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Siyuan Yin and Marissa A. Sharif

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# How and When Does a Used (vs. Unused) Account Affect Consumption Behavior?

Siyuan Yin and Marissa A. Sharif  
The Wharton School, University of Pennsylvania

How does spending from a used (vs. unused) account affect consumption behavior? An account is used when some resources of that account have been used (e.g., \$90 has been used on a gift card that originally had \$100). An account is unused when no resources of that account have been used (e.g., no money has been used on a gift card that has \$10). Across seven studies ( $N = 8,667$ ), we find that people are more likely to spend resources from a used account than otherwise equivalent resources from an unused account. This is because people engage in within-account comparisons, comparing the remaining resources in the account with what the account originally had, leading them to value the remaining resources less in a used account. We demonstrate the robustness of the effect of a used (vs. unused) account across several domains, including gift cards, checking accounts, and credit card reward points. Further, we demonstrate a boundary condition of the effect, revealing that the proportion of the account remaining moderates the subsequent consumption. Lastly, we generalize this effect from consumption to charitable giving. The findings provide insights into how policymakers, companies, and individuals may consider leveraging the perception of an account being used or unused to curb expenses and encourage charitable giving.

## Public Significance Statement

How does spending from a used (vs. unused) account affect consumption behavior? An account is used when some resources of that account have been used (e.g., \$90 used on a \$100 gift card). An account is unused when no resources of that account have been used (e.g., \$0 used on a \$10 gift card). Across seven studies, individuals were more likely to spend resources from a used account than otherwise equivalent resources from an unused account, as they value their resources less in a used account than in an unused account. The effect holds for both earned (e.g., checking accounts, credit card reward programs) and gifted resources (e.g., gift cards, shopping reward points). These findings provide important practical insights to both individuals and companies. Individuals should be wary of speeding up spending when their resources are in a used account rather than in an unused account. Banks and FinTech companies may consider designing accounts to be perceived as unused to curb spending.

**Keywords:** used, consumption, spending, relative judgments, accounts

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Imagine that you have a \$100 Best Buy gift card. Last month, you spent \$90 of this gift card and have \$10 remaining on it. As you are checking out, you find some new products that you might be interested in, such as a new iPhone case, costing \$8. While you have

an iPhone case that is in good condition, this case has a unique design that you like. How likely would you be to purchase this iPhone case with your gift card? Now imagine that, instead of having \$10 remaining on a \$100 Best Buy gift card, you have an unused \$10

Siyuan Yin  <https://orcid.org/0000-0002-2805-2879>

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Correspondence concerning this article should be addressed to Siyuan Yin, The Wharton School, University of Pennsylvania, 3730 Walnut Street, Philadelphia, PA 19104, United States. Email: [syyin@wharton.upenn.edu](mailto:syyin@wharton.upenn.edu)

Best Buy gift card. Similarly, you find the new iPhone case, costing \$8. In this situation, would you be equally, more, or less likely to purchase the iPhone case than in the previous situation?

Individuals frequently have to make the choice to spend their resources now or, alternatively, to hold onto their resources for something else later. In some situations, the account they are considering spending from is used (e.g., some money of the gift card has been used) or unused (e.g., no money of the gift card has been used yet). In this research, we examine whether people are more (vs. less) likely to spend their resources when spending from a used account than otherwise equivalent resources from an unused account, holding constant the absolute amount of resources in the account.

We predict that people will be more likely to spend their remaining resources from a used account than otherwise equivalent resources from an unused account. People's judgments are regularly based on relative rather than absolute standards and are often influenced by the surrounding context (e.g., Baird et al., 1980; Campbell et al., 1958; Garner, 1954; Laming, 1997; Morewedge et al., 2007; Sharif & Oppenheimer, 2016, 2021; Sherman et al., 1978; Stewart & Brown, 2004; Stewart et al., 2002). Building on this research, we suggest that people are likely to engage in a within-account relative comparison, comparing how much they have left in their account to what they had originally. As a result, people value their remaining resources less in an account that is used than those in an account that is unused. This decreased valuation of resources leads people to be more likely to spend them (Arkes et al., 1994; Bodkin, 1959).

We demonstrate this effect across seven studies ( $N = 8,667$ ) in multiple domains, including endowed (e.g., gift cards and shopping reward points) and earned resources (e.g., checking accounts). Further, we examine the boundary conditions of this effect, revealing that the relative amount left in a used account moderates the effect of a used (vs. unused) account.

## Theoretical Background

### Division of Resources Influences Spending

Although many resources have a linear construct, for instance, time elapses and people spend money continuously, people often mentally or physically divide their resources, affecting their judgments of these resources and the resulting consumption behavior. Prior research has found that these divisions, whether mental or physical, largely affect how people spend their resources (Cheema & Soman, 2006; C. Heath & Soll, 1996; Sharif & Woolley, 2020; Sussman & Alter, 2012; Sussman & O'Brien, 2016; Thaler, 1985; 1999; Thaler & Sunstein, 2008).

In terms of mental divisions of resources, mental accounting research has found that individuals frequently label or "earmark" their resources for different needs, designating these accounts as for "education" only or for "food" only. Earmarking resources can act as a budgeting mechanism, such that people attempt to only spend their resources in the manner in which they have been "earmarked" or "labeled," increasing self-control (C. Heath & Soll, 1996; Sharif & Shu, 2017; Shefrin & Thaler, 1988; Thaler, 1985). Further, categorization cues, such as arbitrary labels, can externally lead consumers to divide their resources such as time (Raghubir & Srivastava, 2009; Tu & Soman, 2014), products (Leclerc et al., 2005), and space (A. Mishra & Mishra, 2010; Zhao et al., 2012).

Physical divisions of resources can also affect people's consumption behavior. Partitioning an aggregate quantity into smaller units

reduces the amount that people consume (Cheema & Soman, 2008). For example, people ate fewer chocolates when each chocolate was individually wrapped (vs. not wrapped) in a box. The authors suggest that the physical nature of the partition drives this slowed consumption behavior. That is, before consuming each chocolate, individuals must physically open the wrapper. This small transaction cost draws attention to the partition and adds a temporal delay before consuming it, leading individuals to consume less when resources are partitioned into smaller units (Cheema & Soman, 2008; Soman & Cheema, 2011; Soman et al., 2010).

These divisions often create a mental or physical grouping of a set of resources, what we define as an "account" in this article. For example, a gift card can be an account for money, and a credit card reward account can be an account for reward points. In particular, we examine how spending from a used account rather than from an unused account can affect future consumption behavior, holding the absolute amount of resources constant. We suggest that when an account is used and thus has relatively less remaining, people are more likely to spend their remaining resources than when it is unused and has relatively more remaining. In doing so, we are the first to empirically examine how the relative amount remaining in an account affects future consumption behavior, when, and why.

### Different Valuation and Spending of Resources in a Used Versus Unused Account

Prior research has found that individuals often make relative judgments about stimuli rather than absolute judgments (Hsee, 1996, 1998; Hsee et al., 2013; Hsee & Leclerc, 1998; Morewedge et al., 2007; Sharif & Oppenheimer, 2016, 2021; Sherman et al., 1978; Stewart et al., 2002). For example, how expensive a car is perceived to be depends more on the set of cars that are being evaluated at the same time than the objective price of the car itself. If the other cars being evaluated at the same time are less expensive than the target car, then the target car will be perceived as expensive. However, if the other cars are more expensive, the target car might be perceived as a good deal.

As demonstrated in this example, consumers' judgments are largely affected by which reference points they rely on. Indeed, consumers' judgment of a discount depends on whether they focus on the topical (vs. absolute) frame (Darke & Freedman, 1993; Tversky & Kahneman, 1981). For example, saving \$5 on a \$15 calculator can be considered a better deal than saving \$5 on a \$125 jacket when focusing on the relative amount saved off the product (e.g., saving 33% off the calculator vs. 4% off the jacket; see also T. B. Heath et al., 1995). However, when focusing on the absolute frame, consumers may perceive the discount similarly, saving an equivalent of \$5 in both cases (see also Darke & Freedman, 1993).

Further, people often rely naturally on different reference points depending on the choice environment. For example, when evaluating one product in isolation, people tend to make a judgment about the product based on its attributes that are easy to evaluate, whereas when comparing two products in the same category, people make a judgment about the product based on the other product as a reference (Hsee, 1996, 1998; Hsee et al., 2013; Hsee & Leclerc, 1998). As a result, individuals often have different preferences depending on whether they evaluate two different products separately or jointly (Hsee, 1996, 1998; Hsee et al., 2013; Hsee & Leclerc, 1998).

Building on this research, we suggest that when assessing their resources in a used account rather than in an unused account, people

naturally rely on the original amount in the account as a reference point. That is, they engage in a within-account comparison. Although they evaluate their account in isolation (i.e., they are not comparing one account to another separate account), they make a relative judgment within the account itself, comparing how much of their account they have remaining relative to how much of the account they had originally.

We suggest this comparison leads consumers to value the remaining resources less. That is, by comparing the larger original amount of resources to the smaller remaining amount, consumers feel that their remaining resources are less valuable in a used account (e.g., memory-based norm, Bordalo et al., 2020; accessible mental accounts, Morewedge et al., 2007; contexts of social issues, Sherman et al., 1978; categorization of tone and geometric figures, Stewart et al., 2002). Specifically, we operationalize value based on the definition of “psychological value,” which is the perception of the importance, worth, or usefulness of an item (Cohen et al., 2022). Thus, we suggest that people may perceive their remaining resources to feel less important, hold less worth, and feel less useful in a used account than in an unused account.

There are many reasons why a within-account comparison might lead people to devalue their resources in a used (vs. unused) account. For one, comparing the larger original amount of resources to the smaller remaining amount of resources in a used account might make those remaining resources feel smaller (Morewedge et al., 2007; Stewart et al., 2002) and thus less useful for future expenses and consumption (Gourville, 1998; H. Mishra et al., 2006; Raghurir & Srivastava, 2009). Second, people may make different inferences about themselves and their consumption behavior if an account is used (vs. unused; e.g., Kardes et al., 2004), such that they infer they value the resources less if they are in a used account rather than in an unused account. Third, people may perceive that they have achieved some type of earmarked goal when a large proportion of their account has been used (e.g., spent \$90 on a pair of new balance shoes with a \$100 new balance gift card), and thus perceive the remaining resources to be extra, and thus less valuable (e.g., Dhar & Simonson, 1999; Fishbach & Dhar, 2005; Kivetz & Simonson, 2002).

Because people value their resources less in a used account, we suggest that they are more likely to spend them. Indeed, a substantial body of research suggests that consumers’ likelihood of spending a resource depends on how much they value the resource (Arkes et al., 1994; Bodkin, 1959; Carlsson et al., 2013; Frederick et al., 2009; Heilman et al., 2002; Muehlbacher & Kirchner, 2009; Spiller, 2011; Stillel et al., 2010). For example, people spend wind-fall gains (a gain that may be less valued) more readily than earned gains (e.g., more likely to spend a tax rebate vs. savings to make a risky investment, and more likely to spend a gain obtained from a lottery vs. anticipated earnings on a portable TV instead of saving the money in the bank; Arkes et al., 1994; Bodkin, 1959). Relatedly, shoppers increase spending on both planned and unplanned items when they have slack in their mental budget (e.g., savings from coupons for planned items, Heilman et al., 2002; Stillel et al., 2010). On the other hand, considering high-value opportunity costs, or high-value alternative uses for one’s resource, leads people to be less likely to spend resources (Frederick et al., 2009; Spiller, 2011).

