Knowing When to Spend:

Unintended Financial Consequences of Earmarking to Encourage Savings

In Press at the Journal of Marketing Research

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

Rourke L. O’Brien
University of Wisconsin-Madison

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

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 an assistant professor of public affairs at the University of Wisconsin-
Madison (robrien5@wisc.edu). We are grateful to the editors and two anonymous reviewers for
helpful feedback. We thank Dan Bartels, Melissa Knoll, Oleg Urminsky, and participants at the
2014 BDRM Greater Good Preconference and the 2015 Boulder Summer Conference on
Consumer Financial Decision Making for useful comments and suggestions, and Jennifer Lyu
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.
Knowing When to Spend:

Unintended Financial Consequences of Earmarking to Encourage Savings

Abstract

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 has 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 and guilt to contribute to this pattern. Specifically, we explore whether people will spend savings in times when they need money most: emergencies. Across six 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 Urmsinsky, 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; 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 actions of limiting purchases and increasing savings today to achieve the goal of maximizing savings for the long-term.

Existing research highlights earmarking (e.g., account labeling) 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. The time course of receiving money, form of the resource, and the presence of account labels all influence decisions to spend. 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). Additionally, 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 remain untouched than to be spent relative to unallocated resources (Shefrin and Thaler, 1988). Earmarking 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 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 save in accounts for specific goals. For example, over $2 billion are currently invested in tax advantaged 529 plans for educational expenses (College Savings Plan Network, 2013), and over $7 trillion are invested in individual retirement accounts (IRAs; DeMasters, 2012). With accounts such as these, psychological barriers alone are likely to limit withdrawals, even absent financial consequences (Thaler and Shefrin, 1981). Nonetheless, these programs generally make withdrawing money difficult and often include penalties for removing money before a certain period 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 increase 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. 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.

SPENDING FROM SAVINGS

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 (Bianchi 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.
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. This paper explores how earmarking funds for different purposes influences this decision and provides a benchmark for considering the magnitude of this effect. Importantly, we also propose and provide initial support for a method to allow for both drawing down savings when needed and rebuilding the savings when money becomes available.

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 intention of increasing savings—segregating money into accounts with specific goals can lead to financially maladaptive behaviors. Here, we explore whether people will preserve some of their 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 specifically examine whether people will spend their savings in times 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 saving can also lead to costly borrowing.

However, we predict that the extent to which people preserve savings will vary 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 them. Research has considered various factors affecting the tendency to preserve money in mental accounts, including 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 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:

**H1:** People will be more motivated to preserve savings that have been earmarked for “responsible” goals than savings that have been earmarked for less responsible goals or unearmarked savings; this motivation can lead them to incur costs to maintain savings.

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 at repaying debt than at rebuilding the amount in savings\(^1\). 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 propose that in highlighting specific savings goals 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 guilty and financially irresponsible. Thus:

**H2:** Consumers’ desire to avoid guilt and maintain perceptions of themselves as responsible can lead them to borrow to preserve savings earmarked for valued goals.

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 to avoid guilt and to feel responsible, we anticipate that providing participants with an alternate means for feeling responsible will mitigate the observed pattern. 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 account’s purpose. Therefore, we propose:

**H3:** Providing consumers with a plan for replenishing funds in “responsible” accounts will reduce guilt and repair perceptions of responsibility associated with spending from savings, thus reducing high-cost borrowing.

We tested our hypotheses in six experiments. Experiment 1 examined a nationally representative sample. Data showed that participants’ likelihood of turning to credit when savings was available varied 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 and began to quantify the cost of this consumer response. 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 considerations of responsibility as one mechanism underlying this pattern of behavior (H1, H2). Paradoxically, people were more likely to turn to high interest rate credit under the belief that doing so is the responsible option. Building on differences in responsibility and subsequent willingness to incur a cost across different types of goals,
Experiment 4 extended findings from scenario settings and found parallel patterns in an experimental game (H1). To better understand mechanism, Experiment 5 directly compared several additional factors including guilt, future-mindedness, and a series of individual emotions as possible mediators, revealing that guilt and responsibility are tightly coupled constructs that together mediate the observed patterns (H1, H2). Finally, Experiment 6 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 (H2, H3).

