

Management Science

MANAGEMENT SCIENCE

Volume 63 • Number 4 • April 2017



Publication details, including instructions for authors and subscription information:
<http://pubsonline.informs.org>

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To cite this article:

Fenella Carpena, Shawn Cole, Jeremy Shapiro, Bilal Zia (2017) The ABCs of Financial Education: Experimental Evidence on Attitudes, Behavior, and Cognitive Biases. Management Science

Published online in Articles in Advance 19 Sep 2017

<https://doi.org/10.1287/mnsc.2017.2819>

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The ABCs of Financial Education: Experimental Evidence on Attitudes, Behavior, and Cognitive Biases

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Received: February 22, 2016

Revised: December 4, 2016

Accepted: March 17, 2017

Published Online in Articles in Advance:
September 19, 2017

<https://doi.org/10.1287/mnsc.2017.2819>

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Abstract. This paper uses a large-scale field experiment in India to study attitudinal, behavioral, and cognitive constraints that can stymie the link between financial education and financial outcomes. The study complements financial education with (i) financial incentives on a financial literacy test to affect participant motivation, (ii) financial goal setting to provide a psychological nudge, and (iii) personalized financial counseling to enhance the intensity of treatment. The analysis finds no impact of financial incentives on learning but significant effects of both goal setting and counseling on real financial outcomes. These results identify important complements to financial education that can bridge the gap between financial knowledge and behavior change.

History: Accepted by Amit Seru, finance.

Funding: F. Carpena acknowledges the generous support of the National Science Foundation's Graduate Research Fellowship Program [Grant DGE 1106400]. Research funding from the World Bank Research Department is also gratefully acknowledged.

Supplemental Material: Data and the online appendix are available at <https://doi.org/10.1287/mnsc.2017.2819>.

Keywords: financial decisions • financial education • financial literacy • behavioral finance • psychology and decision making • goal setting • financial counseling

1. Introduction

In the modern economic landscape, financial literacy—the ability to make informed decisions regarding money—plays a critical role in ensuring both the well-being of households and the stability of the financial system (Lusardi and Mitchell 2014, Lusardi 2015). As financial services such as microfinance and mobile money expand in many parts of the world, so too do concerns, fueled by the recent financial crisis, that many consumers lack knowledge to judiciously utilize the new financial products at their disposal. Consequently, numerous private institutions, nonprofit organizations, and governments have responded with implementing financial education programs.¹ Yet the empirical evidence on the efficacy of such programs provides only mixed results, and little is known about which aspects of financial education initiatives successfully (or unsuccessfully) enhance financial behavior and financial outcomes.²

This paper investigates two related questions that have so far been overlooked in the growing literature on financial education. First, what barriers prevent individuals participating in financial education programs from translating financial knowledge into action? And second, what mechanisms are most effective for delivering financial education interventions

that meaningfully improve financial outcomes? We shed light on these questions using a randomized evaluation in India, with a large study sample of more than 1,300 low-income individuals from a major metropolitan area. Two-thirds of this sample was randomly selected to receive a five-week, high-quality, video-based financial education program that covered budgeting, savings, credit, and insurance. The remaining one-third of the sample received health training with a similar video-based and logistical format, to control for Hawthorne effects.

We employ a rich research design by combining financial education with three additional treatments, all randomly assigned at the individual level, to examine different frictions that can stymie the link between financial education and financial outcomes. In our first treatment, we offer cash incentives to half of the sample for correct answers to a financial knowledge test (hereafter referred to as “pay for performance”). While a number of studies in the education literature have demonstrated that financial incentives improve student achievement (e.g., Angrist and Lavy 2009), this paper is, to our knowledge, the first to test such incentives in the context of financial education. Theoretically, cash rewards may be necessary to foster the success of financial literacy initiatives if participants have insufficient motivation, have high discount rates, or have deeply

ingrained and “sticky” financial habits, all of which may result in suboptimal effort on the part of participants to learn from financial training. Indeed, existing studies have found little interest among adults in joining a financial education workshop, as well as poor attendance during the program itself (Bruhn et al. 2014).

For our second treatment, we encourage half of participants receiving financial education to set short-term, achievable, but noncompulsory financial goals, with target dates made visible on a calendar provided by the study (hereafter referred to as “goal setting”). This intervention allows us to assess the role of self-imposed nonbinding goals in attenuating self-control problems, in contrast to standard economic models wherein only binding goals such as precommitment or externally enforced contracts can affect motivation and behavior. A large body of literature in experimental psychology dating back to the 1960s consistently confirms the effectiveness of goals for behavior change (Locke and Latham 2002), encompassing a wide variety of fields including worker productivity (e.g., Goerg and Kube 2012), household energy conservation (e.g., Harding and Hsiaw 2014), and health management (e.g., Shilts et al. 2004).³ Nevertheless, nonbinding goal setting remains relatively unexplored in financial education, particularly for addressing psychological constraints that are often more pronounced for the poor and the unbanked (Mullainathan and Shafir 2009, 2013).

Whereas the previous two treatments consider behavioral barriers that financial education participants may face—namely, suboptimal effort and self-control—our third intervention focuses on structural factors that may hinder the efficacy of financial education. Specifically, we deliver additional financial counseling services involving intensive one-on-one instruction and individualized advice to half of participants receiving financial education. In the current debate on financial education initiatives, opponents such as Willis (2011, p. 431) have argued that because of the heterogeneity of households’ circumstances and needs, effective financial education needs to be structured “in a one-on-one setting, with content personalized for each consumer.” Even so, rigorous empirical evidence on the impact of financial counseling, especially in developing countries, remains scarce.⁴ Our study therefore contributes to the ongoing debate and informs policies on designing financial education initiatives, as we are able to experimentally evaluate the merits of augmenting a one-size-fits-all financial education program with an individually tailored counseling approach.

With the explosive growth of financial education initiatives around the world over the last decade, our results are both revealing and optimistic. In a financial knowledge test administered shortly after the five-week program, we find that those who received financial education but not pay for performance achieved

10% higher test scores, for questions measuring awareness of and attitudes toward financial products, relative to participants who neither received financial education nor paid for performance. However, the marginal impact of pay for performance is economically and statistically insignificant, and we precisely estimate this null effect. Even more strikingly, the same results still hold 6–12 months after the conclusion of the program. Hence, pay for performance led to no improvement in participants’ financial knowledge in either the short run or the long run.

Although we do not find evidence in support of pay for performance, we do identify substantial effects of goal setting and counseling on participants’ financial outcomes. In particular, our results show that while financial education alone did not bring about changes in financial behavior, combining goal setting with financial education encouraged relatively simple follow-up actions, such as attempting to write a budget, starting savings, and avoiding borrowing for unforeseen expenses. For example, in comparison to those who received only financial education, participants who additionally received the goal setting treatment were six percentage points more likely to join an informal community savings group, corresponding to a 78% increase over the control group. This large, statistically significant effect is quite surprising given that the goals were nonbinding. Furthermore, it provides a testament to the potential of self-chosen, nonbinding goals in mitigating self-control problems in the context of financial planning.

Likewise, our results indicate that financial counseling services enable the poor to undertake costlier or more difficult activities to better manage their finances, including regularly writing a budget and opening a formal bank savings account. For instance, participants who also received financial counseling were 13 percentage points (or 45%) more likely to open a formal bank savings account relative to the control group. This impact was also significantly higher than for participants who received goal setting. Importantly, this result suggests that an intensive, one-on-one medium for financial education is critical for complex economic decisions and financial products. Given that today’s marketplace confronts consumers with ever-more sophisticated financial instruments, our findings underscore counseling as a potent mechanism to empower individuals amidst a complicated financial environment.

Taken together, our study demonstrates that participants of financial education programs face two broad sets of constraints that prevent them from bridging the gap between financial knowledge and taking action. One set of barriers is internal to the individual, as it relates to their own behavior, such as lack of self-control, in carrying out their financial goals.

At the same time, they encounter external impediments as well, particularly those imposed by a sub-optimally structured financial education program that fails to address their unique needs. Our study reveals that overcoming both sets of constraints simultaneously may be necessary to enhance the effectiveness of financial education initiatives. Indeed, we find that the subsample receiving a very high intensity treatment involving all three interventions of financial education, goal setting, and financial counseling exhibited larger positive changes on all outcomes we examined, compared with those who received only financial education. These findings also offer an explanation for why the financial education literature thus far finds only mixed evidence of impact—the programs studied are fairly heterogeneous with wide variation in topics covered, training emphasis, and medium of instruction, with many failing to concurrently address both internal and external constraints.

More generally, our results show that, on its own, financial education is not a panacea for improving the financial well-being of low-income households in developing countries. Nonetheless, we do not view this as evidence to warrant broad pessimism about financial education programs, but rather, we highlight financial education as one strategy in the policy toolbox. We find that financial education fosters participants' knowledge and attitudes toward financial products, yet in and of itself falls short in promoting improved financial behavior and financial outcomes. By contrast, complementing financial education with inexpensive but personalized add-ons, such as goal setting and counseling, allows consumers to successfully apply their knowledge to financial decision making. We believe these insights can aid financial education policy makers, stakeholders, and nongovernment organizations (NGOs) to allocate resources more efficiently and to design financial education initiatives that deliver meaningful impact.

The rest of this paper proceeds as follows. Section 2 describes the sample and the study design. Section 3 presents the empirical strategy, summary statistics, and randomization checks, and Section 4 discusses the results. Finally, Section 5 concludes with implications of the study. Online Appendices I and II provide information on the content of our financial education and health videos, and present the financial knowledge survey questions, respectively.

2. Sample and Study Design

Our study sample consists of more than 1,300 urban poor households in Ahmedabad, a metropolitan city in the state of Gujarat, India. To manage the large sample size, we conducted the study in four waves. The sample size in each wave is reported in Table 1,

Table 1. Sample Size and Experimental Design

| (1) | (2) | (3) | (4) | (5) |
|---|---------------------|--------------|-------------|-------------|
| Panel A. Sample size per wave | | | | |
| Wave | Sample size | | | |
| 1 | 279 | | | |
| 2 | 422 | | | |
| 3 | 312 | | | |
| 4 | 315 | | | |
| Total | 1,328 | | | |
| Panel B. Experimental design: Financial education and pay for performance | | | | |
| Financial education videos | Pay for performance | <i>N</i> | % of sample | |
| No | No | 218 | 16 | |
| No | Yes | 224 | 17 | |
| Yes | No | 445 | 34 | |
| Yes | Yes | 441 | 33 | |
| Panel C. Experimental design: Financial education and additional treatments | | | | |
| Financial education videos | Counseling | Goal setting | <i>N</i> | % of sample |
| No | No | No | 442 | 33 |
| Yes | No | No | 232 | 17 |
| Yes | No | Yes | 209 | 16 |
| Yes | Yes | No | 215 | 16 |
| Yes | Yes | Yes | 230 | 17 |

Notes. This table describes the sample size and experimental design. The study was conducted in four waves, and panel A describes the number of respondents in each wave of the study. Panels B and C describe the experiment design and randomization across the various treatments.

panel A. Respondents came from different *chalis* (neighborhoods), which were mutually exclusive across waves. Furthermore, all respondents were associated with Saath, our nongovernment partner organization. About half were clients of Saath's microfinance services, while the other half were participants of Saath's other urban development programs such as livelihood training.

