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This research examines the effects of earmarking money on savings by low-income consumers. In particular, the authors test two interventions that are designed to enhance the effects of earmarking: (1) using a visual reminder of the savings goal and (2) dividing the earmarked money into two parts. Consistent with prior research suggesting that partitioning increases self-control, people save more when earmarked money is partitioned into two accounts than when it is pooled into one account. In addition, the presence of the visual reminder increases the savings rate. The authors conclude with implications for consumer welfare and directions for further research.

Keywords: saving, self-control, guilt, budgeting

Earmarking and Partitioning: Increasing Saving by Low-Income Households

Earmarking: to reserve or set aside for a particular purpose. (*American Heritage Dictionary*, 4th Edition)

There has been significant recent concern about declining savings rates across a wide range of economies and geographies, ranging from sophisticated Western economies with a high prevalence of consumer credit and electronic transactions to the more traditional economies in rural areas of the developing world in which poverty rates are high and banking infrastructure is almost nonexistent. A record number of personal bankruptcies and delinquencies have been recently reported in North America (American Bankruptcy Institute 2008; Stern 2008), and several observers have commented that the rural markets of India and China will be an emerging force only if consumers are educated about

personal finances and can manage their money well (Smith and Thurman 2007). Thus, the need to help consumers manage their personal finances effectively is an important topic worldwide.

In recent years, several methods have been suggested and implemented to increase savings rates. These include programs in which consumers save a proportion of future payroll increases in retirement accounts (Save More Tomorrow; Thaler and Benartzi 2004), banks automatically round up a transaction to the next dollar and deposit the change into a savings account (Save the Change; Milk Your Money 2008), or low-income households are encouraged to save in Individual Development Accounts with matching deposits from federal and social development organizations (American Dream Demonstration; Sherraden 2008). Increasing savings for low-income households is especially challenging, with some estimates suggesting that more than \$2 is spent in implementing such programs for each \$1 saved (Schreiner, Ng, and Sherraden 2004). Furthermore, among low-income households, those without access to bank accounts perform worse in Individual Development Accounts than households that do have bank accounts (Grinstein-Weiss et al. 2008). We focus on increasing savings by such low-income households that subsist in a cash economy and get paid weekly cash wages. In particular, these households have no bank accounts, nor do they have a formal payroll structure. By examining interventions that allow these households to save money, we contribute to the broad stream of work that focuses on decreasing financial uncertainty and increasing asset building for low-income households.

We conducted this research at an infrastructure construction project in rural India. This project had been in place

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for eight months and was expected to last for another year. Laborers at this project received cash wages with a frequency ranging from once a day to once a week. Infrastructure projects, such as the one for this study, usually spawn several small rural townships in the general vicinity of the project. However, although these are full-fledged townships in other respects, they often lack services, such as banks and post offices. Published surveys have revealed that only a small percentage (between 1% and 7%) of Indian villages are served by banks (Devaraja 2011). Of particular interest to our study, none of the townships we include in this study were served by banks. Thus, most people in these townships were habituated to a cash economy.

In this context, we focus on one particular set of saving strategies—namely, earmarking. The term “earmarking” is typically used to describe the labeling of money for a particular purpose. In this sense, earmarking is no different from budgeting as described by Heath and Soll (1996) and others (Shefrin and Thaler 1988; Thaler 1985). For example, in interviews we conducted in North America to understand household money management practices, several respondents used the term “earmarking” for the practice of allocating money toward various purchase categories using a computer application. However, earmarking often takes on a more specific form, one in which the earmarked money is kept distinct from other monies through either physical segregation or other forms of categorization (e.g., a separate bank account). As an example of the latter, many households create separate bank accounts for college tuition or home repair expenses. When money is deposited into these accounts, it becomes sticky, or less fungible, and stays in the account rather than being spent on other expenses (Shefrin and Thaler 1988). In the realm of physical segregation, one of our interview respondents, a photographer, was saving money toward the purchase of a new camera by setting aside cash in a side pocket of her purse. Similarly, Zelizer (1994a, p. 139) provides an example of physical segregation:

Within their homes, families worked hard at earmarking their monies Take for instance Mrs. M's system as she told it to *Women's Home Companion* in the early 1920's: "I collected eight little cans, all the same size, and pasted on them the following words, in big letters: groceries, carfare, gas, laundry, rent, tithe, savings, miscellaneous [W]e speak of those cans now, as the grocery can, carfare can, etc." (Bradley 1923, p. 7).

