proxy for household income), and all outcome variables used in different specifications. Difference in group means indicate that on average the treated households have less expenditures on education and other discretionary items; whereas, they do not seem to have difference in total household expenditure. Also, they do not seem to spend differently in food and other necessary items, even at 90% level of significance. Table 2 presents the same kinds of statistics for all the covariates of the model. The group difference in means of covariates indicates that it is important to control for those household level or district level observables.

The line fit and quadratic fit of the educational expenditures of the household on total expenditures in figures 1 and 2 reveal that the trend in movement is not same between the treated and controlled groups as total expenditure of the household increases.

The OLS results from the first column of table 3 show that annual educational expenditure may be less for the treated households. However, this effect is not statistically significant. Moreover, for the identification of the model, the suspected endogeneity discussed earlier needs to be

addressed. The second stage results from IV estimation provide stronger evidence of a negative relationship (statistically significant at 5% level) between the annual educational expenditures of the household and NREGA payment through bank. Educational expenditure reduces by as much as Rs 1,173 on average for the households receiving payment through bank, as compared to the households receiving payment through cash. The amount is as much as 2.3% of the average annual consumption expenditure of the former group.

All other household level covariates have expected signs. As compared to the richest group of households, the poorer households spend less on children's educational needs. Households with heads having some educational qualifications, spend higher on children's education, as compared to households with non-literate heads. Households primarily serving as agricultural labor have less educational expenses for their children as compared to most other types of households

6.1 Instrument validity

All our estimates are robust to heteroskedasticity and clustering on districts. The endogeneity test gives a p-value as low as 0.01, which strongly supports the fact that our primary variable of interest is endogenous, and recommends the instrumental variable estimates, instead of the OLS estimate.

The fact that IV estimates produces stronger negative results and higher in value indicates that the endegonous nature of our primary variable of interest was causing the OLS estimate to be biased upward. The upward bias in OLS estimates arises from the districts where on overage people care more for their future consumption as against present consumption, and therefore may prefer to get payment at bank, and invest more for their children's education. Once we are able to correct for this omitted variable capturing the difference in preference across districts, the IV estimates become strongly negative.

All the dummy variable instruments in column 2 of Table 3 in our reduced form regression have non-zero coefficient, and all are statistically significant. The first stage of 2SLS-IV regression as presented in column 3 reports statistically significant coefficients. The signs of the dummies are as expected. The households in districts with a large proportion of NREGA payments being made through bank are expected to have higher chances of receiving NREGA payment through bank.

The first stage of the 2SLS-IV regression gives Shea's partial correlation of 21.4, which indicates a strong correlation between the district level implementation dummies and the household level indicator of payment through bank. The F-statistics from the first stage is 28.74, with a p-value close to zero. The positive signs of the coefficients for all three dummies along with the above statistical estimates satisfy the instrument's relevant condition.

The first stage Kleibergen-Paap rk LM statistic gives Chi-square value of 345.3, with p-value of zero; and the Kleibergen-Paap rk Wald statistic gives Chi-square value of 427.5, with the same p-value. It indicates that the instruments are adequate to identify the equation.

The test of joint significance of endogenous regressors from the first stage produces Anderson-Rubin Wald test F-statistics and Anderson-Rubin Wald test Chi-square statistics that are significant at one percent level. The results indicate that the endogenous regressors are relevant too.

The over-identification test estimating Hansen-J statistics has a p-value of 0.88, which indicates that instruments are valid instruments, uncorrelated with error term; and excluded instruments are correctly excluded from the estimated equation.

6.2 Robustness checks and Placebo tests:

To check for the robustness of the results, we estimate the OLS and 2SLS-IV models under different specifications capturing household composition, district fixed effects, state fixed effects, and controls for educational and banking infrastructure in the district. For the latter, we use the district level variables from the BSR data, measuring the per capita credit amount outstanding, and per capita number of bank accounts in a district. Our finding of negative impact of bank account payment on educational expenditures of the households does not seem to be sensitive to model specifications, as shown in columns 1-5 of table 4. All coefficients remain negative and statistically significant at 95% level.

For further robustness checks, we consider the impact of bank account payment on the other discretionary expenditures, such as entertainment, toiletries, and personal care. We also test for the impact of all of them together. The results are presented in table 5. As in the case of

educational expenditure, the results for both OLS and IV regressions are negative in all cases, and significant in all cases. The results confirm our prediction that bank accounts have a negative effect on discretionary expenditure.

