

Soft versus Hard Commitments

A Test on Savings Behaviors

Jeremy Burke, Jill E. Luoto and Francisco Perez-Arce

RAND Labor & Population

WR-1055

July 2014

This paper series made possible by the NIA funded RAND Center for the Study of Aging (P30AG012815) and the NICHD funded RAND Population Research Center (R24HD050906).

RAND working papers are intended to share researchers' latest findings and to solicit informal peer review. They have been approved for circulation by RAND Labor and Population but have not been formally edited or peer reviewed. Unless otherwise indicated, working papers can be quoted and cited without permission of the author, provided the source is clearly referred to as a working paper. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.



Soft versus Hard Commitments: A Test on Savings Behaviors

Jeremy Burke, Jill Luoto¹ and Francisco Perez-Arce

Abstract:

Many Americans save too little, leaving them vulnerable to unexpected financial shocks. Finding ways to help Americans develop emergency savings funds could greatly improve welfare. A wealth of previous literature has demonstrated the central roles played by patience and self-control in achieving sufficient savings. When people lack patience or self-control, well-designed interventions may help improve financial stability. Increasingly, interventions intended to improve savings behavior have taken the form of externally restricted accounts such as ‘commitment accounts’ that include hefty fees for early withdrawal or that disallow withdrawals altogether for a pre-specified time. Yet, such hard commitment accounts may not appeal to impatient individuals, those who do not anticipate their own self-control problems, or to the poor for whom restrictions on scarce funds can be particularly painful. We test a new ‘soft’ commitment account that asks borrowers to think about their savings goals, how it would feel to achieve them, and make a pledge to work towards these goals (potentially increasing one’s intrinsic motivation), yet has no external restrictions on savings behavior. In a six-month randomized savings experiment we find that such soft commitments can significantly increase amounts saved on day one relative to either a hard commitment account (with external restrictions on withdrawals) or a traditional savings account. Additionally, the soft commitments significantly increased final savings balances relative to no form of commitment and were particularly effective for impatient individuals. However, despite the inherent illiquidity, the hard commitment account proved most effective in building savings balances amongst our participants at the end of six months.

¹ Corresponding Author, email: jluto@rand.org. We gratefully acknowledge financial support from the Roybal Center for Financial Decisionmaking. All errors are our own.

Introduction

Many Americans save too little, and often have savings rates that pale in comparison to those found in other developed countries (Harvey, 2004). Relatedly, many Americans are financially fragile and face great difficulty coping with even small financial shocks. This is particularly true for low-income consumers. In one recent survey, nearly a quarter of Americans reported they would not be able to come up with \$2,000 in 30 days if necessary, and an additional 19% said they would need to pawn possessions or take out payday loans to raise the required funds (Lusardi et al., 2011).

Many low-income individuals lack any savings at all. For the most economically disadvantaged, developing an emergency savings fund could generate large improvements in welfare and is likely to be a more important and feasible short-term goal than developing a well-funded retirement account. Yet much of the research on interventions to increase savings behaviors focuses on increasing savings in dedicated retirement accounts. This is limiting, because typically 401(k)s are more likely to be available in larger firms with more affluent employees. Insights about what is effective in promoting savings behavior among this population may not readily apply to low-income consumers (Duflo et al., 2006).

A wealth of previous research has shown that patience and self-control are important predictors of positive financial behavior, including saving (Meier and Sprenger 2010; Benton et al. 2007). But when people lack patience or self-control, an increasingly common solution to encourage savings has been the creation of “commitment savings products” - voluntary saving mechanisms that either include hefty fees if the savings are withdrawn too early, or prevent withdrawals altogether for a pre-specified period. Several studies have found that such “hard” commitment devices can be effective at increasing savings (Ashraf et al 2006; Brune et al. 2011; Beshears et al. 2012; Dupas and Robinson, 2012). However, take-up can be relatively low. For example, a hard commitment savings device introduced to microfinance clients in the Philippines increased savings by 81 percentage points when used, but only 28% of those offered the commitment device accepted (Ashraf et al., 2006). Similarly, Karlan et al. (2012) offered a hard commitment savings product to low-income individuals in New York City, with only 21% of eligible participants accepting the offer.

A variety of factors may account for the reluctance of some to enter a contract that restricts their future self. People may be concerned that a formal commitment will prevent them from accessing funds when they are most needed, they may fear losing any collateral at stake, or they may simply be too impatient to make the (costly) commitment. These problems may be particularly relevant for poor households: when resources are scarce, it can be difficult to restrict them in any way.

