Saving by default: Evidence from a field experiment in rural India

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PRELIMINARY AND INCOMPLETE.

Abstract

The literature shows large take-up rates, but a low usage of formal bank accounts in developing countries. We explore the role that the *default option* can play in bridging this gap. We sampled 442 villagers in rural India, who either had an account, or were asked to open one. They received weekly payments of Rs 150 for about 10 consecutive weeks, in which the only difference was the method of payment: we randomly allocated them to being paid on the account (treated) or in cash (control). In a cash economy, the money is saved by default for those who are paid on the account. On the other hand, people paid in cash have to take the active step of depositing it. Their default is having the money ready to spend. Our main finding is that being paid on the account increases the account balance by around 110 percent after 10 weeks of weekly payments. The effects are long lasting: 4 months after the last weekly payment, the average account balance of the treated is still twice as high as the balance of the control individuals. The results cannot be explained by standard decision making theory but are perfectly consistent with procrastination to save and inertia. We conclude that one solution to enhance savings on a formal account is moving from a cash to an account based payment system.

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1 Introduction

According to the canonical models of decision making, individuals select their most preferred alternative in accordance with well-defined preferences. The decision is not influenced by the order in which the alternatives are presented, nor by the status quo alternative or *default option*, i.e. the decision that is taken when people do not make an active choice. However, individuals tend to stick to the default option more frequently than the canonical model would predict, which leads to a *status quo bias* (see Samuelson and Zeckhauser, 1988).

We set-up a randomized control trial to assess whether the default option can induce savings on a formal bank account. We sampled 442 villagers in 3 different districts of Chhattisgarh, a Central-Eastern state of India. All of them either had an account, or were asked to open one. They received weekly payments of Rs 150 for about 10 consecutive weeks, in which the only difference was the method of payment: we randomly allocated them to being paid on the account (treated) or in cash (control). In a cash economy, the money is saved by default for those who are paid on the account. On the other hand, people paid in cash have to take the active step of depositing it. Their default is having the money ready to spend. The randomization ensures that the individuals in the treatment and the control group are on average identical on the possible dimensions that could affect their optimal levels of savings. Furthermore, the villagers are free to deposit or withdraw the amount they want, the bank is located at their doorstep, and the transaction costs are negligible. Therefore, if they behave like standard economic agents, we should not observe any difference in the savings behavior of the treatment as compared to the control group. However, our main finding is that being paid on the account increases the balance by around 110 percent (or almost Rs 430) after about 3 months of weekly payments. The effects were long lasting: 4 months after the last weekly payment, the average account balance of the treated was still twice as high as the

balance of the control villagers.

Samuelson and Zeckhauser (1988) provide different explanations for the tendency to follow the default option. First, affinity for the status quo alternative is consistent with rational decision making in the presence of transition costs or uncertainty. This occurs when switching away from the default is not costless, or when the benefits are uncertain. Second, it can be seen as the consequence of cognitive misconceptions or psychological commitments. For example, due to loss aversion, individuals weigh the potential losses from changing the default larger than the potential gains (Kahneman and Tversky, 1979, 1984). This leads to a status quo bias which has been called the *endowment effect* (Thaler, 1980).[1] Both explanations can be ruled out because of our experimental setting. Before we started the weekly payments, we organized a practical information session for all the participants in the study. We showed them how to deposit and withdraw money, and demonstrated how a fingerprint recognition tool protects their money. Therefore, the villagers were well informed about the transaction costs being negligible, and the safety of the accounts. In fact, during the weeks of our study, the average account balance of the villagers in our control group, increased more than the balance of the villagers who already had an account, but were not selected for the study. This is likely due to the information session.

Inertia and procrastination provide two alternative explanations for the status quo bias. Inertia is the endurance of the default option due to inaction. The concept was introduced by Madrian and Shea (2001) as an explanation for the observed default behavior in 401(k) savings plans in the United States of America. The authors compare the savings of employees whose default option was either being opted in or being opted out of the savings plan. They find that both the participation, and the savings rates are significantly higher under the automatic

[1]Other explanations include *anchoring*, *regret avoidance*, and *framing effects* (Samuelson and Zeckhauser, 1988).

enrollment option.[2] Procrastination is the tendency to postpone unpleasant tasks. It is closely related to problems of self-control, i.e. conflicts between the preferences of present and future selves, and leads to inertia (Thaler and Benartzi, 2004).

The existence of inertia and procrastination makes it possible to use the default option as an effective tool to positively affect people's behavior. Well-known examples include organ donation decisions (Johnson and Goldstein, 2003; Abadie and Gay, 2006), the consent to receive e-mails (Johnson et al., 2002), and the enrollment to savings plans (Madrian and Shea, 2001). Our paper adds to this literature in a very different setting. We show that changing the default payment method is an effective tool to enhance the rural poor's savings on a formal bank account.

We interpret the increased savings as the result of the default option, i.e. as the outcome of a differential payment strategy. However, it is important to reject some alternative mechanisms that could have been at work. Using lab in the field trust and dictator games, we show that individuals who were paid on the account do not trust the local banker more than individuals who were paid in cash. We also provide evidence against the treated villagers having developed an active savings habit on their account, by conducting a twist on the original design. About seven weeks after we finished the weekly surveys, we went back to the same households but paid everyone in cash. As mentioned before, the account balance of the treated remained twice as high as the balance of the control individuals, but we no longer observed a differential increase in the savings of the treated. The observed difference in the balance was created during the weeks in which the treated were paid on the account. Once both groups were paid in cash, the treated did not deposit more or withdraw less than the control villagers.

Our paper makes three contributions. First, we show the importance of procrastination and inertia in explaining the low observed account usage in developing

[2]The importance of the default in the 401(k) plan has been further studied by Choi et al., 2002, 2004; Carroll et al., 2009.

countries. While existing studies have focused on the impact of providing formal bank accounts to the poor, we are, to the best of our knowledge, the first ones to measure the effect of moving from cash incomes to account-based payments. A basic bank account provides a place to save securely, to deal with remittances, and to receive government payments. The recent literature shows positive impacts on various outcomes from improved access to formal bank accounts, and large take-up rates in particular (Among others, Ashraf et al., 2006, 2010; Brune et al., 2011; Dupas and Robinson, 2013a,b). However, a striking pattern is the low usage of those accounts. For instance, Dupas and Robinson (2013a) offered bank accounts to Kenyan micro-entrepreneurs. While 87% took-up the account, only 41% made at least one transaction within the first six months. In a similar experiment, Dupas et al. (2012) find a 62% take-up rate, but a 18% usage rate, even when leniently defining active usage as making at least two deposits a year. Karlan et al. (2014) emphasize that the gap between take-up and usage of formal bank accounts remains to be explained. Our paper bridges this gap. Providing people with bank accounts may be necessary, but is not sufficient to provoke its usage in cash-based economies.

