



# Disproportionate redemption discounting: Mental accounting of discounted credit<sup>☆</sup>

Andong Cheng<sup>a,\*</sup>, Ernest Baskin<sup>b</sup>

<sup>a</sup> Lerner College of Business and Economics, University of Delaware, United States

<sup>b</sup> Haub School of Business, Saint Joseph's University, United States

## ARTICLE INFO

### Keywords:

Discounted credit  
Mental accounting  
Cost perceptions  
Price promotions

## ABSTRACT

Redeeming purchases using discounted credit (i.e., store credit bought at a lower price than its face value) is widespread, but its mental accounting implications remain unclear. This work finds that consumers making multiple redemptions on separate occasions with the same discounted credit do not perceive all redemptions as equally discounted. Redemptions made earlier in that discounted credit's spending life cycle (upstream redemptions) are perceived as less discounted than redemptions made later (downstream redemptions). This "disproportionate redemption discounting" effect occurs because users feel more certain that they can deplete their credit when they make downstream redemptions and feel like they have the freedom to mentally assign the discounted credit savings unevenly among multiple redemptions. Relatedly, individuals have higher willingness to pay when making downstream redemptions than upstream redemptions. Disproportionate redemption discounting and its behavioral consequences are unique to discounted credit and do not generalize to all store credit.

## 1. Introduction

Consider two consumers who each bought a \$100 gift card for \$80 during a promotion. The first consumer redeems this entire card on a \$100 item. Because her gift card was discounted by \$20, she feels that she paid \$80 for this item instead of \$100. The second consumer instead depletes her gift card on multiple purchases across several store visits rather than in a single transaction. Does this consumer mentally divide the card's \$20 discount proportionately across each redemption, or does she feel that certain redemptions are more discounted than others? Factors that impact the perceived costs of these redemptions have implications on a range of consequential behavioral outcomes, such as willingness to pay and choice (Drèze & Nunes, 2004; Lichtenstein & Burton, 1989).

We define promotions like these discounted gift cards as "discounted credit": prepaid store credit bought at a lower price than its face value. Discounted credit comes in various forms. Stores can directly sell discounted credit to customers, such as when a gym sells a pass for five classes at the cost of three classes (Khouja, Pan, Ratchford, & Zhou, 2011; Price, 2018); hotels and airlines sometimes sell their points at a

discount; Groupon and similar sites base their business models on selling discounted credit as vouchers to redeem at participating partner businesses (Edelman, Jaffe, & Kominers, 2016); and finally, gift cards can end up reselling on customer-to-customer marketplaces—a billion-dollar industry in the United States (Groenfeldt, 2014; Gunasti & Baskin, 2018; Offenberg, 2007). Raise.com, one online seller of discounted gift cards, attracted 2 million buyers in less than 5 years, who saved an aggregate of \$150 million (Raise, 2021). Despite discounted credit's prevalence in the marketplace, there is little research dedicated to how consumers interact with it, and to our knowledge, no research documents how people perceive the cost of their discounted credit redemptions.

Consumers generally purchase *undiscounted* credit (face value equals purchase price) as gifts to others (National Retail Federation, 2019) but also habitually purchase *discounted* credit (face value exceeds purchase price) for themselves (Cardcash, 2018; Data, 2018) because using discounted credit can lead to savings (Garretson & Burton, 2003; Mela, Gupta, & Lehmann, 1997). We assume that, because consumers save money when using discounted credit, consumers may consequentially perceive their *redemptions* as discounted. For example, if a consumer

<sup>☆</sup> This research is funded by the University of Delaware

\* Corresponding author at: Lerner College of Business and Economics, University of Delaware, 222 Alfred Lerner Building, Newark, DE, United States.

E-mail addresses: [andong@udel.edu](mailto:andong@udel.edu) (A. Cheng), [ebaskin@sju.edu](mailto:ebaskin@sju.edu) (E. Baskin).

depletes a \$100 credit purchased for \$80 on a single \$100 item, she may evaluate her \$20 savings jointly with the redemption and perceive the cost as a net \$80. However, a discounted credit applied across multiple redemptions, rather than a single redemption, results in ambiguity regarding *which* redemption the consumer will attribute her savings.