The recruitment of study subjects proceeded in the following manner. Our field staff first obtained a geographic listing of all households in a given neighborhood. Using this list, a field officer visited every fourth household⁵ in the neighborhood and selected the decision maker, earning member of the family, or earning member's spouse as the respondent for that household. The field officer then invited this person to participate in a life skills training program that was marketed as a program to help them better their lives, without mentioning the specific program content. The field officer also informed subjects about the time commitment required for the training (i.e., five consecutive sessions

over five weeks, once a week for two hours) as well as the program location. If the respondent chose to participate, the field officer recorded the necessary contact information together with training days and times that were convenient for the respondent. All field staff were trained extensively prior to these household visits to ensure adherence to these project protocols.

The research design consisted of two main components. First, two-thirds of the study sample was randomly assigned to a comprehensive classroom-based financial education program. The remaining one-third of the sample was assigned to a similar classroom-based health education program. These assignments were only revealed to study participants when they attended their first training session. Second, the design included three additional treatments: pay for performance, financial counseling, and goal setting, which are described in detail below.

The pay for performance treatment was orthogonal to all other treatments in the study. Specifically, half of all study subjects—selected individually at random, independent of whether they received financial or health education—were paid ₹10 (US\$0.20) for correct answers on test questions *related* to their program: financial education participants received payments for financial questions; similarly, health training participants received payments for health questions. The other half also received the same cash reward but for correct answers to questions *unrelated* to their video training: financial education participants were paid for health questions, and vice versa.

The goal setting and financial counseling treatments were offered only among the set of individuals who were offered financial education classes. Within this subset of the full sample, we administered the goal setting exercise to a randomly selected half of participants, independent of their pay for performance treatment and financial counseling treatment status. Likewise, we offered financial counseling to a randomly selected half of participants in the financial education group, independent of their pay for performance and goal setting status.

Table 1, panels B and C indicate the percentage of our sample that received these treatments. We also note that treatments were stratified in each wave based on the respondent's gender, whether the respondent was currently a client of Saath microfinance, and their neighborhood.

Data collection included a comprehensive baseline survey followed by program implementation, a postintervention knowledge survey administered in the respondents' households three weeks after the final training session, and a final endline survey implemented 10 months later.

2.1. Classroom-Based Financial Education

Both the financial education and health training programs consisted of five consecutive weekly sessions, each lasting two to three hours. To control for Hawthorne-type effects, the control group was provided with health training instead of no training at all to ensure that both treatment and control groups experienced similar levels of "disruption" in their daily activities due to the weekly sessions.

All respondents were assigned to attend a particular treatment or control class of about 20 participants. For each wave of the study there were about 15 classes (10 treatment and 5 control), which met at the same time every week for the duration of the program. Classes were held at a nearby training center equipped with computers, where the respondents watched their respective training videos.

All respondents received a ₹50 (US\$1) show-up fee for each session they attended and were provided free transportation to and from their homes to the training center for each visit. This fee amount was chosen deliberately to serve only as a token of gratitude for participation. Each video screening lasted for two to three hours and took place at a time of day when, typically, men have to go to work and women have to do household chores. Our baseline data show the median household income in our sample was ₹5,900, which translates to ₹195–235 per day in wages given reasonable assumptions about the number of days worked in a month. Thus, the opportunity cost of attending the program was likely much higher in comparison to the show-up fee, and if so, individuals who chose to attend did so because they valued other benefits (e.g., learning from the course).

Earlier work on classroom-based financial education for adults has found limited effects of such trainings across a number of different settings.⁶ One criticism of these previous studies is that perhaps the education programs were not comprehensive enough, not long enough, or not engaging enough. Our financial education program was designed specifically to address these concerns and in this regard differs in structure from those studied previously. For example, in comparison to several existing studies, which examine a short one-off financial training session,⁷ the program we evaluate was more intensive—carried out over five weekly meetings, each lasting two to three hours—to account for the possibility that a longer engagement might be needed to influence the financial habits of adults.

Additionally, whereas several prior financial education initiatives have been unsuccessful because of a lack of interest among participants,⁸ our financial education program included several interactive features to ensure a high level of participation. Each video was broken up into shorter clips of less than 10 minutes each. To

maintain participants' interest, each clip covered only two or three concepts, and there was a short break in between any two clips. Moreover, a skilled moderator led a group discussion at the end of each video session. The moderator engaged with the participants by answering their questions, eliciting their opinions, and touching on their real-life situations. Additionally, the moderator used worksheets, write-boards, and picture cards to make the discussions more interactive as well as games to foster participants' enthusiasm.

Although the implementation structure of the financial education program we study makes it more intensive and engaging than others, the course content itself was similar to those used in previous research. In particular, our curriculum was developed through an iterative process starting from standard materials developed by Freedom from Hunger, Microfinance Opportunities, and Citi Foundation that have been used in other studies. We adapted these materials to our local context of urban India together with our local research partner, our local implementation partner, and a local media company. These adapted materials were then used to professionally produce original videos using real-life examples in familiar neighborhoods and with locally known actors. The financial education videos included the following five topics: budgeting, savings, loans, insurance, and a final summary video. The health training videos covered topics unrelated to financial knowledge—specifically, cleanliness and hygiene, midwifery, maternal and child health, condoms, AIDS and syphilis, and night blindness.⁹

While financial concepts can be taught using a broad variety of approaches, our research team deliberately chose videos as a medium with the intention that they can be used to facilitate replication, reach a wider audience, and achieve scale—all at potentially lower operation costs—and that they could serve as a foundation for governments and NGOs in other countries to adapt to their respective settings. The portability of videos thus makes it possible to scale up and generalize our financial education program to other contexts, both within and outside of India.

2.2. Additional Treatments

2.2.1. Pay for Performance. The objective of the pay for performance treatment was to test whether financial learning is constrained by motivational factors in addition to the knowledge barriers examined with classroom-based financial education training. By offering payments for correct responses on a knowledge-based test, the treatment assessed whether concrete monetary incentives can more effectively induce individuals to learn, retain, and apply financial knowledge.

The impact of monetary incentives on academic achievement is fairly inconclusive in the education literature. Some studies find positive effects: for example, Angrist and Lavy (2009) show that in Israel, cash

rewards led to a significant increase in high school certification rates for girls, and Kremer et al. (2009) report that in Kenya, a merit scholarship including school fees and a cash grant substantially raised test scores for primary school pupils. But other papers estimate minimal impact, such as Fryer (2011), who finds zero effects of financial incentives on student achievement in Dallas, New York, and Chicago, or Bettinger (2012), who finds that cash payments improved elementary student scores in math but not reading, science, or social science. Still others find positive but small impacts of monetary rewards on subgroups of college students, as in Angrist et al. (2009) and Leuven et al. (2010). Together, these studies suggest that the effect of cash payments varies widely across different scholastic levels and environments; our study aims to determine whether such incentives are productive in the financial education context.

In addition, although much of this literature considers academic outcomes among students, our paper is, to our knowledge, the first to test incentives specifically for increasing financial literacy among adults.¹⁰ Ex ante, it is unclear whether financial incentives in schools will have similar impacts in financial education because both environments vastly differ. For instance, in comparison to students, adults participating in financial education programs have distinct family commitments, financial experiences, and financial situations, among others. Adult behavior may also be more difficult to change than that of the youth—for example, because of stickier preferences and more binding day-to-day constraints (Bruhn et al. 2016). The effects of monetary rewards among students may therefore not directly translate to adult financial education, and this is precisely the knowledge gap that our study seeks to fill.

The pay for performance analysis also contributes to the ongoing debate surrounding the value of financial education. Proponents and opponents alike have argued that weak enthusiasm for gaining financial skills presents a significant barrier to the success of financial education initiatives. For example, the Financial Literacy Foundation (2008) cautions that providing education resources alone is inadequate because the key challenge lies in promoting engagement among “those who, for reasons of disinterest in the issue, lack of perceived relevance, stress or other obstacles... are not currently seeking to build their money skills” (p. 7). Similarly, in her article “Against Financial Literacy Education,” Willis (2008) points out that although voluntary personal finance courses are widely available, participation is low unless some “perk” is awarded, making lack of interest a very costly obstacle for financial education to overcome. The pay for performance treatment allows us to evaluate these foregoing claims: we investigate whether small monetary incentives can

help shift effort toward learning financial concepts and thus surmount behavioral barriers arising from disinterest or insufficient enthusiasm among financial training participants.

The logistics of the pay for performance treatment were as follows. Payments were made based on performance on a postintervention knowledge test administered three weeks after classes ended and comprising three dimensions of financial knowledge (see Online Appendix II for the exact wording of these questions). The first set of questions tested financial numeracy. Respondents were asked questions that involved numerical calculations, such as comparing monthly versus weekly interest rates and adding household income/expenses. The second set of questions measured respondents' financial awareness. These focused not on computation but instead on general concepts related to financial products and financial planning. For example, respondents were asked about the purpose of a household budget, minimum bank account-opening requirements, and whether bank savings accounts had deposit insurance. Finally, the third set of questions assessed financial attitudes and perceptions, measured by asking respondents what financial advice they would give to their friends. For instance, respondents were asked whether they would suggest buying insurance or increasing savings to a friend who had a risky job. The purpose of these questions was to assess whether individuals understood the financial situation described and were capable of identifying the correct type of product or advice for each setting.¹¹

2.2.2. Concrete Goal Setting. An important research question we address in this study is whether behavioral factors such as lack of self-control influence financial decisions and outcomes. We theorize that low self-control may be an impediment to the conversion of financial knowledge into positive financial outcomes. To examine this behavioral constraint, we implemented a treatment that encouraged sample participants to set concrete yet nonbinding financial goals with designated completion dates.

The role of nonbinding goals in alleviating procrastination and self-control problem remains understudied in economics thus far but is a growing field of inquiry at the research frontier. One prominent hypothesis at the forefront of behavioral economics is that nonbinding goals act as *reference points* against which individuals measure losses and gains. Indeed, Heath et al. (1999) explicitly argue that “mere” goals serve as reference points and systematically alter outcomes in the prospect theory value function. Moreover, Hsiaw (2013) asserts that a nonbinding goal provides internal motivation, since the future “self” of a present-biased individual with reference-dependent preferences inherits the goal as a reference point in his utility function. In addition, Koch and Nafziger (2011)

assume loss aversion and illustrate that goals make future “selves” strive harder because of fear of failing to reach the goal.

That goals act as reference points also finds strong support in the psychology literature, where research consistently confirms the positive effects of goals on task motivation. Reviewing empirical goal research in psychology, Locke and Latham (2002) write that “[g]oals serve as the inflection point or reference standard for satisfaction versus dissatisfaction...exceeding the goal provides increasing satisfaction as the positive discrepancy grows, and not reaching the goal creates increasing dissatisfaction as the negative discrepancy grows” (p. 709). Locke and Latham (2002) also summarize 35 years of empirical psychology research on goal setting theory and identify four main mechanisms through which nonbinding goals affect performance. First, goals provide direction both behaviorally and cognitively by focusing attention and effort toward goal-related activities.¹² Second, goals serve an energizing function as evidenced by high goals leading to greater effort than low goals.¹³ Third, goals affect persistence by prolonging effort and increasing work intensity.¹⁴ Finally, goals impact action indirectly by leading to the discovery and/or use of relevant knowledge and strategies.¹⁵

Goal setting has also been shown to be important in financial decision making. Existing research has studied the effects of goal setting among consumers on repayment, spending, and saving behavior. For instance, Karlan et al. (2016) find that text messaged or mailed reminders highlighting a client's particular savings goal were twice as effective as those that did not. Soman and Zhao (2011), using a field study among Indian households, also find that setting specific goals had a significant and positive effect on savings rates. Moreover, setting a single goal (in this case, financing their children's education) resulted in higher savings than setting multiple goals (savings for education, healthcare, and retirement). Ülkümen and Cheema (2011) observe that for more ambitious savings targets, having concrete goals as opposed to general goals can increase the perceived importance of and commitment to the target.