Second, our research is embedded into the latest financial inclusion policies in India. The debate about the evolution of mobile phone banking, coupled with the fingerprint identification of people, and the move towards account-based public transfers, is not settled. We outline the positive effects of pursuing the current policies to increase savings. Bank account penetration in India is 35 percent, with disparities along income and gender lines: only 21 percent of adults in the poorest income quintile, and 26 percent of women report having an account (Demirguc-Kunt and Klapper, 2012). To achieve greater financial inclusion, the Reserve Bank of India (RBI) introduced the Business Correspondents Model. The model allows banks to hire Business Correspondents (BCs) as intermediaries in providing financial and banking services on their behalf. Our partner, the NGO Basix Sub-K, is one of the BCs operating for AXIS bank. The BC in turn selects one grocery

shop owner per village to become the Business Correspondents Sub-Agent (BCSA). The BCSA opens no-frills accounts for villagers and uses a fingerprint recognition device to provide secure financial transactions at the doorstep. Most recently, the RBI's Committee on Comprehensive Financial Services for Small Businesses and Low Income Households submitted its final report (RBI, 2014). The report confirms the current trend and aims at providing each adult Indian with an electronic bank account, setting-up local access points to deposit and withdraw, and pursue the integration of formal bank accounts and unique identification. Our results provide a direct estimate of the impact of the RBI's policy. Our sample includes both villagers who had already opened an account, and villagers who did so with our help. Therefore, we believe that our sample is representative for the population of rural India, and that our experiment reflects the impact on account usage of moving from cash to account payments.

Finally, our work contributes to some other strands of the literature. First, we contribute to the literature focusing on the importance of behavioral biases in explaining savings behavior (Thaler and Shefrin, 1981; Shefrin and Thaler, 1988; Akerlof, 1991; Thaler, 1994; Bernheim, 1997; Laibson et al., 1998; O'Donoghue and Rabin, 1999a,b; Lusardi, 1999). Second, several authors have studied the impact of cash transfers. Research mainly focuses on the distinction between (i) conditional versus unconditional transfers, and (ii) in cash versus in kind transfers. To our knowledge, the only field experiment that explicitly tests the differential impact of transferring money through a mobile rather than in cash is Aker et al. (2013). Given the rapid development of mobile banking and financial inclusion policies, it is becoming easier and cheaper for governments to channel funds electronically rather than in cash. We provide a rigorous test of the potential savings impacts of such a change.

The paper is organized as follows. In Section 2 we provide more details on India's financial inclusion plan, on our experimental design, the data and attrition.

In Section 3 we show the main results, and in Section 4 we discuss alternative mechanisms that could have been at play. Section 5 concludes.

2 Background, Experimental Design and Data Collection

2.1 Background on India's Business Correspondents Model

To achieve greater financial inclusion, the Reserve Bank of India (RBI) took several measures. In 2006, the RBI propounded the Business Correspondents (BC) Model. The model, which is based on recommendations of the in 2004 created Khan Commission for financial inclusion, permits banks to appoint *BCs* as intermediaries in providing financial and banking services on their behalf. Initially, the entities permitted to act as BCs were restricted to NGOs/MFIs set up under Societies/Trust Acts, Societies registered under Mutually Aided Cooperative Societies or the Cooperative Societies Acts of States, section 25 companies, and registered Non Banking Financial Companies (RBI, 2006). However, the RBI gradually widened the list of eligible entities, as to provide more flexibility to banks (Among others, RBI, 2008b; RBI, 2009; RBI, 2010). In a notification sent out in August 2008, the RBI allowed BCs to hire *BCSAs* or Business Correspondents Sub-Agents, i.e. grass-root level entities who can render the services of the BCs (RBI, 2008a).

In the region where we conducted our survey, Axis bank appointed the NGO Basix Sub-K as a BC. Basix Sub-K, which is our main partner on the research project, is one of the pioneers in the BC model and already reaches more than half a million people. Its main responsibilities are selecting one grocery shop owner per village to become the BCSA, training the new local banker, and providing the necessary equipment: a mobile phone, a finger print recognition device and a receipt machine that are interconnected through bluetooth. Basix Sub-K also pays the BCSA, helps wherever needed and provides a customer service for the clients.

The first task of the BCSA is to help villagers opening a no frill bank account. The procedure is as follows. First, the BCSA has to send the customer's filled-in application form and a passport photo to Axis bank. Next, the bank opens the account and communicates the unique bank account number to the BCSA. Finally, the BCSA activates the account by registering the finger prints of the customer. Once this procedure is finalised, the customer can perform standard transactions on the account: deposits, withdrawals, money transfers, balance inquiries, and in some cases receiving government transfers. Balance inquiries and transactions that lead to a reduction of the balance require a signature through the finger print recognition device. The customer is charged an enrollment fee of Rs 25 when the account is used for the first time. Deposits are free, and so are withdrawals if the average quarterly balance (AQB) is above Rs 500. However, customers are charged Rs 2 per withdrawal if the AQB is less than Rs 200, and Rs 1 per withdrawal if the AQB is between Rs 200 and Rs 500.

2.2 Experimental Design

The experiment was conducted in Chhattisgarh, an east-central state of India. We selected 18 villages in collaboration with Basix Sub-K according to two criteria. First, we excluded villages with a cooperative, rural or commercial bank branch, as to be sure that the BCSA was the only person providing formal banking services at the doorstep. Second, we opted for clusters of villages that are sufficiently close to one another, as the survey team had to travel between them within a reasonable amount of time. The selected villages are located in three bordering districts: five in the Magarload block of the district Dhamtari, seven in the Rajim block of the district Gariyabandh, and six in the Abhanpur block of the district Raipur. These villages are close, but not contiguous, as can be seen from Figure 4 in the appendix. The average distance between the BCSAs is 20.5 km.