This research finds that, when a discounted credit is redeemed across multiple transactions, upstream redemptions (i.e. redemptions made earlier in a discounted credit's spending life cycle, when remaining balance is higher) are perceived as less discounted than downstream redemptions (i.e. redemptions made later in a discounted credit's spending life cycle, when remaining balance is lower). Consumers mentally divide the savings they earn from discounted credit unevenly across redemptions, an effect we term "disproportionate redemption discounting." To illustrate this effect, in one pretest, we asked 153 university students how much they perceive two \$20 redemptions to cost when purchased on two sequential occasions with the same \$40 face value gift card (purchased at \$30). We found that Redemption 1's Perceived Cost – Redemption 2's Perceived Cost was positive ( $M = \$8.54$ ,  $SD = \$12.87$ ) and significantly higher than 0 ( $t(152) = 8.21$ ,  $p < .001$ ). This suggests that individuals feel like the upstream redemption is more expensive (i.e. less discounted) than the downstream redemption despite both redemptions having identical prices and being purchased with the exact same gift card.

Herein, we document the novel disproportionate redemption discounting effect and discuss factors that drive and mitigate this effect. Because this work primarily examines how people perceive the cost of their redemptions, we next review the mental accounting literature.

## 2. Theoretical background

### 2.1. Malleable mental accounting and categorizing ambiguous gains

Mental accounting research studies how people psychologically organize and interpret money flows (Thaler, 1999). Mental accounts are the mental representations of physically splitting large sums of money into separate "tin cans," prepared for different purposes (Heath & Soll, 1996; Prelec & Loewenstein, 1998; Rainwater, Coleman, & Handel, 1959). Sums of money grouped under the same mental account are evaluated jointly and sums of money in different mental accounts are evaluated separately (Choi, Laibson, & Madrian, 2009; Henderson & Peterson, 1992; Hsee, 1996; Read, Loewenstein, Rabin, Keren, & Laibson, 1999).

As people earn money, such as when they receive savings upon using discounted credit, they will automatically distribute that new money into an existing and already labeled mental account. People naturally group incoming new money under existing mental accounts because categorizing elements together makes the tracking of money easier (Cohen & Basu, 1987). But under *which* mental account do individuals choose to mentally file a new money under? In general, consumers put the money into the account with the strongest perceived *association* with that money, such that the money naturally brings the account to mind and vice versa (Prelec & Loewenstein, 1998).

Research also finds that consumers will often file a new gain under the mental account of a *specific purchase*. This occurs if the gain and the account have a logical association (Prelec & Loewenstein, 1998). For example, if a consumer makes an online purchase (e.g. \$100) and earns cash back (\$5 cash back), the consumer might evaluate the cash back and the price of the purchase jointly, deducting the cashback from the price of the purchase (i.e. perceiving the purchase to cost \$95). This evaluation feels justifiable to the consumer because the purchase is triggered by, and is therefore related to, the cash back (Vana, Lambrecht, & Bertini, 2018). Another way a gain might be grouped with a purchase-specific account is when the gain doubles as a payment for a purchase. For example, when a consumer receives a gift card for their birthday and proceeds to spend it on a laptop, the consumer may associate the gift card's value with the laptop's mental account and record

the laptop's perceived cost as less expensive than its price (Cheng & Cryder, 2018). As these examples suggest, there is evidence that individuals mentally put new sums of money (e.g., cashback/gift card) into specific purchases' mental accounts, which in turn causes these individuals to mentally reduce the corresponding purchases' costs.

We propose that a consumer who depletes discounted credit on a redemption will likely categorize their savings into that *redemption's mental account*. As such, the savings associated with the credit would be evaluated jointly with the redemption's price and cause the redemption to feel discounted. However, when a discounted credit is spent on *multiple* redemptions, the savings derived are logically associated with multiple redemptions' accounts. In such a case, ambiguity arises as to *which* redemption's account this savings should be filed under. This ambiguity is the basis of "malleable mental accounting" (Cheema & Soman, 2006), which describes that, when a sum of money is justifiably associated with multiple accounts, consumers have the flexibility to *choose* under which account(s) to file this money.

We theorize that a discounted credit redeemed across multiple redemptions is susceptible to malleable mental accounting because each redemption is justifiably related to the newly earned discounted credit savings. In this state of ambiguity, the discounted credit user can choose to categorize their savings in one of two ways. First, individuals can mentally prorate and distribute the savings proportionately across all redemption accounts. However, based on our pretest, it appears that individuals more frequently choose to disproportionately divide their savings across redemption accounts, leaving redemptions to feel unequally discounted. In the next section, we provide an explanation for why discounted credit users may choose to engage in disproportionate redemption discounting.

