

# Under-Savers Anonymous

## Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device\*

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November 2011

PRELIMINARY. DO NOT CIRCULATE.

### Abstract

While commitment devices such as defaults and direct deposits from wages have been found to be highly effective to increase savings, they are not available to the millions of people worldwide who work in the informal sector or as independent entrepreneurs, since they do not have a formal wage bill. Self-help peer groups are an alternative commitment device that is widespread and highly accessible. We conducted two randomized field experiments among low-income micro-entrepreneurs in Chile to analyze their effectiveness. In the first experiment, we find that self-help peer groups are very potent at increasing savings. In contrast, a more classical measure to increase savings, a substantially increased interest rate, has no effect on the vast majority of participants. A second field experiment is designed to unbundle the key elements of peer groups as a commitment device and finds that surprisingly, the actual meetings and peer pressure do not seem to be crucial for their effectiveness.

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\*We thank Alberto Abadie, Alberto Alesina, Nageeb Ali, John Beshear, Shawn Cole, David Cutler, Michael Kremer, Nicola Fuchs-Schuendeln, Edward Glaeser, Daniel Hojman, Lakshmi Iyer, Sandy Jencks, David Laibson, Dean Karlan, Lawrence Katz, Dan Levy, Jeffrey Liebman, Stephan Litschig, Brigitte Madrian, Sendhil Mullainathan, Rohini Pande, Alvin Roth, Guy Stuart, Richard Zeckhauser and participants at various seminars and conferences for helpful comments and discussions. We are grateful to Fondo Esperanza, Banco Credichile and Microdatos for outstanding collaboration in the implementation process. This project would not have been possible without the generous support by the following institutions: the Ford Foundation, the Lab for Economic Applications and Policy (LEAP) at Harvard, the Woman and Public Policy Program at the Harvard Kennedy School, the David Rockefeller Center for Latin American Studies, the Chazen Institute of International Business at Columbia Business School, the Columbia University CIBER, and the Russell Sage Foundation Small Grants Program.

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# 1 Introduction

Several behavioral mechanisms, such as defaults and direct deposits from wages into savings accounts, have been found to be highly effective at helping individuals increase their savings (e.g. Madrian and Shea, 2001; Thaler and Benartzi, 2004). However, most of these mechanisms are out of reach for large segments of the world’s population, since they depend crucially on the existence of a formal wage bill. This is particularly problematic in developing countries, where many work as low-income micro-entrepreneurs or in the informal sector.<sup>1</sup>

This paper investigates the effectiveness of one institution that is potentially available to anyone, including those working in the informal sector: peers as a commitment device. In fact, the use of peers as a commitment device to overcome self-control problems is a widely observed phenomenon, both informally (e.g. running groups or study groups) and formally (e.g. Alcoholics Anonymous (AA) or weight-loss groups).<sup>2</sup> While self-help peer groups have been subject to theoretical analysis (e.g. Schelling, 1984; Battaglini et al., 2005), there exists to our knowledge no clean evidence investigating whether they actually help participants achieve their goals and if so, what aspects make them effective.<sup>3</sup>

We conduct two randomized field experiments among low-income micro-entrepreneurs in Chile, to study the power of self-help peer groups as a commitment device and investigate the importance of actual in-person meetings and of peer pressure for their effectiveness. Our first experiment, the “Peer Group Experiment”, shows that

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<sup>1</sup>This is notably also the case for unemployment insurance, a form of forced precautionary savings, which is unavailable to most people in developing countries.

<sup>2</sup>For example, AA has more than 2m members world-wide, 1.3 of them in the US ([www.aa.org](http://www.aa.org)), and each week an average of 1.3m participants attend a Weight Watchers meeting ([www.weightwatchersinternational.com](http://www.weightwatchersinternational.com)).

<sup>3</sup>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) show that a commercial Weight Watcher (WW) program is more effective than a standard care program for obese individuals.

self-help peer groups have a strong impact on savings. We offer 2,700 micro-entrepreneurs who meet regularly as members of a microcredit association the opportunity to open a formal savings account. Participants are randomly assigned to one of three conditions: 1) a control condition where individuals receive only the basic account; 2) a self-help peer group treatment where participants' publicly announced savings goals are 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.

Participants in the self-help peer group treatment deposit 3.5 times more often into the savings account, and their savings balance is almost twice as high as that of participants in the control condition. In contrast, the strongly increased interest rate has a surprisingly small effect, even though it was made exceptionally salient. While average savings increase somewhat, suggesting by linear extrapolation that the effect of self-help peer groups would corresponds to an interest rate increase of at least 7.8 percentage points, quantile analysis reveals that the vast majority of participants does not respond to the interest rate at all, neither in terms of amount saved nor by reallocating savings from pre-existing accounts to the newly offered high-interest rate account.

Our second "Text Message Experiment" is conducted one year after the opening of the accounts and is designed to unbundle the effect of peers as a commitment device. It shows that neither in-person meetings nor peer pressure are indispensable features of the power of self-help peer groups. Weekly follow-up text messages achieve as much as 80% of the effect of physical meetings. Peer pressure, through fear of embarrassment or desire for positive signaling, does also not seem to be the main aspect of what makes self-help peer groups effective. Follow-up text messages that inform not only the participant but also a "Savings Buddy" about the participant's performance are no more effective than messages that inform only the participants of their own performance and about the success rate of

others similar to them.

This paper makes three main contributions: First, the paper contributes to the literature on commitment devices for saving. Many people regret not having saved more (Choi et al., 2002, for the US, authors' survey results for Chile). Since even small amounts of savings can have large positive effects on people's lives (e.g., Burgess and Pande, 2005; Brune et al., 2011; Ashraf et al., 2010; Dupas and Robinson, 2011; Abraham et al., 2011), successful ways to foster savings are important. We provide an effective mechanism that can be applied outside of settings with a formal wage bill, which makes it available to those working in the informal sector or independent entrepreneurs, who comprise a large share of the population in developing countries.

Much of the literature on savings commitment devices in developing countries has focused on *Withdrawal Commitment Devices* (see, e.g., Ashraf et al. (2006b); Dupas and Robinson (2011); 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. In contrast to withdrawal commitment devices, deposit commitment devices limit the risk that the commitment device creates large welfare losses if an emergency arises, since the savings are always available in times of need.

Second, this paper provides evidence on the role of peers for savings decisions, and for behavior change more generally. To our knowledge, this presents the first randomized study to show the effectiveness of self-help peer groups in helping people achieve their goals. Beyond demonstrating the effectiveness of the peer groups as a commitment device, we take a step in the direction of unbundling this composite treatment, in order to analyze the mechanism driving the result. Peers groups are often thought to affect behavior by

creating pressure on individuals - as violating one's commitment can be punished directly or can negatively affect a person's reputation or image (e.g. Schelling, 1984)<sup>4</sup> - or by facilitating the transfer of information between peers about the best ways to succeed at the task at hand - such as providing information about savings options, as in Duflo and Saez (2003). Alternatively, Battaglini et al. (2005) suggest that peers may be motivated by observing the success of others, which leads them to update their belief about their own ability to follow through with the goal.

Our finding that weekly follow-up text messages, even without a Savings Buddy, can provide almost the same effect as actual peer group meetings, suggests that neither peer pressure nor the mutual mental support or information sharing in the group seem to be the crucial elements of what makes self-help peer groups effective at increasing savings. Combined with evidence that information about savings behavior of peers has only limited effects (Beshears et al., 2009)<sup>5</sup> and that regular reminders increase savings (Karlan et al., 2010)<sup>6</sup>, our results suggest that peer groups might be an effective commitment device not so much because of social interactions but rather due to the regular follow-up and feedback mechanism they provide.

As a third contribution, we provide one of the first experimental studies to evaluate the impact of interest rates on savings that speaks to a larger literature on the elasticity of intertemporal substitution.<sup>7</sup> A large majority of our participants do not increase savings if

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<sup>4</sup>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).

<sup>5</sup>The evidence on peer information is in general very mixed. While positive effects have been found in some domains, like electricity usage when bundled with tips to save energy (Ayres et al., 2009; Allcott, 2011) or contributions to public goods (Frey and Meier, 2004), 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).

<sup>6</sup>Reminders have also been found to be effective in other areas, for example to decrease overdraft bank fees (Stango and Zinman, 2011), improve repayment of loans (Cadena and Schoar, 2011), or increase vaccination rates (Milkman et al., 2011).

<sup>7</sup>One notable exception is an experiment by Schaner (2011) in Kenya, which randomly varies interest rates to study decision-making in couples with heterogenous time preferences.

interest rates are substantially increased. This limited effect of interest rates is interesting in itself. As the effect of the self-help peer treatment shows that participants are able (and willing) to increase their savings comparing the two treatments might give an explanation for the limited effectiveness of the interest rate treatment. Limited financial literacy might explain part of the low sensitivity to high interest rates. The functioning of self-help peer groups requires much less financial sophistication than changes in interest rates.<sup>8</sup> Additionally, the result indicate that if the problem at hand (i.e. low savings rate) is behavioral in nature, giving additional financial incentives might not be as effective (for a review of limited effect of financial incentives to change other behavior, see Gneezy et al., 2011). ‘Behavioral’ incentives (e.g. self-help peer groups) are more powerful in helping people save than purely monetary incentives.<sup>9</sup>

The remainder of the paper is organized as follows: Section 2 presents the set-up and the design of both field experiments. Section 3 presents the result of Experiment 1 on the effect of self-help peer groups on savings. Section 4 presents evidence from Experiment 2 using text messages to test the importance of peer meetings and peer pressure on savings. Section 5 concludes.