Thus, there are three central contributions of the paper: First, defining the types of savings goals that are likely to lead people to turn to borrowing to a greater and lesser degree; second, exploring the psychological mechanism underlying this pattern; and third, proposing and testing an intervention to reduce this unwanted behavior. 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 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. They 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\(^2\). Would you be more likely to use savings or to borrow using the credit card to get the money you need?” Participants responded 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 Figure 1. This demonstrates that participants are responsive to financial incentives and prefer not to borrow overall. Rather than focusing on the main effect of interest on borrowing, we aim to understand relative differences in borrowing behavior across accounts based on their labels. Thus, a $3 \times 3$ (savings account type) by (credit card interest rate) analysis of variance was conducted to examine responses across conditions. 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 ($M_{LOW} = 3.06, SD = 1.87$; $M_{MED} = 2.54, SD = 1.71$; $M_{HIGH} = 2.21, SD = 1.55$; $F(2,996) = 21.59, p<.001, \eta^2 = .042$). This difference implies that—as intended—participants responded as though they would be paying some interest on the money borrowed, rather than pay the loan in full before interest accrued. 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 $ps \leq .015$) and all savings account types. 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 exploration of these factors. 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 choice of credit versus savings. In the full model, only age was a significant predictor of financing preference, with older respondents being more likely to prefer using savings than credit ($b = -0.02, t(1004) = -5.16, p < 0.001$). Notably, income and education were unrelated to overall preferences 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. We found no difference in the observed pattern (all $p$s > .3). We additionally tested for an interactive effect between the account label and having children, expecting the overall pattern may be 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 reference group, interaction of have children dummy and generic account, $b = -0.40, t(999) = -1.44, p = .151$, interaction of have children dummy and car account, $b = -0.46, t(999) = -1.67$ and $p = .095$).

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 have 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 pattern.

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 chose 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% to 30% interest. These 10 questions were presented on a single page.

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 consistent 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 (for descriptive statistics) based on their corresponding meanings. 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 0.30, 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 for 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 prior to the emergency, to allow for a liquidity buffer after the savings is used to help us 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 first ran a pretest to identify which types of accounts people considered to be “responsible”. The pretest asked participants to rank six different accounts by how much having savings in that account makes them feel responsible. Results showed 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). Based on this ranking, we then examined responses to three accounts labels that evoked relatively strong beliefs about personal responsibility (child, education, and retirement), two accounts which were more fun and neutral in regard to personal responsibility (vacation and car), and a neutral control account (unlabeled).
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 that specified that there was initially $2,000 in the savings account and there was no financial penalty for withdrawing funds (see Web Appendix A for exact wording). Money in the savings account was earning 1% while the credit card charged a 12% interest rate. In a between-subjects design, participants were randomly assigned to one of six conditions where the savings account was intended for either classes to advance your career, your child, retirement, vacation, or a new car. In the final (control) condition, the savings purpose 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 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.

Results and Discussion

Prior to analysis, 58 participants were removed for having previously taken a similar survey and 43 participants were removed for failing the reading check. Results 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, unlabeled, 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, 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 then 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. 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 using Hayes’ (2013) PROCESS macro with bias-corrected confidence intervals based on 10,000 bootstrapped samples 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; $n=329$).

Next, we examined whether other factors measured, including the importance of saving enough money for the stated purpose, 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. Factor analysis determined that each of the additional items measured loaded on to four distinct factors: irresponsibility, ease of debt repayment, importance of money, and time until money is needed (see Web Appendix A for additional details on factor analysis as well as regression analysis including all factors). We examined each item independently and also as combined scales based on factor analysis. Of these additional items, only the importance of the savings goal (as a single item) 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 to withdraw money from savings accounts when they believe that the money is being saved for a purpose personally perceived as most responsible. 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. Additionally, we have operationalized essential spending thus far through the case of emergencies to emphasize the fact that the decision to purchase is not optional. However, the experiments are intended to gain an understanding of a broader array of situations where someone is making a purchase and must choose how to finance it as a function of the intended use of savings. To address these points, Experiment 4 moves to an experimental game where participants had the opportunity to earn money and were presented with the option of borrowing at a cost. In this way, we extend findings beyond an emergency situation and directly test how saving for a responsible purpose can influence borrowing.

