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ABSTRACT

We test the effectiveness of self-help peer groups as a commitment device for precautionary savings, through two randomized field experiments among 2,687 microentrepreneurs in Chile. The first experiment finds that self-help peer groups are a powerful tool to increase savings (the number of deposits grows 3.5-fold and the average savings balance almost doubles). Conversely, a substantially higher interest rate has no effect on most participants. A second experiment tests an alternative delivery mechanism and shows that effects of a similar size can be achieved by holding people accountable through feedback text messages, without any meetings or peer pressure.

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1 Introduction

Peer effects have been widely shown to affect behavior, for example with respect to productivity at work (e.g., Falk and Ichino, 2005; Mas and Moretti, 2009; Bandiera et al., 2010), alcohol consumption (e.g., Sacerdote, 2001; Kremer and Levy, 2008), contributions to public goods (e.g., Frey and Meier, 2004a; Shang and Croson, 2009; Chen et al., 2010; Allcott, 2011; DellaVigna et al., 2012), and financial decision-making (e.g, Duflo and Saez, 2002, 2003; Hong et al., 2004; Bursztyn et al., 2012). Individuals can use these effects strategically to overcome self-control problems by joining self-help peer groups as a commitment device (Battaglini et al., 2005; Schelling, 1984), such as for example Alcoholics Anonymous (AA), weight-loss groups, running groups, or savings clubs.[1] This approach is particularly important where other formal commitment devices are inaccessible. Notably in the area of savings, other mechanisms such as defaults and direct deposits from wages, which have been found to be highly effective (e.g. Madrian and Shea, 2001; Thaler and Benartzi, 2004), are not available to the millions of people worldwide who work in the informal sector or as independent entrepreneurs, and therefore do not have a formal wage bill.

We conducted two randomized field experiments among low-income micro-entrepreneurs in Chile to study the power of self-help peer groups as a commitment device for precautionary savings. Our first experiment, the "Peer Group Experiment," shows that self-help peer groups have a strong impact on savings. We offered 2,687 micro-entrepreneurs, who met regularly as members of a microcredit association, the opportunity to open a formal savings account. Participants were randomly assigned to one of three conditions: 1) a control condition where individuals only received the basic account; 2) a Self-Help Peer Group Treatment where participants additionally had the option to publicly announce their savings commitment, which was then monitored in the weekly meetings; and 3) a High Interest Rate Treatment with a 5% real interest rate (instead of the 0.3% in the basic account), which serves as a benchmark to measure the effectiveness of the Peer Group Treatment.

[1] Many "Use buddies and teams: exercise together, order each other's lunches" (Schelling, 1984, p. 7). For example, AA has more than 2m members world-wide, 1.3 of them in the US (www.aa.org), and each week an average of 1.3m participants attend a Weight Watchers meeting (www.weightwatchersinternational.com). Some have argued that an important function of ROSCAs (Rotating Savings and Credit Associations) is also to serve as peer group commitment device (Gugerty, 2007).

Participants assigned to the Peer Group Treatment deposit 3.5 times more often into the savings account, and their average savings balance is almost twice that of the control group. The Treatment-on-the-Treated effect of 7,400 Chilean pesos (about 15 USD) represents about 8% of monthly income and corresponds in size to the type of expenditures participants had expressed wanting to build a buffer stock for, such as unexpected doctor's visits and payments for heating, electricity or food during periods of short-term income fluctuation.[2] In contrast, for most participants, the strongly increased interest rate has a surprisingly small effect. While average savings increase somewhat, suggesting by linear extrapolation that the effect of self-help peer groups would correspond to an interest rate increase of about eight percentage points, quantile analysis reveals that most participants do not respond to the interest rate at all, neither in terms of amount saved, nor by reallocating their savings (for those who had a pre-existing lower-interest account).

Our second "Feedback Message Experiment" was conducted one year after the opening of the accounts and was designed to distinguish some of the mechanism behind the effectiveness of self-help peer groups. Such group meetings always consist of a bundle of different, potentially important elements: being observed by others/peer pressure, observing the behavior of others, goal setting, regular feedback and holding participants accountable for following through with their goals, information sharing, rewards, moral support, etc. The Feedback Message Experiment strips the treatment of many of these aspects in order to get more information about what might be driving the effect. Participants were assigned to one of two types of weekly feedback text messages, or to a control group. The results show that holding people accountable through the weekly feedback messages increases savings almost as much as self-help peer groups – even without any physical meetings.

In addition to the regular feedback and follow-up, we distinguished one treatment that includes the aspect of peer pressure – others observing the performance of the participant (Schelling, 1984) – from a second treatment that includes the aspect of observing the performance of others (Battaglini et al., 2005). Surprisingly, we find that the feedback message coupled with peer pressure by a real-life "Savings Buddy", who was regularly informed about the performance of the participant, has no larger effect than the feedback message that simply informs participants of their own achievement and the success rate

[2] While large amounts of savings would be suboptimal for a population that is borrowing at the same time, this type of precautionary savings is valuable at any level of debt, because of the different liquidity of savings and loans (Zinman, 2007).

of other participants. These results suggest that while peer groups can provide a highly effective commitment device, neither in-person meetings nor peer pressure seem to be indispensable features, and regular accountability and follow-up seem to play an important role. Modern technology – in the form of text messages or other feedback devices – may therefore render the accountability mechanism of self-help peer groups more scalable and potentially attractive to larger and different populations.

This paper makes contributions in three areas. First, it provides evidence on the role of peers to overcome self-control problems. Despite the large prevalence of self-help peer groups as a commitment device, there is surprisingly little evidence evaluating their effectiveness.[3] Our findings show that self-help peer groups can provide a way in which individuals can leverage their peers to support them towards an individual but mutually shared goal. After having found an effective policy to increase precautionary savings, it is helpful to understand what mechanism might be driving the result, in order to gain a better understanding about how the policy might be implemented or scaled most effectively (Ludwig et al., 2011). The Feedback Message Experiment takes a step in that direction. It starts to unbundle some of the mechanisms and at the same time provides an alternative delivery mechanism of the service provided by peer group meetings, that proves to be almost as effective. Combined with evidence that information about the savings behavior of peers has only limited effects (Beshears et al., 2009)[4] and that even simple regular reminders can increase savings (Karlan et al., 2010)[5], the results suggest that the regular feedback and follow-up could be more important to the success of self-help peer groups than the peers themselves.

Second, this paper speaks to the literature on commitment devices for saving. While much of the literature on savings commitment devices in developed countries has studied *deposit commitment devices* (e.g., Madrian and Shea, 2001; Thaler and Benartzi, 2004;

[3] Walsh et al. (1991) compare the effect of AA meetings to a hospital treatment. The effect of AA meetings *per se* is not tested, however. Jebb et al. (2011) compare a commercial Weight Watchers (WW) program to a standard program of care for obese individuals.

[4] The evidence on peer information is in general mixed. While positive effects have been found in some domains, such as electricity usage when bundled with tips to save energy (Ayres et al., 2009; Allcott, 2011) or contributions to public goods (Frey and Meier, 2004b), peer information has been shown to reduce work effort (Barankay, 2010) or lower take-up of tax credits (Manoli and Bhargava, 2011). For a discussion in psychology about the ambiguous effects of peer information, see Schultz et al. (2007).

[5] Reminders have also been found to be effective in other areas, for example to decrease overdraft bank fees (Stango and Zinman, 2011), or to improve books returns to the library (Apesteguia et al., 2010), repayment of loans (Cadena and Schoar, 2011), goal achievement in the workplace (Cadena et al., 2011), and vaccination rates (Milkman et al., 2011).

Carroll et al., 2009), most of the literature on developing countries has focused on *withdrawal commitment devices* (see, e.g., Ashraf et al., 2006b; Dupas and Robinson, 2012b; Brune et al., 2011, and Bryan et al., 2010 for a review article). With the notable exception of Ashraf et al. (2006a), who study the determinants of take-up for deposit collectors in the Philippines, our paper provides one of the first analyses of the effectiveness of a deposit commitment device for developing countries. Deposit commitment devices are particularly important for precautionary savings, since in contrast to withdrawal commitment devices, they limit the risk that the commitment device creates large welfare losses if an emergency arises, as the savings are always available in times of need. This paper demonstrates the effectiveness of a deposit commitment device that does not rely on a formal wage bill, and is therefore available to those working in the informal sector, the unemployed, or independent entrepreneurs.

Third, the results on the interest rate contribute to the discussion on the relative impact of 'social' or behavioral versus monetary incentives. While the finding that the interest rate has limited effectiveness for most individuals is of interest in and of itself,[6] it fits into a larger pattern of evidence showing the importance of social incentives (e.g., Bandiera et al., 2010; Barankay, 2010; Gneezy and Rey-Biel, 2011) and surprising limitations of monetary rewards for behavioral change and even for financial decisions (Gneezy et al., 2011; Choi et al., 2010). A new and rapidly growing literature uses field experiments to directly compare social and financial incentives (e.g. Bertrand et al., 2010; Ashraf et al., 2012). Beyond its general interest, this comparison is particularly relevant in the area of savings, as it has implications for the large number of government programs aimed at encouraging savings.

The remainder of the paper is organized as follows: Section 2 presents set-up and design of both field experiments. Section 3 and 4 show the results of the Peer Group Experiment and the Feedback Message Experiment respectively, and Section 5 concludes.

[6] There has been surprisingly little micro-empirical evidence on the impact of interest rates on savings. A notable exception is an experiment by Schaner (2011) in Kenya, which randomly varies interest rates to study decision-making in couples with heterogeneous time preferences.

2 Background, Data, and Design of Experiments

2.1 Background and Data

Both randomized field experiments for this study were conducted in collaboration with the microfinance institution Fondo Esperanza (FE), and a large commercial bank, Banco Credichile. The context of FE is particularly suitable to analyze the role of self-help peer groups as a savings commitment device for those outside the formal labor market. The study participants were members of FE, and the savings accounts that were offered were held with Banco Credichile. Members of FE are self-employed micro-entrepreneurs (e.g., street vendors, cosmetic saleswomen), many of whom work in the informal sector. They meet regularly, on a weekly or biweekly basis, in groups of about 10-20 peers, together with a group supervisor from FE. The purpose of the meetings is to enforce the regular repayment of the micro-loans that participants receive from FE in 3-month cycles for investment in their micro-enterprise. This feature allowed us to incorporate the peer group-based commitment structure.

Members expressed substantial desire to increase their savings. Sixty-eight percent said they frequently regret not having saved more. In focus groups conducted before the intervention,[7] many mentioned the goal of building savings as a buffer stock for emergencies. The main reason why they were looking to build savings, while borrowing at the same time borrowing from the microfinance organization, is the difference in liquidity (see also Zinman, 2007). The rigid schedule of the micro-loans renders them unsuitable to cover irregular or unexpected financial needs (Karlan and Mullainathan, 2009). However, given this precautionary motive, the optimal amounts of savings can be expected to be low, since for amounts beyond what is necessary for short-term smoothing, it would be more beneficial to reduce the amount of debt first.

