

The ABCs of Financial Literacy – Experimental Evidence on Attitudes, Behavior and Cognitive Biases

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I. Introduction

A combination of technology, government effort, and financial liberalization around the world has made new financial products and services available to hundreds of millions of people. Yet, it is not clear that new participants in the financial system will make optimal financial decisions. Even simple financial products offering inter-temporal trade-offs have pitfalls; there is abundant evidence that individuals suffer from self-control problems (Ashraf, Karlan, and Yin, 2006) and have difficulty understanding compound interest rates (Stango and Zinman, 2009). Moreover, other products, such as insurance or retirement savings options, which have the potential to provide great benefit to clients, can also be difficult to understand. Owing to the complexity of financial instruments, a wide range of academics, politicians, and advocates have expressed concern that low levels of financial literacy may actually harm individuals (Lusardi and Mitchell, 2007).

Governments, firms, and non-profit organizations are responding to the perceived problem of limited financial literacy with a range of government and privately-provided financial education programs, targeted to reach tens or even hundreds of millions of individuals in the coming

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years.² Yet, to date, there is very little rigorous evidence on which policies are effective.

For example, the only randomized evaluation of financial literacy program designed to promote savings behavior (Cole, Sampson, and Zia, 2010) finds no effect of an education program on the overall population in Indonesia, though it does find a small increase in the probability that individuals with low initial levels of financial literacy open bank accounts following a short educational program. Karlan and Valdivia (2010) find that a business education program improves microfinance borrowers' record-keeping, but does not affect profitability of the enterprises.

Non-experimental evidence has been mixed. Bernheim, Garret, and Maki (2003) find that high-school financial education mandates increase savings rates. However, Cole and Shastry (2010) find evidence that this result may be spurious. Cole and Fernando (2008) discuss the literature in greater detail.

There are several reasons why studies may not have found strong links between financial education and financial behavior. First, of course, financial education programs may not be effective. Financial behavior may be difficult to change, and the interventions, which typically involve a “generic” short course adapted to the local environment, may not be relevant, informative, or interesting for the target population. Moreover, finding skilled and engaging educators may be difficult.

A second possibility is that financial education programs are effective, but measuring changes in financial behavior is quite difficult. Since the educational content is typically delivered in a classroom or group setting, it may be prohibitively expensive to randomly allocate treatments across a sufficient number of groups.

In this paper, we discuss a financial education evaluation that was designed to overcome both of

² See, for example, Cole and Fernando (2008), or <http://corporate.visa.com/viewpoints/responsible-spending/financial-literacy.shtml>

these problems. Working with Saath, a non-profit organization in Ahmedabad, we evaluate the efficacy of a video-based financial literacy education program, designed specifically to address the situation and needs of Saath clients. We complement this treatment with three additional interventions that may affect financial knowledge and behavior. First, we provide greater incentives to some individuals to pay attention to the videos, by paying them for performance on an exit test.³ Second, we complement the financial education treatment with an offer of financial counseling to a subset of participants. Third, we engage in a specific goal-setting exercise with a randomly selected set of clients, designed to overcome inertia or other behavioral biases that may prevent individuals from paying the small fixed costs necessary to improve their financial situation.

This study has the potential to make several important contributions. First, an important constraint to the delivery of effective financial education is identifying high-quality teachers. Individuals with a strong command of financial principles are often employable in the financial sector, and hence command high wages. Even if cost is no barrier, financial messages are nuanced, and training and managing a cadre of teachers may be difficult for programs aiming to reach thousands or even millions of people. In contrast, video programs are quite easily replicated.

Second, the relatively large sample (1,200 individuals, randomized at the individual level), and customized curriculum is designed to enable us to detect even relatively modest effects of the program. This is particularly important given the low cost of program delivery—if it provides even small benefits, it may well be cost effective.

Third, the set of experiments and surveys are designed to identify through precisely which channels financial literacy education is effective. The combination of several treatments, and range of questions in the post-test, combined with medium- and long- term follow-up, will help identify whether cognitive biases, limited financial literacy, or other factors determine financial

³ Angrist and Lavy (2010) find that financial incentives have a large and positive effect on high school test performance in Israel.

behavior.

Fourth, this is the first paper, to our knowledge, testing the efficacy of financial counseling in a developing country setting. Agarwal, et al. (2009) find dramatic effects of mortgage counseling among sub-prime clients in the United States.

This paper proceeds as follows. Section II describes the study design, while Section III provides summary statistics and randomization checks. Section IV describes the preliminary results, and Section V concludes.

II. Study Design

The population for this study, which is ongoing, comprises urban households in the slums of Ahmedabad, in the state of Gujarat, India. Our study is ongoing. To manage the large sample size, the study is being conducted in four waves, with approximately 300 respondents in each wave, yielding a total sample size of 1,200. We study the following treatments designed to improve financial literacy and affect financial behavior: (1) video-based financial literacy education, (2) paying participants for performance on an exit test, (3) financial counseling, and (4) financial goal setting. To avoid bias from Hawthorne-type effects, the control group in each wave is assigned to watch health education videos. All treatments are randomly assigned at the individual level. All participants, both in treatment and control groups, are requested to complete a short exit test upon the conclusion of their respective literacy trainings. Financial counseling and goal setting treatments (described below) are administered through personal visits after the video trainings have been completed. Detailed follow-up surveys are then conducted 3 months after the interventions.