“Soft” commitments may be an effective way to increase savings for those unwilling to place restrictions on their future actions. Psychologists have found that people derive psychological utility from being consistent between their words/intentions and actions, and that this effect is stronger when the promise is written down, made in front of others, or effortful to make (Cialdini 2003; Greenwald et al. 1987). Additionally, because soft commitment accounts do not place any explicit restrictions on future behavior/access to funds, they may be more palatable to a wider base of consumers, particularly impatient individuals. However, casual observation as well as a wealth of studies suggest that the link between intentions and actions is not always consistently strong, and changing the former is often easier than the latter (Webb and Sheeran 2006; Smith et al, 2003; Rogers et al. 2012).

Nonetheless, recent evidence from an international context suggests that soft commitments can help individuals improve their savings balances. Atkinson et al. (2012) provided microfinance borrowers in Guatemala with commercial savings products to help them accumulate savings. In addition, some randomly selected clients were prompted to define a monthly savings amount they would be asked to deposit when making monthly loan payments, while another group of borrowers had this target defaulted to 10% of the loan payment. Importantly, borrowers did not incur any penalties if the savings targets were not achieved. The authors found that both the self-defined and default savings treatments significantly increased savings balances amongst savers. Karlan and Linden (2014) conducted a study in Uganda examining the efficacy of a commitment savings device restricted for educational expenses with that of an account earmarked for education, without any external restrictions on the use of funds. The authors find that student savings were significantly higher in the unrestricted account.

While international evidence is encouraging, it is largely unknown whether soft commitments will be similarly effective in a U.S. context, or whether they can be effective without the external discipline imposed by monthly loan repayments or earmarks for educational

spending. In addition, while Karlan and Linden (2014) is a notable exception, there is a lack of evidence documenting the comparative efficacy of soft and “hard” commitments. Soft commitments may result in higher overall savings within a population due to greater initial take-up. They may also appeal more to impatient individuals, arguably the population that could receive the greatest benefit. In contrast, take-up of a binding hard commitment product that restricts future behavior requires that one be sufficiently patient and self-aware to see the (future) benefits of making a costly commitment.

To examine these questions, we designed a six-month randomized savings experiment to test the following hypotheses:

Ho 1: Initial rates of take up of soft commitment savings products is higher than that of hard commitment savings products

Ho 2: Impatient individuals are more likely to take up soft commitment savings products than hard commitment savings products

Ho 3: Soft commitments increase total savings balances relative to no commitment or to hard commitments at the end of six months

Experiment

To test our hypotheses we implemented a savings experiment using RAND’s American Life Panel, an online representative panel of respondents aged 18 or older. ALP respondents participate in regular surveys over the internet, and those participants who do not have access to the internet are provided a device to enable them access through their televisions. The ALP has been used previously for savings experiments (Beshears et al. 2011) and provides an efficient medium for a pilot test of our hypotheses.

In the fall of 2012 RAND sent an email to 1,532 panel members asking them two screening questions. One, “Do you have adequate savings?” and two, “Do you wish to save more?” Respondents who answered that they did not have adequate savings and wished to save more were then sent a subsequent email which invited them to participate in an experiment that would provide at least \$50 in compensation and take about 10 minutes of their time to complete. The email included a link to the ALP website, where the experiment took place. ALP panel members

are accustomed to being invited to join experiments and going to the ALP website where they input a username and password (allowing researchers to identify respondents).

Upon entering the ALP website, respondents were shown an informed consent page explaining that the experiment was focused on savings behaviors, and described what would happen if they consented to participate: They would receive some amount of funds (either \$50, \$100, or \$500) and decide how much of those funds to deposit in a savings account; any non-deposited funds would be sent to them right away (with a few days' delay to allow for mailing a check). Before deciding how much of each potential prize to deposit, they would be told the rules of the savings account and whether and how often they would be allowed to make withdrawals over the next six months. Respondents were told that they would receive monthly emails updating them on the current balances in their account, and that they could not make any additional deposits beyond the first, or add any of their own money to the account during the experiment. Any money remaining in the account at the end of the experiment in six months, inclusive of any earned interest, would be mailed to them in the form of a check.

After providing their consent, respondents were randomly assigned to one of three savings account conditions. Rules of the account were described. Then, regardless of the type of savings account assigned, all respondents were asked successive hypothetical questions to choose how much of \$50, \$100, and \$500 they would prefer to deposit in their assigned account type, in the event that dollar amount were awarded to them. Respondents were told that their deposit choices were binding, and that the final amount they would "win" for their participation in the study from the set of \$50, \$100 and \$500 would be determined by a random lottery with a known distribution (80%, 10%, and 10%, respectively) and not be influenced by their responses. This incentive-compatible design was meant to provide some insights into the sensitivity of deposit shares to scale effects. i.e., in case \$50 was too small an amount to encourage any savings behaviors (which would max out at about \$57.70 if all funds were invested on day 1 and left in the account for the full six months to accumulate interest).