On the credit and repayment side, several studies find that when confronted with different credit card payment options, individual financial goals often determine the payment amount selected by consumers (Bartels and Sussman 2015, Salisbury 2014, Agarwal et al. 2014). Thaler (1999) and Soman and Cheema (2011) further explore goal setting as a form of “mental accounting” and find that people are more disposed to honor spending targets that are earmarked for certain product categories.

In our study, participants who received the goal setting treatment were encouraged to set short-term

achievable but noncompulsory financial goals. This treatment involved a household survey, implemented within four weeks of the financial knowledge exam, wherein respondents were interviewed about their use of financial services. Notably, respondents were also asked to voluntarily choose a target date for completing one or more financial goals: opening a savings account, increasing savings, reducing expenditure, and/or purchasing insurance. Surveyors recorded these target dates on a calendar provided by the study at no cost and posted in the respondent's home, so that subjects may be reminded of their self-chosen, nonbinding financial goals.

To measure marginal effects beyond financial education alone, we administered this goal setting exercise by design to a randomly selected half of participants assigned to financial training. The remaining half served to isolate the effect of goal setting from that of the household visit, as they received a similar household survey on financial services during the same period, but they were neither asked to set financial goals and target dates nor given any calendars. To summarize, the treatment group received a household survey and a calendar, and were asked to set a target date for a financial goal on this calendar, while the control group received only the household survey. Hence, goal setting measures the combined effect of both the calendar and the target dates, which we consider together as one treatment.

We acknowledge that the goal setting treatment we study does not allow us to identify a single underlying mechanism through which nonbinding goals help attenuate self-control problems. Instead, our approach tests the value of “a foot in the door,” whereby prompting individuals to develop a plan of action (such as setting target dates for goals) increases the likelihood of attaining the goal. For example, in a field experiment on influenza vaccination, Milkman et al. (2011) show that prompting individuals to write down the date and time they plan to be vaccinated increased vaccination rates. Similarly, in a field experiment during the 2008 U.S. presidential elections, Nickerson and Rogers (2010) show that facilitating the formation of a voting plan increased voter turnout. In both of these studies, neither the target vaccination time nor the voting plan were binding, and yet these “implementation intentions” resulted in meaningful, positive effects.

2.2.3. Individualized Counseling. The final treatment in our study was designed to test whether the intensity of financial education and the medium in which it is delivered affect knowledge acquisition and application. Our hypothesis is that traditional classroom-based financial education training may be insufficiently suited to individuals' specific learning needs.

We test the role of the education medium by supplementing the financial education training with individualized counseling. This treatment consisted of one-on-one, in-person counseling at home, where the counselors aided in tasks such as preparing a budget, opening a bank account, paying a loan, or buying insurance. Such counseling may be more effective in changing behavior as it provides guidance specific to the needs of the participant.

Medical and public health studies have found individualized or segmented counseling to be effective in promoting better health behaviors. For example, individualized risk counseling for women with a family history of breast cancer has been shown to improve understanding of their personal risk (Lerman et al. 1995). Similarly, Proper et al. (2003) find positive and significant effects of individual counseling on physical fitness. In the financial context, Dalal and Morduch (2010) find that having an insurance representative present after training significantly improves take-up rates. Similarly, Bertrand et al. (2006) find that allowing banking workshop participants the opportunity to complete account-opening paperwork as part of the learning workshop and having a bank representative present on-site significantly improves take-up and adoption of complementary banking products such as ATM cards, direct deposit, and electronic fund transfers. Finally, psychologists have long advocated the benefits of human interaction in individualized counseling over inanimate information sources such as pamphlets, text messages, or computer messages (King et al. 2007).

The counseling treatment in our study was randomly assigned among financial education participants. Half were randomly selected to receive an offer of financial counseling, independent of their goal setting treatment status. Specifically, within one month of the classroom sessions, financial counselors visited the counseling treatment group in their homes to provide individualized financial counseling services. The financial counselors assisted participants on several issues—including, but not limited to, preparing a budget, opening a bank account, paying off or refinancing loans, and purchasing an insurance policy—depending on their individual needs. Financial counselors were trained rigorously by our partner research organization in India, the Center for Microfinance, prior to visiting respondents. The treatment involved monthly household visits by the counselors for the duration of the study.

As a final point, we note that all of the treatments in our study were agnostic about specific financial products or providers: the financial education program focused on explaining concepts related to savings, loans, and insurance (e.g., interest rates, premiums) as well as the importance of scouting the market

for financial products appropriate for a participant's individual needs; similarly, in the goal setting and counseling treatments, respondents selected their own goals and counseling agendas, respectively. Participants were never pressured to adopt, purchase, or join any specific financial product, service, or provider.

3. Empirical Methodology and Summary Statistics

3.1. Empirical Methodology

The main analysis of this paper estimates causal *intent-to-treat* (ITT) impacts on financial knowledge and behavior. First, we analyze impacts on three distinct components of financial knowledge—namely financial numeracy, awareness, and attitudes. We study pay for performance impacts using data from both the short-term and endline surveys.

Since financial education and pay for performance were orthogonal treatments both randomized at the individual level, we estimate causal effects on financial knowledge with the following ordinary least squares model:

$$Y_i = \alpha + \beta_1 \text{FinEd}_i + \beta_2 \text{PayforPerf}_i + \beta_3 \text{FinEd_and_PayforPerf}_i + \beta_4 \text{DiscountRate}_i + \sum_k \text{StrataDummy}_{ik} + \epsilon_i, \quad (1)$$

where outcomes Y represent financial knowledge measures from the survey, FinEd is a dummy equal to 1 for an individual i who was assigned the financial education treatment, PayforPerf is a dummy equal to 1 for an individual i who was offered pay for performance on financial knowledge questions, and $\text{FinEd_and_PayforPerf}$ is the interaction term.

Next, we estimate treatment impacts on financial behavior using endline data. Since we have three treatments (financial education alone, financial education with counseling, and financial education with goal setting), we analyze results with a saturated model to simplify interpretation:

$$Y_i = \alpha + \beta_1 \text{FinEd}_i + \beta_2 \text{FinEd_and_Goal}_i + \beta_3 \text{FinEd_and_Couns}_i + \beta_4 \text{FinEd_and_Couns_and_Goal}_i + \beta_5 \text{DiscountRate}_i + \sum_k \text{StrataDummy}_{ik} + \epsilon_i. \quad (2)$$

Here, the outcomes Y represent responses to financial behavior questions from the endline survey. FinEd is a dummy equal to 1 for an individual who received the financial education treatment but not the financial counseling or the goal setting treatments. FinEd_and_Goal is a dummy equal to 1 for an individual who received both the financial education and

goal setting treatments but not the financial counseling treatment. Similarly, Fin_Ed_and_Couns is a dummy equal to 1 for an individual who received both the financial education and counseling treatments but not goal setting. And finally, $\text{FinEd_and_Couns_and_Goal}$ is a dummy equal to 1 for an individual who received all three treatments. The omitted category is the group that did not receive any financial education, the control group.

For both Equations (1) and (2), we include a control for the baseline discount rate, which shows an imbalance in Table 2. We also control for strata dummies for precision, since in each wave of the study we stratified the randomization. Strata are defined by gender, whether the respondent is currently a client of Saath microfinance, and neighborhood. Note that since neighborhoods were mutually exclusive across waves, we do not add wave fixed effects. Furthermore, in each study wave, participants were assigned to attend a particular class that met at the same time every week for the duration of the training program. Classes consisted solely of either financial education training participants or health training participants. In estimating Equations (1) and (2), we cluster standard errors at the wave-class level.

3.2. Summary Statistics and Randomization Checks

Baseline characteristics for our sample are presented in Table 2. Households in our sample comprised six members on average, with a mean monthly income of ₹7017 (US\$120). A little more than half (58%) of our respondents were female, and a vast majority were married. Respondents in our sample also had limited schooling, with 47% having completed elementary school but only 4% having completed secondary school.

In addition to standard data on household demographics and respondent characteristics, our baseline survey measured financial knowledge, attitudes, and preferences. First, we note that almost everyone in our sample (94%) reported having difficulty saving. Next, we measured 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 ₹350 today. Respondents in our sample reported relatively high monthly discount rates: the median was 0.14, while the average was 1.52. We also measured risk aversion by allowing respondents to choose between a payment of ₹10 with certainty or playing a lottery that pays out ₹25 or ₹0 with equal probability. The safe payment was chosen by 18% of our sample, and these respondents were coded as risk averse.

We also measured basic computational skills through a series of eight mathematics questions. The mean score for these mathematics questions was 4.73 out of 8. We

Table 2. Baseline Summary Statistics

| | (1) | (2) | (3) | (4) |
|---|----------|----------|--------------------|---|
| | Median | Mean | Standard deviation | Test of joint equality of means across all treatments (<i>F</i> -test <i>p</i> -value) |
| Household characteristics | | | | |
| Household size | 6.00 | 5.85 | 2.47 | 0.711 |
| Household monthly income (₹) | 5,900.00 | 7,017.48 | 5,635.51 | 0.164 |
| Household monthly income per capita (₹) | 1,050.00 | 1,272.96 | 922.26 | 0.121 |
| Household has phone | | 0.84 | | 0.361 |
| Household has nonfarm enterprise | | 0.26 | | 0.517 |
| Household has water connection | | 0.77 | | 0.813 |
| Respondent characteristics | | | | |
| Female | | 0.58 | | |
| Age | 38.00 | 38.56 | 9.07 | 0.368 |
| Married | | 0.98 | | 0.503 |
| Hindu | | 0.82 | | 0.866 |
| Completed elementary school | | 0.47 | | 0.339 |
| Completed secondary school | | 0.04 | | 0.830 |
| Saath MFI client | | 0.48 | | |
| Math score (out of 8) | 5.00 | 4.73 | 2.03 | 0.788 |
| Financial knowledge score (out of 3) | 2.00 | 1.61 | 0.62 | 0.215 |
| Has hard time saving (self-report) | | 0.94 | | 0.551 |
| Interested in financial matters (self-report) | | 0.87 | | 0.460 |
| Monthly discount rate | 0.14 | 1.52 | 4.72 | 0.087* |
| Inconsistent time preferences | | 0.48 | | 0.809 |
| Risk averse | | 0.18 | | 0.934 |

Notes. This table provides baseline summary statistics for our sample consisting of urban poor households in Ahmedabad, India. Column (4) reports the *p*-value of the *F*-test of joint significance across all treatment coefficients in regressions of the baseline characteristics on treatment dummies. The four treatments are (i) financial education video only, (ii) financial education video and goal setting, (iii) financial education video and counseling, and (iv) financial education video, goal setting, and counseling. Column (4) regressions control for strata dummies where a strata is defined by gender, location, and whether the household was an MFI client. Standard errors are clustered at the wave-class level.

