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Increasing Trust in the Bank to Enhance Savings: Experimental Evidence from India

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Abstract

Recent evidence highlights the importance of trust in explaining bank account savings. According to economic theory, repeated interactions can play a crucial role in shaping trust. We designed the first field experiment that tests whether increased interactions between clients and bankers influence a client's trust in bankers. We promoted interactions by randomly (i) opening accounts for the unbanked and (ii) making weekly payments on their accounts. At the end of these interventions, we measured trust by playing trust games between clients on the one hand, and their own local banker as well as an anonymous other banker on the other hand. The only intervention that has a significant impact on the number of interactions is opening a bank account. It also greatly increases trust in the anonymous banker, but not in their own banker.

Next, we investigate the importance of trust for account savings. We find a strong positive correlation between the clients' trust in their own banker and savings in the account, but their trust in another banker does not correlate with savings. From the decomposition of trust in its different determinants, we learn that expected trustworthiness matters most in explaining savings, while there is a minor role for social preferences and no role for risk attitudes.

We conclude that the personalized client-banker relationships are crucial, but not malleable. Strategies which can deal with the expected trustworthiness - such as providing access to an ATM, or to a denser network of local bankers - might promote bank account savings.

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1 Introduction

Trust is considered a cornerstone of economic development. All economic transactions involve trust (Arrow, 1972), and the trust level in a given society is a strong predictor of its prosperity (Putnam, 1993; Fukuyama, 1995). Many empirical studies have highlighted the positive role of trust on economic outcomes.[1] In particular, recent evidence highlights the importance of trust in explaining formal bank account savings (Coupe, 2011; Dupas et al., 2012; Iyer and Puri, 2012; Sapienza and Zingales, 2012; Bachas et al., 2015). Making a deposit implies trusting that the bank will keep it safe and will make it available for withdrawal whenever required. Enhancing trust is particularly important in the context of the large ongoing financial inclusion programs in several developing countries, where lack of trust in banks contributes to a low account utilization (Karlan et al., 2014).

However, few studies focus on whether, and how, trust can be influenced. We conduct a randomized field experiment in rural India to shed light on this question. Our approach is based on theoretical and empirical work suggesting that repeated interactions can influence trust.[2] We designed two treatments to promote interactions between villagers and their local banker, and we test whether those treatments impact the villagers' trust in their banker. Additionally, we use bank records to document how the clients' trust in their banker correlates with the use of their account, and in particular with their levels of savings.

The study takes place in three rural districts in the state of Chhattisgarh, India. The bankers are local grocery shop owners. They are selected under India's Business

[1] These include: economic growth (Knack and Keefer, 1997; La Porta et al., 1997), financial development (Guiso et al., 2004, 2008), bilateral trade in goods, financial assets, and direct foreign investment (Guiso et al., 2009), citizen's demand for public regulation (Aghion et al., 2010), as well as microeconomic outcomes such as personal income (Butler et al., 2009) and investments (El-Attar and Poschke, 2011).

[2] From a theoretical viewpoint, we are referring to the game theory of repeated games such as discussed in the seminal paper of Fudenberg and Maskin (1986). We discuss the empirical studies later in this introduction.

Correspondents Model, a financial inclusion scheme that started in 2006. There is one banker per village, who provides banking services on behalf of a commercial or public bank: he assists in opening no-frills bank accounts, and performs standard transactions.

To influence the interactions between bankers on the one hand and existing clients and other villagers on the other hand, we randomly introduce two treatments. The first treatment consists in opening a bank account to a random sample of 204 out of 306 villagers who did not have one yet (= *new account holders*). We also sample 238 villagers who had opened an account themselves (= *old account holders*). As a next step, we organized a practical information session for both the new and old account holders. We showed them how to deposit and withdraw, and demonstrated how a fingerprint recognition tool protects their money. Once the villagers were familiar with the features of their account, we started the second treatment, consisting of weekly interviews that were conducted for about ten consecutive weeks. At the end of each interview, the villagers received Rs 150. The only difference was the method of payment: we randomly allocated the old and new account holders to being paid on the account (treated), or in cash (control). The villagers without an account were obviously paid in cash. The first treatment obliges the clients to meet the banker when they open the account, and when they attend the information session. The second treatment may provoke additional interactions, as clients have to face the banker whenever they want to withdraw the account-based payments.

Six weeks after the last weekly interview we went back to measure trust, using the trust game as per Berg et al. (1995). All the villagers in our sample play as trustor, and the local bankers as trustee. As the local banker is also one of the grocery shop owners in the village, people have been interacting with him long before the introduction of banking. Therefore, the villagers' trust in that person may be defined by a pre-existing relationship and not only by his status as a banker. To

test whether the treatments affect trust in bankers more generally, each villager also plays with an anonymous other banker (who works for the same bank). These two games allow us to differentiate the personalized relationship between villagers and their own banker, from trust in bankers more generally.

We measure trust by the amount sent in the trust game, and understand it as "*the willingness to make oneself vulnerable to another person's actions, based on beliefs on that person's trustworthiness*" (Bohnet, 2008). As such, trust can be explained by the trustor's individual preferences, and by beliefs about the trustee's trustworthiness. Individual preferences include social preferences such as altruism (Andreoni and Miller, 2002; Cox, 2004; Ashraf et al., 2006), inequity aversion (Fehr and Schmidt, 1999), and warm glow (Andreoni, 1990, 1995) on the one hand, and risk preferences (Eckel and Wilson, 2004; Schechter, 2007; Houser et al., 2010) on the other hand. Expected trustworthiness depends on beliefs about the trustee's social preferences and likelihood of reciprocation (Barr, 2003; Ashraf et al., 2006). To better understand which components of trust are affected by the treatments and correlate with bank account use, we played additional lab in the field games (in a manner similar to Ashraf et al., 2006). We obtained the villagers' beliefs on their banker's trustworthiness by asking how much they expect to receive back, and their social preferences by playing a dictator game. Finally, we assess their risk preferences through risk lotteries, in which they had to choose between a risky choice, or a certain payoff.

Opening a bank account has a positive, significant impact on the number of interactions between the new account holders and their banker. It also greatly increased trust in the anonymous other banker, but not in their own local banker. Our interpretation is that the increased interactions with the banker enhanced trust in bankers more generally. However, trust in the own banker is determined by a pre-existing relationship, and is therefore not malleable. When we decompose trust, we find that the impact comes from increased expected trustworthiness, and not

from a change in social preferences or risk preferences. As for the second treatment (account instead of cash payments), it did not significantly impact the number of interactions nor the trust levels.

Secondly, we observe that clients who trust their own banker save more in their bank account. However, trust in the anonymous other banker does not correlate with account savings. This suggests that the personalized relationship with the banker is more important in explaining account savings than the general trust in bankers. When we again decompose trust in its different motives, we find that savings in the bank account do not correlate with risk aversion, weakly with social preferences, and strongly with expectations about the banker's trustworthiness.

Our findings can be summarized as follows. Trust in one's own banker matters for bank account savings. Opening a bank account enhanced trust in bankers more generally, but failed to affect the trust between clients and their own banker. This suggests that local relationships are crucial to stimulate bank account use, but not malleable. These findings have important policy implications that we elaborate upon in the conclusion.

Our first contribution is to provide empirical evidence on mechanisms that influence trust. Thus far, there is limited experimental evidence. Kosfeld et al. (2005) explore neurophysiological mechanisms by randomizing the inhalation of oxytocin. The share of subjects showing maximal trust is considerably higher in the oxytocin group than in the placebo group. The threat of punishment also influences trust (Charness et al., 2008), and so do non-monetary incentives like targeted suggestions (Asanov and Vannuccini, 2015). Some studies explore the effects of increasing interactions in the lab on trust (Camerer and Weigelt, 1988; Brown et al., 2004; Cochard et al., 2004; Engle-Warnick and Slonim, 2004, 2006). However, to the best of our knowledge, we are the first ones to link an increase in interactions outside the lab to changes in inter-personal trust measured in the lab.[3] Furthermore, by playing

[3]Feigenberg et al. (2013) show that a randomized intervention that increases the meeting

additional games between villagers and bankers, we can decompose trust into social preferences, risk preferences, and expected trustworthiness. This allows us to understand the underlying drivers of trust more precisely.

The second contribution of our study is linking trust in the lab, with real savings behavior. There is a growing literature on the importance of trust in finance. A majority of those studies measure someone's general trust level using survey questions,[4] and link it to various financial variables.[5] However, few studies measure trust in a lab setting.[6] We confirm the strong correlation between experimental measures of trust and savings in a bank account. To the best of our knowledge, we are the first to use trust games between real clients and their bankers. This allows us to estimate how the client's personalized trust in the banker - and not his general trust level - correlates with bank account savings. In addition, by playing the same games with an anonymous other banker, we also have a measure of trust in bankers more generally.

We present the context of the study, the design and the data set in Section 2.

frequency of microfinance groups induced higher loan repayment rates, risk pooling, and social interactions. They suggest that the underlying mechanism is enhanced trust, but they do not measure it explicitly.

[4]For instance, some papers use the World Value Survey question: *"Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"* (World Values Survey, 2015).

[5]At the macro level, Sapienza and Zingales (2012) put trust forward as an explanatory factor in the financial crisis of 2008. At the micro level, more trusting households are more likely to use checks, invest less in cash, more in stock, and have a higher access to formal credit (Guiso et al., 2004). Households with a higher trust level are also more likely to buy stock, and buy more stock when they do so (Guiso et al., 2008), they invest less in housing and more in (risky) financial assets (El-Attar and Poschke, 2011), and they earn higher incomes (Butler et al., 2009). Finally, depositors facing a bank run in India report trust in the bank as the most important factor affecting their decision to withdraw savings (Iyer and Puri, 2012), and bank account holders in Kenya report that a lack of trust in the bank is the main reason not to begin to save in their account (Dupas et al., 2012).