Thus far, we have completed the interventions and exit surveys for 3 out of 4 waves. Follow-up survey data is currently available only for the first wave and the sample size is too small to draw meaningful conclusions. Hence, this version of the paper focuses on the exit surveys, which were administered at the end of the video-based treatments.

Table 1 presents the sample size and experimental design for the completed waves. A description of the interventions follows below.

A.1. Financial Literacy Treatment

In each wave, two-thirds of all participants are randomly invited to attend a video-based financial literacy training program; the remaining one-third are invited to video-based training on health issues.⁴ All training sessions are held once a week for five consecutive weeks, and each session lasts for 2-3 hours. We chose to provide health training (instead of no training at all) to the control group to ensure that both treatment and control experienced the same level of “disruption” in their everyday activities. The financial literacy training videos cover the following five topics: budgeting, savings, loans, insurance, and a final summary video. The health training videos cover topics unrelated to financial literacy: cleanliness and hygiene; midwife, maternal and child health; condoms, AIDS and syphilis; and night-blindness. See Appendix 1 for more details on the content of these modules. Respondents receive Rs. 50 (USD 1) show-up fee for each session they attend, and are provided with transportation to and from their home to the training center.

A.2. Pay for Performance Treatment

Our 5-week video training concludes with a short exit test administered at the end of the final training session. The exit test consists of both financial literacy and health questions, drawn from topics discussed in the video trainings. All participants are informed in advance that they would be offered the chance to earn additional compensation based on their performance on these exit questions. We vary which questions individuals are paid for. Half the participants (again selected at random, individually) are paid for correct answers to questions related to the videos they watched (financial literacy or health), and the other half are paid for correct answers to topics

⁴ Once participants were recruited and assigned individual identification numbers, we stratified participants by neighborhood, whether the participant is a client of Saath MFI, and gender. Within each strata, a Stata program assigned a random uniform number to each participant. The random uniform number was then sorted, and based on this sort order, integer sequences of 1 through 3 were generated. Respondents with integer value of 1 and 3 were assigned to treatment, and those with value of 2 were assigned to control.

that are not covered in their video training (general knowledge or reverse questions – financial literacy training participants get paid for health questions and vice versa). Participants knew from the beginning whether health, financial literacy, or general knowledge questions would determine the compensation.

A.3. Financial Counseling Treatment

Among respondents who receive a financial literacy training invitation, one half are randomly selected to receive an offer of additional financial counseling. Specifically, after the financial literacy training is completed, financial counselors offer to visit selected respondents in their home to provide individualized financial counseling services. Counselors provided assistance and guidance on several issues, including but not limited to: preparing a budget, opening a bank account, paying off or re-financing loans, and purchasing an insurance policy. See Appendix 2 for more details on the services provided by the financial counselor.

A.4. Goal Setting Treatment

Among respondents who receive an invitation to financial literacy training, one half are randomly selected to receive a goal setting treatment, while the remaining one half form the control group for this intervention. Both treatment and control groups receive a household visit shortly after the video training, and are asked about whether they currently use, or plan to use, financial services and financial planning tools. In addition, treated individuals are provided with an opportunity to set a target date for several financial planning goals (i.e. opening a savings account, increasing savings, reducing expenditure, purchasing insurance). These target dates are marked on a calendar, provided to participants. This intervention will allow us to test the importance of setting financial goals in inducing better self-control and overcoming procrastination in financial behavior.

The motivation for the financial counseling and goal setting treatments comes from previous work on cognitive biases. Individuals tend to respond better and are more likely to change behavior as a result of individualized rather than general instruction. Further, existing research has shown that the opening of a channel (such as an a priori commitment, or a first step) may

facilitate behavior changes, whereas other behaviors may be blocked by closed channels. Mullainathan and Shafir (2009), for instance, argue that opening up of simple channels – such as providing individuals with a map and physical location of a financial or health facility – may significantly facilitate and improve the chances of an actual visit. These treatments will allow us to test the importance of such channel factors in influencing financial behavior.

III. Summary Statistics

A. Summary Statistics

Baseline summary statistics for our sample are provided in Table 2. Households in our sample have an average size of 6, with an average monthly income of Rs. 6891 (USD 150). About half of our respondents are female, and a vast majority is married. Respondents in our sample on average have limited schooling: 50% completed elementary school, but only 4% completed secondary school. Additionally, half of our respondents are clients of the microfinance program of Saath, our partner non-government organization; the other half are associated with Saath's other urban development programs (e.g. livelihood), but are not microfinance clients.

In addition to standard data on household demographics and respondent characteristics, our baseline survey also measured financial knowledge, attitudes and preferences. We measure discount rates in the standard manner, by asking respondents to provide the minimum amount they would be willing to hypothetically accept in one month in lieu of a hypothetical payment of Rs. 350 today. Respondents in our sample report relatively high monthly discount rates; the median is 0.14 and the average is 1.68. We also measure risk aversion by allowing respondents to choose between a certain payment of Rs. 10, or playing a lottery which paid out Rs. 25 or Rs 0 with probability of 1/2 each. Sixteen percent of our sample chose the safe bet, and these respondents are coded as risk averse.