This paper draws on three different sources of data. First, information on take-up and all transactions in the accounts was obtained directly from Banco Credichile. The second source of data came from FE's administrative files, which include participants' estimated household size, income, and years of education. Unfortunately, data on loan size or default rates was not available. Finally, we complemented these two sources of administrative data with an extensive baseline and follow-up survey, conducted by the independent survey agency Microdatos. These surveys include questions about participants' savings

[7] The groups that participated in the focus groups were not included in the randomized evaluation.

and debt, their economic situation and recent economic difficulties, as well as a number of questions about individuals' preferences and self-assessment, such as attitudes towards savings and banks, financial literacy, time preferences, etc.

The timeline of the interventions was as follows (see Figure 1 for an illustration): The baseline survey was conducted in April-May 2008, during one of the group meetings. The savings accounts for the Peer Group Experiment were introduced soon after, in June-July 2008. A year later, the follow-up survey was conducted through individual interviews at participants' home or workplace, to be able to cover all participants, including those that had left FE in the meantime. During this follow-up survey, eligible participants were introduced to the second experiment, the Feedback Message Experiment.

[Figure 1 about here.]

2.2 Experiment 1: Self-Help Peer Groups and Interest Rate

Design

The Peer Group Experiment analyzes the effect of self-help peer groups on savings and was conducted among 196 groups with a total of 2,687 members of the microfinance organization Fondo Esperanza (FE). The universe of study participants consists of all members of the 196 groups who were present in the meeting when the baseline survey was conducted.

In the weeks following the baseline survey, one of three types of savings accounts was introduced to the groups (see below). Groups were randomly assigned to treatments, and all members within a group were offered the same treatment, without knowing of the existence of the other types of accounts (see Figure 1 for a graphical representation of the experimental design). The randomization was stratified by group supervisor, which automatically led to balance by region as well. Half of the groups were randomly selected for the Self-Help Peer Group Treatment while the rest were assigned to one of the other two treatments in equal proportion. The accounts had the following features:

1. *The basic savings account* had a real annual interest rate of 0.3% (similar to the highest available alternative in the Chilean market). It was attractive compared to other options in the market in that it had no maintenance fee and no minimum balance, except for a 2-dollar minimum opening deposit. The account was completely

liquid for withdrawals at any time, and the financial conditions were guaranteed for at least two years.

2. *The self-help peer group account* was identical to the basic account, but was accompanied by an accountability structure, in which the weekly meetings acted as a self-help peer group in the following way: group members had the option of publicly announcing to the group what their weekly savings goal was for the coming three months. Subsequently, members verified in each group meeting who had complied with their savings goal. Those who complied, and showed a deposit slip as proof, received a sticker in a booklet, and those who collected enough stickers received a diploma as a non-monetary award. There were no financial incentives for complying with one's goal.

3. *The high-interest account* was identical to the basic account, but offered a 5% real interest rate. It was explicitly presented as "the Best Option in the Market"-Account, and when the account was introduced, its high return was illustrated graphically and with great care by their FE group leader during a one-hour workshop in the weekly meeting, which included the visualization of a growing piggy-bank and an illustration of compounded interest rates.

Summary Statistics

Table 1 presents summary statistics for the 2,687 participants in the sample of the Peer Group Experiment. As expected given the random assignment, average characteristics in the different treatment groups are very similar and there are no statistically significant differences, with the exception of group size.

[Table 1 about here.]

Participants in the study are an average of 44 years old and have a mean of 9.7 years of schooling. Monthly income per capita of their households is 84,188 pesos (about 175 USD), with an average household size of 4.3 people. Sixty-eight percent of participants did not have a savings account prior to the study.[8] Correspondingly, the median of pre-existing savings was zero, with a mean of 68,980 pesos (while income is expressed in per capita terms, these savings may combine savings of several household members, especially

[8] In Chile in general, 40% do not have a bank account (Demirgüç-Kunt et al., 2008, p. 190).

including participants' children). Participants' reported mean debt, including the micro-loan from FE, is 407,974 pesos, with a median of 185,000 pesos. The larger amounts of debt compared to savings is not surprising given that participants are entrepreneurs and most of their debt is backed up by inventories and future sales.

The average number of participants was 15 per group, with a slightly lower average in groups offered the basic savings account.[9] For the questions about participants' attitudes and preferences, we conducted an F-test, which clearly rejects the null hypothesis that they are jointly significant in predicting whether a group had been assigned to a basic account or one of the other two accounts.

2.3 Experiment 2: Feedback Messages

Design

Since the Peer Group Treatment consists of a whole bundle of different, potentially important elements, the goal of the Feedback Message Experiment is to strip the treatment of most of these aspects. It keeps many things constant, in order to advance our understanding of what drives the effect and investigate an alternative, potentially more scalable delivery mechanism.

The experiment was conducted one year later, during the follow-up survey, among 873 participants who had opened an account in the scope of the Peer Group Experiment (see Figure 1). Eligible participants were randomly assigned to either the control group, or one of two weekly text message services designed to simulate the regular feedback and follow-up of peer group meetings. The research team matched weekly transaction data from the bank with individuals in the study, and sent corresponding messages to the participants. If participants had made a deposit, the text message congratulated them for doing so. If they had missed it, the text message alerted them to that fact.

Peer groups are often thought to affect behavior by creating pressure on individuals. Reneging on one's commitment can be punished directly or can negatively affect a person's reputation or image (e.g. Schelling, 1984).[10] Alternatively, Battaglini et al. (2005) suggest that participants of self-help peer groups may be motivated by observing the success of

[9] The baseline survey was conducted before it was determined, which groups were going to be assigned to which treatment, so we can exclude a selection effect based on the type of the account.

[10] For a similar argument about norm adherence, see, e.g., Bernheim (1994) and for image motivation, see Benabou and Tirole (2006); Ariely et al. (2009).

others, which leads them to update their belief about their own ability to follow through with the shared goal. In addition to the regular feedback, one treatment therefore included the aspect of peer pressure – others observing the success rate of the participant – while the second treatment included the aspect of the participant observing the success rate of others.

1. *Peer Pressure Treatment:* Participants set a weekly savings goal for themselves. They then chose a person as their "Savings Buddy" to monitor their performance and encourage them to stick to their goal. Both the participant and the Savings Buddy subsequently received weekly text messages, informing them whether the participant did or did not make their deposit that week. The message sent to participants also reminded them that the Savings Buddy received the same information. The text message to the Savings Buddies also thanked them for being the participant's Savings Buddy (see the Appendix A for exact wording of the messages).

2. *Peer Information Treatment:* In the same way as in the Peer Pressure Treatment, participants set a weekly savings goal for themselves and received a weekly text message, informing them whether they made their weekly deposit. However, no one else could observe the participant's performance and there was no Savings Buddy exerting pressure. Instead, participants were told what share of other participants similar to them made their weekly deposit.[11]

3. *Control Group:* Participants are only asked to set a weekly savings goal for themselves, but are not offered any text-message service.

Sample Selection and Set-Up of the Intervention

Prior to administering the follow-up survey, all participants who opened a savings account during the first experiment were randomly assigned to one of the three treatment groups for the second experiment. The randomization was stratified by savings balance in the study account and by the group to which participants belonged. The latter automatically assures stratification by treatment in the first experiment. In order to maximize

[11] The design of the Peer Information Treatment in principle also allowed analyzing the impact of varying quality of peers, by introducing random variation in which peers participants were compared to. This makes it possible to test whether participants who are informed about a different level of success of their peers in their first week of treatment display a different deposit pattern thereafter. However, power limitations did not allow distinguishing such differential treatment effects.

take-up, a set of screening questions was asked during the survey, to determine who remained in this study. Only those 873 participants who had a cell phone (85.2% of the total) and were interested in a weekly text message service designed to help people reach their savings goals (69.5% of participants with cell phones) were included in the Feedback Message Experiment.

All participants, including the control group, were asked what their weekly savings goal would be for the next three months if such a service were offered. This allowed us to rule out that the effect is driven by the process of goal-setting itself (see e.g., Locke and Latham, 2006; Hsiaw, 2008). Those assigned to one of the treatments were then informed that they could indeed receive such a service for free, and the details of their particular service were explained (without mention of the existence of other treatments). Since the interviews happened in a staggered manner, different participants started receiving the service at different points in time. However, the service ended for everyone at the same time (at the end of October 2009).

Summary Statistics

Table 2 presents summary statistics of the Feedback Message Experiment. As expected given the random assignment, average characteristics across treatment groups are very similar.

[Table 2 about here.]

Similar to the Peer Group Experiment, participants have an average of 9.6 years of schooling, their mean age is 44 years, and 70% did not have a savings account prior to the account they opened in the context of this study. The mean monthly per capita income of participants' households is 116,854 Chilean pesos (about 230 USD), which is somewhat higher than for participants in the Peer Group Experiment. The average number of household members is 4.4. The average savings balance in the study accounts at the beginning of the Feedback Message Experiment is 14,853 pesos, or about 30 USD, and on average, participants made 0.18 deposits and 0.06 withdrawals per month in 2008.

3 The Effect of Self-Help Peer Groups on Savings

3.1 Self-Help Peer Groups vs. Basic Account

This section analyzes the effect of the Peer Group Treatment compared to the control group. Figure 2 shows the effect of self-help groups on the number of deposits and on the savings balance. It displays the Intent-To-Treat (ITT) effect for 12 months after the introduction of the accounts, and compares those assigned to the Peer Group Treatment to those assigned to the basic account. The self-help peer groups clearly increase the savings outcomes. Panel A shows that the number of deposits is almost four times higher in the Peer Group Treatment. While the effect strongly decreases over time, even in the last quarter of the year, the number of deposits is still over three times higher (0.059 vs. 0.016).

[Figure 2 about here]

Panel B of Figure 2 shows that self-help peer groups not only increase the number of deposits but also lead to higher savings balances. The average balance is twice as high for participants in the Peer Group Treatment than in the control group. The effect persists over time and does not decrease during the entire year. The fact that savings increase initially and stay constant afterwards suggests that individuals may have reached a stable level of savings that they maintain, consistent with a precautionary savings model. Before building any savings beyond a small buffer stock, it would be in their interest to first reduce their debt.

The decrease in the number of deposits over time might also be explained by at least two other reasons. First, individuals might not continuously participate in the self-help peer groups, for example if they leave FE. Secondly, the FE group leader might lose some of the initial motivation, and the quality and regularity of the self-help peer group follow-up in the meetings might consequently decline over time. Answers to corresponding questions from our follow-up survey suggest that all of the above are in fact happening to some degree. Individuals in the Peer Group Treatment who are still with FE one year after the introduction of the accounts make more deposits until the end, in groups in which the leader implemented the treatment more judiciously, the treatment effect stays higher for longer. However, these correlations have to be interpreted with caution, since they are not exogenously identified and very prone to selection effects.