All accounts earned the same (high) annual interest rate of 30%. While exorbitant, the high interest was chosen to discourage participants from retiring funds to pay down existing debt or to save through other mediums. Consequently, withdrawals are interpreted as discontinuing savings.

The three savings account types were as follows (see Figure 1). The “Traditional Account” was a typical savings account that would earn 30% annual interest over the next six months, with no restrictions on withdrawals. This account serves as our control condition and most closely resembles a regular savings account (albeit with a high interest rate and no ability to make additional deposits).

The second account type was a “hard commitment” account that disallowed all withdrawals of any deposited amounts until the end of the experiment six months later. This account similarly earned 30% interest.

The third account type was our “soft commitment” account that was identical to the Traditional Account but included soft “nudges” to encourage respondents to save that were based on common marketing and psychological findings of behavior change. Specifically, after describing the terms of the account in an identical fashion to that of the Traditional Account, the following statement was included in the text on screen: “We imagine this will be of interest to you because you told us before that you would like to save more. Think about the reasons you have to save.” Next, participants were asked to type their savings goal in one word. Then, also in one word, respondents typed how it would feel to achieve that savings goal. Finally, participants in this treatment were asked to type in the following sentence on their keyboards: “I am a good saver. I can achieve my savings goal.” Similar to the Traditional and Hard Commitment Accounts, this account also earned 30% interest.

All respondents who deposited some amount of funds at the start of the experiment were sent monthly reminder emails with updates on their account balances as well as instructions on how to make withdrawals from the account (if allowed).

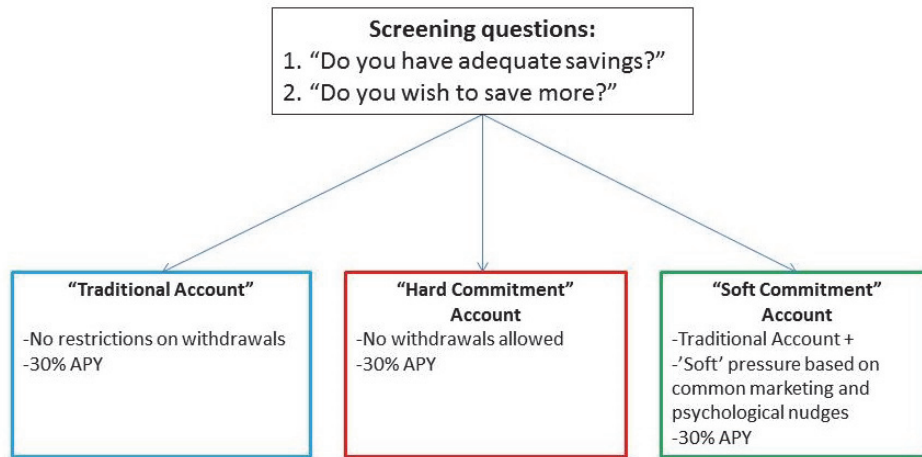


Figure 1: Allocation of participants to treatment 1

Sample Recruitment and Randomization

Beginning in August 2012, 447 ALP members were invited to participate and 414 completed the study. Basic descriptive data on our sample is provided in Table 1, divided by treatment status in order to show balance across randomization (described below). These demographic characteristics were collected by previous ALP surveys. 61% of our sample is female, 51% are married, and the average age is 48. Overall, our sample is slightly less affluent than the U.S. population at large. Approximately 68% of our sample has household income less than \$50,000, while another 20% earns between \$15,000 and \$30,000 per year. 15% earns \$75,000 or more.

Table 1 – Summary statistics of panel

	Treatment Arm			p-value
	TA	HC	SC	
Female (%)	0.626	0.614	0.582	0.745
Age	48.4	46.4	48.5	0.388
Married (%)	0.478	0.532	0.525	0.655
College Degree (%)	0.409	0.430	0.404	0.887
HHI > \$50,000 (%)	0.713	0.677	0.650	0.563
Household size	2.36	2.42	2.20	0.439
Observations	115	158	141	

Notes: TA = “Traditional Arm”, HC=”Hard Commitment”, SC=”Soft Commitment.” P-value is for F-test on three-way equality across treatment arms.

Table 2 shows the allocation of treatment status crossed with how much money respondents were awarded for their participation. 82% of the sample was awarded \$50, while 9% were awarded either \$100 or \$500. By design, we did not award any \$500 lottery prizes to individuals assigned to the Hard Commitment treatment due to limited research funds.