Earmarking works by acting as a budgeting mechanism, which has previously been shown to increase self-control (see Thaler 1999), but it also has its pitfalls. Mental accounts are often malleable, and consumers can trick themselves into spending when they are motivated to do so (Cheema and Soman 2006). For example, the photographer who was putting money away for a new camera reported that while she was on vacation, it was very easy to dip into the side pocket of her purse and use the earmarked cash to buy souvenirs and treats.

What, then, are effective ways of making earmarking work? In this article, we focus on two specific interventions that enhance the effectiveness of earmarking: (1) the

presence of a visual reminder of the savings goal and (2) the partitioning of the earmarked amount.

We propose that earmarking money for a specific purpose creates a rule for the consumer, which influences savings behavior by highlighting the savings goal and through potential guilt associated with violating the rule. Spending the money for an unrelated expense requires the consumer to violate this rule, leading to guilt. We expect that consumers who use money from two accounts for unrelated expenses (i.e., when the earmarked money is partitioned) will experience more guilt than consumers who use the same amount of money from one account. Consequently, the desire to avoid this guilt will lead to greater self-control when the earmarked money is partitioned into two accounts than when it is pooled into one account.

THEORETICAL BACKGROUND

Earmarking: Imposing Spending Rules

Rules require the exertion of willpower to control impulsive short-term behavior in favor of long-term benefits (Ainslie 1985; Hoch and Loewenstein 1991; Thaler and Shefrin 1981). As one instance of a rule, earmarking sets aside an amount of money for a particular purpose. Specifically, earmarking enables people to separate planning from doing by budgeting in advance of consumption and this precommitment helps control expenditure (Heath and Soll 1996).

Rules that govern behavior may be externally imposed by “agents who have our interests in mind” or internally “constructed” by ourselves as we see the need for them” (Prelec and Herrnstein 1991, p. 321). Externally imposed earmarks may be treated as “pre-commitment enforcement mechanisms . . . [applied] by an outside agency” (Shefrin and Thaler 1988, p. 614). Exerting self-control, while beneficial for the person, is psychologically costly. Models of self-control assume a psychic cost (Shefrin and Thaler 1988) or a craving cost (Benabou and Tirole 2004) of willpower to follow these rules. Prelec and Herrnstein (1991) suggest that such a reaction to breaking a rule may be a result of (Pavlovian) conditioning. Thus, while doing something improper may only cause embarrassment in the absence of a rule, breaking a rule may cause guilt, remorse, and regret (Thaler and Shefrin 1981). Violation of rules may also lead to a feeling of failure or to losing faith in oneself (Benabou and Tirole 2004). Consequently, albeit effortful, consumers follow rules because failure to do so leads to negative emotions.

In this research, we focus on the effect of earmarking money for saving. We earmark a portion of salary as savings for all participants but add manipulations that should enhance the effectiveness of earmarking. In particular, we expect that consumers will be less likely to spend the earmarked money when the guilt associated with doing so is high rather than low. We highlight the guilt associated with spending the earmarked money by labeling the earmarked money with pictures of the household's children for approximately half the study participants (all participating households had children). We chose this manipulation because interviews with similar households reported that the primary purpose for saving was to ensure resources for their children. The pictures (seen by approximately half the

participants) help remind participants that the savings are for their children. The remaining participants did not see the pictures. Thus:

- H₁: Participants whose earmarked money is labeled with their children's pictures will save more (i.e., will be less likely to spend earmarked money) than participants whose earmarked money is not labeled with pictures.

Effect of Partitions on Saving

We build on prior partitioning research to study the effect of partitioning the earmarked amount (having the money in one versus two accounts) on savings. Recent research shows that physically partitioning a particular quantity of a resource (e.g., food, money) into smaller quantities changes the consumption pattern by drawing greater attention to the consumption decision (Cheema and Soman 2008). In the current context, greater attention to the decision should cause the saving rule to be highlighted, decreasing participants' likelihood of spending when the earmarked amount is partitioned than when it is pooled into one account.