[6]Karlan (2005) played trust games with borrowers from a Peruvian microcredit program. He finds that more trustworthy players are more likely to repay loans, and that players with a higher trust level have lower individual savings. Cassar et al. (2007) played trust and microfinance games with poor subjects who fit the profile of microfinance borrowers in South Africa and Armenia. The authors find some evidence that trustworthiness predicts contributions to microfinance groups, while trust has no impact.

We discuss the results in Section 3 and conclude in Section 4.

2 Background, Experimental Design and Data

In this section, we first discuss the financial inclusion programs in India. Next, we describe our experimental design, the lab in the field games, and the other data sources. Finally, we provide a balance check for the villagers' baseline characteristics.

2.1 Financial Inclusion in India

To improve bank account penetration, the Reserve Bank of India (RBI) introduced the Business Correspondents Model in 2006. The model allows banks to appoint Business Correspondents (BCs) as intermediaries in providing financial and banking services on their behalf (Reserve Bank of India, 2006). From August 2008 onwards, BCs were allowed to hire Business Correspondents Sub-Agents or *BCSAs*, i.e. local people who can render the services of the BCs (Reserve Bank of India, 2008).

In the villages where we did our experiment, Axis bank appointed the financial inclusion company Basix Sub-K as a BC. Employees of Basix Sub-K select one grocery shop owner per village to become the local banker (BCSA), train the new local banker, and provide the necessary equipment: a mobile phone, a finger print recognition device and a receipt machine that are all interconnected through bluetooth. They also set up a customer service for the clients. Basix Sub-K is our main partner on the project.

The first task of the banker is to open no-frills bank accounts for villagers. Once this procedure is finalised, the customer can perform standard transactions on the account through the local banker: deposits, withdrawals, transfers, and balance inquiries. Balance inquiries, withdrawals and transfers require a signature through the finger print recognition device.[7]

[7]Deposits and balance inquiries are free. However, the bank experimented with (very low) charges on withdrawals. Customers were charged Rs 2 per withdrawal if their average quarterly balance (AQB) was less than Rs 200, and Rs 1 per withdrawal if the AQB was between Rs 200

In August 2014 - shortly after we finished our interventions and the lab in the field games - the Government announced the National Mission for Financial Inclusion, called *Pradhan Mantri Jan-Dhan Yojana* (PMJDY), which operates in a similar manner to the Business Correspondents Model.[8] Phase I of PMJDY focuses on providing bank accounts, and Phase II - which is to be achieved by August 2018 - proposes to channel all Government benefits to the accounts of the beneficiaries (including Direct Benefit Transfers, and unemployment benefits under MGNREGA).

2.2 Experimental Design

We run our experiment in Chhattisgarh, an east-central State of India. In collaboration with Basix Sub-K, we work in 17 villages in three bordering districts: four 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. We were constrained to select clusters of villages that are suffciently close to one another, as the survey team had to travel between them within a reasonable amount of time. These villages are close, but not contiguous, as can be seen from Figure 4 in Appendix A. It is important to note that there is only one banker in each of the villages who provides formal banking services at the doorstep. The average distance between the bankers is 20 km.

We randomly sampled 32 subjects in each village. The banker's customer list was used to sample 14 subjects who already had an account, and the voter list to select 18 subjects without an account. As we needed individuals with a good knowledge of their household's activities, we only sampled the head of the household or the

and Rs 500. Withdrawals were free if the AQB was above Rs 500. These charges were abandoned on July 1, 2014, i.e. before we did our lab in the field games. Furthermore, we learned about the existence of costs shortly before it was abandoned only, and from the endline survey we learn that customers did not realise the temporary existence of costs either.

[8]The main difference is that PMJDY includes a set of products to incentivize the opening of an account. For example, there is a Rs 100,000 accidental insurance cover for each bank account holder and a Rs 5,000 overdraft facility per household. However, while the BC model aimed at having a banker within 2 km, PMJDY has set the travel distance at 5 km.

head's spouse.

In the fall of 2013, enumerators visited the subjects at home to administer a baseline survey. After the interview, a random selection of 12 subjects without an account received help to open one. Basix Sub-K took care of the paperwork and the associated costs. Next, the 26 subjects who either had an account, or received help to open one attended a practical information session. We showed them how to deposit and withdraw money, and demonstrated the importance of the fingerprint recognition tool to protect their account. The 6 subjects without an account were not withheld from opening one, but did not receive help from us to complete the procedure.[9]

From February till May 2014, we hired a centrally located room in each village, where we interviewed the subjects on a weekly basis for a total of 7 to 13 weeks.[10] We paid Rs 150 at the end of each interview, because the subjects had to leave their house to be interviewed, and because the surveys took a substantial amount of time. We randomized the way this weekly compensation was paid at the individual level. Half of the subjects with a bank account received the payment on their account, while the others were paid in cash. The interventions and randomization are summarized in Figure 1.[11]

At the end of *Phase 1*, i.e. at the end of the weekly interviews in which a sub-set of the subjects were paid on the account, we took a *break* for about seven weeks. During the break, we went back for one day to each of the villages to play trust, dictator, and risk games. After the break, we did interviews for another four weeks, but we paid all the subjects in cash (= *Phase 2*). We explicitly told them that the use of the accounts did not change, but that they have to deposit the share of their income they want in the account by themselves. Both the lab in the field games, and

[9]Only two subjects opened an account without our help.

[10]We delayed the weekly interviews in some villages because (i) we wanted to evaluate 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.

[11]For more details on the sampling and stratification, see Somville and Vandewalle (2015b).

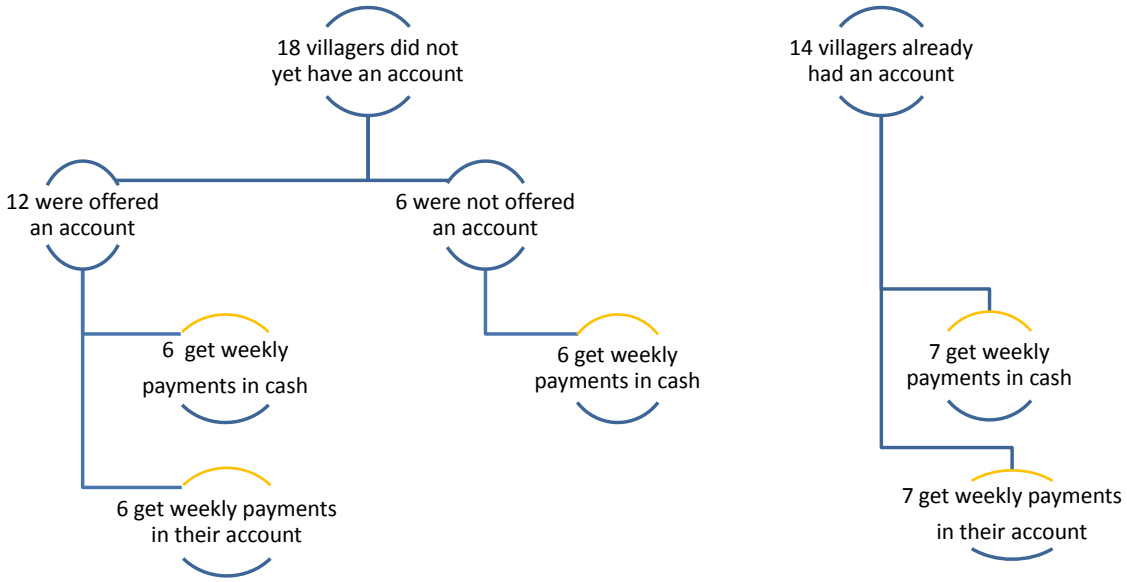

Figure 1: Sampling strategy

Phase 2 were not announced and could not have been anticipated by the subjects.

2.3 Lab in the Field Games

We measure trust using the trust game. This measure of trust can be explained by different motives. First, preferences play a role. It includes social preferences such as altruism, inequity aversion, and warm glow on the one hand, and attitudes to risk on the other hand. Second, beliefs form an important component of trust: the sender evaluates the receiver's trustworthiness when deciding on how much to send. We designed our lab in the field games as to be able to measure the relative importance of these different components:

- We extract the sender's beliefs on the receiver's trustworthiness, by asking how much he expects to get back in the trust game.
- We capture social preferences by playing dictator games.
- We assess risk attitudes through risk lotteries.

We do not only assess trust between villagers and their own banker, but also between villagers and an anonymous other banker. Our interpretations importantly rely on the difference in the villagers' behaviour when they play with their own versus the other banker. Trust measured in the trust game with their own banker includes two terms: trust in bankers, and trust in the person with whom they interact. On the other hand, trust measured in the trust game with the anonymous other banker only reflects the first term: trust in bankers.

In total, the experiment consisted of five different games. Subjects were informed that they would receive the instructions for each game separately, be paid for all the games at once in the end, and remain anonymous.[12] The sequence of the games was as follows:

1. **Trust game between each subject and an anonymous banker in another village:** Each subject plays a trust game in the role of the truster, and the banker of another village is the trustee. The villager is asked to allocate a fixed endowment of Rs 50 between himself and the banker of another village using multiples of 10 $(0; 10; 20; 30; 40; 50)$. The only information revealed to the villager is that he is playing with the banker of another village in the same district who works for the same bank. The banker receives triple the amount sent $(3X)$ and can send back any amount Y between 0 and $3X$. The villager earns $(50 - X + Y)$ and the banker of the other village earns $(3X - Y)$. In addition to indicating how much they want to send, we also asked the subjects to report what they expect to get back. The banker does not know who sent the money, he only knows it comes from a person from another village. We use the strategy method where the banker had to decide on a contingent action for every possible amount sent by the villagers.

[12]The exact scripts and protocols are provided in the appendix. Appendix D contains the documentation for to the games played with the bankers, and Appendix E for the games played with the villagers.