Table 3 shows these results in an OLS framework.[12] We estimate regressions of the following specification:

$$S_i = \alpha + \beta_1 Self\ Help_i + \beta_2 Interest\ Rate_i + \epsilon_i \quad (1)$$

S_i is the savings outcome for individual i. We analyze three savings outcomes: (1) the average monthly number of deposits over 12 months, (2) the average monthly deposited amount, and (3) the average balance. In order to illustrate the effect of outliers, we also show the results for a sample that is winsorized at top 1% and top 5%.[13] *Self Help* is a dummy equal to one for individuals in the Peer Group Treatment and *Interest Rate* is a dummy equal to one for those in the High-Interest Treatment (analyzed in the next section). ϵ is the error term.

Panel A of Table 3 presents the ITT effect for all three outcomes, and supports the findings of Figure 2: the number of deposits, the amount deposited, and the savings balance are significantly higher for those in the Peer Group Treatment. Panel B shows Treatment-on-the-Treated (TOT) effects. Take-up rates of the savings accounts are very similar across treatments: 50% for the basic account, 51% for the high-interest account and 55% for the self-help peer group account (none of the differences are statistically significant). Correspondingly, Panel B shows that the TOT effects are about twice the size of the ITT effects.

These effects are both statistically and economically significant, as the number of deposits increases 6-fold and average savings balances more than double.[14] The increase in the balance of 7,400 pesos (approximately 15 USD) represents about 8% of monthly income and corresponds in size to the precautionary savings goal of these accounts. In line with this, Abraham et al. (2011) find that the positive impact of the self-help peer groups is also reflected in a reduction of participants' worry about their financial future. These findings are also consistent with other studies showing that even relatively small

[12] Tobit specifications do not change the results qualitatively.

[13] The winzorized dataset excludes the top 1% or 5%, respectively, of the entire dataset, including the period of the first and second experiment combined.

[14] Evidence from e.g. Ashraf et al. (2006b) and Meier and Sprenger (2010) suggests that individuals who exhibit time-inconsistent preferences might benefit particularly from financial commitment devices. In our context, peer groups lead to front-loading of the cost of not saving, which may have a particularly strong effect on those with time-inconsistent preferences. Table C1 in the Appendix explores differential treatment effects along this category, and the evidence indeed suggests that the treatment might be particularly effective for those with time-inconsistent preferences.

amounts of savings can make a substantial difference in dealing with income shocks (e.g., Burgess and Pande, 2005; Brune et al., 2011; Ashraf et al., 2010; Dupas and Robinson, 2012b,a).

In sum, the evidence indicates that the self-help peer groups are effective in encouraging deposits, which in turn leads to substantially increased savings balances. The increased number of deposits is not offset by a corresponding increase in withdrawals, even though the accounts are fully liquid and withdrawals are not observable by the peers.

Having found that self-help peer groups double savings in the study account, it is important to ask whether this constitutes additional savings or just crowds out other forms of savings. Generally, it is very difficult to obtain evidence on this question, since researchers usually only have information about one savings vehicle, and survey data on total savings tends to be very noisy. Keeping this caveat in mind, most previous studies that tested for this found no evidence of crowd-out, or even some evidence for crowding in (e.g. Ashraf et al., 2006b; Dupas and Robinson, 2012b,a; Gelber, 2010; Prina, 2012).

Consistent with these previous findings, our sources of evidence suggest that the self-help peer groups increase total savings and do not just replace other forms of savings. First, we measure the impact of the treatments on other forms of savings based on detailed information from the baseline and follow-up surveys about participants' other forms of formal and informal savings.[15] While the data on self-reported savings amounts is very noisy,[16] if anything, it seems to suggest a crowd-in of other forms of savings. Anticipating the noisiness of self-reported amounts, we also elicited a binary measure, where participants indicated whether they made deposits or withdrawals from any other account in the previous six months. This measure is much less noisy, since it is easier for participants to remember than exact amounts of the balance.[17] Analyzing this binary measure confirms that those in the Peer Group Treatment are not less likely to use other accounts than those in the control group, both in terms of deposits and withdrawals.

[15] For the 70% of participants that did not have another savings account, savings in the study account represents all new *formal* savings.

[16] To get a sense of how noisy the self-reported information is, we compare the self-reported amount for the study account with the correct amount in the account, which we know from administrative data, and find a correlation of merely 0.43.

[17] Confirming the validity of this measure, we test whether participants in the Peer Group Treatment reported a higher probability of having made a deposit into the study account, which we know from the administrative data to be true, and find that this is indeed the case ($p < 0.01$).

A second indicator that the savings account in the study has real impacts and does not only replace other savings stems from evidence in Abraham et al. (2011) mentioned above, which shows that having access to the study account helps participants alleviate the burden of economic shocks, both objectively and subjectively. After one year, participants with access to one of the three accounts have less informal debt, fewer outstanding payments, and need to reduce consumption due to economic difficulties less often, compared to a group that was not offered any account. Subjectively, they report being significantly less worried about their financial future, and evaluate their recent economic situation as less severe. Taken together, this evidence suggests that the savings in our field experiment are additional rather than mere substitution.

3.2 Self-Help Peer Groups vs. High Interest Rate

To get a sense of the magnitude of the effect of self-help peer groups, we compare it to the impact of a more classical treatment to encourage saving, a substantially increased real interest rate of 5% annually.

[Figure 3 about here]

Figure 3 shows the mean monthly savings balance as well as the 75th, 95th, and 99th percentiles.[18] Looking at the mean, it is not readily apparent whether the savings balance differs between the High-Interest Treatment and either the Peer Group Treatment or the basic account. However, Panels B-D show that looking at the whole distribution reveals a much starker result. The vast majority of participants do not respond to the increased interest rate at all. At the 75th and even at the 95th percentile, the savings balance in the basic account and the High-Interest Treatment are virtually identical, while participants in the Peer Group Treatment display substantially higher savings. Only at the very top of the distribution (Panel D for the 99th percentile) does the interest rate lead to higher savings. In sum, Figure 3 indicates that self-help peer groups shift the entire distribution of savings, while the increased interest rate only affects the very top tail of the savings distribution.

The results of Table 3 support those findings in regressions for all three of our savings outcomes. The Peer Group Treatment not only leads to a much bigger increase in the

[18] The median is zero, given that take-up is only about 50%.

number of deposits than the High-Interest Treatment, but also to a substantially higher balance. The treatment effect on the balance is almost twice as large overall, and almost eight times larger when we exclude the top 5%. Consistent with the graphical evidence above, the difference only becomes statistically insignificant when including the top 1% of the distribution. If we take the results from Column (5) and linearly extrapolate the point estimation of the interest rate increase, the results suggest that the self-help peer groups have an effect equivalent to an increase in the interest rate of 7.8%.

The fact that an increase in the interest rate of almost five percentage points has no impact on savings for most participants is noteworthy in itself.[19] While from a theoretical perspective, an argument could be made that the overall effect of interest rates on savings is ambiguous, due to the income effect that could potentially dominate the substitution effect[20], the prediction on the substitution effect is clear: In the absence of significant transaction costs, individuals should reallocate their savings portfolio towards the higher-return account.

In our setting, we have the opportunity to analyze this aspect separately, by investigating whether those participants who had substantial pre-existing savings reallocate them to the higher-yield account.[21] When asked in the follow-up survey, less than 1% indicate having made any transfers from a pre-existing account into their study account. Since for small amounts of savings, the transaction costs may be too large to warrant reallocation, we also split the group of those with pre-existing accounts further in two, and focus on those with above-median pre-existing balance. Interestingly, even these 'high pre-treatment savers' do not shift their savings towards the high-interest account. While their average balance in the pre-existing accounts is about 315,000 pesos (or about 650 USD), their savings in the study accounts are only about 15,000 pesos.[22]

There are many potential explanations: tangible or mental costs associated with this transaction, limited liquidity of the alternative account, a lack of understanding of the interest rate, mental accounting, or reasons other than the interest rate that lead

[19] These findings are particularly surprising given that in the context of this experiment, the higher interest rate is made exceptionally salient, including an entire training session that elaborated this point (see Design section).

[20] In practice, the income effect is likely to be less important for shorter-term precautionary savings, such as those in this study.

[21] Given that the high-interest accounts represent by far the highest alternative in the market, we know that the interest rates of their pre-existing accounts are lower.

[22] Similarly, but less surprisingly, we do not observe a shift for those with below-median pre-existing savings. Their average balance is 40,000 pesos in the pre-existing account and 3,000 in the study account.

participants to prefer the alternative bank account. Determining the specific reasons goes beyond the scope of this paper, but we obtained some suggestive evidence through a series of detailed questions in the follow-up survey. Two aspects stand out in the survey responses: a lack of understanding of the interest rate and mental accounting (Thaler, 1990). There is also some indication that this might be less the case for those with higher education and financial literacy. For a full tabulation and more detailed discussion of these descriptive results, see Appendix B.

4 How Crucial are Meetings and Peer Pressure?

The previous section established that the self-help peer group meetings are effective at increasing savings. As mentioned above, such peer group programs consist of a whole bundle of interventions. To understand whether there might be alternative ways to deliver the service that peer groups provide, it is important to unpack some of these mechanisms to learn which elements are required for the effectiveness (Ludwig et al., 2011). This section therefore makes a step towards distinguishing some of these elements by investigating the importance of two of its key elements: physical meetings and peer pressure. We first analyze whether in-person meetings (and all the related activities such as distribution of stickers, diplomas, moral support, etc.) are required, by testing the effectiveness of regular feedback and follow-up in "synthetic" peer groups through text messages. We then investigate whether peer pressure is the driving force, by comparing two different types of feedback message treatments.

4.1 The Effect of Feedback Text Messages on Savings

Figure 4 shows the impact of being offered the weekly text message feedback service. The horizontal axis represents months since the treatment began in the year 2009, and the area between the vertical lines marks the period during which the text message intervention was implemented (called "intervention period" going forward). Panel A shows the number of deposits per month, and Panel B shows the amount deposited.

[Figure 4 about here]

Figure 4 reveals three important points. First, there is no significant difference between treatment and control groups in both panels before the experiment begins in August 2009 (month "1" in the figure). Deposits in June and July trend slightly downward in the cold winter months in Chile, but this trend is no different between treatment and control. Second, during the intervention period, savings outcomes are substantially higher in the treatment compared to the control group, almost tripling the number of weekly deposits. The amounts deposited are more noisy, but even there we see a substantial increase. Third, after the text messages stop, the savings behavior looks very similar again across groups, and we observe no long-run impact on savings habits.

Also, in contrast to the self-help peer groups, the effect of the text messages does not seem to decay over the three treatment months.[23] This might be due to the fact that the default with respect to continuing participation is different: In order to stop participating in the text message service, individuals would have to actively opt out, while for the peer group support to continue, participants have to actively opt in each week by attending the meeting. The effect of text messages might therefore be more sustainable over time. Future research is required to test the effectiveness of the messages over the long run.