*Indicates statistical significance at the 10% level.

find similar computational skill levels as in Cole et al. (2011) in Indonesia. Specifically, almost all respondents could answer a simple addition question (“How much is 4 plus 3?”), but only about 50% were 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.

Finally, we measure baseline levels of financial knowledge based on the following three questions, which are a standard set provided by Lusardi and Mitchell (2009):

1. “If you borrowed ₹5,500 and were charged 12% interest per month, how much interest would you pay in the first month?”
2. “Suppose you had ₹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?”
3. “Suppose your friend inherits ₹10,000 today and his brother inherits ₹10,000 three years from now. Who is richer because of the inheritance?”

Measured financial literacy was low in our sample, with an average score of 1.6. 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. By 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 United States.

Table 2 provides a test of the randomization. The *p*-values in column (4) report the statistical significance of a joint test for the difference between the means across all treatments including the control group. As the table shows, the *p*-values are fairly large, suggesting no significant difference across the treatments in baseline measures. The only baseline variable to show imbalance across treatments, the monthly discount rate, is controlled for in all regression specifications.

Finally, attrition in our sample was very low, at less than 6% of the entire sample over the four waves from baseline to final follow-up, and uncorrelated with treatment status.

4. Results and Discussion

In this section, we present and discuss results related to both short-term impacts on financial knowledge, as

well as longer-term impacts of the interventions on both financial knowledge and behavior.¹⁶

As described in Section 3.1, the regression analysis presented in this paper estimates ITT effects. In particular, the sample in the regressions includes all study participants regardless of whether they actually attended the screenings, which is an endogenous choice. Note that the take-up of our various interventions was quite high: 93% of those assigned to financial education attended at least one video screening, 88% of those assigned to goal setting chose to set at least one financial goal, and finally, 64% of those assigned to financial counseling accepted the counselor's services.

Given the high attendance rate, we focus on the ITT effects rather than the *treatment-on-treated* (TOT) estimates. Moreover, the TOT results only provide local average treatment effects—that is, the average impact among those induced to change their choice by the instrument—which would be difficult to extrapolate to the whole population. The focus of our analysis, therefore, remains on estimating impacts using ITT.

4.1. Financial Knowledge and Pay for Performance

We find varied short-term effects of traditional financial education, with no impact on participants' financial numeracy scores but strong positive effects on aggregate measures of financial awareness and attitudes. Table 3 presents results on aggregate measures of financial knowledge, while Appendix Tables A.1–A.3 present regression results on individual questions for each category of numeracy, awareness, and attitudes. The longer-term effects are likewise reported in Table 4 (aggregate measures) and Appendix Table A.4 (individual questions).

We consider a variety of different outcome variables as proxies for financial numeracy, including questions on selecting financial products and budgeting capabilities. The short-term results presented in Table 3 and Appendix Table A.1 indicate no impact on financial numeracy. Moreover, even the addition of pay per performance did not yield a positive effect in the short run on financial numeracy skills. Table 4 and Appendix Table A.4 validate these findings for the long term as well. These results show that financial education failed to help individuals choose the loan option that minimizes expenses, to select the most appropriate savings or insurance product, or to write a budget effectively. Incentivizing individuals with payments on correct answers led to no significant improvement in financial numeracy scores.

These results corroborate the existing literature, which finds that financial education, no matter what form it takes, has little effect on financial numeracy skills. For instance, Jamison et al. (2014) find no effect of a 10-week financial education course on financial numeracy among youth clubs in Uganda. Similarly, Doi et al. (2014) find no effect on numeracy skills of migrant workers in Indonesia who attended financial education classes prior to being assigned to work overseas. Carpena et al. (2011) discuss these limitations of financial education and propose measuring financial knowledge in terms of awareness and attitudes rather than strictly in terms of numeracy.

In contrast to the null effects on financial numeracy, our results show that the financial education program significantly improved financial awareness and attitudes toward financial products. The results presented in Table 3 show that individuals who received

Table 3. Short-Term Impact on Financial Knowledge

| | (1) | (2) | (3) |
|---|--|---|---|
| | Aggregate measure of financial numeracy | Aggregate measure of financial awareness | Aggregate measure of financial attitudes |
| <i>Financial Education</i> | −0.008 (0.018) | 0.072*** (0.016) | 0.082** (0.034) |
| <i>Pay for Performance</i> | 0.001 (0.019) | 0.004 (0.021) | −0.017 (0.050) |
| <i>Interaction of Financial Education and Pay for Performance</i> | 0.006 (0.024) | 0.011 (0.024) | 0.001 (0.051) |
| <i>R-squared</i> | 0.186 | 0.177 | 0.208 |
| <i>Number of observations</i> | 1,256 | 993 | 591 |
| <i>Mean of dependent variable in control group</i> | 0.646 | 0.691 | 0.800 |
| <i>F-test p-value: Financial Education + Interaction = 0</i> | 0.895 | 0.000 | 0.010 |

Notes. This table presents regression results on short-term impacts from a survey conducted three weeks after the conclusion of the financial education program. The table shows intention-to-treat effects. The dependent variables are aggregate measures of financial knowledge in three dimensions—numeracy, awareness, and attitudes. Regression results for individual questions are presented in Appendix Tables A.1–A.3. *Financial Education* is a dummy equal to 1 for an individual who was invited to the financial education treatment. *Pay for Performance* is an orthogonal treatment and is a dummy equal to 1 for an individual who was offered a monetary incentive for correct answers to financial knowledge questions. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status.

***Indicates statistical significance at the 1% level; ** indicates statistical significance at the 5% level; * indicates statistical significance at the 10% level.

Table 4. Longer-Term Impact on Financial Knowledge

| | (1) | (2) | (3) |
|---|--|---|---|
| | Aggregate measure of financial numeracy | Aggregate measure of financial awareness | Aggregate measure of financial attitudes |
| <i>Financial Education</i> | −0.021 (0.028) | 0.104*** (0.020) | 0.095*** (0.024) |
| <i>Pay for Performance</i> | −0.029 (0.043) | −0.025* (0.014) | −0.025 (0.022) |
| <i>Interaction of Financial Education and Pay for Performance</i> | 0.031 (0.050) | 0.051** (0.020) | 0.024 (0.028) |
| <i>R-squared</i> | 0.152 | 0.216 | 0.203 |
| <i>Number of observations</i> | 972 | 972 | 972 |
| <i>Mean of dependent variable in control group</i> | 0.720 | 0.682 | 0.734 |
| <i>F-test p-value: Financial Education + Interaction = 0</i> | 0.779 | 0.000 | 0.000 |

Notes. This table presents regression results on longer-term impacts from an endline survey conducted 10 months after the conclusion of the financial education program. The table shows intention-to-treat effects. The dependent variables are aggregate measures of financial knowledge in three dimensions—numeracy, awareness, and attitudes. Regression results for individual questions are presented in Appendix Tables A.1–A.3. *Financial Education* is a dummy equal to 1 for an individual who was invited to the financial education treatment. *Pay for Performance* is an orthogonal treatment and is a dummy equal to 1 for an individual who was offered a monetary incentive for correct answers to financial knowledge questions. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at the baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

financial education improved financial awareness and financial attitudes by seven percentage points and eight percentage points, respectively, compared with the control group. Analyzing the individual questions in Appendix Table A.2, those who received financial education were 16 percentage points more likely to know minimum bank account-opening requirements, 13 percentage points more likely to distinguish bank processing fees, and 20 percentage points more likely to understand unproductive loans relative to the control group. Appendix Table A.3 shows similar positive impacts on short-term financial attitudes—when hypothetically asked to give financial advice, treated individuals were 10 percentage points more likely to suggest insurance coverage for a dangerous work environment and 20 percentage points more likely to suggest making a budget to track household income and expenditure relative to the control group. Table 4 and Appendix Table A.4 show that these results hold in the long run as well.

These results on financial awareness and attitudes corroborate findings from several previous studies that show similar effects. For example, while Jamison et al. (2014) find no effect on numeracy scores among Ugandan youth clubs, they do find a significant positive effect on aggregate financial knowledge scores among those who were offered financial education. Likewise, Doi et al. (2014) find significant improvements in measures of awareness and attitudes similar to ours among migrant workers in Indonesia.

Next, we analyze the impact of pay for performance and find that it did not lead to any significant marginal improvements over the standard curriculum on either

of the aggregate measures of awareness or attitudes, just as it did not induce variation in treatment effects on financial numeracy. We can rule out the concern that the financial incentives offered were not large enough to be salient to participants since, with correct answers to all 18 questions in the financial knowledge test, respondents could have earned up to ₹180, an amount close to a full day's wage.

The results in Tables 3 and 4, therefore, suggest that participant motivation was not a critical barrier in improving financial knowledge in our sample, and we estimate these null effects relatively precisely. Specifically, in Table 3, we see that the marginal effect of pay for performance in the short run—obtained by summing the coefficients for *Pay for Performance* and *Interaction of Financial Education and Pay for Performance*—are all very close to zero, with an estimate of −0.007 for numeracy, 0.015 for awareness, and −0.016 for attitudes. We consider these null effects to be reasonably precise since their respective 95% confidence intervals (i.e., [−0.023, +0.036], [−0.013, +0.042], and [−0.046, +0.014]) suggest quite small effects in comparison to the control group means and standard deviations. Even more strikingly, we see in Table 4 that the same results still hold almost one year after the program ended. Hence, integrating pay for performance into financial education led to no additional improvements in financial knowledge either in the short run or long run, and these relatively precise null results can aid financial education policy makers, stakeholders, and NGOs in optimally designing financial education programs.

4.2. Financial Behavior

Our analysis on financial behavior comes from the end-line survey. Data from this survey also help distinguish impacts of additional treatments of goal setting and individualized counseling over traditional financial education. The specific behaviors we study are the ones targeted by the financial education program: budgeting, savings, borrowing, and insurance adoption.

4.2.1. Budgeting. We first consider changes in household budgeting, the theme of one of the five financial education video sessions. Existing research has shown important benefits of writing down income and expenses for planning finances, starting savings, and managing spending (Miller et al. 2015). Record keeping and tracking expenditures are often cited as critical elements of gaining control of one's finances, much the way that many fitness and diet programs focus on recording eating and exercise habits to control weight and improve health. This is a behavior that is fully under the control of the individual compared with decisions to default or even to save money, which may be influenced by factors outside one's control such as unexpected illness (and medical fees), loss of a job, or other problems that lead to financial distress. The meta-analysis of prior literature in Miller et al. (2015) indicates that financial education may positively encourage record-keeping behaviors. From a policy perspective, budgeting and record keeping are relatively simple to target, since advocating for regular record keeping does not require institutional change or the creation of new financial products as would be the case for some other financial behaviors such as formal savings, loans, and insurance.

In columns (1), (3), and (5) of Table 5, we report impacts of being invited to any financial education treatment on beliefs that budgeting is helpful (column (1)), attempts to make a budget in the last six months (column (3)), and making a regular monthly budget (column (5)). Without distinguishing between treatments, we see a strong positive treatment effect on all these dimensions, though the effects weaken as we move from beliefs to actions and outcomes. Specifically, while those individuals invited to any financial education treatment were 22 percentage points more likely than the control group to understand the benefits of making a budget and 28 percentage points more likely to have attempted to make a budget, they are only 3 percentage points more likely to actually make a regular budget every month.