We sampled 26 participants in each village. The BCSA's customer list was used

to select 14 villagers who already had a BCSA account, and the voter list to sample 12 villagers without a BCSA account. Each person on the customer and the voter list was allocated a number. The sequence in which the villagers were approached respected the ascending order of those numbers. To be sampled, a villager should (i) be the head of the household or the head's spouse, (ii) be available in the village for a period of 9 months, (iii) belong to a household in which nobody has a savings account with another institution, such as a post office, cooperative bank, rural bank, public sector or private commercial bank[3], and (iv) - in case of being selected through the voter list - not yet have a BCSA account.

In the fall of 2013, trained enumerators visited the sampled participants at home to administer a baseline survey. At the end of the interview, the respondents without a BCSA account were encouraged to open one. Basix Sub-k took care of the paperwork and the associated costs. All the participants who were offered an account with the help of Basix Sub-K opened one. We organized a practical information session for all the participants in the study. We showed them how to deposit and withdraw money, and demonstrated the importance of the fingerprint recognition tool to protect their money.

From February till May 2014, we hired a centrally located room in each village, where we interviewed the participants on a weekly basis for a total of 7 to 13 weeks.[4] We gathered detailed information on the evolution of the household composition and on the various earnings and expenditures of the household members over the past 7 days. Because the villagers had to leave their house to be interviewed, and because the surveys were time consuming, they were paid Rs 150 for each interview, which is close to the salary of MGNREGA wage labor.[5] We randomized the way

[3]We allowed for accounts that were opened to receive payments from welfare schemes, or MGNREGA. We also allowed for cooperative bank accounts that were used for the payment of paddy or other grains only.

[4]We delayed the weekly interviews in some villages because (i) we wanted to follow-up and re-train the enumerators as closely as possible in the first couple of weeks, and (ii) it took longer than expected to open the bank accounts in a subset of villages.

[5]At the moment we started the weekly interviews, the MGNREGA salary was Rs 146 per day.

this weekly compensation was paid. Half the respondents received Rs 150 directly on their account (treated), while the other half received it in cash (control). The intervention and randomization are summarized in Figure 1.

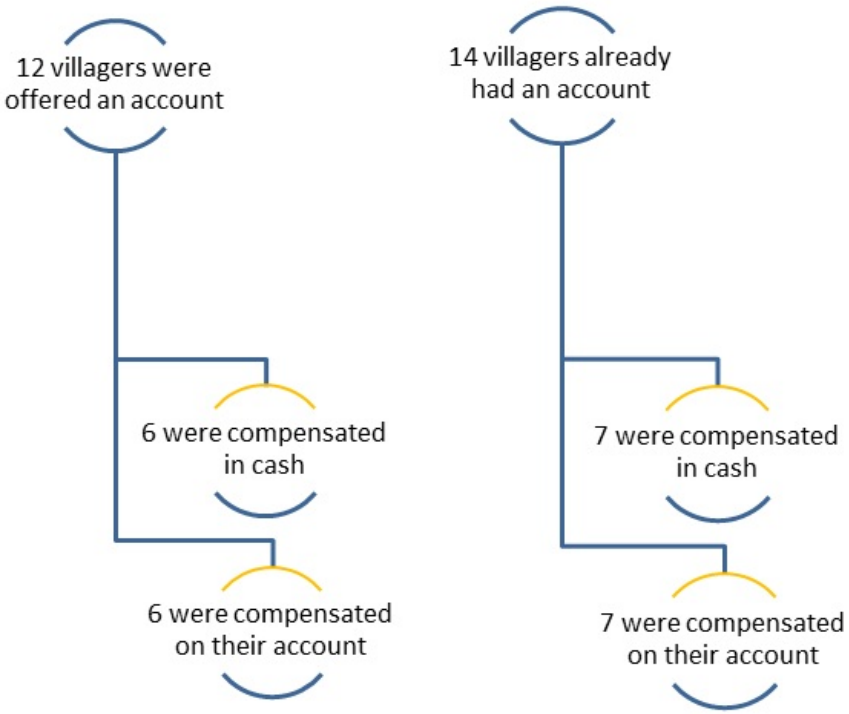

Figure 1: Sampling strategy

To guarantee a desired heterogeneity analysis in terms of gender, we stratified the sample. Therefore, the groups with 6 villagers consist of 3 men and 3 women. To accomplish the same for villagers who already had an account, we sampled 8 men and 6 women in 9 randomly chosen villages, and 6 men and 8 women in the other 9 villages. Half the men and women were paid on their account, the other half in cash.

In March 2014, it increased to Rs 157 per day.

2.3 Data

We use three sources of data. First, our baseline survey included questions on characteristics of the participants and their household members, such as education, marital status, occupation, accounts held, and membership of savings groups. It included a detailed asset module, as well as information on the household's income, production, expenditures, investments, transfers, loans, and formal and informal savings over the past 7 days. We also gathered detailed information on the shocks faced over the past year, decision making responsibilities within the household, personality traits, time and risk preferences, village networks and trust in various institutions.

Second, Basix Sub-K provided information on the use of the BCSA accounts. The data contains information on all the deposits, withdrawals, and transfers made or received by the respondents during the period of the experiment. It provides the data needed to construct our main dependent variables of interest.

Finally, data was gathered through weekly household surveys. During these *logbooks*, we up-dated the baseline survey on a weekly basis. For the scope of this paper, the main purpose of gathering this data was to provide employment in the village, so we could pay villagers differently.

2.4 Attrition

Shortly after we finished the baseline, one shop keeper discontinued being a BCSA because it was time consuming and not as profitable as his other activities. Given the decision was unrelated to our study and taken by the BCSA, the attrition should be orthogonal to the experimental treatment assignment. We document attrition in Table 1. The final sample available for the analysis consists of 442 participants.

Table 1: Attrition

	Had an account		**Opened an account**	
	Cash	Account	Cash	Account
	(1)	(2)	(3)	(4)
Number of people in the sample				
... at baseline	126	126	108	108
... after a BCSA discontinued	119	119	102	102

2.5 Baseline Characteristics and Balance Check

The baseline survey was administered at the households' homes between October 2013 and January 2014. The first two columns of Table 2 present the final sample's baseline characteristics. The sample consists of 442 respondents, 221 were paid cash, and 221 on their account. The first column provides the sample mean and the standard deviation for a series of characteristics. To test for balance across groups, the second column presents the coefficient estimates (and standard errors) of the difference between the baseline means in the treatment and control groups. All of the 22 coefficient estimates are small and none of them is significantly different from zero, suggesting that the randomization was successful at making the treatment orthogonal to observed baseline characteristics.