Additionally, we measure numeracy skills through a series of 8 mathematics questions. The mean score for these mathematics questions is 4.71 out of 8. Almost all respondents could answer a simple addition question (“How much is 4+3?”), but only about 50% was able to answer a multiplication question correctly (“What is 3 multiplied by 6?”). Even fewer

respondents were able to make percentage calculations correctly (“What is 8% of 100?”), with close to half responding “do not know” to this question. Cole, Sampson, and Zia (2010) find similar numeracy levels among households in Indonesia.

Finally, we measure baseline levels of financial literacy based on the following three questions: (1) “If you borrowed Rs. 5, 500 and were charged 12% interest per month, how much interest would you pay in the first month?”; (2) “Suppose you had Rs. 100 in a savings account and the same amount saved at home, which of the two will yield returns at the end of the year?”; and (3) “Suppose your friend inherits Rs. 10,000 today and his brother inherits Rs. 10,000 3 years from now. Who is richer because of the inheritance?” Measured financial literacy is low in our sample, with an average score of 1.59. Similar to the mathematics questions, few respondents (less than 10%) were able to calculate interest rates correctly in question 1, and over 60% responded “do not know” to this question. In contrast, almost all respondents were aware that a savings account yields positive returns (question 2), but only 58% of our sample was able to correctly identify the time value of money (question 3), lower than what Lusardi and Mitchell (2009) find among respondents in the US.

Attrition in our sample is fairly low, at 4% of the entire sample over the three phases. We were able to successfully complete exit surveys for most of our sample. Due to Ramadan, 86 Muslim respondents in Phase 3 could not attend the training program, and these respondents have been rescheduled for Phase 4.

B. Randomization Checks

Table 3 provides a test of the randomization. The p-values in column 3 of Table 4 report the statistical significance of a test for the difference between the mean of those invited to financial literacy video training (treatment) and those invited to health video training (control). The means of baseline characteristics appear to be similar across treatment and control groups.

IV. Analysis (Preliminary Results)

A. Predictors of Financial Literacy and Participation

In Table 4, we explore the relationship between financial literacy, financial participation and a number of individual and household characteristics. We find that mathematical ability, based on the respondent’s performance on the mathematics questions outlined in the previous section, has a strong positive correlation with financial literacy. In addition, respondents with higher mathematical ability are significantly more likely to participate in a savings scheme (e.g. self-help group, bishi, chit fund) and own a range of financial products, including savings, loans, and insurance. These findings are consistent with several previous studies that describe a close relationship between cognitive ability and financial behavior (see for example, Cole, Sampson, and Zia (2010), Cole and Shastry (2010), and Christelis et al. (2006)).

Similarly, we find that per capita household income is strongly associated with financial participation: wealthier households are more likely to participate in a savings scheme and to have savings accounts, fixed deposits, pension funds, loans and insurance. Women in our sample also have higher levels of financial literacy and are more likely to have savings and insurance than men, which is perhaps because our sample consists of households affiliated with Saath, a non-government organization whose microfinance program primarily caters to poor women.

B. Experimental Results

Here we discuss preliminary results of our experiment. Since treatments were randomly assigned, we estimate causal impacts with the following equation:

$$y_i = \alpha + \sum_j \beta_j * Treatment_{ji} + \epsilon_i \quad (1)$$

where i indexes respondents, and j indexes the various combinations of treatment discussed in Section II. $Treatment_j$ is thus an indicator for each of the possible combinations of financial literacy or health training invitation, pay for performance, financial counseling, and goal setting treatments. The omitted category is the health training invitation. The coefficients of interest are β_j , which represent the effect of the treatment relative to those who received only the health training invitation.

Table 5 presents OLS regression results from estimating equation (1), where the outcome variables are dummies for a correct answer to each of the questions on a financial literacy exit

test. This exit test was administered after the 5-week training, and before the financial counseling and goal setting interventions. Thus, in the regressions in Table 5, we exclude treatment combinations with financial counseling and goal setting. Questions on the exit test were developed after an initial pilot, and were designed to be closely related to topics covered in the financial literacy training videos. Nevertheless, the point estimates on the treatment variables in Table 5 suggest that the financial literacy program or the pay for performance incentives have no effect on respondents' abilities in comparing insurance or savings options, knowledge about interest rates, insurance cover, or budgeting.

An important feature of our research design is that it occurs in four phases. Thus, we are able to refine our measures of financial knowledge as the study is underway. In the exit survey for phase two, respondents were asked additional questions to measure financial literacy at a more basic level, to determine knowledge of fundamental financial planning concepts rather than numeracy. Results for these financial literacy questions are presented in Table 6. We find that the financial literacy training has large positive impact on basic financial knowledge. Specifically, those who received financial literacy training have significantly higher knowledge about bank account opening requirements (column 2), loan processing fees (column 3), deposit insurance (column 5), and unproductive loans (column 8).