Table 2 – Experimental allocation cells

	Sample Sizes	Amount Won		
		\$50	\$100	\$500
Traditional Account	115	87	11	17
Hard Commitment Account	158	141	17	
Soft Commitment Account	141	111	11	20
Observations	414	351	39	37
Percentages	100%	82%	9%	9%

Results

Ho 1: Take up of soft commitment savings products is higher than that of hard commitment savings products

Product take up, defined as the fraction of participants who elected to save a positive amount of potential winnings, is presented in Table 3 below. Product take up overall was quite high. When choosing how to allocate \$50 if that amount were to be awarded, approximately 87% of respondents chose to save (at least something) using the offered savings vehicle. Nearly all respondents, 98%, chose to save at least part of their compensation if they were to be awarded \$500.

Despite universally high take up, there is interesting variation across conditions. Notably, the soft commitment treatment increased take-up relative to both the traditional account and the hard

commitment account. When choosing how to allocate \$50, 92% of participants assigned to the soft commitment treatment chose to save, while this fraction rose to the full 100% when choosing how to divide \$500. Compared to those in the traditional account condition, take up in the soft commitment treatment was 7 percentage points higher when allocating \$50 (p-value = .083), 6 percentage points higher when allocating \$100 (p-value = .032), and 4 percentage points higher when allocating \$500 (p-value = .023). Relatedly, the soft commitment treatment also increased the fraction of participants who decided to take full advantage of our savings offer and deposit the total amount of funds to be awarded. Again compared to participants in the Traditional Account, full use of the savings vehicle was 17 percentage points higher across the \$50 (p-value = .005), \$100 (p-value = .005), and \$500 (p-value = .009) scenarios. The soft commitment treatment also increased take-up relative to the hard commitment treatment. Both the proportion of respondents who saved something and the proportion of respondents who saved everything were significantly higher (at the 5% level) in the soft commitment treatment than the hard commitment treatment across dollar amounts, with the exception of the fraction of participants that deposited everything to the savings account when allocating \$100, which is not significant (p-value = .413). Interestingly, the external restrictions imposed by the hard commitment account did not decrease initial take-up. Compared to the traditional account, there are no statistical differences in take-up across any of the prize amounts between these two experimental arms.

Table 3: Savings Product Take Up

	Share who save something			Share who save everything		
	\$50	\$100	\$500	\$50	\$100	\$500
Traditional Account	0.852 (0.033)	0.930 (0.024)	0.957 (0.019)	0.548 (0.047)	0.487 (0.047)	0.417 (0.046)
Hard Commitment Account	0.829 (0.030)	0.918 (0.022)	0.975 (0.013)	0.601 (0.039)	0.614 (0.039)	0.468 (0.040)
Soft Commitment Account	0.922 (0.023)	0.986 (0.010)	1.000 (0.000)	0.716 (0.038)	0.660 (0.040)	0.582 (0.042)
Overall	0.867 (0.017)	0.944 (0.011)	0.978 (0.007)	0.626 (0.024)	0.594 (0.024)	0.493 (0.025)
p-value	0.031	0.004	0.010	0.013	0.017	0.023
Observations	414	414	414	414	414	414

Notes: Table provides shares of savers who share any positive amount or the full awarded amount to each possible prize amount. P-value is for F-test on three-way equality across treatment arms.

Table 4 presents the actual initial amounts saved for each account type and dollar amount awarded. As suggested by the experienced level of take-up in Table 3, we see strikingly high

initial savings rates across all treatment conditions and all potential prize amounts, with a mean of 77% of awarded funds being saved initially across the \$50, \$100, and \$500 prizes. This high initial savings rate could be due to a number of factors. First of all, the interest rate being offered (annualized interest rate of 30%) was simply very high and unlikely to be matched by any other savings opportunity. Also, our sample of respondents was comprised of those who expressed having insufficient savings and a desire to save prior to being invited into the study. Another possible explanation for the high overall savings rate could be that respondents viewed the prize amounts as bonus ‘winnings’ and therefore their reference points did not yet incorporate these funds (i.e., they did not ‘feel ownership’ of these funds), and hence any potential feelings of loss aversion from investing them as savings did not apply (Kahneman, Knetsch and Thaler 1991).

Despite this potentially artificially high overall savings rate, we see interesting differences across treatment conditions. The mean rates of initial investments were highest among those assigned the soft commitment treatment; 83% of funds were invested across all each of the \$50, \$100, and \$500 dollar amounts, with not much variation in savings rates between these amounts for the soft commitment group. The hard commitment group saved an average of 75% of their funds across all potential prize amounts, which is still strikingly high yet statistically significantly lower than the soft commitment types (p-value = .014 across all dollar amounts). The savings rate for this account type significantly increases with the potential prize amount from 71% when \$50 is at stake, to 77% when \$100 or \$500 is at stake (p=.02 on three-way test of equality). The respondents assigned to a Traditional Account had the lowest overall savings rate of 72%, although this difference is not statistically significantly different from that of the Hard Commitment group (p=.363). Similar to the Hard Commitment group, the rates of savings increase monotonically as the potential prize amounts increase, although these differences are not statistically significant for this group (p=.22).

