

# When Can Financial Education Affect Savings Behavior? Evidence from a Randomized Experiment among Low Income Clients of Branchless Banking in India<sup>1</sup>

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## Abstract

Financial literacy programs are growing in popularity, despite recent research showing no significant changes to savings behavior. We experimentally test the impact of financial literacy training on clients of a branchless banking program that offers doorstep access to banking to low income households with limited access to traditional banking. The intervention had significant impacts: attitudes toward financial planning improved and savings in the treatment group increased by 29% (\$27) within a period of one year. These results suggest that financial education interventions, when paired with banking experience, can be successful in improving savings and financial capability outcomes.

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<sup>1</sup> *Acknowledgements:* We thank FINO PayTech for implementing this program and Prakash Lal of FINO PayTech for his support. For comments, we thank Shawn Cole, Bilal Zia, William Jack, Sigfried Zottel, Toby Linden, and numerous conference and seminar participants. For funding, we are grateful to the World Bank Russia Financial Literacy and Education Trust Fund. Finally, Mudita Tiwari, Anup Roy and Sitaram Mukherjee provided excellent research assistance through CMF, IFMR Research. All opinions in this paper are those of the authors and do not necessarily represent the views of FINO PayTech or the World Bank.

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## **I. Introduction**

Thanks to innovations in new technology-based banking systems, between 500 and 800 million of the world's poor now have access to financial services (Deb and Kubzansky, 2012). However, the majority of these individuals are not prepared to interact with the growing complexities of financial products and services. Recent results from both developed and developing countries (summarized by Lusardi and Mitchell, 2014, 2011 and Xu and Zia, 2012) show low levels of financial literacy, including low knowledge and skills around basic concepts of personal financial management or more general banking practices.

A growing literature suggests that financial literacy is correlated with household well-being, including participation in savings and investments (Behrman, et al., 2012 and Van Rooij, et al., 2011), and planning for retirement (Lusardi and Mitchell, 2007). This literature suggests that financial knowledge leads to responsible financial behavior among consumers, and so a rising number of countries are developing national financial education strategies and making more investments in related programs (Grifoni and Messy, 2012).

The evidence from field experimental research linking financial education and savings outcomes though provides mixed results in both developed and developing countries (see Miller, et al., 2014 for a detailed meta-analysis of the recent literature). For example, Duflo and Saez (2003) measure the impact of a benefit fair on retirement plan enrollment among employees of a university in the United States but found small effects on actual enrollment. In a

development context, Cole, et al. (2011) also looked at the impact of financial education training among the unbanked in Indonesia, finding no substantial effect on savings behavior. On the other hand, in Brazil, Bruhn, et al. (2013) looked at high school financial education, incorporated in the standard curriculum during three academic semesters, and reported impact on financial literacy, attitudes, and behavioral change (based on self-reported data). Though not focusing on personal finance, Karlan and Valdivia (2011) examined the impact of business education on female entrepreneurs in Peru and found a significant increase in participants' engagement in some of the activities included in the training, such as separating money between business and household, reinvesting profits, and maintaining records of sales and expenses.

Along with the increased focus on financial education, there is also a mounting interest in improving access to formal savings institutions. There are, indeed, some important advantages to formal banking. Unlike village savings programs, banks offer privacy from family members and other villagers, decreased risk of theft or default, and reliability. When financed by NGOs or through government regulation, they can also be low cost or even free of any charges. Dupas and Robinson (2013a) find that in Kenya, for instance, giving female microenterprise owners access to such low cost savings accounts increased savings, productive investment, and food expenditures. Similarly, Prina (2013) shows that in Nepal giving female household heads access to bank accounts with no fees increased monetary and total assets.

Nevertheless, half of world's adult population still do not use formal financial services to save or borrow (Global Findex Database<sup>3</sup>). Many of these people participate in other savings options, such as ROSCAs, though the majority do not opt for formal savings—perhaps due to the lack of knowledge about formal banking's benefits or to the difficulty of access, since most banks are not near the poor and offer services that are not attractive to the low value depositors. Doorstep banking, also called “last mile” banking where the bank reaches out to those who cannot make it to the banks, can often be found in local retail shops, through agents who live in or near the villages, or through mobile banking vehicles or mobile phones—such as those being pioneered by M-PESA and M-KESHO (Demombynes and Thegeya, 2012). Doorstep banking makes it easier for people to handle formal savings accounts, though it is a new and still poorly understood idea.

We take advantage of a recent expansion in branchless banking in India to present a randomized field experiment with rural households from Uttar Pradesh. Thus, we measure the impact of a financial education program, delivered in conjunction with a doorstep account, on savings behavior among low-income households. The methodological and conceptual contribution of the study is to explore the causal relationship between financial education and savings and between financial education and financial capabilities, in combination with branchless banking.

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<sup>3</sup> <http://datatopics.worldbank.org/financialinclusion/>

We find that the financial education intervention had a significant impact on savings. Individuals who received the training saved 29% (\$27) more than the control group. These savings appear to come in part from a decrease in temptation goods by 32%. Moreover, we find improvements on attitudes related to financial planning, but we do not find impact on financial knowledge or time preferences. These findings suggest that financial education can improve savings outcomes, even if it does not affect overall financial literacy or deep preference parameters.

Following a number of hypotheses put forward in the literature on financial literacy training, we also look at heterogeneous effects of the program and discover three interesting findings. First, financial attitudes improve more among less educated individuals. Second, increased interest in financial matters and a shift from informal to formal savings are found among individuals more financially educated at the baseline. Third, the intervention was less effective for more impatient individuals.

We also discuss the mechanisms behind these results and show that the treatment effect is not merely given by a substitution from other forms of savings to the doorstep banking account, but, on the contrary, the program crowded in other formal savings as well. These results and the results of the experimental literature on financial literacy thus far suggest that attitudes to finance can be changed, and, when paired with access to bank accounts, can lead to significant increases in savings among poor households.

## II. Experimental Design

### a) The Program

The doorstep banking and financial literacy training was conducted in cooperation with FINO Paytech Foundation (FINO), a for-profit financial services and technology company based in India and specializing in delivering technology-based banking services. FINO works with financial institutions to enable access to financial services for the previously excluded segments of the society by offering last mile service delivery through a number of portable devices, including biometric smart cards, hand-held devices and micro-deposit machines with biometric authentication. The model that FINO employs to reach out to households in rural areas is based on Business Correspondents (BCs), also known as “bandhus,” who are permanently based in the villages where FINO operates and serve as the focal point, or the contact person, between the financial institution and community members. This model helps introduce the bank to the poor, who are not usually familiar or comfortable with the traditional banking institutions, through a more personal interaction. To date, FINO has trained more than 30,000 bandhus, serving over 77 million customers, and it is growing close to a million clients per month.<sup>4</sup>

While doorstep banking has had enormous success in expanding access – as many studies that look at the impact of branchless banking have shown – access in and of itself does not make individuals financially more aware or literate (Thyagarajan and Venkatesan, 2008, in

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<sup>4</sup> [http://www.finopaytech.com/images/FE\\_Banking\\_Special\\_March28.pdf](http://www.finopaytech.com/images/FE_Banking_Special_March28.pdf)  
<http://www.moneycontrol.com/smememor/news/finance-capital/fino-taking-banks-to-indias-poor-766580.html>

India, Dupas, et al., 2014, in Kenya). For example, out of the sample of 3,000 individuals randomly drawn from FINO's administrative database who had signed up for FINO bank accounts, 88% were found to have made no transactions, with only 10% holding a positive balance.<sup>5</sup> While many factors could account for this shortcoming, including lack of financial resources, effective access and trust in branchless banking as well as individual biases, policy makers are concerned that low levels of financial literacy are a major constraint to usage of such accounts. In the case of FINO, it is important to note that most of the individuals who signed up for bank accounts were provided instructions on how to use the smart cards and on the types of transactions they could make; they also had ongoing access to the bandhus for any question. However, it is likely that these FINO clients did not have a general understanding about the benefits of responsible financial management or about the basic concepts of personal finance. Also, irregular presence of FINO bandhus<sup>6</sup> might result in low transactions by limiting the access to transaction points.

The financial literacy curriculum was developed in collaboration with FINO. The intervention consisted of a two-day financial education training program, delivered through a video (2-3 hours per day) in a classroom setting, followed by interactive discussions on the presentation. FINO implemented the intervention between May and August 2011 across two adjacent districts of the state of Uttar Pradesh. Table 1 illustrates the contents covered by the

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<sup>5</sup> Source: Administrative data shared by FINO. Such picture also reflects the fact that bandhus received around Rs. 20-25 for signing up each client and so have an incentive to sign up as many clients as possible, not just those with a strong interest in banking.

<sup>6</sup> As found from the endline survey of FINO clients in April-May 2012.

training. It primarily focused on three topics: the role of formal banking in people's lives; responsible borrowing, spending, and saving; and concepts of cash management. Overall, the training material was standard and based on classical modules used in other financial literacy interventions; however, unlike previous studies, the beneficiaries were also told more about how to use the FINO smart card for accessing their no-frills savings bank account. The content of the training was developed by FINO under the overall guidance of the evaluation team while the video was designed in collaboration with a company specializing in street plays and movie production. Professional trainers employed by FINO delivered the training, and the bandhu who served the treatment area was present to engage the clients in the workshop discussions.

## **b) Hypotheses**

We hypothesize that financial education can indeed be effective in changing savings behavior among the existing FINO account holders, most of whom come from low-income rural households. More specifically, we are interested in: 1) the impact of the financial education training on savings rates; and 2) the impact of the financial education training on financial knowledge, budgeting skills, and attitudes about good money management. The break-down of the analysis in these two dimensions will allow us to examine in more depth the impact of the intervention along the variables in the causal chain.