Similarly, in the exit survey for Phase 3, respondents were asked additional questions to measure changes in financial attitudes. In particular, respondents were presented with hypothetical situations, and were asked about the financial products they would suggest in the given situation. Results for these questions are presented in Table 7. We find that those who received financial literacy training are significantly more likely to suggest buying an insurance product in a hypothetical situation where a construction worker, whose job is described as high-risk, approaches the respondent for financial advice. The financial literacy program had no impact on other questions about financial attitudes, though the point estimates are generally positive. See Appendix 3 for more details on the exit test questions for each phase.

Overall, these results support the claim that financial literacy training does improve basic knowledge about financial options available to individuals and can influence attitudes about financial decisions. The follow-up surveys will allow us to determine whether these changes in knowledge and attitude affect subsequent financial behavior.

V. Conclusion

In this paper, we report the design and initial results of an ongoing study to measure the effect of financial literacy training on financial knowledge, preferences and behaviors of low-income Indian households, many of which are microfinance clients. Recent evidence has shown that the impacts of bringing households into the formal or quasi-formal financial sector via microfinance may have limited effects on the economic situation of households (Banerjee, Duflo, Glennerster and Kinnan (2010)), suggesting that complimentary interventions may be necessary. One prominent additional intervention is financial education, which is offered by a number of microfinance institutions and has received growing attention from policy makers. Financial education may allow households to make more effective use of financial services, such as microfinance, as they become available, as well as allow households to adopt beneficial financial habits and make better use of the financial devices currently at their disposal.

In addition to assessing the effects of pure financial training, delivered via a series of educational videos and discussion sections, we evaluate whether more intensive financial education and assistance is necessary; the study design also includes groups which are explicitly invited to create a personal financial plan and a group that is provided with one-on-one assistance in reaching their financial goals. The motivation for these additional interventions comes from the literature on cognitive biases, in particular problems of self-control, procrastination and non-response to generalized information.

The initial results suggest a limited role of pure financial education in equipping individuals to evaluate financial trade-offs on their own; we do not find that financial education permits individuals to choose among loan options to minimize their interest expense, select the most appropriate savings or insurance options, or create a budget effectively. We do find, however,

that financial literacy training appears to increase individual's awareness of the financial products and services available to them and their knowledge about the details of such services. This increase in awareness about existing financial services may allow individuals who have received the training to access appropriate financial products in the future; our ongoing data collection will assess whether this is true. Furthermore, we will evaluate whether additional reinforcement and assistance, primarily in the form of one-on-one financial advice and goal setting, can further facilitate that process.

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Appendix 1: Content of Financial and Health Literacy Videos

This appendix describes the content of our video-based interventions:

Financial Literacy videos

Session 1: Budgeting

Budgeting is the building block of household financial planning and management and the video aims at making the audience appreciate the need of keeping a household budget today in order to plan and save for a better tomorrow. The video trains participants in making a household budget and tries to dissociate the utility of keeping a budget with the nature of the income; it being a common belief among people that only those with regular and surplus income can keep a household budget. Instead the video brings out how budgeting can be especially useful for those with small incomes to bring down unnecessary expenditure and meet unforeseen expenses.

Session 2: Savings

Building on the previous session, the savings session begins by introducing the audience to the plight of Ramiben, a vegetable vendor who is caught in a debt trap given her spendthrift habits and inability to appreciate the need of accumulating small savings. Apart from educating the audience on the need of savings, the session dwells on the merit of saving in a bank vis a vis home and is a comprehensive guide on the various savings instruments present in the market.

Session 3: Loans

The session addresses three primary questions, namely: what to take a loan for (productive versus unproductive reasons), where to take a loan from (bank and MFI versus moneylenders) and how to cost a loan (comparing interest rate versus comparing interest rates, accounting for hidden costs like documentation fee and other terms of the loan that are likely to impact its cost).

Session 4: Insurance

The session begins by introducing the audience to various kinds of risks one faces in life and how insurance can act as a “shield,” protecting us against life’s uncertainties. The video further talks about the various types of insurance available in the market and the companies one can

approach to purchase insurance. Insurance is a complex product and choosing a policy that is best suited to one's needs can be baffling given the dizzying array of options available in the market. The video therefore attempts to explain the design an insurance product; its cost components and factors that can affect the latter.

Session 5: A Concluding Video

“If my neighbor or friend can do it, so can I”--this is the essence of the last video which seeks to instill confidence in the audience's ability to put in practice the lessons in financial management and planning taught in the last month. Interviewing people from the slums who practice budgeting and savings, who exercise discretion at the time of taking out a loan and who hold an insurance policy, the video aims to highlight how these people have been able to improve their lives with better financial management despite small and erratic incomes.

Health Education videos

Session 1: Cleanliness & Hygiene

It talks about the essentials of cleanliness and hygiene like washing hands with soap, drinking portable filtered water; using toilets for defecation. We put these forth as basic but extremely crucial aspects of personal health and hygiene that can help keep households disease-free.

Session 2 & 3: Dai (midwife) & Maternal and Child Health

Session two and three discuss various issues relating to maternal health and child care, both during pregnancy and after childbirth. It highlights the importance of monitoring pregnancy through regular ante-natal check-ups (ANC) and using the services of a trained midwife or a doctor for delivering the baby. Breastfeeding and immunization are described as crucial aspects of child health. Besides, since diarrhea is a common problem faced by infants, the sessions educate them on how to deal with it and what are the immediate remedies.