A similar prediction also arises from an alternative process. Because spending earmarked money signals the violation of a rule, spending money from two partitioned accounts may lead to two signals of failure, leading to more guilt than spending the same amount of money from one account. Specifically, we expect that the act of spending the earmarked money on an unrelated expense, rather than the magnitude of the expense, induces guilt. This expectation is consistent with the concept of diminishing sensitivity to psychophysical stimuli, a well-established principle underlying concepts such as Weber's Law (Baird and Noma 1978) and the hedonic editing practice of aggregating monetary losses (because one \$20 loss hurts less than two losses of \$10 each; Kahneman and Tversky 1979; Thaler 1985).

In this research, we partition the earmarked money by physically placing it in two separate envelopes. In contrast, households that have the earmarked money pooled receive it all in one envelope. Consistent with prior research on partitions, we expect the following:

- H₂: Participants who receive the earmarked money partitioned into two envelopes will save more (i.e., will be less likely to spend the earmarked money) than participants who receive the earmarked money pooled into one envelope.

We study the effect of partitions on actual savings rates for low-income consumers. We earmark a proportion of daily wages handed to laborers as savings. We manipulate the amount earmarked as savings as either high or low, between subjects. Some laborers receive the earmarked money in one envelope, and others receive it partitioned into two envelopes. We also manipulate the guilt associated with spending this money (breaking the rule); some laborers receive the earmarked money with pictures of their children affixed on the envelopes, and for others, the envelopes do not have pictures on them.

The results suggest that partitions significantly increase saving rates, and the benefit from partitioning is greater when the guilt associated with spending the earmarked amount for everyday expenses is high (i.e., when the envelopes have pictures of the laborers' children affixed on them).

FIELD STUDY: HELPING LOW-INCOME HOUSEHOLDS SAVE

Participants, Method, and Design

We conducted the field study at an infrastructure construction project in rural India. Participants were 146 laborers earning weekly wages who received financial advice in return for their participation. None of the participants in the study had any banking experience; they earned and spent cash. Only 20 participants had previously pawned possessions for cash, and another 8 participants were aware of the existence of moneylenders and pawnshops. Although all participants could converse fluently in the local language and understand simple written instructions, many could not read beyond a few lines of prose. However, all participants could count, add, and subtract with ease and could bargain when buying at their local markets.

Interviews suggested that the weekly pay periods resulted in the participants living their lives "one week at a time." Consequently, participants budgeted in narrow temporal frames and ended up making poor economic decisions (see Camerer et al. 1997; Thaler 1999). Interviews also suggested that the participants were sophisticated (see O'Donoghue and Rabin 1999). All participants reported that they would like to save more money, particularly for the purposes of feeding, clothing, and educating their children, but believed they had barely enough to make ends meet.

For the purpose of our study, we recruited households in which the sole wage earners, the male laborers, (1) belonged to a specific profession, (2) had two children that were 2–7 years of age, and (3) lived with their spouses and children in a township within walking distance of the project. All participants shared the same profession and earned identical amounts (670 rupees, or US\$15.50, per week paid in cash each Saturday). We eliminated potential participants who had unusual additional financial burdens (e.g., taking care of a sick relative, paying off pawnbroker loans, covering household expenses for extended family elsewhere).

Participants were recruited in collaboration with local social workers; the social workers informed laborers and their spouses that a financial planner would spend time with them to discuss their incomes and expenses and to help them save money. The financial planner's services were offered to 201 laborers who met these criteria; 146 agreed to use the services. The financial planner, accompanied by a social worker, visited each of the 146 families. The planner helped participants identify better money management strategies and also identify expenses that could be controlled. In addition, the planner specified that a simple way to save more money was to set a savings target or goal. The current savings rate of this group was very low; in the six months before the experiment, we tracked savings of all the participants and found that the mean savings rate was .75% (with 90% of the participants saving less than or equal to 2%). In the context of our study, the planner determined that saving 40 rupees per week (a rate of 6%) was achievable.

The planner gave participants a target savings amount and told them that the social worker would help put aside the target savings amount each week in sealed

envelopes. Although participants could open the envelopes if needed, they were encouraged to try to keep the envelopes sealed. Furthermore, it was emphasized that if the participants needed to open the savings envelopes for everyday expenses, they should try to draw only as much as they needed and put away the rest. Both the financial planner and the social worker explained these details several times to ensure that the laborers and their spouses understood the advice and the specific method of earmarking the savings in envelopes.