We learn that 50% of the sample are women. This is due to our stratification on gender. In terms of demographic characteristics, respondents are mainly Other Backward Castes (OBC)[6], and less than half of them are literate. A great majority is married, and employed in agriculture (the omitted category is being unemployed). On average, respondents hold one other account with either a post office, cooperative bank, rural bank or formal bank, and one out of five participants belongs to a neighborhood or Self-Help Group. Most respondents are involved in the household's decision about where and how much to save, and they trust both the BCSA and

[6]Castes are classified in the following categories: ST (Scheduled Tribe), SC (Scheduled Caste), OBC (Other Backward Caste), and FC (Forward Caste). The omitted category is ST.

banks.[7] In terms of time preferences, 42% of the participants are impatient, i.e. they prefer money today instead of a larger amount in one week. The sample is quiet poor. They own about one acre of land on average, and 53% have a house made of mud (katcha). The average distance from the house to the BCSA is about 290 meter in crow flies. The last two variables are not included in the regressions, but provide some important information: the money on the BCSA account was balanced shortly before we started the weekly interviews, and so is the average number of weeks the respondents joined the weekly interviews. The average respondent was interviewed 10 times.

The final two columns of Table 2 present the same information for the restricted sample of respondents who were available on the days we conducted our lab in the field experiment. This sample is used in Section 4.

3 Experimental Results

3.1 Impact

We study the impact of being paid on the account by running the following regression:

$$Y_{ij} = \beta_0 + \beta_1 T_{ij} + \beta_2 X_{ij} + V_j + \epsilon_{ij} \tag{1}$$

where Y_{ij} is a measure of the savings kept on the account of individual i in village j, T_{ij} is a dummy indicating the respondent was paid on the account, and X_{ij} is a vector of baseline characteristics which includes all but the last two variables that were presented in Table 2. We estimate equation 1 both with and without these individual controls. V_j are village fixed effects that control for differences in time-invariant unobservables across villages, and ϵ_{ij} is the error term.

[7] The respondents were asked whether they trust the BCSA and banks. We build a trust index equal to one if the answer to both questions is "quite a bit of trust" or "a lot of trust". Otherwise, the index is equal to zero.

Table 2: Summary Statistics and Balance Check of Baseline Characteristics

	Full sample		Lab sample	
	Mean (Std. dev.)	Coefficient on *Paid on account* (Std. errors)	Mean (Std. dev.)	Coefficient on *Paid on account* (Std. errors)
	(1)	(2)	(3)	(4)
Paid on account (%)	50.00		47.24	
	(50.06)		(49.99)	
Had to open BCSA account (%)	46.15	-0.00	45.67	-0.02
	(49.91)	(0.05)	(49.88)	(0.05)
Woman (%)	49.77	0.00	51.44	0.00
	(50.06)	(0.05)	(50.04)	(0.05)
Caste catgory: SC (%)	12.22	-0.02	11.81	-0.01
	(32.79)	(0.03)	(32.32)	(0.03)
Caste catgory: OBC (%)	74.43	-0.00	74.28	-0.01
	(43.67)	(0.04)	(43.77)	(0.04)
Caste catgory: FC (%)	0.68	0.00	0.79	0.01
	(8.22)	(0.01)	(8.85)	(0.01)
Married (%)	88.24	0.01	87.40	-0.00
	(32.26)	(0.03)	(33.23)	(0.03)
Literate (%)	48.19	0.00	46.98	0.00
	(50.02)	(0.05)	(49.97)	(0.05)
Land (acres)	1.17	-0.05	1.19	-0.03
	(1.74)	(0.17)	(1.81)	(0.19)
Age	43.00	0.43	43.57	0.07
	(12.61)	(1.20)	(12.69)	(1.30)
Wage labor in agriculture (%)	29.19	0.00	29.40	0.01
	(45.51)	(0.04)	(45.62)	(0.05)
Wage labor outside agriculture (%)	13.80	0.01	14.17	0.04
	(34.53)	(0.03)	(34.92)	(0.04)
Self-employed in agriculture (%)	45.48	-0.01	44.36	-0.04
	(49.85)	(0.05)	(49.75)	(0.05)
Self-employed outside agriculture (%)	4.07	-0.01	4.20	-0.01
	(19.79)	(0.02)	(20.08)	(0.02)
Dwelling type: katcha (%)	52.49	0.01	52.49	0.01
	(49.99)	(0.05)	(50.00)	(0.05)
Accounts held (#)	1.17	0.01	1.18	0.01
	(0.60)	(0.06)	(0.59)	(0.06)
Savings groups (#)	0.17	-0.00	0.17	-0.01
	(0.38)	(0.04)	(0.39)	(0.04)
Impatient (%)	42.08	0.04	43.31	0.03
	(49.42)	(0.05)	(49.62)	(0.05)
Takes savings decision at home (%)	84.84	0.02	84.25	0.02
	(35.90)	(0.03)	(36.47)	(0.04)
Trusts the BCSA and banks (%)	73.30	0.03	72.70	0.01
	(44.29)	(0.04)	(44.61)	(0.05)
Distance to the BCSA (km)	0.29	-0.03	0.28	-0.02
	(0.22)	(0.02)	(0.20)	(0.02)
Balance on BCSA account before start weekly surveys (Rs.)	116.56	14.77	125.18	13.53
	(712.63)	(67.87)	(760.23)	(78.11)
Weeks interviewed (#)	9.73	-0.44	10.18	-0.33
	(3.05)	(0.29)	(2.52)	(0.26)
Observations	442	442	381	381

The first two columns present the characteristics for the final sample which is used in the main analysis. Half of the respondents were paid on the account, and the other half in cash. The last two columns provide the characteristics for the restricted sample of respondents who joined our lab in the field games. The columns 1 and 3 report means (and standard deviations), and the columns 2 and 4 show the coefficient estimates (and standard errors) of the difference between the means in the treatment and control groups. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent

We use the account's data that we received from Basix Sub-K to construct three different measures of savings: (i) the *final balance* is the respondent's balance the day after we conducted the last weekly interview in the village, (ii) the *average balance* is the average account balance from the day after the first till the day after the last weekly interview in the village; and finally we use the same interval to create the variable (iii) *positive balance*, which is the ratio between the number of days with a positive balance and the total number of days in that interval. Respondents who are paid on the account are advantaged in the last two measures, as Rs 150 was deposited on their account after each interview. To undo this advantage, we only include amounts that were not withdrawn on the day the interview took place.