We will begin by examining the main effect, comparing an unused account, an account that has 100% remaining, to a used account, an account that has a small percentage left (e.g., 20% remaining) across several domains, including gift cards, checking account, credit card

reward points, and incentive-compatible decisions. Importantly, we hold constant the absolute total amount of remaining resources across accounts. After establishing the main effect, we will then reveal at a continuous level that as the relative amount remaining in the used account decreases, people are increasingly more likely to spend the resources in the account. In doing so, we will demonstrate that the effect of a used (vs. unused) account on spending is attenuated if there is a relatively large amount remaining in the used account.

## Overview of Studies

Across seven experimental studies ( $N = 8,667$ ; six preregistered), we examine the effect of a used (vs. unused) account on the likelihood of spending resources. In Study 1 and Study A in the online supplemental materials, we provide evidence for the main effect in the context of gift cards and checking accounts and reveal that the effect is due to a within-account comparison, rather than due to a comparison to any large reference point. Studies 2A and 2B reveal that people value their remaining resources less in a used account than those in an unused account, leading them to be more likely to spend them. Importantly, in Studies 3 and 4, we demonstrate that the proportion of the account remaining moderates the effect. That is, if a used account is relatively full, the effect is attenuated. To test the robustness of the effect, Study 5 replicates the effect in an incentive-compatible behavioral experiment of online shopping. Finally, Study 6 and Study C in the online supplemental materials generalize the effect with both earned and endowed resources from spending to donation decisions. We summarize the main results of the studies in Table S1 in the online supplemental material A.

## Study Samples and Constraints on Generality

In all of our studies, we determined the sample size in advance based on the effect size from pilots of the studies, and we reported all of our measures, manipulations, exclusions, and rules for determining sample size. All studies except for Study 5 were preregistered on AsPredicted.org, and the links to those preregistrations are in the method section of each study. We followed all of our preregistered analysis plans and exclusion rules and noted any exceptions. The research was approved by the University of Pennsylvania’s Institutional Review Board (Protocol 828347).

In each experimental study, we recruited participants on Amazon Mechanical Turk or Prolific Academic in the United States, which has a more diverse population than a typical American college with respect to age, gender, race, education, and employment (Peer et al., 2017). We tested the effect of a used (vs. unused) account on spending across multiple consumption domains, with both endowed and earned resources, such as gift cards, credit card reward programs, checking accounts, and shopping rewards. We also generalized the effect of a used (vs. unused) account from spending to charitable giving. The generality of our results is limited to internet users with some connection to the United States—we primarily studied the effect with American participants, and so our results may not generalize in different countries with different languages and cultures.

## Transparency and Openness

We take steps to ensure the transparency and openness of our study design and analyses. In our Open Science Framework (OSF) repository, we include (a) the complete materials that show the full details

of each study, (b) data for our experiments, and (c) analysis syntax that outlines the processing of the data for all studies. All are available at OSF: [https://osf.io/uh2dr/?view\\_only=f1b31ef057144c08ad598fce9f651a2f](https://osf.io/uh2dr/?view_only=f1b31ef057144c08ad598fce9f651a2f).

### Study 1: Heightened Proclivity to Spend a Used (vs. Unused) Gift Card

Study 1 aims to provide initial evidence for the effect of a used (vs. unused) account on spending decisions with gift cards. We suggest that people will be more likely to spend their remaining resources from a used account than otherwise equivalent resources from an unused account. In particular, we propose that the effect is due to individuals comparing the amount that they have in their account now to the amount that they had originally. This within-account comparison results in individuals feeling that their remaining resources are less valuable in a used account than in an unused account, leading them to be more likely to spend them.

However, an alternative explanation is that people simply compare their remaining resources to a larger reference point in a used account (which is not present in an unused account), leading them to similarly devalue their remaining resources (Morewedge et al., 2007; Sherman et al., 1978; Stewart et al., 2002). That is, a within-account relative comparison may not be essential to our theory. If this alternative explanation is true, the addition of a larger reference point outside an unused account should lead people to be as likely to spend their resources as people with a used account. However, if, instead, we still find that people are more likely to spend from a used account than from an unused account, regardless of the presence of a larger reference point outside the unused account, we can rule out this alternative explanation. We will test this alternative account in this study.

### Method

This study was preregistered ([https://aspredicted.org/52X\\_HZ4](https://aspredicted.org/52X_HZ4)) for 1,200 participants on Prolific Academic. One thousand two hundred three participants completed this study and were randomly assigned to one of the three between-subject conditions: a used account, an unused account with a greater reference point, versus an unused account without a greater reference point. In the used account condition, participants imagined that they had received a \$40 gift card to a clothing store from one of their friends and spent \$32 of this gift card last month. In the unused account without a greater reference point condition, participants imagined that they had received an \$8 gift card to a clothing store from one of their friends. In the unused account with a greater reference point condition, participants imagined that they had received a \$32 gift card to a clothing store from one of their friends. Last month they spent \$32 of this gift card and no longer had any money on the gift card. They also received an \$8 gift card to the same clothing store from one of their friends.

All participants then imagined that they visited the clothing store, and as they were checking out, they saw that the clothing retailer was selling some tasty drinks (e.g., smoothie, latte). All the drinks cost \$5, and they could use their gift card to pay for it. Participants were then asked how likely they would be to buy a tasty drink with their gift card on a 0–100 slider from 0 (*not at all likely*) to 100 (*very likely*). At the end of the study, we asked participants

their age (“What is your age?” [text entry]) and gender (“What is your gender?” Male, female, other, and prefer not to answer).

### Results<sup>1</sup>

As preregistered, we excluded ten participants who failed the attention check, so data were analyzed with the remaining 1,193 individuals ( $M_{\text{age}} = 39.50$ ,  $SD = 12.86$ , range = [19, 93];  $N_{\text{female}} = 594$ ,  $N_{\text{male}} = 584$ ,  $N_{\text{other}} = 9$ ,  $N_{\text{undisclosed}} = 6$ ).

We conducted a linear regression predicting the likelihood of spending \$5 on a tasty drink from two dummy variables representing the account conditions with the used account condition as a reference group. The results were as predicted (Figure 1): Participants were more likely to spend \$5 on the tasty drink in the used account condition than those in the unused account without a greater reference point condition ( $M_{\text{used}} = 60.63$ ,  $SD = 34.45$  vs.  $M_{\text{unused without a greater reference point}} = 44.80$ ,  $SD = 36.91$ ,  $d = 0.44$ ,  $b_{\text{unused without a greater reference point}} = -15.82$ ,  $SE = 2.54$ ,  $t[1190] = -6.22$ ,  $p < .001$ , 95% confidence interval (CI) of the difference = [−20.81, −10.84],  $\beta = -.20$ ). Importantly, participants were also more likely to spend \$5 on the tasty drink in the used condition than those in the unused with a greater reference point condition ( $M_{\text{used}} = 60.63$ ,  $SD = 34.45$  vs.  $M_{\text{unused with a greater reference point}} = 49.49$ ,  $SD = 36.88$ ,  $d = 0.31$ ;  $b_{\text{unused with a greater reference point}} = -11.14$ ,  $SE = 2.57$ ,  $t[1141] = -4.33$ ,  $p < .001$ , 95% CI of the difference = [−16.19, −6.09],  $\beta = .14$ ). Further, the likelihood of spending differed only marginally between these two unused account conditions ( $d = 0.13$ ,  $p = .068$ , 95% CI of the difference = [−0.35, 9.72]).

### Discussion

Study 1 provides initial evidence for the effect of a used (vs. unused) account that people are more likely to spend their resources in a used account than otherwise equivalent resources in an unused account in the context of gift cards. Further, we reveal that this is mainly driven by a within-account comparison, comparing the remaining resources with what the account originally had, instead of any greater reference point. To show the generalizability of the effect in a different context—checking accounts where the resources are often earned instead of endowed, we conducted Study A in the online supplemental materials to examine whether people would be more likely to spend their remaining resources from a used checking account rather than an unused checking account. We replicated the same pattern that people were more likely to spend \$20 to order some takeout from a food truck with a used checking account than with an unused checking account. The findings of Study 1 and Study A in the online supplemental materials suggest that the effect holds for both endowed and earned resources.

### Study 2A: Spending of Resources From a Used, Unused, Versus Unspecified Account

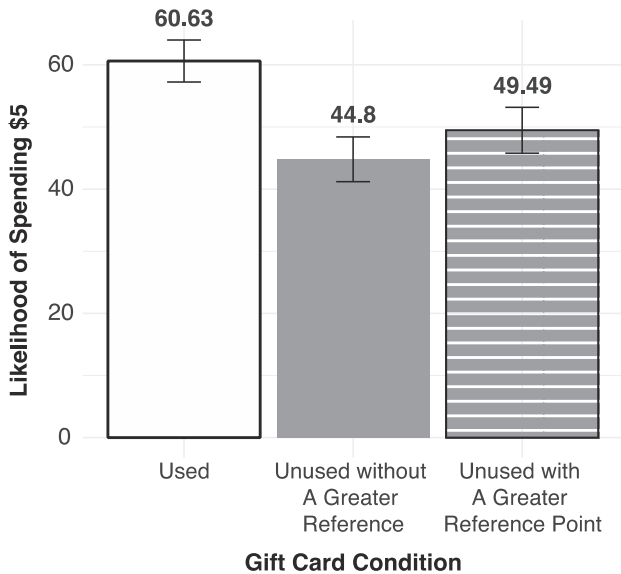
Many accounts are often used frequently, such as checking accounts. In this study, we aimed to examine how people spend their resources from a frequently used account, such as a checking account, when the original amount (e.g., the total amount at the

<sup>1</sup> We included additional preregistered analyses in the online supplemental materials for all studies.



**Figure 1**

Study 1: The Likelihood of Spending \$5 to Purchase the Tasty Drink



Note. All error bars in figures are 95% confidence intervals.

beginning of each month) of the account is not specified. That is, people are simply told how much is in the account currently, as is often the status quo with checking accounts. We expected that people would be more likely to spend from a checking account when the original account is not specified than when the original amount specified indicating the account was unused, as people would naturally encode this unspecified account as used.

Further, in this study, we further examine the mechanism behind this effect. In particular, we suggest that due to a within-account comparison, people value their resources less in a used account than in an unused account. We assess whether people do indeed value their resources less in a used account, as we predict, and further whether this mediates the effect on spending behavior.

## Method

This study was preregistered ([https://aspredicted.org/YW2\\_FXY](https://aspredicted.org/YW2_FXY)) for 1,200 Prolific participants. One thousand two hundred two participants completed the study and were randomly assigned to one of three between-subject conditions: a used, unused, versus unspecified checking account. All participants learned that they kept the majority of their money in their savings account and primarily used their checking account for smaller purchases. Specifically, in the used checking account condition, participants had \$500 in their checking account, spent \$400 earlier this month on a few things that they liked, and had \$100 available in their checking account. In the unused checking account condition, participants had two checking accounts at the same bank. They had \$400 in one checking account, Checking Account A, spent \$400 earlier this month on a few things they liked, and had \$0 remaining in Checking Account A. They also had \$100 in another checking account, Checking Account B, at the same bank, spent \$0 from Checking Account B this month so far, and still had \$100 available in Checking

Account B. In the unspecified checking account condition, participants were simply told that they had \$100 in their checking account. Earlier this month they spent \$400 with their credit card on a few things that they liked.