At the end of these meetings, the social workers informed the participating households that they would visit the household each Saturday (when cash wages were disbursed) to earmark the savings amount and to record the household's saving over the previous week. For each of the next 15 Saturdays, the social workers visited the 146 households, put the prescribed (earmarked) amount in savings envelopes, and sealed and dated the envelopes. The social workers also recorded whether the savings envelopes from the previous weeks were sealed or opened, along with the exact amount saved in the previous week.

Within this basic procedure, we employed a 2 (savings target: 40 rupees [low], 80 rupees [high]) \times 2 (children's picture: absent, present) \times 2 (number of earmarked savings envelopes: one [no partition], two [partitioned]) between-subjects design. Some households were advised that their target savings should be 40 rupees, and other households were advised that their target savings should be 80 rupees. These targets, approximately equal to 6% and 12% of the participants' weekly income, respectively, were much higher than the previous savings of this group (average savings rate of .75%). For half the households, the earmarked savings were sealed in plain white envelopes. For the remaining households, the savings envelopes had photographs of their children printed on them. We expected that printing the children's pictures on the envelopes would increase the guilt associated with using the savings money for other expenses and highlight the savings goal, thereby increasing savings (H_1).

We also manipulated the number of envelopes, between subjects. For half the participants, the savings amount was pooled into one envelope. For the remaining, the amount was partitioned equally into two envelopes. We expected that partitioning would increase self-control and savings (H_2). Participants were assigned to one of the eight conditions according to geographic and social clusters to minimize the possibility of households from different treatment conditions meeting and discussing their participation. Debriefs at the end of the study suggested that participants were unaware of the different treatments.

Results

Total savings: effect of pictures and partitioning. We sum each household's savings (in rupees) over the 14 weeks and use this as the dependent measure in an analysis of variance, with the saving target (low, high), children's picture (absent, present), and partitioning of the earmarked savings amount (yes, no) as the independent variables. In support of H_1 , the main effect of the children's picture was significant, with participants saving more when pictures were present ($M_{\text{picture present}} = 350$ vs. $M_{\text{picture absent}} = 304$; $F(1, 138) = 21.78$,

$p < .0001$). Consistent with H_2 , a main effect of partitioning reveals that savings were higher when the earmarked amount was partitioned ($M_{\text{no partition}} = 241$ vs. $M_{\text{partitioned}} = 414$; $F(1, 138) = 303.78$, $p < .0001$).

A significant picture \times partition interaction indicates that the effect of partitions was greater when the envelopes had pictures ($F(1, 138) = 7.23$, $p < .01$; see Figure 1, Panel A). Specifically, when the pictures were present, the effect of partitions was highly significant ($M_{\text{no partition}} = 251$ vs. $M_{\text{partitioned}} = 450$; $F(1, 138) = 205.06$, $p < .0001$). This effect of partitions was relatively weaker in the absence of pictures, though still quite significant ($M_{\text{no partition}} = 230$ vs. $M_{\text{partition present}} = 377$; $F(1, 138) = 107.12$, $p < .0001$). Planned contrasts reveal that the effect of pictures on savings was significant when the earmarked amount was partitioned ($F(1, 138) = 27.04$, $p < .0001$), but not when the earmarked amount was pooled into one envelope ($F(1, 138) = 1.96$, n.s.).