2. **Trust game between each subject and their own banker:** Each subject plays the same trust game, but the trustee is the banker of their own village. Thus, the villager knows the person he plays with, while the banker only knows he plays with a person of his own village. Again, we asked the subjects to report what they expect to get back, and the strategy method is used to elicit the amounts sent back by the banker.

3. **Triple dictator game between each subject and the banker of another village:** Each subject plays a triple dictator game in the role of the dictator. The villager is asked to allocate a fixed endowment of Rs 50 between himself and the banker of another village, using multiples of 10. Again, the only information revealed to the villager is that he is playing with the banker of another village in the same district who works for the same bank. The villager earns $(50 - X)$ and the banker of the other village earns $(3X)$. The banker does not know who gave the money, he only knows it comes from a person from another village.

4. **Triple dictator game between each subject and their own banker:** Each subject plays the same triple dictator game, but with the banker of their own village. The game is single blind again: the villager knows the person he plays with, while the banker only knows he receives money from a person in his own village.

5. **Risk task:** Finally, each subject has to indicate for four risky choice tasks whether they prefer the gamble or the certain amount. They could choose to bet on a 50% chance of winning Rs 100 or nothing, or to accept a certain amount of Rs 50, 40, 30 or 20. The more people prefer the sure option to the gamble, the more risk averse they are.

For each part of the experiment, the experimenter first reads the instructions aloud. Next, he played an example with amounts that were fixed in the instructions,

before playing the game with fake money. Finally, the game was played for real. The payoffs that the subjects could earn were substantial, as they were paid for all the games. However, they were paid for one of the risk tasks only: they had to draw a number ranging from one to four to decide which risk task would be played for real. If they had chosen the certain option, that amount was added to their payoff, and otherwise they had to toss a coin. Although the lab did not take more than two hours of the villager's time, the minimum earned was Rs 160, the maximum Rs 420, and the average Rs 261. For comparison, from the weekly surveys - which are described in more detail in the next section - we know that the average weekly household expenditures on frequent goods is Rs 425.[13] The payoffs of all games were not decomposed but aggregated in one envelope and given to each subject at the end of the day.

Table 1 provides summary statistics. The first columns present the results for games played with one's own banker, and the last columns for games played with an anonymous other banker. In the trust game, 89% of the subjects sent a positive amount to their own banker, and the average amount sent was Rs 20.5.[14] 87% of them expected not to lose the money they sent, i.e. they expected to at least get back the amount they sent. Finally, the average villager expected the banker to send back 58% of the money he received (which is three times the amount sent by the villager). Subjects are less likely to send money in the dictator game, and they send less on average. In terms of risk aversion, the average villager preferred the certain amount over the bet for 2.72 out of four games. The subjects are less likely to send a positive amount to the anonymous other banker, and the amounts sent are systematically lower as well.

[13]Frequent goods include all food items, but also regular household needs such as kerosene, and soap, and temptation goods such as tobacco and alcohol.

[14]The average transfer of 41% of the endowment is in the range of observed transfers in trust experiments (between 30-70% of the endowment). However, as a significant majority of the trust experiments report average transfers equal to or greater than 50% of the endowment, our findings are on the low side (Cardenas and Carpenter, 2008.)

Table 1: Descriptive statistics of lab in the field games

	Own banker			Anonymous other banker		
	Mean (Std. dev.)	Min	Max	Mean (Std. dev.)	Min	Max
Subject sent a positive amount in the trust game (dummy)	0.89 (0.31)	0	1	0.83 (0.37)	0	1
Amount sent in the trust game	20.50 (12.74)	0	50	16.54 (11.49)	0	50
Subject expects back the amount sent in the trust game (dummy)	0.87 (0.34)	0	1	0.81 (0.40)	0	1
Share the subject expects to receive back in the trust game	0.58 (0.31)	0	1	0.50 (0.32)	0	1
Subject sent a positive amount in the dictator game (dummy)	0.65 (0.48)	0	1	0.51 (0.50)	0	1
Amount sent in the dictator game	9.89 (9.78)	0	50	6.90 (8.50)	0	50
Risk aversion	2.72 (1.35)	0	4			
Number of observations	462			462		

2.4 Other Data

We have four other sources of data. First, our baseline survey included questions on characteristics of the subjects, such as gender, caste, age, education, marital status, occupation, land ownership, and membership of savings groups. We also gathered detailed information on trust in various institutions.

Second, Basix Sub-K provided data on the use of the bank accounts. The data consists of all the deposits, withdrawals and transfers made on the accounts, and allowed us to construct the balance.

Third, we gathered detailed information on the evolution of the household composition and on the various expenditures of the household members over the past 7 days. As the weekly interviews were long and time-intensive, they provided us the opportunity to compensate the subjects for their time.

Finally, we conducted an endline survey to update the information from the

baseline.

2.5 Attrition, Baseline Characteristics and Balance Check

The baseline survey was administered at the households' homes between October 2013 and January 2014. The sample consists of 544 villagers. However, as we did not announce the lab in the field games in advance, some subjects were not available in the village. Therefore, the final sample consists of 462 subjects. Table 2 presents the baseline characteristics in this sample and provides a balance check.

The columns (1) and (2) provide details for the subjects who did not have a bank account, and the columns (3) and (4) for those who had a bank account already. As expected, both groups differ substantially, as can be seen from Table 8 in Appendix B.[15] The sample mean and the standard deviation of a series of characteristics are given in the uneven columns. To test for balance across groups, the even columns present the coefficient estimates (and standard errors) of the difference between the baseline means. Column (2) compares subjects without an account who received help in opening one, to those who did not receive help (Intervention = *opening a new account*). Column (4) compares the subjects with an account who were paid on the account, to those who were paid in cash (Intervention = *paid on account*). The 41 coefficient estimates are small and not significantly different from zero, showing that the treatment is orthogonal to observed baseline characteristics in the restricted sample.[16]

Subjects are mainly Other Backward Castes (OBC)[17], more than 70% has the same caste category as their banker, and less than half of them are literate. A great

[15]The first column provides sample means and standard deviations. To test for balance between those who already had an account, and those without an account, the second column presents the coefficient estimates (and standard errors) of the difference between the baseline means in both groups. 8 out of the 21 coefficient estimates are significantly different from zero, suggesting that self-selection into opening an account is correlated with observed baseline characteristics.

[16]In the full sample, all but two coefficients are significantly different from zero. The results are available upon request.

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

Table 2: Summary statistics and balance check of baseline characteristics

	Sample: Did not have an account		Sample: Old account holders	
	Mean (Std. dev.)	Coefficient on *New Account* (Std. errors)	Mean (Std. dev.)	Coefficient on *Paid on account* (Std. errors)
	(1)	(2)	(3)	(4)
New account (%)	68.0			
	(46.8)			
Paid on account (%)			48.5	
			(50.1)	
Woman (%)	52.3	-0.04	51.5	-0.01
	(50.0)	(0.07)	(50.1)	(0.07)
Caste category: ST (%)	12.9	0.03	12.1	0.06
	(33.6)	(0.05)	(32.7)	(0.05)
Caste category: SC (%)	16.0	0.00	7.3	-0.02
	(36.7)	(0.05)	(26.0)	(0.04)
Caste category: OBC (%)	70.3	-0.02	79.6	-0.03
	(45.8)	(0.06)	(40.4)	(0.06)
Caste category: FC (%)	0.8	-0.01	1.0	0.00
	(8.8)	(0.01)	(9.8)	(0.01)
Same caste category as banker (%)	71.5	-0.06	77.7	-0.05
	(45.2)	(0.06)	(41.7)	(0.06)
Land (acres)	1.1	0.22	1.3	0.08
	(1.5)	(0.20)	(2.0)	(0.27)
Married (%)	85.5	0.04	87.9	0.04
	(35.2)	(0.05)	(32.7)	(0.05)
Literate (%)	40.6	0.08	50.0	-0.02
	(49.2)	(0.07)	(50.1)	(0.07)
Age	45.2	-0.54	42.4	2.01
	(13.3)	(1.79)	(12.1)	(1.69)
Wage labor in agriculture (%)	32.4	-0.08	29.1	-0.04
	(46.9)	(0.06)	(45.5)	(0.06)
Wage labor outside agriculture (%)	13.3	0.02	14.6	0.05
	(34.0)	(0.05)	(35.4)	(0.05)
Self-employed in agriculture (%)	42.6	0.05	44.7	-0.01
	(49.5)	(0.07)	(49.8)	(0.07)
Self-employed outside agriculture (%)	2.0	0.03	4.9	-0.02
	(13.9)	(0.02)	(21.5)	(0.03)
Accounts held (#)	1.1	-0.06	1.3	-0.10
	(0.6)	(0.08)	(0.6)	(0.08)
Savings groups (#)	0.2	-0.02	0.2	-0.05
	(0.4)	(0.05)	(0.4)	(0.05)
Dwelling type: katcha (%)	57.0	-0.02	49.5	-0.05
	(49.6)	(0.07)	(50.1)	(0.07)
Distance to the banker (km)	0.3	0.03	0.3	-0.01
	(0.2)	(0.03)	(0.2)	(0.03)
Cautious with strangers (%)	66.8	0.01	71.8	0.06
	(47.2)	(0.06)	(45.1)	(0.06)
Balance in bank account before start weekly surveys (Rs)			225.9	6.37
			(1023.8)	(143.08)
Weeks interviewed (#)	10.1	0.28	10.1	-0.31
	(2.6)	(0.35)	(2.6)	(0.36)
Observations	256	256	206	206

Column (1) and (3) report means (and standard deviations), and column (2) and (4) show the coefficient estimates (and standard errors) of the difference between the means of having received help in opening an account or not, and being paid on the account or in cash, respectively. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent

majority is married, and employed in agriculture (the omitted category is being unemployed). The sample is quite poor. They own slightly more than one acre of land on average, and most of them have a house made of mud (katcha). On average, subjects hold one other account (BCSA accounts are not included). One out of five subjects belongs to a neighborhood or self-help group. To have an idea about their general trust level, we asked their opinion on a statement that is close to the one used in the World Values Survey: "When dealing with strangers, it is better to be cautious". We created a dummy that indicates the villager agrees strongly on this statement. The average distance from the house to the banker is about 300 meter in crow flies. For those who had an account, the balance was balanced shortly before we started the weekly interviews. Finally, the average number of weeks the subjects joined the weekly interviews is balanced. On average they were interviewed ten times.