Method

Participants. Four hundred fifty-three participants were recruited online through Amazon.com’s Mechanical Turk platform and completed the study for monetary compensation. Fifty-two percent of participants were male, median age in the 30-34 range, median income in the $40,000-$49,999 range, median education of “Some College”, and the sample was limited to U.S. respondents.

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 at a rate of 1 cent per 100 points. Participants were randomly assigned to be in the control, fun, or responsible condition. Those in the fun (responsible) condition were instructed: “Before we begin, please take a moment to think about what you want to save the
money you earn for. Choose the goal that you think would be the most fun (responsible).”

Those in the fun condition then selected one savings goal from four options: eating out, electronics, new clothes, or travel. Those in the responsible condition selected from: education, retirement, child, or home. On the following page, participants explained why they made the choice on the previous page. Those in the control condition did not select a savings goal.

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 Web Appendix B for a screenshot and more detailed instructions). In the responsible and fun conditions, participants were reminded of their stated savings goal below their point tally on each page.

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 100 points for borrowing and reminded that this was equivalent to 1 cent that would be deducted from their final payment.

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 along with a memory check asking participants to recall their savings goal before completing the survey and subsequently receiving their bonus.

Results and Discussion
Prior to analysis, 14 participants were removed for having previously taken a similar survey and two participants were removed for failing the memory check. Results are consistent including these participants. A one-way ANOVA was conducted to examine whether points borrowed, the central dependent variable, varied across conditions. Analysis revealed a significant main effect of condition ($F(2,434)=3.34, p=.036, \eta^2=.02$). Consistent with our hypothesis, post-hoc contrasts revealed that participants in the responsible condition borrowed more points on average ($M=371.58, SD=421.91$) than those in both the control condition ($M=263.61, SD=398.87, t(434)=2.24, p =.025$) and the fun condition ($M=263.58, SD=400.75, t(434)=2.26, p =.024$). There were no significant differences between borrowing decisions in the control and fun conditions ($t<1, ns$). 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 (49% vs. 33%, Mann-Whitney U test, $Z=2.67, p=.007$) or the fun condition (34%, Mann-Whitney U test, $Z=2.62, p=.009$), while there were no differences across the fun and control conditions ($Z<1, ns$). These findings suggest that the presence of any goal is not sufficient to promote costly borrowing behaviors and provide converging evidence for our hypothesis that people will pay a cost to preserve savings when that savings is intended for a responsible purpose.

**EXPERIMENT 5**

Thus far, we have identified an overall pattern across accounts labeled for responsible uses versus both unlabeled savings and those labeled for fun or less “responsible” purposes. However, we have maintained a broad definition of responsibility. Potentially distinct constructs such as
perceptions of guilt or long-term thinking could be driving the observed pattern, and participants may be generalizing from those beliefs to responsibility given the limitations of questions presented to them in earlier studies.

Experiment 5 aimed to tease apart these distinctions. To the extent that spending from certain labeled accounts activates attitudes or emotions that produce context-specific effects, we would expect to see mediation through those factors. Therefore, this study tests for the potential mediating role of these competing constructs. Finally, the present experiment tested the hypothesis that a range of emotions, rather than only responsibility, may trigger similar patterns as the account label by including a positive and negative affective schedule.

Method

Participants. Two hundred-three participants were recruited online through Amazon.com’s Mechanical Turk platform and completed the study for monetary compensation. Fifty-seven 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 “Some College”, and the sample was limited to respondents from the U.S.

Design and procedure. Participants were randomly assigned to one of two conditions (account type: child, generic) in a between-subjects design. Participants were asked to imagine themselves in the situations described. They were presented with the same scenarios as in Experiment 3, in the child and generic conditions. They were again asked what proportion of the money they would use from their savings account versus borrow using a credit card. However, the dependent
variable in this case was a seven-point Likert scale ranging from (1) “All from savings” to (7) “All on a credit card”.