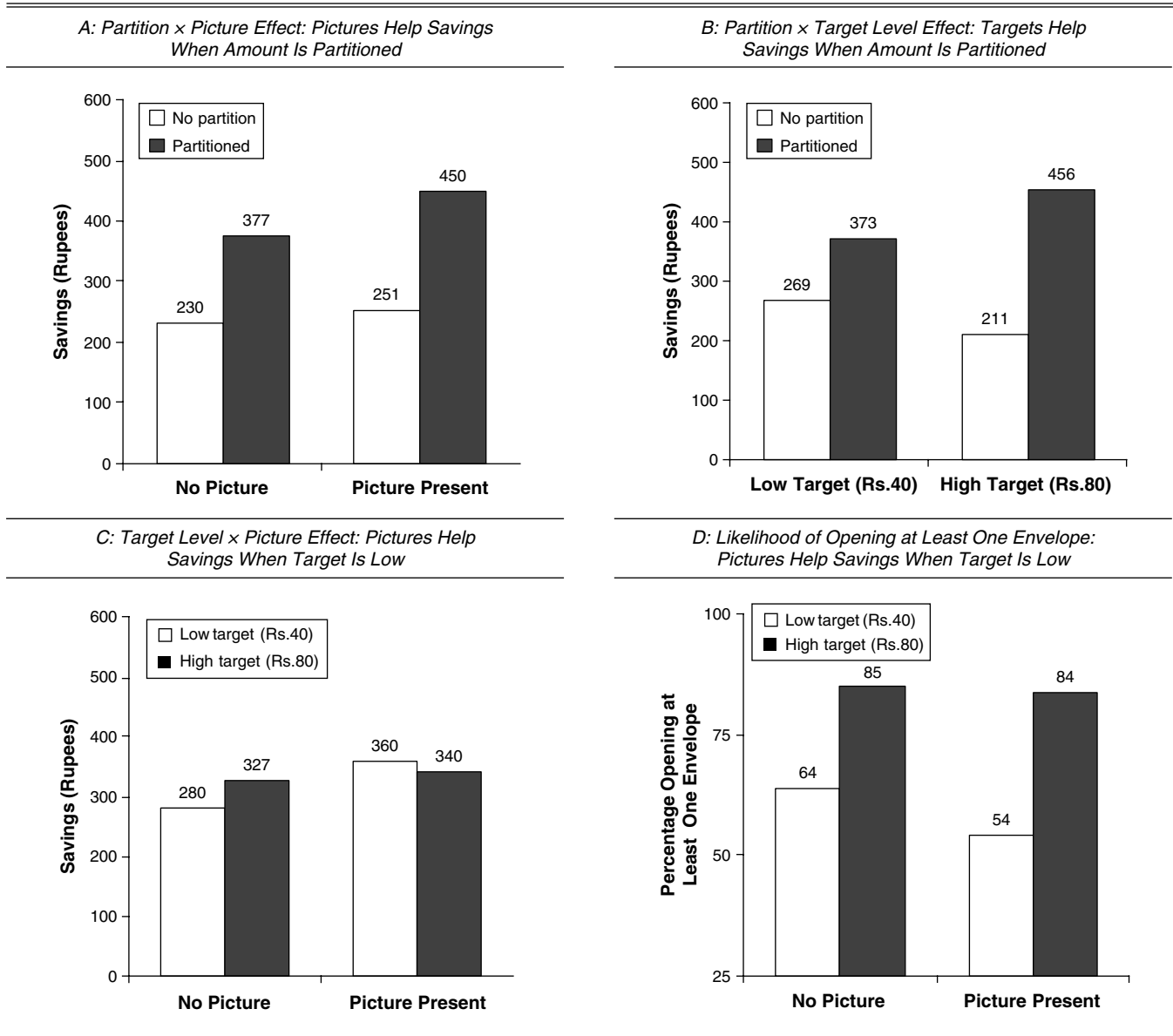
Total savings: effect of target level. The main effect of target level (low, high) was not significant in the analysis of variance ($M_{\text{low target}} = 321$ vs. $M_{\text{high target}} = 334$; $F(1, 138) = 1.90$, n.s.). This result is best explained by the pattern of data for a significant target level \times partition interaction ($F(1, 138) = 50.69$, $p < .0001$; Figure 1, Panel B). When the earmarked savings were partitioned, the target level had a significant, positive effect ($M_{\text{low target}} = 373$ vs. $M_{\text{high target}} = 456$; $F(1, 138) = 36.12$, $p < .0001$). In contrast, when the earmarked savings were pooled, the target level had a significant, negative effect ($M_{\text{low target}} = 269$ vs. $M_{\text{high target}} = 211$; $F(1, 138) = 16.48$, $p < .0001$), and participants with high targets saved less than participants with low targets.

Although we did not have an a priori expectation for the effect of target level on savings, opening an envelope, which indicates a failure to follow a rule, seems to lead to easier subsequent spending from the envelope. This is consistent with the "what-the-hell" effect (Cochran and Tesser 1996; Soman and Cheema 2004). When partitions are absent, the tendency to spend from the opened envelope leads to greater spending (and, correspondingly, lesser saving) when the envelope has a large amount (high target level) than when the envelope has a small amount (low target level). Partitioning the earmarked amounts protects a portion of the savings, which is greater for high than low targets, leading to a positive effect of target level on saving.