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<sup>8</sup>Even in developed and more educated environments, individuals have been found to have a lack of understanding of basic concepts like compounded interest (see, e.g. Lusardi and Mitchell, 2007, 2009, for evidence from the US) or fee structures (see e.g., Choi et al., 2010, for evidence from MBAs).

<sup>9</sup>Bertrand et al. (2010) compare the effect of financial incentives (interest rates) with psychological cues for the uptake of credit products. Similarly to our results, the interest rates had a much smaller effect than the psychological cues. They conjecture that cues are more effective as they aim at triggering “an intuitive rather than a deliberative response” (p. 268).

## 2 Background, Data, and Design of Experiments

### 2.1 Background and Data

Both randomized field experiments for this study are 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 are members of FE, and the savings accounts that are offered are 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 monitor 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 allows us to incorporate the peer group based commitment structure.

Participants express substantial desire to increase their savings. 68% say they frequently regret not having saved more. In focus groups conducted before the intervention, many mention the goal of building savings as a buffer stock for emergencies or for non-business related goals. The main reason why they are looking to build savings while at the same time borrowing from the microfinance organization is the difference in liquidity. The rigid schedule of the micro-loans renders them unsuitable to cover irregular or unexpected financial needs. The precautionary motive leads to the desire to build a buffer stock savings at the same time. However, the optimal amounts of savings can be expected to be low, since for amounts beyond what is necessary for short-term precautionary reasons, it will be more beneficial to use this ‘extra’ savings money reduce the amount of debt.

This paper draws on three different sources of data. First, information on take-up and all transactions in the accounts is obtained directly from Banco Credichile. The second source of data comes from FE’s administrative files, which include participants’ estimated household size, income, and years of education. Unfortunately, we do not have data on loan size or default rates. Finally, we complement these two sources of administrative data with an extensive baseline and follow-up survey.

These surveys include questions about participants’ savings 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, or confidence in one’s own ability to follow through with one’s goals. The surveys also include three financial literacy questions (similar questions have been used in, e.g., Banks and Oldfield, 2007; Gerardi et al., 2010) and a measure of whether individuals have time inconsistent preferences. As in, e.g., Ashraf et al. (2006b) and Meier and Sprenger (2010) we measure time inconsistency with choices between  $x$  Pesos in time  $t$  and  $y$  Pesos ( $x < y$ ) in time  $t+1$  months. Individuals make those choices for  $t = \text{today}$  and  $t = \text{six months from today}$ , which allows us to categorize individuals as being time inconsistent, i.e. present biased, if they are more impatient when  $t = \text{today}$  (i.e. the present is involved) than when  $t = 6 \text{ months}$ . Using this definition about 30% of participants are classified as time inconsistent.

The time line of the interventions is as follows (see Figure 1 for an illustration): the baseline survey is conducted in April-May 2008, during one of the group meetings. The savings accounts for the first experiment, the Peer Group Experiment, are introduced soon after in June-July 2008. A year later, the follow-up survey is 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 are introduced to the second experiment, the Text 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 is 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 are present in the meeting when the baseline survey was conducted.

In the weeks following the baseline survey, one of three types of savings accounts is introduced to the groups, with an offer to open such an account: 1) A basic savings account, 2) The basic account accompanied by a self-help peer group component, 3) A high-interest account (see details below). Groups are randomly assigned to treatments, and all members within a group are 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 is stratified by group monitor, which automatically leads to balance by region as well.

The accounts are attractive compared to other options in the market in that they have no maintenance fee and no minimum balance except for a 2-dollar minimum opening deposit. While all accounts are individual, participants also have the option to go to the bank together with other group members to open the account. The accounts are completely liquid for withdrawals at any time, and the financial conditions are guaranteed for at least 2 years.

Half of the groups are randomly selected for the self-help peer group treatment. The

other half does not receive any group support beyond the opening of the account. Among those not assigned to the self-help peer group treatment, half are offered the high-interest account. The accounts have the following features:

1. *The basic savings account* has all the features described above and a real annual interest rate of 0.3% (similar to the highest available alternative in the Chilean market).
2. *The self-help peer group account* is identical to the basic account, but accompanied by an accountability structure, such that the weekly meetings act as a self-help peer group in the following way: group members have the option of publicly announcing to the group what their weekly savings goal is for the coming credit cycle (approximately 3 months). Subsequently, members verify in each group meeting who complied with their savings goal. Those who complied and show a deposit slip to prove it receive a sticker in a booklet. Those who collect enough stickers receive a diploma as a non-monetary award. There are no financial incentives for complying with one's goal.
3. *The high interest account* is identical to the basic account, but offers a 5% real interest rate. It is explicitly presented as the account with the highest yield in the market, and the concept of compounded interest is illustrated graphically and with great care when the account is introduced.

### **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. There are no statistically significant differences with the exception of group size.

[Table 1 about here.]

Participants in the study have an average of 9.6 years of schooling and their mean age is 43 years. Monthly income per capita of their households is 84,212 pesos (about 160 USD), with an average household size of 4.3 people. 68% of participants do not have a savings account prior to the study. The reported mean of total savings for those who do have a pre-existing account is 69,108 pesos (while income is expressed in per capita terms, these savings may combine savings of several household members, especially including participants' children). Participants' reported mean debt, including the micro-loan from FE, is 408,312 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 who are present the day of the baseline survey is 14.7 per group, with a slightly lower average in groups offered the basic savings account.<sup>10</sup> For the questions about attitudes toward savings and toward their peers in FE, as well as participants' time preferences, we conduct an F-test, which clearly rejects the null hypothesis that they are jointly significant in predicting whether a group has been assigned to a basic account or one of the other two accounts.

## 2.3 Experiment 2: Text Message Follow-Up

### Design

The Text Message Experiment starts one year after the Peer Group Experiment, during the follow-up survey. It is conducted among 873 participants who had opened an

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<sup>10</sup>The baseline survey was conducted before anyone involved with the implementation knew which groups were assigned to which treatment, so we can exclude a selection effect based on the type of the account.

account in the scope of the Peer Group Experiment (see Figure 1). During the follow-up survey, eligible participants are randomly offered one of two text message services that simulate the regular follow-up of peer group meetings through a weekly text message. In addition to the regular follow-up, one treatment includes the aspect of peer pressure - others observing the success rate of the participant (Schelling, 1984) - while the second treatment includes the aspect of the participant observing the success rate of others (Battaglini et al., 2005).

1. *Peer Pressure Treatment:* Participants set a weekly savings goal for themselves. They then choose 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 receive a weekly text message, informing them whether the participant made their deposit this week. The message sent to participants also reminds them that the Savings Buddy received the same information. The text message to the Savings Buddies also thanks them for being the participant’s Savings Buddy (see the Appendix 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 receive a weekly text message, informing them whether they made their weekly deposit. However, no one else can observe the participant’s performance and there is no Savings Buddy exerting pressure. Instead participants are told what share of other participants similar to them made their weekly deposit.<sup>11</sup>

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<sup>11</sup>Originally, we intended to analyze the impact of randomly varying quality of peers through the following design. We assigned participants into four ‘comparison’ groups in order to create random variation in the quality of the peers. First, we divided participants in two groups of above and below median age. Among the similar age group, we then randomly divided participants into two groups. In the weekly text messages of the Peer Information Treatment, participants receive information about the fraction of others in their comparison group who made their weekly deposit. In the final analysis, we ended up pooling all four comparison groups, since power limitations did not allow us to distinguish differential treatment effects.

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 in the scope of the first experiment are randomly assigned to one of the three treatment groups for the second experiment. The randomization is stratified by savings balance in the account before the start of the Text Message Experiment and by the group to which the participants belongs. The latter automatically assures stratification by treatment in the first experiment. In order to maximize take-up, a set of screening questions are asked during the survey to determine who remains in this study. Only those 873 participants who have a cell phone (85.2% of the total) and who are 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 Text Message Experiment.

All participants, including the control group, are asked what would be their weekly savings goal for the next three months if such a service were offered. This allows us to rule out that the effect is driven by the goal setting itself (see, e.g., Locke and Latham, 2006). Those assigned to one of the treatments are then informed that they can indeed receive such a service for free, and the details of their particular service are explained to them (without mention of the existence of other treatments).

The research team matches weekly data from the bank with individuals in the study and sent corresponding text messages to participants. Since the interviews happened in a staggered manner, different participants start receiving the service at different points in time. However, the service ends for everyone at the same time at the end of October 2009.

### **Summary Statistics**

Table 2 presents summary statistics of the Text Message Experiment for the 873 participants in the sample. 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 seventy percent did not have a savings account prior to the account they opened in the context of this study. Mean monthly per capita income of participants' household 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 Text Message Experiment is 14,853 pesos, or about 30 USD. The average number of monthly transactions in 2008 is 0.18 deposits and 0.06 monthly withdrawals.

In the following, we show the results of both experiments. Section 3 presents the results of the Peer Group Experiment in two steps: first, we discuss the impact of self-help peer groups compared to the basic account and second, we benchmark the effect by comparing it to the impact of the high-interest rate account. Section 4 shows the results of the Text Message Experiment, which sheds light on the question of whether actual in-person meetings and peer pressure are crucial elements of what makes self-help peer groups effective as a commitment device.