The main results are shown in Table 3.[8] Columns 1 and 2 present the results for the final balance, columns 3 and 4 for the average balance and columns 5 and 6 for the share of the days the respondent had a positive balance. Regressions without controls are provided in the odd numbered columns and those with controls in the even numbered columns.

Being paid on the account has significant positive effects on the different measures of savings on the account. Compared to the control mean, the effects are extremely large: the final balance increases by 110-114 percent, the average balance by 83-89 percent, and the ratio of the number of days with a positive balance by 47-48 percent.

The results are graphically presented in Figure 2. The horizontal axis shows the number of weeks since the start of the weekly interviews, and the vertical axis the balance on the BCSA account. The balance of the respondents who are paid on the account first-order stochastically dominates the balance of the respondents who are paid in cash. The stable balance of those who did not participate in our study suggests the absence of spill-over effects to villagers outside the study.

[8]The results for the other covariates are available upon request.

3.2 Heterogeneity

We test for heterogeneity in the treatment effects for five observable characteristics that we specified in our preplan.[9] Equation 1 becomes:

$$Y_{ij} = \gamma_0 + \gamma_1 T_{ij} + \gamma_2 H_{ij} + \gamma_3 T_{ij} \times H_{ij} + \gamma_4 X_{ij} + V_j + \nu_{ij} \quad (2)$$

We run five separate regressions in which H_{ij} is a dummy variable taking value one if the respondent (i) was offered (and therefore opened) an account, (ii) is a women, (iii) is impatient, (iv) takes savings decisions in the household, and (v) trusts both the BCSA and banks, respectively.

The main results are presented in different panels in the Tables 4 and 5. The specifications are similar to those presented in Table 3: we test the impact on the three measures of savings, both without and with controls. The only difference is the inclusion of an interaction term between the treatment and the dummy of

[9]Our preplan was submitted to the American Economic Association.

Table 3: Impact of being paid on the account on savings

	Final Balance		Average Balance		Positive Balance	
	(1)	(2)	(3)	(4)	(5)	(6)
Paid on account	432.42***	416.24***	266.27***	249.21***	0.29***	0.28***
	(64.00)	(75.60)	(34.66)	(43.41)	(0.04)	(0.03)
Had to open BCSA account		-210.79		-216.24		-0.19***
		(134.94)		(132.96)		(0.04)
Woman		64.31		-8.13		0.06**
		(93.32)		(92.44)		(0.03)
Controls	No	Yes	No	Yes	No	Yes
Observations	442	442	442	442	442	442
R^2	0.06	0.10	0.03	0.08	0.18	0.32
Mean dependent (control)	379.4	379.4	300.4	300.4	0.60	0.60

In the columns 1-2 the dependent variable is the respondent's balance on the BCSA account the day after we conducted the last weekly interview in the village, in the columns 3-4 it is the average account balance from the day after the first till the day after the last weekly interview in the village; and in the columns 5-6 the share of the number of days with a positive balance in that period. Baseline characteristics in the columns 2, 4 and 6 include the respondent's caste category, marital status, ability to read and write, land, age, occupation dummies, dwelling type, accounts held, membership of savings groups, and distance to the BCSA. It also includes dummies indicating whether the respondent is impatient, takes savings decisions in the household, and trusts both the BCSA and banks. All columns include village fixed effects. Bootstrapped standard errors are given in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

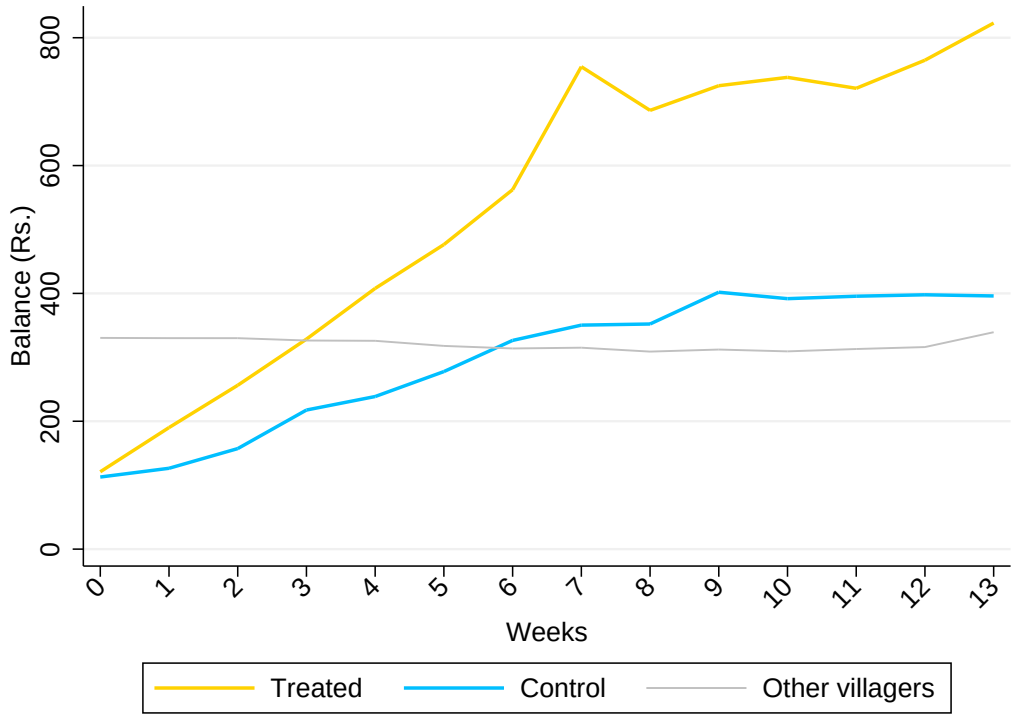

Figure 2: Balance on the BCSA account

interest. Within each panel, we first present the coefficient and standard error of being treated, the dummy of interest and their interaction. Next, we show the R^2.