3 Results

We investigate whether two important interventions that are meant to increase financial inclusion - providing access to a bank account, and compulsory account based payments - can enhance trust in their own banker, or in bankers more generally. We hypothesize that the interventions increase interactions with the banker, which in turn may influence trust.

In Section 3.1, we measure the treatments' impact on the number of interactions between the villagers and bankers. Next, we test whether the randomized interventions affect trust in Section 3.2. We first measure the impact on trust as measured in the trust game, before evaluating the impact on its different components: expected trustworthiness, social preferences and risk attitudes. Finally, Section 3.3 focuses on the second part of the study, i.e. on the correlation between trust, and savings in the account after the lab (during Phase 2).

3.1 Mechanism: Changing Trust through Increased Interactions

We hypothesize that increased interactions with the banker might change the trust of clients in their own banker, and/or in bankers more generally. Therefore, we first have to assess whether the interventions increase interactions.

To estimate the treatments' impact, we use the following ordinary least squares regression:

$$Y_{ij} = \beta_0 + \beta_1 I_{ij} + \beta_2 X_{ij} + B_j + \nu_{ij} \quad (1)$$

Y_{ij} is the number of interactions of villager i with banker j. I_{ij} is a dummy indicating the respondent was treated. X_{ij} is a vector of baseline characteristics which includes all the variables that were presented in Table 2, apart from the first, and the last two. B_j are banker fixed effects,[18] and ν_{ij} is the error term. As the compliance is not perfect, we interpret the impact as intention-to-treat estimates. Standard errors are calculated using nonparametric bootstrapping.

Table 3 shows the estimates for two types of interactions. First, the villagers met their banker for several banking purposes: to open their account, to activate it, to attend the information session, and to transact. The treatment impact on the total number of interactions is provided in the columns (1) and (2). Second, as the local banker is also a grocery shop owner, villagers might interact with him for shopping purposes. To measure the number of interactions for shopping purposes, we asked during each of the weekly interviews whether the subject shopped at his local banker's store. The columns (3) and (4) show the treatment effects on those interactions.[19] Finally, the impact on the sum of both is given in the columns (5) and (6). In the odd numbered columns we do not include control variables, while

[18] There is one banker per village and one lab session session per village, hence the banker fixed effects also absorb all village and session fixed effects.

[19] We miss this information for two subjects, which explains the difference in sample size with the first two columns.

we do so in the even numbered columns.

In panel A we provide the results for subjects who did not have a bank account at baseline. We measure the impact of receiving an account and being paid in cash, as well as receiving an account and being paid on the account. The excluded subjects did not receive an account. New account holders who were paid in cash met their banker on average 5.9 times for banking purposes before the end of Phase 1. New account holders who were paid on the account had 7.1 interactions.[20] The intervention was successful in the sense that the two groups of treated subjects interacted significantly more with their banker than the control subjects who did not obtain a bank account. For shopping purposes, the average subject visited the banker twice. However, the treated are not more likely to shop in the banker's store than the control. Therefore, there is an increase in interactions caused by a change in meeting for banking purposes only.

In panel B, we provide the results for old account holders. The control subjects were paid in cash, and the treated on the account. The average number of banking interactions is 4.2 for the treated group, as opposed to 4.3 for the control group. Therefore, our intervention did not significantly increase the number of banking interactions among treated, old account holders. There is no significant difference in the number of interactions for shopping purposes either.

In conclusion, if trust is influenced by increased interactions between clients and their banker, we can only expect an impact on trust among the new account holders.

3.2 Enhancing Trust in the Bank

We investigate whether the interventions enhance the villagers' trust in their own banker, or in bankers more generally. We again estimate Equation 1, but the dependent variable measures trust, or one of its components.

[20]This is significantly higher than the 5.9 interactions of new account holders who were paid in cash in the regression without controls. We report the p-value corresponding to the Wald test of equality between the two coefficients in the last line of Panel A.

Table 3: Impact of interventions on interactions with the banker

	Number of interactions with the banker for					
	Banking		Shopping		Banking + Shopping	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Impact of opening a bank account and being paid on the account						
New account - paid in cash	5.9***	6.2***	0.1	0.4	6.0***	6.5***
	(0.7)	(0.7)	(0.2)	(0.3)	(0.6)	(0.7)
New account - paid on account	7.1***	7.2***	0.4	0.5	7.5***	7.7***
	(0.6)	(0.6)	(0.5)	(0.4)	(0.8)	(0.8)
Observations	256	256	255	255	255	255
R^2	0.58	0.63	0.01	0.17	0.39	0.50
Average transactions of subjects without account	0.0	0.0	1.8	1.8	1.8	1.8
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	No	Yes	No	Yes	No	Yes
P-value paid in cash vs account	0.05	0.09	0.52	0.80	0.10	0.19
Panel B: Impact of being paid on the account (old account holders)						
Paid on account	-0.0	0.2	0.2	-0.1	0.2	0.2
	(0.9)	(0.7)	(0.4)	(0.4)	(1.1)	(0.8)
Observations	206	206	205	205	205	205
R^2	0.00	0.13	0.00	0.30	0.00	0.16
Average transactions of subjects paid in cash	4.3	4.3	2.2	2.2	6.5	6.5
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	No	Yes	No	Yes	No	Yes

In Panel A, we use the sample of subjects who did not have an account at baseline. We measure the impact of receiving an account and being paid in cash, as well as receiving an account and being paid on the account. The excluded subjects did not receive an account. In Panel B, we use the sample of subjects who already had an account at baseline and we measure the impact of being paid on the account instead of in cash. Baseline characteristics in the even columns include the subject's caste category, gender, literacy, marital status, age, occupation, land owned, dwelling type, accounts held, membership of savings groups, and distance to the banker. It also includes dummies indicating whether the villager belongs to the same caste category as the banker, and distrusts strangers in general. All columns include banker fixed effects. Bootstrapped standard errors are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 4 shows the impact on trust, as measured by the amount of money that was sent in the trust game. As before, Panel A uses the sample of subjects who did not have an account at baseline, while panel B focuses on old account holders. The results reflect the patterns that we observed in Table 3.

In Panel B, there is no significant difference between the subjects paid in cash and those paid on the account. The only significant impact is in comparing the new account holders with the subjects who did not obtain an account (Panel A). However, obtaining an account did not change the clients' trust in their own banker, but in the anonymous other banker. Even though the estimate is significant for the subjects paid in cash only, we cannot reject the hypothesis that the coefficient is equal to the one of subjects paid on the account (we report the p-value corresponding to the Wald test of equality between the two coefficients on the last line of Panel A). These results suggest that providing access to a bank account can change the perception of bankers (as measured by trust in the anonymous other banker), but not the local relationship (as measured by trust in their own banker).[21]

Next, Table 5 shows the impact on the different motives behind trust. We examine the treatment effect on expected trustworthiness, measured by the share the subject expects back from the banker in the trust game; social preferences (that we refer to as *kindness*) measured by the amount sent in the triple dictator game; and risk preferences, measured by the number of risky choice games the subject rejected.

The results show that the effect on trust is driven by a change in the expected trustworthiness of the other banker.[22]

[21]The results do not change if we also include experimenter fixed effects.

[22]Again, the results do not change when we include experimenter fixed effects.

Table 4: Impact of interventions on trust

	Own banker		Other banker	
	(1)	(2)	(3)	(4)
Panel A: Impact of opening a bank account and being paid on the account				
New account - paid in cash	2.0	2.0	3.7***	4.0**
	(2.1)	(2.1)	(1.4)	(1.7)
New account - paid on account	0.3	-0.7	1.9	1.6
	(2.4)	(2.4)	(1.9)	(1.9)
Observations	256	256	256	256
R^2	0.01	0.12	0.02	0.08
Average trust of subjects without account	19.4	19.4	14.0	14.0
P-value paid in cash versus on the account	0.31	0.15	0.16	0.11
Panel B: Impact of being paid on the account (old account holders)				
Paid on account	-2.0	-1.4	-1.6	-1.5
	(1.8)	(1.8)	(1.3)	(1.3)
Observations	206	206	206	206
R^2	0.01	0.14	0.01	0.18
Average trust of subjects paid in cash	21.7	21.7	17.9	17.9
Fixed effects	Yes	Yes	Yes	Yes
Control variables	No	Yes	No	Yes

See Table 3 for a description of the different panels, and the control variables included. Bootstrapped standard errors are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 5: Impact of interventions on trust decomposition

	Expected trustworthiness		Kindness		Risk aversion
	Own	Other	Own	Other	
Panel A: Impact of opening a bank account and being paid on the account					
New account - paid in cash	-0.00	0.11**	2.33*	2.16	-0.38
	(0.05)	(0.04)	(1.28)	(1.37)	(0.24)
New account - paid on account	-0.05	0.03	1.42	-0.00	0.22
	(0.05)	(0.05)	(1.75)	(1.41)	(0.21)
Observations	256	256	256	256	256
R^2	0.05	0.10	0.11	0.11	0.10
Mean dep var of subjects without account	0.6	0.4	7.7	5.4	2.8
P-value paid in cash versus on account	0.35	0.11	0.54	0.04	0.00
Panel B: Impact of being paid on the account (old account holders)					
Paid on account	0.03	0.02	1.36	-0.04	-0.19
	(0.04)	(0.04)	(1.36)	(0.93)	(0.14)
Observations	206	206	206	206	206
R^2	0.11	0.09	0.06	0.10	0.12
Mean dep var of subjects paid in cash	0.6	0.5	10.6	7.7	2.7
Fixed effects	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes

See Table 3 for a description of the different panels, and the control variables included. Bootstrapped standard errors are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

3.3 Correlation between Trust and Savings in the Bank Account

We graphically present the correlation between the bank account balance and (i) trust in the own banker, and (ii) trust in the anonymous other banker in the Figures 2 and 3 respectively. A subject *trusts* a banker if he sends a positive amount in the trust game. The horizontal axis shows the number of weeks since the start of the experiment, and the vertical axis the balance in the account. The dots indicate the average balance for each week, and the lines correspond to the smoothed values of a kernel-weighted local polynomial regression.