Next, they stated their agreement with each of nine questions on a seven-point Likert scale ranging from (1) “Completely disagree” to (7) “Completely agree”. These questions were intended to tease apart distinctions between attitudes towards responsibility, guilt, and future-mindedness. Three questions were created to gauge attitudes towards each specific construct. For example, agreement with “I would feel irresponsible for taking money from savings that was set aside.” was used to test for responsibility, agreement with “Taking money from savings that was set aside makes me feel like a bad person.” was used to test for guilt, and agreement with “Taking money from savings that was set aside would lead to bad financial outcomes down the road.” was used to test for future-mindedness (see Web Appendix C for a complete list).

Additionally, to determine whether the presence of the labeled account induced differences in mood or emotions that may have been driving the observed patterns, participants completed a 20-item positive and negative affect schedule (PANAS; Watson, Clark, and Tellegen, 1988). Participants responded to basic demographics along with a memory check asking participants to recall their savings’ goals before completing the survey.

Results and Discussion

Prior to analysis, nineteen participants were removed for having previously taken a similar survey. Results are consistent when including these participants. To test the effect of condition on amount borrowed, we conducted an analysis of variance. The effect of account label was significant, with those in the child condition borrowing significantly more (M=2.53,
than those in the generic condition \( (M=1.87, SD=1.82, F(1, 182)=5.68, p=.018, \eta^2=.03) \).

Next, we investigated the role of reported feelings of responsibility, guilt, future-mindedness, and general emotions as possible mediators between condition and borrowing behavior. First, we combined each three-item measure into a single scale (\( \alpha_{\text{RESPONSIBLE}}=.90; \alpha_{\text{GUILTY}}=.94; \alpha_{\text{FUTURE-MINDED}}=.86 \)). However, as a result of the high correlation between the responsible and guilty scales \( (r=.93, p < .001) \), we subsequently combined these two measures to form a single guilt/responsibility measure \( (\alpha_{\text{GUILT/RESP}}=.96) \). A principle-components factor analysis of the initial nine individual items using varimax rotation corroborated the validity of this decision. Each of the six items intended to measure either responsibility or guilt loaded over 0.70 on one dimension while the three items intended to measure future-mindedness loaded over 0.60 on a second dimension. Thus, we examine guilt/responsibility and future-mindedness as two possible mediators in the subsequent analysis.

To determine whether additional emotions might be relevant as well, we first conducted an independent samples t-test across label conditions, with each of the 20 items measured in the PANAS included as dependent variables. Of these items, ashamed \( (M_{\text{CHILD}}=1.67, SD_{\text{CHILD}}=1.04; M_{\text{CONTROL}}=1.25, SD_{\text{CONTROL}}=0.66; t(182)=3.23, p=.001) \) and guilty \( (M_{\text{CHILD}}=1.70, SD_{\text{CHILD}}=0.12; M_{\text{CONTROL}}=1.41, SD_{\text{CONTROL}}=0.79; t(182)=2.04, p=.043) \) were the only two that varied across conditions. Guilt and shame considered as emotions were highly correlated with one another \( (r=0.75, p<.001) \) as well as with the existing scale of guilt/responsibility \( (r_{\text{Guilt, Guilt/RespItems}}=0.31, p<.001; r_{\text{Shame, Guilt/RespItems}}=0.28, p<.001; r_{\text{Guilt/ShameEmotions, Guilt/RespItems}}=0.32, p<.001) \). In this case, factor analysis identified guilt and shame metrics reported as incidental affect as a unique component relative to the explicitly measured guilt/responsibility response item scale above,
with the PANAS measures uniquely loading over 0.9 on this component. Thus, while we believe that this variation in emotional response is consistent with our overall hypothesis, we examine guilt and shame considered as emotions (with responses averaged across the two measures) as a distinct factor in subsequent analysis.

