Saving for a Purpose: The Financial Consequences of Protecting Savings

Abigail B. Sussman
The University of Chicago Booth School of Business

Rourke L. O’Brien
Harvard University

Abigail B. Sussman
University of Chicago Booth School of Business
5807 S. Woodlawn Ave
Chicago, IL 60637
abigail.sussman@chicagobooth.edu
773.834.2030

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Author’s note and acknowledgements: Abigail B. Sussman is an assistant professor of marketing at the University of Chicago Booth School of Business (abigail.sussman@chicagobooth.edu). Rourke O’Brien is a Robert Wood Johnson Health & Society Scholar at Harvard University (rourke.obrien@post.harvard.edu). We thank Dan Bartels, Leslie John, Oleg Urminsky and participants at the 2014 BDRM Greater Good Preconference for useful comments and suggestions, and Madhumitha Venkataraman for research assistance. This work is supported by the Beatrice Foods Co. Faculty Research Fund at The University of Chicago Booth School of Business.
Abstract (163 words)

Maintaining savings is an important financial goal. Yet, there are times when savings should be spent; for example, when people face unavoidable costs and spending savings means avoiding high-interest rate debt. Existing behavioral research has focused on consumer decisions between savings and discretionary spending, and developed interventions to promote savings in these contexts. However, when spending is non-discretionary, these interventions risk exacerbating a pattern found in economic research that people borrow high interest-rate debt while maintaining savings earning low levels of interest. We examine how mental accounting interacts with considerations of personal responsibility to contribute to this pattern. Specifically, we explore whether people will spend savings when they need money most: emergencies. Across five studies, we find that people’s tendency to preserve savings in favor of borrowing from a high interest-rate credit option varies as a function of the savings’ intended use. Paradoxically, people are most likely to turn to high interest-rate credit under the belief that doing so is the responsible option.

Keywords: categorization, mental accounting, savings, policy, personal responsibility
Understanding savings behavior is critical for consumer welfare. This important topic continues to receive significant attention within marketing (e.g., Bartels and Urminsky, 2011; Hadar, Sood, and Fox, 2013; Lynch and Zauberman, 2006; McKenzie and Liersch, 2011; Stilley, Inman, and Wakefield, 2010; Soman and Zhao, 2011; Ulkumen and Cheema, 2011) as well as psychology (see, e.g., Bryan and Hershfield, 2012; Colby and Chapman, 2013; Epley, Mak, and Idson, 2006; Ersner-Hershfield, Wimmer, and Knutson, 2009; Griskevicius et al., 2012; Tam and Dholakia, 2013), and behavioral economics, (e.g., Benartzi, Peleg, and Thaler 2013; Carroll et al., 2009; Choi et al., 2003; Hastings and Mitchell, 2011; Kast, Meier, and Pomeranz, 2012; Madrian and Shea, 2001; Thaler, 1994; Thaler and Sunstein, 2010). The vast majority of existing research examines tools for encouraging consumers to be less myopic, focusing on the immediate action of limiting purchases and increasing savings today to achieve the goal of maximizing savings for the long-term.

Existing research highlights earmarking money as one method for increasing savings (e.g., Soman and Cheema, 2011). This research builds on literature in mental accounting which has shown that—counter to basic economic principles—people do not treat money as fungible (Kahneman and Tversky 1984; Thaler 1985; Tversky and Kahneman 1981). Instead, mental segregation of money alters financial decisions. For example, spending money in one budget category reduces the likelihood that a person will continue to spend on items in the same category (Heath & Soll, 1996; Soman 2001; Soman and Lam 2002). The time course of receiving money, form of the resource, and the presence of account labels all influence decisions to spend. People are more likely to spend from current than future income (Shefrin and Thaler 1988), and have lower propensity to spend from pension wealth or home equity than other asset accounts (Thaler, 1990).
Money placed in specific accounts may be more likely to stay there than to be spent relative to unallocated resources (Shefrin and Thaler, 1988). Earmarking (e.g., account labeling) allows people to precommit to budgeting for specific goals (Heath and Soll, 1996), and goals can serve as motivation to successfully accomplish a task (e.g., Brendl, Markman, and Messner 2003; Fry et al., 2008; Gollwitzer 1999; Heath, Larrick, and Wu 1999). Soman and Cheema (2011) specifically examine the role of guilt as one factor contributing to the preservation of earmarked funds (see also Benabou and Tirole, 2004; Thaler and Shefrin, 1981). They demonstrate that people spend less of their paycheck when it is divided into multiple envelopes, in part because people associate guilt with breaking into each envelope implicitly available for savings. Savings becomes even greater when guilt and goals are made salient through pictures of people’s children affixed to the outside of these envelopes.

In addition to academic research, banks and other budgeting platforms are increasingly adding features to help consumers allocate a portion of their money to specific savings goals (e.g., Schultz, 2010). Furthermore, substantial government efforts and funds are directed towards increasing long-term savings, including financial incentives such as tax-benefits for deposits into qualified accounts. The government currently encourages people to set aside savings in specific accounts, targeted at specific goals. For example, over $2 billion is currently invested in tax advantaged 529 plans that are intended to be used for educational expenses (College Savings Plan Network, 2013), and over $1 trillion is currently invested in individual retirement accounts (IRAs; DeMasters, 2012). Even in the absence of substantial account barriers or financial consequences, psychological barriers are likely to limit withdrawals (Thaler and Shefrin, 1981). Nonetheless, these programs generally make withdrawing money difficult and often include penalties for removing money before a certain amount of time has elapsed.
(e.g., a person has reached retirement age) or for reasons other than the stated purpose (e.g., a child’s education).

In many situations, such as when consumers are choosing between putting money towards a frivolous purchase or their retirement fund, an immediate focus on increased savings is in the consumers’ long-term financial interest. When making inter-temporal choices, consumers have been shown to face self-control problems and to weight the present more than any future period, leading to impulsive behavior across a range of domains (see Frederick, Loewenstein and O’Donoghue, 2002; Loewenstein and Elster, 1992; Loewenstein, Read, Baumeister, 2003; Read, 2004, for reviews). Given this baseline, the focus on interventions to increasing savings is highly valuable. However, existing research proposes account-labeling and other interventions to promote savings over discretionary purchases, without considering the impact of these interventions when consumers are faced with nondiscretionary purchases. This approach fails to take into account unintended consequences these interventions may have in situations where consumers are forced to spend.

SPENDING FROM SAVINGS

Despite an overall focus on increasing savings, there are times when savings should be spent today to maximize consumer welfare in the long-term; for example, when maintaining savings comes at the cost of incurring high-interest rate debt. Given the emphasis on increasing savings, one might expect that consumers excel at spending when they should. Remarkably, this is not always the case. Studies consistently document that elderly households typically draw down savings at a much slower rate than would otherwise be predicted in life-cycle models of
income and consumption and economists have long puzzled over the reasons for this behavior (e.g., Katona 1949; Ando et al. 1993; Bernheim 1987; Davies 1981; Mirer 1994), with new evidence suggesting that cognitive biases may impede optimal annuitization of wealth (Brown 2007). At the same time, more recent research in economics has shown that even young people dis-save less than they should (e.g., Deaton 1991; Laibson, Repetto and Tobacman, 2000).