We delve into mechanisms by analyzing the treatments separately in columns (2), (4), and (6). Our results show that the medium of delivery makes a substantial difference in longer-term budgeting behavior. Providing classroom-based financial education alone generally yields weaker results than when it is complemented with higher-intensity, personalized treatments.

We find that those who received the single financial education treatment were 17 percentage points more likely than the control group to think that budgeting is helpful, while combining financial education with the other two treatments yielded a 26.5-percentage-point improvement. Importantly, the p -value on the F -test comparing all three treatments against financial education alone is 0.026, suggesting significant marginal improvements over financial education alone due to the add-on treatments. Similar results are reported when either goal setting or counseling alone are part of the financial education package.

The regression results also find important distinctions across treatments when moving from beliefs about budgeting to action. Notably, the effect of financial education classes and goal setting is limited to raising awareness about budgeting but stops short of regular behavior change. For instance, in column (4), those who were invited to financial education alone are 13 percentage points more likely than the control group to have attempted to make a budget in the last six months, but this effect disappears when it comes to making a regular monthly budget (column (6)). Adding goal setting improves the attempt to make a budget slightly to 16 percentage points (not statistically distinguishable from financial education alone), but again, the effect does not persist for regular monthly budgets.

The significant effect on sustained behavior change comes from adding counseling to the mix. Individuals invited to financial education with personal counseling are 39 percentage points more likely to have attempted a budget and 4 percentage points more likely than the control group to make a regular monthly budget. These effect sizes are even larger for the highest intensity treatment (financial education with goal setting and counseling) at 43 percentage points and 5 percentage points, respectively.

The fact that financial counseling is key to sustained budgeting behavior is important. While financial education classes and goal setting can highlight the importance of budgeting, individuals may still lack the necessary skills to actually maintain a regular budget given their unique individual circumstances. Our results suggest that personalized counseling acts as a critical bridge that enables individuals to apply their acquired financial knowledge to improve behavior.

4.2.2. Savings. We next turn to long-term impacts on household savings behavior. A long line of research in development economics shows that the incomes of poor households in the developing world are not only low but also extremely irregular and unpredictable (e.g., Morduch 1995). This is particularly true in our context, urban India, where many of those employed are casual laborers (such as helpers and cooks) who may or may not have work on any given

Table 5. Household Budgeting

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|----------------------------------|---------------------|---|---------------------|-----------------------------------|-------------------|
| | Believes budgeting is helpful | | Has tried making a budget in last 6 months | | Makes a regular monthly budget | |
| <i>Any Treatment</i> | 0.221*** (0.029) | | 0.275*** (0.027) | | 0.028** (0.012) | |
| <i>Financial Education Only</i> | | 0.168*** (0.040) | | 0.126*** (0.039) | | 0.026 (0.018) |
| <i>Financial Education and Goal Setting</i> | | 0.241*** (0.038) | | 0.158*** (0.041) | | 0.003 (0.023) |
| <i>Financial Education and Financial Counseling</i> | | 0.214*** (0.036) | | 0.385*** (0.040) | | 0.036* (0.020) |
| <i>All Three Treatments</i> | | 0.262*** (0.038) | | 0.433*** (0.039) | | 0.048* (0.025) |
| R-squared | 0.247 | 0.252 | 0.244 | 0.294 | 0.265 | 0.267 |
| Number of observations | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 |
| Mean of dependent variable in control group | 0.602 | 0.602 | 0.194 | 0.194 | 0.065 | 0.065 |
| F-test p-value: <i>Financial Education and Goal Setting</i> = <i>Financial Education</i> | | 0.102 | | 0.499 | | 0.363 |
| F-test p-value: <i>Financial Education and Financial Counseling</i> = <i>Financial Education</i> | | 0.260 | | 0.000 | | 0.689 |
| F-test p-value: <i>All Three Treatments</i> = <i>Financial Education</i> | | 0.026 | | 0.000 | | 0.421 |

Notes. This table presents regression results on household budgeting from an endline survey conducted 10 months after the conclusion of the financial education program. The sample consists of respondents from all four waves of the study, and the table shows intention-to-treat effects. *Any Treatment* is a dummy equal to 1 for an individual who received any financial education treatment. *Financial Education Only* is a dummy equal to 1 for an individual who was invited to the financial education classes but did not receive either financial counseling or goal setting. *Financial Education and Goal Setting* is a dummy equal to 1 for an individual who received the financial education and goal setting treatments but not the financial counseling treatment. *Financial Education and Financial Counseling* is a dummy equal to 1 for an individual who received the financial education and counseling treatments but not the goal setting treatments. *All Three Treatments* is a dummy equal to 1 for an individual who received all three—financial education, financial counseling, and goal setting treatments. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

day, or own-account workers (such as auto-rickshaw drivers and street vendors) whose earnings largely depend on sales. In such an environment with highly variable earnings, storing past income through savings becomes an essential financial tool for the poor, enabling them to put food on the table every day, and fundamentally, to manage their uneven cash flows (Collins et al. 2009).

During our study period, households in our sample had access to “no-frills” savings accounts, a type of bank savings account designed specifically for low-income individuals and mandated by the Reserve Bank of India (RBI), the country’s central bank, to increase financial inclusion. In particular, these no-frills savings accounts have initial deposits, minimum balances, and other charges that are either zero or very low. For example, during our study, the State Bank of India offered such accounts with an initial deposit of ₹50 and zero maintaining balance thereafter, while UCO Bank required ₹250 for the initial deposit and a minimum balance of ₹5. Importantly, these no-frills accounts earn a strictly positive interest rate that is similar to other regular savings accounts (between 2.5% and 4% per

year during our study), and they are also reliable because in the event that the bank shuts down, all deposits are insured by the Deposit Insurance and Credit Guarantee Corporation, an institution similar to the Federal Deposit Insurance Corporation in the United States. Taking these factors together—zero or very low maintaining balances and fees, positive interest rates, and deposit insurance—holding formal savings accounts thus posed little to no costs among the households in our setting.

Apart from availability of suitable formal products, previous research has shown that savings products may offer additional advantages beyond the interest earnings. By keeping money inaccessible, savings accounts may protect against financial demands from family members or neighbors (e.g., Ashraf 2009) and they may discourage temptations to spend, especially for those with present-biased preferences (e.g., Laibson 1997). In addition, they allow households to create large sums for big-ticket purchases such as furniture and education, while building financial relationships that can be leveraged for accessing loans (e.g., Collins et al. 2009). Moreover, research has shown that access

to savings facilities yields real welfare benefits for the poor beyond positive interest rates: they increase savings, productive investments, and food expenditures, and importantly, reduce overall poverty (e.g., Dupas and Robinson 2013, Burgess and Pande 2005).

The regression results on savings in our study are presented in Table 6. In columns (1), (3), and (5) we report impacts of being invited to any financial education treatment on holding of informal savings (column (1)), holding of formal savings (column (2)), and investments in fixed or recurring deposits (column (5)). Without distinguishing between treatments, we find that participants who received any form of financial education intervention were four percentage points more likely to hold informal savings and eight percentage points more likely to hold formal savings in a bank account.

As with budgeting, the medium of instruction is critical for motivating sustained behavior change. Financial education alone produced no effect on any of the savings outcomes we measured—participants who received only the financial education treatment were no more likely to hold savings, formally or informally, than the control group. These findings suggest that it may be more difficult to influence households' savings compared with altering budgeting behavior by using a traditional program of financial education. Moreover, classroom-based models may not be adequate to address cognitive barriers or resource constraints that are likely to inhibit households from changing their current savings practices.

The results on add-on treatments indicate that the type and intensity of the intervention has a significant influence on savings. Incorporating goal setting and/or counseling did produce changes in savings behavior, and our results offer insights into the mechanisms of impact. Participants who received goal setting in addition to financial education were six percentage points more likely than the control group to save informally (in a neighborhood fund or at home) and eight percentage points more likely to save formally at a bank. Both these results are significant at the 5% level. By contrast, the results for counseling are different: we find no significant effect of adding counseling on informal savings but a 13-percentage-point improvement in the likelihood of opening a formal bank account over the control group, a result that is statistically significant at the 1% level. The p -value on the F -test comparing the combined financial education and counseling treatments against financial education alone is 0.021, suggesting significant marginal improvements over financial education alone as a result of the add-on counseling treatment.

These results suggest that while financial education classes and goal setting can inform and encourage people to save, respectively, they still may lack the skills

needed to open and maintain a bank account. While goal setting did appear to increase the likelihood of saving, the effects of counseling are honed in on formal savings, with an effect size nearly double that of goal setting. Counseling thus appears to enable participation in the formal financial sector and, as with budgeting, serves as a bridge that enables individuals to convert their acquired financial knowledge into financial actions.

Finally, sustained behavior change in household investments in fixed or recurring deposits (column (6)) appears more difficult to achieve. Combining financial education with both goal setting and counseling led to a modest four-percentage-point increase in the likelihood of repeated deposits; however, this result is only significant at the 10% level. Neither financial education alone nor financial education combined with personalized counseling yielded significant effects on fixed or recurring deposits.

4.2.3. Borrowing. Households in our study had the ability to borrow money from many different sources. These included private banks, cooperative societies, microfinance institutions (MFIs), credit and savings groups, moneylenders, employers, shopkeepers, pawnbrokers, and family and friends, among others. But almost all of these options share two important features. First, the loans charged a very high interest rate, driven not only by the risk in lending to the poor but also by the short-term nature of the loans, the relatively small size of the principal, and other transaction costs (e.g., Collins et al. 2009). In our sample period, banks and MFIs in India typically priced loans at 17%–24% interest per annum, while moneylenders were at 50% per annum or above. Second, many lenders often charged additional costs when taking out a loan. These could be loan processing fees, which were usually 1%–2% of the loan amount; documentation fees or stamp duties, which are fixed amounts regardless of the loan size typically about ₹110 (US\$ 2); or up-front interest charges that ultimately increase the effective interest rate of the loan.