The picture \times target level interaction was also significant ($F(1, 138) = 11.46$, $p < .001$; Figure 1, Panel C), indicating that the presence of the children's picture increased savings when the target was low ($M_{\text{picture present}} = 360$ vs. $M_{\text{picture absent}} = 280$; $F(1, 138) = 32.83$, $p < .0001$) but not when the target was high ($M_{\text{picture present}} = 340$ vs. $M_{\text{picture absent}} = 327$; $F(1, 138) = .81$, n.s.).

Likelihood of using earmarked savings. Because the participants' success at saving was greatest when they did not use the earmarked money, we explored factors that affect the likelihood of participants opening an envelope (i.e., violating the savings rule) in any week. For this analysis, we treated the 14 observations from each of the 146 household as repeated measures, which led to 2,044 observations. We calculated the likelihood that participants would open at least one envelope in a given week (i.e., violate the rule) as a function of target level (high, low), children's picture

Figure 1
EFFECT OF PARTITIONING, PICTURES, AND TARGET LEVEL ON SAVINGS



(absent, present), and partitioning (no partition, partitioned) in a logit model.

The logit model reveals a significant target level × picture interaction (Wald $\chi^2(1) = 3.95, p < .05$; see Figure 1, Panel D). Specifically, among households with low savings targets, those whose children’s pictures were on envelopes were less likely to open an envelope than those who were given plain envelopes ($X_{\text{picture present}} = 54\%$ vs. $X_{\text{picture absent}} = 64\%$; Wald $\chi^2(1) = 12.21, p < .001$). In contrast, children’s pictures had no effect on the likelihood of an envelope being opened among households with high savings targets ($X_{\text{picture present}} = 84\%$ vs. $X_{\text{picture absent}} = 85\%$; n.s.). This non-significance may be due to the difficulty of saving at the high target (80 rupees) and the need for households to use that amount for everyday expenses. A significant main

effect of target supports this conjecture ($X_{\text{low target}} = 59\%$ vs. $X_{\text{high target}} = 85\%$; Wald $\chi^2(1) = 153.82, p < .0001$).

The main effect of children’s pictures was also significant ($X_{\text{picture present}} = 69\%$ vs. $X_{\text{picture absent}} = 75\%$; Wald $\chi^2(1) = 4.51, p < .05$), moderated by the target level. Because the analysis focuses on the likelihood of opening *at least* one envelope, the effect of partitions is not significant (Wald $\chi^2(1) = .56, n.s.$). Table 1 presents households’ saving success (likelihood of not using any of the earmarked money or, in the partitioned condition, using money from only one of two envelopes) in a given week across the eight study conditions.

Discussion

The data reveal that households with partitioned savings amounts save more than households whose earmarked sav-

Table 1
SAVING SUCCESS AS A FUNCTION OF PARTITION, PICTURE,
AND TARGET

| <i>A: Percentage of Weeks When No Envelope Was Opened</i> | | | | |
|---|-----------------------------------|----------|------------------------------------|----------|
| | <i>Low Target (40 rupees)</i> | | <i>High Target (80 rupees)</i> | |
| | <i>%</i> | <i>n</i> | <i>%</i> | <i>n</i> |
| Picture Absent | | | | |
| No partition | 36 | 91/252 | 16 | 40/252 |
| Partition present | 35 | 89/252 | 15 | 37/252 |
| Picture Present | | | | |
| No partition | 47 | 126/266 | 16 | 41/252 |
| Partition present | 45 | 121/266 | 15 | 37/252 |
| <i>B: Within Partitioned Conditions: Percentage of Weeks When at Least One Envelope Remained Unopened</i> | | | | |
| | <i>Low Target (40 rupees)</i> | | <i>High Target (80 rupees)</i> | |
| | <i>%</i> | <i>n</i> | <i>%</i> | <i>n</i> |
| Picture Absent | 70 | 176/252 | 57 | 144/252 |
| Picture Present | 97 | 259/266 | 63 | 158/252 |

ings are not partitioned. Partitioning is more effective when the guilt associated with using the earmarked money for mundane expenses is emphasized by placing pictures of the household's children on the earmarked envelope. This intervention (the presence vs. absence of a picture) also decreases the likelihood of a household opening a savings envelope in a given week, especially among the households with low savings targets.