People do not always weight savings and debts equally when evaluating their overall financial position and can even feel wealthier when they have equal net worth but higher levels of both savings and debt (Sussman and Shafir, 2011). One corollary documented in economic research is that people commonly take on additional debt to avoid drawing down savings (Gross and Souleles, 2002). Over 90 percent of credit card borrowers hold liquid assets and one-third of individuals carrying credit card debt simultaneously hold more than one month’s worth of income in liquid savings. Given the large difference in interest rates (savings accounts yielding 1-2% interest and credit card charges averaging over 16% in the period described above), this behavior can be financially costly. Recent investigation has uncovered that similar patterns persist even in the case of much higher interest small dollar credit borrowing (Bianci and Levy, 2013). This type of credit includes products such as payday loans with APRs averaging over 200%, generally used by financially vulnerable consumers. In this area, nearly 1 in 5 individuals who took out a high cost small dollar credit product in the past year did so without fully exhausting their savings.

Various economic explanations have been proposed for this pattern of simultaneous borrowing and saving. For example, Laibson, Repetto, and Tobacman (2000) call upon quasi-hyperbolic time preferences to predict the simultaneous patient savings behavior and impatient credit card borrowing. Telyukova (2012) accounts for some of this behavior by pointing to
households that maintain credit card debt to avoid a liquidity crunch because they anticipate needing money in future situations where credit cannot be used. Other explanations describe cases where people may maintain credit debt to avoid requests for financial help from others (e.g., Baland, Guirkinger and Mali 2011), as a commitment device to punish over-consumption (Basu 2010), or because they believe they will be more likely to repay credit card debt than to rebuild savings (Morduch 2009). While each of these descriptions can explain specific cases, the general pattern remains a puzzle.

**CURRENT RESEARCH**

Significant attention has been dedicated to understanding consumer decisions about whether to spend money today or save it for the future. However, an important gap remains in understanding how consumers choose to execute payments when they are confronted with essential spending. We believe that an investigation of this situation will contribute to a more complete behavioral understanding of an outstanding puzzle in economics whereby consumers simultaneously hold large amounts of low-interest bearing savings and high-interest rate debt. In particular, existing literature has yet to investigate whether people will draw down their savings to pay for necessary expenses.

Prior research on earmarking has focused on situations where building rather than using savings is the desired goal, and examination of spending in this context has focused primarily on discretionary purchases, often in the context of impulsive spending. Limiting spending in these situations is likely to crowd out unnecessary spending in favor of important long-term goals and increase overall welfare. For example, all else equal, money placed into savings rather than
spent on consumption today will yield financial benefits in the form of compound interest over
time. Research demonstrating the effect of account labels on increasing savings in these contexts
yields two possible predictions for preserving savings when it is costly to do so. One possibility
is that account labels focus consumers on the importance of their global financial goals, and
therefore the presence of account labels may discourage costly borrowing behavior in favor of
maximizing overall financial health. An alternative possibility is account labels focus consumers
on the importance of their local financial goals, and therefore the presence of account labels may
encourage costly borrowing behavior in favor of maximizing the value of the focal account.

In this paper, we examine whether—counter to the intension of increasing savings—
segregating money into accounts with specific goals can lead to financially maladaptive
behaviors. Here, we explore whether people will preserve savings even when it is costly to do
so. This behavior can contribute to borrowing at an interest rate that is substantially higher than
the rate earned on savings, resulting in an economic loss that compounds over time. We examine
whether people will spend their savings when they need money most: emergencies. We propose
that, rather than encouraging welfare maximizing decisions across contexts, the same tools that
encourage people to value savings will also lead to costly borrowing behavior.

However, we predict that drawing down savings will influence perceptions of
responsibility to varying degrees based on the intended purpose of the savings account. Prior
examination of mental accounting has demonstrated that people treat money in mental accounts
differently than money outside of these accounts. Research has considered various conditions
that affect the tendency to preserve money in mental accounts, including properties such as the
flexibility of account boundaries (Cheema and Soman, 2006) the number of goals pursued
through the account (Soman and Zhao, 2011), and the relational source of the funds in the
account (McGraw, Tetlock, and Kristel, 2003). However, existing literature has been largely silent on whether the specific use intended for the account would influence consumption from that account for another purpose. For example, Cheema and Soman (2006) show that people are reluctant to spend money that has been designated for entertainment on another category of goods while Soman and Zhao (2011) examine how accounts with funds designated for more weighty goals such as saving for a child’s education can be helpful for increasing savings. Yet, the effects of these different account labels have not been compared. We propose that:

**H1:** Earmarking savings for specific purposes can increase credit card borrowing, even at a high relative financial cost, but patterns will vary based on the account label.

There are a variety of possible explanations for this pattern—some of which may be behaviorally justifiable. For example, people might think that they will need the money in their savings account before they will have the chance to repay their debt or that they will be faster repaying debt than rebuilding the amount in savings. However, it is important to recognize that borrowing money unnecessarily at a high cost will decrease a consumers’ overall wealth and limit spending both in the present and in the future. We examine a variety of possible mechanisms underlying the observed pattern. We propose that in making savings sacred through earmarking, households become willing to incur high costs to protect the savings; moreover, they are motivated to do so because drawing down the savings would make them feel financially irresponsible. Thus:

**H2:** Consumers’ desire to maintain perceptions of themselves as responsible through preserving valued savings leads them to borrow at higher cost.