Specifically, we examined whether each of these factors (guilt/responsibility response items, future-mindedness, guilt/shame affect) would mediate the relationship between condition and borrowing behavior. We entered each factor independently into a bootstrapping mediation test using Hayes’ (2013) PROCESS macro with bias-corrected confidence intervals based on 10,000 bootstrapped samples, including prime condition as a covariate. This analysis revealed that the guilt/responsibility response items (95% CI=0.55, 1.28, \( n=184 \)) fully mediated the link between condition and borrowing while future-mindedness (95% CI=-0.29, 0.21, \( n=184 \)) and guilt/shame as affect (95% CI=-0.04, 0.20, \( n=184 \)) did not. This analysis provides evidence that perceptions of guilt and personal responsibility, considered deliberately and explicitly as response items in reaction to the situation described (rather than as incidental affect) play the dominant role in the observed pattern, see Figure 4. Additional details on regression analysis can be found in the Online Appendix C.

Insert Figure 4 about here

Taken together, these results provide substantial insight into the mechanism underlying the observed pattern of borrowing. Specifically, they demonstrate that perceptions of guilt and responsibility may be considered together as a unified construct. Further, they reinforce earlier studies suggesting that this construct, rather than future-mindedness or incidental emotions, underlies the decision of how much to borrow, at a cost, in order to preserve savings.
EXPERIMENT 6

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 plan and specific mechanism for easily replacing the money in their savings account could be useful for combatting borrowing to preserve savings and allow people to avoid guilt and 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 responsible 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 by allowing people to maintain perceptions of personal responsibility (H3) in the following experiment.

Method

Participants. Six-hundred eighty-four participants were recruited by Qualtrics in conjunction with an unrelated study to form a US sample with an oversampling of low- to moderate-income households. They completed the survey for monetary compensation. Forty-four percent of participants were female, median age in the 50-54 range, median household income in the $50,000-$59,999 range, and median education of “some college”.

Design and procedure. Participants were presented with a variation on the scenarios from earlier studies. They were first told to imagine that they had a steady income in addition to savings that had been set aside for a specific purpose and was being held in an account with no withdrawal penalty, earning 1% interest. 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.” To test for the robustness of the hypothesized pattern, we chose two different savings goals that had been shown to create a high barrier to withdrawing savings in earlier studies.

Participants were randomly assigned to one of four conditions in a 2 (account type: child, retirement) by 2 (automatic replenishment option: present, absent) design. Thus, participants were randomly assigned to conditions where the [X] above referred either to child, or retirement savings. Next, to examine the effect of the automatic replenishment 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 would spend from their labeled savings account and how much they would borrow on credit. Participants responded to the same set of questions about guilt and responsibility as in Experiment 5, along with demographics and an attention check, in addition to questions about an unrelated experiment before completing the survey.

Results and Discussion

Prior to analysis, 87 participants were removed for failing the attention check. Results are consistent when including these participants. A two (account type: child, retirement) by two (automatic replenishment, control) analysis of variance was performed with dollars borrowed on credit as the dependent variable. This analysis revealed a significant overall effect ($F(3, 592)=3.84, p=.010, \eta^2=\text{.02}$). There were no significant differences across account labels ($F(1, 592)=3.20, \text{ns}$), and no interactions between account type and auto-repayment options ($F(1, 592)=\text{ns}$).
Consistent with our hypothesis, the central intervention included to reduce costly borrowing behavior was successful overall in mitigating costly borrowing across account types. Specifically, providing participants with the auto-repayment option led to lower levels of borrowing \( (M=210.34, SD=367.54 \text{ auto-repayment versus } M=299.15, SD=411.42 \text{ control, } F(1, 592)=7.69, p=.006, \eta^2=.01). \)