All participants then read that they came across one of their favorite food trucks nearby that only accepts cash. The meals cost on average \$20 including tips. They could take out \$20 from their checking account to pay for the meal. They had some leftovers at home that they could warm up, but they also really liked the food from the food truck. Participants were then asked (a) how likely they would be to spend \$20 from their checking account to order a meal from the food truck on a 0–100 slider from 0 (*not at all likely*) to 100 (*very likely*), and (b) prior to making their decision to make an order, how much they would value the money in their checking account on a 0–100 slider from 0 (*not at all value*) to 100 (*value a lot*). At the end of the study, we asked participants their age (“What is your age?” [text entry]) and gender (“What is your gender?” Male, female, and prefer not to answer).

## Results

As preregistered, we excluded 12 participants who failed the attention check, so data were analyzed with the remaining 1,190 individuals ( $M_{\text{age}} = 39.96$ ,  $SD = 13.82$ , range = [18, 82];  $N_{\text{female}} = 582$ ,  $N_{\text{male}} = 582$ ,  $N_{\text{other}} = 16$ ,  $N_{\text{undisclosed}} = 10$ ).

We first conducted a linear regression to regress the spending likelihood on two dummy variables representing the checking account conditions. Replicating the findings in previous studies, we found that participants were more likely to spend \$20 from a used checking account than from an unused checking account ( $M_{\text{used}} = 37.78$ ,  $SD = 31.64$  vs.  $M_{\text{unused}} = 33.02$ ,  $SD = 33.77$ ,  $d = 0.15$ ;  $b_{\text{unused}} = -4.76$ ,  $SE = 2.32$ ,  $t[1187] = -2.06$ ,  $p = .040$ , 95% CI = [−9.31, −.22],  $\beta = -.069$ ). We then compared the spending likelihood between the unspecified checking account and the other two account conditions. Participants were less likely to spend from an unused checking account than from an unspecified checking account ( $M_{\text{unused}} = 33.02$ ,  $SD = 33.77$  vs.  $M_{\text{unspecified}} = 38.16$ ,  $SD = 32.77$ ,  $d = 0.15$ ;  $b_{\text{unused}} = -5.14$ ,  $SE = 2.33$ ,  $t[1187] = -2.21$ ,  $p = .027$ , 95% CI = [−9.71, −0.57],  $\beta = -.074$ ). Further, participants were equally likely to spend from a used checking account and from an unspecified checking account ( $M_{\text{used}} = 37.78$ ,  $SD = 31.64$  vs.  $M_{\text{unspecified}} = 38.16$ ,  $SD = 32.77$ ,  $d = 0.01$ ;  $b_{\text{unspecified}} = 0.38$ ,  $SE = 2.33$ ,  $t[1187] = 0.16$ ,  $p = .87$ , 95% CI = [−4.19, 4.94],  $\beta = .005$ ).

We next examined the valuation of the money in these accounts with a linear regression from two dummy variables representing the checking account conditions. Consistent with our theorizing, participants perceived the money in a used checking account as less valuable than that in an unused checking account ( $M_{\text{used}} = 82.51$ ,  $SD = 19.86$  vs.  $M_{\text{unused}} = 85.28$ ,  $SD = 18.81$ ,  $d = 0.14$ ;  $b_{\text{unused}} = 2.77$ ,  $SE = 1.38$ ,  $t[1187] = 2.02$ ,  $p = .044$ , 95% CI = [0.074, 5.47],  $\beta = .067$ ). We also compared the valuation between the unspecified account and the other two account conditions. Participants valued their money in an unused checking account more than that in an unspecified checking account ( $M_{\text{unused}} = 85.28$ ,  $SD = 18.81$  vs.  $M_{\text{unspecified}} = 82.09$ ,  $SD = 19.58$ ,  $d = 0.17$ ;  $b_{\text{unused}} = 3.19$ ,  $SE = 1.38$ ,  $t[1187] = 2.31$ ,  $p = .021$ , 95% CI = [0.48, 5.90],  $\beta = .077$ ). Further, participants valued their money similarly in a used checking account and in an unspecified checking account ( $M_{\text{used}} = 82.51$ ,  $SD = 19.86$  vs.

$M_{\text{unspecified}} = 82.09$ ,  $SD = 19.58$ ,  $d = 0.02$ ;  $b_{\text{unspecified}} = -0.42$ ,  $SE = 1.38$ ,  $t[1187] = -0.31$ ,  $p = .76$ , 95%  $CI = [-29.13, 2.9]$ ,  $\beta = -.010$ ; see Figure 2).

We conducted a mediation analysis using the bootstrap method with 10,000 samples to test our proposed process that the devaluation of available resources leads to a greater likelihood of spending in the used account condition than in the unused account condition (Model 4; Hayes, 2013). Specifically, we predicted that the devaluation of the money in a used checking account would increase the spending likelihood, in comparison to that in an unused checking account. Consistent with our hypothesis, valuation significantly mediated the effect of the unused (vs. used) checking account condition on spending:  $a \times b = -0.91$ ,  $SE = 0.49$ , 95%  $CI = [-1.96, -0.025]$ . Furthermore, valuation also significantly mediated the effect in the unused (vs. unspecified) checking account condition on spending:  $a \times b = -1.47$ ,  $SE = 0.66$ , 95%  $CI = [-2.77, -0.18]$ .

## Discussion

We first replicate the effect of a used (vs. unused) checking account on spending decisions as in previous studies. Second, we find that people's spending likelihood with an unspecified checking account is similar to a specified used checking account and greater than a clearly unused checking account. The findings provide evidence that people naturally perceive a checking account as a used account, and thus are more likely to spend money from that account than from an unused account. This provides implications for the real world in terms of how to decrease spending with checking accounts (i.e., framing accounts as unused), which we discuss in greater detail in the General Discussion section. While we find with checking accounts that people naturally consider an unspecified account to be a used account, other accounts that are unspecified might be thought of as unused, if they are not used frequently, or consumers forget that they have used them before.

### Study 2B: The Role of Within-Account Comparisons

We have illustrated evidence supporting the effect of a used (vs. unused) account in the context of gift cards and checking accounts. In the next study, we aim to further demonstrate evidence for our effect in the context of credit card reward programs, as well as additional evidence for our mechanism. To do so, we will use a three-cell between-subject design, as in Study 1, to demonstrate that indeed people devalue the resources in a used account due to a within-account comparison.

Further, we will examine whether the effect holds in a common context where people often need to choose to spend between cash and reward points in their credit card program. If people have points available to spend, they should be more likely to spend these points than cash, as reward points are considered more of a windfall gain (Arkes et al., 1994; Bodkin, 1959; Carlsson et al., 2013). However, if these reward points are from an unused account, people may be less likely to spend these points, and use their cash instead. Thus, we expected to find the effect when people choose to spend resources from a used (vs. unused) account versus cash. We test this when holding the alternative (i.e., cash) constant across account conditions.

## Method

This study was preregistered (<https://aspredicted.org/blind.php?x=h8ch58>) for 1,200 participants on Amazon Mechanical Turk

(MTurk). One thousand one hundred and ninety-seven MTurk participants completed this study and were randomly assigned to one of the three between-subject conditions: a used account, an unused account with a greater reference point, versus an unused account without a greater reference point. In the used account condition, participants imagined that they had accumulated 100,000 points in a credit card reward program, had spent 70,000 points earlier this year, and now had 30,000 points available. In the unused account without a greater reference condition, participants imagined that they had accumulated 30,000 points in a credit card reward program, had spent 0 points this year so far, and now still had 30,000 points available. In the unused account with a greater reference point condition, participants imagined that they had two credit cards—Credit Card A and Credit Card B. They had accumulated 70,000 points in Credit Card A, spent 70,000 of these points, and no longer had any points available in Credit Card A. They had also accumulated 30,000 points in Credit Card B, had spent 0 of these points so far, and still had 30,000 points available in Credit Card B. Importantly, they were told that the points in both programs could be applied to the same rewards.

All participants were then asked: "How much would you value the 30,000 points?" on a 0–100 slider from 0 (*not at all valuable*) to 100 (*very valuable*).<sup>2</sup> Following this, they imagined that they received an email advertisement that they could use these 30,000 points to buy some running shoes. Their current running shoes were still in good condition, but the new running shoes were lighter than their current running shoes. Next, participants were asked, "Would you use your points to buy these running shoes or instead use your cash and save your points for a different reward later?" on a 0–100 slider from 0 (*very likely to use cash to buy these running shoes*) to 100 (*very likely to use points to buy these running shoes*). At the end of the study, we asked participants their age ("What is your age?" [text entry]) and gender ("What is your gender?" Male, female, and prefer not to answer).

## Results

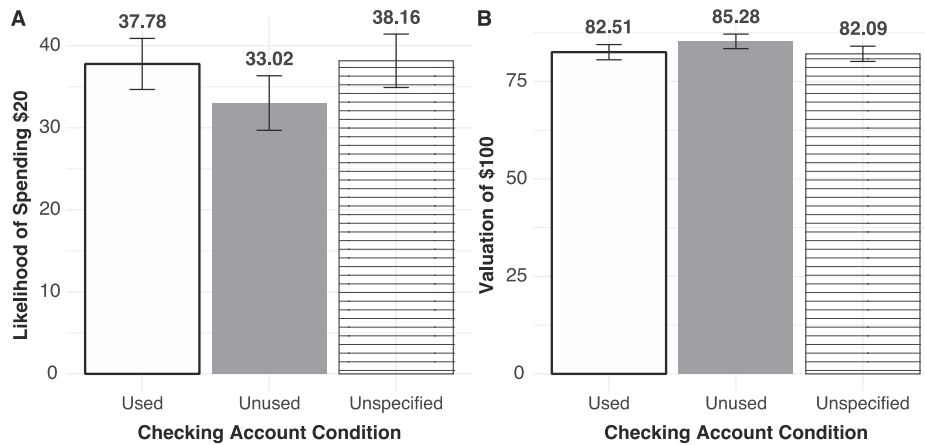
As preregistered, we excluded 53 participants who failed the attention check, so data were analyzed with the remaining 1,144 individuals ( $M_{\text{age}} = 32.03$ ,  $SD = 11.32$ , range = [18, 78];  $N_{\text{female}} = 611$ ,  $N_{\text{male}} = 521$ ,  $N_{\text{undisclosed}} = 12$ ).

We first conducted a linear regression predicting the likelihood of spending the 30,000 reward points from two dummy variables representing the account conditions with the used account condition as the reference group. The results were as predicted (Figure 3): Participants were more likely to spend the 30,000 reward points on the running shoes in the used account condition than those in the unused account without a greater reference point condition ( $M_{\text{used}} = 63.98$ ,  $SD = 34.98$  vs.  $M_{\text{unused without a greater reference point}} = 58.26$ ,  $SD = 34.99$ ,

<sup>2</sup> We used a similar design to understand how consumers perceive valuation (Study B in the online supplemental materials). In total, 387 participants were randomly assigned to one of two conditions: used vs. unused account. Participants were asked (a) "How much would you value the 30,000 points?" (0 = *not at all valuable*; 100 = *very valuable*), (b) "How large would the 30,000 points in your account feel?" (0 = *very small*; 100 = *very large*), (3) "How useful would the 30,000 points in your account feel?" (0 = *not at all*; 100 = *very useful*), (4) "How important would the 30,000 points in your account feel?" (0 = *not at all*; 100 = *very important*), and (5) "How attached would you feel to the 30,000 points in your account?" (0 = *not at all*; 100 = *very attached*). The valuation measure was correlated with all other four measures: all  $r_s \geq .62$ , all  $p_s < .001$ .