Session 4: Condoms, AIDS & Syphilis

This session focuses mainly on sexually transmitted diseases like AIDS & Syphilis. It gives detailed information on how these diseases can be contracted and what precautions need to be taken in order to protect ones family. The video also touches upon various myths related to sexually transmitted diseases and attempts to sensitize audience to the need of seeking informed advice on the subject. Reference is also made on how newborns can be saved from these diseases, in spite of their mothers suffering from the same. Towards the end, use of condoms as a means to prevent these diseases is stressed upon.

Session 5: Night Blindness

Night Blindness is common amongst children and pregnant women. The session cautions the audience against the various myths about the disease and suggests how simple measures like a regular diet rich in Vitamin A and iron can cure the ailment.

Appendix 2: Description of Financial Counseling

The financial counselors approach the respondents at their homes after the latter have finished watching all the videos and have taken the exit and goal setting survey. During their visit(s) with the respondents, the counselors offer the following:

1. Prepare a budget for the respondent's household with participation from the respondent and other family members present. If the respondent is literate he or she is encouraged to fill out the form provided by the counselor and arrive at his/her monthly income and expenditure. Since writing a budget can be intimidating, the counselors encourage respondents to start tracking their income and expenditure on a daily basis. The counselors provide the respondent with a small pictorial notepad for the same. The counselors make regular follow-up visits to check the progress respondents have made and if they need counselor's assistance.
2. Ascertain the savings instruments that the respondent or any other member in the household holds. The kind of assistance the financial counselors provide in their follow-up visits is case-based.
 - a. For those who express complete inability to save the counselors provide them with a piggy bank and encourage them to begin savings by setting aside save Rs 5 everyday.
 - b. For those who already hold an account but wish to open a new account the counselors help them with opening either a No Frills Account (NFA) in a nationalized bank or a compulsory deposit account with Saath Cooperative Society. This requires liaisoning with the banks and convincing the branch managers to open NFAs for our respondents and working with the latter to get their documentation together such that it fulfills bank requirements.
 - c. For those who already hold an account but do not wish to open another account, the counselors encourage them to gradually increase their savings and exercise discipline in depositing money in the existing accounts.
3. Ascertain if the respondent or any other member in the household holds an insurance policy.

For respondents who do not hold any insurance policy but show keen interest in purchasing one, the counselors put the respondents in touch with an insurance agent who then helps them identify a policy based on their needs and affordability. Apart from selling insurance policies and helping them with getting all the documentation together, there have been a couple of instances where the agent identified by the project has helped the respondent settle long pending claims with an insurance agency.

Appendix 3: Exit Test Questions

Phase 1 to 3

1. Assume you purchased a health insurance policy on the 1st of January and you suffer an insurable loss of Rs. 1000 on 31st December due to an accident. Would you be better off if you had purchased an insurance policy with

A. Rs. 3,000 cover and Rs. 950 premium

B. Rs. 2,000 cover and Rs. 900 premium

2. If you had the choice, would you prefer to

a. Receive Rs. 70 in cash 10 months from now

b. Save Rs. 50 at 5% interest per month for 10 months

3. Suppose you had Rs. 50 to save. You could either save this for 1 month in an account which earns 14% interest per month, or save it for 1 month in an account that earns 2% interest per week. Which would you choose, 14% per month or 2% per week?

4. Assume you have purchased a medical insurance policy and suffer an accident which results in Rs. 3500 of hospital fees. Would you be better off if you had purchased an insurance policy with

A. Rs. 3,000 cover and Rs. 950 premium

B. Rs. 2,800 cover and Rs. 800 premium

5. We would like to tell you a short story about the income and expenditures of a tailor. We would then like you to use this sheet (give worksheet) to determine if in a month, this tailor is saving money or if his monthly expenditures exceed his monthly income.

Jerembhai is a tailor in Vasna. Each week he makes Rs. 1500 from his work. He also sells the scraps from his work, for this he earns Rs. 200 each week. Each month Jerembhai must pay Rs. 1000 for the rent of his shop. He also spends Rs. 200 per week on his food and household goods. In addition to this he spends about Rs. 50 per week on tea and snacks. He must pay Rs. 500 each month for

the education expenses of his children. Some time ago, Jerembhai took a loan to purchase his sewing machine. He pays an installment of Rs. 250 each week for this loan. He also pays Rs. 150 per month for a life insurance policy.

Phase 2

1. Shantiben is preparing a budget for her household. Which of the following needs to be included in the budget?
 - A. Income only
 - B. Expenses only
 - C. Both

2. Do you think you can open a savings account in a bank with amount as low as Rs 50 or 100?

3. Naanubhai needs a loan of Rs 5000. And this loan is for duration of one year. Two banks are willing to give him money. Both banks will charge 10 percent per annum interest. However there is only one difference. One bank (BANK A) will charge processing fee of Rs 200 and the other bank (BANK B) will charge a processing fee of Rs 20 per month. According to you which bank Naanubhai should take out the loan from?