Table 4: Initial Savings Allocations and Deposit Amounts

	Share of Funds Invested				Amount of Funds Invested		
	Overall	\$50	\$100	\$500	\$50	\$100	\$500
Traditional Account	0.716 (0.018)	0.696 (0.036)	0.716 (0.030)	0.738 (0.027)	\$34.78 (\$1.79)	\$71.56 (\$3.03)	\$368.96 (\$13.47)
Hard Commitment Account	0.750 (0.016)	0.709 (0.031)	0.772 (0.026)	0.769 (0.022)	\$35.46 (\$1.57)	\$77.22 (\$2.64)	\$384.49 (\$11.11)
Soft Commitment Account	0.827 (0.013)	0.828 (0.026)	0.838 (0.021)	0.817 (0.021)	\$41.38 (\$1.30)	\$83.76 (\$2.11)	\$408.51 (\$10.89)
Observations	1242	414	414	414	414	414	414

Notes: Standard errors in the “Overall” column are clustered by individual.

Ho 2: Impatient individuals are more likely to take up soft commitment savings products than hard commitment savings products

Interest in commitment devices may vary by time preferences. Hard commitment accounts that place external restrictions on future behavior may be less attractive to those who are impatient, particularly individuals who are unaware of their present bias or not actively seeking to overcome it. For these individuals, soft commitment accounts might be more palatable as initial deposits can be withdrawn at no (monetary) cost.

To examine this possibility, we collected existing time preference data from two different surveys previously fielded in the ALP. The first survey was fielded in June of 2011 while the second survey was fielded in August of 2012. In each survey, respondents were presented with the following hypothetical scenarios: “Imagine you just won a lottery prize and have to choose now between one of two options for receiving your payment. Which would you choose: \$1,000 **today** or \$1,250 **a year from today**?” If the respondent chose the smaller sooner (later larger) award, he was then presented with a choice of \$1,000 today or \$1,100 (\$1,650) a year from today. Combining over these two surveys provides us with time preference data on 375 (91%) of our respondents. We define an individual to be “patient” if he elected to receive \$1,250 a year from today rather than \$1,000 today.² Approximately 74% of our sample is impatient and preferred the smaller sooner award when presented with the choice.

Unsurprisingly, patience significantly impacted amounts deposited (Table 5). Patient individuals deposited 85% of potential funds awarded, while impatient individuals deposited 74% (p-value = 0.000). Interestingly, treatment status had no impact on patient individuals. In all conditions, patient individuals deposited 85% of potential funds awarded on average. However, impatient individuals assigned to the soft commitment account saved significantly more than those assigned to the traditional account (p-value = .001) or hard commitment account (p-value = .001). Somewhat surprisingly, impatient individuals assigned to the hard commitment account did not deposit less than those assigned to the traditional account.

Table 5: Initial Savings Allocations by Patience

	Share of funds saved	
	Patient	Impatient
Traditional Account	0.854 (0.031)	0.681 (0.021)
Hard Commitment Account	0.854 (0.028)	0.699 (0.020)
Soft Commitment Account	0.855	0.827

² Since respondents were presented with multiple hypothetical scenarios, there are a variety of ways to define patience. Our preferred specification most closely matches the task our participants were asked to perform.

	(0.028)	(0.016)
Overall	0.855	0.736
	(0.017)	(0.011)
p-value	1.000	0.000
Observations	98	277

To examine the robustness of these results, we performed a regression analysis controlling for additional covariates. Specifically, we used OLS to estimate equations of the form:

$$Y_i = \alpha + \beta_0 HC_i + \gamma_0 HC_i \times Patient_i + \beta_1 SC_i + \gamma_1 SC_i \times Patient_i + X_i' \delta + \varepsilon \quad (1)$$

where Y_i denotes the share of funds saved by individual i , HC_i and SC_i are indicator variables denoting whether participant i was assigned to the hard commitment or soft commitment treatment group, $Patient_i$ is an indicator variable taking on a value of 1 if individual i chose the later larger reward in a previous survey, X_i is a vector of demographic characteristics and includes the amount of funds being asked about for each of \$50, \$100, and \$500 savings decisions, and ε is an individual error term. Consequently, β_0 and β_1 measure the impact of being assigned to the hard commitment and soft commitment treatment groups respectively (relative to the control group – the traditional account) for impatient individuals, while $\beta_0 + \gamma_0$ and $\beta_1 + \gamma_1$ represent the impacts for patient participants. We performed an analogous analysis where the indicator variable for hard commitment assignment was replaced by that for the control group to allow direct comparison between the hard commitment and soft commitment treatments. In conducting the analyses, we leverage the fact that we have 3 observations per respondent (choices of what fraction to save if awarded \$50, \$100, and \$500). Standard errors are clustered at the individual level.