We also perform two placebo tests by changing the dependent variable to two other components of expenditure. In the first test, presented in table 6, we use the components of total expenditure spent on durable goods including fan, air-conditioner, sewing machine, washing machine, pressure cooker and such; plus jewelry, and ornaments. Columns 1 and 2 of Table 6 are the same OLS and IV results that were presented in Table 3. Columns 3 and 4 show that durable expenditures is higher for the people getting paid through bank account, as the coefficients are always positive and significant. Since decision about big ticket purchases can be considered as annual decision than a monthly decision, the payment at bank may help the households plan well on those purchases over discretionary spending. We should note here that the question that was specifically asked about durable good involved asking only the annual amount spent in last year, whereas, all other questions about expenses on education, food (necessary items in our case), items for personal care (discretionary items) have been asked as monthly amounts. However, we have multiplied the monthly amounts to make it comparable to annual amounts for all our regressions.

In the second test, presented in table 7, our dependent variables are the components of necessary expenditure, including expenditure on food (in columns 1-2), and non-food, such as sundry articles, conveyance, rent, medical expenses (in columns 3-4). For the food expenditures, the households getting paid at bank seem to spend more. However, the coefficient is significant at 90% only. We are not sure if spending more on food items is induced by higher expected earnings from money deposited at bank or some substitution happening between food expenses and some other discretionary expenses, like expenses on education. We should note here that the test of difference in group means[ix] reveals that the difference in household expenditures between the treatment and control groups are not statistically or economically significant. Looking at the non-food items in column 3-4, the treated group does not seem to spend differently than the

control groups. This strengthens our finding further that payment in bank seems to reduce educational expenditure that is discretionary in nature.

One should note that the present study include only the poorest of the poor population in the country, because they are the ones who self-select to participate in the unskilled manual work offered through the NREGA. The components of education expenditure considered for this study include tuition fees for private tutor, fees for schools-colleges, expenses for school books, and other educational articles-such as, newspapers, stationary and such. For the poorest of the poor, these kinds of educational expenses are just like out of pocket, need-based expenses. If they have cash in hand, they would rather spend those for books, tuitions of their children or for other consumption immediate needs. Having a bank account, and getting a payment in that account may not help them much in planning future human capital investment, unless the bank is located in an easily accessible distance, the households have the financial literacy to understand and use the bank for the financial needs.

To sum it up, having a bank account does not automatically lead to access to finance, neither does that mean that bank account is in easily accessible distance. We cannot explore this further without having data on distance of the households from the financial institutions. Also, without availability of nation-wide survey data on household income, we cannot comment much on whether the household receiving bank payments are actually saving them in the bank account. Even then, it would still mean stashing cash in banks, unless they can use the money for investment purposes. This paper clearly shows that the households with money being directed to bank accounts are at least not using them to meet immediate educational needs of the children.

7. Discussion and Conclusion

The discussion remains incomplete without studying the impact of payment through post-office, which is the third group according to modes of payment. Doing the same exercise as above (Not presented here, but available on request), the OLS estimate does not provide any evidence that educational expenditures would be different between household getting cash-payment or payment through post-office. However, the IV estimate provides strongly significant negative coefficient, similar to the coefficient of bank-payment treatment. Here, we have used three

dummies just like before, to capture the implementation of payment through post office at the district level. The IV estimate further indicates that having cash at hand rather than being paid at post office account at least help rural poorest households in spending for their children's day-to-day educational needs. Getting those payments at post office or bank may not help them to meet their children's educational expenses in short run, unless they can use the deposited money further in financial instruments or future investments. The higher possibility of leakage due to corruption while transferring one direct as discussed earlier may be the reason too. Also, proximity to bank branches has been found to a significant contributor to the demand for bank accounts and increase in wellbeing (Prina, 2015). Particularly, in case of NREGA payment, the delays in processing the bank transfer, corruption involved in the amount of actual transfer due to embezzlement, distance to financial institutions, seem to dampen the expected benefits (Adhikari, 2010; Drèze and Khera, 2008; Khera, 2010) of bank payment.