In some cases, consumers may be acting rationally in choosing to incur a cost to achieve important long term savings goals. To the extent that consumers recognize that they may face
self-control problems in the future, creating barriers to withdraw funds could be an effective way to ensure savings for that purpose (cf. Beshears et al., 2011; Laibson et al., 1998; O’Donoghue and Rabin, 1999). However, this choice remains an unnecessarily expensive one, and the consequences of predictions above would be most costly for savings purposes most central to a person’s sense of responsibility. An alternative, no cost, method for achieving long-term savings goals would be economically preferable, leading to an overall increase in consumer welfare. To the extent that consumers are making expensive decisions in order to feel responsible, we anticipate that providing participants with an alternate means for feeling responsible will mitigate the observed pattern and lead to net financial gains relative to borrowing. In particular, giving consumers the option to commit to automatically deduct money from future paychecks to replace money taken from valued accounts should allow consumers to spend money from the account while believing that they are acting responsibly. In this way, they can honor their commitment to the sacred account. Therefore, we propose:

**H3:** Providing consumers with a plan for replenishing funds in valued accounts will reduce high-cost borrowing.

We tested our hypotheses in five experiments. Experiment 1 examined a nationally representative sample. Data showed that participants’ likelihood of turning to credit when savings is available varies as a function of the savings’ intended use, and that this pattern only persisted for certain savings goals (H1). The experiment provided no evidence that this pattern varies across demographic groups. Experiment 2 replicated patterns from experiment 1 and began to quantify the cost of this consumer response. It showed that participants holding money labeled for their child were willing to preserve this money at the cost of borrowing at an interest rate equivalent to more than double that of an unlabeled account and more than three times that
of an account labeled for a car (H1). Next, experiment 3 examined the mechanism driving this pattern of behavior and demonstrated that considerations of personal responsibility underlie this pattern (H1, H2). Paradoxically, people are most likely to turn to high interest-rate credit under the belief that doing so is the responsible option. Experiment 4 extended findings from scenario settings and found parallel patterns in an experimental game (H1). Finally, experiment 5 aimed to remedy this pattern, demonstrating that providing participants with a responsible means for credibly replacing the money in their savings accounts mitigated high-cost borrowing (H1, H2, H3). We conclude by discussing implications for policy and consumer welfare.

**EXPERIMENT 1**

We first surveyed a nationally representative sample to determine whether and how people’s propensity to turn to higher interest credit varies as a function of savings account labels. We hypothesized that earmarking funds for a specific use would limit spending from those funds, and that the extent of this pattern would vary by account label (H1). Additionally, this large and varied sample allowed us to examine whether and how patterns varied across demographic groups.

Method

*Participants.* One-thousand five participants were recruited by Qualtrics for an unrelated study to form a US sample that was nationally representative on income, age and gender. They responded to questions described below for monetary compensation. Fifty percent of participants were female, median age in the 45-49 range, median household income in the
$50,000-$59,999 range, and median education of “some college”. 78% of participants identified as White, 10% as Black, and 12% as Latino, Asian, or Other.

*Design and procedure.* Participants were told to imagine that they needed $1,000 for an emergency. They had money saved earning 1% interest and had the option of spending this money or borrowing from a higher interest rate credit card. Participants were randomly assigned to a type of savings account (car, child, unspecified) and credit card interest rate (low, medium, high) in a 3x3 between-subjects design. Specifically, participants read:

*Imagine you need to quickly obtain $1,000 to pay for an emergency. You have money set aside in [a savings account/ an account that you are saving to purchase a car/ an account that you are saving for your child]. That account currently earns 1% in interest and is the only savings you have available. You can also borrow using a credit card with a [very low interest rate of 2%/ mid-range interest rate of 10%/ very high interest rate of 20%] APR.*

Participants chose whether they would be more likely to use savings or borrow from a credit card on a scale from 1 “Use Savings” to 6 “Use Credit Card”. They then responded to an open-ended question asking reasons for their choice before finishing the study by answering demographics.

*Results and Discussion*

Overall, participants reported being more likely to use their savings than to borrow on credit ($M = 2.60, SD = 1.74$; one-sample $t(1004)$ relative to $3.5 = 16.44, p < .001, d = 1.04$), see
A 3 (savings account type) by 3 (credit card interest rate) analysis of variance was conducted to examine responses across conditions. Not surprisingly, there was a significant main effect of interest rate, with participants reporting being more likely to use money from savings as the credit card interest increased ($M_{LOW} = 3.06$, $SD = 1.87$; $M_{MED} = 2.54$, $SD = 1.71$; $M_{HIGH} = 2.21$, $SD = 1.55$; $F(2,996) = 21.59$, $p < .001$, $\eta^2 = .042$). Importantly, savings account type also significantly influenced likelihood of choosing each financing option ($M_{CAR} = 2.22$, $SD = 1.53$; $M_{UNSPECIFIED} = 2.57$, $SD = 1.74$; $M_{CHILD} = 3.01$, $SD = 1.86$; $F(2,996) = 18.35$, $p < .001$, $\eta^2 = .036$), and there was no significant interaction between account type and interest rate ($F(4,996) < 1$). Follow-up contrasts revealed significant differences across all levels of interest rate (all $p$s $\leq .015$), and all savings account types. Specifically, participants reported the highest propensity to use credit rather than savings when they were considering an account labeled for their child ($t(1002) = 5.98$, $p < .001$, $d = .38$ vs. car; $t(1002) = 3.29$, $p = .001$, $d = .21$ vs. unspecified).

Participants did not choose to preserve all types of earmarked savings over generic savings. Instead, the goal of the earmarking mattered and participants reported being more likely to resort to credit for an unspecified account than for an account designated for a future car purchase ($t(1002) = 2.68$, $p = .007$, $d = .17$). Most important from the perspective of our hypothesis, however, is the higher rate of maintaining savings in the child account than either of the other accounts.

Given the large sample size and possible influence of socioeconomic and other demographic variables on choice of financing, regression analysis was employed for further

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Insert Figure 1 about here
exploration of these factors. First, we ran an OLS regression including measures for income, education, age, sex, race/ethnicity, marital status, and whether the respondent has children as independent factors influencing the overall choice of credit versus savings. In the full model, only age was a statistically significant predictor of financing preference, with older respondents being more likely to prefer using savings than credit ($b = 0.2$, $t(1004) = 5.16$, $p < 0.001$). Notably, income and education were unrelated to overall preference for savings in these models. We next tested whether the pattern we observed above varied by demographics. We separately tested for interactive effects between account label and income, age, and sex, the demographic categories our sample was designed to be nationally representative of. We found no difference in the observed pattern (all $p$s $> 0.3$). We additionally tested for an interactive effect between the account label and having children, expecting the overall pattern may be largely driven by the stronger feelings for people who have children. We found no evidence of a differential effect of the child account label between respondents who do and do not have children (child account as the reference group, interaction of have children dummy and generic account, $b = 0.40$, $t(999) = 1.44$, $p = 0.151$, interaction of have children dummy and car account, $b = 0.46$, $t(999) = 1.67$ and $p = 0.095$).

Experiment 1 demonstrated that the intended purpose of earmarked funds can influence people’s likelihood of spending these funds relative to a costly alternative, and that not all account labels create barriers relative to unlabeled accounts (H1). It showed that the pattern of spending from different savings accounts persists across a range of interest rates. Experiment 2 aims to replicate basic patterns and to quantify financial consequences.

**EXPERIMENT 2**
The current experiment examines savings that has been labeled for the same purposes as in experiment 1. Asking participants to respond to a series of questions and select whether they would be more likely to use money from their savings account or borrow from their credit card at varying credit card interest rates provides an initial basis for measuring the cost of this bias.