The results of the analysis are presented in Table 6. Controlling for additional covariates, impatient individuals assigned to the soft commitment treatment deposited 11 percentage points more on average of a given amount of money (\$50, \$100, or \$500) than participants assigned to the control group, and 14 percentage points more on average than participants assigned to the hard commitment group (Table 6).³

³ We examined additional specifications adding information contained in the branching questions following the respondent's choice between \$1,000 today or \$1,250 a year from today and results are qualitatively unchanged. The results available from the authors upon request.

Table 6: Share of Funds Saved by Patience

VARIABLES	(1) Share Saved	(2) Share Saved
SC	0.136*** (0.042)	0.114*** (0.038)
SC X Patient	-0.148** (0.071)	-0.111 (0.069)
HC	0.022 (0.045)	
HC X Patient	-0.038 (0.076)	
TA		-0.022 (0.045)
TA X Patient		0.038 (0.076)
Patient	0.162*** (0.055)	0.125** (0.052)
Female	0.014 (0.029)	0.014 (0.029)
Married	0.041 (0.029)	0.041 (0.029)
Age	0.003** (0.001)	0.003** (0.001)
College	0.055* (0.029)	0.055* (0.029)
Household Size	-0.009 (0.010)	-0.009 (0.010)
HHI > \$50K	0.073** (0.031)	0.073** (0.031)
Amount = \$100	0.038*** (0.013)	0.038*** (0.013)
Amount = \$500	0.035*** (0.015)	0.035*** (0.015)
Constant	0.468*** (0.077)	0.490*** (0.067)
Observations	1,125	1,125
R-squared	0.138	0.138

Robust standard errors in parentheses clustered at individual

*** p<0.01, ** p<0.05, * p<0.1

In sum, we see that on day 1 of our experiment, the soft commitment treatment successfully nudged people to invest significantly more of their winnings into an interest-bearing savings account for future consumption relative to either the hard commitment account or a traditional

savings account. This impact was particularly concentrated in individuals who appear to be impatient. Relative to the hard commitment (traditional account), those assigned to the soft commitment treatment saved an additional \$5.93 (\$6.60) when asked to invest \$50, \$6.54 (\$12.19) when asked to invest \$100, and \$24.02 (\$39.55) when asked to invest \$500. This is encouraging news for the design of savings accounts, which typically take the form of either a traditional account or a hard commitment account.

Contrary to our hypotheses, the inflexibility of the hard commitment account did not dissuade people from saving in this account relative to the traditional account. This finding joins the literature on the (at times surprising) demand for commitment as documented previously (e.g., Beshears et al. 2012).

Ho 3: Soft commitment increases total savings balances relative to no form of commitment or hard commitment

After making their initial deposits, participants in the traditional and soft commitment accounts were allowed to make withdrawals at any time during our six month experiment. Respondents assigned to the hard commitment accounts, however, had their initial deposits locked away and returned (with interest) at study's end. To examine whether soft commitments can lead to longer term behavior change, we compared final savings balances across treatment arms at the conclusion of our study.

The exceptionally high initial savings rates across all treatment conditions, including for those assigned to the hard commitment treatment, meant that the final balances were highest in these accounts at the end of the study. Our initial hypothesis was that the external restrictions imposed by hard commitment would substantially decrease initial deposits and result in lower overall savings relative to the soft commitment account. Because the account did not drive away savers in droves initially, and then disallowed any withdrawals in the interim, the final balances were quite high with the hard commitment account. A total of 82% of total winnings were retained by study's end in these accounts (including accrued interest). Yet in a side-by-side comparison, the soft commitment account moderately outperformed the traditional account by achieving higher final savings balances at the study's end. Much of this increase is due to the higher initial savings invested, where participants assigned to the traditional account had average savings balances at the study's end that were 53% of their initial winnings, while those assigned to the soft commitment account retained 64% of their initial winnings (inclusive of accrued interest; p -value = 0.117 on difference; see Table 7). Yet conditional on initial invested amounts (so losing the benefits of randomization), there is suggestive evidence that the soft commitment still outperformed the traditional account: 73% of initial investments were retained in the soft commitment accounts, versus 69% of initial investments in the traditional account in this selected sample, though this difference is not statistically significant. However, among the

admittedly very small sample size of those who were awarded the \$500 prize, savers assigned to the soft commitment account saved on average 75% of their invested winnings, as compared to 43% among those assigned to the traditional account that won \$500, a difference significant at the 10% level despite the limited sample size (p-value = 0.08).