4. Sukhiben's expenses are more than her income. Her friend Najmabanu tells her that writing a budget can help bring down her unnecessary expenses. Do you agree with Najmabanu or not?

5. Suppose I have a savings account in a bank and the bank closes down for some reason, will I get my money back?

6. Nileshbhai recently bought accident insurance with Rs 10,000 cover. The next day, he met with an accident and had to be hospitalized. He incurred Rs. 5,000 in hospital fees. How much do you think the medical insurance policy will pay for?

7. Iqbalbhai is 20 years old and Ashokbhai is 30 years old. If they were to buy life insurance of Rs 1 lakh for 20 years, who between the two to your mind will have to pay higher premium?

8. Manojbhai recently borrowed some money from a local moneylender. He wanted to buy some clothes for his children for Diwali (festival). What do you think about Manojbhai's loan?

Phase 3

1. Rameshbhai does plastering on tall buildings. It is a dangerous job and he is worried that if he gets injured his family's income will become inadequate to meet their needs. If Rameshbhai comes to you for advice what would you suggest?

- A. Take up some other (different) work
- B. Purchase health/life/ accident insurance
- C. Increase savings

2. Vimlaben has a very bright child who is currently in secondary school, but will probably do well in university. She is worried how her family will pay for the child's education. If Vimlaben comes to you for advice what would you suggest?

- A. Buy child life insurance policy
- B. Borrow money from a moneylender
- C. Open a savings account in a Bank
- D. Save at home
- E. Discontinue education
- F. Other

3. Kashiben has two sons. Her husband and two sons are earning members of the household and contribute towards household income. However Kashiben does not know what is the household's total income and expenditure. How do you think Kashiben can track her income and expenditure?

- A. Open a savings account
- B. Start making a household budget

C. Buy life insurance for her husband and sons

4. Nareshbhai currently drives a rented auto rickshaw. He wants to purchase his own auto rickshaw but does not have the money and is considering taking out a loan for the same. If Nareshbhai comes to you for advice what will you suggest – should he take out a loan or should he not?

5. Sajidbhai recently got married. He and his wife are considering buying a TV. They do not have enough savings and will need to take out a loan. Sajidbhai has two options: (1) He can take a loan from the moneylender and a relative and get a bigger amount in loan to buy a big TV, or (2) He can take a loan only from a relative and buy a smaller TV. What would you advise Sajidbhai and his wife?

Table 1: Sample Size and Experimental Design

Panel A: Sample Size for each Phase

| Phase | Sample Size |
|-------|-------------|
| 1 | 279 |
| 2 | 421 |
| 3 | 328 |
| Total | 1028 |

Panel B: Experimental Design

| Financial Literacy | | | Pay for | N | % of |
|--------------------|------------|--------------|-------------|-----|--------|
| Videos | Counseling | Goal Setting | Performance | | Sample |
| Yes | Yes | Yes | Yes | 96 | 9.34% |
| Yes | Yes | No | Yes | 86 | 8.37% |
| Yes | Yes | Yes | No | 76 | 7.39% |
| Yes | Yes | No | No | 83 | 8.07% |
| Yes | No | Yes | Yes | 78 | 7.59% |
| Yes | No | No | Yes | 77 | 7.49% |
| Yes | No | Yes | No | 90 | 8.75% |
| Yes | No | No | No | 99 | 9.63% |
| No | No | No | Yes | 176 | 17.12% |
| No | No | No | No | 167 | 16.25% |

Table 2: Summary Statistics

| | Median | Mean | SD |
|---|---------|---------|---------|
| <i>Household Characteristics</i> | | | |
| Household Size | 6.00 | 5.95 | 2.47 |
| Household Monthly Income (Rs.) | 5500.00 | 6891.54 | 5056.51 |
| Household Has Phone | | 0.84 | 0.37 |
| Household Has Non-farm Enterprise | | 0.26 | 0.44 |
| Household Has Water Connection | | 0.83 | 0.37 |
| <i>Respondent Characteristics</i> | | | |
| Female | | 0.57 | 0.50 |
| Age | 39.00 | 38.69 | 8.85 |
| Married | | 0.98 | 0.14 |
| Hindu | | 0.76 | 0.43 |
| Completed Elementary School | | 0.49 | 0.50 |
| Completed Secondary School | | 0.04 | 0.19 |
| Saath MFI Client | | 0.48 | 0.50 |
| Math Score (Out of 8) | 5.00 | 4.71 | 2.03 |
| Financial Literacy Score (Out of 3) | 2.00 | 1.59 | 0.63 |
| Has Hard Time Saving (Self-report) | | 0.94 | 0.24 |
| Interested in Financial Matters (Self-report) | | 0.85 | 0.36 |
| Discount Rate (Monthly) | 0.14 | 1.68 | 4.91 |
| Inconsistent time preferences | | 0.53 | 0.50 |
| Risk Averse | | 0.16 | 0.37 |

Discount rate has been trimmed 2% from the top.