Since the cost of credit in our research setting was quite high, the financial education course taught the importance of borrowing wisely, the responsible use of loans, and healthy borrowing behavior. Specifically, the video session on borrowing instructed participants on understanding the different components of loan costs: comparing interest rates across different options, accounting for additional or potentially hidden fees, and recognizing loan terms that are likely to impact the overall price of the loan. Notably, the video also explained in simple, accessible language the distinction between productive loans (e.g., borrowing to buy an asset) versus unproductive loans (e.g., borrowing for consumption). The outcomes that we consider are therefore those behaviors directly related to

Table 6. Household Savings

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--|---------------------|---------------------|-----------------------------|---------------------|--|-------------------|
| | Informal savings | | Formal bank savings account | | Investments in fixed or recurring deposits | |
| <i>Any Treatment</i> | 0.036*** (0.012) | | 0.082*** (0.022) | | 0.022 (0.014) | |
| <i>Financial Education Only</i> | | −0.000 (0.020) | | 0.023 (0.030) | | 0.006 (0.021) |
| <i>Financial Education and Goal Setting</i> | | 0.062** (0.025) | | 0.082** (0.039) | | 0.020 (0.020) |
| <i>Financial Education and Financial Counseling</i> | | 0.015 (0.023) | | 0.132*** (0.040) | | 0.022 (0.022) |
| <i>All Three Treatments</i> | | 0.070*** (0.020) | | 0.095** (0.038) | | 0.041* (0.022) |
| R-squared | 0.184 | 0.190 | 0.207 | 0.211 | 0.133 | 0.135 |
| Number of observations | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 |
| Mean of dependent variable in control group | 0.079 | 0.079 | 0.293 | 0.293 | 0.043 | 0.043 |
| F-test p-value: <i>Financial Education and Goal Setting</i> = <i>Financial Education</i> | | 0.060 | | 0.194 | | 0.588 |
| F-test p-value: <i>Financial Education and Financial Counseling</i> = <i>Financial Education</i> | | 0.591 | | 0.021 | | 0.587 |
| F-test p-value: <i>All Three Treatments</i> = <i>Financial Education</i> | | 0.014 | | 0.105 | | 0.228 |

Notes. This table presents regression results on household savings from an endline survey conducted 10 months after the conclusion of the financial education program. The sample consists of respondents from all four waves of the study, and the table shows intention-to-treat effects. *Any Treatment* is a dummy equal to 1 for an individual who received any financial education treatment. *Financial Education Only* is a dummy equal to 1 for an individual who was invited to the financial education classes but did not receive either financial counseling or goal setting. *Financial Education and Goal Setting* is a dummy equal to 1 for an individual who received the financial education and goal setting treatments but not the financial counseling treatment. *Financial Education and Financial Counseling* is a dummy equal to 1 for an individual who received the financial education and counseling treatments but not the goal setting treatments. *All Three Treatments* is a dummy equal to 1 for an individual who received all three—financial education, financial counseling, and goal setting treatments. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

the financial education course such as whether respondents are aware of the terms of their loan. We also examine outcomes on whether respondents borrowed for the purpose of business, education, or purchasing durable goods, which are examples of productive loans discussed in the program, rather than borrowing for unforeseen expenses or repaying other debt, which may be unproductive loans as well as potential warning signs of unhealthy financial habits.

The results for borrowing are presented in Table 7. In columns (1), (3), (5), (7), (9), and (11), we report impacts of being invited to any financial education treatment on outstanding loans (column (1)); planned borrowing in the next year (column (3)); and among the sample who took out loans since the conclusion of financial education classes, the following: knowledge of loan terms (column (5)), positive borrowing (e.g., for business, education, or durable goods) (column (7)), negative borrowing for unforeseen circumstances (column (9)), and borrowing to repay other debt (column (11)). Findings suggest that financial education yields only modest effects on household borrowing. While the treatment effect on knowledge of interest rates is positive and significant, we observe no significant difference in

outstanding loans, planned borrowing, or use of loans for productive purposes.

As with budgeting and savings, the medium of instruction is important for influencing household borrowing outcomes. First, the positive impact on knowledge of interest rate terms of loans is not statistically significant among participants who received only financial education or financial education with goal setting. By contrast, those who received financial education with financial counseling or all three treatments show significant improvements in knowledge. Consistent with the results on budgeting and savings, this result highlights the value of individualized counseling in improving the readiness of households for financial products.

On financial behavior, the results show a similar pattern, and financial education alone had no impact on participants' propensity to borrow or their reasons for borrowing. By contrast, adding goal setting and financial counseling did affect these outcomes. Goal setting had a suppressive effect on borrowing for the future (column (4)) with participants six percentage points less likely to take out a loan in the next two years, an effect that is statistically significant at the 10% level.

Table 7. Household Borrowing

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|--|------------------|-------------------------|---|--------------------|--------------------------------|--------------------|---|-------------------|--------------------------------------|---------------------|-----------------------------------|-------------------|
| | | Has outstanding loan | Plans on taking a loan in next two years | | Knows details of loan terms | | Loan purpose: Business, education, or purchase of durable goods | | Loan purpose: Unforeseen expenses | | Loan purpose: Repay other debt | |
| <i>Any Treatment</i> | 0.025 (0.030) | | −0.035 (0.028) | | 0.107** (0.046) | | 0.056 (0.046) | | −0.016 (0.010) | | −0.007 (0.031) | |
| <i>Financial Education Only</i> | | 0.024 (0.038) | | −0.026 (0.041) | | 0.099 (0.066) | | 0.094 (0.070) | | 0.001 (0.020) | | −0.051 (0.046) |
| <i>Financial Education and Goal Setting</i> | | 0.005 (0.043) | | −0.064* (0.033) | | 0.057 (0.066) | | −0.018 (0.073) | | −0.025** (0.012) | | −0.001 (0.043) |
| <i>Financial Education and Financial Counseling</i> | | 0.041 (0.047) | | −0.027 (0.038) | | 0.103* (0.057) | | 0.118* (0.063) | | −0.020* (0.011) | | −0.014 (0.041) |
| <i>All Three Treatments</i> | | 0.029 (0.043) | | −0.023 (0.045) | | 0.169** (0.065) | | 0.023 (0.062) | | −0.018* (0.011) | | 0.037 (0.044) |
| R-squared | 0.212 | 0.212 | 0.136 | 0.136 | 0.341 | 0.346 | 0.282 | 0.290 | 0.273 | 0.277 | 0.281 | 0.287 |
| Number of observations | 1,235 | 1,235 | 1,235 | 1,235 | 404 | 404 | 536 | 536 | 536 | 536 | 536 | 536 |
| Mean of dependent variable in control group | 0.619 | 0.619 | 0.293 | 0.293 | 0.698 | 0.698 | 0.320 | 0.320 | 0.023 | 0.023 | 0.110 | 0.110 |
| F-test p-value: <i>Financial Education and Goal Setting</i> = <i>Financial Education</i> | | 0.662 | | 0.388 | | 0.549 | | 0.231 | | 0.190 | | 0.303 |
| F-test p-value: <i>Financial Education and Financial Counseling</i> = <i>Financial Education</i> | | 0.747 | | 0.966 | | 0.957 | | 0.777 | | 0.280 | | 0.412 |
| F-test p-value: <i>All Three Treatments</i> = <i>Financial Education</i> | | 0.915 | | 0.961 | | 0.297 | | 0.381 | | 0.323 | | 0.160 |

Notes. This table presents regression results on household borrowing from an endline survey conducted 10 months after the conclusion of the financial education program. The sample in columns (1)–(4) consists of respondents from all four waves of the study and shows intention-to-treat effects. The sample in columns (5)–(12) consists of respondents from all four waves of the study who took out a loan since the conclusion of the financial education program. *Any Treatment* is a dummy equal to 1 for an individual who received any financial education treatment. *Financial Education Only* is a dummy equal to 1 for an individual who was invited to the financial education classes but did not receive either financial counseling or goal setting. *Financial Education and Goal Setting* is a dummy equal to 1 for an individual who received the financial education and goal setting treatments but not the financial counseling treatment. *Financial Education and Financial Counseling* is a dummy equal to 1 for an individual who received the financial education and counseling treatments but not the goal setting treatments. *All Three Treatments* is a dummy equal to 1 for an individual who received all three—financial education, financial counseling, and goal setting treatments. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status.

***Indicates statistical significance at the 1% level; **Indicates statistical significance at the 5% level; *Indicates statistical significance at the 10% level.

The coefficients on other treatments are negative as well but not statistically significant.

Goal setting also significantly reduced the likelihood of taking out loans for unforeseen expenses (column (10)), and this effect is similar in the financial counseling and the combined groups. Financial counseling additionally had a positive impact on borrowing for productive purposes with borrowers 12 percentage points more likely than the control group to have borrowed for business, education, or purchase of durable goods.

4.2.4. Insurance. Like much of the developing world, urban poor households in India encounter substantial risks in their everyday lives, including nonchronic and chronic illnesses, loss of life, loss of work, theft, and fire (e.g., Kantor and Nair 2003). Although these risks have important implications for both rich and poor households, the consequences are likely much direr for the poor because of their low and unstable income. Our study households represent a microcosm of this larger picture. At baseline, for example, 71% of subjects reported that at least one member of their household was ill in the last three months. Of those that did visit a medical facility for their sickness, the mean cost of one visit at a health facility was ₹1,349 with a standard deviation of ₹3,820—quite substantial in comparison to the baseline per-capita monthly income of ₹1,272.

Under such settings, insurance can be an important product in a household's financial portfolio. However, take-up remains very low—for example, baseline health insurance ownership in our sample was very low at a meager 8%. The financial education program, therefore, aimed to raise awareness about the value and suitability of insurance. In our sample period, several actuarially fair insurance products were available for study participants. For instance, in the case of health insurance, subjects were eligible for India's national insurance scheme for the poor, the Rashtriya Swasthya Bima Yojna (RSBY), which is still operational. The RSBY provides insurance of ₹30,000 for a family of up to five members, covering preexisting conditions, hospitalization, surgeries, and child deliveries, among others. The premiums for this insurance scheme are fully subsidized by both the central and state governments: households are required to pay only ₹30 (less than US\$1) per year in registration fees.¹⁷ This very low cost, together with the relatively high incidence of illness that our subjects reported at baseline, suggests that failure to adopt insurance may not have been an optimal choice on the part of respondents.

In the case of life insurance, no similar public option was available, but the market had a variety of options, with 23 life insurers operating across India during our study period.¹⁸ Another pertinent outcome we study is adoption of debt insurance. In India, debt insurance is a financial instrument that insures a loan so that in the event of the borrower's death, the outstanding

loan amount is settled by the insurer. These insurance policies are typically available through banking institutions, MFIs, and insurance providers. Some lenders, such as banks and MFIs, often require borrowers to adopt debt insurance before the loan can be disbursed. And because such insurance is part of the package of obtaining credit, it poses additional costs to the loan that borrowers may not have been aware of. Considering debt insurance take-up as an outcome, therefore, allows us to examine whether respondents understood this aspect of the credit market, especially given the financial education program's emphasis on fostering participants' understanding of loan costs.

Finally, we note that all insurance providers in India operate under the umbrella of the Insurance Regulatory and Development Authority of India (IRDAI), whose main mission is "to protect the interest of and secure fair treatment of policyholders."¹⁹ The IRDAI has a Consumer Affairs Department that is devoted exclusively to issues faced by policyholders. In addition, the Policyholder Protection Act of 2002 requires insurance companies to have effective and timely grievance redress mechanisms in place. The IRDA monitors the redress systems of insurers and operates a Grievance Call Center that provides an additional avenue through which consumers may file complaints. To prevent any fraud, the IRDAI also conducts on-site inspections of insurance companies and reviews the qualifications of insurance agents. Together, these regulations on grievance redress, monitoring, and scrutiny help to ensure the viability of insurance products and providers as well as to safeguard policyholders against any unfair practices.

The results for insurance as the outcome of interest are presented in Table 8. In columns (1), (3), and (5), we report impacts of being invited to any financial education treatment on purchases of health insurance (column (1)), life insurance (column (3)), and debt insurance (column (5)) within the last six months. Despite the foregoing discussion of the value and availability of suitable products on the market, our financial education program had very limited impact on insurance outcomes, with minimal adoption of insurance products in the 6–10 months following the program.

While traditional financial education alone caused no significant changes in the take-up of insurance products compared with the control group, there is some modest evidence that a combination of high-intensity interventions yielded impacts on adoption of certain types of insurance. In particular, those who received all three treatments were five percentage points more likely to purchase life insurance. However, these effects do not hold for other types of insurance, such as debt or health insurance. No combination of financial education, goal setting, or counseling enticed participants to purchase these products.