Table 7: Initial and Final Savings Balances by Treatment Condition

		Amounts Won			
		\$50	\$100	\$500	Total
Traditional account	<i>Initial Balance</i>	\$34.60	\$88.64	\$326.47	\$82.91
	<i>Final Balance</i>	\$27.12	\$73.27	\$160.71	\$51.28
	<i>Share of Amount Won</i>	0.542	0.733	0.321	0.528
	<i>Share of Initial Balances</i>	0.715	0.837	0.426	0.685
	<i>N</i>	87	11	17	115
Hard commitment	<i>Initial Balance</i>	\$35.79	\$69.12		\$39.38
	<i>Final Balance</i>	\$41.12	\$79.41		\$45.24
	<i>Share of Amount Won</i>	0.822	0.794		0.819
	<i>Share of Initial Balances</i>	1.149	1.149		1.149
	<i>N</i>	141	17		158
Soft commitment	<i>Initial Balance</i>	\$40.95	\$80.45	\$425.00	\$98.51
	<i>Final Balance</i>	\$31.33	\$57.62	\$357.65	\$79.67
	<i>Share of Amount Won</i>	0.627	0.576	0.715	0.635
	<i>Share of Initial Balances</i>	0.737	0.661	0.751	0.733
	<i>N</i>	110	11	20	141

Notes: “Share of amount won” gives the average fraction of final account balances at end of study, inclusive of interest, relative to initial amounts awarded (either \$50, \$100 or \$500). “Share of initial balances” gives the average fraction of final account balances at end of study, inclusive of interest, relative to initial amounts invested into assigned savings account. Those who invested nothing in a given account are dropped from these latter figures.

Controlling for additional covariates using equation (1) above, the soft commitment treatment increased final savings balances by \$26 on average relative to the traditional account (Table 8). Similar to the effects observed regarding take up, this increase in savings was concentrated amongst impatient individuals. Impatient individuals randomized into the soft commitment treatment saved \$32 more on average (48% of the sample mean), while there was no statistical difference between amounts saved in the traditional account and soft commitment treatment for patient individuals.

Table 8: Effect of Soft Commitment on Final Balances

VARIABLES	(1) Final Balance	(2) Final Balance	(3) Final Balance	(4) Final Balance
SC	27.527*** (10.409)	33.598*** (12.462)	0.456 (9.811)	0.697 (11.809)
SC X Patient		-51.978** (25.441)		-9.881 (22.398)
HC	27.071*** (10.379)	32.901*** (12.281)		
HC X Patient		-42.097* (24.589)		
TA			-27.071*** (10.379)	-32.901*** (12.281)
TA X Patient				42.097* (24.589)
Patient		46.177** (19.470)		4.080 (15.183)
Female	3.016 (8.403)	6.683 (8.730)	3.016 (8.403)	6.683 (8.730)
Married	3.399 (8.522)	-4.400 (8.858)	3.399 (8.522)	-4.400 (8.858)
Age	-0.060 (0.302)	0.022 (0.314)	-0.060 (0.302)	0.022 (0.314)
College	8.155 (8.545)	14.972* (8.891)	8.155 (8.545)	14.972* (8.891)
Household Size	-4.757 (2.991)	-3.910 (3.058)	-4.757 (2.991)	-3.910 (3.058)
HHI > \$50K	35.369*** (9.389)	38.164*** (9.735)	35.369*** (9.389)	38.164*** (9.735)
Won \$100	33.934** (14.030)	31.552** (14.229)	33.934** (14.030)	31.552** (14.229)
Won \$500	236.306*** (14.838)	218.426*** (15.690)	236.306*** (14.838)	218.426*** (15.690)
Constant	5.463 (20.236)	-9.230 (21.799)	32.534* (19.320)	23.670 (20.192)
Observations	414	375	414	375
R-squared	0.428	0.405	0.428	0.405

Conclusion

Many Americans have little to no emergency savings and face significant challenges dealing with even small financial shocks. Though many have a desire to save, numerous would-be savers seem to lack the required patience and self-control to follow through on such goals. Finding ways to overcome these difficulties and help consumers achieve their savings goals is of first order importance.

Recently, numerous interventions have been developed that impose external discipline on savers by restricting access to deposited funds or placing heavy penalties on early withdrawals, with mixed success. Even when successful, however, such interventions tend to suffer from low take-up. Consumers who are highly impatient or cash constrained may see little benefit in locking away savings. In addition, many financial institutions may be reticent to prevent clients from accessing their own funds.

In this study, we developed and tested a soft commitment savings intervention designed to increase intrinsic motivation without imposing any external restrictions. Participants who expressed difficulty saving were randomly assigned to one of three conditions, a “traditional” savings account with no restrictions on withdrawals, a hard commitment account where withdrawals were expressly prohibited, and a soft commitment account that was identical to the traditional savings account but included soft psychological pressure to save. Participants assigned to the soft commitment treatment were asked to think about their savings goals, how it would feel to achieve them, and make a pledge to work towards these goals.