In order to estimate the significance of the treatment effects, we run regressions of the following form:

$$S_i = \alpha + \beta_1 Treatment_i + Prior\ Savings_i + \epsilon_i \quad (2)$$

where S_i is the savings outcome for individual i, and $Treatment$ is a dummy variable equal to one for individuals in the treatment groups. In addition, we control for the amount saved prior to the intervention period, which reduces much of the noise by capturing individual-specific variation, similar to what would be the case in a difference-in-difference specification.[24] We use the following measures of S_i: (1) average number of monthly deposits, (2) average monthly amount deposited, and (3) new savings (deposits-withdrawals) in the intervention period. Amounts are also shown winsorized at the top 1% and top 5%.

[23] This can be seen more clearly in figure C1 in the Appendix, which represents weeks since a given participant started the treatment.

[24] Results without controlling for prior balance (shown in Table C2 in the appendix) are qualitatively similar but measured more imprecisely.

Table 4 presents the results for all three outcomes during the intervention period. Panel A shows Intent-to-Treat (ITT) and Panel B Treatment-on-the-Treated (TOT) effects. The feedback text messages have a substantial effect on savings. In the ITT specification, the average number of deposits is almost three times that of the control group, and the amount deposited per month is about 2,000 pesos higher. Overall, participants in the treatment group increase their savings balance in the intervention period by about 7,800 pesos.[25] Take-up rates of the two treatments are very similar. Of participants who initially express interest in the service, 42.8% end up signing up when offered the Savings Buddy service and 41.6% when offered the Peer Information service. Correspondingly, the TOT effects are somewhat more than double in size, increasing amounts deposited 4.5-fold in the winsorized sample (nearly 6-fold in the full sample). To put these numbers in perspective, Karlan et al. (2010) found that in a pooled sample from Peru, Bolivia and the Philippines, monthly savings reminders in increased savings by 6%.

[Table 4 about here.]

Comparison of the treatment effects between the two experiments (self-help peer groups versus feedback messages) clearly has to be interpreted with much caution, since it is not based on random assignment. The treatment happens in a different year, to a different subsample of participants, and over a different length of time. However, a back-of-the-envelope calculation allows us to get some sense on how much of the effect of self-help peer groups can be achieved without physical meetings. First, we need to take into account that participants in the Feedback Message Experiment are a non-random subsample of the Peer Group Experiment, namely those who opened an account in the scope of the first experiment, own a cellphone, and expressed interest in a text message service to help them save more. We therefore recalculate the effect of self-help peer groups among only those 873 participants.

To further increase comparability, we hold the duration constant and focus on the first three months of treatment. Focusing on this initial period, when the Peer Group Treatment had the strongest effect, stacks the odds in favor of the Peer Group Treatment, in order to provide a conservative estimate for the hypothesis that physical meetings are

[25] The coefficient on prior savings is negative, since mechanically, people who have prior savings can withdraw more in the intervention period, leading to possible negative new savings. The new savings of zero in the control group correspondingly indicates that participants in this group withdrew the same amount as they deposited. We also test whether the effect of the Feedback Message Experiment varies by treatment in Experiment 1 and find no significant differences.

less important than expected. It also has the advantage of controlling for seasonal effects, since it compares savings in the same calendar months one year apart. Table C3 in the Appendix shows this specification and indicates a treatment effect of 10,000 pesos for the Peer Group Treatment among this sample.

Finally, TOT and ITT for the Peer Group Experiment are by construction identical in this sample, since all participants in the Feedback Message Experiment opened a savings account in the scope of the Peer Group Experiment. For a conservative comparison, we therefore compare it with the ITT effect of the Feedback Message Experiment in Table 4, where savings increase by about 8,000 pesos.[26] This back-of-the envelope calculation suggests that feedback text messages can achieve 80% or more of the effect of self-help peer groups in terms of new savings balance, and implies that physical meetings might not be as central to the effect of self-help peer groups as previously thought.

In sum, feedback text messages provide an alternative delivery mechanism to self-help peer groups that has a substantial effect on savings and is potentially more scalable. They strip the bundle of interventions used in self-help peer groups of many elements and thereby provide a first step towards understanding the underlying mechanism of peers as commitment device.

4.2 Is Peer Pressure Required for the Effectiveness?

The previous section established that peer-related feedback text messages can achieve substantial increases in savings rates without actual in-person meetings. This section investigates whether the effect can also be achieved without peer pressure, by comparing the two types of feedback message treatments (see Section 2 for a description of their design).

Figure 5 shows the ITT effect of the Peer Pressure Treatment compared to both the control group and the Peer Information Treatment. The savings behavior in the two treatments follows a very similar pattern, both in terms of the number of deposits per month (Panel A) and in terms of amount deposited (Panel B).[27]

[26] If we choose the specification that does not control for prior balance, shown in Table C2, then the benchmark effect of the text messages is even higher, at 10,000 pesos.

[27] The figures seem to suggest that there is a different time trend between the two treatments. However, the monthly graphs based on the overall intervention period are not ideal for observing time trends, since participants joined the treatment in different weeks. When looking at a graph representing weeks since the start of treatment for a given participant (shown in Figure C1 in the Appendix), the two treatments

[Figure 5 about here.]

Table 5 confirms this impression with regressions. Both treatments independently increase savings compared to the control group (statistically significantly for all three outcomes except new savings in the Peer Pressure Treatment). When comparing the effects of the two treatments with a F-test, having a Savings Buddy has no substantially different effect on any of the three outcome variables.

[Table 5 about here.]

The fact that the Peer Pressure Treatment does not lead to stronger effects is even more striking in light of a) the kind of person participants chose as their Savings Buddy and b) the information contained in the Peer Information messages.

a) When signing up for the text message service, participants in the Peer Pressure Treatment indicate their relationship to the Savings Buddy and the main reason they chose that person. Participants are allowed to select their own Savings Buddy so that they can choose their "optimal" peer. The reasons given for choosing that particular person indeed indicate that participants are using the text message services as a peer pressure commitment device and select Savings Buddies who really hold them accountable. The most frequently stated reason (31%) is that the person chosen is very strict and will motivate the participant to comply with his or her savings goal (see Table C4 in the Appendix). This is followed by 29% indicating that the person was chosen because the participant generally shares financial information with them; 19% because the person is a role model when it comes to saving, by being very organized and good at complying with his or her own savings goals; and 12% because the participant shares a bank account with that person. Very few participants (5%) indicate that they chose their Savings Buddy for being a relaxed person who would be understanding if the participant could not reach their savings goal.

In terms of their relationship to their Savings Buddy, participants tend to choose someone who is close to them, either a close relative or a close friend. The most common choice is a son or daughter (32%), followed by partner (25%), close friend (17%), other relative (14%), parent (6%), neighbor (2%), and someone else (3%). According to Mas and Moretti (2009), peer pressure can be expected to be particularly strong if the peers

look very similar over time.

know each other, have had past interactions, and expect future interaction. Similarly, research by Ferrara (2003) and Karlan (2007) shows that in peer lending groups, close social connections can reduce default. This would suggest that the selected peers should be particularly effective. However, we cannot rule out that in our context, the optimal social distance is different, for example if close peers are too understanding when a commitment is not reached and therefore less likely to exert pressure.

b) One possible explanation as to why the Peer Pressure Treatment does not have a stronger effect than the Peer Information Treatment could be that the peer pressure effect is strong, but the effect of the information about the performance of others is equally strong. While we cannot rule out that this could be the case, the nature of the information that was conveyed suggests that this is not very likely. The message in the Peer Information Treatment (see text in Appendix A) informs participants about the percentage of others similar to them that made a deposit in a given week. It turns out that in most weeks, that number is very low or even zero (on average, they are informed that 6% of their peers followed through with their goals). This fact, combined with evidence from Beshears et al. (2009) showing that such information may have very limited effects on savings, suggests that the peer information component is not very likely to have had a strong effect.[28]

In sum, we find that feedback text messages are effective even without a savings buddy and that peer pressure is not required. This not only makes them less cumbersome to implement and scale, it also avoids the potential disutility from social pressure, which can make participants potentially worse off (e.g., DellaVigna et al., 2012).

5 Discussion and Conclusion

Peer groups are often used as a commitment device to achieve personal goals, but there has been little empirical evidence evaluating their effectiveness and analyzing what aspects lead to their success. Our findings that self-help peer groups increase the number of deposits 3.5-fold, and almost double the average savings balance after a year, show that these groups can be a powerful tool to help participants reach an individual but mutually shared goal. Beyond savings, this mechanism is applicable for a wide area of self-control

[28] We also analyzed whether the treatment effect of the Peer Information Treatment is different for those who have been randomly assigned to different quality peers, but did not find any significant differences (for details, see Footnote 11).

problems.

Self-help peer groups may be particularly effective in areas where a small behavior change can generate a large impact. This is for example the case in our context of precautionary savings, where the relatively small magnitudes in dollar amounts (about 15 USD) can have large implications for participants' quality of life. The income stream of these populations is not only low, but also highly volatile. Correspondingly, prior to the intervention, many participants expressed the desire to build a buffer stock against economic shocks, and frustration about their inability to do so on their own. This can have large implications, as having a small cushion on the side can for example make the difference between paying the utility bill or sleeping in the cold during the freezing Chilean winter.[29]

Adding a savings club component is especially convenient in contexts where people meet regularly anyway, such as microfinance groups, schools, sports clubs, or churches. The Feedback Message Experiment suggests that even outside of contexts where people meet regularly in groups, savings can be strongly increased by holding people accountable through simple feedback messages. While self-help peer group meetings can be cumbersome to set up and to maintain, text message services require little coordination and do not rely on physical proximity, making them more broadly applicable. Given the astonishing growth rate of cell phone use worldwide, this is a channel that can potentially reach millions of people and may be attractive to a wider and different population than those who are willing to come together for regular meetings.

In addition, the Feedback Message Experiment makes a first step towards disentangling the mechanism of self-help peer groups as a commitment device. The fact that regular Feedback Messages are surprisingly effective even without physical meetings and without a Savings Buddy that observes participants' behavior, suggests the hypothesis that rather than exerting pressure, participants may simply provide a mutual service to regularly hold each other accountable. This interpretation raises at least four additional research questions: 1) How important is the feedback element, and would simple reminders (Karlan et al., 2010) have a similar effect? 2) Could other types of Savings Buddies than the ones chosen by the participants (e.g., in terms of social distance, personality traits, etc.) be more effective at holding them accountable? 3) Does the peer information have a motivational effect after all, despite the fact that participants are informed that only

[29] In line with this, Abraham et al. (2011) find that after one year, participants in the Peer Group Treatment are significantly less worried about their financial future.

few others are making a deposit each week? 4) How generalizable are these findings to other settings?