One should be cautious about generalizing the impact though, as it applies to the poorest starta of the society. There is no such evidence that automatic generation of savings will reduce educational expenditures in other economic classes as well. The study has few limitations, which leaves out avenues for future research. We do not have data on the types of bank accounts that the households are having, whether withdrawal comes up with any cost, whether the account comes with credit facilities, the distance to bank branch. Moreover, the data does not capture whether the bank account belongs to the male member or female member, or who does the NREGA work on behalf of the household. All these seem to matter in household decision regarding intra-household allocation of resources.

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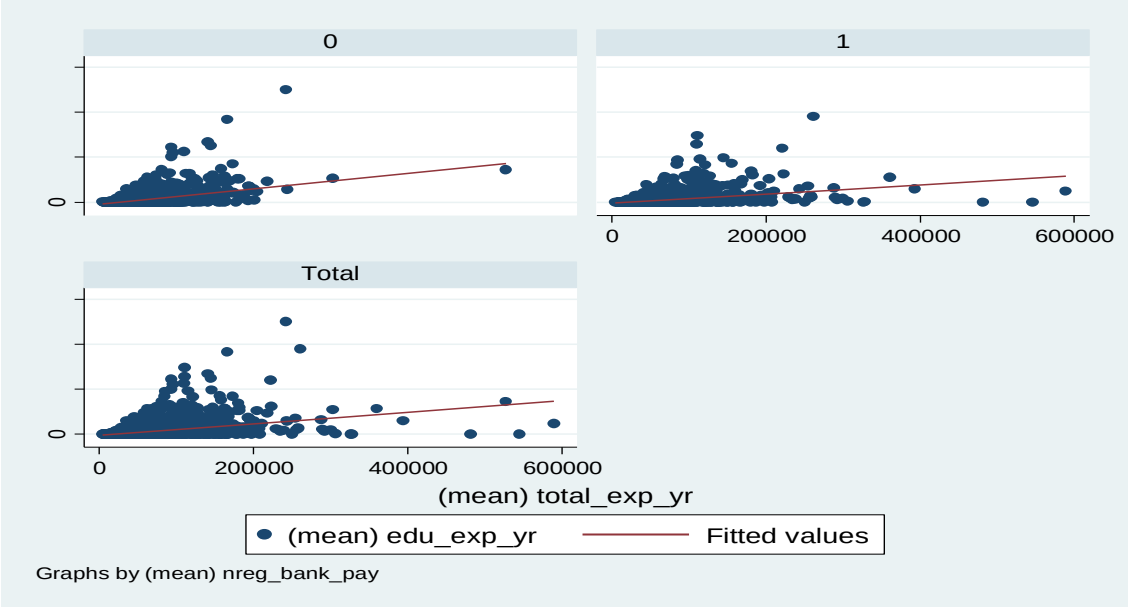

Figure 1: Fitted Lines of Household's Education Expenditure on Total Expenditure for groups paid at bank (=1), groups paid as cash (=0), and both groups together (Total).

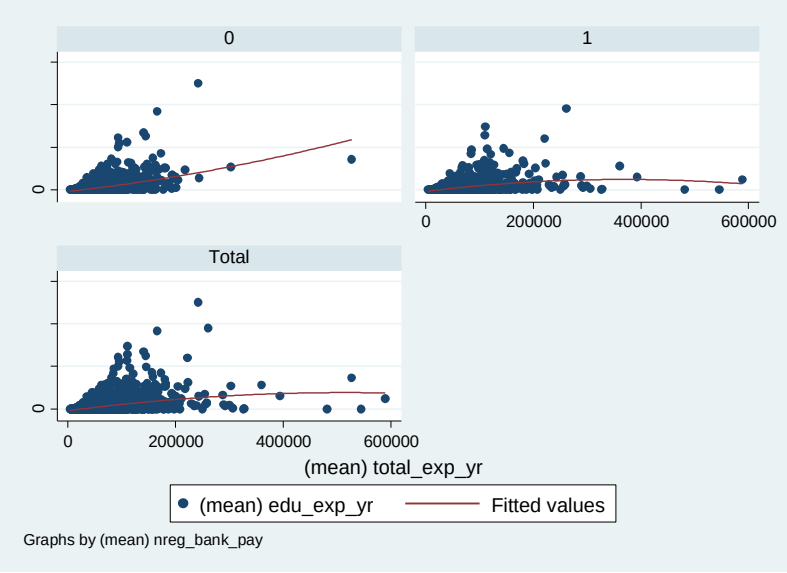

Figure 2: Quadratic fit of Household's Education Expenditure on Total Expenditure for groups paid at bank (=1), groups paid as cash (=0), and both groups together (Total).