Furthermore, in order to understand whether there might be alternative and more cost-effective ways to deliver the message that saving is important, we try to investigate which



elements are required for the success of the program. For this purpose, we introduced a cross-cutting intervention consisting of simple 10-minute house visits to stress the importance of saving in formal instruments during the post-harvest period (when people have more money), followed up by monthly 5-minute phone conversations to remind people to save for a period of 3 consecutive months. Besides highlighting the importance of savings and the benefits of formal savings, this post-harvest intervention also included the setting of saving goals and the delivery of information about expected dates of bandhu presence in the area. Hence, we test whether a simple intervention is as effective as the classroom financial literacy training and we also check whether the post-harvest reminders can leverage the effect of the training.

### **c) The Sample**

The researchers conducted the experiment on a random sample of individuals in villages where FINO operates. Villages were randomly selected to either receive the training or receive no training. Individuals from treatment villages that had FINO smart cards were then randomly selected for financial education training.

The program was rolled out with the clients of 200 bandhus who were working in the villages of the two experiment districts of Varanasi and Azamgarh in the state of Uttar Pradesh. These bandhus were selected from the list of all FINO agents using a distance-based dropping method to prevent contamination between treatment and control groups. From a pair of bandhus who were located in villages very close to each other (less than 1.25 Kms), the

evaluation team randomly dropped one bandhu to minimize spillovers; the evaluation team also dropped bandhus whose own service areas were far apart (more than 10 Kms) in order to make data collection and training easier. The evaluation team then randomly assigned these 200 bandhus into treatment and control and, for each bandhu, 25 clients were randomly selected through FINO's client records updated in January 2011. Using these FINO records, the evaluation team performed pre-baseline randomization test to ensure that the sample was well balanced with respect to available demographic and account activity information. The results of the balance test showed that before the baseline there were indeed no observable differences between treatment and control FINO clients.<sup>7</sup> Finally, from the list of 25 clients, the evaluation team drew a sample of 15 clients per bandhu for the survey interview.<sup>8</sup> So, in total, the evaluation team selected 3,000 households for the baseline survey, which took place in April 2011, while the endline survey was conducted one year later, in April 2012. Around November 2011, the sample was further divided assigning half of the treatment and half of the control to receive the post-harvest intervention (house visit and reminder phone calls) and, as a result, four groups were formed: pure control, pure treatment, only post-harvest intervention, and treatment plus post-harvest intervention.

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<sup>7</sup> The variables included in the pre-baseline balance test were: percentage of female; share of clients in the age groups 18-24, 25-59, 60 and above, and share of clients who made at least one transaction in the 6 months period before February 2011.

<sup>8</sup> Buffers of 10 clients per bandhu were kept to ensure that, for each bandhu, the target of 15 clients could be surveyed. The first 15 clients (based on the sorting of randomly-assigned client ids) per bandhu were treated as the priority and the buffer only used in the extreme case where, in spite of making every effort, the survey team was unable to find the client from the original list.

### **III. Data**

#### **a) Baseline Values**

In Table 2 we present descriptive information to show how rural households in our sample saved money at the time of the baseline survey. To estimate savings we rely on self-reported data, i.e. the respondents' recall of the balance amount in each formal account and informal savings tool.

In April 2011, mean formal savings were Rs. 4,376 (\$51) or about twice the average monthly income, while mean informal savings (mostly home savings or savings in self-help groups) amounted only to Rs. 619, showing that, in our sample, formal savings are more prevalent than informal savings. Even though technically the entire sample had no-frills savings account served by FINO, only 87% of households reported having an account through FINO, suggesting that some clients were either not aware they had FINO accounts or did not understand what they were signing up for when they opened the account.

Noticeably, even though about 94% of households reported having a formal savings account at the baseline, only 59% had a non-zero balance, suggesting that other constraints than access to bank services limited savings amounts. Considering only FINO accounts, the figures are worse: only 24% of households appeared to use the account for savings by keeping a

non-zero balance.<sup>9</sup> Such baseline levels indeed present potential scope for financial education training to help develop better savings behaviors.

Further, almost 60% of FINO account holders also had at least one other formal savings account. About 51% had an account in a nationalized bank, 6% in a post office, 5% in a private bank and only 2% with an NGO (categories not mutually exclusive). This picture is similar to the percentages presented by Demirguc-Kunt and Klapper (2012) based on the nationally representative Global Findex dataset in India. They showed that in 2011, between 22% and 56% of the population (exact percentages depending on the income quintile) had an account at a formal financial institution. The fact that half of the respondents had a national bank account suggests that while banking may be difficult, considered unimportant or expensive in the areas where FINO operates, people are interested in obtaining formal savings despite the extra costs. This finding also reflects that in 2006 the Reserve Bank of India imposed on all commercial banks the introduction of free no-frills accounts (Thyagarajan and Venkatesan, 2008). Thus, in the study area, the extra cost of keeping another formal account consisted mostly in the traveling cost of reaching the nearest bank.<sup>10</sup>

To define our indicator of financial literacy, we follow the approach introduced by Cole, et al. (2011) and by Carpena, et al. (2011). The first paper presents the first nationally representative measure of financial literacy in a developing country, while the second study

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<sup>9</sup> The low deposit in FINO account might have been aggravated by the problem of absence of bandhus in the areas and/or by trust issues.

<sup>10</sup> FINO estimated that in the villages where it chose to operate a bank branch was at least 4-5 kms away.

identifies “three distinct dimensions of financial knowledge”: financial numeracy, basic awareness of financial choices, and attitudes toward financial decisions. Accordingly, our questionnaire covered different aspects of financial literacy, including budgeting skills, interest in financial matters, basic financial numeracy, financial products’ awareness, and financial attitudes.

More specifically, budgeting quality refers to the skills of making a budget, writing it down, evaluating it as helpful, and being able to stick to it. Interest in financial matters covers responses regarding involvement in household financial matters and self-assessed understanding of information related to financial products. Table 3.A presents the summary statistics for these first two measures of financial literacy. In the baseline, budgeting quality appeared to be particularly low: 73% of the respondents did not make a budget and, even when they did, they mostly kept it only mentally. A considerable fraction of individuals (24%) also reported not to be involved at all in financial matters and not to be actively interested in financial topics (48%). When asked about their understanding of financial product, almost half of the respondents stated that, in general, they rarely or never understood financial information, especially on loan and savings products. Even though these percentages might not represent a particularly alarming picture, they still signal a generalized lack of financial understanding and involvement.

In addition, Table 3.B presents the descriptive statistics regarding financial knowledge and compares our results to the findings of Cole, et al. (2011) from rural India and Indonesia and of Carpena, et al. (2011) from urban India.

The first measure of financial numeracy is based on the study by Cole, et al. (2011), which is in turn very close to the work of Lusardi and Mitchell (2006) who pioneered the quantitative research on financial literacy. It includes a question on compound interest, along with one on interest rates vs. inflation.<sup>11</sup> The main purpose of these questions is to test respondents' understanding of basic economic concepts (i.e. inflation, interest rate, and compound interest), which are considered indispensable for making financial decisions. For this reason, we rename our measure of financial numeracy as 'understanding of basic economic concepts'. Our indicator appears to be in line with previous estimations: in our sample the mean share of correct answers is 71%, while it was 70% in the Cole, et al. (2011) sample representative of Indonesian population and 42% in the Cole, et al. (2011) sample of 1,500 poor households in rural Gujarat. Thus, our sample is more comparable with average samples in other developing countries than with Indian subsamples of poorer laborers in subsistence agriculture.

Second, to define basic awareness of financial choices, we follow the paper by Carpena, et al. (2011) who define this indicator as the "knowledge of fundamental financial planning concepts, as well as details of financial products, [such as] understanding of deposit insurance

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<sup>11</sup> See Appendix for details.

or of the purpose of a household budget” (pp. 13-14).<sup>12</sup> Since, in this case, the comparison is with a subsample from urban India, the means in our sample variables are on average lower than the means showed in the Carpena, et al. (2011) paper, especially for more complicated concepts as the one of deposit insurance.

Finally, financial attitudes are also measured, as in Carpena, et al. (2011), by presenting hypothetical situations to respondents and asking them about the financial products or financial advice they would suggest in the given scenario.<sup>13</sup> Some of these questions have an ascending range of correct answers, so they are coded as continuous variables from 0 to 1 with 1 equal to the best financial option and 0.5 weight on the second best option. Again, with a mean of 0.68, our measure of financial attitudes is on average lower than the one presented by Carpena, et al. (2011) based on an urban subsample.

#### **b) Socio-Economic Background of the Clients and Balance Test**

Respondents in our sample are of relatively low socio-economic status. Household heads are mostly males, 45 years old and about 40% are illiterate. Households are mostly Hindu and have on average 6-7 members, of which four are adults. About 70% of the households own land, with income from harvest and livestock contributing roughly 45% to total income. At the baseline, the income from primary and secondary occupation was on average only Rs. 1,079 (\$20),

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<sup>12</sup> See Appendix for details.

<sup>13</sup> See Appendix for details.

slightly above the poverty threshold (the state poverty line for rural Uttar Pradesh in 2010 was fixed at Rs. 663--Government of India Planning Commission, 2012). The mean of the total household income was Rs. 2,028 (\$38), while the mean of total household expenditures was Rs. 1,773 (\$33) suggesting that on average households did not manage to save much. In fact, about 50% of them resorted to loans and the average loan amount was equal to Rs. 4,839 (\$90).