## 3 The Effect of Self-Help Peer Groups on Savings

### 3.1 Self-Help Peer Groups vs. Basic Account

In this section, we analyze the effect of the Peer Group Treatment compared to the control group. After showing the overall results, we present subgroup analysis investigating whether individuals with time inconsistent preferences profit more from self-help peer groups. Finally, we discuss evidence suggesting that the savings in the bank accounts provided in this study are additional savings rather than substitution for other forms of savings.

Figure 2 shows the effect of self-help groups on the numbers of deposits and on the savings balance. It displays the Intent-To-Treat (ITT) effect for 12 months after the introduction of the accounts, comparing those assigned to the Peer Group Treatment to those assigned to the basic account. It is clearly apparent that the self-help peer groups increase savings outcomes in the accounts.

Panel A of Figure 2 shows that the average 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 3.5-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 stable afterwards suggests that individuals may have reached an optimal

level of savings that they maintain - consistent with a precautionary savings model.

While the decrease in the number of deposits over time and the stable difference in savings after the initial months could indicate that individuals reach an optimal precautionary savings level, the pattern might be also due to at least two additional reasons: first, individuals might not continuously participate in the self-help peer groups, for example because they leave the FE group. 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 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.

Table 3 shows these results in an OLS framework.<sup>12</sup> We estimate regressions of the following specification:

$$S_i = \alpha + \beta_1 \textit{Self Help}_i + \beta_2 \textit{Interest Rate}_i + \epsilon_i \quad (1)$$

$S_i$  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%. *Self Help* is a dummy equal to 1 for individuals in the Peer Group Treatment and *Interest Rate* is a dummy equal to 1 for individuals in the High Interest Treatment (analyzed in the next section).  $\epsilon$  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. These effects are both statistically and economically significant, as savings balances almost double and the

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<sup>12</sup>Tobit specifications do not change the results qualitatively.



number of deposits more than triples. While the amounts are modest in absolute terms, previous studies have shown that even small 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, 2011; Abraham et al., 2011). Panel B shows Treatment-on-the-Treatment (TOT) effects. Take-up rates of the savings accounts are very similar between the 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.

In sum, the evidence indicates that the self-help peer groups are effective in encouraging deposits by participants, which in turn leads to a 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 observed by the peers.

In a second step of the analysis, we ask whether participants who exhibit dynamically inconsistent time preference benefit more from self-help peer groups.<sup>13</sup> This may be the case if the peer groups lead to front-loading of the cost of not saving. Overcoming self-control problems might be especially important for these individuals (for evidence showing that time-inconsistency correlates with financial behavior, see e.g. Ashraf et al., 2006b; Meier and Sprenger, 2010).

[Table 4]

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<sup>13</sup>In an earlier version of this paper, we additionally tested predictions from Battaglini et al. (2005) based on the analysis of data that contained only the first 6 months of treatment (rather than the 12 months available in this paper), and found that consistent with their model, those who feel superior to others in their group in terms of their capacity to follow through with their goals benefit more from the peer group treatment. However, these results are not significant anymore when looking at the 12 months time frame.

In Table 4, we present results that test whether individuals who exhibit time-inconsistent preferences profit more from self-help peer groups. The results in Column (1) show that indeed the self-help peer groups increase the number of deposits more for such individuals. The results are robust to including a number of control variables and interacting them with the treatment dummies (as the coefficients of the treatment dummies are for the omitted group, they are less informative). Looking at the savings balance, the effects are measured with much less precision.

Having found that self-help peer groups have a substantial effect on savings in the study account, we next investigate 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. Much of the literature on savings, such as on 401(k)s, on the role of defaults, etc. does therefore not measure the crowd-out effect on other forms of savings. A recent exception is Gelber (2010) who looks at transitions into 401k eligibility and finds that eligibility “crowds in” reported IRA assets. But even Gelber does not have access to administrative data on other savings. To our knowledge, no paper so far can determine the question of crowding-out convincingly. Ashraf et al. (2006b) find no crowding out of saving in other accounts in the *same* bank as the accounts offered in their experiment, but they also cannot observe other savings.

We provide three pieces of evidence suggesting that self-help peer groups increase total savings and do not just replace other forms of savings. First, and most basically, for the 70% of participants who do not have another savings account, savings in the study account represents all new *formal* savings.

Second, we measure the impact of the treatments on other forms of savings. In order to measure potential crowd-out, we ask individuals extensively about other forms

of savings in the baseline and follow-up surveys. As expected, these amounts are reported very noisily. In order to measure how noisy such self-reported information on savings amount is, we also ask participants to report the amount saved in the study account, for which we have administrative data. Comparing the self-reported to the true amount, we find a correlation of merely 0.43.

Given the noisiness, looking at total reported amounts saved is not very informative to capture crowd-out. If anything, the data suggests a crowd-in of other forms of savings for participants in the Peer Group Treatment. However, anticipating the low reliability of self-reported amounts, we also elicited a binary measure indicating whether participants who have other accounts made any deposits or withdrawals in the previous six months. This measure is much less noisy, since it is easier for participants to remember and to report than amounts of the balance. Confirming the validity of this measure, we test whether participants in the Peer Group Treatment report 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 ( $p < 0.01$ ). We then analyze the binary measure for other accounts and find that those in the Peer Group Treatment are not less likely to use their other accounts than the control group, both in terms of deposits and withdrawals. Finally, looking at reported cash holdings, we again find no significant differences. In sum, we find no evidence for crowd out of other forms of saving. Participants in the Peer Group Treatment and High Interest Treatment do not report lower total savings, do not make less use of pre-existing accounts, and do not report less cash holdings.

A third 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), showing that having access to the savings accounts in this study has substantial real impacts and 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 less often need to reduce consumption due to economic difficulties, compared to a pure control 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 savings in our field experiment represents additional savings 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. In addition to providing a benchmark for the effectiveness of the self-help peer groups, understanding the interest rate elasticity of savings is an important question by itself.

From a theoretical perspective, the overall effect of interest rates on savings is ambiguous, due to the income and substitution effects. When interest rates increase, the substitution effect makes savings more attractive, while the income effect captures the fact that the future value of the savings increases, which reduces the savings rate needed to obtain a given level of future consumption. This income effect is particularly important for long-term savings, and may be less important for shorter term precautionary savings as the ones in this study. The substitution effect, however, makes a clear prediction: in the absence of significant transaction costs, individuals should be expected to reallocate their savings portfolio towards the higher return account.

In our setting, we have the opportunity to analyze both of these aspects. First, we look at whether the higher interest rate treatment increases overall savings in the study account. Secondly, we separate out the substitution effect, by investigate whether those

participants who have a pre-existing savings account before the study reallocate their savings to the higher yield account. Given that the high interest rate accounts represent by far the highest alternative in the market, we know that the interest rates of the pre-existing accounts is lower. Finally, when we find that participants do not reoptimize their savings portfolio towards the high-yield account, we explore the obstacles that may lead to this ineffectiveness of interest rates through a series of detailed questions in the follow-up survey.

Looking at the overall effect of the interest rate on savings in the study account, Figure 3 shows the mean monthly savings balance as well as the 75th, 95th, and 99th percentile.<sup>14</sup> The panels show several interesting patterns: first, it is not readily apparent whether the mean of the savings balance differs between the high interest treatment and either the self-help peer group or the basic account. Second, Panels B-D show that looking at the whole distribution reveals a much starker result. A very large fraction 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 rate 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 affect 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 high interest rate does not significantly increase the number of deposits, and in most specifications does also not significantly increase the amount deposited or the savings balance. Looking at the winsorized specifications confirms that when we top coded the largest percentiles, the interest rate does not seem to have an effect. The finding

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<sup>14</sup>The median is zero, given that take-up is only about 50%.

that an increase in the interest rate of almost 5 percentage points has very little impact is striking in itself.

For all outcomes, the self-help peer groups are more successful in increasing savings than the increased interest rate, except for a small number of individuals at the top of the distribution. The difference is statistically significant for the number of deposits and for the winsorized savings amounts. If we take the results from Column (5) and linearly extrapolate the point estimation of the interest rate increase, the results indicate that the self-help peer groups have an effect equivalent to an increase in the interest rate to 7.8%.

Having found that for the vast majority of participants, the high interest rate account does not increase savings, we focus our attention to the subset of participants, for which reallocation of pre-existing savings into the study account could be expected: participants who have a pre-existing savings account. However, for small amounts of savings, the transaction costs may be too large to warrant reallocation. We therefore split the group of those with pre-existing savings further into two groups and focus on those above the median of the pre-existing savings balance.

Surprisingly, even these ‘high pre-treatment savers’ do not reallocate their savings into the high interest account. Their savings in the study account are orders of magnitude lower than their savings in the pre-existing accounts. Their average balance in the pre-existing accounts is about 315 thousand Pesos (or about 650 USD), while the savings in the study account are about 15 thousand Pesos. When asked in the follow-up survey, less than 1% indicate having made any transfers from a pre-existing account into the study account.

There are many potential explanations for these findings: 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 leads participants to prefer the alternative bank account. We explore these possible reasons through a series of detailed questions in the follow-up survey.

Two aspects stand out in the survey 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 the alternative savings account. Despite that, 63% of those in the high interest rate treatment claim that their alternative savings account has a higher interest rate which, as discussed above, is highly unlikely.) Given these stark results, we investigate to what degree financial literacy or lack of schooling is 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 or above median education, the high interest rate treatment leads to statistically significantly higher overall savings than the basic account, while for the overall population it does not. However, the difference between the subgroups is not significant.