**Figure 2**

Study 2A: (A) The Likelihood of Spending \$20 and (B) the Valuation of the \$100 in a Checking Account



$d = 0.16$ ;  $b_{\text{unused without a greater reference point}} = -5.72$ ,  $SE = 2.59$ ,  $t[1141] = -2.21$ ,  $p = .027$ , 95% CI of the difference =  $[-10.79, -0.64]$ ,  $\beta = -.08$ ). Importantly, participants were also more likely to spend the 30,000 reward points on the running shoes in the used condition than those in the unused with a greater reference point condition ( $M_{\text{used}} = 63.98$ ,  $SD = 34.98$  vs.  $M_{\text{unused with a greater reference point}} = 57.83$ ,  $SD = 37.27$ ,  $d = 0.17$ ;  $b_{\text{unused with a greater reference point}} = -6.15$ ,  $SE = 2.59$ ,  $t[1141] = -2.37$ ,  $p = .018$ , 95% CI of the difference =  $[-11.23, -1.07]$ ,  $\beta = .08$ ). Further, the likelihood of spending the 30,000 reward points on the running shoes did not differ between these two unused account conditions ( $d = 0.01$ ,  $p = .88$ , 95% CI of the difference =  $[-5.52, 4.66]$ ).

We further examined if consumers' valuation of the reward points differed by condition. We conducted a linear regression predicting the valuation of 30,000 reward points from two dummy variables representing the account conditions with the used account condition as a reference group. As predicted, we found that participants valued the 30,000 reward points less in the used account condition than the unused account without a greater reference point condition ( $M_{\text{used}} = 61.45$ ,  $SD = 23.23$  vs.  $M_{\text{unused without a greater reference point}} = 70.70$ ,  $SD = 22.80$ ,  $d = 0.40$ ;  $b_{\text{unused without a greater reference point}} = 9.25$ ,  $SE = 1.64$ ,  $t[1141] = 5.64$ ,  $p < .001$ , 95% CI of the difference =  $[6.03, 12.46]$ ,  $\beta = .19$ ). Importantly, participants also valued the 30,000 reward points less in the used condition than the unused with a greater reference point condition ( $M_{\text{used}} = 61.45$ ,  $SD = 23.23$  vs.  $M_{\text{unused with a greater reference point}} = 69.72$ ,  $SD = 21.92$ ,  $d = 0.37$ ;  $b_{\text{unused with a greater reference point}} = 8.26$ ,  $SE = 1.64$ ,  $t[1141] = 5.04$ ,  $p < .001$ , 95% CI of the difference =  $[5.04, 11.48]$ ,  $\beta = .17$ ). Consistent with our theory, the valuation of 30,000 reward points did not significantly differ between these two unused account conditions ( $d = 0.04$ ,  $p = .55$ , 95% CI of the difference =  $[-4.21, 2.24]$ ).

We conducted a mediation analysis using the bootstrap method with 10,000 samples to test our proposed process that devaluation of available resources leads to a greater likelihood of spending in the used account condition than in the unused account conditions (Model 4; Hayes, 2013). Specifically, we predicted that devaluation of the points would increase the likelihood of spending the 30,000 reward points on running shoes in the used account condition, in

comparison to the unused without and with a greater reference point conditions. Consistent with our hypothesis, valuation significantly mediated the effect in the used condition (vs. unused without a greater reference point condition,  $a \times b = -1.30$ ,  $SE = 0.51$ , 95% CI =  $[-2.39, -0.41]$ ; vs. unused account with a greater reference point condition,  $a \times b = -1.16$ ,  $SE = 0.46$ , 95% CI =  $[-2.15, -0.36]$ ).

## Discussion

We replicated our results from previous studies that a used account leads to a greater likelihood of spending resources than an unused account. Further, while holding constant the absolute amount of resources across conditions, the resources in a used account were valued less than the resources in the unused account, with or without the presence of a greater reference outside the account. We also found consistent evidence for our proposed mechanism that the devaluation of resources mediates the effect of a used account on subsequent purchase behavior.

This study has important implications for stockpiling behavior. In particular, one factor that might increase consumers' likelihood to hold onto reward points is the perception of the account being unused. Often consumers must accrue reward points for a while before earning enough to spend them on a reward, leading the account to be unused for quite some time. They may finally reach the point at which they have enough rewards to redeem them for a reward. However, when they make a choice between spending from this unused reward account for the first time and spending their cash for a reward (e.g., an airline ticket), consumers might opt to use cash due to their resources appearing more valuable in this unused account.

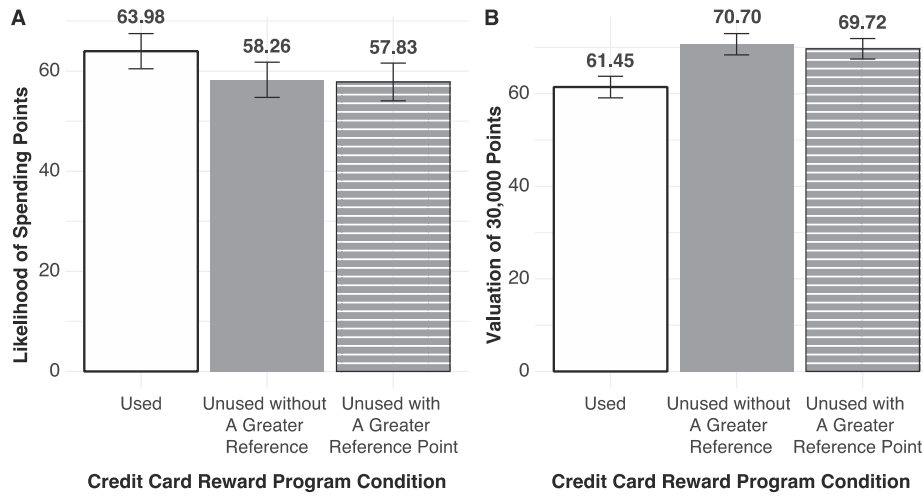
### Study 3: How Does the Proportion of the Account Remaining Moderate the Effect of a Used Account?

In Studies 1–2, we demonstrated that people are more likely to spend resources in a used account than in an unused account. In the next study, we examine if the relative amount remaining in the account moderates our effect. We suggest that people compare



**Figure 3**

Study 2B: (A) The Likelihood of Spending the 30,000 Points on the Running Shoes and (B) the Valuation of the 30,000 Points



their lower remaining resources to the greater original amount in the used account rather than in the unused account, perceiving the lower remaining resources to be less valuable in comparison to the greater original value of the account. If this theory holds, we should find that the lower the relative proportion remaining in the used account, the more people will devalue their resources and thus become more likely to spend them. On the other hand, if the relative proportion remaining in the used account is high, and thus there is not a big difference between the original amount and the remaining amount, people should be less likely to devalue their resources, and thus the effect should be attenuated. We tested this in Study 3.

In particular, in this study, we continuously manipulate the relative amount left in a used account, examining the impact of having 60%, 40%, and 20% left relative to an account that has 100% remaining, holding constant the absolute amount of resources in the account. We expected that people would be more likely to spend their resources the less they have relatively in their account. We measure and compare the likelihood of purchasing with a used account and with an unused account.

## Method

This study was preregistered (<https://aspredicted.org/blind.php?x=hp49ht>) for 1,200 participants on MTurk. Twelve hundred and four MTurk participants completed this study and were randomly assigned to one of the 3 (account remaining: \$24, \$16, vs. \$8)  $\times$  2 (gift card condition: used vs. unused) between-subject conditions. In the used gift card conditions, participants were told that they had received one \$40 gift card to a clothing store from one of their friends. They had spent \$16, \$24, or \$32 of this gift card last month, and now had \$24, \$16, or \$8 remaining on the gift card, respectively. That is, the account had been used, and the proportion of the account remaining was 60%, 40%, and 20% in the used gift cards with \$24, \$16, and \$8 conditions, respectively. In the unused gift card conditions, participants were told that they received a \$24, \$16, or \$8 gift card to a clothing store from one of their friends in the \$24, \$16, and \$8 conditions, respectively. As these gift cards were unused, they all had 100% remaining in the account. To hold

constant prior spending between the used and unused conditions, participants in the unused conditions were also told that prior to receiving this gift card, they had spent \$16, \$24, or \$32 at the same clothing store last month.<sup>3</sup>

All participants were then asked, “As you are checking out, you see that the clothing retailer is selling some tasty drinks (e.g., smoothie, latte). All of the drinks cost \$5, and you can use your gift card to pay for a tasty drink. How likely would you be to buy the tasty drink now with your gift card?” on a 0–100 slider from 0 (*not at all likely*) to 100 (*very likely*).

At the end of the study, we asked participants their age (“What is your age?” [text entry]) and gender (“What is your gender?” Male, female, and prefer not to answer).

## Results

As preregistered, we excluded 75 participants who failed the attention check, so data were analyzed with the remaining 1,129 individuals ( $M_{\text{age}} = 33.87$ ,  $SD = 12.97$ , age = [18, 78];  $N_{\text{female}} = 588$ ,  $N_{\text{male}} = 527$ ,  $N_{\text{undisclosed}} = 14$ ).

First, we assessed whether participants are more likely to spend their resources when the account has relatively less in it. We conducted a linear regression predicting the likelihood of spending from a dummy variable representing the used (=1) versus unused (=0) account condition, a linear coding representing the account remaining condition (\$24 = 1, \$16 = 0, and \$8 = -1), and their interaction. We found a significant account remaining  $\times$  used (vs. unused) interaction ( $b = -8.73$ ,  $SE = 2.63$ ,  $t[1125] = -3.32$ ,  $p < .001$ , 95% CI of the difference = [-13.90, -3.58],  $\beta = -.14$ ; see Figure 4). An analysis of simple effects revealed that when the gift card is used, participants were more likely to spend \$5 on purchasing the tasty drink as the relative amount remaining

<sup>3</sup> To confirm that participants did not make different inferences about how expensive the items at the clothing store are, we ran a posttest ( $N = 198$ ) examining the perceived expensiveness between the used and unused \$8 gift card conditions; we did not find significant differences between the used and unused \$8 gift card conditions ( $M_{\text{used}} = 3.09$ ,  $SD = 1.27$  vs.  $M_{\text{unused}} = 2.99$ ,  $SD = 1.09$ ),  $t[192] = 0.60$ ,  $p = .55$ ).

in the account decreased ( $b = -7.99$ ,  $SE = 1.88$ ,  $t[1125] = -4.26$ ,  $p < .001$ , 95% CI of the difference =  $[-11.68, -4.31]$ ,  $\beta = -.18$ ). By contrast, when the gift card is unused, the linear trend was not significant ( $b = 0.75$ ,  $SE = 1.84$ ,  $t[1125] = 0.41$ ,  $p = .69$ , 95% CI of the difference =  $[-2.87, 4.36]$ ,  $\beta = .017$ ).