Table 4 presents the results of the balance test relative to all the basic household characteristics. The baseline variables seem well balanced, except for the total number of outstanding formal loans. In order to avoid any bias that might arise in estimating treatment effects, we include all unbalanced variables as controls in the empirical analysis.<sup>14</sup>

#### **IV. Impacts on Savings and Financial Literacy**

##### **a) Summary Statistics of the Outcome Variables**

The first outcome of interest is whether the program caused any increment in the amount of the following types of savings: savings in no-frills bank account served by FINO (FINO savings), formal savings (including FINO, post office and other commercial banks accounts), non-FINO formal bank savings, savings in other nationalized banks, informal savings, and total savings. All savings amounts are capped at the 99<sup>th</sup> percentile in order to eliminate outliers. The second outcome of interest is whether the intervention resulted in any improvement in the different

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<sup>14</sup> Other variables unbalanced at baseline are whether the client has at least secondary education, whether the client had a loan, the number of females in the household, whether the client had a non-FINO bank account, and the level of overall financial literacy. These variables are included as controls in all regressions.



indicators of financial literacy described in the previous paragraph. Each indicator is expressed as the average of the answers belonging to the same dimension of financial literacy. Table 5 shows the relevant summary statistics and includes all households present in both baseline and the endline surveys. Columns (1)–(3) give values for the pre-intervention, while columns (4)–(6) refer to the post-intervention--all standard errors reported are adjusted for clustering at the village level (bandhu service area).<sup>15</sup>

Column (6) gives a first approximation of the impact of the financial literacy training on savings; the difference between treatment and control endline savings' measures is always positive and statistically significant, in spite of the fact that the control group seems to improve along with the treatment group. To minimize measurement errors and show only the effect of training, we repeat the comparisons including only pure treatment and pure control (i.e. excluding the beneficiaries of the post-harvest intervention) and we show that, as expected, the difference is even starker in this case (the treatment group increases total savings on average by 154%, while the control group experiences an increase of 66%). The fact that the control group improves as well is not so surprising if we take into account that Uttar Pradesh is one of the Indian states growing more rapidly. The control group also improves in financial literacy. This could be because people are replying to the same questions again. Looking at the significance levels of Column (3) of Table 5, it is clear that controlling for baseline values is important as not all the financial measures were perfectly balanced at baseline, in spite of the

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<sup>15</sup> The Appendix also includes a table with the non-response rates of all the outcome measures showed in Table 5.

fact that randomization was successful and significant differences appeared only at a rate equal to that which would be given by chance.

## **b) Estimation Method**

For our estimation, we employ an ANCOVA specification (McKenzie, 2012 and Bruhn and McKenzie, 2009).<sup>16</sup> We regress the outcome indicator on the treatment status of household  $h$  controlling for the baseline value of the indicator:

$$(1) Y_{h\text{ POST}} = \alpha + \beta T_h + \eta Y_{h\text{ PRE}} + \delta X_{h\text{ PRE}} + \varepsilon_{h\text{ POST}}$$

where  $X$  represents household control variables unbalanced at the baseline and standard errors are adjusted for clustering at the village/ bandhu level. The treatment effect is thus estimated by  $\beta$ .

As in other similar studies, the take-up rate for the financial literacy training was less than complete. Defining a client as having attended the program if he/she attended the training session for at least one-hour, training attendance was irregular with only 80% of the invited ever attending a training session. In the Appendix, we present a list of baseline characteristics that might have influenced attendance status in the treatment group. There are no noticeable

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<sup>16</sup> As a robustness check, we also replicated the estimation regressing the change in the outcome indicator (post-intervention value in levels minus pre-intervention value in levels) on the treatment status controlling for the baseline value of the indicator ( $Y_{\text{POST}} - Y_{\text{PRE}} = \alpha + \beta T + \delta X_{\text{PRE}} + \eta Y_{\text{PRE}} + \varepsilon_{\text{POST}}$ , as in Banerjee, et al., 2007). Such robustness check gave similar results confirming the validity of our estimates.

differences in savings or financial literacy levels between those that attended and those that were offered the training but did not attend, with the only exception that attendees had more positive financial attitudes. Also, clients who attended seems to be more likely females and of older age.

To take into account imperfect treatment compliance, in addition to the standard OLS Intention-to-Treat (ITT) regressions that estimate overall impacts, we also employ Instrumental Variable (IV) regressions that use the initial assignment (the ITT) as an instrument for actual treatment to assess the treatment effect on the treated (ToT). In explaining our results, we focus on the ITT estimates while we present the TOT parameters for comparison.

Finally, differential attrition between the treatment and comparison groups could potentially bias our results. To minimize attrition, the survey team undertook a rigorous search for tracking back the baseline sample (including pre-endline house visits) and, in some cases, used the help of the bandhus to re-locate the households. These efforts ensured a low attrition rate: attrition was only 2.8% and 2.1% respectively, in the comparison and treatment groups. Furthermore, the baseline characteristics of households that left the sample were similar in the treatment and comparison groups, suggesting that the factors leading to attrition were the same and, consequently, that attendance and treatment status were unrelated (the results of the estimation regressing attrition on treatment assignment are available in the Appendix). Therefore, attrition is unlikely to be a problem in our estimation strategy.

### **c) Estimates of the Average Impacts on Savings**

Table 6 displays the average impacts of the financial education intervention on increments in the savings amount. These estimates show a positive and substantial treatment effect both in the ITT specifications (panel A) and in the ToT (IV) specifications (panel B).

Looking at the ITT specification, the program caused an increase in total savings of Rs. 1,647 (about \$27) from April 2011 to April 2012, which equals to an increase of 29% compared to the endline total savings in the control group. Considering the IV specification, the effect of training attendance is even higher and equal to an increase in total savings of almost Rs. 2,000 (about \$38) or 35% compared to the control group. The effect is robust to the different specifications and even though the magnitude slightly changes depending on the specification, the treatment effect remains positive and significant. Foremost, the increment does not seem to be only determined by a marketing effect on FINO savings because formal non-FINO savings also grew substantially. In fact, still considering the ITT estimates, the program increased FINO savings by Rs. 88 and formal savings other than FINO by Rs. 1,559. Therefore, given that the program was mostly aimed at increasing savings, it appears to be quite effective.

Table 7 shows that the post-harvest intervention did not have a significant effect on savings. It was successful only in increasing FINO savings by extra Rs. 56 (Rs. 122 in total, compared to an increase of Rs. 66 for those that were assigned to receive only the training) possibly because the delivery of information about the expected dates of bandhu presence or the actual presence of the bandhus helped improve the delivery of the FINO service. The

relative ineffectiveness of the reminder intervention suggests that even if the post-harvest is a relevant period to boost attention towards savings (Duflo, et al., 2011) and even if researchers found that reminders were effective in previous field experiments in Latin America and Asia (Karlan, et al., 2011 and Kast, et al., 2012), a simple targeted phone call is not as successful as a two-day class training with video-illustrated lessons and interactive discussions to underline the importance of savings and make sure that the contents are internalized.

**d) Estimates of the Average Impacts on Financial Literacy**

Table 8 illustrates the average impacts of the financial education intervention on improvements in the different aspects of financial literacy and shows that the only dimension of financial literacy that appears to have been positively affected by the treatment is financial attitudes. The IV estimates show that the intervention increased the financial attitudes indicator of individuals in the treatment group by 3% increase compared to the endline mean in the control group.

This result is somewhat in line with what was previously found in the literature and, in particular, can be related to the conclusions of Carpena, et al. (2011) that highlighted positive effects of financial literacy on financial attitudes and basic financial awareness. The exception is that our intervention did not seem to have any effect on financial awareness. However, this may be due to various reasons that might not ensure comparability of the results. First, the survey was answered by the FINO client only when he/she was available and, in the remaining

cases, by the other most knowledgeable person in the household. Therefore, we repeat the estimation on the restricted sample of clients who responded to both the baseline and the endline surveys because, even though this might be a selected sample, we need to check whether the absence of a significant impact on financial knowledge can be attributed to attrition bias. As shown in Table 9, the new results confirm our previous findings and, as before, the only significant treatment coefficient is the one on financial attitudes, but the magnitude of the impact is now higher and equal to a 4% (ITT)–5% (IV) increase as compared to the endline value in the control group. It could also be because our financial education training was tailored differently than previously evaluated financial education programs, as it was more focused on increasing savings and less oriented towards improving financial knowledge. In fact, even restricting the measure of financial knowledge to include only the questions that must have been well understood in the training does not modify our results (columns 6 of Tables 8 and 9).

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Our findings are also similar to the results of Doi, et al. (2012) who found a positive and significant effect of financial education on financial attitudes and financial awareness, but they use an indicator of awareness that is more relaxed than other measures of financial knowledge. Furthermore, they assess it by asking respondents only whether they have heard about

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<sup>17</sup> We include in this indicator the following questions: question on financial numeracy number 2), questions on financial awareness number 1), 2) and 4), and questions on financial attitudes number 1) and 4). Thus, we exclude the following questions: question 1) on financial numeracy because it involves numerical skills that the training did not cover; question 3) on financial awareness because it deals with the concept of deposit insurance that was not explicitly included in the training program and question 2) and 3) on financial attitudes because they are framed in a very subjective way (see Appendix for the detailed list of questions).

different financial products. Interestingly, the authors redefine financial attitudes as “applied financial knowledge” since the questions included in this indicator deal with real life situation where one could use in practice his/her financial understanding to suggest, for instance, an appropriate financial product to someone who is worried about meeting expenses if sick.