Table 8. Household Insurance

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|--|-------------------|--|--------------------|--|-------------------|
| | Bought health insurance in last 6 months | | Bought life insurance in last 6 months | | Bought debt insurance in last 6 months | |
| <i>Any Treatment</i> | −0.000 (0.009) | | 0.018 (0.011) | | 0.002 (0.003) | |
| <i>Financial Education Only</i> | | −0.003 (0.011) | | −0.004 (0.015) | | 0.009 (0.007) |
| <i>Financial Education and Goal Setting</i> | | 0.000 (0.011) | | −0.011 (0.015) | | 0.002 (0.005) |
| <i>Financial Education and Financial Counseling</i> | | 0.006 (0.010) | | 0.033 (0.022) | | −0.003 (0.003) |
| <i>All Three Treatments</i> | | −0.004 (0.014) | | 0.054** (0.022) | | −0.002 (0.003) |
| R-squared | 0.138 | 0.138 | 0.141 | 0.151 | 0.065 | 0.070 |
| Number of observations | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 |
| Mean of dependent variable in control group | 0.014 | 0.014 | 0.034 | 0.034 | 0.002 | 0.002 |
| F-test p-value: <i>Financial Education and Goal Setting = Financial Education</i> | | 0.804 | | 0.667 | | 0.462 |
| F-test p-value: <i>Financial Education and Financial Counseling = Financial Education</i> | | 0.507 | | 0.112 | | 0.122 |
| F-test p-value: <i>All Three Treatments = Financial Education</i> | | 0.937 | | 0.011 | | 0.144 |

Notes. This table presents regression results on household insurance from an endline survey conducted 10 months after the conclusion of the financial education program. The sample consists of respondents from all four waves of the study, and the table shows intention-to-treat effects. *Any Treatment* is a dummy equal to 1 for an individual who received any financial education treatment. *Financial Education Only* is a dummy equal to 1 for an individual who was invited to the financial education classes but did not receive either financial counseling or goal setting. *Financial Education and Goal Setting* is a dummy equal to 1 for an individual who received the financial education and goal setting treatments but not the financial counseling treatment. *Financial Education and Financial Counseling* is a dummy equal to 1 for an individual who received the financial education and counseling treatments but not the goal setting treatments. *All Three Treatments* is a dummy equal to 1 for an individual who received all three—financial education, financial counseling, and goal setting treatments. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

These results indicate that participants likely faced additional cognitive and behavioral constraints to the take-up of insurance. One reason is that participants may view insurance products as a luxury that will not add value in the short run. Financial education will thus have a limited impact on insurance adoption relative to budgeting and savings, which are cognitively and financially easier for participants to implement. Insurance products are also relatively new in India, and the absence of peer effects and knowledge of long-term returns may partly explain participants' reluctance to purchase insurance. Because of these constraints, decisions regarding insurance may be more difficult to influence through financial education compared with decisions regarding savings, borrowing, and budgeting.

4.3. Discussion of Findings on Financial Behavior

Our finding that traditional adult financial education alone did not lead to substantial changes in financial behavior is not surprising and draws parallels with the existing literature. For example, Collins (2013) finds that a mandatory financial education course for

low-income families enrolled in the Federal Housing Choice Voucher program had no significant effect on savings. Similarly, Cole et al. (2011) find that financial literacy training in Indonesia had no significant effect on the likelihood of a household opening a bank account except among those with low initial levels of education and financial literacy.

In general, the literature finds that financial behavior changes are much harder to elicit using traditional financial education programs. A meta-analysis conducted by Fernandes et al. (2014) finds that interventions to improve financial literacy explain only 0.1% of the variance in financial behaviors studied, with weaker effects in low-income samples. Gartner and Todd (2005), for example, evaluate a randomized credit education plan for first-year college students in the United States and find no statistically significant differences between the control and treatment groups in their credit balances or timeliness of payments.

The literature does find better impacts when we move away from traditional delivery channels for financial education. For instance, Drexler et al. (2014) examine the impact of two different financial

education programs targeted at microentrepreneurs in the Dominican Republic. Members of the first treatment group participated in several sessions of traditional, principles-based financial education; members of the second treatment group participated in several sessions of financial education oriented around simple financial management rules of thumb. Relative to the control group, the authors find no difference in the financial behaviors of the treatment group who received traditional financial education. They do, however, find statistically significant and economically meaningful improvements in the behavior of the rule-of-thumb treatment group. The results of this study suggest that the structure of financial education matters in determining its effects on behaviors, and it might help explain why many other studies have found much weaker links between financial education and economic outcomes.

Results from other nontraditional financial education interventions have also shown significant effects on outcomes. Bruhn et al. (2016) find that a comprehensive financial education program targeting Brazilian high school students improved financial knowledge, attitudes toward financial products, and financial behaviors. Similarly, Berg and Zia (2017) use entertainment media to deliver financial education messages on debt management to the public in South Africa and find statistically significant improvements in content-specific financial knowledge and borrowing behavior.

The important distinction to note is that these programs are quite different from traditional financial education interventions. The program analyzed by Bruhn et al. (2016) targeted high school students and included study materials, teacher training, monitoring, and participation awards. The program was delivered by regular teachers and integrated into classroom curricula, and schools with high levels of participation received awards and public recognition; treatment intensity, then, was much higher than in most financial education initiatives. The soap opera intervention in South Africa analyzed by Berg and Zia (2017) is also unique. Instead of relying on a traditional classroom approach, the program targeted people in their home environments without placing an emphasis on financial education, and the story line lasted for approximately two months.

In light of the knowledge that innovative methods for delivering financial education can improve its effects on outcomes, our paper investigates the ways that classroom-based financial education can be improved. By addressing three specific factors—participant motivation, goal setting, and program intensity—that may prevent financial education from benefitting recipients unless exclusively addressed, our results provide new insight into effective strategies to promote financial education.

We find that traditional financial education is largely ineffective in terms of changing financial behaviors, despite its positive effects on financial attitudes and awareness. Yet we also find that certain small changes to financial education can strengthen the “link” between education and outcomes. While interventions that include behavioral components such as goal setting have been studied before, our analysis, to our knowledge, is the first to study these interventions in the same experiment and in combination with other approaches to encourage behavioral change. Previous literature has not fully explored the disconnect between financial education and financial outcomes, and it has therefore missed a crucial element of any program attempting to help improve financial behaviors.

We find that simple nonbinding goals can address some of the hard-to-change financial behaviors, including the setting of monthly budgets and savings. Financial counseling facilitates further sustained action, such as making a household budget regularly, saving in formal bank accounts, knowing details of loan terms, and borrowing for productive purposes. We note four components of our findings and study setting that shed light on the mechanisms behind the strong effects of financial counseling. First, respondents in our sample had limited schooling, and as seen in Table 2, 47% report completing elementary school but only 4% for secondary school. Second, even though participants in the financial counseling treatment could request the counselor for assistance on any aspect of money management (e.g., preparing a budget, contacting an insurance provider), our data show that a majority of these respondents sought the counselor’s help for opening a formal bank savings account. Third, the financial education program emphasized the benefits of both informal and formal savings, yet adding counseling yielded much larger effects on the take-up of formal savings accounts than financial education on its own. And fourth, financial counseling had significant effects on formal savings, which require specific documents, but not informal savings, which often rely only on personal relationships.

These findings indicate several underlying reasons that might explain the positive impacts of counseling on financial behaviors that are typically difficult to change. For formal savings, they could suggest that respondents’ inability to fill out forms could have been a critical constraint to adopting a bank account. Respondents may have found application forms overwhelming, given the low levels of education in our sample. We note, however, that the bank account-opening requirements in our setting were already quite minimal; respondents could open a no-frills savings account by submitting only a photograph, signature, and a nominal amount for the bank account opening

balance. On the other hand, the significant effects of counseling on formal savings that we observe could also be due to respondents' apprehension about interacting with formal banks. Existing studies have shown that trust may be an important barrier to adoption of formal financial services (e.g., Cole et al. 2013). Because the counselors accompanied respondents to the bank, doing so may have increased the respondents' level of ease in dealing with a formal institution.

As most subjects in our study were illiterate, the financial counselor provided households with assistance throughout all steps in the process of opening a bank savings account, from gathering the required documents, to filling out applications, to accompanying respondents to the bank branch. As a consequence, we are ultimately unable to isolate the specific mechanism at play and, in particular, to assess the merits of simplifying the bank account-opening requirements. We believe these are excellent empirical questions for future research.

5. Conclusion

This paper studies a large-scale field experiment among urban households in India to highlight the limitations of financial education and identify important complements that can enable financial education to successfully improve financial behavior. Specifically, we find that financial education alone improves financial awareness and attitudes but falls short of improving longer-term behavioral outcomes on budgeting,

savings, and borrowing. In comparison, the addition of individually tailored interventions in the form of financial goal setting and particularly financial counseling are more successful in helping individuals circumvent behavioral and cognitive constraints.

Taken together, our findings suggest that financial education can yield significant improvements in financial knowledge and behavior when sufficient attention is paid to the delivery model. Moreover, our results suggest that traditional classroom-based financial education alone has limited ability to affect long-term financial behavior, but adding more personalized and motivational complements can enable such outcomes. An important avenue for future research is to carefully examine the trajectory of effects over a longer time horizon as the impacts of financial education, goal setting, and financial counseling may sustain differently over time.

Acknowledgments

The authors are very grateful to Saath Microfinance for their constant support. They thank Stuti Tripathi, Bhakti Shah, and the Center for Microfinance at the Institute for Financial Management and Research for excellent field work and research assistance. The authors also thank Annamaria Lusardi, David McKenzie, Xavier Gine, Arie Kapteyn, Simon Galle, and seminar participants at the World Bank, Harvard University, Yale University, University of Colorado Boulder, and the American Economic Association meetings for comments, and the World Bank's *Development Impact* and *All About Finance* blogs for coverage.