Beyond the issue of savings, feedback and follow-up through text messages have many potential applications in other areas where people make resolutions but find it difficult to follow through, such as preventive health measures (e.g., for diabetes, exercising, or vaccinations), environmentally-friendly behavior (e.g., saving energy), education (e.g., completing homework, solving math exercises), etc. As these methods find wider application, the question arises to what degree multiple feedback messages crowd out attention, and further research is required to investigate interactions between multiple messages, as well as the effect of feedback messages over a longer time period.

The analysis of the interest rate serves as a benchmark for the effectiveness of the Peer Group Treatment. In addition, the weak effect of the interest rate for most participants is of interest by itself. While further research is needed to understand whether this might be a more general result, it suggests that some caution is warranted in the use of policies or economic models that assume large shares of the population will respond to changes in the interest rate. This also raises the question to what degree this finding is driven by limited financial sophistication. Would the results be different in more educated environments? And how does it affect our thinking about the design of public policy if policies vary by the degree of cognitive ability and sophistication required for their effectiveness?

Finally, our findings speak to a larger point about what types of interventions tend to be effective in particular situations. While traditional economic incentives may be effective in contexts where individuals lack motivation, they may have limited impact if the constraint that impedes the behavior change lies elsewhere.[30] Implementing behavior change can be challenging even for motivated individuals – either psychologically, due for example to self-control problems, or practically, due for example to complicated processes. In these situations, policies that facilitate compliance may be more effective than policies that further increase incentives.

[30] We thank Brigitte Madrian for helpful discussions, which allowed us to see our findings in this light.

References

Abraham, Ronald, Felipe Kast, and Dina Pomeranz, "Insurance through Savings Accounts: Evidence from a Randomized Field Experiment among Low Income Micro-Entrepreneurs in Chile," *Working Paper*, 2011.

Allcott, Hunt, "Social norms and energy conservation," *Journal of Public Economics*, 2011, *95* (9-10), 1082–1095.

Apesteguia, Jose, Patricia Funk, and Nagore Iriberri, "Promoting rule compliance in daily-life: Evidence from a randomized field experiment in the public libraries of Barcelona," *Working Paper*, 2010.

Ariely, Dan, Anat Bracha, and Stephan Meier, "Doing Good or Doing Well? Image Motivation and Monetary Incentives in Behaving Prosocially.," *American Economic Review*, 2009, *99* (1), 544–555.

Ashraf, Nava, Dean Karlan, and Wesley Yin, "Deposit Collectors," *Advances in Economic Analysis & Policy*, 2006, *6* (2), Article 5.

_ , _ , and _ , "Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines," *Quarterly Journal of Economics*, 2006, *121* (1), 635–672.

_ , _ , and _ , "Female empowerment: Impact of a commitment savings product in the Philippines," *World Development*, 2010, *38* (3), 333–344.

_ , Oriana Bandiera, and Kelsey Jack, "No margin, no mission? A Field Experiment on Incentives for Pro-Social Tasks," *Working Paper*, 2012.

Ayres, Ian, Sophie Raseman, and Alice Shih, "Evidence from Two Large Field Experiments that Peer Comparison Feedback Can Reduce Residential Energy Usage," *NBER Working Paper No. 15368*, 2009.

Bandiera, Oriana, Iwan Barankay, and Imran Rasul, "Social incentives in the workplace," *Review of Economic Studies*, 2010, *77* (2), 417–458.

Banks, James and Zoe Oldfield, "Understanding Pensions: Cognitive Function, Numerical Ability and Retirement Saving," *Fiscal Studies*, 2007, *28* (2), 143–170.

Barankay, Iwan, "Rankings and Social Tournaments: Evidence from a Field Experiment," *Working Paper*, 2010.

Battaglini, Marco, Roland Bénabou, and Jean Tirole, "Self-Control in Peer Groups," *Journal of Economic Theory*, 2005, *123* (2), 105–134.

Benabou, Roland and Jean Tirole, "Incentives and Prosocial behavior," *American Economic Review*, 2006, *96* (5), 1652–1678.

Bernheim, Douglas, "A Theory of Conformity," *Journal of Political Economy*, 1994, *102* (5), 841–877.

Bertrand, Marianne, Dean Karlan, Sendhil Mullainathan, Eldar Shafir, and Jonathan Zinman, "What's Advertising Content Worth? Evidence from a Consumer Credit Marketing Field Experiment," *Quarterly Journal of Economics*, 2010, *125* (1), 263–305.

Beshears, John, James Choi, David Laibson, Madrian Brigitte, and Katherine Milkman, "The Effect of Providing Peer Information on Retirement Savings Decisions," *NBER Working Paper No. 17345*, 2009.

Brune, Lasse, Xavier Giné, Jessica Goldberg, and Dean Yang, "Commitments to Save: a Field Experiment in Rural Malawi," *Working Paper*, 2011.

Bryan, Gharad, Dean Karlan, and Scott Nelson, "Commitment Devices," *Annual Review of Economics*, 2010, *2* (1).

Burgess, Robin and Rohini Pande, "Can rural banks reduce poverty? Evidence from the Indian social banking experiment," *American Economic Review*, 2005, *95* (3), 780–795.

Bursztyn, Leonardo, Florian Ederer, Bruno Ferman, and Noam Yuchtman, "Understanding Peer Effects in Financial Decisions: Evidence from a Field Experiment," *NBER Working Paper*, 2012.

Cadena, Ximena and Antoinette Schoar, "Remembering to Pay? Reminders vs. Financial Incentives for Loan Payments," *NBER Working Paper No. 17020*, 2011.

_ , _ , **Alexandra Cristea, and Heber Delgado-Medrano**, "Fighting Procrastination in the Workplace: An Experiment," *NBER Working Paper*, 2011.

Carroll, Gabriel, James Choi, David Laibson, Brigitte Madrian, and Andrew Metrick, "Optimal defaults and active decisions," *Quarterly Journal of Economics*, 2009, *124* (4), 1639–1674.

Chen, Yan, Maxwell Harper, Joseph Konstan, and Sherry Xin Li, "Social comparisons and contributions to online communities: A field experiment on movielens," *The American Economic Review*, 2010, *100* (4), 1358–1398.

Choi, James, David Laibson, and Brigitte Madrian, "Why Does the Law of One Price Fail? An Experiment on Index Mutual Funds," *Review of Financial Studies*, 2010, *23* (4), 1405–1432.

DellaVigna, Stefano, John List, and Ulrike Malmendier, "Testing for altruism and social pressure in charitable giving," *Quarterly Journal of Economics*, 2012, p. Forthcoming.

Demirgüç-Kunt, Asli, Thorsten Beck, and Patrick Honohan, *Finance for all?: Policies and pitfalls in expanding access*, Washington, DC: World Bank Publications, 2008.

Duflo, Esther and Emmanuel Saez, "Participation and investment decisions in a retirement plan: The influence of colleagues' choices," *Journal of Public Economics*, 2002, *85* (1), 121–148.

_ **and** _ , "The Role of Information and Social Interaction in Retirement Plan Decisions: Evidence from a Randomized Experiment," *Quarterly Journal of Economics*, 2003, *118* (3), 815–841.

Dupas, Pascaline and Jonathan Robinson, "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya," *American Economic Journal: Applied Economics*, 2012, p. Forthcoming.

_ **and** _ , "Why Don't the Poor Save More? Evidence from Health Savings Experiments," *American Economic Review*, 2012, p. Forthcoming.

Falk, Armin and Andrea Ichino, "Clean Evidence of Peer Effects," *Journal of Labor Economics*, 2005, *34* (1), 39 – 57.

Ferrara, Eliana, "Kin groups and reciprocity: A model of credit transactions in Ghana," *The American Economic Review*, 2003, *93* (5), 1730–1751.

Frey, Bruno S. and Stephan Meier, "Social Comparison and Pro-Social Behavior: Testing conditional Cooperation in a Field Experiment," *American Economic Review*, December 2004, *94* (4), 1717 – 1722.

_ **and** _ , "Social Comparison and Pro-Social Behavior: Testing Conditional Cooperation in a Field Experiment," *American Economic Review*, 2004, *94*, 1717–1722.

Gelber, Alexander, "How do 401(k)s Affect Saving? Evidence from Changes in 401(k) Eligibility," *American Economic Journal: Economic Policy*, 2010, p. Forthcoming.

Gerardi, Kris, Lorenz Goette, and Stephan Meier, "Financial Literacy and Subprime

Mortgage Delinquency: Evidence from a Survey Matched to Administrative Data," *Federal Reserve Bank of Atlanta Working Paper 2010-10*, 2010.

Gneezy, Uri and Pedro Rey-Biel, "On the Relative Efficiency of Performance Pay and Social Incentives," *Working Paper*, 2011.

_, Stephan Meier, and Pedro Rey-Biel, "When and Why Incentives (Don't) Work to Modify Behavior," *Journal of Economic Perspectives*, 2011, *25* (4).

Gugerty, Mary, "You cant save alone: Commitment in rotating savings and credit associations in Kenya," *Economic development and cultural change*, 2007, *55* (2), 251–282.

Hong, Harrison, Jeffrey D. Kubik, and Jeremy C. Stein, "Social interaction and stock-market participation," *The Journal of Finance*, 2004, *59* (1), 137–163.

Hsiaw, Alice, "Goal-Setting, Social Comparison, and Self-Control," *Working Paper*, 2008.

Jebb, Susan A., Amy L. Ahern, Ashley D. Olson, Louise M. Aston, Christina Holzapfel, Julia Stoll, Ulrike Amann-Gassner, Annie E. Simpson, Nicholas R. Fuller, Suzanne Pearson et al., "Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial," *The Lancet*, 2011, *378* (9801), 1485–1492.

Karlan, Dean, "Social connections and group banking," *Economic Journal*, 2007, *117* (February), F52–F84.

_ and Sendhil Mullainathan, "Rigidity in Microfinancing: Can One Size Fit All?," *Q-Finance*, 2009.

_, Margaret McConnell, Sendhil Mullainathan, and Johnathan Zinman, "Getting on the Top of Mind: How Reminders Increase Savings," *NBER Working Paper No. 16205*, 2010.

Kremer, Michael and Dan Levy, "Peer effects and alcohol use among college students," *The Journal of Economic Perspectives*, 2008, *22* (3), 189–206.

Locke, Edwin and Gary Latham, "New directions in goal-setting theory," *Current Directions in Psychological Science*, 2006, *15* (5), 265–268.

Ludwig, Jens, Jeffrey Kling, and Sendhil Mullainathan, "Mechanism Experiments and Policy Evaluations," *Journal of Economic Perspectives*, 2011, *25* (3), 17–38.

Madrian, Brigitte and Dennis Shea, "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior," *Quarterly Journal of Economics*, 2001, *116* (4), 1149–1187.

Manoli, Dayanand and Saurabh Bhargava, "Why are Benefits Left on the Table? Assessing the Role of Information, Complexity, and Stigma on Take-up with an IRS Field Experiment," *Working Paper*, 2011.

Mas, Alexandre and Enrico Moretti, "Peers at Work," *The American Economic Review*, 2009, *99* (1), 112–145.