Method

*Participants.* One-hundred eighty five participants were recruited online through Amazon.com’s Mechanical Turk platform and completed the study for monetary compensation. Forty-one percent of participants were female, median age in the 25-29 range, median income in the $30,000-$39,999 range, and median education of “some college”, and the sample was limited to respondents from the U.S.

*Design and procedure.* Participants were presented with a similar scenario to that in experiment 1. They were told that they needed $1,000 to pay for an emergency and could choose between using money from savings earning 1% interest and borrowing on a credit card. Participants responded to a series of 10 binary, forced choice questions that asked whether they would spend money from savings or borrow from credit at each of 10 interest rates ranging from 0% interest to 30% interest.

In a between-subjects design, participants were randomly assigned to a condition where savings was described as money set aside: “in an account that you are saving to purchase a car” (car condition), “in a savings account” (generic condition), or “in an account that you are saving for your child” (child condition). Participants responded to a series of demographic questions
along with a reading check asking participants to identify the intended use of the savings from a six-item multiple-choice list.

Results and Discussion

Prior to analysis, 21 participants were excluded for failing the reading check. Results are substantially the same, and significance levels maintained, including these participants. Figure 2 shows the proportion of participants who preferred to borrow on credit as a function of the credit card interest rate and the intended use of savings. Across the full range of interest rates, participants in the child condition were consistently more likely to prefer borrowing on credit than those in the other conditions.

Next, an average score was calculated for each participant to determine the maximum credit card interest rate at which the participant would borrow, which equaled the total number of “credit” responses divided by the total number of titration questions asked. All subsequent analyses were based on these proportions, which we then translated back to interest rates (when providing descriptive statistics) based on their corresponding meanings from the question choices. For example, someone who responded “credit” to 3 of the 10 questions (i.e., indicating a willingness to use savings when the credit interest-rate was 0, 1, or 3 percent, but not 5 percent or more) received a score of .30, which we translated into maximum credit card interest of 3 percent. To avoid making unwarranted assumptions about the distributional properties of participants’ responses, and given that the titration method only provides ranges on indifference
points, we used a rank-based, non-parametric approach to test the null hypothesis that choices did not differ between conditions.

Consistent with our predictions, a Kruskal-Wallis test confirmed that results differed significantly across conditions ($K(2, 164) = 18.61, p < .001, \eta^2 = .11$). Participants in the child condition were willing to pay an interest rate equivalent to 6.2% (mean rank = 105.28), more than double the amount that those in the generic condition (2.8%, mean rank = 77.04) or those in the car condition (1.8%, mean rank = 67.65) would pay to preserve their savings (average scores of .44 child, .29 generic, .24 car, Mann-Whitney U test child vs. generic, $Z = 3.11, p = .002, r = .30$; child vs. car, $Z = 4.15, p < .001, r = .40$). Although the directional pattern across generic and car conditions was consistent with that found in Experiment 1, there were no significant differences ($Z = 1.08, ns$).

**EXPERIMENT 3**

Experiment 2 replicated overall patterns from Experiment 1 and began to quantify differences in spending and borrowing based on account labels. In Experiment 3, we extend findings to additional account types (personal education, retirement, and vacation) and begin to understand psychological mechanisms underlying this pattern of results. Including additional account types allows us to investigate how differences across accounts with varied savings goals influences consumer responses. This inclusion also allows us to test whether the patterns we observed in experiments 1 and 2 were specific to saving for one’s child and to determine whether costly borrowing would persist in situations with no interpersonal accountability (i.e., where people are saving for their own future). To ensure that participants did not believe that there was
a financial penalty associated with withdrawing money from any of the accounts (as is often the case with retirement accounts), we specify this detail across all conditions. Additionally, we specify total savings amount prior to the emergency shock, to leave a liquidity buffer after the savings is used that allows us to understand whether perceptions of future need for liquidity were underlying prior findings.

We hypothesized that intended uses of savings would continue to influence participants’ desire to spend from credit and predicted that feelings of personal responsibility will mediate the effect such that greater feelings of irresponsibility associated with taking money from a savings account (i.e., greater feelings of responsibility associated with having money in the account) will correspond to a higher propensity to spend on credit (H2). Thus, building from findings in Experiments 1 and 2, we examined responses to three accounts which pretests determined evoke strong beliefs about personal responsibility (child, education, and retirement), and three accounts which were relatively neutral in this regard (vacation, car, and unspecified)³.

Method

Participants. Four-hundred thirty participants were recruited online through Amazon.com’s Mechanical Turk platform and completed the study for monetary compensation. Sixty four percent of participants were male, median age in the 25-29 range, median income in the $30,000-$39,999 range, and median education of “some college”, and the sample was limited to respondents from the U.S.

Design and procedure. Participants were presented with a variation on the scenario from Experiments 1 and 2. Specifically, they were told: “Please imagine that you need to quickly
obtain $1,000 to pay for an emergency. You have $2,000 in a savings account that you have set aside [X]. That money currently earns 1% in interest and is the only money you have available. You can withdraw money from this account with no financial penalty, and you can also borrow from a credit card at a 12% interest rate. In order to pay for this emergency, please state how much money you would be likely to use from the savings you have set aside [X], and how much you would borrow using a credit card.”

In a between-subjects design, participants were randomly assigned to one of six conditions where the X in brackets above varied among: “for classes to advance your career”, “for your child”, “for retirement”, “for a vacation”, and “for a new car”. In the final condition, the section in brackets was omitted and the intended use of savings was unspecified. After reading the passage, participants were asked to choose how much money they would use from the savings account and how much they would borrow on credit, entering separate numbers for each, totaling $1,000.

On the next page, participants indicated how they believed evaluations of their own personal responsibility corresponded to maintaining money in the savings accounts. Specifically, they stated their agreement with each of the following passages on a scale from 1 “Completely Disagree” to 7 “Completely Agree”. (1) “I would feel irresponsible for taking money from savings [e.g., that was set aside for my child]” (2) “Taking money from savings that was set aside [e.g., for my child] makes me feel like a bad person” (3) “Others would judge me negatively for taking money from savings [e.g., that was set aside for my child]”. The statements in brackets were tailored to each condition.

Participants then responded to a series of questions to understand additional factors that might be underlying the pattern of results, including questions measuring beliefs about how
others would respond, perceived importance of the savings intention, perceived importance of maintaining a financial cushion for the savings intention, and how hard it would be to replace money in the savings account if it were spent (see Web Appendix A for complete list). Participants responded to a series of demographic questions along with a reading check asking participants to identify the intended use of the savings from an eight-item multiple-choice list.