Finally, Table 10 replicates the results using standardized indicators to ensure comparability of the effects. Normalized scores for each dimension of financial literacy are calculated like school test scores, by first summing the results of each question belonging to that dimension and then standardizing by subtracting the mean pre-intervention score of the comparison group and dividing by the standard deviation of the pre-intervention scores of the comparison group as in Banerjee, et al. (2007). The ITT estimates show that the intervention increased the average score for financial attitudes of individuals in the treatment group by 0.09 standard deviations (equal to a 4% increase). The IV estimates are similar and just slightly higher in magnitude: the effect on financial attitudes for those who attended the training is equal to a 0.11 standard deviations increase or a 5% increment. This result is very close to the increment estimated using the mean value of financial attitudes.

e) **Heterogeneous Impacts**

To test for heterogeneity in the treatment effect based on observable characteristics, we run the following set of regressions:

$$(2) Y_{h\text{ POST}} = \alpha + \beta T_h + \gamma T_h \times \text{TRAIT}_h + \eta Y_{h\text{ PRE}} + \delta X_{h\text{ PRE}} + \varepsilon_{h\text{ POST}}$$

where TRAIT is the vector of background characteristics along which theory would predict heterogeneity in the treatment impacts and where X includes also TRAIT among the controls. The effect of the treatment for the subgroup of people with a given trait is given by the sum of the coefficients  $\beta$  and  $\gamma$  and if  $\gamma$  is significantly different from zero then there is evidence of heterogeneity in the treatment effect for that trait. Since the ITT estimates are more relevant for policy impacts<sup>18</sup> and since the IV estimates are close to the ITT ones, for this heterogeneity part, we only show the tables with the ITT estimates. For comparison purposes, we also choose to use the standardized measures of financial literacy instead of the mean values.<sup>19</sup>

We estimate equation (2) for the following different baseline characteristics: client education (at least secondary), the baseline measure of overall financial literacy, client gender, client's time preferences, the baseline level of household per capita total expenditures, and an indicator for having a formal savings account other than FINO at the baseline.<sup>20</sup>

Tables 11 and 12 show the heterogeneous treatment impacts on savings increments and on improvements in financial literacy, respectively. In line with analysis conducted by Cole, et

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<sup>18</sup> The ITT estimates are more relevant for policy impacts because people cannot be forced to attend and policy makers need to know what would be the overall effect of treatment taking into account that not everybody assigned to treatment might comply. In addition, even though in our case attendance is orthogonal to treatment, the sample of those who attended is a selected sample with peculiar characteristics different from those of the average population.

<sup>19</sup> The tables using the mean values are included in the Appendix.

<sup>20</sup> The tables shown focus only on the treatment effects, but the selected characteristics have significant direct effects, too. In particular, education and baseline financial literacy are significantly and positively correlated with endline savings and financial capability measures, being impatient decreases savings, females have less endline savings in national bank accounts and score worse in financial literacy, and those with higher baseline expenditures increase their financial numeracy skills.



al. (2011), who found that a financial education program had a modest effect and positively influenced financial behaviors only for those with limited education and financial literacy, we also test the role of education and baseline financial literacy to check whether our sample offers a similar picture. For education, there is no heterogeneity in the treatment effect on savings, but there is indeed heterogeneity in the treatment effect on financial attitudes. In particular, more educated people seem to have changed their attitudes less than other clients in the treatment group confirming Cole, et al. (2011) findings about greater effects of financial education on the less educated. On the contrary, the heterogeneous impact of baseline financial literacy runs in opposite direction with respect to what we would have expected based on Cole, et al. (2011) results. In our sample, those with better baseline financial literacy positively and significantly improved their interest in financial matters by 0.2 standard deviations (0.08 + 0.12) and even slightly increased their understanding of basic economic concepts by 0.11 standard deviations (0.06 + 0.05). Also, they significantly decreased their informal savings by Rs. 80 (-18 and -62). This finding might indicate that a sufficient prior familiarity with financial concepts helps in learning more during a financial education program.

Similar to the paper by Dupas and Robinson (2013b) on health savings, we also control for heterogeneity in treatment impacts for gender and time preferences. There is no heterogeneity for gender, but there is a strong heterogeneous effect for time preferences. Specifically, more impatient individuals (those with higher discount rates) improved their financial attitudes significantly less compared to an average client in the treatment group and

even scored worse in budgeting skills. Accordingly, they also saved significantly less than average, and their total savings after the training increased only by Rs. 195 (754–559, about \$3). This result is in line with the Dupas and Robinson (2013b) findings on the importance of time preference bias in influencing saving behaviors. In fact, the authors showed that a simple safe box significantly helped people in rural Kenya to save more through a mental accounting effect; but such a basic technology was not useful for people with present-biased preferences who managed to save only when facing social pressure through a saving device with a strong social commitment feature (a health pot at a ROSCA).

Finally, we test for heterogeneity in the treatment effects based on baseline expenditures (per capita total expenditures) and on whether the client already had another formal account other than FINO. The results show that there is almost no heterogeneity in expenditures, while there is a heterogeneous impact for those clients who had also a non-FINO formal savings account. It seems that those who already had formal non-FINO savings account, increased their interest in financial matters by 0.19 standard deviations (0.27–0.08) and they even slightly improved their overall financial knowledge (i.e. only including the questions that must have been stressed in the training) by 0.01 standard deviations (0.14–0.13). Moreover, after the training, they also saved more experiencing an increment in total savings equals to Rs. 2,544 (2,012 + 532). Thus, these results possibly indicate that the intervention was more effective in influencing the behavior of the clients who already had an exposure to formal

savings bank accounts, rather than those who were linked with the banking system for the first time through the no-frills savings account served by FINO.

**f) Estimates of the Average Impacts on Household Wealth**

Table 13.A shows the average impacts of the financial literacy training on consumption. Interestingly, clients in the treatment group decreased their unnecessary expenses in cigarettes, tobacco, beetle nuts, and alcohol. This effect is statistically significant, but corresponds to an economically modest decrease of \$0.50 biweekly. Nonetheless, it is a remarkable finding and the low magnitude might be due to the short time frame of the evaluation or to the general under-reporting of tobacco and alcohol expenses. Such result suggests that the intervention was successful in increasing savings at least in part through boosting commitment to save and improving money management.

Table 13.B completes the results on household wealth illustrating the average impacts of the intervention on loans and assets. As expected, there are no significant effects on total loans and assets sold after the intervention, demonstrating that clients did not increase savings through costly actions, i.e. borrowing money or disinvesting. On the contrary, it seems that after training individuals in the treatment group bought more assets.

## V. Discussion

Our key finding is that the financial education program increased total savings on average by 29% (as compared to the endline savings of the control group). This effect appears to have come in part due to a decrease in temptation goods<sup>21</sup>. We conducted a qualitative survey after the endline survey with 102 (82 treatment and 20 control). 95% of the treatment clients indicate that they saved more after attending the financial literacy training, while only 20% of the control clients indicated increase in savings during the same period. The increase in savings was reported as coming through gaining an understanding of the value of saving and how to save, especially the value of accumulating small savings.

As mentioned previously, the results of other experiments on financial literacy do not find an impact on savings from financial literacy programs in the developing world. We believe our results are different for two main reasons. First, the program was delivered in conjunction with a doorstep banking service. The FINO program offered free bank accounts provided door-to-door, saving travel costs for clients. As Schaner (2011) underlines, even if one considers the benefits of formal savings versus home savings, individuals might still be averse to saving formally when savings are small because bank accounts also have a fixed transaction cost and any difference between interest rates might not be attractive enough to outweigh it. When the transaction cost is reduced, individuals who were already using a bank account will make more

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<sup>21</sup> The treatment effect on temptation good expenses for the past 14 days is Rs. 20. If this effect was constant over time, we infer that on average over the entire year period, total treatment effect for the whole year is  $=(20/14)*365=$  Rs. 521, about 32% of the total treatment effect. It is possible that other changes in consumption in the last year that we cannot observe account for the remaining savings.

deposits and withdrawals, while other individuals who were not using bank accounts will start to use them. Eventually, such increase in account use is likely to lead to higher formal (but not necessarily total) savings levels. However, even offering a formal banking service for free might not be enough if the quality of the service is not ensured and trust issues are not addressed. For example, Dupas, et al. (2014) emphasizes that efforts to expand financial access will effectively achieve financial inclusion only by comprising a communication component that brings awareness of the various financial options available.

It is possible that this financial education program was successful as a marketing campaign for FINO, helping to improve familiarity with and the perception of quality of the bandhus' service. During our endline survey, we asked respondents a full set of questions regarding their satisfaction with the FINO account and we use the responses to investigate how much the marketing of FINO services has contributed towards the impact of the program on savings. Table 14.A shows how the results change for average impacts on savings increments when we control for ex-post quality of the service.<sup>22</sup> The effect of the financial education program on FINO savings is diminished in magnitude; nonetheless, it retains its significance, suggesting that the program indeed had a direct impact on savings, apart from the indirect effect that it might have had by increasing the familiarity with and the perception of the quality of FINO service. Most importantly, the significant and positive effect of the financial education

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<sup>22</sup> We measure quality of service by exploiting the responses of clients to the following question: "How would you rate the overall FINO agent/bandhu service? Very bad, Not good, Satisfactory, Good or Very good?"

program on average total savings for the treatment group (OLS estimates) and especially for those who attended the training (IV estimates) remains unchanged and even the magnitude of the coefficient is very close to the one in the estimation that does not control for quality. Importantly, Table 14.A provides evidence suggesting that the quality of service is an important determinant of the amount of FINO savings. Table 14.B shows that there is indeed a substantial heterogeneity of impact depending on the frequency with which FINO agents visited the village: those who were assigned to treatment and were visited by a bandhu in the last 3 months increased their FINO savings by about Rs. 200.<sup>23</sup>

The second explanation for the success of this intervention is that the 29% increase in total savings may be linked to the 4% improvement in financial attitudes. While it is not possible to test the actual mechanisms at work here, we believe this indicator of financial literacy might represent “applied financial knowledge,” as coined by Doi, et al. (2012), and it might be a proxy for the important ability of taking appropriate financial decisions in everyday life. Also, it might more generally measure the degree of familiarity with and confidence in the financial system since the questions are mostly about suggesting financially appropriate saving devices over more informal solutions. According to this approach, financial attitudes might be a proxy for trust in the formal financial system and, thus, might really be crucial for achieving an effective financial inclusion. For instance, Dupas, et al. (2014) maintains that lack of trust is the

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<sup>23</sup> For other types of savings, there was no impact heterogeneity depending on the frequency with which FINO agents visited the village.

first reason justifying why people, in rural Western Kenya, did not begin saving in their bank account even when it was offered for free. This hypothesis can explain well why not only FINO savings increased, but also savings in other nationalized banks' accounts showed a positive and significant increment. Additionally, FINO bandhus accept only deposits in the basic no-frills account, and do not offer the term deposits, which are savings products with significantly better returns (approximately 3-4% higher). These term deposits are usually offered by the other public and private sector banks, which might have attracted the savings of the newly financially literate FINO clients.