After assessing the relative differences of the two savings accounts in terms of interest rate, distance, and other qualities, we ask those who did not transfer money into the high-interest account directly about their main reasons for not doing so. They are shown a list of possible reasons and asked to rank each in terms of its importance. Looking at the reasons indicated as very important, mental accounting stands out as by far the most important one.<sup>15</sup>

In sum, we find that while savings in the high interest account seem to be slightly higher than in the basic account, this difference is not statistically significant, and quantile analysis shows that for the vast majority of participants, interest rates do not increase

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<sup>15</sup>The following are all answers in order of frequency: Mental accounting 70% (“Because the alternative account is destined towards a specific goal that I do not want to mix with the other savings account”), distance 19% (“The other bank is closer”), uncertainty 18% (“Because I am not sure whether the favorable conditions of the account in the study will continue”), trust 18% (“The other bank is more trustworthy”), interest rate 17% (“The other account has a higher interest rate”), cost of withdrawing and redepositing 10%, and having an outstanding loan at the other bank 9%.

savings in the study account at all. Looking at the subsample of participants who have significant pre-existing savings, we find that they do not reallocate savings into the higher yield account. These findings are especially interesting given that in the context of this experiment, the higher interest rate is made exceptionally salient. A training session at the introduction of the high interest account stresses the fact that these represent the highest alternative in the market, and explains the effect of interest rates and compounded interest rates over time in a very intuitive manner.

These findings illustrate another advantage of self-help peer groups: they require little financial literacy. Our findings also suggest that models or policies based on the assumption that low-income individuals will respond to changes in interest rates should be treated with caution.

## 4 How Crucial are Meetings and Peer Pressure?

The previous section established that self-help peer group meetings are effective at increasing savings. Such peer group programs consist of a whole bundle of interventions: goal setting, regular follow-up in meetings, peer pressure by others, observing the performance of others, symbolic prizes such as stickers for those who perform well, advice in how to reach one's goal, etc. This section attempts to unbundle this multifaceted intervention by investigating the importance of two of its key elements: physical meetings and peer pressure.

We first analyze the importance of in-person meetings by testing the effectiveness of regular follow-up in “synthetic” peer group meetings through peer-related text messages. We then investigate the role of peer pressure by comparing two different types of text message treatments.



## 4.1 The Effect of Peer Text Messages on Savings

Figure 4 shows the impact of being offered the weekly text message follow-up service. The horizontal axis represents calendar months in the year 2009, and the area between the horizontal lines marks the period during which the text message intervention is implemented (called intervention period going forward). Panel A shows the average number of deposits per month, and Panel B shows the average amount deposited.

[Figure 4 about here]

Figure 4 reveals three important results: First, before the experiment begins in August 2009 (month “8” in the figure), there is no significant difference between treatment and control group in both panels. 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, in 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 much more noisy to measure, 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.

In order to estimate the significance of these effects, we estimate regressions of the following general 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 1 for individuals in the treatment groups. In addition, we control for the amount saved prior to the intervention period, which allows us to reduce much of the noise by

capturing individual-specific variability, similar to what would be the case in a difference-in-difference specification.<sup>16</sup> We use the following measures of  $S_i$ : (1) average number of monthly deposits made, (2) average monthly amount deposited, and (3) new savings (deposits-withdrawals) in the intervention period. Amounts are also shown winsorized at top 1% and top 5%.

Table 5 presents the results for all three outcomes during the intervention period. Panel A shows the Intent-to-Treat (ITT) effect while Panel B shows the Treatment-on-the-Treated (TOT) effect. The peer related text messages have a substantial effect on savings. In the ITT specification, the average number of deposits is more than two times higher than in the control group. Not only do people deposit more often, they also deposit higher amounts. The average monthly deposited amount is about 2,000 Pesos higher in the treatment group. As a result, participants in the treatment group increase their savings balance in the intervention period by about 7,800 Pesos.<sup>17</sup> Take-up rates of the two treatments are very similar. Of participants who initially express interest in the service, 42.8% end up actually signing up when offered to participate in the Savings Buddy service and 41.6% when offered the Peer Information service. Correspondingly, the TOT effects are more than double in size. Treated individuals save, on average, around 19,000 Pesos or 38 USD more during the three treatment months, which corresponds to about 23% of average monthly household per capita income.<sup>18</sup>

[Table 5 about here.]

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<sup>16</sup>Results without controlling for prior balance (shown in Table A1 in the appendix) are qualitatively similar but measured more imprecisely.

<sup>17</sup>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.

<sup>18</sup>The new savings of zero in the control group indicates that participants in this group on average withdrew the same amount as they deposited, with negative new savings for some participants during this period.

To get a sense of how much of the effect of self-help peer groups can be achieved without physical meetings, we compare the magnitude of the treatment effect of the Peer Group Experiment and the Text Message Experiment. Since the two experiments differ both in who participates and in the duration of the intervention, the comparison has to be interpreted with caution. In order to maximize comparability, we calculate the effect of self-help peer groups in the Peer Group Experiment for the three first months among the 873 participants who also end up participating in the Text Message Experiment (see Table A2 in the Appendix). This provides a conservative estimate for the claim that physical meetings are less important than expected, since we focus on the three months when the Peer Group Treatment had the strongest effect. This also has the advantage of controlling for seasonal effects since it compares savings in the same calendar months, one year apart. Finally, TOT and ITT for the Peer Group Experiment are by construction identical in this sample, since all participants who end up in the Text Message Experiment opened a savings account in the scope of the Peer Group Experiment. For a conservative comparison, we look at the ITT effect of the Text Message Experiment. Doing this comparison, peer-related text messages achieve about 80% of the effect of self-help peer groups in terms of new savings balance (about 8,000 pesos compared to 10,000 in the peer group treatment).

In sum, the overall result of the Text Message Experiment shows that peer-related text messages, i.e. “synthetic peer groups”, have a substantial effect on savings. Comparison to the effect of real self-help peer groups suggests that text messages can achieve 80% or more of the effect of “real” peer groups, indicating that physical meetings are not as central for the effect of self-help peer groups as previously thought. In contrast to the self-help peer groups, the effect of the text messages does not decay over the three first months. This might be due to the fact that the default with respect to continuing participation is different for the two treatments: in order to discontinue participation in

the text message service, individuals would have to actively opt-out, while for the peer group support, participants have to actively opt-in each week by showing up at the meeting. The effect of text messages might therefore be more sustainable over time than the effect of self-help peer groups. Future research is required to test the effectiveness of the messages over the long run.

## 4.2 Is Peer Pressure Required for the Effectiveness?

After having established in the previous section that effects with a similar order of magnitude can be achieved through peer related follow-up messages without in-person meetings, this section investigates whether the effect is driven by peer pressure. To answer this question, we compare two types of text message treatments, the Peer Pressure Treatment and the Peer Information Treatment (see Section 2 for a description of the interventions).

Figure 5 shows the ITT effect of the Peer Pressure Treatment compared to both the control group and the Peer Information Treatment. Both in terms of number of deposits per months (Panel A) and in terms of amount deposited (Panel B) the savings behavior in the two treatments follows a very similar pattern.<sup>19</sup>

[Figure 5 about here.]

Table 7 confirms the impression from Figure 5. Both treatments independently increase savings compared to the control group (statistically significantly for all three savings outcomes except for new savings in the Peer Pressure Treatment). Importantly, 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.

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<sup>19</sup>The figures seem to suggest that there is a different time trend between the two treatments. However, the monthly graphs are not ideal to observe time trends, since participants joined the treatment in different weeks. When looking at a graph representing actual weeks since treatment start (shown in Figure A1 in the Appendix), the two treatments look very similar over time.

[Table 7 about here.]

The fact that the Savings Buddy Treatment does not lead to stronger effects is even more striking in light of a) whom participants choose as their Savings Buddy and b) the information contained in the Peer Information text 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 a Savings Buddy who really holds them to account. As indicated in Table 6, the most frequently stated reason (30%) is that the person chosen is very strict and will motivate the participant to comply with his or her savings goal. This is followed by 28% 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, 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 will be understanding if the participant cannot reach their savings goal.

[Table 6 about here.]

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 know each other, i.e. had past interactions and expect future interaction. Similarly, research by Karlan (2007) shows that in peer lending groups, close social connections are very powerful in reducing default. That would also indicate that the selected close peer should be particularly powerful. However, maybe for peers as a commitment device the ‘optimal’ social distance is different than norm enforcement like repayment. This would be the case if too close peers might be more understanding for when a commitment like a saving goal is not reached and less likely to exert pressure. More distant, but not too distant peers might be more powerful.

b) One possible explanation for why the Peer Pressure Treatment does not have a stronger effect than the Peer Information Treatment would 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 is the case, the nature of the information that ended up being conveyed makes us think that this is not likely. The message (see text in Appendix A) in the Peer Information Treatment informs participants about the percentage of others similar to them that made a deposit in a given week. It turned out that in most weeks, that number is very low or even zero. 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.<sup>20</sup> The finding that the text message follow-up still has a substantial effect suggests that the regular follow-up and taking stock may be more important for their effectiveness than peers and peer pressure.

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<sup>20</sup>We also analyzed whether the treatment effect of those in the Peer Information Treatment is different for those who have randomly been assigned to different peers. In the design of the Peer Information Treatment, we randomly assigned participants into different comparison groups (see footnote 5). We analyzed whether conditional on age group, those participants who received a savings comparison message in their first week of treatment with a higher average of deposits of their peers displayed a different deposit pattern thereafter, but we did not find any significant effects.