Results and Discussion

Prior to analysis, 28 participants were removed for having previously taken a similar survey and 43 participants were removed for failing the reading check. Results, including significance levels, are consistent when including these participants. We first examined the central dependent variable: the portion of the $1,000 needed that was spent on credit, see Figure 3. A one-way analysis of variance reveals a main effect of condition \( F(5, 323) = 2.92, p = .014, \eta^2 = .04 \). Planned contrasts show that participants borrowed more on credit when the savings was labeled for a responsible purpose (child, education, and retirement; \( M = $237, SD = $348 \)) than for a neutral purpose (car, generic, and vacation; \( M = $118, SD = $240 \); \( t(323) = 3.63, p < .001, d = .40 \)). This pattern was directionally consistent across all possible pairings of the responsible purposes versus the neutral purposes and was significant or marginally significant \( (ps < .10) \) for eight of nine pairwise comparisons, with no differences within responsible or neutral conditions of different account labels \( (all ps > .25) \).

To gain a deeper understanding of why we observed differential rates of spending from savings versus borrowing across account types, we next examined whether beliefs that personal
responsibility corresponded to maintaining money in savings account mediated the observed pattern of results. We first created a scale from the average values for responses to the three questions measuring beliefs about the effect of withdrawing money from savings on perceptions of personal responsibility, with greater values indicating a greater loss in responsibility associated with using savings ($\alpha = .86$). We examined conditions grouped by level of responsibility as described above, resulting in two overarching conditions (neutral coded as 0 and responsible coded as 1) for analysis, including specific account label as a covariate$^4$. Regressing credit borrowing on condition confirmed that participants reported borrowing more when the account was labeled for a responsible than a neutral use ($\beta = .29$, $t(326) = 2.52$, $p = .012$). To assess the mediating role of perceived responsibility, we then regressed credit borrowing on condition and the perceived responsibility scale described above. In this model responsibility was a significant predictor ($\beta = .49$, $t(325) = 10.16$, $p < .001$), but condition was no longer significant ($\beta = .12$, $t(326) = 1.18$, $ns$). A bootstrapping mediation test confirmed that an increase in perceived irresponsibility for withdrawing money from specific savings accounts mediated the relationship between account label and the propensity to borrow on high-interest rate credit (95% CI = 38.95, 180.83; $n = 329$; 10,000 re-samples; Preacher and Hayes, 2008).

Next, we examined whether other factors measured including the importance of saving enough money for the stated purpose, beliefs about others’ choices, difficulty of returning the money to the savings account, and time to return money to the savings account, entered independently, would also mediate the relationship between condition and borrowing behavior. Of these additional factors, only the importance of the savings goal mediated the stated relationship (95% CI = -57.52, -3.61). However, when personal responsibility and importance of the account were entered together as potential mediators, personal responsibility remained a
significant mediator (95% CI = 36.37, 176.59) while importance was no longer significant (95%
CI = -43.51, 0.70), demonstrating that perceptions of personal responsibility play the dominant
role in mediating the observed pattern.

**EXPERIMENT 4**

Experiments 1 through 3 demonstrated that people are more likely to turn to high interest-rate
credit cards than withdraw money from savings accounts when they believe that the money is
being saved for a purpose tied to their perceptions of personal responsibility. Relying on
hypothetical scenarios, these studies were able to precisely control the situation presented to
participants and describe a situation that could be very costly for people in their daily lives in the
absence of temptation. We believe that hypothetical scenarios are a reasonable approximation
for actual behavior in this context in part because the decision in question is not one of impulsive
spending or immediate self-control. Thus participants should be able to reason through the
situation described as they would if faced directly with the circumstances, particularly in relative
terms across conditions. However, when responding to hypothetical scenarios, participants must
rely on introspection and this creates the possibility that they are not able to respond as they
would if faced with the situation directly. To address this possibility, experiment 4 moves to an
incentive compatible, experimental environment where participants had the opportunity to earn
points for money and were presented with the option of borrowing at a cost. In this way, we
directly test how saving for a responsible purpose can influence costly borrowing behavior.

Method
Participants. One-hundred ninety-five participants were recruited online through Amazon.com’s Mechanical Turk platform and completed the study for monetary compensation. Sixty one percent of participants were male, median age in the 30-34 range, median income in the $30,000-$39,999 range, and median education of “Bachelor’s Degree”, and the sample was limited to respondents from the U.S.

Design and procedure. All participants were told that they would be given a series of questions and would receive points for each question answered. At the end of the game, the points would be converted to money. Half of participants were randomly assigned to be in the control condition and half to the responsible condition. Those in the responsible condition received the following instructions:

Before we begin, please take a moment to think about what you want to save the money you earn for. When choosing this goal, consider what kinds of savings would make you feel most responsible --for example, you may want to save for your own education, for your child, or for your retirement. Please describe in 1-2 words what you hope to save the money for in the box below.

To emphasize the chosen goal, those in the responsible condition were then told to write a sentence or two describing to a friend or family member why saving for their goal is important to them.

All participants then completed the same four questions, arbitrarily chosen from the Raven’s Progressive Matrices task. They received 250 points for each question they completed, and were provided with a running tally of their points at the top of the screen (see Appendix A
for a screenshot and Web Appendix B for more detailed instructions). In the responsible condition only, participants were reminded of their stated savings goal below their point tally.

After completing these questions and earning 1,000 points, participants were told that they had completed round 1 of the game, and would need to pay 1,000 points to continue to round 2 and earn additional points. Participants stated how many of the 1,000 points they would spend from their earnings in the previous round, and how many they wanted to borrow from their earnings in the next round. They were told that they would be charged 10 points for borrowing, and these points were deducted from their final score. On the same page, participants explained reasons for their choice. Next, participants completed additional questions before being informed of their bonus, equal to 20 cents for their participation if they did not borrow and 19 cents for their participation if they did borrow. Participants responded to basic demographics before completing the survey and subsequently receiving their bonus.

Results and Discussion

A one way ANOVA was conducted to examine whether points borrowed, the central dependent variable, varied across conditions. Consistent with our hypothesis, participants in the responsible condition borrowed more points on average ($M = 385.70$, $SD = 429.31$) than those in the control condition ($M = 240.10$, $SD = 371.05$, $F (1,193) = 6.45$, $p = .012$, $\eta^2 = .03$). Examining the binary choice of whether or not to borrow confirmed this pattern, with those in the responsible condition being more likely to borrow than those in the control condition (52% vs. 34%, Mann-Whitney U test, $Z = 2.43$, $p = .015$). These findings provide converging evidence for our hypothesis that people will pay a cost to preserve savings when that savings is intended for a purpose central to one’s perception of responsibility (H1).
Ironically, we have found that the desire to act responsibly by preserving money in savings accounts underlies costly borrowing behavior. However, in many situations, labeling savings accounts can be useful as a self-control mechanism, leading people to reduce short-term discretionary spending to allow for important long-term benefits with no financial penalty. Given the large number of circumstances in which labeling savings accounts benefits individuals, a method for reducing costly borrowing when spending is unavoidable, while preserving the benefits of account labels the remainder of the time, would be valuable.