There is a striking difference between the two graphs. While the balance of the subjects who trust their own banker first-order stochastically dominates the balance of the subjects who do not do so, there is no clear relationship between trust in the anonymous other banker and account savings.

Next, we estimate the correlation between trust and the balance in the account for the sample of 380 old and new account holders. We run the following ordinary least squares regression:

$$Y_{ij} = \beta_0 + \beta_1 T_{ij} + \beta_2 X_{ij} + B_j + \epsilon_{ij} \tag{2}$$

where Y_{ij} is a measure of the savings kept in the account of individual i in village j, and T_{ij} indicates the subject sent a positive amount in the trust game to his own, or to the anonymous other banker. X_{ij} is a vector of baseline characteristics which includes all the variables that were presented in Table 2.[23,24] B_j are banker fixed effects, and ϵ_{ij} is the error term. Standard errors are again calculated using nonparametric bootstrapping.

We use the account's data that we received from Basix Sub-K to construct two different measures of savings: the *final balance* is the subject's balance the day after

[23]The results without control variables are similar, and available upon request.

[24]*weeks interviewed* is the only variable that was not measured at baseline. The results do not change if we exclude this variable from the regressions.

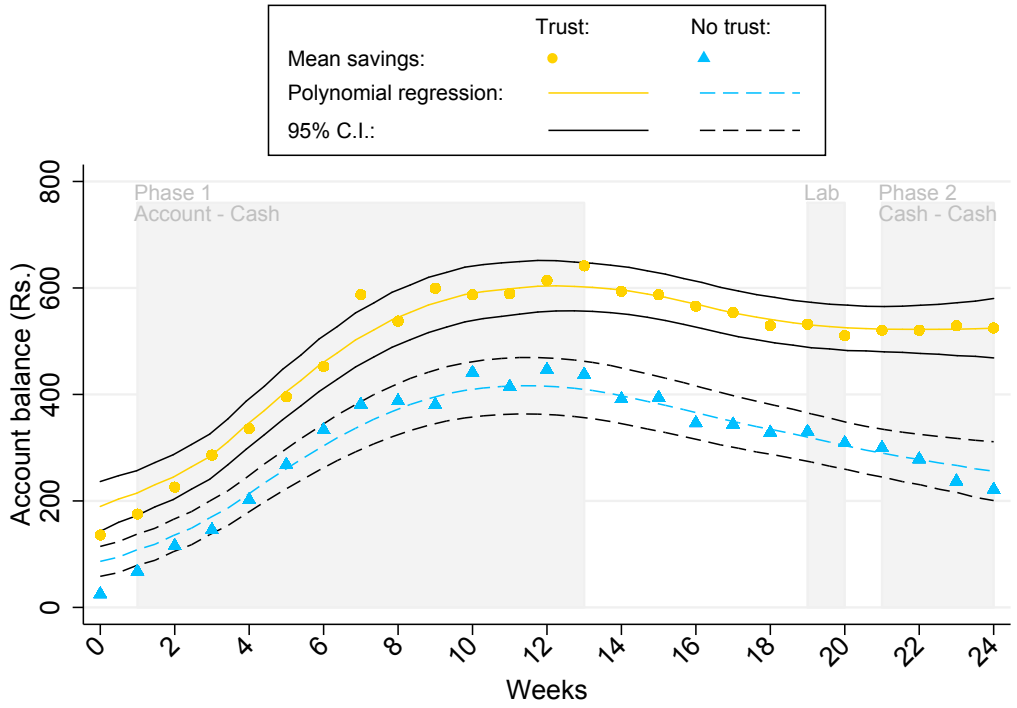

Figure 2: Average balance during the experiment by trust in the own banker

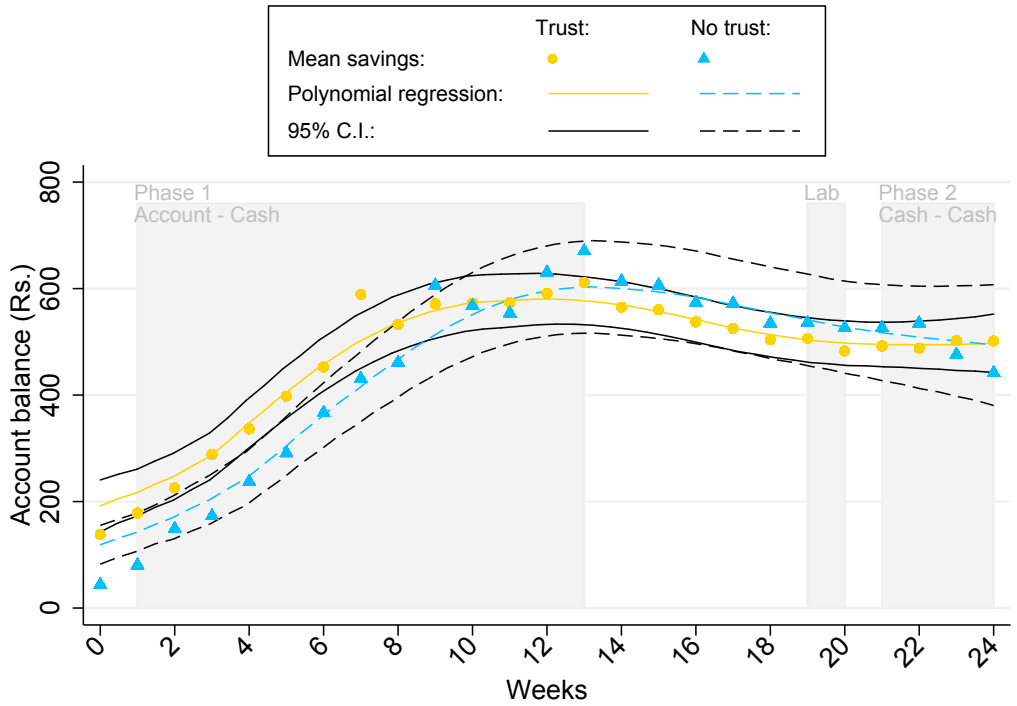

Figure 3: Average balance during the experiment by trust in the anonymous other banker

we conducted the last weekly interview of Phase 2 in the village, and the *average balance* is the average account balance from the day after the first till the day after the last weekly interview of Phase 2 in the village.[25]

The results are shown in Table 6. There is a significant positive correlation between trust in one's own banker, and the different measures of bank account savings (column 1-2). Compared to the mean of subjects who do not trust their banker, the effects are large: the final balance is 122% larger, and the average balance 79%.

Table 6: Correlation between trust and bank account savings during Phase 2

	Own banker		Other banker	
	Final balance (1)	Average balance (2)	Final balance (3)	Average balance (4)
Sent positive amount in trust game	264.6***	206.8**		
	(94.9)	(92.2)		
Sent positive amount in trust game			45.9	-30.5
			(71.8)	(73.5)
Observations	380	380	380	380
R^2	0.35	0.38	0.34	0.37
Mean if amount sent = 0	221.2	263.3	441.4	503.9
Fixed effects	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes

In the columns 1 and 3 the dependent variable is the respondent's bank account balance the day after we conducted the last weekly interview of Phase 2 in the village, and in the columns 2 and 4 it is the average account balance from the day after the first till the day after the last weekly interview of Phase 2 in the village. Phase 2 is the part of the experiment during which all the subjects were paid in cash. In column 1-2 the independent variable indicates the subject sent a positive amount in the trust game to his own banker, and in column 3-4 that he sent a positive amount to an anonymous other banker. The baseline characteristics included are the subject's caste category, gender, literacy, marital status, age, occupation, land owned, dwelling type, accounts held, membership of savings groups, and distance to the banker. It also includes dummies indicating whether the villager received help to open an account, was paid on the account, belongs to the same caste category as the banker, and distrusts strangers in general. Finally, it includes the balance prior to the start of the experiment, and the number of times the respondent was interviewed during Phase 1. All columns include banker fixed effects. Bootstrapped standard errors are given in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

[25]When constructing the different measures of savings, we use the balance one day after the last interview, as to allow villagers to deposit money.

However, trust in the anonymous other banker is not correlated with the bank account's balance (column 3-4). Therefore, the results emphasize the importance of the personalized client-banker relationship in explaining formal savings.

In Table 7, we investigate which of the motives that underly trust matters most: a positive belief in the receiver's trustworthiness, high altruism towards the banker, or low risk aversion. To do so, we estimate equation 2, but T_{ij}, - the variable of interest - varies over the different columns: it indicates that the subject expects to receive back at least the money he sent in the trust game, that he sent a positive amount in the dictator game, and the number of risky choice games he rejected. Finally, all these variables are included in the columns 4 and 7.

The first column shows there is no correlation between the balance in the account and risk aversion. Next, the columns (2)-(4) provide the results for one's own banker. There is a strong correlation with expectations of trustworthiness and a weaker correlation with kindness.[26] As there was no correlation between trust in the anonymous other banker and the bank account's balance, it is not surprising that none of the components are significant in the columns (5)-(7).

The results from the Sections 3.2 and 3.3 lead to an important conclusion, that we elaborate upon in the next section.

[26]Note that the difference between the expected trustworthiness (measured as the amount expected back in the trust game) and trustworthiness (measured as the amount the banker sends back in the trust game), does not correlate with the client's savings after the lab. This indicates that the banker's behaviour in the lab did not influence the clients' savings. The results are available upon request.