We next examined whether beliefs about combined guilt and responsibility mediated the observed pattern of results. As in Experiment 5, we averaged values for responses to the six questions measuring beliefs about the effect of withdrawing money from savings on perceptions of guilt and responsibility \( (\alpha=.94), \) with greater values indicating a greater loss in responsibility associated with using savings. We examined conditions at the level of automatic replenishment (control coded as 0 and automatic replenishment coded as 1) for analysis and included account label as a covariate\(^5\). Regressing credit borrowing on automatic payment condition confirmed that participants reported borrowing less when the automatic replenishment option was available \( (\beta=-.11, t(593)=2.79, p=.005). \) To assess the mediating role of perceived guilt/responsibility, we then regressed credit borrowing on the automatic replenishment condition and the perceived responsibility scale described above. When taking guilt/responsibility into account, guilt/responsibility was a significant predictor \( (\beta=.55, t(592)=15.30, p<.001), \) while condition was no longer significant \( (\beta=0.01, t(592)<1, ns). \) A bootstrapping mediation test using Hayes’ (2013) PROCESS macro with bias-corrected confidence intervals based on 10,000 bootstrapped samples confirmed that an increase in perceived guilt/irresponsibility for withdrawing money from specific savings accounts fully mediated the relationship between automatic replenishment option and the propensity to borrow on high-interest rate credit \( (95\% \text{ CI}=-131.56, -60.02; \ n=596). \)
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 reduced costs associated with high-interest rate borrowing. Notably, this intervention did not bring costs to zero, further 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 incur costs 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 or savings 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 more than double that of an unlabeled account and more than three times that of an account labeled for their car (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). Experiment 5 broadened the focus on responsibility as a driver of the pattern to include guilty emotions as well. Finally, Experiment 6 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).

It is important to note that across our experiments, respondents were consistently willing to tap into their savings to pay for an emergency, regardless of condition. Indeed, across experiments, respondents draw more heavily from savings than borrowing to finance emergencies, regardless of the savings account label. Nevertheless, we find differences across account labels in the amount of savings drawn down and, consequently, the amount of money that is borrowed at a cost to the consumer. These differences are non-trivial, especially for those with low incomes and no financial slack. For example, across studies, participants reported borrowing about 20-30 percent of the money they needed at a 12% interest rate to preserve money in responsible accounts, but only about half that amount in unlabeled accounts or accounts for other purposes. Note that if a person’s sole goal was to maximize net worth, they would not borrow at all; this underscores the meaningful inefficiencies that earmarking can create.

These results demonstrate that people are more likely to make 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. Our conclusions about personal responsibility generalized across individuals and are absent reliance on social connections. Changes to education and norms may help people understand which decisions are more and less responsible. In addition to providing automatic replenishment 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 $t > 6.0, ps < .001$). 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 replenishment 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 costs to protect their
earnmarked status. Evidence presented here suggests that consumers regard spending valued
savings as a negative reflection of 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 for 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 asset accumulation,
particularly among low- and moderate-income families. From matched savings programs to new
efforts by 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 become
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 examination shows that individual reluctance to spend savings can undermine the efficacy of such a strategy. Given individuals’ propensity to protect their sacred savings 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. Coded as Vacation=1, Car=2, Generic=3, Education=4, Child=5, Retirement=6. Note that results are robust to inclusion of this and other covariates included in this paper.

4. Participants received points for completing the questions, irrespective of whether they answered correctly.

5. Coded as Child=1, Retirement=2.
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. Mediation analysis analyzing the role of guilt/responsibility as a mediator between account label and borrowing choice in Experiment 5.
Web Appendix A: Scenario, Additional Questions, and Additional Analyses from Experiment 3

Scenario

“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.”

[X] = “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.
### Additional Questions in Experiment 3

Considering the situation on the previous page, to what extent do you agree or disagree with each of the statements below?