As suggested by Morduch (2009) and echoed in free responses elicited in our own pilot exploration, one reason costly borrowing may be deemed more responsible than drawing money from savings is the belief that people will be more likely to repay credit card debt (even in greater sums) than to replace money taken from savings. This could be the case, for example, if people respond to external pressures from the credit card company to repay their bills, but have no parallel external motivation to replace their savings. Thus, providing people with a mechanism for easily replacing the money in their savings account could be useful for combatting borrowing to preserve savings and allow people to maintain feelings of responsibility while spending money from their valued savings accounts.

We propose that doubling down on behavioral interventions, through coupling savings account labels and automatic payroll deductions, provides one possible remedy. Specifically, providing people with the option of automatically moving money from future paychecks to replenish the funds withdrawn from their valued savings accounts serves as a credible and easily
implementable plan for replacing the money they have withdrawn. This approach allows the benefits of account labels for building and maintaining savings initially by motivating people to reduce discretionary spending, but also provides flexibility for people to feel responsible while spending when necessary. Importantly, previous work demonstrating the benefits of automatic payroll deductions to savings (e.g., Thaler and Benartzi, 2004; Thaler and Sunstein, 2008) suggests that this mechanism will substantially increase the likelihood that people will replace the money withdrawn from savings. We test the hypothesis that providing consumers with a plan for replenishing funds will reduce high-cost borrowing (H3) by allowing people to maintain perceptions of personal responsibility (H2) in the following experiment.

Method

Participants. Five hundred twenty three participants were recruited online through Amazon.com’s Mechanical Turk platform and completed the study for monetary compensation. Fifty nine percent of participants were male, median age in the 25-29 range, median income in the $40,000-$49,999 range, and median education of “Some college”, and the sample was limited to respondents from the U.S.

Design and procedure. Participants were presented with a variation on the scenarios from earlier studies. They were first told: “First, please take a moment to imagine that you have $2,000 in savings that you have set aside for [X]. The money is currently being held in its own account (with no withdrawal penalty) that you've labeled specifically for [X]. That money currently earns 1% in interest and is the only money you have available.” On the following page, they read: “Next, please imagine that you need to quickly obtain $1,000 to pay for an
emergency. You can use the money you have set aside in an account specifically for [X], or you can borrow from a credit card at a 12% interest rate. In order to pay for this emergency, please state how much money you would be likely to use from your [X] savings account, and how much you would borrow using a credit card.”

Participants were randomly assigned to one of six conditions in a 3 (account type: child, education, retirement) by 2 (automatic repayment option: present, absent) design. To examine whether the availability of an automatic repayment option would alter responses, the savings purposes tested were limited to those which prior experiments determined to create the highest barriers to account withdrawals. Thus, participants were randomly assigned to conditions where the [X] above referred either to child, education, or retirement savings. Next, to examine the effect of the automatic repayment option, half of participants were randomly assigned to read: “Note: If you withdraw money from savings, you can choose to have $100 automatically deducted from your paycheck each month and returned to your savings account over the next 10 months, or until the money has been repaid.”

Participants then entered how much of the $1,000 they needed they would spend from their labeled savings account, and how much they would borrow on credit. Participants responded to the same set of follow up questions as in experiment 3 along with demographics and a recall check before completing the survey.

Results and Discussion

Prior to analysis, 76 participants were removed for having taken a similar survey previously and 55 participants were removed for failing the recall question. Results, including significance levels, are consistent when including these participants.
A three (account type: child, education, retirement) by two (automatic repayment, control) analysis of variance was performed with dollars borrowed on credit as the dependent variable. This analysis revealed a significant overall effect \(F(5, 386) = 2.54, p = .028, \eta^2 = .03\). There were no significant differences across account labels \(F(2, 386) = 2.67, p > .05, \eta^2 = .01\), and no interactions between account type and auto-repayment options \(F(2, 386) = .56, p > .50, \eta^2 < .01\). Consistent with our hypothesis, the central intervention included to reduce costly borrowing behavior succeeded, see Figure 4. Specifically, providing participants with the auto-repayment option led to lower levels of borrowing \((M = $216.23, SD = 351.39 \text{ auto-repayment versus } M = $306.72, SD = 388.83 \text{ control, } F(1, 386) = 5.92, p = .015, \eta^2 = .02)\).

As in experiment 3, we next examined whether beliefs about personal responsibility mediated the observed pattern of results. We again averaged values for responses to the three questions measuring beliefs about the effect of withdrawing money from savings on perceptions of personal responsibility \((\alpha = .85)\), with greater values indicating a greater loss in responsibility associated with using savings. We examined conditions at the level of automatic repayment (control coded as 0 and automatic repayment coded as 1) for analysis, and included account label as a covariate. Regressing credit borrowing on condition confirmed that participants reported borrowing less when the automatic repayment option was available \((\beta = -.13, t(389) = 2.50, p = .013)\). To assess the mediating role of perceived responsibility, we then regressed credit borrowing on automatic repayment condition and the perceived responsibility scale described above. When taking responsibility into account, responsibility was a significant predictor \((\beta = .48, t(391) = 10.72, p < .001)\), while condition was no longer significant \((\beta = -.07, t(391) = 1.64, ns)\). A bootstrapping mediation test confirmed that an increase in perceived irresponsibility for withdrawing money from specific savings accounts mediated the relationship between account
label and the propensity to borrow on high-interest rate credit (95% CI = -76.71, -6.17; n = 329; 10,000 re-samples; Preacher and Hayes, 2008).

Thus, providing an additional behavioral intervention in the form of automatic payroll deductions and savings account repayment served to maintain perceptions of personal responsibility and consequently reduce costs associated with high-interest rate borrowing. Notably, this intervention did not bring costs to zero, furthering highlighting the strength of the account labels in shaping spending decisions.

GENERAL DISCUSSION

The findings reported above demonstrate that, rather than encouraging behavior that maximizes global financial benefits and savings in the long term, labels on spending accounts can lead people to make costly financial decisions to achieve the local goal of preserving savings in a specific account in the moment. The studies showed that decisions vary not only based on whether money is in an account for a specified purpose but also based on what that purpose is. We observed the most costly borrowing when maintaining savings in the account was relevant to consumer’s sense of responsibility. In Experiment 1, a nationally representative sample was more likely to borrow on credit than draw down existing savings when this savings was set aside for their child relative to unlabeled savings, but they were more likely to use savings than credit when the savings was set aside for a future car purchase (H1). Experiment 2 began to quantify the cost of labeling meaningful accounts, showing that participants holding money labeled for
their child were willing to pay an interest rate equivalent more than double that of an unlabeled account and more than three times that of an account labeled for their child (H1). Next, Experiment 3 demonstrated that beliefs about personal responsibility associated with maintaining money for particular savings goals underlie this effect (H1, H2) and play a more central role than a variety of other factors, including beliefs about the importance of savings goals or beliefs about the choices others would make. Experiment 4 provided converging evidence supporting the desire to preserve savings associated with responsibility in an experimental game with real costs (H1). Finally, experiment 5 demonstrated that applying a behavioral intervention in the form of automatic replacement of funds enabled participants to withdraw funds from valued accounts while preserving perceptions of responsibility and consequently reduced costly behavior associated with preserving accounts (H1, H2, H3).