Table 7: Correlation between the components of trust and bank account savings during Phase 2

		Own banker			Other banker		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Final balance							
					38.8		32.7
Expects back the amount		286.9**		233.2**	(63.4)		(66.6)
sent in trust game		(113.1)		(93.0)		24.3	22.7
Sent positive amount			177.6**	128.3*		(39.0)	(44.0)
in dictator game			(81.2)	(69.0)			
Risk aversion	20.6			19.7			21.4
	(19.0)			(17.6)			(19.2)
R^2	0.34	0.35	0.35	0.36	0.34	0.34	0.34
Final balance if covariates	443.2	272.4	332.2	91.5	420.3	505.9	313.2
of interest equal 0	443.2	272.4	332.2	91.5	420.3	505.9	313.2
Panel B: Average balance							
					-31.5		-49.9
Expects back the amount		236.7**		179.7*	(67.2)		(70.2)
sent in trust game		(119.2)		(97.8)		46.8	63.8
Sent positive amount			174.3**	135.9**		(49.5)	(54.0)
in dictator game			(82.2)	(68.1)			
Risk aversion	26.4			25.5			28.1
	(19.7)			(18.6)			(20.3)
R^2	0.37	0.38	0.38	0.39	0.37	0.37	0.38
Average balance if covariates	466.3	315.6	331.2	224.2	474.2	499.3	421.4
of interest equal 0							
Observations	380	380	380	380	380	380	380
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel A provides the impact on final balance, and panel B on average balance. See Table 6 for a description of the dependent variables, and the control variables included. In column 1, we measure the correlation with risk aversion. In the columns 2 and 5, the dummy of interest indicates that the subject expected back the amount he sent in the trust game to his own banker, or to an anonymous other banker respectively. In the columns 3 and 6, the variable indicates the subject sent a positive amount in the dictator game to his own banker, or to an anonymous other banker respectively. All these variables are included at once in the columns 4 and 7. Bootstrapped standard errors are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

4 Conclusion

We played trust games between villagers and their own local banker, and villagers and an anonymous other banker. Trust in one's own banker reflects trust in the banker and person, while trust in the anonymous other banker only reflects the general trust in bankers. By playing extra games, we are able to differentiate between the importance of various components that explain trust, namely between expected trustworthiness, social preferences and risk attitudes.

We document that savings in the bank account are positively correlated with trust in the own banker, but independent from trust in the anonymous other banker. Expected trustworthiness matters most, there is a minor role for social preferences, and no role for risk attitudes. We also investigate whether two interventions that are linked to financial inclusion - providing access to a bank account, and being paid on the account - can promote interactions with the banker, and in turn increase trust in the local banker, or in bankers more generally. We find that the local relationship between clients and their own banker cannot be changed, but that being provided a bank account increases interactions with the banker, and general trust in bankers. The positive relationship can be explained by an increased expected trustworthiness in the anonymous other banker.

In conclusion, what matters for bank account savings is trust in one's own banker, and in particular the expected trustworthiness of the banker. Opening a bank account enhanced trust in bankers more generally, but failed to affect the trust between the clients and their own banker. This suggests that local relationships are crucial to stimulate bank account use, but not malleable. Therefore, India's Business Correspondents model - which permits transactions through a limited number of local bankers only - might not be the best financial inclusion strategy. Other services, such as anonymous banking through an ATM, or access to a denser network of banking agents, will be helpful to promote financial development. Indeed, financial inclusion

is on the political agenda in a wide range of countries, but the implementation differentiates between countries. Kenya's MPESA allows customers to transfer money through their own mobile, and to make deposits or withdrawals with the assistance of any agent that is linked to the system. As compared to the Business Correspondents Model, MPESA has been more successful in terms of account take-up and utilization.[27]

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[27] Jack and Suri (2014) describe MPESA in detail. Statistics about MPESA are available on the safaricom website (http://www.safaricom.co.ke/about-us/transforming-lives). In September 2014, eight years after the start of the Business Correspondent Model, 76.8% of the bank accounts had a zero balance (http://www.pmjdy.gov.in/trend-zero).

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Appendix A: Study Area

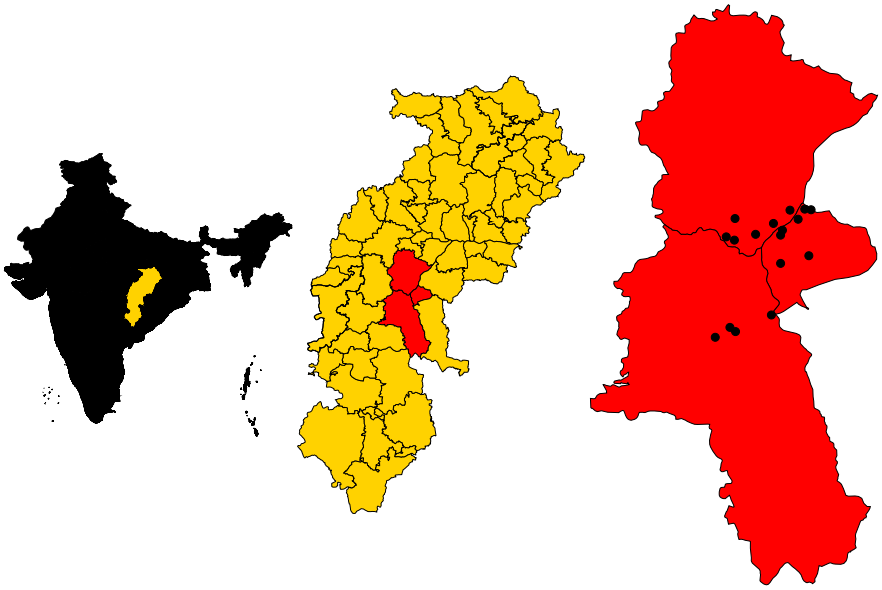


Figure 4: Map of the Study Area

Appendix B: Differences between Old and New Account Holders

Table 8: Summary statistics and differences between old and new account holders

	Mean (Std. dev.) (1)	Coefficient on Had account (Std. errors) (2)
Had account already (%)	44.6	
	(49.8)	
Woman (%)	51.9	-0.01
	(50.0)	(0.05)
Caste category: ST (%)	12.6	-0.01
	(33.2)	(0.03)
Caste category: SC (%)	12.1	-0.09***
	(32.7)	(0.03)
Caste category: OBC (%)	74.4	0.09**
	(43.7)	(0.04)
Caste category: FC (%)	0.9	0.00
	(9.3)	(0.01)
Same caste category as BCSA (%)	74.2	0.06
	(43.8)	(0.04)
Land (acres)	1.1	0.20
	(1.7)	(0.16)
Married (%)	86.6	0.02
	(34.1)	(0.03)
Literate (%)	44.8	0.09**
	(49.8)	(0.05)
Age	44.0	-2.85**
	(12.9)	(1.20)
Wage labor in agriculture (%)	31.0	-0.03
	(46.3)	(0.04)
Wage labor outside agriculture (%)	13.9	0.01
	(34.6)	(0.03)
Self-employed in agriculture (%)	43.5	0.02
	(49.6)	(0.05)
Self-employed outside agriculture (%)	3.2	0.03*
	(17.7)	(0.02)
Accounts held (#)	1.2	0.17***
	(0.6)	(0.05)
Savings groups (#)	0.2	0.01
	(0.4)	(0.04)
Dwelling type: katcha (%)	53.7	-0.08
	(49.9)	(0.05)
Distance to the BCSA (km)	0.3	-0.04**
	(0.2)	(0.02)
Cautious with strangers	69.0	0.05
	(46.3)	(0.04)
Balance on BCSA account before start weekly surveys (Rs)	125.5	219.28***
	(761.2)	(77.67)
Weeks interviewed (#)	10.1	-0.01
	(2.6)	(0.24)
Observations	462	462

The first column reports means (and standard deviations), and the second column shows the coefficient estimates (and standard errors) of the difference between the means of villagers who did not have an account and villagers who had one. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent

Appendix C: Pre-analysis plan

Some of our analysis is described in a pre-analysis plan that was registered with the American Economic Association before the completion of the data collection (Somville and Vandewalle, 2015a). In the plan, we only describe the analysis of the second treatment: being paid in cash versus on the account. However, that treatment had a weak impact on the number of interactions, and no impact on the behaviour in the lab. On the other hand, opening bank accounts had important impacts and is at the heart of the paper. As this treatment was not mentioned in the plan, our results should not be considered pre-planned.

Appendix D: Games with the bankers

The following pages contain a translation of the lab protocol that was used in the field to play the games with bankers.

Games: protocol & organization - BCSA

General guidelines

- *Do not say what is written in italics, those are instructions for your purpose only.*
- *The different BCSAsmust play the games in the exact same conditions:*
    - *When discussing and explaining the games, **stick to the script**. Read the script the way it is written: do not reveal more OR lessinformation than what is in the script. If you are not sure how to answer a question, call Rahul or Sanjay.*
- *The BCSA must take his decision**privately**. No one else – apart from you - can be around when he is playing.*
- *You cannot influence the BCSA's decisions. If a BCSA asks you for advice on what to decide, refuse to answer.*
- *The BCSA is free to stop the game at any time if he is not comfortable with it.*
- *The BCSA should not discuss the games with anyone else but the enumerators/supervisor. Ask him not to discuss the games before the games are completed and all the players have been paid.*

Introduction

We would like to play some very simple games today. Because this will take some of your time, we will pay you 150 rupees and you can earn extra money through the games as well. Is it possible to give us 45 minutes of your time to do so?

1. First game

Follow the order of the steps below. Do not skip any step!

1. *Explain the rules of the game:*

You will play a game with another person. The other person receives 50 rupees and decides how much he/she wants to send to you of these 50 rupees. The person can keep everything, or he/she can send you a positive amount: 10, 20, 30, 40 or 50 rupees. If the person sends you a positive amount, it will be tripled by us. You will receive the tripled amount, and you have to decide how much of it you want to send back to that person. The person knows that you will receive triple the amount and that you get a chance to send back money to him/her.