## 5 Discussion and Conclusion

In many domains, self-help peer groups are claimed to help people stick to their plans, for example to quit drinking or lose weight. Clean evidence on the impact of such self-help peer groups is notably lacking. To our knowledge, this is the first rigorous study that tests whether self-help peer groups are effective and, if so, how important actual peer pressure is for their effectiveness. Our first experiment shows that self-help peer groups have a large positive impact in the context of savings. Random assignment to a Peer Group Treatment leads to more than tripling of the number of deposits and doubles the saving balance. This effect is substantial in size compared to other means to increase savings. We benchmark the magnitude against a more classical measure, an increase of the real interest rate from 0.3% to 5%. Self-help peer groups have a stronger impact affecting a much larger share of participants. The fact that only few individuals react to the increased interest rate is a striking and novel result in itself.

Our second experiment starts to unbundle the mechanism of self-help peer groups by investigating the importance of physical peer meetings and of peer pressure for their effectiveness. The results show that upwards of 80% of the effect of self-help peer groups can be achieved without actual meetings and without any peer observing participants' performances by follow-up through text messages, and that coupled with a regular follow-up, peer pressure has no stronger effect than simply informing individuals about how many others fulfilled their commitment. Combined with evidence that information about savings behavior of peers has only limited effects (Beshears et al., 2009) and that regular reminders increase savings (Karlan et al., 2010), our results suggest that the regular follow-up may be the more important aspect of self-help peer groups than the actual peers. Future research is required to determine what aspect of the follow-up is most decisive: the feedback on participants own behavior and the corresponding mental pay-

off from ‘winning’ or ‘losing’ each week, the reminder of participants’ commitments, the regular encouragement, etc.

These results make a number of important contributions to the literature on savings, on peer effects, and on commitment devices, and generate a series of significant policy implications. First, we show that self-help peer groups can be an effective commitment device to increase savings. A device which is more broadly applicable than other schemes (e.g. even if individuals do not have a formal income stream). Especially in settings where people already meet regularly for other reasons (e.g. church or community groups) peer groups can be very effective. The results, however, also inform the literature on peer effects by questioning how much of the effect of self-help peer groups can be attributed to the influence of peers. Neither peer pressure (from self-chosen peers) nor actual meetings seem indispensable to achieve an increase in savings. This might indicate that the influence of peers is lower than expected or that the self-chosen peers are not the most powerful commitment device (even though people state that they choose them because they are role-models for savings). Future research might want to analyze the ‘ideal’ social distance or relationship to the Savings Buddy similar to the research on the ‘ideal’ social connection of members of group liability lending groups (e.g., Ferrara, 2003; Karlan, 2007).

Our result further show that text messages for savings are very attractive (also to businesses like our bank) as they are very effective and applicable more broadly and cheaply than self-help peer groups meetings. Modern communication technology can be employed to produce “virtual” peer groups to encourage savings. Additionally it might be more appealing for segment of the population that are less attracted to self-help peer groups (e.g., men). Part of the success of the text message treatment might have been that individuals have to actively unsubscribe in order to opt-out. In contrast, individuals have to actively opt-in every week to go to the self-help peer group. Additionally, the results might indicate that limited attention might be part of the problem that individuals



save too little and less so self-control problems (as in Karlan et al., 2010). Text messages as reminders are applicable beyond the issue of savings to other areas where people make resolutions but find it difficult to follow through, such as preventive health measures (e.g. diabetes, sports or immunization) or environmentally friendly behavior (e.g. saving energy). Obviously, there will be a limit of how many reminders a day or a week people will be attentive to. Future research should therefore investigate prioritization of multiple reminders and the effect of reminders over a longer time period.

The limited effect of a substantial interest rate increase compared to the self-help peer groups has additional policy implications. While mean savings does increase somewhat, the large majority of individuals (even individuals with substantial prior savings balances) aren't affected. Interest rates therefore have limited effect in increasing individuals' savings. This is not because individuals can't save as they are able to do so in the self-help peer groups treatment. The comparison between the two treatments might therefore tell us something about what works to foster savings. One potential interpretation for why self-help peer groups work better and more widely than an interest rate increase is the degree of financial sophistication required. Our survey evidence suggests that participants do not understand the concept of interest rates and do not know the interest rates on their own accounts. This is the case even though the concept of interest rates was explained to participants in simple terms and the fact that this account is especially beneficial was made exceptionally salient. In general, the degree of cognitive ability and sophistication required to understand fully a certain policy intervention needs to be a crucial dimension to predict the intervention's effectiveness.

Comparing the effects of the two treatments also advances our understanding of how to affect behavior change in general. Financial incentives might be less effective than 'behavioral' intervention if individuals do not stick to their goal not because of a lack of motivation or missing incentives, but because implementing the behavior change is

psychological difficult. Not just in savings, but in other domains individuals often do not lack motivation (e.g. a majority knows that they want to save more or many overweight individuals are very motivated to reduce their weight, but they fail in following through). If an individual is struggling with implementing a plan, financial incentives will not be too helpful (as also shown in other behavioral change programs, e.g., Gneezy et al., 2011), but behavioral remedies or nudges in general (Thaler and Sunstein, 2008) might.

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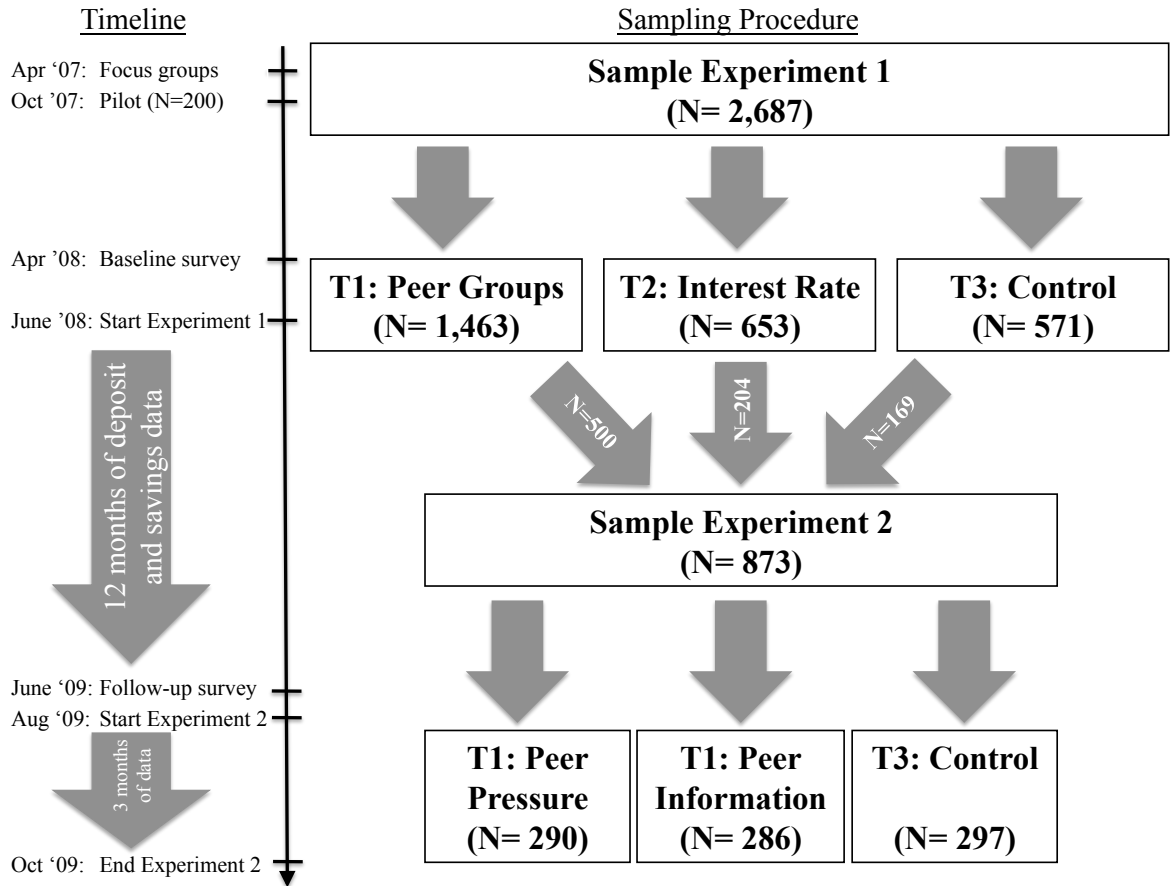
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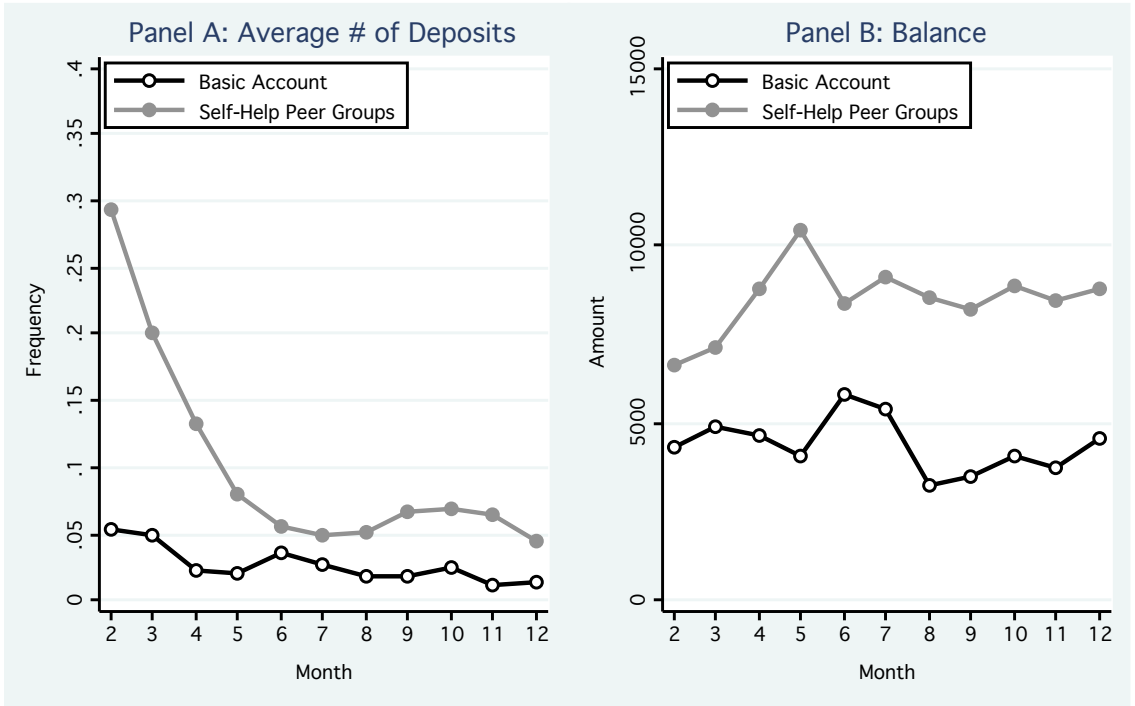
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## 6 Figures and Tables