These results demonstrate that people make the most costly and arguably irresponsible financial decisions around maintaining savings that they consider fundamental to perceptions of their own personal financial responsibility. This pattern is consistent with previous findings that appeals to responsibility can be used to increase retirement savings in specific cases (Bryan & Hershfield, 2012), and that guilt can increase savings (e.g., Soman & Cheema, 2011). However, it expands on this research in important ways. It looks at spending savings instead of building savings, and is the first research to our knowledge to demonstrate an important interaction between mental accounting and personal responsibility. Additionally, by examining several different types of savings goals and account partitions, the current research moved from an abstract notion of guilt to identify and understand the role of personal responsibility. Our conclusions about personal responsibility generalized across individuals and are absent reliance on social connections. While guilt may be difficult to influence, changes to education and norms
may help people understand which decisions are more and less responsible. In addition to providing automatic repayment opportunities, these findings suggest that communicating specific circumstances when people should relax their short-term savings goals would be valuable. Benchmarking decisions against normative realities for increasing long-term savings creates a metric that could effectively alter perceptions of personal financial responsibility and future choices.

Importantly, the current research highlights potential risks of focusing on increasing savings in a vacuum. In particular, people may be overgeneralizing from situations where the alternative to preserving savings is indulging in a tempting luxury item—when they should be accumulating savings—to situations where the alternative is borrowing at a higher cost—when they should be decreasing savings. One additional remedy consistent with this approach would be encouraging people to maintain accounts specifically labeled for emergency situations. To examine this possibility, an additional study examined whether participants would be more likely to spend from an account that was explicitly labeled for an emergency, using the same DV as in Experiment 2 (credit card interest rate). There was no difference in the propensity to spend down savings for an emergency when the account was specifically labeled for an emergency versus unlabeled ($p > .4$), but the credit card interest rate had to be significantly higher than the amount earned on savings for participants to spend from either account over borrowing (2.7% emergency, 3.0% generic vs. 1% savings, both $ts > 6.0, ps < .001$). It is notable that people remained reluctant to spend down savings for emergencies, even when money had been designated specifically for that purpose. This data suggests that setting aside money for emergencies is helpful relative to some goals, but that additional attention is still needed in
conveying appropriate methods for spending from savings. Coupling this “emergency” account label with automatic repayment into the emergency account may be even more effective.

CONCLUSIONS AND IMPLICATIONS

Earmarking money for savings has important consequences for consumer financial behavior and financial well-being in both the short and long term. Yet, contrary to existing literature, this study shows those consequences may not always be positive. By earmarking money for savings towards highly valued goals, households appear to be making these dollars sacred (Belk & Wallendorf, 1990) insofar as they are willing to incur high costs to protect their earmarked status. Evidence presented here suggests that consumers regard spending sacred savings as a negative reflection on their own sense of self and personal responsibility. By reifying the meaning and significance of savings, households are committing to treat earmarked funds differently from other money. While this reification may be effective to protecting reserves from capricious spending, erecting such cognitive walls around savings appears to prevent consumers from tapping reserves when they need it most, at real financial cost.

Significant public and private resources are expended to promote savings and asset accumulation, particularly among low and moderate income families. From matched savings programs to new efforts by both employers and financial institutions to exploit behavioral insights to increase savings (e.g. savings defaults and “Keep the Change” programs), efforts to promote savings have evolved to be an important component of both anti-poverty policy and financial institution customer acquisition and retention strategy. Although savings promotion is premised upon the idea that increasing savings will reduce reliance on costly consumer credit,
this study shows that individual reluctance to spend savings can undermine the efficacy of such a strategy. Given individuals’ propensity to “protect” their sacred savings in emergencies by turning to credit, policies encouraging savings should be coupled with efforts to promote access to high quality, low cost small dollar credit and targeted financial education. At a minimum, efforts to promote savings should be accompanied by strategies that encourage and incentivize appropriate spending of savings.
Footnotes

1. This could occur, for example, if consumers believe that external pressure from the credit card company would motivate them to repay their debt.

2. Phrases within brackets and in bold varied across conditions. Each participant saw only one phrase within brackets in standard font.

3. A pretest asking participants to rank accounts by how much savings makes them feel responsible confirmed that saving money for one’s child, education, and retirement (mean ranks 2.50, 2.80, and 2.20 respectively) elicited greater reports of responsibility than for their car, vacation, or unspecified accounts (mean ranks 4.10, 4.80, 4.60 respectively; within-subject comparison $F(1, 29) = 54.56, p < .001$).

4. Coded as Vacation = 1, Car = 2, Generic = 3, Education = 4, Child = 5, Retirement = 6. Note that results are robust to inclusion of this covariate.

5. Coded as Education = 1, Child = 2, Retirement = 3. Note that results are robust to inclusion of this covariate.
References


Figure 1. Mean reported likelihood and standard errors of using money in savings being held at 1% interest versus credit as reported in experiment 1. Responses are measured on a scale from 1 “Use Savings” to 6 “Use Credit Card”, as a function of the available credit card interest rate and whether the savings was tagged for a car, general use/ unlabeled, or for a child.
Figure 2. The proportion of participants in each condition preferring to borrow from their credit card rather than use money in savings earning 1% interest as a function of the credit card interest rate and intended use of the savings in Experiment 2. When there are no differences between conditions, the lines should overlap or crisscross. However, the line for the Child condition is consistently above the other lines, demonstrating a greater willingness to borrow on credit rather than draw down savings across the full range of interest rates. Note that the horizontal axis is nonlinear and represents the specific values to which participants responded.
Figure 3. Mean reported dollars borrowed and standard errors as a function of the intended use of the savings in experiment 3. Dollars were borrowed on a credit card charging 12% interest that were used to pay the $1,000 emergency cost rather than drawing down savings earning 1% interest.
Figure 4. Mean reported dollars borrowed and standard errors as a function of the intended use of the savings and the presence of an automatic repayment option in experiment 5. Dollars were borrowed on a credit card charging 12% interest that were used to pay the $1,000 emergency cost rather than drawing down savings earning 1% interest.
Appendix A: Sample screenshot of game in experiment 4. Participants in the responsible condition were reminded of their savings goal while those in the control condition were not.
Web Appendix A: Additional Questions in Experiment 3

Considering the situation on the previous page, to what extent do you agree or disagree with the following statement: “Others in the same situation would take all of the money needed for the emergency from the savings that was set aside for my retirement”.