Meier, Stephan and Charles Sprenger, "Present-Biased Preferences and Credit Card Borrowing," *American Economic Journal: Applied Economics*, 2010, *2* (1), 193–210.

Milkman, Katherine, John Beshears, James Choi, David Laibson, and Brigitte Madrian, "Using Implementation Intentions Prompts to Enhance Influenza Vaccination Rates," *Proceedings of the National Academy of Sciences*, 2011, *108* (26), 10415.

Prina, Silvia, "Banking the Poor Via Savings Accounts: Evidence from a Field Experiment," *Case Western Reserve Working Paper*, 2012.

Sacerdote, Bruce, "Peer effects with random assignment: Results for Dartmouth roommates," *Quarterly Journal of Economics*, 2001, *116* (2), 681–704.

Schaner, Simone, "Intrahousehold Preference Heterogeneity, Commitment, and Strategic Sav-

ings: Theory and Evidence from Kenya," *Working Paper*, 2011.

Schelling, Thomas C., "Self-Command in Practice, in Policy, and in a Theory of Rational Choice," *American Economic Review*, 1984, *74* (2), 1–11.

Schultz, Wesley., Jessica M. Nolan, Robert B. Cialdini, Noah J. Goldstein, and Vladas Griskevicius, "The Constructive, Destructive, and Reconstructive Power of Social Norms," *Psychological Science*, 2007, *18* (5), 429–434.

Shang, Jen and Rachel Croson, "A field experiment in charitable contribution: the impact of social information on the voluntary provision of public goods," *The Economic Journal*, 2009, *119* (540), 1422–1439.

Stango, Victor and Jonathan Zinman, "Limited and Varying Consumer Attention: Evidence from Shocks to the Salience of Bank Overdraft Fees," *Federal Reserve Bank of Philadelphia Working Paper 11-17*, 2011.

Thaler, Richard, "Anomalies: Saving, fungibility, and mental accounts," *The Journal of Economic Perspectives*, 1990, *4* (1), 193–205.

_ **and Shlomo Benartzi**, "Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving," *Journal of Political Economy*, 2004, *112* (S1), 164–187.

Walsh, Diana C., Ralph W. Hingson, Daniel M. Merrigan, Suzette M. Levenson, L. Adrienne Cupples, Timothy Heeren, Gerald A. Coffman, Charles A. Becker, Thomas A. Barker, Susan K. Hamilton et al., "A Randomized Trial of Treatment Options for Alcohol-Abusing Workers," *New England Journal of Medicine*, 1991, *325* (11), 775–782.

Zinman, Jonathan, "Household borrowing high and lending low under no-arbitrage," *Working Paper*, 2007.

6 Figures and Tables

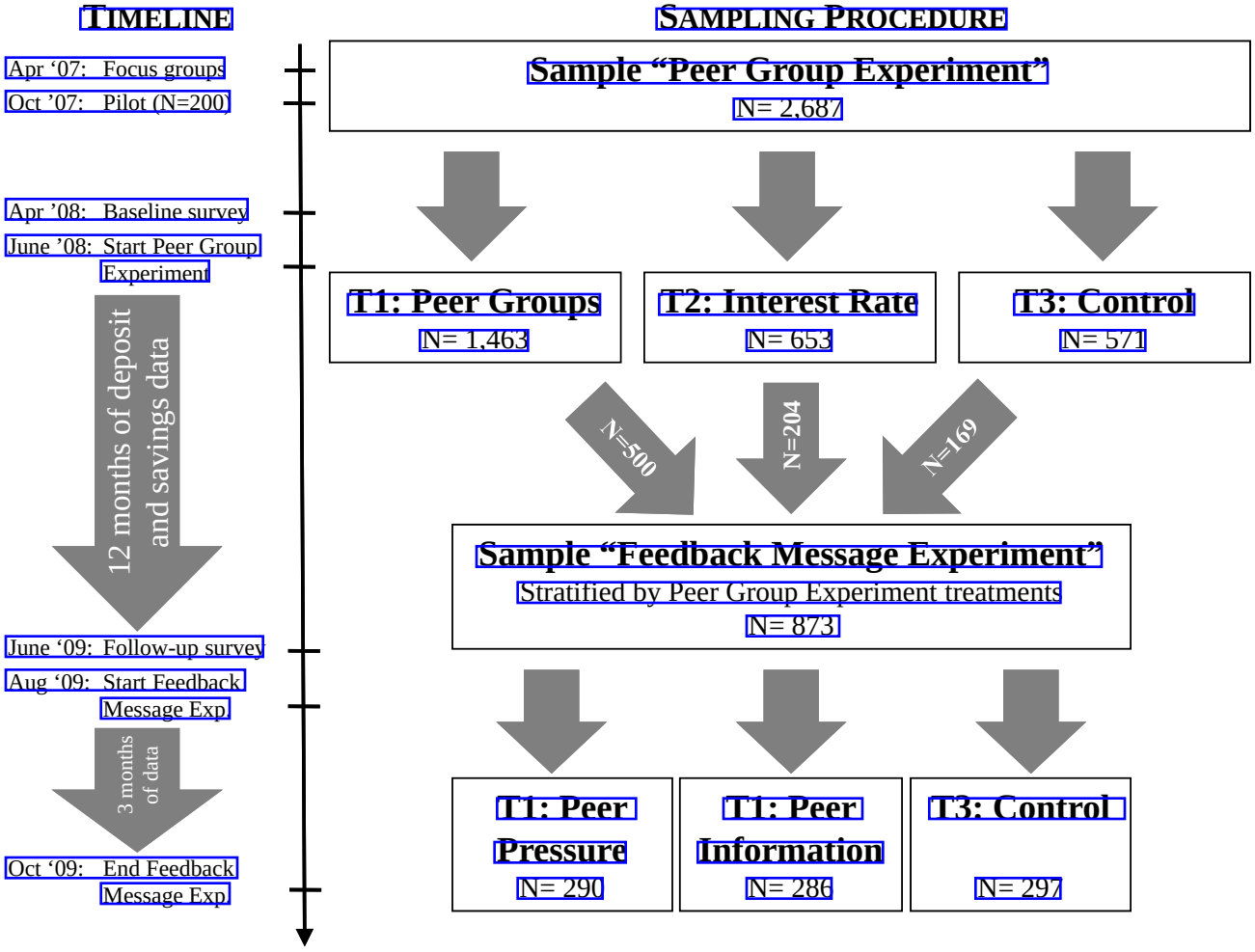

Figure 1: Timeline and Sampling Procedure

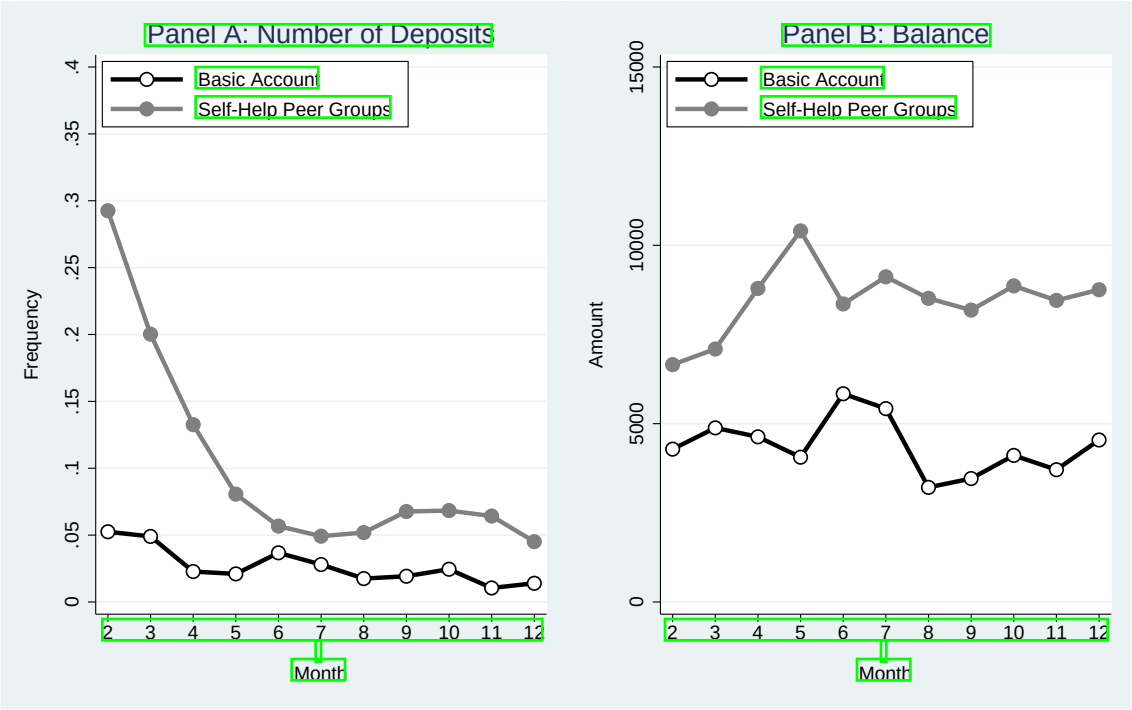

Figure 2: Effect of Self-Help Peer Groups on Savings (Experiment 1)

Notes: Panel A shows the number of deposits in a given month. Panel B shows the average balance in the study accounts. 'Month' indicates the months since the start of the experiment. All amounts are in Chilean pesos. 500 pesos = approximately 1 USD.