This analysis suggests that the remaining amount in the account influences spending behavior more than the absolute amount. Indeed, in the unused account condition, although there are absolutely different amounts remaining in the accounts, there is no difference in spending behavior as the accounts are all completely full, having the same relative amount left (100% remaining). However, in the used account, when there were differences in the relative amount left, participants were more likely to spend their resources the less relatively that they had remaining. We suggest this is because people are comparing the amount remaining in the account to the original amount in their account and valuing their resources accordingly. For the unused account, people have the same amount remaining as the original amount and thus do not devalue their resources. However, in the used account, the remaining proportion is relatively lower compared to the original amount, leading them to increasingly devalue the remaining resources, and spend them more as a result.

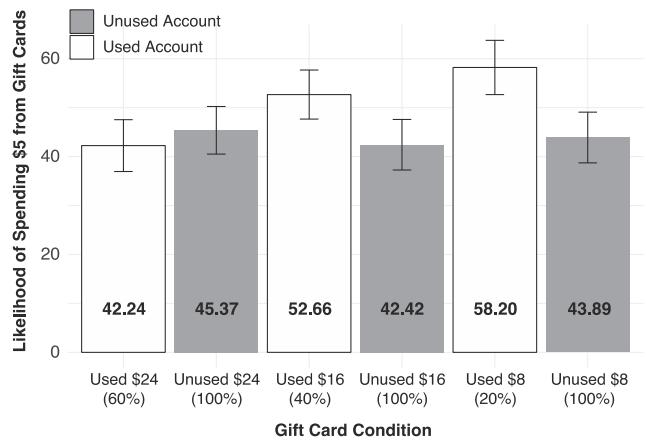
Next, we examined at what relative amount remaining in a used account, are participants equally likely to purchase the tasty drink as when considering spending from an unused account. That is, at what point do participants consider used accounts to be relatively full and thus similar to unused accounts?

We found that there was less of a difference between a used account with 60% remaining and an unused account (with 100% remaining) than there was a used account with 20% or 40% remaining and an equivalent unused account. In particular, we found a significant 2 (\$24 condition—60% remaining vs. \$8 condition—20% remaining)  $\times$  2 (used vs. unused) interaction ( $b = -17.44$ ,  $SE = 5.27$ ,  $t[1123] = -3.31$ ,  $p < .001$ , 95% CI of the difference =  $[-27.77, -7.11]$ ,  $\beta = -.18$ ). An analysis of simple effects revealed that when the gift cards with \$8 remaining were under consideration and there was 20% left in the used account, participants were significantly more likely to spend \$5 to purchase the tasty drink from their used gift cards with \$8 remaining than those with their unused gift cards with \$8 ( $M_{\text{used } \$8 [20\%]} = 58.20$ ,  $SD = 37.83$  vs.  $M_{\text{unused } \$8} = 43.89$ ,  $SD = 36.02$ ,  $d = 0.39$ ;  $b = 14.31$ ,  $SE = 3.75$ ,  $t[1123] = 3.82$ ,  $p < .001$ , 95% CI of the difference =  $[6.96, 21.66]$ ,  $\beta = .20$ ). However, when the gift cards with \$24 remaining were under consideration and there was 60% left in the used account, there was no significant difference in the likelihood of spending on the tasty drink between the used and unused account conditions ( $M_{\text{used } \$24 [60\%]} = 42.24$ ,  $SD = 36.63$  vs.  $M_{\text{unused } \$24} = 45.37$ ,  $SD = 34.30$ ,  $d = 0.09$ ;  $b = -3.13$ ,  $SE = 3.70$ ,  $t[1123] = -0.85$ ,  $p = .40$ , 95% CI of the difference =  $[-10.38, 4.13]$ ,  $\beta = -.04$ ).

We also found a similar significant 2 (\$24 condition—60% remaining vs. \$16 condition—40% remaining)  $\times$  2 (used vs. unused) interaction ( $b = -13.37$ ,  $SE = 5.22$ ,  $t[1123] = -2.56$ ,  $p = .011$ , 95% CI of the difference =  $[-23.62, -3.12]$ ,  $\beta = -.14$ ). An analysis of simple effects revealed that when the gift cards with \$16 remaining were under consideration and there was 40% left in the used account, participants were significantly more likely to purchase the tasty drink using their used gift cards with \$16 remaining than using their unused gift cards with \$16 ( $M_{\text{used } \$16 [40\%]} = 52.66$ ,  $SD = 35.10$  vs.  $M_{\text{unused } \$16} = 42.42$ ,  $SD = 36.07$ ,  $d = 0.29$ ;  $b = 10.24$ ,  $SE = 3.69$ ,

**Figure 4**

*Study 3: The Likelihood of Spending the Money of the Gift Card Across Conditions*



$t[1123] = 2.78$ ,  $p = .006$ , 95% CI of the difference =  $[3.01, 17.48]$ ,  $\beta = .14$ ). Again, when the gift cards with \$24 remaining were under consideration and there was 60% left in the used account, participants were not more likely to purchase the tasty drink using their used and unused gift cards ( $M_{\text{used } \$24 [60\%]} = 42.24$ ,  $SD = 36.63$  vs.  $M_{\text{unused } \$24} = 45.37$ ,  $SD = 34.30$ ,  $d = 0.09$ ;  $b = -3.13$ ,  $SE = 3.70$ ,  $t[1123] = -0.85$ ,  $p = .40$ , 95% CI of the difference =  $[-10.38, 4.13]$ ,  $\beta = -.04$ ).

We did not find a significant 2 (\$16 condition—40% remaining vs. \$8 condition—20% remaining)  $\times$  2 (used vs. unused) interaction ( $b = -4.07$ ,  $SE = 5.26$ ,  $t[1123] = -0.77$ ,  $p = .44$ , 95% CI of the difference =  $[-14.38, 6.25]$ ,  $\beta = -.04$ ). That is, participants were more likely to spend \$5 from their gift cards in the used gift card conditions than those in the unused gift card conditions, similarly in the \$8 (20%) remaining condition and in the \$16 (40%) remaining condition. This may suggest that when an account is more than halfway exhausted, consumers are likely to perceive the account and its resources as less valuable, and thus are likely to spend their resources.

## Discussion

We found additional evidence that indeed people are more likely to spend resources from used accounts due to a within-account relative comparison. While individuals were insensitive to the absolute amount remaining in the unused account, they were increasingly more likely to spend their resources the less they had relatively available in the used account. As a result, we found that the effect can be moderated by the proportion of the account remaining, such that the effect is attenuated if there is a relatively large amount remaining in the used account.

We found the effect increases as the proportion of the remaining resources in the used (vs. unused) account relatively decreases (e.g., the absolute difference between the used and unused account conditions at 60% = 3.13, at 40% = 10.24, at 20% = 14.31). Interestingly, it appears that there is a much bigger difference in the effect of a used (vs. unused) account when there is 60% versus 40% of the account remaining, compared to when there is 40% versus 20% of the account remaining. This may suggest that consumers are likely

to devalue their remaining resources in an account, once it is more than halfway consumed. However, this may also vary based on the type of account (e.g., checking accounts vs. gift cards).

#### Study 4: The Perception of a Used Account Is Relative

While in Study 3 we demonstrated that the effect is attenuated when there is 60% of the account remaining, it remains plausible that the absolute amount, rather than the relative amount, determines the magnitude of the effect. This alternate explanation would suggest that the effect is less likely to occur with larger amounts than with smaller amounts (e.g., \$24 remaining rather than \$8 remaining). However, we suggest instead that the effect is attenuated when a used account is relatively full (e.g., 60% remaining rather than 40% or 20% remaining). When a used account is relatively full, a within-account comparison reveals the difference between the relative amount and the original amount is small, and thus leads individuals to be less likely to devalue their remaining resources. In Study 4, we will further examine if indeed the relative amount, rather than the absolute amount, in the used account moderates the effect by holding constant the absolute amount of the remaining resources in the account and only manipulating the proportion of the account remaining.

#### Method

This study was preregistered (<https://aspredicted.org/blind.php?x=d26X7m>) for 1,200 participants on MTurk. One thousand two hundred and four MTurk participants completed this study and were randomly assigned to one of the three between-subject conditions: an unused account, a used account with 25% of the account remaining, versus a used account with 75% of the account remaining. In the unused account condition, participants imagined that they had two credit cards—Credit Card A and Credit Card B. They had accumulated 90,000 points in Credit Card A, had spent 90,000 of these points, and no longer had any points available in Credit Card A. They had also accumulated 30,000 points in Credit Card B, had spent 0 of these points so far, and still had 30,000 points available in Credit Card B. They were told that the points in both programs could be applied to the same rewards. In the used account with 25% of the account remaining condition, participants imagined that they had accumulated 120,000 points in a credit card reward program, had spent 90,000 of these points this year so far, and now still had 30,000 points available in the reward program. In the used account with 75% of the account remaining condition, participants imagined that they had two credit cards—Credit Card A and Credit Card B. They had accumulated 80,000 points in Credit Card A, had spent 80,000 of these points, and no longer had any points available in Credit Card A. They had also accumulated 40,000 points in Credit Card B, had spent 10,000 of these points so far, and still had 30,000 points available in Credit Card B. They were told that the points in both credit card programs could be applied to the same rewards. Across conditions, all participants initially had a total of 120,000 reward points, had spent 90,000 points, and had 30,000 points available. Thus, participants in the unused account, used 75% account, and used 25% account conditions had 100%, 75%, and 25% remaining in the account, respectively, such that each had 30,000 points.

All participants were then asked (a) “How much do you value the 30,000 points?” on a 0–100 slider from 0 (*not at all valuable*) to 100

(*very valuable*), and (b) whether they would use their points (=1) or cash (=0) to buy these running shoes.

If our theory holds that the effect of a used versus unused account is moderated by the proportion of account remaining, instead of its absolute amount, we should find that the effect is attenuated when the account is relatively full (i.e., only a small amount of the original amount has been consumed), compared to when the account is relatively depleted (i.e., a large amount of the original amount has been consumed). Specifically, we expected that participants in the used 25% account condition would be more likely to spend their resources than those in the used 75% account condition and those in the unused condition.

At the end of the study, we asked participants their age (“What is your age?” [text entry]) and gender (“What is your gender?” Male, female, and prefer not to answer).

#### Results

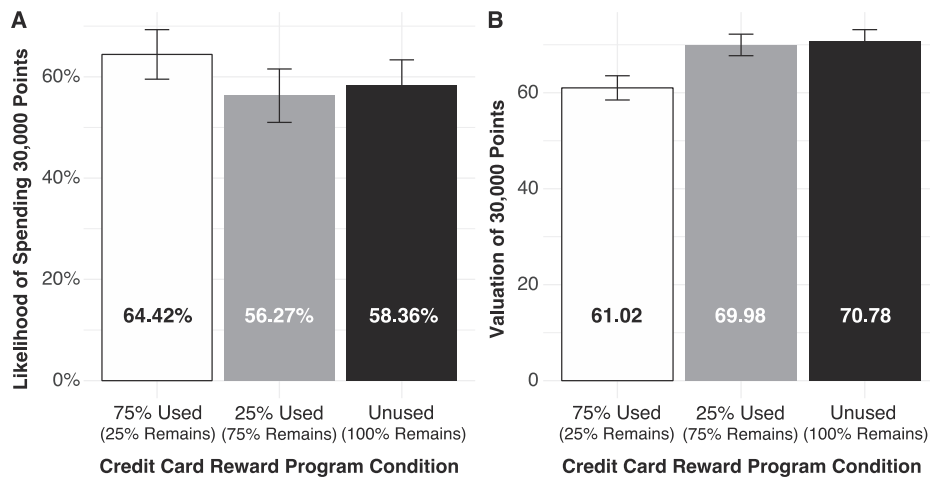
As preregistered, we excluded 113 participants who failed the attention check, so data were analyzed with the remaining 1,091 individuals ( $M_{\text{age}} = 36.67$ ,  $SD = 12.44$ , range = [18, 82];  $N_{\text{female}} = 526$ ,  $N_{\text{male}} = 555$ ,  $N_{\text{undisclosed}} = 10$ ).