Table 1: Summary statistics of outcome variables, total household expenditure and the test of difference in group means

Variables: all expenditures are measured in Annual Indian Rs.	Controlled Households			Treated Households			Full sample Households			Difference in Means between Controlled and Treated
	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	t-test Results
Total Edu Exp	3963	2118.3	4964.2	4114	1676.9	3707.9	8077	1893.5	4375.0	429.9***
Total Exp	3963	51268.0	27653.5	4114	50292.6	29676.4	8077	50771.2	28704.0	893.5
Share in Edu Exp	3963	0.0	0.1	4114	0.0	0.0	8077	0.0	0.0	0.00420***
Discretionary: a)Entertainment	3963	683.3	1086.1	4114	286.7	763.3	8077	481.3	956.4	397.3***
Discretionary: b)Toiletries	3963	1204.2	820.5	4114	1002.8	674.2	8077	1101.7	756.3	198.1***
Discretionary: a) + b) + personal care	3963	1887.5	1584.1	4114	1289.5	1125.4	8077	1582.9	1401.9	595.4***
Durable	3963	1821.3	4134.6	4114	2023.3	8963.4	8077	1924.1	7022.4	-201.2
Necessary: a) Food	3963	27811.7	13599.4	4114	27910.8	13720.7	8077	27862.2	13660.5	-132.9
Necessary: b) Food & other (clothing foot wear not included)	3963	9372.9	6580.5	4114	9516.5	9205.7	8077	9446.0	8025.5	-155.9

***Significance at 99%, Controlled=cash payment, Treated = Bank payment

Table 2: Summary Statistics and test of difference in group means of covariates and other variables of interest

Variable	Controlled Households			Treated Households			Full sample Households			Difference in group means: Results of t-test
	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	
Very poor	3963	0.1	0.3	4114	0.1	0.3	8077	0.1	0.3	-0.01
Vulnerable	3963	0.3	0.4	4114	0.3	0.5	8077	0.3	0.5	-0.06***
Middle Class	3963	0.6	0.5	4114	0.5	0.5	8077	0.6	0.5	0.03**
No of child 7-18	3963	1.3	1.3	4114	1.4	1.4	8077	1.4	1.3	-0.17***
Female head	3963	0.1	0.3	4114	0.1	0.3	8077	0.1	0.3	0.01
Head: < Secondary	3962	0.6	0.5	4114	0.6	0.5	8076	0.6	0.5	0.03*
Head: HS	3962	0.0	0.2	4114	0.0	0.2	8076	0.0	0.2	0.02***
Head: Grad	3962	0.0	0.2	4114	0.0	0.1	8076	0.0	0.2	0.02***
Self emp non-ag	3959	0.2	0.4	4113	0.2	0.4	8072	0.2	0.4	0.01
Agri Lab Hh	3959	0.2	0.4	4113	0.2	0.4	8072	0.2	0.4	0.04***
Other Lab Hh	3959	0.2	0.4	4113	0.3	0.5	8072	0.2	0.4	-0.12***
Self emp agri	3959	0.3	0.5	4113	0.3	0.5	8072	0.3	0.5	0.00
Other Hh	3959	0.1	0.3	4113	0.1	0.2	8072	0.1	0.3	0.07***
NREG job seeker	3963	1.0	0.0	4114	1.0	0.0	8077	1.0	0.0	
NREG bank pay	3963	0.0	0.1	4114	1.0	0.0	8077	0.5	0.5	
NREG bank PO pay	3963	0.0	0.0	4114	1.0	0.0	8077	0.5	0.5	
NREG PO pay	3963	0.0	0.0	0			3963	0.0	0.0	
NREG cash pay	3963	1.0	0.0	4114	0.0	0.0	8077	0.5	0.5	
Dist NREG implementation category	3963	1.6	0.9	4114	2.8	0.7	8077	2.2	1.0	
Amount paid at Bank + PO / worker	3963	1601.5	2469.3	4114	3007.4	1606.9	8077	2317.6	2191.0	-1411.7***
Amount paid at Bank/worker	3963	727.7	1380.8	4114	2271.0	1510.2	8077	1513.8	1640.8	-1542.2***
Amount paid at PO/worker	3963	873.8	1889.3	4114	736.4	752.6	8077	803.8	1429.8	130.4***
161<Nreg bank pay<=1140	3963	0.13	0.34	4114	0.18	0.39	8077	0.16	0.36	-0.06***