The treatment effect is still positive and significant in all the specifications. The only exception is the impact on the average balance in the final panel. None of the interaction terms is significant, suggesting that there are no heterogeneous treatment effects. Three out of the five variables under study are not randomly assigned: being impatient, taking savings decisions, and having trust in banks and the BCSA. For those, the lack of an effect can be due to correlation with other characteristics. As we had stratified on gender and on having opened an account, we can put forward that the default option has similar effects on men and women, and on old and new account holders.

Table 4: Heterogenous effects: had to open an account, and gender

	Final Balance		Average Balance		Positive Balance	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Treatment effect for the respondents who opened an account						
Paid on account (PA)	444.96***	417.78***	299.82***	286.24***	0.20***	0.18***
	(97.28)	(128.64)	(38.69)	(55.78)	(0.04)	(0.03)
New account	-168.29	-209.05	-185.68	-174.54	-0.31***	-0.31***
	(184.79)	(206.03)	(166.46)	(159.95)	(0.06)	(0.06)
PA x new account	-27.17	-3.32	-72.69	-79.67	0.21***	0.22***
	(135.93)	(169.51)	(60.55)	(76.78)	(0.05)	(0.05)
R^2	0.07	0.10	0.05	0.08	0.30	0.34
Panel B: Treatment effect by gender						
Paid on account (PA)	373.47***	354.40***	219.06***	211.94***	0.29***	0.30***
	(67.27)	(96.71)	(49.35)	(54.39)	(0.04)	(0.04)
Woman	10.77	4.49	-67.13	-44.19	0.06	0.08
	(88.21)	(117.53)	(86.49)	(91.57)	(0.05)	(0.05)
PA x woman	118.44	124.36	94.83	74.96	-0.00	-0.03
	(98.46)	(119.93)	(85.72)	(90.96)	(0.05)	(0.06)
R^2	0.06	0.10	0.03	0.08	0.19	0.32
Controls	No	Yes	No	Yes	No	Yes
Observations	442	442	442	442	442	442
Mean dependent (control)	379.4	379.4	300.4	300.4	0.60	0.60

Each panel presents the main results of testing for heterogeneity in the treatment effects of a different baseline characteristic. In the columns 1-2 the dependent variable is the respondent's balance on the BCSA account the day after we conducted the last weekly interview in the village, in the columns 3-4 it is the average account balance from the day after the first till the day after the last weekly interview in the village; and in the columns 5-6 the share of the number of days with a positive balance in that period. Baseline characteristics in the columns 2, 4 and 6 include the respondent's caste category, marital status, ability to read and write, land, age, occupation dummies, dwelling type, accounts held, membership of savings groups, and distance to the BCSA. It also includes the dummies of the five heterogenous effects under study: whether the respondent was offered an account, is a women, is impatient, takes savings decisions in the household, and trusts both the BCSA and banks. All columns include village fixed effects. Bootstrapped standard errors are given in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent

Table 5: Heterogenous effects: being impatient, takes savings decisions and trusts the BCSA and banks

	Final Balance		Average Balance		Positive Balance	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel C: Treatment effect by impatience						
Paid on account (PA)	391.89***	391.65***	262.02***	251.86***	0.29***	0.29***
	(95.87)	(113.74)	(45.94)	(59.66)	(0.04)	(0.04)
Impatient	15.62	47.74	-12.48	12.23	-0.02	-0.02
	(50.14)	(64.72)	(36.66)	(54.99)	(0.05)	(0.04)
PA x impatient	91.05	58.63	10.70	-6.32	0.01	-0.01
	(101.48)	(123.28)	(52.45)	(70.72)	(0.06)	(0.05)
R^2	0.06	0.10	0.03	0.08	0.18	0.32
Panel D: Treatment effect for respondents who take savings decisions at home						
Paid on account (PA)	528.09***	480.99**	359.54**	308.48*	0.26***	0.23***
	(180.02)	(197.59)	(147.02)	(157.45)	(0.08)	(0.08)
Decides savings	159.90	185.34	177.17	179.46	-0.08	-0.06
	(183.24)	(185.04)	(193.74)	(188.89)	(0.07)	(0.06)
PA x decides savings	-115.49	-76.06	-113.15	-69.62	0.03	0.07
	(220.80)	(251.97)	(177.89)	(198.48)	(0.08)	(0.08)
R^2	0.06	0.10	0.03	0.08	0.19	0.32
Panel E: Treatment effect for respondents who trust both the BCSA and banks						
Paid on account (PA)	376.82**	365.49**	202.84**	213.75**	0.41***	0.40***
	(154.00)	(149.47)	(102.45)	(88.68)	(0.08)	(0.07)
Trust bank & BCSA	4.35	16.14	58.22	66.10	0.13*	0.12*
	(86.18)	(100.88)	(43.68)	(55.63)	(0.08)	(0.07)
PA x Trust bank & BCSA	74.31	69.50	82.84	48.57	-0.16**	-0.16**
	(145.71)	(124.12)	(122.05)	(92.62)	(0.08)	(0.07)
R^2	0.06	0.10	0.03	0.08	0.20	0.33
Controls	No	Yes	No	Yes	No	Yes
Observations	442	442	442	442	442	442
Mean dependent (control)	379.4	379.4	300.4	300.4	0.60	0.60

See Table 4 notes.

4 The 'default' or other mechanisms at work?

We interpret the increased savings that we presented in Section 3 as the result of the default option, i.e. as the outcome of a differential payment strategy. In this section, we formally reject some alternative mechanisms that could have been at work. In Section 4.1, we show that respondents who were paid on the account do not trust the BCSA more than respondents who were paid in cash. In Section 4.2, we provide evidence against the treated respondents having developed an active savings habit on the BCSA account.

4.1 Trust in the BCSA

From Table 2 we know that a large majority of the respondents answered positively on the question whether or not they trust the BCSA and formal banks. However, we did not study their behavior when real money is at stake. One might put forward that the frequent interaction between the BCSA and the treated respondents increases trust and therefore the willingness to keep a higher balance on the account. To test whether this is the case, we played trust and dictator games in the field shortly after the last weekly interview.

First, the respondents were asked to play a trust game in the role of the trustor, while the BCSA was the trustee. They had to allocate a fixed endowment X of Rs 50 between themselves and the BCSA using multiples of 10. The BCSA received triple the amount sent, $3X$, and could send back any amount Y between 0 and $3X$, using multiples of 10 (0; 10; 20;...; $3X$). The respondent earned (50 - X + Y) and the BCSA ($3X$ - Y). The BCSA did not know who gave the money, he only knew it came from a person in his village.