We conducted a logistic regression predicting the likelihood of spending the 30,000 reward points from two dummy variables representing the account conditions with the used account with 25% remaining condition as the reference group. The results were as predicted (Figure 5): participants were significantly more likely to spend the 30,000 reward points on the running shoes in the used account with 25% remaining condition than those in the used account with 75% remaining condition ( $P_{\text{used25\%}} = 64.42\%$  vs.  $P_{\text{used75\%}} = 56.27\%$ , Cohen’s  $h = 0.17$ ;  $b_{\text{used75\%}} = -0.34$ ,  $SE = 0.15$ ,  $t[1088] = -2.22$ ,  $p = .026$ , 95% CI of the difference = [-0.64, -0.04],  $\beta = -.16$ ), and were also marginally significantly more likely than the unused account condition ( $P_{\text{unused}} = 58.36\%$ , Cohen’s  $h = 0.12$ ;  $b_{\text{unused}} = -0.26$ ,  $SE = 0.15$ ,  $t[1088] = -1.70$ ,  $p = .089$ , 95% CI of the difference = [-0.55, 0.04],  $\beta = -.12$ ). The likelihood of spending the 30,000 reward points on the running shoes did not differ between the unused account and the used account with 75% remaining conditions (Cohen’s  $h = 0.04$ ,  $p = 0.57$ , 95% CI of the difference = [-0.21, 0.38]). Thus, we replicate our effect that people are more likely to spend the remaining resources in a used than in an unused account, even though the absolute amount of remaining resources was exactly the same across conditions. Moreover, this effect is attenuated when the used account is relatively full (e.g., 75% remaining).

Next, we conducted a linear regression predicting the valuation of the remaining 30,000 points from two dummy variables representing the account conditions with the used account with 25% remaining condition as the reference group. Participants valued the 30,000 reward points less in the used account with 25% remaining condition than the used account with 75% remaining ( $M_{\text{used25\%}} = 61.02$ ,  $SD = 24.68$  vs.  $M_{\text{used75\%}} = 69.98$ ,  $SD = 21.10$ ,  $d = 0.39$ ;  $b_{\text{used75\%}} = 8.96$ ,  $SE = 1.74$ ,  $t[1088] = 5.16$ ,  $p < .001$ , 95% CI of the difference = [5.55, 12.37],  $\beta = .18$ ; and the unused account conditions vs.  $M_{\text{unused}} = 70.78$ ,  $SD = 23.53$ ,  $d = 0.40$ ;  $b_{\text{unused}} = 9.76$ ,  $SE = 1.70$ ,  $t[1088] = 5.75$ ,  $p < .001$ , 95% CI of the difference = [6.43, 13.09],  $\beta = .20$ ). The valuation of the remaining 30,000 reward points did not differ between the used account with 75% remaining and the unused account conditions ( $d = 0.04$ ,  $p = .65$ ,

**Figure 5**

Study 4: (A) The Likelihood of Spending the 30,000 Points From Credit Card Reward Programs and (B) the Valuation of the 30,000 Points



95% CI of the difference =  $[-2.60, 4.20]$ ). The results suggested that the devaluation of the remaining resources in a used account was not driven by the small remaining amount but by the relative proportion of the remaining to the original amount in the same account.

We conducted a mediation analysis using the bootstrap method with 10,000 samples to test our proposed process that the devaluation of available resources leads to a greater likelihood of spending (Model 4; Hayes, 2013). As predicted, valuation significantly mediated the effect of a used account with 25% remaining versus unused account:  $a \times b = -0.14$ ,  $SE = 0.04$ , 95% CI =  $[-0.23, -0.068]$ ; versus a used account with 75% remaining:  $a \times b = -0.11$ ,  $SE = 0.04$ , 95% CI =  $[-0.19, -0.043]$  on the likelihood of spending the 30,000 points on the running shoes.

## Discussion

Controlling for the total spending and the absolute amount of the remaining resources across conditions, Study 4 illustrates that the effect is moderated by the relative proportion of the account remaining, rather than the absolute amount. This finding further supports our theory that participants with a used account are likely to make a within-account comparison and thus perceive the remaining resources as less valuable due to having relatively less remaining in the account. As a result, when the account is relatively full (e.g., 75% remains and 25% of the original account has been spent), people are unlikely to devalue the remaining resources and thus unlikely to spend their remaining resources from that used account.

## Study 5: The Effect of a Used Account in Online Shopping

In Study 5, we move to an incentive-compatible design to further test the main effect in an online shopping setting. We manipulated the remaining reward points in a used (vs. unused) account while holding constant the absolute amount of reward points and the absolute spending of reward points across conditions. We presented participants with a series of items, one at a time, and asked

them to indicate if they would like to spend their remaining resources on an item now or save them for the next item. We measured how long participants would hold on to their resources. We suggest that the longer participants hold on to their resources, the more unwilling they are to spend these items. Thus, we predicted people value their points less when their points are in a used account than those in an unused account, and as a result, they will wait a shorter period of time until they spend their points. In other words, people would be more willing to spend their resources on something they potentially like less, or be less picky, and thus spend their reward points earlier from a used account (i.e., holding onto their resources for a shorter period of time) than those from an unused account.

## Method

Fifteen hundred participants on Prolific completed the study and were randomly assigned to one of the two between-subject conditions: a used versus unused account. In the used account condition, participants were endowed with a reward account that had 1,000 reward points. In the unused account condition, participants were endowed with two reward accounts: Account A had 900 points and Account B had 100 points. They were explicitly told that the points in Accounts A and B could be applied for the same rewards. All participants were asked to spend their reward points on products that they would like to purchase in reality. They were told that five participants would be randomly selected to receive a bonus to obtain the products they choose and thus the best strategy would be to choose the products that reflect their true preference. There were 20 products in total (approximately equally valued ranging from \$15 to \$20), such as Embroidered Natural Lumbar Accent Throw Pillow Cover (\$15.50), Pineapple Shaped Bamboo Serving and Cutting Board (\$19.99), Wooden Wood Clock (\$15.99), and Etched Wooden Coaster Set (\$19.98). One product was presented each time sequentially in a randomized order. Participants viewed one product at a time and indicated whether they would like to purchase that product or not. Each product cost 450 reward points and they could purchase two of these products.



After two purchases, participants in the used account condition read, “You have spent 900 points on two items from your reward account and you have 100 points in your account.” Participants in the unused account condition read, “You have spent 900 points on two items from your Account A. There are no points left in Account A. You have not spent any points of your Account B. You still have 100 points in your Account B.” We provided participants in both conditions with six products (approximately equally valued at about \$2) sequentially to spend the remaining 100 reward points on, such as YumEarth Gluten Free Gummy Bears (\$1.99), Health Warrior Chocolate Peanut Butter Chia Bar (\$1.29), and Suave Antiperspirant Deodorant (\$1.99). If participants did not make any purchase until only one product remained, they were forced to spend their reward points on the remaining product. Our primary dependent variable was when participants chose to spend their resources. We suggest that the longer participants hold on to their resources, the more unwilling they are to spend these items. We expected that participants in the unused condition would be more likely to receive the last item presented, as they keep deferring their choice for another option. We also examined continuously how long participants held onto their remaining points before spending them on one of the 100-point options.

At the end of the study, we asked participants their age (“What is your age?” [text entry]) and gender (“What is your gender?” Male, female, and prefer not to answer).

## Results

We excluded eight participants who failed the attention check question, so data were analyzed with the remaining 1,492 individuals ( $M_{\text{age}} = 34.93$ ,  $SD = 11.77$ ,  $\text{age} = [18, 84]$ ;  $N_{\text{female}} = 749$ ,  $N_{\text{male}} = 728$ ,  $N_{\text{undisclosed}} = 15$ ).

We examined reward point spending behavior by comparing the likelihood of holding onto the remaining resources until the last item across conditions. We conducted a logistic regression predicting whether participants spent their remaining 100 reward points on the last choice (i.e., the sixth choice) or spent them earlier from a dummy variable representing the conditions with the used account condition as the reference group. As predicted, we found that participants were more likely to hold onto the remaining 100 reward points until the last choice in the unused condition than in the used condition ( $M_{\text{used}} = 48.2\%$  vs.  $M_{\text{unused}} = 55.9\%$ , Cohen’s  $h = 0.15$ ;  $b_{\text{unused}} = 0.31$ ,  $SE = 0.10$ ,  $t[1490] = 2.98$ ,  $p = .003$ , 95% CI of the difference =  $[0.11, 0.51]$ ,  $\beta = .31$ ).<sup>4</sup>

The same pattern was observed with the number of periods participants held onto their points: participants in the unused account condition held onto the remaining points longer than those in the used account condition (Table 1),  $M_{\text{used}} = 4.28$ ,  $SD = 1.97$  versus  $M_{\text{unused}} = 4.56$ ,  $SD = 1.88$ ,  $d = 0.15$ ;  $b_{\text{unused}} = 0.29$ ,  $SE = 0.10$ ,  $t(1490) = 2.86$ ,  $p = .004$ , 95% CI of the difference =  $[0.09, 0.48]$ ,  $\beta = .07$ ) (Figure 6A).<sup>5</sup> The results further provided behavioral evidence for the used account effect.<sup>6</sup>

## Discussion

Study 5 replicated the main effect of a used account on spending behavior in an incentive-compatible online shopping environment. We found results that were consistent with our prediction that participants with a used account held onto their points for a shorter period of time than those with an unused account.

**Table 1**

*The Number of Participants Who Held Onto Reward Points at Each Period Across Conditions*

Holding on period	Used account	Unused account
1	126	92
2	65	61
3	72	64
4	71	53
5	59	54
6	365	410

## Study 6: Generalizing to Charitable Giving

Lastly, we examine the main effect of a used account in another common context—charitable giving. So far, our studies examined how a used (vs. unused) account may increase spending likelihood. In the next study, we examine whether this effect can be leveraged to harness socially desirable behaviors such as donating to a charity. For example, when people perceive an account as used rather than unused, would that change their likelihood of donating their resources in these accounts to a charity of their choice? Research suggests that people are more likely to hold onto their resources rather than contribute to public goods (Muehlbacher & Kirchler, 2009) or donate to a charity (Carlsson et al., 2013) when they value their resources more. Building on our proposed mechanism, we suggest that people will be more likely to donate their resources from a used account than otherwise equivalent resources from an unused account as they value their resources in a used account less due to a within-account comparison. We examine this question in an incentive-compatible experiment where participants completed a counting task to earn their reward points. Specifically, we test whether people would donate more of their earned resources from a used account than from an unused account to a charity, given the total amount of resources is held constant across conditions.