Another possible reason for the success of the intervention is that the program was so focused on responsible financial behavior (including savings and borrowing) that it directly encouraged savings and contributed in boosting attention and commitment towards savings, in addition to its effect on financial attitudes. This hypothesis is consistent with a growing body of literature on savings in developing countries that underlines the power of facilitating the mindset of saving money (Dupas and Robinson, 2013b). It is also consistent with our analysis of the heterogeneous effects of the program, which highlight that the training was effective mostly among patient individuals. The intervention did not affect time preferences<sup>24</sup> and did not offer a time-commitment device and therefore it could not be successful for people with higher discount rates. This further suggests that the program did not change deep preference parameters, instead affecting attitudes only toward saving.

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<sup>24</sup> See Table A6 in the Appendix.

A final point is the cost of the program. The ratio of the cost of the trainings per participant to the average increase of about \$30 in savings is \$0.84 per dollar spent if the cost of the video development is not included (the cost of scaling the program with FINO clients) and \$0.93 if the video costs are included (the cost of replicating the program elsewhere). This effect is the accrual of savings after 9 months; if savings increase, this ratio would of course decrease. It does not though necessarily reflect welfare changes, and so we are agnostic on the cost effectiveness of the program.

The results of this field experiment, in combination with the existing literature on financial literacy trainings, suggest that trainings alone do not work. Instead, they must be paired with access to banking. Even when paired with banking though, our evidence suggests that these effects happen through changes in attitudes only. Future work on financial literacy services should focus on how trainings can be optimally targeted for participants while noting these limitations.



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**Table 1. The content of the financial education training**

Training Module	Contents	Methodology
Financial Planning and Budgeting	<p>Discussion about session objective</p> <p>Instruction on how to keep track of income and expenses</p> <p>Creation of personal budget and its categories</p> <p>Allocation of Income among budget categories</p>	<p>Discussion, pamphlet, storytelling</p>
Saving and Investment	<p>Importance of regular saving</p> <p>Difference between savings and investments</p> <p>Importance of saving account and different avenues of saving</p> <p>Long-term saving and planning for major future event</p> <p>Different avenues of investment</p>	<p>Video, comics, storytelling, leaflets</p>
Borrowing and Loan Management	<p>Concepts of wise borrowing</p> <p>Different avenues of borrowing</p> <p>Planning personal loan management</p> <p>Planning for emergency needs to avoid over indebtedness</p>	<p>Video, comics, storytelling, leaflets</p>
Mitigating Risk and Insurance	<p>Meaning and usefulness of insurance</p> <p>Discussion of different insurance products</p> <p>Pension planning or target segments</p>	<p>Video, comics, storytelling, leaflets</p>
Formal Financial Services Know-How	<p>Basic know how about banking and allied services</p> <p>Need for including oneself in formal financial system</p>	<p>Videos, group discussion, leaflets</p>

**Table 2. Descriptive statistics on household savings**

	Values	Observations
<b>Formal Savings</b>		
Formal savings amount	4376	2926
Has a formal savings account	0.94	2926
Amount of formal savings (for those who have at least an account)	4649	2754
Amount of formal savings (for those who keep a non-zero balance)	7376	1736
Has a FINO account	0.87	2926
Amount in FINO account (for those who have it)	569	2457
Amount in FINO account (for those who keep a non-zero balance)	1984	704
Has a formal savings account other than FINO	0.57	2926
Has an account in a nationalized bank	0.51	2926
Has an account with post office	0.06	2926
Has an account in a private bank	0.05	2926
Has an account with NGO	0.02	2926
Has an account in a chit fund	0.01	2926
Has an account in a non-banking financial company	0.01	2926
<b>Informal Savings</b>		
Informal savings amount	619	2928
Has an informal savings device	0.28	2928
Has savings at home	0.23	2928
Has savings with a self-help group	0.02	2928
Has savings with a neighbor	0.02	2928
Has savings with a friend	0.01	2928
Has savings with a shopkeeper	0.01	2928
Has other informal savings	0.01	2928

Notes: Baseline values. Monetary values in Indian Rupees (Rs.).

**Table 3.A. Descriptive statistics on budgeting quality and interest in financial matters**

	Mean Values	Observations
<b>Budgeting Quality</b>		
Makes a budget	0.27	2922
Writes the budget (if applicable)	0.05	798
Has been helped by the budget (if applicable)	0.04	798
Is able to stick to the budget (if applicable)	0.03	798
<b>Interest in Financial Matters</b>		
Is involved in financial matters (Dummy)	0.76	2642
Generally understands loan information (Dummy)	0.52	2630
Generally understands savings information (Dummy)	0.58	2659
Generally understands insurance information (Dummy)	0.62	2726
Actively seeks information about financial topics (Dummy)	0.52	2726

**Table 3.B. Descriptive statistics and comparability of our measures of financial knowledge**

<b>Understanding of basic economic concepts</b>				
		Our sample	Cole, et al. (2011) sample from rural India	Cole, et al. (2011) sample from Indonesia
Compound interest	% Correct	70%	59%	78%
	% Do not know	15%	30%	15%
Interest rate vs. inflation	% Correct	71%	25%	61%
	% Do not know	11%	38%	16%
Both questions	% Correct on average	71%	42%	70%
Observations		2931	1496	3360
<b>Financial awareness</b>				
		Our sample	Cole, et al. (2011) sample from rural India	Cole, et al. (2011) sample from Indonesia
Is one crop safer than multiple crops?	% Correct	31%	31%	28%
	% Do not know	8%	6%	4%
Observations		2931	1496	3360
		Mean in our sample	Mean in Carpena, et al. (2011) pure control from urban India	
Knows to include both income and expenses in HH budget		0.77	0.85	
Knows will get money back if bank closes		0.32	0.70	
Knows borrowing money for Diwali is unproductive loan		0.70	0.62	
All questions, on average		0.58	0.72	
Observations		2851	221	
<b>Financial attitudes</b>				
		Mean in our sample	Mean in Carpena, et al. (2011) pure control from urban India	
Advice to construction worker		0.66	0.81	
Advice to friend with bright child		0.77	0.93	
Advice to auto driver about loans		0.40	0.92	
Advice about buying a TV		0.84	0.95	
All question, on average		0.68	0.90	
Observations		2901	221	

**Table 4. Sample characteristics and balance test**

Variables*	Control Mean	Treatment Mean	P value
Gender of HH head (Dummy)	0.71	0.72	0.36
Age of HH head	44.68	45.52	0.2
Whether HH head is illiterate (Dummy)	0.38	0.41	0.32
Whether HH head has primary education (Dummy)	0.18	0.18	0.88
Whether HH head has secondary education (Dummy)	0.26	0.26	0.94
Whether HH head has higher secondary education (Dummy)	0.11	0.10	0.52
Whether religion is Hindu (Dummy)	0.95	0.94	0.77
Whether religion is Muslim (Dummy)	0.05	0.06	0.8
Whether belong to general caste (Dummy)	0.11	0.13	0.63
Whether belong to schedule caste (Dummy)	0.30	0.35	0.16
Whether belong to other backward community (Dummy)	0.54	0.49	0.17
Total number of members in the household	6.74	6.96	0.17
Total number of adults (>=18)	4.03	4.10	0.49
Whether owns land (Dummy)	0.71	0.70	0.9
Size of land owned	21.76	22.26	0.59
HH income from primary occupation	1019.24	1027.3	0.92
HH income from primary & secondary occupation	1094.66	1062.5	0.85
HH income from harvest, livestock & other sources	821.79	1074.89	0.54
Total HH income	1917.08	2139.72	0.61
Total HH income per capita	287.66	311.43	0.66
Amount of HH expenditures: consumed at home	1542.38	1596.49	0.48
Amount of HH expenditures: consumed outside home	32.83	39.86	0.39
Amount of HH expenditures: cigarette, tobacco, alcohol	68.93	58.75	0.12
Total amount of HH expenditures in last 14 days	1837.52	1708.23	0.39
Number of rooms	3.28	3.21	0.59
Scores for 1st component of full asset list	0.05	-0.05	0.41
Quality of roof	3.5	3.4	0.12
Total number of outstanding formal loans	0.09	0.11	0.09
Total number of outstanding loans	0.5	0.5	0.96
Total outstanding formal loan amount	1640.9	1776.64	0.74
Total outstanding loan amount	4623.28	5053.99	0.61
Index of risk preferences	2.32	2.39	0.23
Discount rate or Index of time preferences	2.84	2.86	0.74
Index of ambiguity preferences	2.11	2.19	0.28