### 2.2. Practicing malleable mental accounting to reflect uncertainty

A consumer takes on some risk when buying discounted credit. Discounted credit requires the consumer to prepay for benefits prior to consuming them. Upon prepayment, the consumer is in a subjectively uncomfortable loss state until he exchanges the prepaid credit for enough redemptions to save some money or at least break even (Ellsberg, 1961; Imas, 2016; Rabin & Thaler, 2001). Before a discounted credit is fully depleted, a consumer likely feels some uncertainty concerning if and when he can leave this loss state, what redemptions he will make, as well as how much money he will ultimately save (Novemsky & Kahneman, 2005; Tversky & Kahneman, 1992). This uncertainty is warranted, as discounted credit commonly goes unredeemed or is not redeemed to its full potential (Chen, Moorthy, & Zhang, 2005; Horne, 2007; Pechmann & Silk, 2013). For example, \$1 billion worth of gift card value goes unused every year because people misplace their cards or cannot find enough desirable redemptions to use their cards on (Union, 2006).

We predict that, when redeeming a discounted credit, a consumer factors in how certain he is that he can use the entire remaining value of his credit when deciding how much money he perceives he is saving on that particular redemption. If the consumer is highly certain he will eventually deplete his credit, the consumer may feel licensed to mentally allocate a fair proportion of his discounted credit savings to the redemption's account, even if that redemption alone does not deplete the entire credit. However, if a consumer is *uncertain* as to whether he will be able to deplete his remaining credit, this consumer might feel that mentally allocating a large piece of his discounted credit savings to the present redemption's account is premature or inaccurate.

Using a single discounted credit on multiple redemption occasions implies that credit depletion certainty varies across the different redemption occasions. There should be less credit depletion certainty early on, when the unredeemed credit balance is at its highest and when the consumer is furthest away from depleting the credit. As the credit balance is exchanged for benefits, the consumer becomes more certain in depleting the discounted credit. Thus, we predict that individuals will

feel more inclined to attribute larger proportions of the discount to downstream redemptions than upstream redemptions. Consequently, individuals who are certain that they will deplete their discounted credit (even when their credit's remaining balance is still high) should be less likely to unevenly discount upstream versus downstream purchases. For example, if a discounted credit is a very fungible Visa gift card (versus a less fungible store-specific card), consumers should not need to worry about not using up the entire gift card and will thus more evenly discount purchases made with this gift card.

Formally, we offer the following disproportionate redemption discounting hypotheses:

**H<sub>1</sub>:** When consumers redeem a single discounted credit on multiple redemptions, downstream redemptions are perceived as more discounted than upstream redemptions.

**H<sub>2</sub>:** This effect is weaker when consumers are more certain that they can fully deplete their discounted credit.

Existing literature has suggested that consumers take advantage of mental accounting flexibility to bypass self-control and extract pleasure from purchases (Cheema & Soman, 2006). This work adds to this literature by showing that there are occasions where consumers also use posting flexibility to *maintain* self-control and prevent themselves from recognizing savings before locking in these absolute gains, a novel theoretical insight. We predict that the average consumer does not want to perceive redemptions as too discounted until credit depletion is definite, an idea reflected in differences in discounting upstream versus downstream redemptions' perceived costs.

### 2.3. Generalizability of disproportionate redemption discounting

Buying discounted or undiscounted credit is similar to prepaying for future consumption. Prepaying for future consumption has received some academic attention (e.g., Arkes & Blumer, 1985; Thaler, 1980; Thaler, 1985; Xie & Shugan, 2001) and is related to payment depreciation (Gourville & Soman, 1998). Payment depreciation is the idea that consumers mentally devalue or forget prepayment costs when there is a long enough time between prepayment and redemption of a good (Arkes & Blumer, 1985; Shafir & Thaler, 2006; Soman & Gourville, 2001). With the passage of time, consumers feel desensitized to the cost of the prepayment, such that even if the redemption benefit is forgone, the pain of the prepayment does not feel so salient (Shafir & Thaler, 2006).

Prepaying for discounted credit, undiscounted credit, or a product directly should all exhibit payment depreciation given a long enough period of time (Gourville & Soman, 1998). Importantly, we stress that the disproportionate redemption discounting effect is not the same effect as payment depreciation. Specifically, we predict that the disproportionate redemption discounting effect *only occurs* when people redeem *discounted credit* and not when they redeem undiscounted credit whereas payment depreciation should exist regardless of whether the credit redeemed was discounted or not.