## Method

This study was preregistered ([https://aspredicted.org/LP1\\_FLJ](https://aspredicted.org/LP1_FLJ)) for 1,500 participants on Prolific Academic. One thousand four hundred ninety-eight participants completed the study and were randomly assigned to one of two between-subject conditions: used versus unused. In Study 6, participants were asked to complete 10

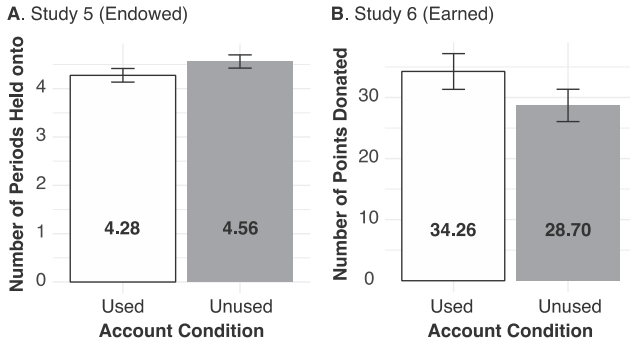
<sup>4</sup> We collected data on two consecutive days, so we ran the same regression including a dummy variable indicating the two waves. We found the same pattern that participants were more likely to hold onto the remaining 100 reward points until the last choice in the unused condition than in the used condition ( $b_{\text{unused}} = 0.31$ ,  $SE = 0.10$ ,  $t[1489] = 2.93$ ,  $p = .003$ , 95% CI of the difference =  $[0.10, 0.51]$ ,  $\beta = .31$ ).

<sup>5</sup> We also ran the same regression including a dummy variable indicating the two waves and found the same pattern: Participants in the unused account condition held onto the remaining points longer than those in the used account condition ( $b_{\text{unused}} = 0.28$ ,  $SE = 0.10$ ,  $t[1489] = 2.81$ ,  $p = .005$ , 95% CI of the difference =  $[0.08, 0.47]$ ,  $\beta = .07$ ).

<sup>6</sup> We also conducted Kaplan–Meier analysis predicting the proportion of participants who spent the remaining 100 reward points earlier (rather than until the last product) by comparing the difference of survival curves (i.e., holding onto the points until the last product) across conditions. The results revealed a significant survival curve difference between these two account conditions: more participants in the unused account condition held onto their reward points until the last product,  $\chi^2(1) = 9.19$ ,  $p = .002$ .

**Figure 6**

*Incentive-Compatible Studies: (A) Study 5 (Holding Onto Endowed Points) and (B) Study 6 (Donating Earned Points)*



trials of a counting task to earn 1,000 points (instead of being endowed with 1,000 points). Specifically, all participants were asked to complete 10 trials of a counting task—nine trials of counting sheep and one trial of counting elephants (Figure 7). Participants earned 100 points per trial, for a total of 1,000 points. In the used account condition, participants earned a total of 1,000 points in one reward account by completing nine trials of counting sheep and one trial of counting elephants. In the unused account condition, participants earned 900 points in Account A by completing nine trials of counting sheep and 100 points in Account B by completing one trial of counting elephants. That is, after 10 trials, participants in the used account condition had 1,000 points in one account, whereas participants in the unused account condition had 900 points in Account A and 100 points in Account B (the points in Accounts A and B can be applied for the same rewards).

The same as in Study 5, participants were then asked to make two purchases. In the used account condition, participants spent 900 points on two products that they would like to purchase and had 100 points remaining in their account. In the unused account condition, participants

spent 900 points on two products that they would like to purchase, depleted Account A, and still had 100 points remaining in Account B.

All participants then learned that the 100 points would be converted into money and the conversion rate would be revealed at the end of the survey. They were asked how many points in their account they would like to donate to a charity of their choice on a slider from 0 (*I would like to keep 100 points as a bonus and donate 0 points to a charity*) to 100 (*I would like to keep 0 points as a bonus and donate 100 points to a charity*). If a participant chose not to donate any of their points to a charity, they indicated that they chose to keep the 100 points as a \$2.00 bonus. If a participant chose to donate some of their points to a charity, they would choose one charity of nine options on the next page to donate their points: UNICEF, Helen Keller International, Americares, Doctors Without Borders, Smile Train, Population Services International, Feed the Children, and World Vision, as well as an “other charity” option where participants could specify which charity they would like to donate to. Our primary dependent variable was how many points participants chose to donate to a charity. We expected that participants with a used account would donate more points to a charity than those with an unused account, as they perceive their points as less valuable and thus are more generous with their points.

At the end of the study, we asked participants their age (“What is your age?” [text entry]) and gender (“What is your gender?” Male, female, prefer not to answer, and other).

## Results

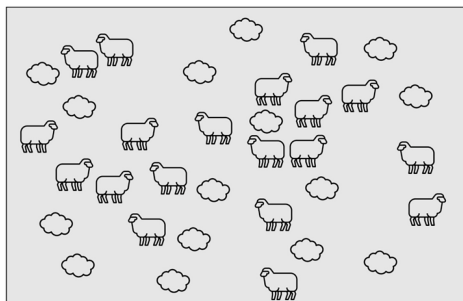
We excluded seventy participants who failed the attention check question, so data were analyzed with the remaining 1,428 individuals ( $M_{\text{age}} = 39.78$ ,  $SD = 13.83$ , age = [18, 78];  $N_{\text{female}} = 697$ ,  $N_{\text{male}} = 709$ ,  $N_{\text{other}} = 12$ ,  $N_{\text{undisclosed}} = 10$ ).

We examined reward point donation behavior by comparing the number of points donated across conditions. We conducted a linear regression predicting how many of their remaining 100 reward

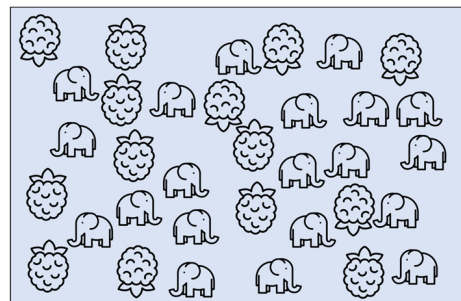
**Figure 7**

*Study 6: Two Exemplar Trials of the Counting Task*

### A. Counting Sheep (nine trials)



### B. Counting Elephants (one trial)



*Note.* The icon used in these figures are adapted from the following source. Sheep: from [www.flaticon.com](http://www.flaticon.com), by Monkik, [https://www.flaticon.com/free-icon/sheep\\_2219693?term=sheep&related\\_id=2219693](https://www.flaticon.com/free-icon/sheep_2219693?term=sheep&related_id=2219693), In the public domain. Cloud: from [www.flaticon.com](http://www.flaticon.com), by Vector Stall, [https://www.flaticon.com/free-icon/weather\\_6697985?term=cloud+weather&page=4&position=61&origin=search&related\\_id=6697985](https://www.flaticon.com/free-icon/weather_6697985?term=cloud+weather&page=4&position=61&origin=search&related_id=6697985), In the public domain. Elephant: from [www.preepik.com](http://www.preepik.com), by Ahmad Yafie, [https://www.freepik.com/icon/elephant\\_8050770](https://www.freepik.com/icon/elephant_8050770), In the public domain. Raspberry: from [www.flaticon.com](http://www.flaticon.com), by Smashicons, [https://www.flaticon.com/free-icon/raspberry\\_135475?term=raspberry&page=1&position=46&origin=search&related\\_id=135475](https://www.flaticon.com/free-icon/raspberry_135475?term=raspberry&page=1&position=46&origin=search&related_id=135475), In the public domain. See the online article for the color version of this figure.

points were donated to a charity from a dummy variable representing the account condition (with the unused account as the reference group). As expected, we found that participants donated more points from a used account than from an unused account (Figure 6B):  $M_{\text{used}} = 34.26$ ,  $SD = 39.75$  versus  $M_{\text{unused}} = 28.70$ ,  $SD = 36.06$ ,  $d = 0.15$ ;  $b_{\text{used}} = 5.56$ ,  $SE = 2.01$ ,  $t(1426) = 2.77$ ,  $p = .006$ , 95% CI of the difference = [1.62, 9.50],  $\beta = .073$ .

## Discussion

Study 6 generalizes the effect of a used account on spending decisions to charitable giving in an incentive-compatible design. We further replicated the same effect when participants were endowed with the points and decided how many points to donate to a charity in Study C in the online supplemental materials. The findings suggest that the effect remains robust when the resources were either earned (Study 6) or endowed (Study C in the online supplemental materials). On average, participants with a used account were willing to donate 19% and 17% more than those with an unused account, when the points were earned and endowed by completing a counting task, respectively. The findings suggest that policymakers and marketers may consider designing interventions by creating the perception of a used account to harness socially desirable behavior.

### General Discussion

The objective of this article was to examine if and when used (vs. unused) accounts affect consumption behavior. We reveal that people are more likely to spend their resources—money in gift cards (Studies 1 and 3), checking accounts (Study 2A and Study A in the online supplemental materials), and reward points (Studies 2B, 4, 5, 6, and Study C in the online supplemental materials)—when their account has relatively less (vs. relatively more). This is because when the account has been used, individuals make a within-account comparison, comparing the remaining resources in the account with what the account originally had, perceive the resources as less valuable (Studies 2A, 2B, 4, and Study B in the online supplemental materials), and thus are more likely to spend them. The effect remains robust when the resources are either endowed (Studies 1, 3, 5, and Study C in the online supplemental materials) or earned (Studies 2A, 2B, 4, 6, and Study A in the online supplemental materials). However, this effect is attenuated if the used account is relatively full (Studies 3 and 4).

### Theoretical Contribution

We build on research on relative judgments and reference-dependence decision making. Prior research has found that people's judgments are often relative rather than absolute, influenced by the surrounding context (e.g., Sharif & Oppenheimer, 2016, 2021; Sherman et al., 1978; Stewart et al., 2002). We build on this research by revealing that people are more likely to spend their remaining resources when they have relatively less (vs. more) in the account due to a within-account comparison, comparing the amount of remaining resources in the account with what the account originally had. We observe this effect, especially when the account has less than 50% remaining.

Furthermore, this research contributes to the literature on mental accounting (C. Heath & Soll, 1996; Sharif & Shu, 2021; Sussman & Alter, 2012; Sussman & O'Brien, 2016; Thaler, 1985, 1999).

We identify an important contextual factor—the original amount in an earmarked account—that may influence the valuation of the remaining resources in that account and their subsequent consumption behavior depending on their spending. While past research has demonstrated that mental accounting serves a self-control tool to curb expenses, we examine the extent to which people dip into an account affects their consumption behavior. That is, when people view a used, earmarked account that has relatively less, they tend to engage in a within-account comparison, comparing the amount of remaining resources with what they had originally; as a result, they are more likely to spend and donate resources in that account.

### Alternative Explanations

While we suggest that the effect of a used (vs. unused) account is due to a within-account comparison, it is likely that there are multiple other mechanisms at play contributing to the perceived value of remaining resources.