2. *Play this example with the fake notes – play at least once sending zero rupees, so the BCSA understands that the person is not obliged to send a positive amountand at least once sending a positive amount:*
    a. *Give FAKE 50 rupees to yourself (5 notes of 10 rupees)*
    b. *Send X={0 ; 10 ; 20 ; 30 ; 40 ; 50} to the BCSA. Emphasize that in a real game, you can keep what you do not send to the BCSA.*
    c. *Triple the amount: BCSA receives 3X*
    d. *He must decide how much to send back to you(0 ; 10 ; 20 ; 30 … ; 3X). Emphasize that in a real game, he can keep what he does not send back to you.*
    e. *Once the BCSA decided how much to send you back, you should tick the right box on the 'practice 1 data sheet' in front of the BCSA. Make sure the BCSA understands why you tick that box.*

    Repeat the game until it is clear to the BCSA!

3. *Playthe fake game once more. This time play it exactly as it will be played in the real game:*
    a. *BCSA ticks one box per line on the 'practice 2 data sheet'. He does it privately, and you cannot see what he chooses.*
    b. *Give FAKE 50 rupees to yourself (5 notes of 10 rupees)*
    c. *Send X={0 ; 10 ; 20 ; 30 ; 40 ; 50} to the BCSA. Emphasize that in a real game, you can keep what you do not send to the BCSA.*
    d. *Triple the amount: BCSA receives 3X*
    e. *Check with him which line is relevant in the 'practice 2 data sheet'. Pay him and yourself with the fake notes.*

4. *Ask for consent:*

Do you agree to play this game and to earn some money? You can stop the game at any time if you are not comfortable with it.

If he refuses to play, report the decision to Sanjay / Rahul.

5. *Read the following script*

You will now play this game for real money. The persons you play with are **<u>from another village</u>** in this district, where we also conducted surveys over the past couple of months. They received 50 rupees this morning and decided how much to send. They do not know your name, they only know that they are playing with the BCSA of another village in their district. We tripled the amount they sent and would like to know how much you want to send back for each possible amount the person has send to you. They will receive the money you send back this evening. <u>Remember that we are playing with real money now. You will receive your earnings at the end of the game. Can you fill in the same table as we used while explaining the game?</u>

If you receive …	*From **someone living in another village** then you send back…. (thick one grey box per line)*																														
30	*0*		*10*		*20*		*30*																								
60	*0*		*10*		*20*		*30*		*40*		*50*		*60*																		
90	*0*		*10*		*20*		*30*		*40*		*50*		*60*		*70*		*80*		*90*												
120	*0*		*10*		*20*		*30*		*40*		*50*		*60*		*70*		*80*		*90*		*100*		*110*		*120*						
150	*0*		*10*		*20*		*30*		*40*		*50*		*60*		*70*		*80*		*90*		*100*		*110*		*120*		*130*		*140*		*150*

6. *The BCSA fills in the table '<u>answer 1 data sheet</u>' himself. After you got the table back, you should make sure that only one box is ticked per line.*

7. *Read the following script:*

You will now playthe same game with people **<u>from your own village</u>**. Those people are also involved in thesurveys that we have been conducting over the past couple of months. They received 50 rupees this morning and decided how much to send to you. They know they are playing with you, their own BCSA. We tripled the amount they sent and would like to know how much you want to send back for each possible amount the person has send to you. They will receive the money you send back this evening.

<u>Remember that we are playing with real money now. You will receive your earnings at the end of the game. Can you fill in the same table as we used while explaining the game?</u>

If you receive …	*from**someone living in your village** then you send back…. (thick one grey box per line)*															
30	*0*	*10*	*20*	*30*												
60	*0*	*10*	*20*	*30*	*40*	*50*	*60*									
90	*0*	*10*	*20*	*30*	*40*	*50*	*60*	*70*	*80*	*90*						
120	*0*	*10*	*20*	*30*	*40*	*50*	*60*	*70*	*80*	*90*	*100*	*110*	*120*			
150	*0*	*10*	*20*	*30*	*40*	*50*	*60*	*70*	*80*	*90*	*100*	*110*	*120*	*130*	*140*	*150*

8. *The BCSA fills in the table '<u>answer 2 data sheet</u>' himself. After you got the table back, you should make sure that only one box is ticked per line.*

9. *Read the following script – THIS STEP IS TO BE DONE BY SANJAY OR RAHUL*

We will pay you this evening, as soon as we finished playing the games with the last villagers. *In the evening:* We will now pay you. Apart from the participation fee, you will receive extra money from four different games that we played with some villagers. The villagers are also paid for these four games. First we will pay you for a game with a person in another village. Can you please pick one numbered chit from this bag? We will pay you according to whichever number you pick.

Call to the other village and ask the content of the envelop (to be checked in the excel file of that village – envelop 2 of the right ID), triple it and give this amount to the BCSA minus the amount he sends back in the table 'answer 1 data sheet'.
Write down the ID number he chose in your excel file.

Second, we will pay you for a game with a person in your own village. Can you give a **different** number from 1 till 32?

Check on the excel file the content of that envelop (envelop 3 of the right ID), triple it and give this amount to the BCSA minus the amount he sends back in the table 'answer 2 data sheet'.
Write down the ID number he chose in your excel file.

Third, we will pay you for another game we played with people in another village. They were given 50 rupees and asked whether they want to give to the BCSA of another village. They do not know your name. We informed them that we will triple the amount in the envelop, but that you are not allowed to send back any money. Can you give a **different** number from 1 till 32?

Call to the other village and ask the content of the envelop (to be checked in the excel file of that village – envelop 4 of the right ID), triple it and give this amount to the BCSA.
Write down the ID number he chose in your excel file.

Finally, we also played this other game with the people from your own village. They know they are sending money to their own BCSA, that we will triple the amount in the envelop, and that you are not allowed to send back any money. Can you give a **different** number from 1 till 32?

Give the right envelop 5 to the BCSA, ask him to check the amount, triple it and give him the total (real money).
Write down the ID number he choose in your excel file.

10. *Read the following script:*

The game is now finished. Thank you very much for your cooperation. We will start again with the logbooks in about two weeks from now. We will call you in advance.

Appendix E: Games with the villagers

The following pages contain a translation of the lab protocol that was used in the field to play the games with villagers.

Games: protocol & organization - villagers

A. General guidelines

- *Do not say what is written in italics, those are instructions for your purpose only.*
- *The different villagers must play the games in the exact same conditions:*
    - *When discussing and explaining the games, **stick to the script**. Read the script the way it is written: do not reveal more OR less information than what is in the script. If you are not sure how to answer a question, call Rahul or Sanjay.*
- *The villagermust take his/herdecision **privately**. No one else – apart from you - can be around when he/she isplaying.*
- *You cannot influence the villager'sdecision. If a villager asks you for advice on what to decide, refuse to answer.*
- *The villager is free to stop the game at any time if he/she is not comfortable with it.*
- *The games are played anonymously. No one will ever know how the villagerplayed, only the researchers will know the respondent's ID number.*
- *The villagers should not discuss the games with anyone else but the enumerators/supervisor. Ask them not to discuss the games before the games are completed and all the players have been paid.*
- *The villagers are told that they will play five games, but you **cannot** tell the more than that. They cannot know which games they will be playing.*

B. Timing

1. *People meet at the usual place (as in logbook survey) in the morning and early afternoon.*
2. *The villager plays in private with one enumerator.*
3. *The enumerator fills in the answers on paper. Only the respondent ID is written on the paper: insist on the anonymity of the game.*
4. *When the games are finished,the enumerator gives the sheet to the supervisor (Sanjay / Rahul) who fills in the excel file.*
5. *The BCSA plays in the late afternoon or evening. Only after he played all the villagers can be paid.*
   The villagers can never know what the BCSA has chosen before they play themselves! This is the main reason why the BCSA must play last.

1. First game

Introductory script:

Thank you for coming. My name is <*enumerator name*> and as you know, my team and I came to your village over the past couple of months to conduct surveys. Today we will not ask you details about the past week, but we would like to play five different games with you. This is another important part of our ongoing survey. In these games, we wish to study how people make monetary decisions under different scenarios. You can gain money from each game. You do not have to use your own money in these games, the money will be provided by us. You will receive the money you earned in the games this evening in cash. For practical reasons, we cannot give your payment to someone else or deposit it on your bank account. Sorry for this inconvenience. Please note that all your monetary decisions taken today will remain anonymous, so please make the best decisions according to your interests.

1. *Explain the rules of the game:*

   You will receive 50 rupees. You must decide how much to send to another person. You can keep everything, or you can send a positive amount: 10, 20, 30, 40 or 50 rupees. If you send a positive amount, we will triple it, so that the person receives three times the amount of money you sent. The other person then decides how much he/she wants to send back to you.

2. *Play this example - Make sure the villager at least once sends you zero and at least once sends you a positive amount. Also make sure you send at least once a positive amount back that is larger than the amount the villager sent you, so it is clear that he/she can increase the amount he/she wins by sending money.*
   a. *Give 50 rupees to the respondent (5 notes of 10 rupees)*
   b. *He/she gives X back to you, X = one of these amounts:* 0, 10, 20, 30, 40 or 50.
   c. *Triple the amount: you have 3X*
   d. *Decide how much to send back to the respondent.*

   Repeat the game until it is clear to the respondent!

3. *Play the game once more, this time you play it as it will be played in the real game.*
   a. *Give 50 rupees to the respondent (5 notes of 10 rupees).*
   b. *He/she puts in envelop 1 the amount that she wants to keep and in envelop 2 the amount that she wants to send to you.*
   c. *Triple the amount in envelop 2.*
   d. *Decide how much to send back to the respondent, and put it in envelop 1.*

4. *Ask for consent:*

Do you agree to play this game and to earn some money? You can stop the game at any time if you are not comfortable with it.