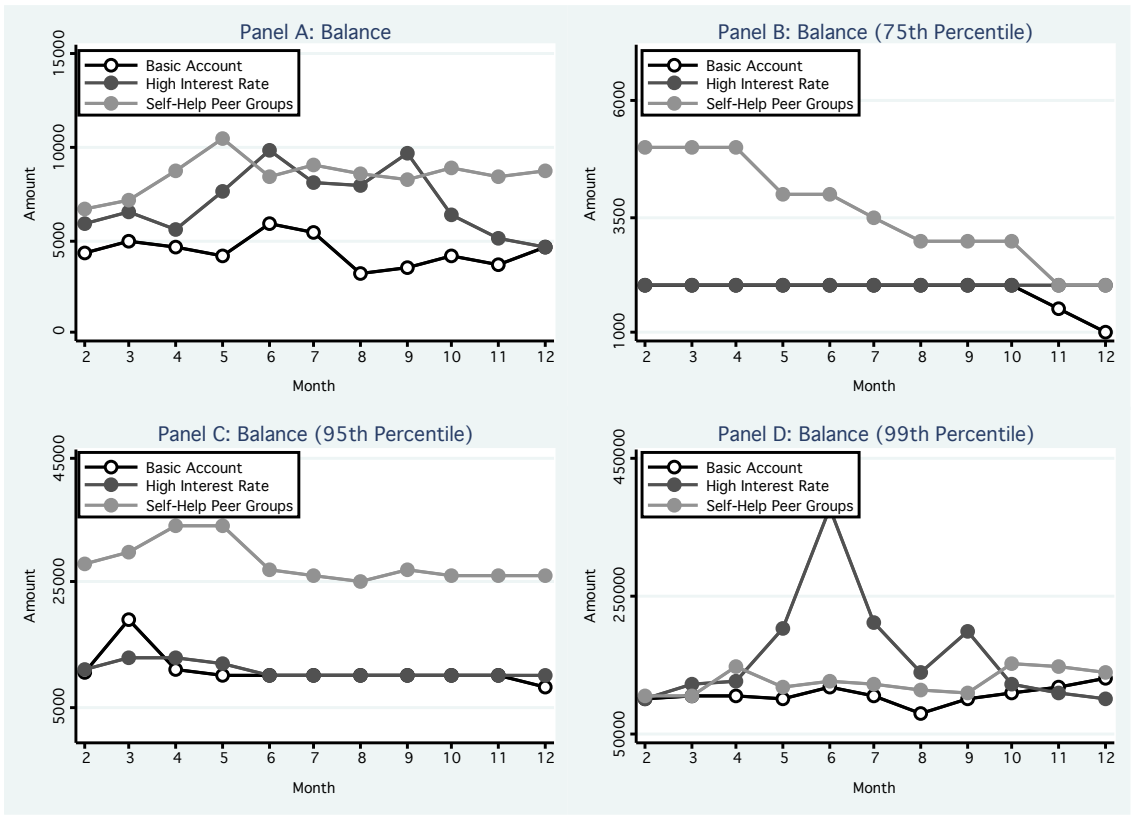
**Figure 1:** Timeline and Sampling Procedure



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

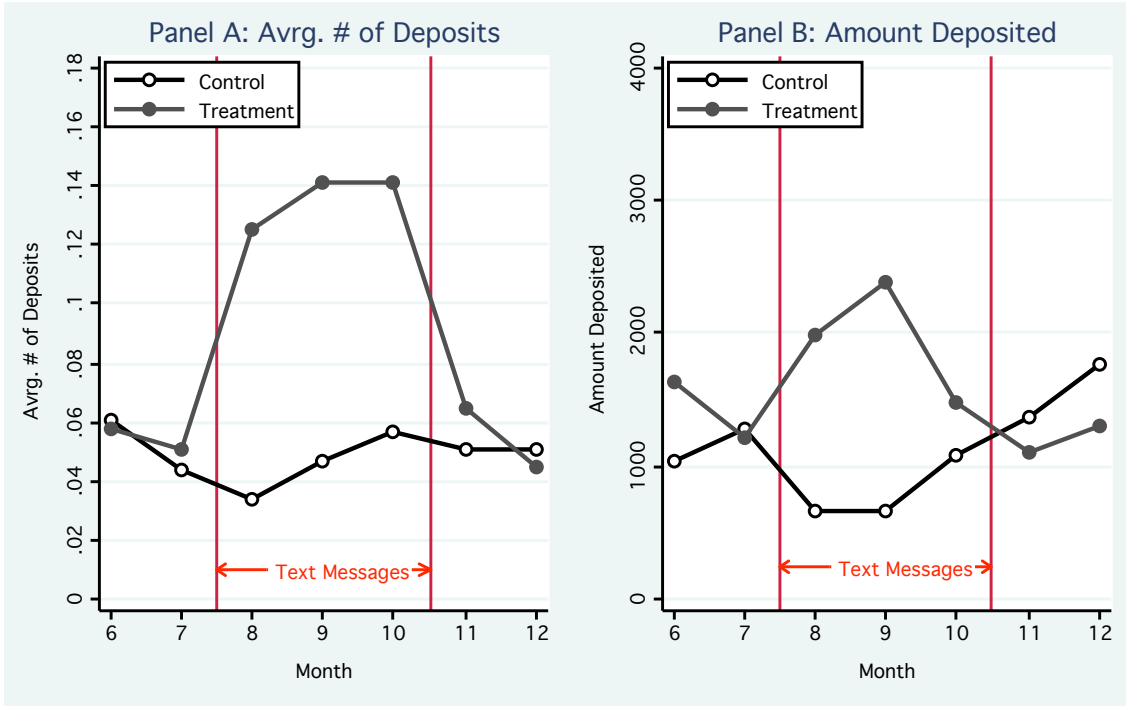
*Notes:* Panel A shows the number of deposits in a given month. Panel B shows average balance in the savings accounts (deposits - withdrawals). ‘Month’ indicates the months since the start of the experiment. All amounts are in Chilean Pesos. 500 Pesos = approximately 1 USD.





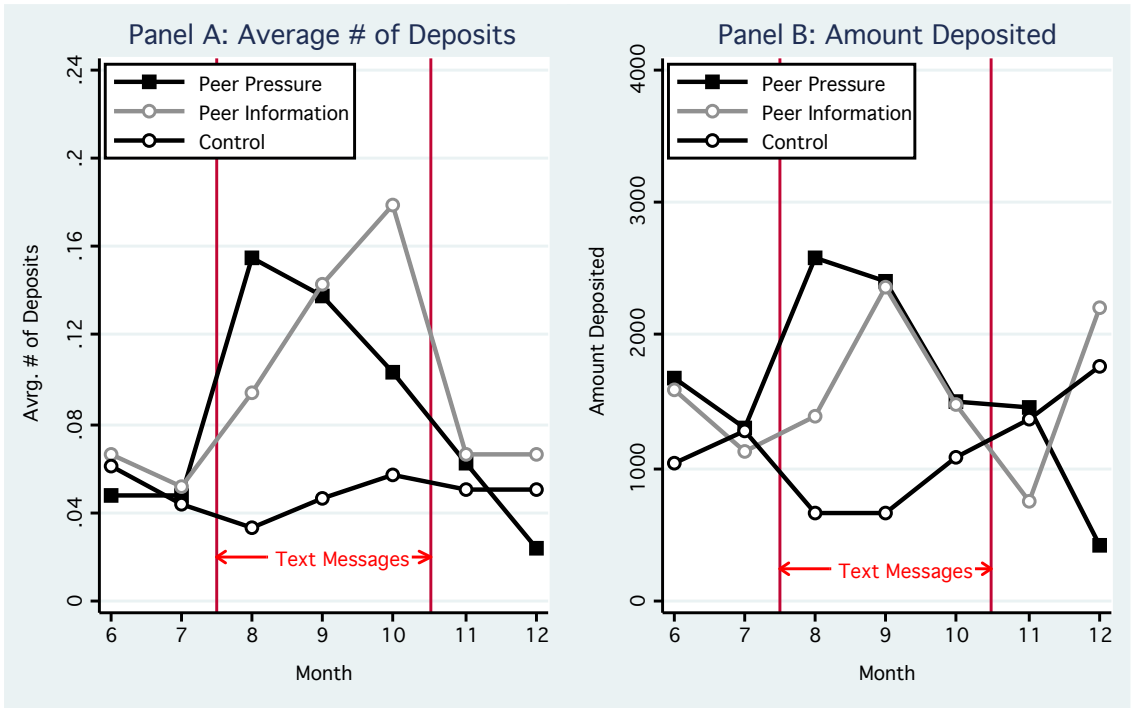
**Figure 3:** Effect of Self-Help Peer Groups and High Interest (Experiment 1)