<table>
<thead>
<tr>
<th>Irresponsible 1: I would feel irresponsible for taking money from savings that was set aside for my retirement</th>
<th>Completely Disagree 1 (1)</th>
<th>2 (2)</th>
<th>3 (3)</th>
<th>4 (4)</th>
<th>5 (5)</th>
<th>6 (6)</th>
<th>Completely Agree 7 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Irresponsible 2: Taking money from savings that was set aside for my retirement makes me feel like a bad person</th>
<th>Completely Disagree 1 (1)</th>
<th>2 (2)</th>
<th>3 (3)</th>
<th>4 (4)</th>
<th>5 (5)</th>
<th>6 (6)</th>
<th>Completely Agree 7 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Irresponsible 3: Others would judge me negatively for taking money from savings that was set aside for my retirement</th>
<th>Completely Disagree 1 (1)</th>
<th>2 (2)</th>
<th>3 (3)</th>
<th>4 (4)</th>
<th>5 (5)</th>
<th>6 (6)</th>
<th>Completely Agree 7 (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**Time to Repay Savings Subjective:** 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)  

_Time to Repay Savings Objective:_ 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)  

_Difficulty Repaying Savings:_ 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)
Time to Repay Debt: If you borrowed from the credit card to pay for this emergency, 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)

Time to Repay Debt Objective: If you borrowed from the credit card to pay for this emergency, when do you think you would pay off the balance? [This item was not included as a result of a coding error]

Difficulty Repaying Debt: 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 Easy1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- Very Hard6 (6)

Importance of Financial Cushion: 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 important1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- Extremely important7 (7)
**Importance of Intended Use:** 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)

**Time Before Money Needed:** 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)
Keep Savings Before Spending: 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>Goal</th>
<th>Not at all important1 (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>General savings (1)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for retirement (2)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for your child (3)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for classes that would advance your career (4)</td>
<td>○</td>
<td>○</td>
<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>
<td>○</td>
<td>○</td>
<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 (1)</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for retirement 2 (2)</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for your child 3 (3)</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for classes that would advance your career 4 (4)</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving for a vacation 5 (5)</td>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Factor Analysis for Questions about Debt Repayment and Savings Goals in Experiment 3

We conducted principal-components factor analysis with varimax rotation to identify factors from each of the items measured as potential mediators. This analysis revealed that the items loaded onto four distinct factors. Specific items and their factor loadings are listed below. Loadings under 0.5 are suppressed.

<table>
<thead>
<tr>
<th>Item (see above for specific question wording)</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irresponsible 1</td>
<td>.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irresponsible 2</td>
<td>.92</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irresponsible 3</td>
<td>.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to Repay Savings Subjective</td>
<td></td>
<td>.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to Repay Savings Objective</td>
<td></td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty Repaying Savings</td>
<td></td>
<td>.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to Repay Debt</td>
<td></td>
<td>.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty Repaying Debt</td>
<td></td>
<td>.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Importance of Financial Cushion</td>
<td></td>
<td></td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td>Importance of Intended Use</td>
<td></td>
<td></td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>Time Before Money Needed</td>
<td></td>
<td></td>
<td></td>
<td>.88</td>
</tr>
<tr>
<td>Keep Savings Before Spending</td>
<td></td>
<td></td>
<td></td>
<td>.89</td>
</tr>
<tr>
<td>Cronbach’s Alpha for Scale Based on Factor</td>
<td>0.86</td>
<td>.80</td>
<td>.64</td>
<td>.79</td>
</tr>
</tbody>
</table>

Each of these factors was subsequently entered into a bootstrapping mediation test using Hayes’ (2013) PROCESS macro with bias-corrected confidence intervals based on 10,000 bootstrapped samples. This analysis showed mediation through Factor 1 (as described in the main text of Experiment 3). However, none of the other Factors mediated the observed pattern (95% CI included 0 for each).
Linear regression analysis including each factor determined by above analysis alongside condition as predictors of the amount borrowed in Experiment 3

<table>
<thead>
<tr>
<th></th>
<th>$B$</th>
<th>S.E.</th>
<th>Std. $B$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-314.07</td>
<td>120.36</td>
<td>.11</td>
<td>-2.61</td>
<td>.009</td>
</tr>
<tr>
<td>Condition (Grouped)</td>
<td>66.45</td>
<td>30.86</td>
<td>.11</td>
<td>2.15</td>
<td>.032</td>
</tr>
<tr>
<td>Irresponsible Scale</td>
<td>150.85</td>
<td>15.27</td>
<td>.48</td>
<td>9.88</td>
<td>.000</td>
</tr>
<tr>
<td>Debt Repayment Scale</td>
<td>-18.36</td>
<td>14.02</td>
<td>-.06</td>
<td>-1.31</td>
<td>.191</td>
</tr>
<tr>
<td>Importance of Money</td>
<td>11.86</td>
<td>14.08</td>
<td>.04</td>
<td>.84</td>
<td>.400</td>
</tr>
<tr>
<td>Time Until Money is</td>
<td>-22.59</td>
<td>14.56</td>
<td>-.08</td>
<td>-1.55</td>
<td>.122</td>
</tr>
</tbody>
</table>