If he/she refuses, report the decision to Sanjay / Rahul.

5. *Read the following script:*

Now, you will play this game with real money. You play with the **BCSA of another village** in this district. We have been conducting the same surveys over the past couple of months in that village. You receive 50 rupees *(give him/her 5 fake notes of 10 rupees)* and you decide how much to send to him. The amount you want to send to him, you should put in envelope 2. He will receive triple the amount that you sent in envelope 2 and he will decide how much to send back to you in the same envelope. **He does not know that you are playing this game, he only knows that the game is played with someone from another village who joined the weekly surveys.** The money you do not want to send, you can put in envelope 1. You will receive both envelopes this evening. Can you divide the money over the envelopes 1 and 2?

6. *Record the amounts on the sheet in Q9a and Q9b.*

7. *Ask the next question and record the answer on the sheet in Q10:*

How much do you think he will send back? (between 0 and 3 times what was sent: 0 ; 10 ; 20 ; 30 ; … ; 3X rupees) I understand that this may be hard to estimate, so please allow me to explain. As you know, you have given some amount to another village's BCSA which we will triple before giving it to him. This anonymous BCSA can now decide how much of this tripled amount he will send back to you. Now, we want you to tell us how much of this tripled amount you are expecting this BCSA to send back to you.

2. Second game

8. *Read the following script:*

Now, you will play this game once more with real money. You play with **[NAME], the BCSA of your own village**. You receive 50 rupees *(give him/her 5 fake notes of 10 rupees)* and you decide how much to send to him. The amount you want to send to him, you should put in envelope 3. He will receive triple the amount that you sent in this envelope and he will decide how much to send back to you in the same envelope. **He does not know that you are playing this game, he only knows that the game is played with someone from his village who joined the weekly surveys.** The money you do not want to send, you can add to envelope 1. You will receive all the envelopes this evening. Can you divide the money over the envelopes 1 and 3?

9. *Record the amount on the sheet in Q11a and Q11b.*

10. *Ask the next question and record it on the sheet in Q12:*

How much do you think he will send back? (between 0 and 3 times what was sent: 0 ; 10 ; 20 ; 30 ; … ; 3X rupees) The reason why I am asking you is exactly the same as before. As you know, you have given some amount to your village's BCSA which we will triple before giving it to him. Your BCSA can now decide how much of this tripled amount he will send back to you. Now, we want you to tell us how much of this tripled amount you are expecting your BCSA to send back to you.

3. Third game

11. *Read the following script:*

Now we will play an easier game. Here is 50 rupees *(give him/her 5 notes of fake rupees)*. You must choose how much to give to **the same BCSA from the other village in this district**. You can keep everything, or you can give him a positive amount: 10, 20, 30, 40 or 50 rupees. The amount you want to give him, you should put in envelope 4. Before we give it to him, we will triple the amount. This time, he cannot send you anything back. He will not know that the money comes from you, he will only know that it comes from someone in another village who joined the weekly surveys.
The BCSA from the other village will not be paid both games: if he is paid the previous game, he won't be paid this one and if he is paid this one, he won't be paid the previous one. In other words, he will never receive both envelops 2 and 4. The BCSA's payment is decided randomly. In game 1, the BCSA takes a decision about how much he wants to send back to you. So you will receive the money he sends back to you, independent of whether he receives the envelope. In Game 3, if the BCSA does not receive the amount sent by you, it will be returned to you.
The money you do not want to give, you can add to envelope 1. Can you divide the money over the envelopes 1 and 4?

12. *Record the amount on the sheet in question Q13a and Q13b.*

4. Fourth game

13. *Read the script:*

> Now you will play the same game with [**NAME**], **the BCSA of your village**. You must choose how much to give to him as well. You can keep everything, or you can give him a positive amount: 10, 20, 30, 40 or 50 rupees. The amount you want to give to him, you should put in envelope 5. We will again triple the amount in the envelope. He cannot send you anything back. He will not know that the money comes from you, he will only know that it comes from someone in his village who joined the weekly surveys.
> **The BCSA from your village will not be paid both games: if he is paid the previous game, he won't be paid this one and if he is paid this one, he won't be paid the previous one. In other words, he will never receive both the envelopes 3 and 5. The BCSA's payment is decided randomly. In Game 1, the BCSA takes a decision about how much he wants to send back to you. So you will receive the money he sends back to you, independent of whether he receives the envelope. In Game 5, if the BCSA does not receive the amount sent by you, this amount will be returned to you.** The money you do not want to give, you can add to envelope 1. Can you divide the money over the envelopes 1 and 5?

14. *Record the amount on the sheet in question Q14a and Q14b.*

5. Fifth game

15. *Read the script:*

> You will now play a final game. This game is different from the previous ones. You will not be playing with a BCSA now, but you will play alone. In this game, you must choose between receiving a certain amount, or tossing a coin and receiving zero rupees if it is head or 100 rupees if it is tail.

16. *Play the example:*
    Put 50 rupees on the ground, on the left side of the respondent.
    Put 100 rupees on his/her right side.
    Ask him/her to choose:

> Do you prefer to take the 50 rupees, or to toss a coin and earn the 100 rupees if it is tail?

Ask him/her to toss the coin and show what happens if it is head and what happens if it is tail.

Put 40 rupees on the ground, on the left side of the respondent.
Put 100 rupees on his/her right side.
Ask him/her to choose:

In this case, please note that the certain amount has been decreased by 10 rupees. Now, do you prefer to take the 40 rupees for certain, or to toss a coin and earn the 100 rupees if it is tail?

Ask him/her to toss the coin and show what happens if it is head and what happens if it is tail.

Put 30 rupees on the ground, on the left side of the respondent.
Put 100 rupees on his/her right side.
Ask him/her to choose:

In this case, please note that the certain amount has been further decreased by 10 rupees. Now, do you prefer to take the 30 rupees for certain, or to toss a coin and earn the 100 rupees if it is tail?

Ask him/her to toss the coin and show what happens if it is head and what happens if it is tail.

Put 20 rupees on the ground, on the left side of the respondent.
Put 100 rupees on his/her right side.
Ask him/her to choose:

In this case, please note that the certain amount has been further decreased by 10 rupees. Now, do you prefer to take the 20 rupees for certain, or to toss a coin and earn the 100 rupees if it is tail?

Ask him/her to toss the coin and show what happens if it is head and what happens if it is tail.

17. *Read the following script:*

Now we will play with real money. You will have to make 4 similar decisions. We will then draw one number among four, and that number will indicate which row you will play and receive money for. Remember that you have to take your optimal decision for each row since you will only be paid for one randomly chosen row. Therefore, your decision on a row does not influence your optimal choice on the next row. The money you won will be added to envelope 1.

18. The villager must make the following choices (thick 1 grey box in each row of your sheet):

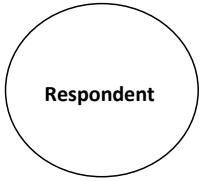
1.	Receive 50 rupees		Toss a coin and get 0 rupees if head and 100rupees if tail	
2.	Receive 40 rupees		Toss a coin and get 0 rupees if head and 100 rupees if tail	
3.	Receive 30 rupees		Toss a coin and get 0 rupees if head and 100 rupees if tail	
4.	Receive 20 rupees		Toss a coin and get 0 rupees if head and 100 rupees if tail	

19. Use the notes to represent this table on the ground. Follow the schema below:

Respondent

Choice number:	Earn … for certain:	Toss a coin and earn 100 rupees if tail:
1		
2		
3		
4		

20. Use four small stones. Ask the respondent to put one stone on each choice, in each line. Like in the example below:
This is a stone: 



Choice number:	Earn … for certain:	Toss a coin and earn 100 rupees if tail:
1	 	
2		
3		
4		

21. *Record each choice on your sheet in question Q15.*

22. *You have four papers in a box. Show to the respondent that each paper is numbered from 1 to 4. Hide the numbers. The respondent picks one paper, the number on that paper designates the row that is played. The respondent is paid the corresponding amount if he/she chose not to gamble. Otherwise he/she tosses a coin and is paid according to the result.*

    Record the results on your sheet: number (1, 2, 3 or 4) in question Q16, and certain, head or tail in question Q17.

6. End of the games

23. *Read the following script:*

> This was the last game. Thank you very much for your participation. We will now count the amounts put into each envelope and note them on the envelope in front of you. If you wish, you may keep a record for yourself. The entire earning from each game will be returned to you in the evening. Most importantly, we would like to please request you not to discuss today's survey with other people in your village until our survey is completed and everybody has been paid their earnings. This is very important for our study. We will now take the 5 envelopes and the answer sheet to *Rahul or Sanjay*. They will explain what happens next.

C. Conclude the session

Enumerator, proceed to the next session.

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Recent evidence highlights the importance of trust in explaining bank account savings. According to economic theory, repeated interactions can play a crucial role in shaping trust. We designed the first field experiment that tests whether increased interactions between clients and bankers influence a client's trust in bankers. We promoted interactions by randomly (i) opening accounts for the unbanked and (ii) making weekly payments on their accounts. At the end of these interventions, we measured trust by playing trust games between clients on the one hand, and their own local banker as well as an anonymous other banker on the other hand. The only intervention that has a significant impact on the number of interactions is opening a bank account. It also greatly increases trust in the anonymous banker, but not in their own banker.

Next, we investigate the importance of trust for account savings. We find a strong positive correlation between the clients' trust in their own banker and savings in the account, but their trust in another banker does not correlate with savings. From the decomposition of trust in it's different determinants, we learn that expected trustworthiness matters most in explaining savings,while there is a minor role for social preferences and no role for risk attitudes. We conclude that the personalized client-banker relationships are crucial, but not malleable. Strategies which can deal with the expected trustworthiness - such as providing access to an ATM, or to a denser network of local bankers - might promote bank account savings.

JEL: D14, G02, G21, O16.

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