Appendix

Table A.1. Short-Term Impact on Financial Numeracy—Individual Questions

| | (1) | (2) | (3) | (4) | (5) |
|---|---|--|-------------------------------|---|------------------------|
| | ₹3,000 cover—₹950 premium vs. ₹2,000 cover—₹900 premium | ₹70 10 mos. from now vs. ₹50 at 5% per month for 10 mos. | 14% per month vs. 2% per week | ₹3,000 cover—₹950 premium vs. ₹2,800 cover—₹800 premium | Wrote budget correctly |
| <i>Financial Education</i> | −0.033 (0.035) | −0.013 (0.037) | 0.046 (0.041) | −0.051 (0.037) | 0.009 (0.031) |
| <i>Pay for Performance</i> | −0.012 (0.038) | 0.087* (0.044) | −0.034 (0.034) | −0.016 (0.047) | −0.022 (0.029) |
| <i>Interaction of Financial Education and Pay for Performance</i> | 0.053 (0.055) | −0.041 (0.054) | −0.021 (0.053) | 0.017 (0.058) | 0.021 (0.039) |
| <i>R-squared</i> | 0.133 | 0.150 | 0.136 | 0.135 | 0.237 |
| <i>Number of observations</i> | 1,256 | 1,256 | 1,256 | 1,256 | 1,256 |
| <i>Mean of dependent variable in control group</i> | 0.422 | 0.686 | 0.701 | 0.686 | 0.735 |
| <i>F-test p-value: Financial Education + Interaction = 0</i> | 0.591 | 0.164 | 0.549 | 0.481 | 0.296 |

Notes. This table presents regression results on individual questions on financial numeracy from a survey conducted three weeks after the conclusion of the financial education program. The table shows intention-to-treat effects. *Financial Education* is a dummy equal to 1 for an individual who was invited to the financial education treatment. *Pay for Performance* is an orthogonal treatment and is a dummy equal to 1 for an individual who was offered a monetary incentive for correct answers to financial knowledge questions. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali (neighborhood), and microfinance borrower status.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

Table A.2. Short-Term Impact on Financial Awareness—Individual Questions

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|--|--|--|----------------------------------|---|--|-----------------------|---|---|
| | Knows to include both income and expenses in HH budget | Knows can open an account with as low as ₹50 | Knows about bank processing fees | 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 |
| <i>Financial Education</i> | 0.035 (0.030) | 0.156*** (0.040) | 0.131*** (0.037) | 0.009 (0.018) | 0.007 (0.047) | −0.020 (0.035) | 0.058 (0.043) | 0.196*** (0.038) |
| <i>Pay for Performance</i> | −0.011 (0.046) | −0.024 (0.039) | 0.078 (0.063) | −0.031 (0.024) | 0.005 (0.043) | 0.025 (0.055) | −0.026 (0.063) | 0.014 (0.049) |
| <i>Interaction of Financial Education and Pay for Performance</i> | 0.034 (0.051) | 0.026 (0.047) | −0.081 (0.067) | 0.054* (0.028) | 0.004 (0.054) | 0.069 (0.070) | −0.010 (0.072) | −0.008 (0.061) |
| R-squared | 0.134 | 0.137 | 0.163 | 0.095 | 0.116 | 0.113 | 0.124 | 0.200 |
| Number of observations | 993 | 993 | 993 | 993 | 993 | 993 | 993 | 993 |
| Mean of dependent variable in control group | 0.843 | 0.669 | 0.614 | 0.958 | 0.705 | 0.554 | 0.566 | 0.620 |
| F-test <i>p</i> -value: <i>Financial Education + Interaction</i> = 0 | 0.047 | 0.000 | 0.286 | 0.002 | 0.758 | 0.360 | 0.416 | 0.001 |

Notes. This table presents regression results on individual questions on financial awareness from a survey conducted three weeks after the conclusion of the financial education program. The table shows intention-to-treat effects. *Financial Education* is a dummy equal to 1 for an individual who was invited to the financial education treatment. *Pay for Performance* is an orthogonal treatment and is a dummy equal to 1 for an individual who was offered a monetary incentive for correct answers to financial knowledge questions. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status. HH, household.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

Table A.3. Short-Term Impact on Financial Attitudes—Individual Questions

| | (1) | (2) | (3) | (4) | (5) |
|--|--|--|--------------------------------|---|---|
| | 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 one loan and buying smaller TV |
| <i>Financial Education</i> | 0.104** (0.045) | 0.034 (0.038) | 0.196*** (0.066) | 0.057 (0.044) | 0.019 (0.028) |
| <i>Pay for Performance</i> | −0.016 (0.063) | 0.031 (0.071) | −0.082 (0.076) | −0.015 (0.059) | −0.003 (0.039) |
| <i>Interaction of Financial Education and Pay for Performance</i> | −0.021 (0.071) | −0.011 (0.078) | 0.047 (0.088) | −0.007 (0.059) | −0.003 (0.043) |
| R-squared | 0.189 | 0.126 | 0.200 | 0.134 | 0.134 |
| Number of observations | 591 | 591 | 591 | 591 | 591 |
| Mean of dependent variable in control group | 0.762 | 0.851 | 0.515 | 0.921 | 0.950 |
| F-test <i>p</i> -value: <i>Financial Education + Interaction</i> = 0 | 0.109 | 0.693 | 0.001 | 0.151 | 0.608 |

Notes. This table presents regression results on individual questions on financial attitudes from a survey conducted three weeks after the conclusion of the financial education program. The table shows intention-to-treat effects. *Financial Education* is a dummy equal to 1 for an individual who was invited to the financial education treatment. *Pay for Performance* is an orthogonal treatment and is a dummy equal to 1 for an individual who was offered a monetary incentive for correct answers to financial knowledge questions. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali, and microfinance borrower status. HH, household.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

Table A.4. Longer-Term Impact on Financial Knowledge—Individual Questions

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|--|--------------------|-------------------|--|--|--|---|--|--|--------------------------------|
| | Financial numeracy | | Financial attitudes | | | | | | |
| | | | Financial awareness | | | | | | |
| | | | Knows to include both income and expenses in HH budget | Knows can open an account with as low as ₹50 | Knows will get money back if bank closes | Knows borrowing money for Diwali is unproductive loan | Would suggest purchasing insurance to construction worker friend | Would suggest opening bank account to friend w/ bright child | Would suggest making HH budget |
| Financial Education | −0.022 (0.040) | −0.019 (0.035) | 0.071*** (0.023) | 0.160*** (0.038) | 0.045 (0.037) | 0.141*** (0.047) | 0.058** (0.025) | −0.011 (0.036) | 0.240*** (0.046) |
| Pay for Performance | −0.084 (0.054) | 0.026 (0.041) | −0.036 (0.031) | 0.001 (0.045) | −0.012 (0.036) | −0.052 (0.060) | 0.060* (0.035) | −0.086** (0.033) | −0.048 (0.044) |
| Interaction of Financial Education and Pay for Performance | 0.090 (0.066) | −0.029 (0.050) | 0.055 (0.037) | 0.013 (0.054) | 0.040 (0.051) | 0.096 (0.074) | −0.077* (0.040) | 0.103** (0.043) | 0.045 (0.058) |
| R-squared | 0.141 | 0.132 | 0.164 | 0.217 | 0.149 | 0.162 | 0.119 | 0.176 | 0.238 |
| Number of observations | 972 | 972 | 972 | 972 | 972 | 972 | 972 | 972 | 972 |
| Mean of dependent variable in control group | 0.655 | 0.786 | 0.851 | 0.625 | 0.702 | 0.548 | 0.815 | 0.821 | 0.565 |
| F-test p-value: Financial Education + Interaction = 0 | 0.168 | 0.208 | 0.000 | 0.000 | 0.052 | 0.000 | 0.562 | 0.008 | 0.000 |

Notes. This table presents regression results on individual questions on financial numeracy, awareness, and attitudes from an endline survey conducted 10 months after the conclusion of the financial education program. The table shows intention-to-treat effects. *Financial Education* is a dummy equal to 1 for an individual who was invited to the financial education treatment. *Pay for Performance* is an orthogonal treatment and is a dummy equal to 1 for an individual who was offered a monetary incentive for correct answers to financial knowledge questions. Results are reported with robust standard errors clustered at the wave-class level. All regressions include monthly discount rate at baseline as well as strata dummies, where strata are defined by gender, chali (neighborhood), and microfinance borrower status. HH, household.

***Indicates statistical significance at the 1% level; **indicates statistical significance at the 5% level; *indicates statistical significance at the 10% level.

Endnotes

¹For example, the United States adopted a President's Advisory Council on Financial Literacy in 2008 to help promote financial education at all levels of the economy, the UK government mandated compulsory financial education in schools from 2012 onward, the Indonesian government declared 2008 as the year of financial education, the Reserve Bank of India launched a series of financial literacy and counseling centers across the country in 2007, Brazil and many other developing countries have incorporated national strategies for improving financial education, and private and multilateral agencies such as Citibank and the World Bank have multimillion-dollar programs on financial education throughout the developed and developing world.

²For example, Duflo and Saez (2003) find that a benefits information session improved retirement savings contributions at a U.S. university, Cole et al. (2011) show that a financial education program in Indonesia had no impact on bank savings, and Chong et al. (2010) discontinued their study of a video- and radio-based financial education course because of logistical challenges and low take-up. See Fernandes et al. (2014), Miller et al. (2015), Hastings et al. (2013), and Xu and Zia (2012) for literature reviews.

³As discussed in Locke and Latham (2002), goals affect performance through the following four mechanisms: (1) providing direction, (2) invoking energy, (3) affecting persistence, and (4) leading to the discovery and/or use of relevant knowledge and strategies. Goal setting has also been shown to have positive effects on financial decisions such as savings, spending, and debt repayments (e.g., Agarwal et al. 2014, Bartels and Sussman 2015 Salisbury 2014, Soman and Zhao 2011, Ülkümen and Cheema 2011).

⁴Collins and O'Rourke (2010) provide a literature review on financial counseling services.

⁵During our field operations, it was also possible that every third or fifth household may be selected, depending on the size of the neighborhood.

⁶See Fernandes et al. (2014) for a review.

⁷Miller et al. (2015) find in their meta-analysis that more than one-third of financial education programs are delivered within one week or less.

⁸For example, Chong et al. (2010) report that a video- and radio-based financial literacy program in Peru had to be discontinued because of low implementation levels and meager attendance. Bruhn et al. (2014) echo these results, describing low take-up of financial education among adults in Mexico as well as poor participation rates during the workshop itself.

⁹The study team did not produce the health videos; rather, we utilized videos previously used in Gujarat by the United Nations for health education promotion. Online Appendix I explains the content of both the financial education and health videos further.

¹⁰A related paper is Bruhn et al. (2014), which focuses on monetary rewards for attending a financial education program. Our study differs in that we focus on cash incentives to learn financial concepts (conditional on attendance), and not attendance itself.

¹¹For example, one hypothetical question asked what type of financial advice would be appropriate for a family where the main income earner had an inherently risky job working on the exterior of tall buildings. Respondents were asked to choose between the following three recommendations: (a) he should quit his job, (b) the family should start saving, or (c) he should buy accident insurance. The responses were then graded on a scale with (c) obtaining the highest score followed by (b). Hence, a higher score on the financial attitudes measure represents a better understanding of financial situations and attitudes toward appropriate solutions. The full set of questions is available in Online Appendix II. We acknowledge that responses to these types of questions may be influenced by the respondents' level of risk aversion.

¹²As an example, Rothkopf and Billington (1979) had high school students study a passage with goal-relevant and nonrelevant text.

Recording students' eye movements revealed that students fixated on goal-relevant sentences over twice as long as nonrelevant sentences because of the direction provided by the goal.

¹³Empirical evidence include Bryan and Locke (1967) and Bandura and Cervone (1983), among others.

¹⁴For instance, LaPorte and Nath (1976) found that subjects presented with a difficult goal for answering questions correctly about a reading passage studied longer, more persistently, and produced more correct answers when tested.

¹⁵For example, Earley and Perry (1987) show that when individuals are trained with the proper strategies, those with high-performance goals experience improvements as they were more likely to use the given strategies.

¹⁶A companion paper (Carpena et al. 2011) discusses measurement issues related to financial literacy and how our measures of financial knowledge allow for disaggregated impacts on numeracy, awareness, and attitudes.

¹⁷More details on RSBY can be found at http://www.rsby.gov.in/about_rsby.aspx (accessed November 17, 2016).

¹⁸There were 24 non-life insurers present in India during our study.

¹⁹See <https://www.irdai.gov.in/> (accessed November 17, 2016).

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