- Completely Disagree 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- Completely Agree 7 (7)

If you took money out of savings to pay for this emergency, when do you think you would replace the money?

- Immediately 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- Over a long period 6 (6)

If you took money out of savings to pay for this emergency, when do you think you would replace the money?

- less than one week (1)
- one week to one month (2)
- one month to six months (3)
- six months to one year (4)
- one year to two years (5)
- more than two years (6)
If you took money out of savings to pay for this emergency, how hard do you think it would be to replace the money?

- Very Easy 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- Very Hard 6 (6)

If you borrowed from the credit card to pay for this emergency, when do you think you would pay off the balance?

- Immediately 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- Over a long period 6 (6)

If you borrowed from the credit card to pay for this emergency, when do you think you would pay off the balance?

- less than one week 1 (1)
- one week to one month 2 (2)
- one month to six months 3 (3)
- six months to one year 4 (4)
- one year to two years 5 (5)
- more than two years 6 (6)

If you borrowed from the credit card to pay for this emergency, how hard do you think it would be to repay the money?

- Very Easy 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- Very Hard 6 (6)
How important is it for you to have some money (a financial cushion) in the financial account stated in the question above?

☐ Not at all important 1 (1)
☐ 2 (2)
☐ 3 (3)
☐ 4 (4)
☐ 5 (5)
☐ 6 (6)
☐ Extremely important 7 (7)

How important is it to save enough money for the intended use of the savings account stated in the question above?

☐ Not at all important 1 (1)
☐ 2 (2)
☐ 3 (3)
☐ 4 (4)
☐ 5 (5)
☐ 6 (6)
☐ Extremely Important 7 (7)

If you did not use the money from savings for this emergency, how long do you think you would keep it in savings before you needed it for the intended use?

☐ Not very long 1 (1)
☐ 2 (2)
☐ 3 (3)
☐ 4 (4)
☐ 5 (5)
☐ 6 (6)
☐ A very long time 7 (7)
If you took money out of savings, when do you think you would replace the money?

- Immediately 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- Over a long period 7 (7)
If you borrowed from the credit card, when do you think you would pay off the balance?

- Immediately1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- Over a long period6 (6)

If you did not use the money from savings for this emergency, how long do you think you would keep it in savings before spending it?

- Not very long1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- A very long time6 (6)

How irresponsible would you feel for taking money from savings that was set aside for each of the following goals?

<table>
<thead>
<tr>
<th>General savings (1)</th>
<th>Not at all important 1 (1)</th>
<th>2 (2)</th>
<th>3 (3)</th>
<th>4 (4)</th>
<th>5 (5)</th>
<th>6 (6)</th>
<th>Extremely important7 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving for retirement (2)</td>
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<tr>
<td>Saving for your child (3)</td>
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<tr>
<td>Saving for classes that would advance your career (4)</td>
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<tr>
<td>Saving for a vacation (5)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
How important do you consider each of the following savings goals?

<table>
<thead>
<tr>
<th></th>
<th>Not at all important 1 (1)</th>
<th>2 (2)</th>
<th>3 (3)</th>
<th>4 (4)</th>
<th>5 (5)</th>
<th>6 (6)</th>
<th>Extremely important 7 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving for the future (1)</td>
<td>○</td>
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</tr>
<tr>
<td>Saving for retirement (2)</td>
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<tr>
<td>Saving for your child (3)</td>
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<tr>
<td>Saving for classes that would advance your career (4)</td>
<td>○</td>
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<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for a vacation (5)</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
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</tbody>
</table>
Web Appendix B:

Detailed Instructions for Savings Game in Experiment 4

Responsible Condition

Page 1: On the following pages, you will be given a series of questions. For each question answered, you will earn 250 points. When you have completed the task, these points will be converted to money. Before we begin, please take a moment to think about you want to save the money you earn for. When choosing this goal, consider what kinds of savings would make you feel most responsible --for example, you may want to save for your own education, for your child, or for your retirement. Please describe in 1-2 words what you hope to save the money for in the box below.

Page 2: In the space below, write a sentence or two describing to a friend or family member why saving for [insert stated savings goal here] is important to you.

Page 3: Please respond to the following puzzles by filling in the piece that seems to be missing from the image. Please mark your response by selecting the number of the correct piece below.

Pages 4-8: Total Points Earned: [0, 250, 500, 750, 1000]. Being saved for: [insert stated savings goal here]. [Question from raven’s progressive matrices here.]

Page 9: Round 1 Complete! Well done! In round 2, the questions will be harder, but you each question is worth more. While the money you earned in round 1 was for your savings goal, the money you'll earn in round 2 is for whatever you'd like. But to enter round 2, you have to pay 1,000 points. You have two options. You can either pay by using the points you have already saved OR you can pay by borrowing from the points you will earn in the next round. If you choose to borrow from the next round, you will be charged 10 points, which will be collected at
the end of the game. Please state how much you would use from each of the following. (Total must add up to 1,000).

_____ Spend points from money saved for [insert stated savings goal here] in Round 1
_____ Borrow points from money you will earn in Round 2

Please tell us why you chose to spend and/or borrow that amount of money.

Page 10: Begin Round 2!

Pages 11-12: Additional Raven’s Questions worth 1500 each

Page 13:

If participants borrowed - Congratulations! You have earned 2,000 points. After factoring in the points you used for borrowing, this is equal to 19 cents.

If participants did not borrow - Congratulations! You have earned 2,000 points. This is equal to 20 cents.

Control Condition

Page 1: On the following pages, you will be given a series of questions. For each question answered, you will earn 250 points. When you have completed the task, these points will be converted to money. Please respond to the following puzzles by filling in the piece that seems to be missing from the image. Please mark your response by selecting the number of the correct piece below.

Page 2: Please respond to the following puzzles by filling in the piece that seems to be missing from the image. Please mark your response by selecting the number of the correct piece below.
Pages 3-7: Total Points Earned: [0, 250, 500, 750, 1000].

Page 8: Round 1 Complete! Well done! In round 2, the questions will be harder, but you each question is worth more. But to enter round 2, you have to pay 1,000 points. You have two options. You can either pay by using the points you have already earned OR you can pay by borrowing from the points you will earn in the next round. If you choose to borrow from the next round, you will be charged 10 points, which will be collected at the end of the game. Please state how much you would use from each of the following. (Total must add up to 1,000).

______ Spend points from money already earned in Round 1
______ Borrow points from money you will earn in Round 2

Please tell us why you chose to spend and/or borrow that amount of money.

Page 9: Begin Round 2!

Pages 10-11: Additional Raven’s Questions worth 1500 each

Page 12:

If participants borrowed - Congratulations! You have earned 2,000 points. After factoring in the points you used for borrowing, this is equal to 19 cents.

If participants did not borrow - Congratulations! You have earned 2,000 points. This is equal to 20 cents.