Table 3: Randomization Test

The p-values in column 3 report the statistical significance of a test for the difference between the mean of those invited to financial literacy video training (treatment) and those invited to health video training (control).

| | Treatment | Control | p-value |
|---|-----------|---------|---------|
| Log Per Capita Income Monthly | 6.93 | 6.90 | 0.42 |
| Female | 0.57 | 0.56 | 0.80 |
| Age | 38.51 | 39.05 | 0.35 |
| HH has non-farm enterprise | 0.25 | 0.27 | 0.46 |
| Married | 0.98 | 0.99 | 0.35 |
| Hindu | 0.77 | 0.75 | 0.42 |
| Completed elementary school | 0.49 | 0.48 | 0.84 |
| Completed secondary school | 0.04 | 0.03 | 0.56 |
| Math Score (Out of 8) | 4.72 | 4.70 | 0.87 |
| Saath MFI client | 0.48 | 0.48 | 0.95 |
| Financial Literacy Score (Out of 3) | 1.61 | 1.56 | 0.25 |
| Interested in financial matters (self-report) | 0.84 | 0.86 | 0.46 |
| Inconsistent time preferences | 0.53 | 0.55 | 0.52 |
| Has hard time saving (self-report) | 0.94 | 0.93 | 0.59 |

Table 4: Predictors of Financial Literacy and Financial Participation

| | Financial Literacy Score (out of 3) (1) | Has savings account (2) | Participates in savings scheme (3) | Has fixed deposit (4) | Has pension fund (5) | Has a loan (6) | Has any insurance (7) |
|---|--|-------------------------------|---|-----------------------------|----------------------------|----------------------|-----------------------------|
| Log Per Capita Income Monthly | 0.017 (0.032) | 0.127*** (0.027) | 0.089*** (0.023) | 0.072*** (0.017) | 0.076*** (0.014) | 0.090*** (0.028) | 0.201*** (0.024) |
| Female | 0.085* (0.045) | 0.079* (0.044) | 0.071*** (0.021) | 0.128*** (0.036) | -0.008 (0.020) | 0.000 (0.049) | 0.097*** (0.028) |
| Age | 0.008*** (0.002) | 0.002 (0.002) | -0.003** (0.001) | -0.000 (0.001) | 0.002* (0.001) | 0.000 (0.002) | 0.002 (0.002) |
| HH has non-farm enterprise | 0.044 (0.051) | 0.051** (0.023) | 0.016 (0.023) | 0.058* (0.031) | -0.040** (0.019) | 0.085** (0.040) | 0.102** (0.039) |
| Married | 0.084 (0.090) | 0.169** (0.077) | 0.070 (0.079) | 0.005 (0.072) | 0.053 (0.046) | -0.002 (0.142) | 0.151** (0.072) |
| Hindu | 0.214* (0.124) | -0.045 (0.070) | -0.149* (0.079) | -0.109** (0.044) | 0.084* (0.041) | 0.041 (0.081) | 0.054 (0.072) |
| Completed elementary school | 0.114* (0.057) | 0.088** (0.036) | 0.019 (0.025) | 0.016 (0.022) | 0.004 (0.029) | -0.031 (0.049) | 0.046 (0.033) |
| Completed secondary school | 0.147 (0.135) | 0.001 (0.062) | 0.036 (0.054) | 0.053 (0.066) | 0.113 (0.104) | -0.180** (0.079) | 0.113 (0.122) |
| Mathematical Ability | 0.065*** (0.013) | 0.022*** (0.007) | 0.013* (0.006) | 0.010 (0.008) | -0.001 (0.005) | 0.018** (0.007) | 0.033*** (0.009) |
| Saath MFI client | 0.050 (0.045) | 0.236*** (0.057) | -0.003 (0.032) | -0.014 (0.039) | -0.021 (0.016) | 0.050 (0.039) | 0.024 (0.029) |
| Interested in financial matters (self-report) | 0.074 (0.049) | 0.070 (0.042) | -0.003 (0.031) | 0.016 (0.027) | 0.000 (0.018) | 0.062 (0.053) | -0.054 (0.047) |
| Has hard time saving (self-report) | -0.101 (0.098) | 0.059 (0.052) | 0.003 (0.048) | 0.091*** (0.032) | 0.011 (0.055) | 0.093 (0.063) | 0.029 (0.077) |
| Risk averse | -0.031 (0.057) | 0.056* (0.028) | -0.007 (0.030) | 0.034 (0.033) | -0.038* (0.020) | -0.025 (0.035) | 0.044 (0.040) |
| Constant | 0.611** (0.265) | -0.722*** (0.257) | -0.326** (0.150) | -0.496*** (0.141) | -0.693*** (0.179) | -0.473*** (0.166) | -1.449*** (0.174) |
| Neighborhood FEs | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Phase FEs | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.136 | 0.197 | 0.143 | 0.165 | 0.131 | 0.070 | 0.165 |
| N | 1028 | 1028 | 1028 | 1028 | 1028 | 1028 | 1028 |
| Mean of Dep Var | 1.594 | 0.753 | 0.177 | 0.177 | 0.088 | 0.509 | 0.372 |

These regressions use baseline data from Wave 1, 2, and 3. Robust standard errors, clustered at the neighborhood level. * p<0.10, ** p<0.05, *** p<0.01