*Notes:* Panel A shows the average balance in the savings accounts (deposits - withdrawals). Panel B shows the 75th percentile of the average balance, Panel C and Panel D show the 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 Peer Related Text Messages on Savings (Experiment 2)

*Notes:* Panel A shows the monthly number of deposits. Panel B shows the amount deposited per month, winsorized at the top 5%. The experiment started in August (month 8) and ended in October 2009 (month 10). All amounts are in Chilean Pesos. 500 Pesos = approximately 1 USD.



**Figure 5:** Impact of a Savings Buddy (Experiment 2)

*Notes:* Panel A shows the monthly number of deposits. Panel B shows the amount deposited per month, winsorized at the top 5%. The experiment started in August (month 8) and ended in October 2009 (month 10). All amounts are in Chilean Pesos. 500 Pesos = approximately 1 USD.

**Table 1:** Summary Statistics and Balance of Randomization (Experiment 1)

Variable	All	Control	Treatment 1	Treatment 2	Difference	
	All accounts	Basic account	Self-Help Peer Groups	High interest account	Treatment 1 - Control	Treatment 2 - Control
	(1)	(2)	(3)	(4)	(5)	(6)
Education	9.65 (3.05)	9.59 (2.99)	9.65 (3.05)	9.72 (3.07)	0.06 (0.21)	0.12 (0.24)
Age	43.38 (11.55)	43.50 (11.70)	43.56 (11.49)	42.80 (11.60)	0.06 (0.71)	-0.62 (0.84)
Income per capita (monthly)	84,212 (133,780)	92,523 (236,123)	82,107 (88,266)	81,658 (86,238)	-10,416 (14,172)	-10,865 (14,493)
Household size	4.32 (1.74)	4.41 (1.81)	4.28 (1.73)	4.30 (1.72)	-0.13 (0.12)	-0.07 (0.14)
People with savings account	0.32 (0.46)	0.33 (0.47)	0.31 (0.46)	0.32 (0.47)	-0.03 (0.03)	-0.01 (0.03)
Financial savings	69,108 (290,570)	80,227 (431,114)	66,631 (260,897)	64,933 (189,481)	-13,596 (18,058)	-15,293 (18,165)
Mean Financial debt	408,312 (833,319)	400,073 (804,914)	434,632 (944,669)	356,620 (538,193)	34,558 (50,446)	-43,453 (50,275)
Group size	14.70 (3.91)	13.49 (3.68)	15.08 (3.90)	15.21 (3.72)	1.58** (0.07)	1.71** (0.08)
Number of groups	196	46	104	46		
Number of observations	2,687	571	1,463	653		

*Notes:* In Columns (1)-(4) standard deviations are presented in parentheses below group means. Columns (5) and (6) show the difference between treatment and control groups by regressing the variable of interest on a treatment dummy. Robust standard errors clustered at the group level are shown in parentheses. Monetary figures are in 2008 Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**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 (3.04)	0.07 (0.25)	0.15 (0.25)
Age	44.05 (10.76)	-1.03 (0.90)	0.58 (0.90)
Income per capita (monthly)	83,962 (92,419)	5,423 (16,354)	14,816 (16,412)
Household size	4.394 (-1.580)	0.113 (-0.140)	-0.146 (-0.140)
Has prior savings account	0.300 (-0.460)	0.059 (-0.039)	0.022 (-0.039)
Prior savings balance	14,853 (152,427)	-3,543 (8,646)	-2,887 (8,616)
Number deposits 2008	0.180 (-0.470)	-0.003 (-0.036)	-0.023 (-0.036)
Number withdrawals 2008	0.060 (0.140)	0.005 (0.014)	0.002 (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. Standard errors of a regression on treatment dummies are shown in parentheses. Monetary amounts in 2008 Chilean Pesos. 500 Chilean Pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

**Table 3:** The Effects of Self-Help Groups and High Interest Rates on Savings

Dependent variable:	# of Deposits	Amount Deposited			Balance		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Panel A: Intent-to-Treat</b>							
Self-Help Peer Groups	0.070*** (0.014)	11,812*** (447)	652*** (236)	274*** (64)	4,050** (1,888)	2,227** (860)	1,817*** (392)
High Interest Account	0.005 (0.009)	1,051* (580)	471 (303)	31 (66)	2,446 (1,810)	527 (984)	232 (368)
Constant	0.025*** (0.006)	864*** (213)	765*** (164)	247*** (44)	4,419*** (930)	3,951*** (672)	2,193*** (269)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
$R^2$	0.022	0.001	0.002	0.012	0.001	0.004	0.017
$F$ -test comparing treatments	$p < 0.001$	$p = 0.85$	$p = 0.56$	$p < 0.001$	$p = 0.48$	$p < 0.06$	$p < 0.001$
<b>Panel B: Treatment on the (Instrumented) Treated</b>							
Self-Help Peer Groups	0.128*** (0.023)	2,167*** (805)	1,196*** (421)	502*** (112)	7,426** (3,413)	4,084*** (1,530)	3,332*** (666)
High Interest Account	0.010 (0.017)	2,080* (1,150)	932 (594)	61 (129)	4,840 (3,576)	1,043 (1,931)	460 (712)
Constant	0.025*** (0.006)	864*** (212)	765*** (163)	247*** (44)	4,419*** (928)	3,951*** (671)	2,193*** (268)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
$R^2$	0.097	0.015	0.030	0.081	0.015	0.045	0.145
$\chi^2$ -test comparing treatments	$p < 0.001$	$p = 0.95$	$p = 0.65$	$p < 0.001$	$p = 0.54$	$p < 0.07$	$p < 0.001$
Number of observations	2,687	2,687	2,687	2,687	2,687	2,687	2,687

*Notes:* Dependent variables: Average number of deposits per months in Column (1); Average amount deposited per months in Chilean Pesos in Columns (2)-(4); Balance (amount deposited - amount withdrawn) in Chilean Pesos in Columns (5)-(7). Coefficients of OLS regressions in Panel A and coefficients of two-stage least square in Panel B. Standard errors clustered on the group level in parentheses. Monetary figures are in 2008 Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

**Table 4:** Time Inconsistencies

Dependent variable:	# of Deposits		Balance			
	(1)	(2)	(3)	(4)	(5)	(6)
Hyperbolic $\times$ Self-Help	0.05** (0.024)	0.05** (0.025)	654 (3,028)	1,153 (2,793)	2,627 (1,595)	2,796* (1,582)
Hyperbolic $\times$ High-interest	0.03* (0.016)	0.03 (0.016)	3,942 (3,374)	4,291 (3,459)	2,836* (1,707)	3,033* (1,760)
Hyperbolic	-0.00 (0.009)	-0.00 (0.009)	-2,100 (1,398)	-2,032 (1,440)	-1,454 (1,141)	-1,395 (1,143)
Self-Help Peer Groups	0.05*** (0.013)	-0.07 (0.065)	3,930 (2,653)	-14,203* (7,886)	1,451 (1,014)	-11,184** (5,473)
High Interest Account	-0.00 (0.008)	-0.03 (0.051)	1,225 (2,193)	-22,394 (20,158)	-356 (1,125)	-8293 (8,701)
Constant	0.03*** (0.006)	0.07*** (0.028)	5,000 (1,189)	14,922*** (4,932)	4,353*** (810)	9,948*** (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: Average number of deposits per months in Column (1) and (2); Average balance (amount deposited - amount withdrawn) not winsorized and winsorized top 1% in Columns (3) - (6). Control variables (fully interacted with the treatment dummies) are: education, age, household size, initial household income (when joining FE) per capita, sum of financial debt, last recorded amount of credit with FE and bank savings. Standard errors clustered at the group level in parentheses. Monetary figures are in 2008 Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