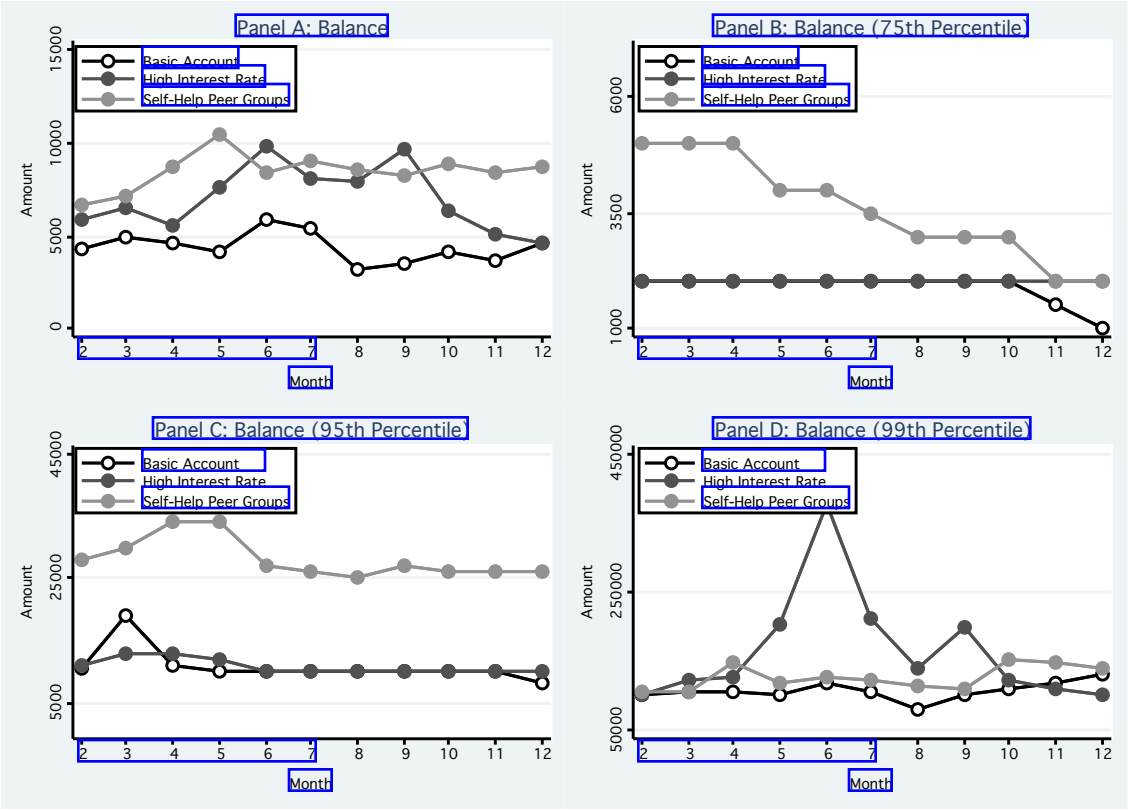

Figure 3: Effect of Self-Help Peer Groups and High Interest (Experiment 1)

Notes: Panel A shows the average balance in the study accounts. Panel B, C and D show the 75th, 95th and 99th percentile, respectively. 'Month' indicates the months since the start of the experiment. All amounts are in Chilean pesos. 500 pesos = approximately 1 USD.

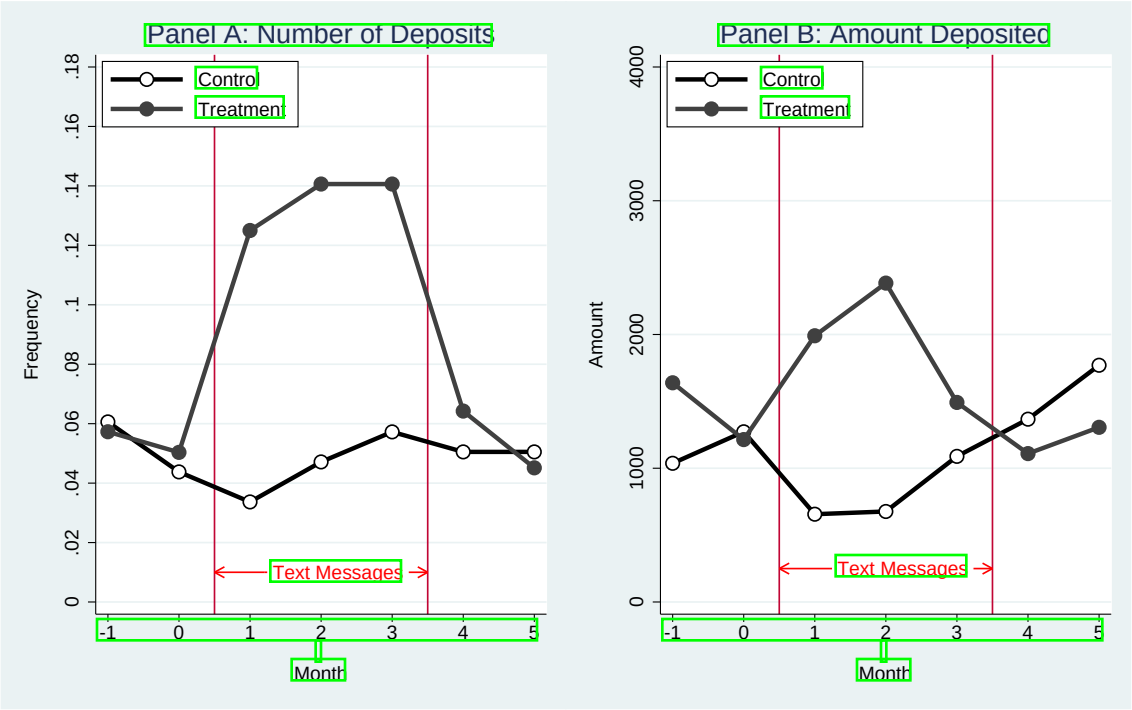

Figure 4: Effect of Feedback Text Messages on Savings (Experiment 2)

Notes: Panel A shows the monthly number of deposits and Panel B the amount deposited, winsorized at the top 5%. The experiment started in August (month 1) and ended in October 2009 (month 3). All amounts are in Chilean pesos. 500 pesos = approximately 1 USD.

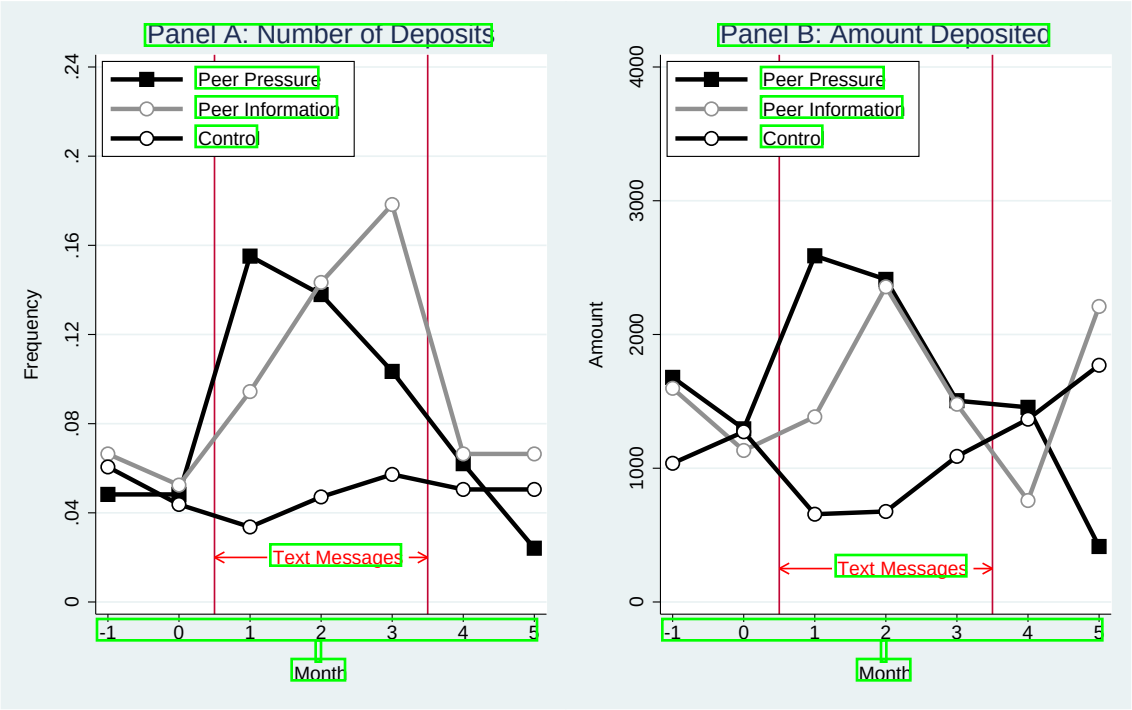

Figure 5: Impact of Peer Pressure through a Savings Buddy (Experiment 2)

Notes: Panel A shows the monthly number of deposits and Panel B the amount deposited, winsorized at the top 5%. The experiment started in August (month 1) and ended in October 2009 (month 3). All amounts are in Chilean pesos. 500 pesos = approximately 1 USD.

Table 2: Summary Statistics and Balance of Randomization (Experiment 2)

Variable	Control	Difference "Peer Pressure"- Control	Difference "Peer Information" - Control
	(1)	(2)	(3)
Education	9.65	0.07	0.15
	(3.04)	(0.25)	(0.25)
Age	44.05	-1.03	0.58
	(10.76)	(0.90)	(0.90)
Income per capita (monthly)	83,962	5,423	14,816
	(92,419)	(16,354)	(16,412)
Household size	4.394	0.113	-0.146
	(-1.580)	(-0.140)	(-0.140)
Has prior savings account	0.300	0.059	0.022
	(-0.460)	(-0.039)	(-0.039)
Prior savings balance	14,853	-3,543	-2,887
	(152,427)	(8,646)	(8,616)
Number deposits 2008	0.180	-0.003	-0.023
	(-0.470)	(-0.036)	(-0.036)
Number withdrawals 2008	0.060	0.005	0.002
	(0.140)	(0.014)	(0.014)
Number of observations	297	290	286

Notes: In Column 1, standard deviations are presented in parentheses below group means. Columns (2) and (3) show the difference between treatment and control groups, by regressing the variable of interest on a treatment dummy. Robust standard errors are shown in parentheses. Monetary amounts in Chilean pesos. 500 pesos = approximately 1 USD. *Level of significance*: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

APPENDIX FOR ONLINE PUBLICATION

A Text messages (English translation)

Peer Pressure Treatment

- Messages to participants:
  - In case of deposit
    "Congratulations! Last week you made your weekly deposit and we just informed your Savings Buddy of your achievement."
  - In case of failure to deposit
    "Ooh! Last week you did not achieve your weekly deposit and we just informed your Savings Buddy."
- Messages to Savings Buddy:
  - In case of deposit by the participant
    "Good news, last week [NAME OF PARTICIPANT] made his/her weekly deposit. Thanks for being his/her Savings Buddy!"
  - In case of failure to deposit
    "Unfortunately last week [NAME OF PARTICIPANT] did not make his/her weekly deposit. Thanks for being his/her Savings Buddy!"

Peer Information Treatment

- In case of deposit
  "Congratulations! Last week you made your weekly deposit. [PERCENT OF OTHERS]% of other participants similar to you made a deposit."
- In case of failure to deposit
  "Ooh! Last week you did not achieve your weekly deposit. [PERCENT OF OTHERS]% of other participants similar to you made a deposit."

B Survey Evidence on the Lack of Savings Reallocation

As discussed in section 3.2, even participants with substantial pre-existing savings do not reallocate them into the high-interest account. To get a sense of what the underlying reasons might be, we asked participants a series of detailed questions in the follow-up survey.

Two aspects stand out among the answers: A lack of understanding of the interest rate, and mental accounting. Concerning the former, only 2% of participants indicate knowing the interest rate in their other account. Despite that, 63% of those in the High-Interest Treatment claim that their other savings account has a higher interest rate which, as discussed above, is not only unlikely, but also surprising given that participants were made aware in several ways when the accounts were introduced that the high-interest account offers the highest return in the market.

This raises the question to what degree financial literacy or lack of schooling could be at the source of these findings. There is some indication that financial sophistication might interact with the treatments. For those with above-median financial literacy[31] or above-median education, the High-Interest Treatment leads to statistically significantly higher overall savings than the basic account, while for the overall population it does not (controlling for socio-demographic characteristics). However, the difference between the subgroups is not significant.