Next, each respondent was asked to play a triple dictator game in the role of the dictator. The respondent had to allocate a fixed endowment of Rs 50 between himself and his BCSA, using multiples of 10. The villager earned (50 - X) and the

BCSA $3X$. Again, the BCSA did not know who gave the money, he only knew it came from a person in his village.

We estimate Equation 1, where Y_{ij} is the amount sent to the BCSA by respondent i in village j in the trust and the triple dictator game, respectively. The first two columns of Table 6 present the results for the trust game, and the last two columns for the triple dictator game.

Table 6: Treatment effect on trust and kindness

	Trust game		Dictator game	
	(1)	(2)	(3)	(4)
Paid on account (PA)	-1.71	-1.60	0.49	0.57
	(1.11)	(1.20)	(0.89)	(0.95)
Controls	No	Yes	No	Yes
Observations	381	381	381	381
R^2	0.00	0.06	0.00	0.06
Mean dependent (control)	21.5	21.5	10.1	10.1

In the columns 1-2 the dependent variable is the amount sent to the BCSA in a trust game, and in the columns 3-4 the amount sent in a triple dictator game. Baseline characteristics in the columns 2 and 4 include the respondent's gender, caste category, marital status, ability to read and write, land, age, occupation dummies, dwelling type, accounts held, membership of savings groups, and distance to the BCSA. It also includes dummies indicating whether the respondent was offered an account, is impatient, takes savings decisions in the household, and trusts both the BCSA and banks. All columns include village fixed effects. Bootstrapped standard errors are given in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Being paid on the account has no significant effect on the amount sent to the BCSA. Furthermore, the difference is economically negligible. We therefore conclude that our treatment had no significant impact on the trust in the local banker.

4.2 Learning effects

Individuals who are paid on their account on a regular basis might develop the habit to save on that account and deposit money themselves. If this is the case, being paid in cash instead of on the account should not hinder a further increase of the balance. We test this formally in the field. At the end of *phase 1*, i.e. at the end of

the weekly interviews in which the treated respondents were paid on the account, and the control group in cash, we took a break. After the break, we re-started the weekly interviews, but paid all the respondents in cash (= *phase 2*). We explicitly told them that the use of the accounts did not change, but that they have to deposit themselves the share of their income they want on the account.

The evolution of the balance is graphically presented in Figure 3. At the end of phase 1, the control group's account balance slightly decreases before it becomes stable. The balance of the treated respondents decreases more, before it becomes stable as well around week 19. The account balance of the treated remains twice as high as the balance of the control individuals, but - even though the respondents receive the exact same income during phase 2 as during phase 1 - we no longer observe a differential increase in the savings of the treated. The observed difference was created during the weeks in which the treated were paid on the account. This suggests that the treated did not develop the habit of actively depositing on the account.

We formally estimate the significance of the changes in the balance over time using the following household fixed effects regression:

$$Y_{ijt} = \delta_0 + \delta_1 D_t + \delta_3 T_{ij} \times D_t + W_i + \mu_{ijt} \tag{3}$$

where Y_{ijt} is the balance on the account of respondent i in village j at time t, D_t are time dummies, and $T_{ij} \times D_t$ are the interactions of being treated during phase 1 and each of the time dummies. The coefficient of T_{ij} is not estimated, as we include individual fixed effects W_i. We create a panel consisting of ten observations per household. The first observation is the day before the first interview took place in the village, i.e. the day before we started the treatment. The second observation is the day after the end of phase 1 in the village. The other 8 observations in the panel are approximately biweekly: week 2, 4, and 6 during the break (= week 15, 17 and 19 in Figure 3); the day before we started phase 2 (= just before week 21

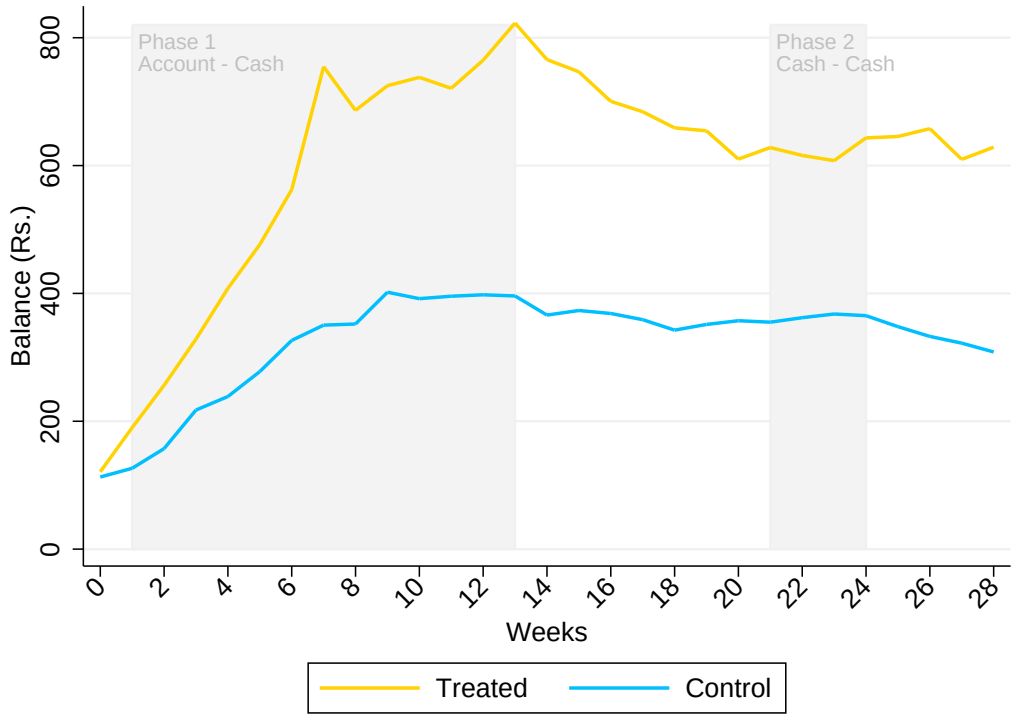

Figure 3: Balance during, in between and after phase 1 and phase 2

in Figure 3); week 2 and 4 of phase 2 (= week 22 and 24 in Figure 3); and finally 2 and 4 weeks after the end of phase 2 (= week 26 and 28 in Figure 3).