Households that are given high savings targets are quite likely to open a savings envelope (85%), possibly because the amount is too large to spare from everyday expenses. In this condition, placing pictures on the envelopes does not decrease the likelihood of an envelope being opened in a given week. Furthermore, households that have this large earmarked amount pooled into one envelope save less than those who have this amount partitioned into two envelopes. Thus, households with high (versus low) targets that have the earmarked amount in one envelope (versus partitioned across two envelopes) saved the least during the study period.

We note that the intervention of the financial planner, who set aside the earmarked amount in sealed envelopes, changed the default option. Although households typically need to make a conscious effort to set aside money and save, in our study they needed to make a conscious effort to use the earmarked money (i.e., not save). This may have increased baseline savings and is consistent with the benefit of changing defaults (Johnson and Goldstein 2003).

GENERAL DISCUSSION

Researchers in the area of mental accounting have repeatedly stressed the general idea that labeling money changes the way it is spent. However, little research exists on how the various phenomena documented in the mental accounting literature can be harnessed to help people manage their household finances more effectively (for exceptions, see Thaler and Sunstein 2008). The current research

studies one such phenomenon: earmarking. In particular, we demonstrate that inducing guilt associated with violating a savings rule and partitioning the earmarked money significantly increase savings.

Prior research reveals that partitions can increase the amount of attention paid to consumption decisions, thus increasing consumers' ability to exert self-control (Cheema and Soman 2008). The current research examines earmarking for a specific application of partitioning and finds that in addition to attention, the guilt associated with using the earmarked money for an unrelated expense (signaling the breaking of a rule) decreases consumers' propensity to spend the earmarked amount. Thus, both partitioning and associating savings with the well-being of households' children increase guilt and significantly enhance a household's financial discipline.

Multiple partitions of earmarked amounts serve another useful purpose: If a consumer does decide to spend the earmarked money for an unrelated expense, doing so in that partition may be relatively easy. Thus, if the money were in one consolidated amount, the consumer may spend more of it than if it were partitioned into several accounts. In the latter case, money in remaining partitions is protected from spending because the consumer must break additional partitions (e.g., open another envelope, access another bank account) to gain access to more funds.

This research extends prior work on partitioning and consumption (Cheema and Soman 2008) in three important ways. First, we explore whether partitions, which work well in a lab, can work over extended periods in the field. From a financial education standpoint, the success of earmarking and partitioning in our study suggests that consumers can use this mechanism to increase savings. Even in the short duration of our field experiment, households became better at protecting the earmarked amount as the study progressed. Indeed, the likelihood that a household would access the earmarked amount decreased from 79% to 64% during the three-month period, exhibiting a significant linearly declining trend over 14 successive weeks (Wald $\chi^2(1) = 18.40, p < .0001$). Thus, it is likely that, over time, participants experienced guilt from violating the pre-set rules and changed their spending patterns to conserve the earmarked amount.

Second, and more important, we study whether the magnitude of the earmarked amount (the high or low saving target) affects savings. This savings target can be treated as an externally assigned goal for the household, a variable that has not been studied in prior work on partitioning. We find that a high saving target helps when partitions are present but hurts when partitions are absent. Because the high saving target is difficult to maintain, the presence of partitions prevents households from sliding down a slippery slope of goal failure.

Although the results of the field experiment are promising, they raise additional questions for researchers to tackle. We note that, theoretically, there were two distinct process explanations that could underlie the observed results of earmarking. Earmarking could either (1) induce guilt when spending on an unrelated expense is contemplated

and thus increase self-control or (2) increase the salience of the savings goal and thus curb spending (it could also operate through a combination of both mechanisms). Given the limitations associated with running a field experiment, we were unable to disentangle these two mechanisms. Likewise, we explored the effectiveness of printing pictures of the laborers' children on the savings envelope as a guilt manipulation. Although this manipulation increased savings, we have no specific measures to support the proposition that these pictures increased guilt.

However, we provide some evidence that partitions create rules and that breaking such rules increases guilt. In a scenario-based survey study completed with respondents in the United States (average age = 30 years), we provided a situation in which people were earmarking money to save for retirement, with money pooled into one account or partitioned into two accounts. When faced with a tempting purchase that would require participants to use the earmarked money (a down payment for a car), participants whose earmarked money was partitioned were less likely to buy the car than participants whose earmarked money was pooled into one account. Furthermore, anticipated guilt from using the earmarked money was greater for participants whose money was partitioned, and this anticipated guilt mediated the effect of partitioning on purchase likelihood. Similar to the observed effects in the field study reported previously, partitioning protected the earmarked money, and anticipated guilt provided the process explanation.