Mental accounting stands out when participants are asked directly for their reasons not to transfer money from their other account into the high-interest account. After soliciting information from participants about the characteristics of the two accounts (with respect to the interest rate, distance, withdrawal restrictions, trust in the bank, friendliness of bank staff, and understandability of the account conditions), we asked those who had another account to categorize a list of potential reasons, in terms of their importance for not making any transfers. As seen in Table B1, mental accounting is named as very important by far the most frequently.

[31] We use three financial literacy questions similar to the ones used in, e.g., Banks and Oldfield (2007); Gerardi et al. (2010).

Table B1: Reasons Not to Transfer Money into High-Interest Account

Mental accounting ("Because the alternative account is destined towards a specific goal that I do not want to mix with the other savings account")	70%
Distance ("The other bank is closer")	19%
Uncertainty ("Because I am not sure whether the favorable conditions of the account in the study will continue")	18%
Trust ("The other bank is more trustworthy")	18%
Interest rate ("The other account has a higher interest rate")	17%
Cost of withdrawing and redepositing	10%
Having an outstanding loan at the other bank	9%

Notes: Table shows percentage of individuals among those who did not transfer money into the high-interest account who indicated this reason as "very important".

C Additional Figures and Tables

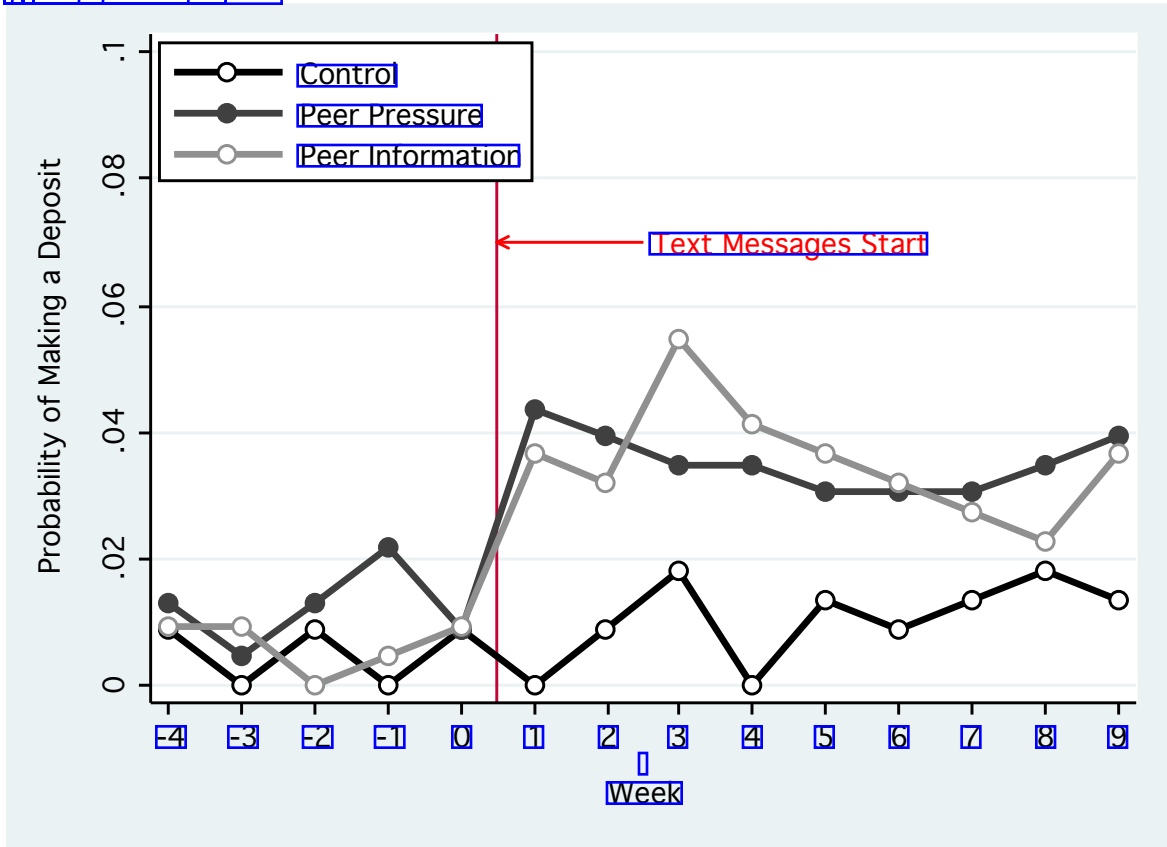

Figure C1: Feedback Message Treatments, Weeks Since Participation Start

Notes: The figure shows the development of the probability of making a weekly deposit over time. While Figures 4 and 5 show the treatment effects over the intervention period, this figure displays the effect since the week a given participant started participating in the experiment. Since not all individuals were surveyed at the same time, they did not start receiving messages at the same time. The development over time in Figures 4 and 5 therefore combines both a varying share of treated participants and with potential changes of the treatment effect over time. This figure graphically displays the treatment effects of the Peer Pressure Treatment vs. the Peer Information Treatment over time. It includes individuals who participated at least 10 weeks in the study.

Table C1: Time Inconsistencies, Peer Group Experiment

Dependent variable:	# of Deposits		Balance			
	(1)	(2)	(3)	(4)	(5)	(6)
Time Inconsistent[a] × Self-Help	0.05**	0.05**	654	1,153	2,627	2,796*
	(0.024)	(0.025)	(3,028)	(2,793)	(1,595)	(1,582)
Time Inconsistent × High-Interest	0.03*	0.03	3,942	4,291	2,836*	3,033*
	(0.016)	(0.016)	(3,374)	(3,459)	(1,707)	(1,760)
Time Inconsistent	-0.00	-0.00	-2,100	-2,032	-1,454	-1,395
	(0.009)	(0.009)	(1,398)	(1,440)	(1,141)	(1,143)
Self-Help Peer Groups	0.05***	-0.07	3,930	-14,203*	1,451	-11,184**
	(0.013)	(0.065)	(2,653)	(7,886)	(1,014)	(5,473)
High-Interest Account	-0.00	-0.03	1,225	-22,394	-356	-8293
	(0.008)	(0.051)	(2,193)	(20,158)	(1,125)	(8,701)
Constant	0.03***	0.07***	5,000	14,922***	4,353***	9,948***
	(0.006)	(0.028)	(1,189)	(4,932)	(810)	(2,977)
Control variables (and interactions)	No	Yes	No	Yes	No	Yes
Winsorized	None	None	None	None	Top 1%	Top 1%
R^2	0.03	0.04	0.00	0.01	0.00	0.02
Number of observations	2,687	2,687	2,687	2,687	2,687	2,687

Notes: Dependent variables: Number of deposits per month in Columns (1) and (2); Average balance (amount deposited - amount withdrawn) in Columns (3) - (6). Control variables (fully interacted with the treatment dummies) are: education, age, household size, initial household income, financial debt, last recorded amount of credit with FE, and bank savings. Standard errors clustered at the group level in parentheses. All monetary figures in Chilean pesos. 500 pesos = approximately 1 USD. *Level of significance*: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

[a]Time inconsistency is measured by giving survey participants choices between x pesos in time t and y pesos ($x < y$) in time t+1 month (similar to e.g., Ashraf et al. (2006b) and Meier and Sprenger (2010)). Individuals make those choices for t = today and t = six months from today, which allows us to categorize individuals as being time inconsistent, i.e. present biased, if they are more impatient when t = today than when t = 6 months. Using this definition, about 30% of participants are classified as time inconsistent.

Table C2: The Effect of Feedback Text Messages on Savings (Without Controlling for 'Prior Balance')

Dependent variable:	# of Deposits	Amount Deposited			New Savings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Intent-to-Treat							
Treatment Group	0.089***	1,836*	1,611*	1,142**	9,999	9,114	8,863
	(0.031)	(985)	(824)	(511)	(6,599)	(6,328)	(6,301)
Constant	0.046*	951	951	810*	-10,316*	-10,975**	-11,858**
	(0.025)	(801)	(670)	(415)	(5,365)	(5,145)	(5,123)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
R^2	0.009	0.004	0.004	0.006	0.003	0.002	0.002
Panel B: Treatment on the (Instrumented) Treated							
Treated	0.210***	4,343*	3,810**	2,701**	23,646	21,551	20,959
	(0.072)	(2,318)	(1,939)	(1,200)	(15,626)	(15,001)	(14,944)
Constant	0.046*	951	951	810*	-10,316*	-10,975**	-11,858**
	(0.025)	(797)	(667)	(412)	(5,372)	(5,157)	(5,138)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
Number of observations	873	873	873	873	873	873	873

Notes: This table replicates the specification in Table 4 without controlling for 'Prior Balance' in their savings account. Dependent variables: Number of deposits per month in intervention period in Column (1); Amount deposited per month in Columns (2)-(4); New savings (amount deposited - amount withdrawn) in intervention period in Columns (5)-(7). All outcomes are for the intervention period from August to October 2009. Coefficients of OLS regressions in Panel A and coefficients of two-stage least squares in Panel B. All monetary figures in Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance*: $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table C3: Effects of Self-Help Groups for Text Message Sample

Dependent Variables:	# Deposits	Amount Deposited	New Savings
	(1)	(2)	(3)
Self-Help Peer Groups	0.288***	2,707	10,058*
	(0.062)	(1,750)	(5,406)
High-Interest Account	0.006	2,290	5,797
	(0.035)	(1,430)	(4,309)
Constant	0.089***	1,565***	-2,683
	(0.026)	(595)	(3,758)
R^2	0.052	0.002	0.003
Number of observations	873	873	873

Notes: This table calculates the effects of the Peer Group Experiment for August to October 2008 among the sample of the 873 participants who also ended up participating in the Feedback Message Experiment. Dependent variables: Number of deposits per month in Column (1); Amount deposited per month; New Savings (amount deposited - amount withdrawn) in August to October 2008 in Column (3). Standard errors clustered at the group level in parentheses. Monetary figures in Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance*: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Table C4: Choice of Savings Buddy

	Frequency	Percent
Why did you choose your Savings Buddy?		
Because my Savings Buddy ...		
... and I save together in the same account.	18	12.24
... is very strict and will motivate me to comply with my savings goals.	45	30.61
... is very relaxed and will understand if I do not reach my savings goals.	7	4.76
... is very close to me and I share my financial information with them.	42	28.57
... is a role model when it comes to savings, very organized and always complies with their savings goal.	28	19.05
Other	4	2.72
No response	3	2.04
Number of observations	147	
What is your relationship to your Savings Buddy?		
Partner	37	25.17
Mother or father	8	5.44
Child	48	32.65
Other relative	20	13.61
Close friend	25	17.01
Neighbor	3	2.04
Other	4	2.72
No response	2	1.36
Number of observations	147	