1140<Nrega bank-pay<= 4025	3963	0.19	0.39	4114	0.62	0.48	8077	0.41	0.49	-0.44***
Nreg bank pay>4025	3963	0.04	0.20	4114	0.12	0.33	8077	0.08	0.28	-0.08***
Ratio Girl toilet	3963	0.0	0.2	4114	0.0	0.0	8077	0.0	0.1	0.03***
Ratio single room scl	3963	5.9	8.6	4114	3.8	5.0	8077	4.8	7.1	2.15***
Ratio no fem teach scl	3963	19.4	12.2	4114	28.1	12.8	8077	23.8	13.3	-8.62***
Ratio good class room scl	3963	52.1	27.9	4114	68.6	16.8	8077	60.5	24.4	-16.48***
Ratio no buldg scl	3963	11.7	19.1	4114	9.8	12.9	8077	10.7	16.3	1.92***

***Significance at 99%, **at 95%, *at 90%. Controlled=cash payment, Treated = Bank payment

Table 3: Impact of payment through bank account on total annual educational expenditures of household

Dependent Var ->	Single equ (OLS) Annual Edu exp (1)	Reduced form (OLS) Annual Edu exp (2)	2SLS 1st stage Pay at bank (3)	2SLS (IV) 2nd stage Annual Edu exp (4)
Pay at Bank (=1)	-114.87			-1,173.112**
Hh living standards				
Very poor	-5,012.93***	-5,012.094***	-0.122***	-5,167.817***
Vulnerable	-4,415.54***	-4,413.223***	-0.047	-4,481.222***
Middle Class	-3,285.41***	-3,313.836***	-0.006	-3,329.043***
No of Child 7-18	845.55***	855.083***	0.006	860.924***
Head's Education				
Secondary & less	438.97***	424.102***	0.048***	484.657***
HS	1,884.32***	1,841.202***	0.066**	1,923.781***
Grad & above	1,657.89***	1,625.511***	0.009	1,635.248***
Hh Occupation				
Self emp non-agri	166.66	197.855	0.034*	237.036*
Other Lab	-90.46	-44.646	0.057***	26.754
Self emp agri	308.26**	334.749**	0.050**	394.307**
Other hh	809.47**	802.928***	0.008	809.504***
Female head	-361.99**	-366.222**	0.043***	-312.136**
School facility				
Ratio Girl toilet	-1,710.66***	-1,442.536***	-0.303***	-1,753.786***
Ratio single rm sc	-6.94	-8.895	-0.007***	-16.050*
R no fem teach sc	-16.63**	-8.590	0.002*	-5.438
R good classrm sc	0.17	3.325	0.003***	7.259
R no building sc	-10.55***	-10.580***	-0.001	-11.345***
Bank Pay Implem				
Impl 25-50 pcentil		-472.751**	0.428***	
Impl 50-95 pcentil		-694.308***	0.572***	
Impl > 95pcentil		-526.399**	0.512***	
cons	4,294.95***	4,257.629***	-0.111	4,131.072***
R^2	0.17	0.17	0.40	0.16
N	8,872	8,872	8,872	8,872

1. Household expenditure has been used as a proxy for households' living standards. The households in the richest group, with non-literate heads, categorized as agricultural labor, and implementation of NREGA payment through bank account in the district being less than 25th percentile are used as comparison groups in respective categories of variables.
2. Independent variable of interest is: Household getting NREGA payment through bank (=1) in comparison to households receiving cash payment (=0).
3. All outcome variables are measured in annual amounts.
4. * p<0.1; ** p<0.05; *** p<0.01. Heteroscedastic robust standard errors, clustered at district level.