\*HH stands for household



**Table 5. Pre and post intervention differences**

	(1)	(2)	(3)	(4)	(5)	(6)
	Pre Intervention			Post Intervention		
	Treatment	Control	Diff	Treatment	Control	Diff
<b>Savings</b>						
FINO Savings	303.26	324.12	-20.86 (69)	180.5	85.37	95.13*** (26.86)
Formal Savings	2603.96	2725.83	-121.88 (341.61)	6505.1	5267.4	1237.70* (665.07)
Non-FINO Formal Savings	2172.39	2265.39	-93.01 (301.11)	6263.43	5147.84	1115.59* (656.37)
Nationalized Banks Savings	1938.00	2028.29	-90.29 (302.89)	5348.78	3931.25	1417.53** (589.11)
Informal Savings	350.50	333.08	17.42 (68.17)	363.07	375.84	-12.77 (51.43)
Total Savings	2952.45	3055.17	-102.72 (353.16)	6868.17	5643.23	1224.94* (675.96)
<b>Savings considering only pure treatment and pure control</b>						
FINO Savings	364.91	336.53	28.38 (99.19)	152.8	85.80	67.0** (30.63)
Formal Savings	2579.13	2971.29	-392.16 (500.56)	7158.73	5043.47	2115.26** (948.5)
Non-FINO Formal Savings	2089.95	2461.53	-371.58 (447.8)	6936.93	4940.27	1996.66** (941.3)
Nationalized Banks Savings	1854.82	2224.42	-369.6 (458.22)	6165.83	3823.54	2342.29*** (865.08)
Informal Savings	385.23	288.04	97.19 (94.42)	353.79	372.08	-18.29 (68.73)
Total Savings	2960.63	3255.58	-294.95 (517.96)	7512.53	5415.55	2096.98** (961.78)
<b>Financial literacy</b>						
Budgeting Quality	0.26	0.29	-0.031 (0.03)	0.42	0.4	0.015 (0.04)
Interest in Financial Matters	0.41	0.44	-0.03** (0.02)	0.49	0.48	0.008 (0.01)
Basic Economics Understanding	0.8	0.83	-0.034* (0.02)	0.64	0.63	0.012 (0.02)
Financial Awareness	0.55	0.58	-0.027* (0.01)	0.58	0.58	-0.004 (0.01)
Financial Attitudes	0.75	0.78	-0.025* (0.01)	0.60	0.59	0.01 (0.01)

**Table 6. Average impacts on savings**

	(1)	(2)	(3)	(4)	(5)	(6)
	FINO Savings	Formal Savings	Non-FINO Formal Savings	Nationalized Banks Savings	Informal Savings	Total Savings
<b>Panel A. Intention-To-Treat Estimates</b>						
Treatment	87.96*** (28.51)	1681*** (630.4)	1559** (626.8)	1392** (570)	-13 (50.9)	1647** (640.5)
<b>Panel B. Instrumental Variable Estimates</b>						
Attendance	104*** (33.46)	2000*** (747.9)	1855** (743.4)	1650** (672.2)	-15.47 (60.37)	1961*** (760.1)
Observations	2666	2916	2916	2661	2918	2919
R-squared (OLS estimates)	0.02	0.07	0.07	0.08	0.02	0.07
R-squared (IV estimates)	0.03	0.07	0.06	0.08	0.02	0.07
Mean of Endline Variable in the Control Group	85.37	5267.4	5147.84	3931.25	375.84	5643.23

Notes: Standard errors are clustered at the agent/village level. Controls include the baseline values of the dependent variable and all the variables unbalanced at the baseline: whether the client has at least secondary education, whether the client had a loan, the number of females in the household, whether the client had a non-FINO bank account and the level of overall financial literacy.

**Table 7. Average impacts of treatment and post-harvest reminders on savings**

	(1)	(2)	(3)	(4)	(5)	(6)
	FINO Savings	Formal Savings	non-FINO Formal Savings	Nationalized Banks Savings	Informal Savings	Total Savings
Only Treatment	65.9** (31.48)	2734*** (900.0)	2617*** (904.1)	2328*** (831.4)	-22.08 (69.34)	2648*** (914.0)
Treatment and Post-Harvest Reminders	122.1** (48.47)	1367* (810.5)	1146 (812.4)	863.0 (744.6)	19.0 (77.52)	1334 (828.2)
Only Post-Harvest Reminders	8.06 (25.11)	930.3 (808.2)	838.5 (804.6)	588.4 (707.0)	21.23 (67.34)	869.4 (814.3)
Observations	2666	2916	2916	2661	2918	2919
R-squared	0.02	0.07	0.07	0.08	0.02	0.07

Notes: see Table 6. The results refer to the Intention-to-treat estimates.

**Table 8. Average impacts on financial literacy**

	(1)	(2)	(3)	(4)	(5)	(6)
	Budgeting Quality	Interest in Financial Matters	Basic Economic Understanding	Financial Awareness	Financial Attitudes	Financial Knowledge targeted by the intervention
<b>Panel A. Intention-To-Treat Estimates</b>						
Treatment	0.022 (0.04)	0.013 (0.01)	0.025 (0.02)	0.002 (0.01)	0.016 (0.01)	0.003 (0.01)
<b>Panel B. Instrumental Variable Estimates</b>						
Attendance	0.026 (0.05)	0.016 (0.02)	0.03 (0.02)	0.003 (0.01)	0.019* (0.01)	0.003 (0.01)
Observations	2907	2848	2739	2866	2890	2883
R-squared (OLS estimates)	0.08	0.01	0.04	0.03	0.02	0.02
R-squared (IV estimates)	0.07	0.01	0.04	0.03	0.03	0.02
Mean of endline variable in the control group	0.4	0.48	0.63	0.58	0.59	0.68

Notes: see Table 6

**Table 9. Average impacts on financial literacy for the subsample of clients who answered both the baseline and the endline survey**

	(1)	(2)	(3)	(4)	(5)	(6)
	Budgeting Quality	Interest in Financial Matters	Basic Economic Understanding	Financial Awareness	Financial Attitudes	Financial Knowledge targeted by the intervention
<b>Panel A. Intention-To-Treat Estimates</b>						
Treatment	0.004 (0.05)	0.019 (0.02)	0.016 (0.02)	-0.005 (0.01)	0.025** (0.01)	0.0003 (0.01)
<b>Panel B. Instrumental Variable Estimates</b>						
Attendance	0.004 (0.05)	0.02 (0.02)	0.019 (0.03)	-0.005 (0.01)	0.03** (0.01)	0.0004 (0.01)
Observations	1584	1554	1508	1565	1576	1574
R-squared (OLS estimates)	0.09	0.02	0.04	0.05	0.04	0.04
R-squared (IV estimates)	0.09	0.02	0.04	0.05	0.04	0.04

Notes: see Table 6

**Table 10. Average impacts on financial literacy using the standardized indicators**

	(1)	(2)	(3)	(4)	(5)	(6)
	Budgeting Quality	Interest in Financial Matters	Basic Economic Understanding	Financial Awareness	Financial Attitudes	Financial Knowledge targeted by the intervention
<b>Panel A. Intention-To-Treat Estimates</b>						
Treatment	0.066 (0.13)	0.068 (0.06)	0.052 (0.04)	0.03 (0.04)	0.09** (0.04)	0.071 (0.05)
<b>Panel B. Instrumental Variable Estimates</b>						
Attendance	0.078 (0.15)	0.081 (0.08)	0.062 (0.04)	0.036 (0.04)	0.107** (0.05)	0.084 (0.06)
Observations	2921	2921	2921	2921	2921	2921
R-squared (OLS estimates)	0.08	0.01	0.04	0.03	0.02	0.03
R-squared (IV estimates)	0.08	0.01	0.04	0.03	0.02	0.03
Mean of Endline Variable in the Control Group	1.25	2.4	1.24	2.23	2.26	3.9

Notes: see Table 6

**Table 11. Heterogeneity of impacts on savings**

	(1)	(2)	(3)	(4)	(5)	(6)
	FINO Savings	Formal Savings	Non-FINO Formal Savings	Nationalized Banks Savings	Informal Savings	Total Savings
<b>Panel 1. Heterogeneous Impacts for Client's Education (At Least Secondary)</b>						
Treatment	90.12*** (28.50)	1231** (589.7)	1120* (586.1)	868.4* (515.9)	9.89 (52.64)	1229** (601.4)
Treatment X education	-9.17 (55.91)	1874 (1605)	1829 (1597)	2220 (1473)	-95.73 (108.7)	1747 (1639)
Observations	2666	2916	2916	2661	2918	2919
R-squared	0.89	0.08	0.07	0.08	0.61	0.09
<b>Panel 2. Heterogeneous Impacts for Baseline Financial Literacy</b>						
Treatment	86.80*** (29.03)	1720*** (641.1)	1594** (636.4)	1439** (583.6)	-18.10 (51.64)	1683** (652.3)
Treatment X baseline financial literacy	-16.62 (25.88)	499.4 (516.4)	437.3 (506.2)	590.4 (454.2)	-62.31* (36.62)	428.8 (523.1)
Observations	2666	2916	2916	2661	2918	2919
R-squared	0.89	0.08	0.07	0.08	0.61	0.09
<b>Panel 3. Heterogeneous Impacts for Client Gender (Female Dummy)</b>						
Treatment	65.91** (32.59)	1703** (835.6)	1594* (829.8)	1222 (782.6)	-33.12 (63.94)	1660* (849.7)
Treatment X female	53.89 (34.08)	-45.34 (1060)	-76.71 (1061)	424.1 (950.9)	49.52 (83.91)	-22.85 (1076)
Observations	2666	2916	2916	2661	2918	2919
R-squared	0.89	0.08	0.07	0.08	0.61	0.09
<b>Panel 4. Heterogeneous Impacts for Time Preferences (Discount Rate)</b>						
Treatment	143.6** (59.84)	-510.6 (1281)	-801.8 (1284)	-566.5 (1195)	-109.5 (102.8)	-558.5 (1292)
Treatment X discount rate	-18.90 (18.63)	745.6* (405.4)	800.0** (400.2)	677.1** (343.1)	32.92 (34.73)	753.9* (412.8)
Observations	2633	2877	2877	2626	2879	2879
R-squared	0.89	0.08	0.07	0.08	0.61	0.09
<b>Panel 5. Heterogeneous Impacts for Baseline Per Capital (PC) Total Expenditures</b>						
Treatment	84.59*** (28.49)	1287* (696.0)	1150 (697.3)	1080* (643.5)	-12.66 (50.56)	1256* (702.2)
Treatment X PC total expend	0.01 (0.03)	1.75 (1.73)	1.8 (1.8)	1.49 (1.48)	-0.03 (0.04)	1.72 (1.73)
Observations	2656	2906	2906	2653	2908	2909
R-squared	0.889	0.082	0.075	0.085	0.611	0.091
<b>Panel 6. Heterogeneous Impacts for Whether the Client Had Already a Non-FINO Formal Savings Account</b>						
Treatment	68.00* (35.42)	599.4 (860.8)	591.7 (854.2)	989.9 (718.4)	-52.83 (69.13)	532.2 (875.1)
Treatment X had non FINO formal savings account	36.30 (36.32)	1949 (1190)	1744 (1177)	746.1 (1062)	71.86 (81.84)	2012* (1203)
Observations	2666	2916	2916	2661	2918	2919
R-squared	0.89	0.08	0.07	0.08	0.61	0.09