Third, we show that printing pictures of households' children increases the effectiveness of the earmarking and thus increases the savings rate. We could argue that the goal of saving for children is unusually affected by a photograph and that such a strong effect might not be observed for other goals (e.g., saving for a house purchase with a photograph of a house). Although the answer to this question is empirical, other research (Cheema and Bagchi 2011) finds that in domains as diverse as savings, studying, and pursuing a sales target, visualizing the end goal enhances performance. Thus, we expect that a visual reminder would work for most savings goals. However, it is likely that the guilt mechanism is a larger driver of effects for certain goals (e.g., saving for children's future), while the salience of the savings goal mechanism could be a larger driver for other goals (e.g., saving for a house purchase).

In this research, we identified two manipulations that enhance the effectiveness of earmarking: pictures and partitions. However, other manipulations could also be effective. For example, many financial self-help sites advise consumers to open multiple bank accounts, each designated toward a specific savings goal (e.g., EconomyWatch 2010). Along similar lines, traditional household budgeting practices, such as tin-can accounting (Zelizer 1994b), have been proposed as mechanisms that enhance the effectiveness of earmarking. Both these mechanisms seem to operate through the added transaction cost associated with spending the earmarked amount. Although these mechanisms seem *prima facie* different from the two manipulations we describe herein, they might conceptually be related. In particular, Soman, Xu, and Cheema (2010) describe a theory of "decision points," in which they argue that any intervention that causes the consumer to pause

and think about the spending or consumption decision at hand will make the consumer more prudent. The presence of pictures that make the consumption goal more salient, an additional envelope, and interventions such as multiple bank accounts and tin cans are all decision points. Further research that more clearly conceptualizes the psychological underpinnings of each of these mechanisms and identifies boundary conditions would help in the development of a broader framework of understanding the effects of earmarking on savings.

Finally, our experiment collected data only over a 14-week window. An important question for further research would be determining what the long-term effects of such a manipulation might be. Two opposing forces might be at work in the long run. On the one hand, as time passes, participants might become habituated to the presence of the picture or the two envelopes and incorporate that in their status quo. Indeed, Cheema and Soman (2008) show that the effect of partitioning might diminish over time. On the other hand, when low-income households begin saving, they might be motivated to save more because, for the first time, they experience the benefits of financial discipline and therefore develop a savings "momentum." Consistent with this argument, Thaler (1994) shows that when people begin setting aside money in retirement accounts, they are more likely to continue to do so. Evidence collected through interviews with low-income households in India also suggests that a savings momentum effect occurs.

CONCLUSION

There is a significant need to increase consumer prudence and savings rates in the current economic climate, both in developed and in developing countries. This research offers two specific interventions—earmarking and partitioning—that can achieve this outcome. Investigations reveal that these interventions can be effective in enhancing saving by low-income consumers. Further research, using longer periods and households of different socioeconomic levels, would be useful in studying the generalizability of these interventions to improve consumers' financial well-being.

Although we showed significant benefits of earmarking, the question of how scalable these interventions are remains. Scaling the interventions we used to a large population would clearly be costly. However, there are other ways such interventions could be scaled up to reach a relatively large population. For example, a blogger recently wrote about using earmarking in online bank accounts (Peterson 2009):

What I'd like to see from my bank is online banking software that provided true money management which leverages the bracketing effect without having to create a new account. Right now, when I log into my online banking, I see my checking account, with a (depressingly small) dollar amount next to it. When I click on that account, I currently see all my recent expenditures. What I *should* be able to do is see, create, and manipulate ad-hoc envelopes or categories. Note that these are not new accounts, with the attendant legal, procedural, or administrative headaches opening a new account entails. Rather, these are

bottom-up user-created taxonomies that exist within an existing account.

This blogger is essentially proposing an online banking version of the multiple-envelope earmarking system. We can easily foresee an extension of this simple idea in which the categories are visually represented by folders, envelopes, or whatever object the user chooses and to which the user can drag and paste photographs or create further subcategories. Such interfaces are relatively inexpensive to design and can be used to scale up the kind of interventions we study in our field experiment to larger populations.

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