Table 4: Impact of payment through bank account on total annual educational expenditures of household: Check for Robustness

Dependent Var:	Results of Robustness checks from 2nd Stage of IV-2SLS estimation: Covariates are different across columns				
Annual Edu exp	(1)	(2)	(3)	(4)	(5)
Pay at Bank (=1)	-1,458.93**	-1,128.57***	-1,465.01**	-1,176.12**	-1,167.17**
Hh living standards					
Very poor	-5,133.88***	-5,074.53***	-5,930.58***	-5,168.22***	-5,165.16***
Vulnerable	-4,456.99***	-4,423.07***	-5,039.54***	-4,481.37***	-4,479.26***
Middle class	-3,333.23***	-3,305.01***	-3,590.33***	-3,329.14***	-3,327.98***
No of Child 7-18	849.06***	854.80***		860.97***	861.11***
hh_size			517.98***		
dep_ratio			1,621.61***		
Head's Education					
Secondary & less	525.80***	414.30***	565.40***	484.78***	483.61***
HS	1,959.66***	1,796.18***	2,013.30***	1,923.89***	1,922.98***
Graduate & above	1,658.26***	1,515.29***	1,611.78***	1,635.18***	1,634.80***
Hh Occupation	Yes	Yes	Yes	Yes	Yes
Female head Hh	Yes	Yes	Yes	Yes	Yes
School facility	Yes	**No**	Yes	Yes	Yes
State	Yes	Yes	Yes	**No**	**No**
District	**No**	Yes	**No**	**No**	**No**
Dist Per capita Cr				0.008	
Dist No Bank Acc					84.31
Cons	4,494.98***	4,537.37***	2,782.05***	4,130.50***	4,125.67***
R^2	0.15	0.15	0.15	0.16	0.16
N	8,872	8,915	8,872	8,872	8,872

1. Household expenditure has been used as a proxy for households' living standards. The households in the richest group, with non-literate heads, categorized as agricultural labor, and implementation of NREGA payment through bank account in the district being less than 25th percentile, are used as comparison groups in respective categories of variables.
2. All outcome variables are measured in annual amounts.
3. Independent variable of interest is: Household getting NREGA payment through bank (=1) in comparison to households receiving cash payment (=0)
4. * p<0.1; ** p<0.05; *** p<0.01. Heteroscedastic robust standard errors, clustered at district level.

Table 5: Robustness Test: Dependent variables are different components of annual discretionary expenditures

	Entertainment	Entertainment	Toiletries	Toiletries	Enter + Toilt + Personal Care	Enter + Toilt + Personal care
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV
Pay at Bank (=1)	-158.86***	-439.305***	-68.65	-346.20***	-227.52***	-785.51***
Living stands.						
Very poor	-1,023.3***	-1,064.4***	-992.53***	-1,033.2***	-2,015.9***	-2,097.5***
Vulnerable	-969.3***	-986.7***	-745.5***	-762.7***	-1,714.8***	-1,749.5***
Middle class	-766.7***	-778.3***	-474.8***	-486.2***	-1,241.6***	-1,264.6***
No of child7 - 18	35.22***	39.29***	108.64***	112.7***	143.86***	151.97***
Head's Educ						
Second or less	76.69***	88.78***	54.89**	66.9***	131.59***	155.68***
HS	155.68**	166.13***	97.73*	108.1*	253.40***	274.21***
Grad +	643.87***	637.87***	396.17***	390.2***	1,040.04***	1,028.1***
Hh Occup	Yes	Yes	Yes	Yes	Yes	Yes
Female Head	Yes	Yes	Yes	Yes	Yes	Yes
School facility	Yes	Yes	Yes	Yes	Yes	Yes
_cons	1,579.6***	1,536.2***	1,634.9***	1,591.9***	3,214.5***	3,128.1***
*R*2	0.1	0.09	0.22	0.2	0.19	0.17
N	8,872	8,872	8,872	8,872	8,872	8,872

1. The outcome variables in columns 5-6 include items on column 1, 2 and items for personal care like spectacle, torch, umbrella, lighter etc. All outcome variables are measured in annual expenditure amounts (in Indian Rs).
2. Household expenditure has been used as a dummy for income. The households in the richest group, with non-literate heads, categorized as agricultural labor, and implementation of NREGA payment through bank account in the district being less than 25th percentile are used as comparison groups in respective categories of variables.
3. Independent variable of interest is: Household getting NREGA payment through bank (=1) in comparison to households receiving cash payment (=0)
4. * p<0.1; ** p<0.05; *** p<0.01. Heteroscedastic robust standard errors, clustered at district level.