**Table 12. Heterogeneity of impacts on financial literacy**

	(1)	(2)	(3)	(4)	(5)	(6)
	Budgeting Quality	Interest in Financial Matters	Economic Understanding	Financial Awareness	Financial Attitudes	Targeted Financial Knowledge
<b>Panel 1. Heterogeneous Impacts for Client's Education (At Least Secondary)</b>						
Treatment	0.099 (0.13)	0.054 (0.07)	0.062 (0.04)	0.053 (0.04)	0.121*** (0.05)	0.088 (0.06)
Treatment X education	-0.141 (0.23)	0.058 (0.1)	-0.04 (0.06)	-0.093 (0.08)	-0.13* (0.07)	-0.072 (0.1)
Observations	2921	2921	2921	2921	2921	2921
R-squared	0.08	0.01	0.04	0.03	0.03	0.03
<b>Panel 2. Heterogeneous Impacts for Baseline Financial Literacy</b>						
Treatment	0.064 (0.13)	0.078 (0.06)	0.056 (0.04)	0.027 (0.04)	0.09** (0.04)	0.07 (0.05)
Treatment X baseline financial literacy	-0.021 (0.09)	0.123** (0.05)	0.049* (0.03)	-0.044 (0.03)	-0.006 (0.03)	-0.007 (0.04)
Observations	2921	2921	2921	2921	2921	2921
R-squared	0.08	0.01	0.04	0.03	0.02	0.03
<b>Panel 3. Heterogeneous Impacts for Client Gender (Female Dummy)</b>						
Treatment	0.073 (0.15)	0.066 (0.07)	0.045 (0.04)	0.006 (0.04)	0.055 (0.05)	0.074 (0.06)
Treatment X female	-0.017 (0.17)	0.008 (0.08)	0.018 (0.05)	0.062 (0.06)	0.088 (0.06)	-0.006 (0.08)
Observations	2921	2921	2921	2921	2921	2921
R-squared	0.08	0.02	0.04	0.04	0.03	0.03
<b>Panel 4. Heterogeneous Impacts for Time Preferences (Discount Rate)</b>						
Treatment	-0.448** (0.23)	0.082 (0.13)	0.046 (0.07)	-0.078 (0.09)	-0.04 (0.09)	-0.077 (0.11)
Treatment X discount rate	0.179*** (0.06)	-0.004 (0.04)	0.001 (0.02)	0.035 (0.02)	0.045* (0.03)	0.05 (0.03)
Observations	2881	2881	2881	2881	2881	2881
R-squared	0.08	0.01	0.04	0.03	0.03	0.03
<b>Panel 5. Heterogeneous Impacts for Baseline Per Capital Total Expenditures</b>						
Treatment	0.053 (0.13)	0.055 (0.07)	0.055 (0.04)	0.035 (0.04)	0.118*** (0.04)	0.087 (0.05)
Treatment X PC total expenditure	0.0001 (0.0001)	0.0001 (0.0001)	0.00002 (0.00002)	0.00002 (0.0001)	-0.0001*** (0.00003)	-0.0001 (0.0001)
Observations	2911	2911	2911	2911	2911	2911
R-squared	0.08	0.01	0.04	0.03	0.03	0.03
<b>Panel 6. Heterogeneous Impacts for Whether the Client Had Already a Non-FINO Formal Savings Account</b>						
Treatment	0.103 (0.15)	-0.083 (0.08)	0.065 (0.04)	0.048 (0.05)	0.075 (0.06)	0.143** (0.062)
Treatment X had Non FINO formal savings account	-0.067 (0.17)	0.273*** (0.1)	-0.024 (0.05)	-0.031 (0.06)	0.027 (0.07)	-0.131* (0.07)
Observations	2921	2921	2921	2921	2921	2921
R-squared	0.08	0.01	0.04	0.03	0.02	0.03



**Table 13.A. Average impacts on consumption**

	(1)	(2)	(3)	(4)
	Food Consumption	Food consumed outside home	Cigarette, tobacco, beetle nut, alcohol	Total Consumption
Treatment	56.72 (47.35)	-15.70 (15.56)	-19.28** (9.25)	21.98 (60.93)
Observations	2850	2829	2842	2885
R-squared	0.07	0.03	0.03	0.07

Notes: see Table 6. The results refer to the Intention-To-Treat estimates.

**Table 13.B. Average impacts on loans and assets**

	(1)	(2)	(3)
	Assets Bought	Assets Sold	Loans
Treatment	1688** (675.6)	-383.4 (317.5)	130.2 -1143
Observations	2921	2921	2899
R-squared	0.03	0.02	0.04

Notes: See Table 6. The results refer to the intention to treat estimates.

**Table 14.A. Average impacts on savings controlling for quality of FINO services**

	(1)	(2)	(3)	(4)	(5)	(6)
	FINO Savings	Formal Savings	non-FINO Formal Savings	Nationalized Banks Savings	Informal Savings	Total Savings
<b>Panel A. Intention-To-Treat Estimates</b>						
Treatment	43.53*	1632**	1560**	1443**	-14.98	1609**
	(23.17)	(672.2)	(667.9)	(601.8)	(51.15)	(686.2)
Quality of FINO services	81.80***	186.5	85.97	60.33	-7.083	181.6
	(11.83)	(262.7)	(255.0)	(226.6)	(23.49)	(269.6)
<b>Panel B. Instrumental Variable Estimates</b>						
Attendance	52.16*	1968**	1880**	1731**	-18.07	1941**
	(27.64)	(808.3)	(802.8)	(718.4)	(61.46)	(825.4)
Quality of FINO services	80.63***	141.9	43.58	25.63	-6.675	137.9
	(11.55)	(270.0)	(262.5)	(231.7)	(23.55)	(277.1)
Observations	2619	2863	2863	2614	2864	2865
R-squared (OLS estimates)	0.06	0.07	0.07	0.08	0.02	0.07
R-squared (IV estimates)	0.07	0.07	0.06	0.08	0.02	0.07

Notes: see Table 6

**Table 14.B. Heterogeneity of impacts on FINO savings for FINO agents' presence**

	FINO Savings
Treatment	-0.28 (13.36)
Treatment X FINO agent visited	199.5*** (74.5)
FINO agent visited in the last 3 months	203.5*** (42.67)
Observations	2666
R-squared	0.11

Notes: see Table 6

## Appendix Information

**Table A1. Questions on Financial Knowledge**

Financial Knowledge Indicator	Questions
Basic Economic Understanding	<p>1) "Suppose you need to borrow Rs. 5,000. Two people offer you a loan. One loan requires you pay back Rs. 6,000 in one month. The second loan also requires you pay back in one month, Rs. 5,000 plus 15% interest. Which loan would you prefer?"</p> <p>2) "Imagine that you saved Rs. 1,000 in a saving account, and were earning an interest rate of 1% per year. If prices were increasing at a rate of 2% per year, after one year, would you able to buy more than, less than, or exactly the same amount as today with the money in the account?"</p>
Financial Awareness	<p>1) "Do you think the following statement is true or false? For a farmer, planting one crop is usually safer than planting multiple crops."</p> <p>2) "Shanti is preparing a budget for her household. Which of the following needs to be included in the budget? Income only, expenses only, both."</p> <p>3) "If you have a savings account in a bank and the bank closes down for some reason, will you get your money back?"</p> <p>4) "Manoj recently borrowed some money from a local moneylender. He needed this money to buy some clothes for his children for Diwali. Is that Manoj loan is a productive or an unproductive loan?"</p>
Financial Attitudes	<p>1) "Ramesh does plastering on tall buildings. It is a dangerous job and he is worried that if he is injured, his family's income will become inadequate to meet their needs. If Ramesh comes to you for advice, what would you suggest: i. Take up some other (different) work; ii. Purchase health/life/ accident insurance; or iii. Increase savings?"</p> <p>2) "Vimla 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 Vimla comes to you for advice what would you suggest she i. Buy child life insurance policy; ii. Borrow money from a moneylender; iii. Open a savings account in a bank; iv. Save at home; or v. Discontinue education?"</p> <p>3) "Naresh 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 Naresh comes to you for advice would you suggest he take out a loan?"</p> <p>4) "Sajid 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. Sajid has two options: he can take a loan from the moneylender and a relative and get a bigger loan to use to buy a big TV or he can take a loan only from a relative and buy a smaller TV. What would you advise Sajid and his wife to do?"</p>