Scale (Factor 1)
Scale (Factor 2)
Scale (Factor 3)
Scale (Factor 4)
Web Appendix B: Sample screenshot and description of game in Experiment 4.

Participants in the responsible and fun conditions were reminded of their savings goal while those in the control condition were not.
Detailed Instructions for Savings Game in Experiment 4

**Fun (Responsible) Conditions**

*Page 1:* On the following pages, you will be given a series of questions. For each question answered correctly, you will earn 250 points. When you have completed the task, these points will be converted to money, and you will receive 1 cent for every 100 points you've earned.

Before we begin, please take a moment to think about you want to save the money you earn for. Choose the goal that you think would be the most fun (responsible).

Please choose which of the following goals you hope to save the money for from the list below. As you play, points will be automatically placed into an account for this purpose.

I want to save the money I earn for: [In the fun condition, choice among: eating out, electronics, new clothes, travel]

[In the responsible condition, choice among: my education, my retirement, my child, my home]

*Page 2:* Please explain why you made your choice on the previous page.

*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 you will be able to earn double what you already have. 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 100 points (1 cent), which will be collected at the end of the game. Please state how much you would use from each of the following. Note that the 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

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 correctly, you will earn 250 points. When you have completed the task, these points will be converted to money, and you will receive 1 cent for every 100 points you've earned.

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].

In round 2 you will be able to earn double what you already have. 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 100 points (1 cent), which will be collected at the end of the game. Please state how much you would use from each of the following. Note that the 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

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.
Web Appendix C

Items used to examine attitudes towards responsibility, guilt, and future-mindedness, and supplementary regression analysis in Experiment 5

Responsibility

- I would feel irresponsible for taking money from savings that was set aside.
- Taking money from savings that was set aside would make me feel like I was losing control of my life.
- I would feel like a less dependable person if I took money from savings that was set aside.

Guilt

- Taking money from savings that was set aside makes me feel like a bad person.
- I would feel guilty taking money from savings that was set aside because I would be breaking a commitment to myself.
- I would feel like I failed myself if I took money from savings that was set aside.

Future-mindedness

- Taking money from savings that was set aside would lead to bad financial outcomes down the road.
- Taking money from savings that was set aside would slow me down in achieving my life goals.
- Taking money from savings that was set aside would be adding a roadblock to my long-term goals.
Linear regression analysis including factors identified as guilt/responsibility response items, future-mindedness, and guilt/shame as affect, as predictors of amount borrowed in Experiment 4.

<table>
<thead>
<tr>
<th></th>
<th>$B$</th>
<th>S.E.</th>
<th>Std. $B$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.32</td>
<td>.34</td>
<td>.96</td>
<td>.39</td>
<td>.339</td>
</tr>
<tr>
<td>Condition</td>
<td>.11</td>
<td>.30</td>
<td>.03</td>
<td>.39</td>
<td>.698</td>
</tr>
<tr>
<td>Guilt and Responsibility Response Items</td>
<td>.38</td>
<td>.11</td>
<td>.38</td>
<td>3.53</td>
<td>.001</td>
</tr>
<tr>
<td>Future-mindedness</td>
<td>.24</td>
<td>.11</td>
<td>.21</td>
<td>2.23</td>
<td>.027</td>
</tr>
<tr>
<td>Guilt and Shame as Affect</td>
<td>-.15</td>
<td>.15</td>
<td>-.07</td>
<td>-1.06</td>
<td>.292</td>
</tr>
</tbody>
</table>