**Table 5:** The Effect of Peer Text Messages on Savings

Dependent variable:	# of Deposits	Amount Deposited			New Savings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Panel A: Intent-to-Treat</b>							
Treatment Group	0.090*** (0.031)	1,989** (925)	1,745** (770)	1,208** (492)	7,786* (4,241)	6,779** (3,418)	6,509** (3,312)
Prior Balance	0.000** (0.000)	0.045*** (0.004)	0.039*** (0.004)	0.019*** (0.002)	-0.678*** (0.019)	-0.714*** (0.016)	-0.719*** (0.015)
Constant	0.041 (0.025)	277 (754)	365 (627)	532 (401)	-213 (3456)	-330 (2785)	-1,142 (2699)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
$R^2$	0.015	0.120	0.130	0.078	0.588	0.709	0.724
<b>Panel B: Treatment on the (Instrumented) Treated</b>							
Treated	0.216*** (0.072)	4,755** (2,199)	4,170** (1,830)	2,887** (1,166)	18,610* (10,163)	16,203** (8,226)	15,557* (7,984)
Prior Balance	0.000** (0.000)	0.045*** (0.004)	0.039*** (0.003)	0.019*** (0.002)	-0.677*** (0.019)	-0.713*** (0.016)	-0.718*** (0.015)
Constant	0.040 (0.025)	258 (757)	348 (630)	521 (401)	-288 (3,499)	-396 (2,832)	-1,205 (2,749)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
$R^2$	0.053	0.128	0.136	0.090	0.584	0.704	0.719
Number of observations	873	873	873	873	873	873	873

*Notes:* Dependent variables: Average number of deposits per months in Column (1); Average amount deposited per month in Columns (2)-(4); New Savings (amount deposited - amount withdrawn) in intervention period in Chilean Pesos 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 square in Panel B. Monetary figures are in 2008 Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$



**Table 6:** Choice of Savings Buddy

	Frequency	Percent
<b>Why did you choose your Savings Buddy?</b>		
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
<hr/>		
Number of observations	147	
<b>What is your relationship to your Savings Buddy?</b>		
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
<hr/>		
Number of observations	147	

**Table 7:** Comparing the Effects of Peer Pressure and Peer Information

Dependent variable:	# of Deposits	Amount Deposited			New Savings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Peer Pressure	0.087** (0.036)	2,018* (1,070)	1,771** (890)	1,415** (568)	5,720 (4,901)	5,599 (3,951)	5,517 (3,829)
Peer Information	0.094*** (0.036)	1,961* (1,074)	1,718* (893)	998* (570)	9,881** (4,919)	7,976** (3,965)	7,514* (3,843)
Prior Balance	0.000** (0.000)	0.045*** (0.004)	0.039*** (0.004)	0.019*** (0.002)	-0.678*** (0.019)	-0.714*** (0.016)	-0.719*** (0.015)
Constant	0.041 (0.025)	277 (754)	365 (628)	532 (401)	-213 (3,457)	-331 (2,786)	-1,142 (2,701)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
$R^2$	0.015	0.120	0.130	0.079	0.588	0.709	0.724
$F$ -test 'Buddy' = 'Information'	$p = 0.85$	$p = 0.96$	$p = 0.95$	$p = 0.47$	$p = 0.40$	$p = 0.55$	$p = 0.61$
Number of Observations	873	873	873	873	873	873	873

*Notes:* Dependent variables: Average number of deposits per month in Column (1); Average amount deposited per month in Columns (2)-(4); New Savings (amount deposited - amount withdrawn) in Columns (5)-(7). All outcomes are for the intervention period from August to October 2009. Monetary figures are in 2008 Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

## A Text messages (English translation)

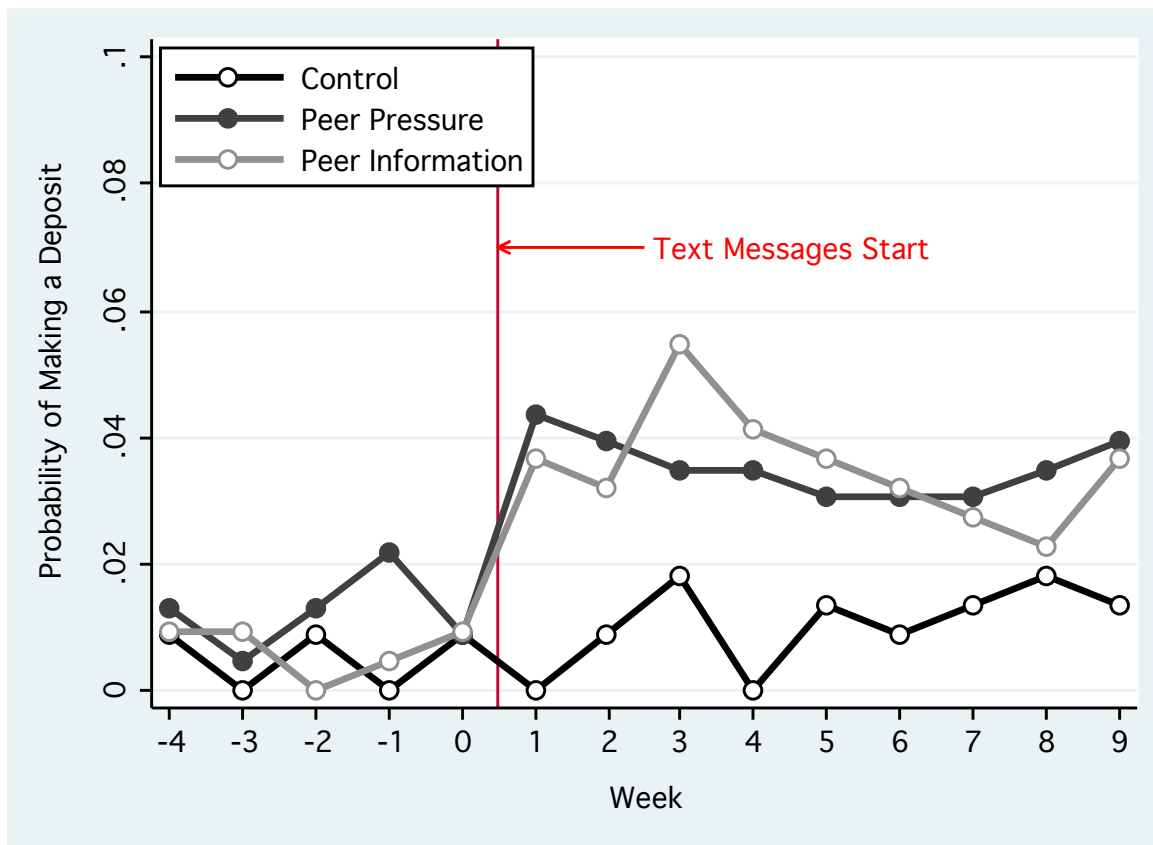
### Peer Pressure Treatment

- 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 Additional Figures and Tables



**Figure A1:** Peer Pressure vs. Peer Information Treatment in Making Weekly Deposit

*Notes:* The figure shows the probability to make a weekly deposit since the experiment started. While for all participants the text message service ended at the same time at the end of October 2009 (no attrition), different participants started receiving text messages at different times, depending on when they happened to be surveyed by the survey agency. Since the order of surveys was non-random, those starting the treatment later may be different. So if we only compared the treatment effect in say August to October, we would capture both a difference of the duration of the effect and of the composition of those who were being treated in those two time periods. For the graphical representation, we therefore need to choose a time length and include only individuals who are in the study early enough to receive messages for at least the number of weeks included in that time length in order not to confuse composition effects with changes in the treatment effect over time. The figure includes individuals who were at least 10 weeks into the study and graphically displays the treatment effects of the ‘Savings Buddy’ vs. the ‘Peer Information’ over 10 weeks after the week of the first text message.

**Table A1:** The Effect of Peer Text Messages on Savings (without controlling for ‘Prior Balance’)

Dependent variable:	# of Deposits	Amount Deposited			New Savings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Panel A: Intent-to-Treat</b>							
Treatment Group	0.089*** (0.031)	1,844* (984)	1,619** (823)	1,148** (510)	9,964 (6,593)	9,074 (6,323)	8,818 (6,296)
Constant	0.046* (0.025)	948 (799)	948 (668)	8,077* (415)	-1.03e+04* (5,356)	-1.09e+04** (5,136)	-1.18e+04** (5,114)
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
<b>Panel B: Treatment on the (Instrumented) Treated</b>							
Treated	0.214*** (0.072)	4,407* (2,340)	3,868** (1,958)	2,744** (1,211)	23,808 (15,777)	21,680 (15,146)	21,070 (15,089)
Constant	0.045* (0.025)	933 (802)	935 (671)	798* (415)	-1.04e+04* (5,406)	-1.10e+04** (5,190)	-1.19e+04** (5,171)
Winsorized	None	None	Top 1%	Top 5%	None	Top 1%	Top 5%
$R^2$	0.046	0.011	0.011	0.017	.	.	.
Number of observations	873	873	873	873	873	873	873

*Notes:* This table replicates the specification in Table 5 without controlling for ‘Prior Balance’ in their savings account. Dependent variables: Average number of deposits per months in Column (1); Average amount deposited per months in Columns (2)-(4); New Savings (amount deposited - amount withdrawn) 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 square in Panel B. Monetary figures are in 2008 Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

**Table A2:** Effects of Self-Help Groups for Text Message Sample

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

*Notes:* This table calculates the effect of self-help peer groups (i.e. the effect of Experiment 1) for the three first months (August to October 2008) among the sample of the 873 participants who also ended up participating in the text message experiment (i.e. Experiment 2). Dependent variables: Average number of deposits per month in Column (1); Average amount deposited per month; New Savings (amount deposited - amount withdrawn) in August to October 2008 in Column (3). Standard errors clustered on the group level in parentheses. Monetary figures are in 2008 Chilean pesos. 500 Chilean pesos = approximately 1 USD. *Level of significance:* \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$