First, it is possible that people make different inferences about themselves and their consumption behavior from their choice to spend resources from a used account rather than an unused account (e.g., Kardes et al., 2004). While we did not explore the domain of food consumption, imagine someone choosing to consume chips out of a new bag (i.e., an unused account) versus a bag that they already opened a week ago (i.e., a used account). This person might make inferences about their behavior based on this choice. For example, they might infer that they left the chip bag unopened originally for a reason, and on the other hand, they might also infer that they chose to leave some chips in the opened bag for a reason. Thus, people may be more likely to consume the remaining chips in the opened (i.e., used) bag because they make inferences about why the bag is used (vs. unused) to begin with. Further, these inferences could play into why consumers might devalue these remaining resources. For example, perhaps consumers infer that they left some chips in the opened bag because they're not that tasty, and thus they devalue the remaining chips as a result. While this is plausible for some of our hypothetical studies, we think it is unlikely for our incentive-compatible studies. In these studies (Studies 5, 6, and Study C in the online supplemental materials), we held constant the total amount of resources and prior spending across conditions (i.e., every participant spent 900 out of 1,000 points). In these cases, participants were not choosing to leave an account open or closed, and then returning to spend these resources, as in the case of the potato chips. In other words, it is unlikely that they would make this inference as participants were all forced to spend their resources in the same way. While we don't think signaling and different inferences can explain the results of all of our studies, it is possible that, in the real world, this may be one of the reasons this effect occurs. That is, when people make a choice to leave an account open (vs. closed) and then later consider how to spend their resources, they may indeed make these inferences in those situations, such as in the chip example. Further, these inferences might be more likely to come into play when there is a delay between when they first acquire the account and when they make the decision to consume from the account, as they may forget the reason why they left the account used (vs. unused) to begin with.

Second, people may desire to keep their account intact due to some psychological cost of opening an unused account or the extra utility of keeping things intact (e.g., H. Mishra et al., 2006).

In our studies (Studies 3 and 4), we do not observe evidence for psychological cost or the extra utility of keeping things intact with mental accounts, as we find that there is no difference between an account that is used with a large proportion remaining and an account that is unused (60% vs. 100% in Study 3 and 75% vs. 100% in Study 4). Thus, it does not seem to be the case that the cost of having to open an account is preventing people from spending it. However, it is possible that with physical accounts, such as physical gift cards and money in a sealed envelope, there may be a desire to keep their account intact, leading people to be less likely to consume resources from an unused account than from a used account.

Third, when considering spending or consuming from a used account rather than from an unused account, people may feel it is more difficult to exert self-control as there is little left in that account (Raghubir & Srivastava, 2009). We suggest that the used account effect increases spending likelihood due to a within-account comparison, perceiving the remaining resources in the account to be less valuable, by holding constant the absolute amount of resources across conditions. It is possible that the perceived smaller proportion of remaining resources in an account makes it feel more difficult to exert self-control, leading people to continue spending and consuming as a result.

It is an open question of how consumers feel after they spend their resources with a used account rather than with an unused account, and to what extent, they experience a self-control failure when spending with a used account rather than an unused account. That is, it is possible that although people value their resources less with a used account than otherwise equivalent resources in an unused account, they may still end up spending them faster than they feel that they should. Future research should explore consumers' satisfaction when spending from used accounts in comparison with when spending from unused accounts.

Fourth, people may frequently plan to spend their resources in an account for a particular purchase goal. Purchase goals, or consumption goals, can even be broader, such as designating an account for hedonic or utilitarian purchase goals (Dhar & Wertenbroch, 2000). For example, when resources are received unexpectedly or as a gift, individuals often treat it as a "windfall" gain, planning to spend it on something that they "want" rather than "need" (Arkes et al., 1994; Bodkin, 1959). Thus, it is possible that when an account is used, individuals infer that they have reached their purchase goal for that account because it has relatively less remaining. After people perceive that they have bought what they set out for, thus achieving their purchase goal, they may consider their remaining resources to be "extra" or "left over." That is, people originally may reserve the resources in their account for essential purchases related to the purchase goal; however, once they reach this goal, they are more likely to spend the resources on other purchases that are considered less essential; that is the items that they want but do not necessarily need. In two supplemental studies (Studies D and E in the online supplemental materials), we found suggestive evidence that the effect holds, particularly when people were reminded that they had reached their purchase goal. When people perceive their purchase goal to be reached, they tend to devalue the remaining resources in the account and thus feel justified to spend it on items that might not be part of their purchase goal.

Lastly, prior research has found that people's decisions can be affected by whether or not they will deplete their account entirely (Roeder et al., 2018). Notably, in our studies, we hold constant

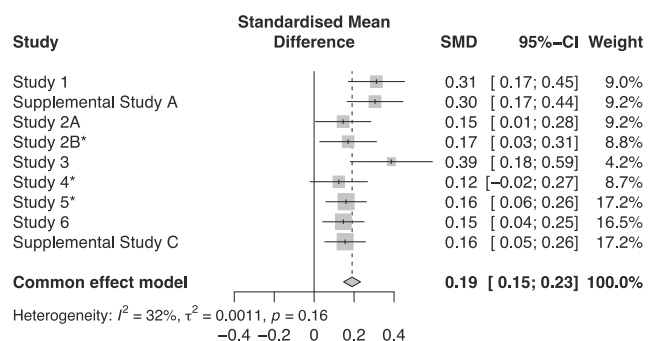
across conditions the absolute amount remaining in the account. Thus, in both the used and unused accounts, the account will be either completely depleted or the item will draw the account to zero if participants decide to make a purchase across both conditions (in Studies 2B, 4, and 5), or still have a balance remaining or the item would not draw the account to zero if participants decide to make a purchase across both conditions (in Studies 1, 2A, 3, and Study A in the online supplemental materials). Study 6 and Study C in the online supplemental materials measure the amount of donating to a charity which might or might not draw the account to zero depending on how much participants decide to donate. We examined whether the effect was stronger if the account would be depleted to zero or not after spending in both conditions (Figure 8). To do so, we ran a meta-analysis with all studies in the article comparing the effect sizes. We consistently find the effect in both scenarios. The results suggest that the effect size of the used account effect is comparable when drawing an account to zero (vs. not drawing an account to zero) after making a purchase. Considering the limitations of internal meta-analyses and following best practices, we used this meta-analysis only to compare the effect sizes when the spending under consideration may or may not exhaust the focal account, for both used and unused accounts, rather than demonstrating the robustness and conclusiveness of the effect across studies reported in the article (Vosgerau et al., 2019).

## Practical Implications and Future Research

Our research has a series of practical implications for marketers, policymakers, organizations as well as individuals who are considering spending reward points or money on gift cards and in checking accounts.

First, banks and credit card companies may consider designing the display of credit card use if they would like to reduce spending behavior. For example, some banks (e.g., Citi Bank) use a progress bar that compares the current balance to the total credit line, making the account with a credit card feel more used, which may increase consumer spending. Other banks (e.g., Bank of America) convey the same pieces of information, including the current balance and the total credit line, without directly comparing them, and thus do not trigger the perception of a used account, which would potentially

**Figure 8**  
*Meta-Analysis Across Studies*



*Note.* The asterisk indicates that the item would draw the account to zero if participants decide to make a purchase with the account. SMD = standardized mean difference; CI = confidence interval.



help curb credit card spending. Further, in addition to the display of credit card use, banks can also consider how they design their websites for checking and savings accounts. We found in Study 2A and Study A in the online supplemental materials that people are less likely to spend their resources in a checking account when it is framed as unused. Building on this finding, banks can consider highlighting spending within shorter windows of time to discourage spending. For example, they could highlight the money that has been spent from the account over the past few days, in relation to the balance, to increase the perception that the account is relatively unused. For example, if a person spends \$100 from their checking account over the past two days, but has \$3,000 in the checking account, this may lead the consumer to feel that their account is still relatively unused, and reduce spending. Future research should test whether indeed highlighting shorter frames of spending leads to reduced spending.

Relatedly, it has become increasingly popular that consumers adopt FinTech to manage their finances, such as budgeting apps. Different budgeting apps, such as Mint and You Need a Budget, include visuals to track categorical expenses relative to the corresponding budget. Our findings provide insights that can help design the interface of budgeting and dynamic-expense tracking apps. For example, in cases where only a small amount of the budget has been spent, these apps could highlight the comparison between the remaining amount in a budgeted category and its total categorical budget to decrease consumption (i.e., as the account will still feel relatively full). Or when most of a budgeted category has been spent, these apps could only highlight the remaining budget of that category without contrasting the remaining to the total budget to decrease the perception of a used account.

Third, reward points and loyalty programs are commonly used in retailing. Reward programs usually inform their customers of how many reward points they currently have, but do not mention how many reward points customers have spent in the past. Similar to banks, managers can highlight spending within different windows of time to encourage or discourage spending the reward points. For example, imagine an individual has accumulated 10,000 reward points, has spent 7,000 reward points over a year, but has not yet spent any points this month. Companies may encourage consumption by highlighting the individual's spending over the past year, leading the account to feel used (e.g., 7,000 points have been spent this year, and 3,000 points are available), or may discourage consumption by highlighting the lack of individual spending over the past month (e.g., 0 points have been spent so far and 3,000 points are available).

For individuals who want to save money, our research suggests that they should be cautious about spending from a used account. Individuals may be likely to waste their resources if their resources are in a used account rather than in an unused account, spending their resources on items that they may potentially regret later. In order to reduce this tendency, when assessing their resources in an account, people should evaluate the absolute amount of resources without comparing what they have in that account to what the account originally had, which may lead them to perceive their account as unused and thus reduce unnecessary spending. In addition, people may want to plan in advance how they want to spend their resources. This may prevent the tendency for people to spend their resources.

In addition, our findings on donation behavior suggest that policymakers, marketers, and charity organizations may consider designing

interventions by leveraging the perception of a used account to harness socially desirable behavior. For example, charitable organizations could collaborate with stores to help increase donations. For example, if a consumer is spending with a gift card at a store, the store could highlight a gift card that is used; this might increase the chance that the consumer would donate the remaining amount to a charity.

We consistently find that people are more likely to spend from their used account than from their unused account, especially when the relative proportion of the account remaining is small. Future studies may examine what types of purchases might influence spending decisions. It is possible that when people devalue their resources when there is relatively less remaining in their account, they would be more likely to feel that they can justify their spending and become more likely to splurge by spending impulsively. It is also possible that people would be more willing to spend their remaining resources on hedonic (vs. utilitarian) purchases when they perceive their resources as less valuable in a used account than in an unused account. Relatedly, whether the item under consideration is essential or nonessential might also moderate the effect, such that when considering an essential item, people may be equally likely to spend from a used and unused account.

Past literature on scarcity might on the surface appear to predict the opposite of our results; that is, people might be less likely to spend their resources from a used account than from an unused account (Soster et al., 2014; Zhu & Ratner, 2015) or hold on to the resources that appear limited for a longer period of time (Shu & Sharif, 2018). For example, Soster et al. (2014) found people were less satisfied when they spent from an account that had absolutely less (vs. absolutely more) in the account. However, this past research differs in a number of ways. First, we examine a different dependent variable, namely, purchase likelihood rather than satisfaction. Second, and crucially, in all of our studies, we hold constant the absolute amount remaining across conditions (e.g., in Study 1, everyone had \$8 remaining), and we manipulated whether this account has relatively less or more. However, it is an open question of how satisfied people would be when spending from a used account rather than from an unused account in our studies. We suggest future research should explore this question more thoroughly.

This article examines if and when a used (vs. unused) account affects consumption behavior. Understanding further how the perception of individual accounts might affect their consumption behavior is a fruitful area of research, with important practical implications for individuals, policymakers, and managers alike.

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