**Table A2. Attendance**

	Attendance
FINO Savings	-2.01e-06 (1.13e-05)
Formal Savings	8.93e-06 (7.68e-06)
non-FINO Formal Savings	-6.25e-06 (4.32e-06)
Nationalized Banks Savings	-2.20e-06 (2.62e-06)
Total Savings	-2.82e-06 (6.16e-06)
Budgeting Quality	-0.003 (0.01)
Interest in Financial Matters	-3.49e-05 (0.011)
Basic Economic Understanding	0.001 (0.012)
Financial Awareness	-0.015 (0.012)
Financial Attitudes	0.023* (0.013)
Client is Female	0.038* (0.022)
Client's Age	0.003*** (0.001)
Client's Education (At Least Secondary)	0.013 (0.031)
Discount Rate	-0.005 (0.007)
Client Had a Non-FINO Formal Savings Account	0.017 (0.022)
Baseline Per Capital Total Expenditures	-4.70e-05 (4.48e-05)
Quality of roof	-0.009 (0.009)
Observations	1299
R-squared	0.04

**Table A3. Non-response rates for the outcome measures showed in Table 5**

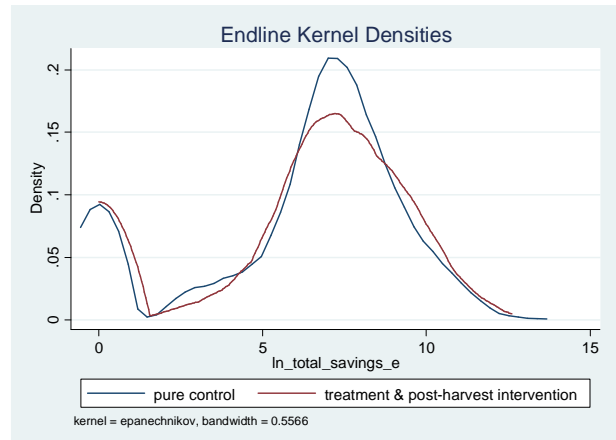
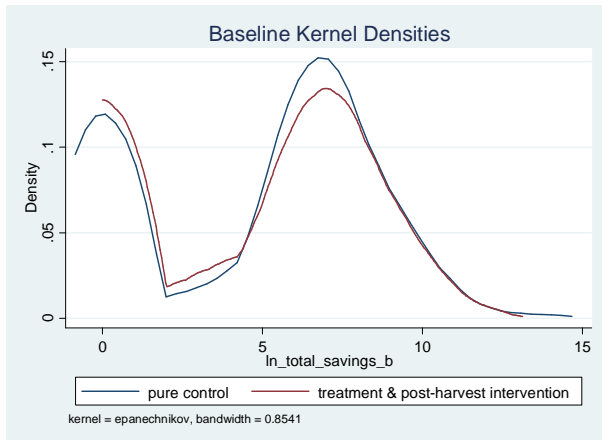
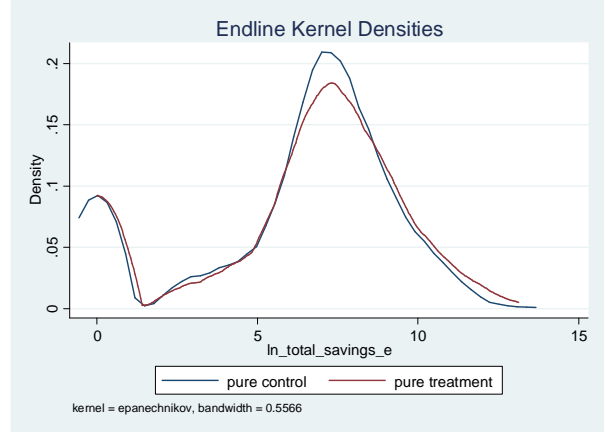
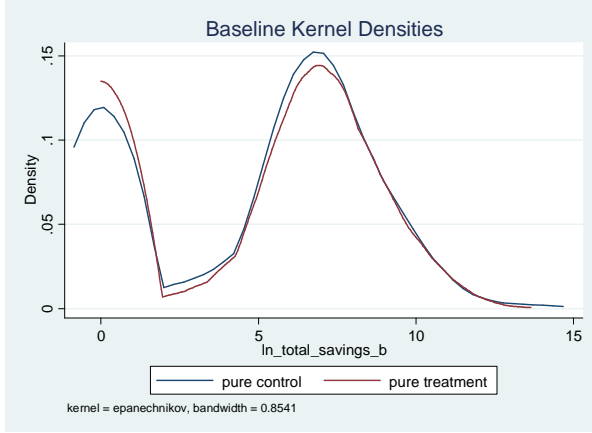
	(1)	(2)	(3)	(4)
	Pre Intervention		Post Intervention	
	Treatment	Control	Treatment	Control
<b>Savings</b>				
FINO Savings	0.03	0.03	0.07	0.05
Formal Savings	0.00	0.00	0.00	0.00
Non-FINO Formal Savings	0.00	0.00	0.00	0.00
Nationalized Banks Savings	0.07	0.05	0.03	0.04
Informal Savings	0.00	0.00	0.00	0.00
Total Savings	0.00	0.00	0.00	0.00
<b>Savings considering only pure treatment and pure control</b>				
FINO Savings	0.03	0.03	0.07	0.05
Formal Savings	0.00	0.00	0.00	0.00
Non-FINO Formal Savings	0.00	0.00	0.00	0.00
Nationalized Banks Savings	0.06	0.05	0.03	0.04
Informal Savings	0.00	0.00	0.00	0.00
Total Savings	0.00	0.00	0.00	0.00
<b>Financial literacy</b>				
Budgeting Quality	0.00	0.00	0.00	0.00
Interest in Financial Matters	0.03	0.02	0.00	0.00
Financial Numeracy	0.06	0.05	0.00	0.01
Financial Awareness	0.02	0.02	0.00	0.00
Financial Attitudes	0.01	0.01	0.00	0.00

**Table A4. Attrition**

	Attrition
Treatment	-0.007 (0.007)
Observations	3004
R-squared	0.004



Figure A1. Kernel Densities



**Table A5. Heterogeneity of impacts on financial literacy using mean values of the indicators**

	(1)	(2)	(3)	(4)	(5)	(6)
	Budgeting Quality	Interest in Financial Matters	Economic Understanding	Financial Awareness	Financial Attitudes	Targeted Financial Knowledge
<b>Panel 1. Heterogeneous Impacts for Client's Education (At Least Secondary)</b>						
Treatment	0.031 (0.04)	0.01 (0.01)	0.029 (0.02)	0.005 (0.01)	0.02* (0.01)	0.002 (0.01)
Treatment X Education	-0.037 (0.07)	0.012 (0.02)	-0.014 (0.033)	-0.01 (0.02)	-0.015 (0.02)	0.002 (0.02)
Observations	2907	2848	2739	2866	2890	2883
R-squared	0.08	0.01	0.04	0.03	0.03	0.02
<b>Panel 2. Heterogeneous Impacts for Baseline Financial Literacy</b>						
Treatment	0.022 (0.04)	0.014 (0.01)	0.024 (0.018)	0.002 (0.01)	0.017* (0.01)	0.003 (0.01)
Treatment X Baseline Financial Literacy	-0.002 (0.03)	0.029*** (0.01)	0.03** (0.014)	-0.013 (0.01)	0.002 (0.01)	-0.003 (0.01)
Observations	2907	2848	2739	2866	2890	2883
R-squared	0.08	0.01	0.04	0.03	0.02	0.02
<b>Panel 3. Heterogeneous Impacts for Client Gender (Female Dummy)</b>						
Treatment	0.025 (0.05)	0.014 (0.013)	0.018 (0.021)	-0.004 (0.01)	0.012 (0.01)	0.002 (0.01)
Treatment X Female	-0.006 (0.05)	-0.002 (0.02)	0.018 (0.03)	0.017 (0.02)	0.011 (0.02)	0.002 (0.01)
Observations	2907	2848	2739	2866	2890	2883
R-squared	0.08	0.01	0.04	0.03	0.03	0.02
<b>Panel 4. Heterogeneous Impacts for Time Preferences (Discount Rate)</b>						
Treatment	-0.132* (0.07)	0.022 (0.03)	0.032 (0.04)	-0.022 (0.02)	-0.027 (0.02)	-0.018 (0.02)
Treatment X Discount Rate	0.054** (0.02)	-0.003 (0.01)	-0.003 (0.01)	0.008 (0.01)	0.015** (0.01)	0.007 (0.01)
Observations	2867	2812	2711	2830	2854	2846
R-squared	0.08	0.01	0.04	0.03	0.03	0.02
<b>Panel 5. Heterogeneous Impacts for Baseline Per Capital Total Expenditures</b>						
Treatment	0.018 (0.04)	0.011 (0.01)	0.026 (0.02)	0.001 (0.01)	0.024** (0.01)	0.003 (0.007)
Treatment X PC Total Expenditure	0.00002 (0.00004)	0.00001 (0.00001)	-0.0 (0.00001)	0.00001 (0.00001)	-0.00003*** (0.00001)	0.0 (0.00001)
Observations	2897	2838	2732	2857	2880	2874
R-squared	0.08	0.01	0.04	0.03	0.03	0.02
<b>Panel 6. Heterogeneous Impacts for Whether the Client Had Already a Non-FINO Formal Savings Account</b>						
Treatment	0.03 (0.05)	-0.019 (0.02)	0.032 (0.02)	0.008 (0.01)	0.01 (0.01)	0.014 (0.01)
Treatment X Had Non FINO Formal Savings Account	-0.014 (0.055)	0.057*** (0.02)	-0.013 (0.03)	-0.011 (0.02)	0.01 (0.02)	-0.02* (0.01)
Observations	2907	2848	2739	2866	2890	2883
R-squared	0.08	0.01	0.04	0.03	0.02	0.02

**Table A6. Average impacts on time preferences**

	Discount Rate
Treatment	0.032 (0.064)
Observations	2878
R-squared	0.01
	0.032