Although take-up was quite high across all conditions, we find that individuals assigned to the soft commitment treatment saved significantly more of their allotted winnings on day 1 than those assigned to either the hard commitment or traditional account treatments. Perhaps more importantly, the soft commitment treatment led to a moderate (and, in the case of the \$500 awards, statistically significant) increase in amounts saved at the end of the study relative to participants who received no form of commitment. This effect was concentrated among individuals who were impatient and thus more likely to benefit from increased intrinsic motivation. Although the soft commitment induced higher initial deposits relative to the hard commitment treatment, the high initial take-up combined with the illiquidity imposed by external restrictions resulted in the hard commitment treatment yielding the highest overall savings by study’s end.

It is important to note that our study abstracted from a typical savings environment in a few important ways. First, participants were provided with funds to save, rather than having to use their own money, and were not allowed to make additional deposits beyond the first. Second, our savings vehicles provided an exorbitantly high interest rate at 30% APY. It is likely that the “found money” and high interest rate significantly influenced take-up rates. Despite these limitations, which were constant across treatments, our findings suggest soft commitments

provide a promising (and potentially scalable) alternative to help consumers achieve their savings goals.

References

Ashraf, Nava; Karlan, Dean and Yin, Wesley. (2006) Tying Odysseus to the Mast: Evidence From a Commitment Savings Product in the Philippines. *The Quarterly Journal of Economics*, Volume 121, Issue 2, pages 635-672 .

Atkinson, Jesse, Alain de Janvry, Craig McIntosh and Elisabeth Sadoulet. "Prompting microfinance borrowers to save: A field experiment from Guatemala." 2013. *Economic Development and Cultural Change*, 62(1), October.

Benton, Marques; Meier, Stephan and Charles Springer (2007), *Overborrowing and Undersaving: Lessons and Policy Implications from Research in Behavioral Economics*, Discussion Paper, Community Affairs, Federal Reserve Bank of Boston.

Beshears, J., Choi, J., Laibson, D. and B. Madrian (2011), "Self Control and Liquidity: How to Design a Commitment Contract," Working Paper, Department of Economics, Harvard University.

Brune, Lasse; Gine, Xavier; Goldberg, Jessica and Yang, Dean, (2011) *Commitments to Save: A Field Experiment in Rural Malawi*. World Bank Policy Research Working Paper Number 5748.

Cialdini, Robert. "Influence: The Psychology of Persuasion." 1993 Morrow: New York.

Duflo, Esther, William Gale, Jeffrey Liebman, Peter Orszag and Emmanuel Saez. (2006) Saving Incentives for Low- and Middle-Income Families: Evidence from a Field Experiment with H&R Block. *Quarterly Journal of Economics* Volume 121, Number 4, 1311-1346.

Dupas, Pascaline, and Jonathan Robinson (2013). Why Don't the Poor Save More? Evidence from Health Savings Experiments. *American Economic Review*, Volume 103, Number 4, 1138-71

Greenwald, AG, C Carnot, R Beach, B Young. "Increasing voting behavior by asking people if they expect to vote." *Journal of Applied Psychology* 72, pp. 315-318.

Harvey, Ross, "Comparison of Household Saving Ratios: Euro Area/United States/Japan", OECD Statistics Brief, June 2004, <http://www.oecd.org/std/na/32023442.pdf>

Kahneman, D., J. Knetsch, and R. Thaler. 1991. "Anomalies: The endowment effect, loss aversion, and status quo bias." *Journal of Economic Perspectives* 5(1): pp. 193-206.

Karlan, Dean; Nelson, Scott; Shafir, Eldar and Zinman, Jonathan. (2012) Super Savers? A Randomized Evaluation of Commitment Savings and Financial Counseling in New York City, Working Paper.

Karlan, Dean; Linden, Leigh. (2014) Loose Knots: Strong versus Weak Commitments to Save for Education in Uganda, Working Paper.

Lusardi, Annamaria; Schneider, Daniel and Tufano, Peter. (2011). Financially Fragile Households: Evidence and Implications. *Brookings Papers on Economic Activity*, Issue 1, pages 83-134

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

Rogers, Todd, Craig Fox, and Alan Gerber. 2012. "Rethinking why people vote: voting as dynamic social expression" in *The Behavioral Foundations of Policy*, edited by E. Shafir.

Smith, J, A Gerber and A Orlich. "Self-Prophecy effects and voter turnout: An experimental replication." 2003. *Political Psychology* 24(3): pp. 593-604.

Webb, T and P Sheeran. "Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence." 2006. *Psychological Bulletin* 132(2): pp. 249-268.