Table 6: Placebo test 1- Impact of payment through bank account on different expenditure components of households

	Annual Edu Expenditure		Annual Durable Expenditure	
	(1) OLS	(2) IV	(3) OLS	(4) IV
Pay at Bank (=1)	-114.87	-1,173.11**	664.17***	1,466.19***
Hh living standards				
Very poor	-5,012.92***	-5,167.81***	-7271.29***	-7153.91***
Vulnerable	-4,415.53***	-4,481.22***	-7007.89***	-6958.11***
Middle class	-3,285.40***	-3,329.04***	-6142.26***	-6109.18***
Child7-18	845.54***	860.92***	271.42***	259.76***
Head's Education				
Secondary & less	438.97***	484.65***	158.98	124.36
HS	1,884.32***	1,923.78***	313.67	283.77
Graduate & above	1,657.89***	1,635.24***	395.29	412.45
Female head	-361.99**	-312.13**	-575.67*	-613.46**
Hh Occupation	Yes	Yes	Yes	Yes
School facility	Yes	Yes	Yes	Yes
R^2	0.17	0.16	0.08	0.08
N	8,872	8,872	8,872	8,872

1. Outcome variables in columns 3-4 include all durable goods. All outcome variables are measured in annual amounts.
2. Household expenditure has been used as a proxy for households' living standards. The households in the richest group, with non-literate heads, categorized as agricultural labor, and implementation of NREGA payment through bank account in the district being less than 25th percentile are used as comparison groups in respective categories of variables.
3. Independent variable of interest is: Household getting NREGA payment through bank (=1) in comparison to households receiving cash payment (=0).
4. * p<0.1; ** p<0.05; *** p<0.01. Heteroscedastic robust standard errors, clustered at district level.

Table 7: Placebo test 2- Impact of payment through bank account on Necessary expenditure components of households

	Necessary Food expenses		Necessary Other expenses	
	OLS (1)	IV (2)	OLS (3)	IV (4)
Pay at Bank (=1)	1474.73***	2195.86*	993.70***	706.51
Living standards				
Very poor	-24548.55***	-24443.01***	-13928.31***	-13970.34***
Vulnerable	-17518.51***	-17473.75***	-11880.98***	-11898.81***
Middle class	-10838.43***	-10808.70***	-8627.93***	-8639.77***
No of child7 -18	3982.1***	3971.62***	1148.26***	1152.43***
Head's Education				
Secondary or less	-556.06	-587.19	-26.21	-13.82
HS	251.33	224.44	2467.18***	2477.88***
Graduate & above	3404.32**	3419.75**	2386.58***	2380.43***
Hh Occupation	Yes	Yes	Yes	Yes
Female Head	Yes	Yes	Yes	Yes
School facility	Yes	Yes	Yes	Yes
Constant	33198.72***	33310.39***	16488.92***	16444.45***
R^2	0.36	0.36	0.17	0.17
N	8,872	8,872	8,872	8,872

1. Outcome variables in column 1-2 include necessary food expenditures; column 3-4 include all other necessary expenditures such as sundry articles, conveyance, rent, medical expenses; All outcome variables are measured in annual amounts.
2. Household expenditure has been used as a dummy for income. The households in the richest group, with non-literate heads, categorized as agricultural labor, and implementation of NREGA payment through bank account in the district being less than 25th percentile are used as comparison groups in respective categories of variables.
3. Independent variable of interest is: Household getting NREGA payment through bank (=1) in comparison to households receiving cash payment (=0)
4. * p<0.1; ** p<0.05; *** p<0.01. Heteroscedastic robust standard errors, clustered at district level.

[i] GoI. 2014.
[ii] For a complete list of these interventions, see Cameron and Ananga, 2013.
[iii] Started by the previous UPA government, as a part of their financial inclusion initiatives, through which anyone with certain identity proofs could open a bank account, and receive the debit card.
[iv] Wadhwa (2013) shows that about one-fourth of students from grade one to eight spend money for private tutors. The incidence is as high as 72 percent in low-private school state such as West Bengal.
[v] See http://www.dise.in/ , accessed on 7th July, 2015.
[vi] See http://www.nrega.nic.in/netnrega/home.aspx , accessed on 7th July, 2015.
[vii] We do not use these as our IV, because it may capture financial infrastructure of the district, which may be strongly related to NREGA implementation; but actual implementation depends on other district level unobservables. The latter can only be captured from the direct district level data of the NREGA that we use for generating our IV.
[viii] Since few some households have zero expenditures on education, we could not use natural logarithm of expenditure.
[ix] Not presented here, but is available with authors on request.