The results are presented in Table 7. The first column provides the regression results, and the second column the difference between the impact at time t and at time $t-1$ of the panel. The omitted category is the day before the start of phase 1 in the village. The evolution of the balance of the control group is estimated in the first part of the Table, and of the treated respondents in the second part, i.e. where the time dummies are interacted with the dummy indicating that the person was paid on the account. The balance of the control group is stable over time: it decreases insignificantly after phase 1, increases slightly in the first weeks of phase 2 and decreases significantly after phase 2. This is consistent with a pattern of consumption smoothing over time. The treated respondents significantly decrease

Table 7: Balance evolution over time

	Balance	Difference
	(1)	(2)
Day after last interview of phase 1	272.53***	
	(42.30)	
Two weeks after last interview of phase 1	250.58***	-21.95
	(50.76)	(27.78)
Four weeks after last interview of phase 1	236.76***	-13.81
	(50.02)	(12.35)
Six weeks after last interview of phase 1	229.57***	-7.20
	(50.43)	(11.30)
Day before the start of phase 2 in the village	225.21***	-4.36
	(51.89)	(13.46)
Day after second interview of phase 2	239.75***	14.55**
	(53.85)	(7.20)
Day after fourth (and last) interview of phase 2	242.80***	3.04
	(54.98)	(24.78)
Two weeks after last interview of phase 2	211.52***	-31.27*
	(50.99)	(15.97)
Four weeks after last interview of phase 2	188.10***	-23.42**
	(49.97)	(11.56)
Paid on account		
x Day after last interview of phase 1	415.30***	
	(57.76)	
x Two weeks after last interview of phase 1	362.06***	-53.24*
	(64.29)	(32.23)
x Four weeks after last interview of phase 1	314.25***	-47.81**
	(63.42)	(19.39)
x Six weeks after last interview of phase 1	291.96***	-22.29
	(63.58)	(15.55)
x Day before the start of phase 2 in the village	257.50***	-34.45
	(67.19)	(29.49)
x Day after second interview of phase 2	243.80***	-13.71
	(69.04)	(14.20)
x Day after fourth (and last) interview of phase 2	267.85***	24.05
	(76.96)	(52.71)
x Two weeks after last interview of phase 2	313.36***	45.51
	(73.67)	(30.91)
x Four weeks after last interview of phase 2	308.17***	-5.19
	(72.52)	(30.19)
Observations	4420	
R^2	0.11	

In column 1 the dependent variable is the respondent's balance. It includes household fixed effects. Column 2 provides the difference between the impact on the balance at time t and time $t-1$ in the panel. During phase 1,the treated villagers were paid on the account, and the control villagers in cash. During phase 2, all villagers were paid in cash. Standard errors are in parenthesis.
*** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

their balance immediately after phase 1, but not in the weeks before, during and after phase 2. In the first weeks of phase 2, the balance even goes down a bit more, though it is not significant.

The results reject the hypothesis that the treated respondents developed a savings habit on their account and therefore reached a higher balance. The balance of the treated as compared to the control increased significantly only, in those weeks where the treated villagers were paid directly on the account.

5 Conclusions

Several products have been created to encourage households to save more, from simple technologies such as a box with a key (Dupas and Robinson, 2013b), to savings reminders (Karlan et al., 2010) and commitment savings accounts (Ashraf et al., 2006; Ashraf et al., 2010). Although the overall impact is positive, each of these technologies requires some self-control, as it is still necessary to make an active decision to save. In developed countries, some products are designed to overcome the need of taking an active decision. A well known example are the automatic transfers to 401(k). In developing economies, where most economic transactions are settled in cash, automatic transfers on the account could serve the same purpose. We tested this hypothesis in rural India. We compared the savings on formal bank accounts of villagers who received identical weekly payments, but were randomly allocated to being paid in cash or on the account. We find that being paid on the account increases savings by around 110 percent after three months. People paid in cash could easily have deposited money, given that they received it at a location which is very close to the local bank branch. The villagers paid on the account could have withdrawn it on their way home, without having to make a substantial detour.

Our sample includes both villagers who had already opened an account, and villagers who did so with our help. The combination is important to deal with initial self-selection, and to have a sample that is representative of what a large

scale financial inclusion plan - with accounts opened for everyone - would achieve. An important outstanding question is the evolution of the savings on the account in case we move away from a cash economy.

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6 Appendix A: Figures and Tables

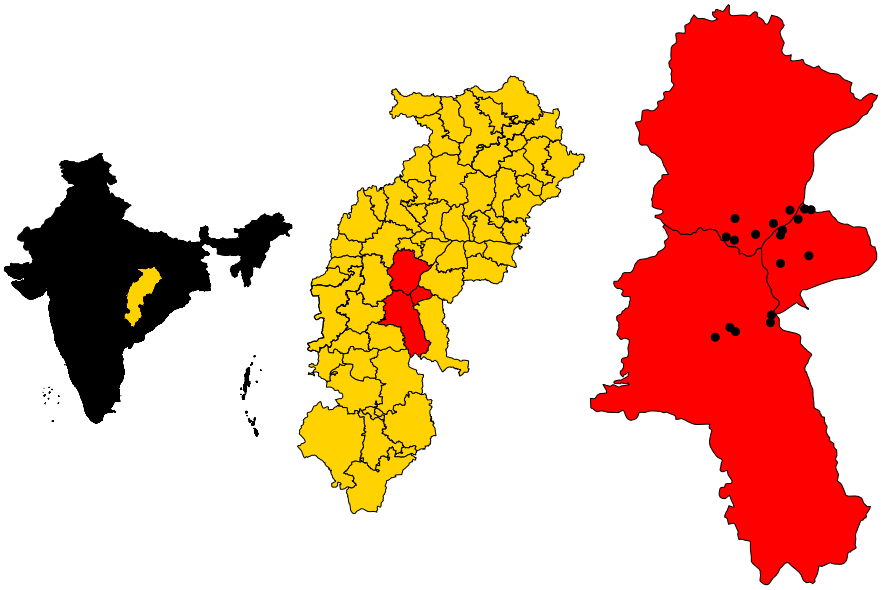

Figure 4: Study Area