Table 5: Experimental Results: The Effects of Financial Literacy Education on Financial Knowledge

| | Comparing insurance options | Comparing savings options | Comparing weekly and monthly interest rate | Understands insurance cover | Wrote budget correctly |
|---|-----------------------------------|---------------------------------|---|-----------------------------------|------------------------------|
| | (1) | (2) | (3) | (4) | (5) |
| Fin Lit Treatment Only | -0.042 (0.043) | -0.009 (0.045) | 0.048 (0.048) | -0.054 (0.044) | -0.023 (0.034) |
| Fin Lit Treatment + Pay for Performance | 0.011 (0.046) | 0.023 (0.049) | 0.012 (0.042) | -0.094** (0.045) | 0.005 (0.032) |
| Health + Pay for Performance | -0.020 (0.050) | 0.079 (0.059) | -0.000 (0.038) | -0.008 (0.054) | -0.009 (0.038) |
| Constant | 0.270* (0.156) | 0.395*** (0.138) | 0.894*** (0.075) | 0.715*** (0.106) | 0.594*** (0.166) |
| Phase FEs | Yes | Yes | Yes | Yes | Yes |
| Strata FEs | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.137 | 0.159 | 0.130 | 0.130 | 0.230 |
| N | 905 | 905 | 905 | 905 | 905 |
| Mean of Dep Var | 0.429 | 0.695 | 0.681 | 0.588 | 0.706 |

Sample consists of respondents in Phase 1-3. Dependent variables are dummies for correct answer. Robust SEs clustered at the classroom level. Omitted category is health video group. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Experimental Results: The Effects of Financial Literacy Education on Alternative Measures of Financial Knowledge

| | Knows to include both income and expenses in HH budget | Knows can open an account with as low as Rs. 50 | Prefers Rs 200 processing fee vs. Rs 20/month for 12 mos. | Agrees that budgeting can help decrease unnecessary expenditure | Knows will get money back if bank closes | Knows insurance cover | Knows older person pays higher life insurance premium | Knows borrowing money for Diwali is unproductive loan |
|---|--|---|---|---|--|-----------------------|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Fin Lit Treatment Only | 0.045 (0.049) | 0.168** (0.059) | 0.221*** (0.059) | 0.020 (0.032) | 0.159** (0.070) | 0.017 (0.046) | 0.131** (0.060) | 0.334*** (0.052) |
| Fin Lit Treatment + Pay for Performance | 0.099* (0.048) | 0.176*** (0.052) | 0.224*** (0.060) | 0.060** (0.023) | 0.150** (0.066) | 0.047 (0.043) | 0.099 (0.072) | 0.264*** (0.066) |
| Health + Pay for Performance | -0.006 (0.073) | -0.011 (0.053) | 0.218* (0.110) | 0.000 (0.027) | 0.083 (0.071) | 0.024 (0.088) | 0.030 (0.090) | -0.043 (0.081) |
| Constant | 0.940*** (0.045) | 0.622*** (0.103) | 0.368 (0.214) | 0.840*** (0.093) | 0.500*** (0.137) | 0.469*** (0.126) | 0.414* (0.204) | 0.165* (0.090) |
| Strata FEs | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.139 | 0.111 | 0.180 | 0.073 | 0.078 | 0.064 | 0.094 | 0.227 |
| N | 404 | 404 | 404 | 404 | 404 | 404 | 404 | 404 |
| Mean of Dep Var | 0.851 | 0.780 | 0.688 | 0.953 | 0.668 | 0.584 | 0.574 | 0.671 |

Sample consists of respondents in Phase 2 only. Dependent variables are dummies for correct answer. Robust SEs clustered at the classroom level. Omitted category is health video group. * p<0.10, ** p<0.05, *** p<0.01

Table 7: Experimental Results: The Effects of Financial Literacy Education on Financial Attitudes

| | Would suggest purchasing insurance to construction worker friend | Would suggest opening bank account to friend w/ bright child | Would suggest making HH budget | Would suggest taking out a loan to friend who rents an auto | Would suggest taking out 1 loan and buy smaller TV |
|---|--|---|---|--|--|
| | (1) | (2) | (3) | (4) | (5) |
| Fin Lit Treatment Only | 0.196*** (0.058) | -0.008 (0.060) | 0.045 (0.064) | 0.070 (0.064) | 0.015 (0.035) |
| Fin Lit Treatment + Pay for Performance | 0.171*** (0.052) | 0.068 (0.051) | 0.091 (0.102) | 0.017 (0.069) | -0.005 (0.035) |
| Health + Pay for Performance | 0.032 (0.075) | -0.084 (0.128) | -0.197** (0.079) | -0.017 (0.049) | -0.048 (0.068) |
| Constant | 0.738*** (0.067) | 0.930*** (0.074) | 0.528*** (0.144) | 0.908*** (0.071) | 1.006*** (0.038) |
| Strata FEs | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.241 | 0.142 | 0.192 | 0.149 | 0.236 |
| N | 232 | 232 | 232 | 232 | 232 |
| Mean of Dep Var | 0.737 | 0.875 | 0.621 | 0.927 | 0.966 |

Sample consists of respondents in Phase 3 only. Dependent variables are dummies for correct answer. Robust SEs clustered at the classroom level. Omitted category is health video group. * p<0.10, ** p<0.05, *** p<0.01