Why should disproportionate redemption discounting only exist when individuals redeem discounted credit? As previously discussed, a critical attribute of disproportionate redemption discounting is that it relies on individuals engaging in malleable mental accounting. Malleable mental accounting makes a consumer choose which redemption account(s) to allocate the savings they will derive from redeeming discounted credit to when there is not an obvious answer. For individuals to engage in malleable mental accounting, two conditions need to be met. First, there must be an ambiguous sum of money that needs to be mentally categorized. Second, consumers must have the perceived freedom to choose how to categorize that money. In an example case of discounted credit, a purchase of a \$100 credit for \$80 introduces \$20 in savings. This new gain's existence prompts and licenses individuals to practice malleable mental accounting (i.e., decide under which redemption account(s) to put this gain), which may cause

the item's perceived cost to feel lower than its price. In contrast, buying and spending "undiscounted" prepaid credit (e.g., \$100 credit for \$100) introduces no savings that require allocation. There is no reason to start mentally adjusting any redemption's perceived cost to an amount that is different from its price. Thus, we formally hypothesize:

**H<sub>3</sub>:** Disproportionate redemption discounting is unique to discounted credit (versus undiscounted credit).

We note that, in our experiments, we compare participants making redemptions using discounted credit with a conservative control group of participants making redemptions using undiscounted credit to demonstrate how our main effect is not simply capturing payment depreciation.

### 2.4. Framing discounted credit as dollars versus percentages

How might discounted credit sellers encourage consumers to mentally discount multiple redemptions made with the same credit equally? Prior research suggests that the way in which prices and discounts are framed can influence consumers' perceptions of savings (Darke & Chung, 2005; González, Esteva, Roggeveen, & Grewal, 2016; Krishna, Briesch, Lehmann, & Yuan, 2002). In the discounted credit context, we argue that numeric gain frames (e.g., "buy a \$100 gift card for \$80 and save \$20") encourage disproportionate redemption discounting because consumers are presented with a savings dollar amount that they must personally distribute across mental accounts of their choosing. However, if the same savings is instead framed and remembered solely as a percentage (e.g. save 20% off a \$100 gift card), the seller is suggesting a discount distribution for the consumer to anchor on. We predict that discounted credit offers presented only in percentages (e.g., 20% off gift card purchases) might mitigate our main effect because these percentages double as recommendations on how much consumers should discount each redemption.

**H<sub>4</sub>:** Disproportionate redemption discounting is weaker when the discounted credit gain is framed in percentages instead of dollars.

### 2.5. Related behaviors

What are some consequences of disproportionate redemption discounting and why might businesses care about this mental accounting effect? We propose that if certain redemption occasions feel systematically more discounted than other redemption occasions, then people's redemption choices at different points in a discounted credit's spending life cycle may also differ. While the "perceived cost" of redemptions is contained entirely inside one's head, it is inextricably related to other more consequential downstream effects (Berger, Draganska, & Simonson, 2007).

Research documents that varying perceived costs influences other variables such as perceived transaction utility, pain of paying, and most importantly, choice (Diamond & Campbell, 1989; Drèze & Nunes, 2004; Kahneman, Knetsch, & Thaler, 1986; Thaler, 1983, 1985; Winer, 1986). Empirical evidence specifically finds that a lower perceived cost is linked with a higher purchase likelihood (e.g., Cheng & Cryder, 2018). Thus, in this research, we predict that the leftover balance amount (small versus large remainder value) on a user's discounted credit, which determines whether the upcoming redemption is "upstream" or "downstream," not only influences the perceived cost of that upcoming redemption, but also that individual's choice of *what* to redeem at that occasion.

**H<sub>5</sub>:** Consumers choose more expensive goods as downstream redemptions than as upstream redemptions.

Our work makes several contributions. First, whereas existing

literature in malleable mental accounting documents how consumers have the freedom to choose under which single account to allocate a new and not-yet-categorized gain or loss (Cheema & Soman, 2006), this work shows the novel theoretical insight that consumers can mentally divide an uncategorized gain and post it unevenly towards multiple different purchases' mental accounts. Next, we establish that people feel some inherent level of uncertainty when they prepay and use discounted credit, which influences judgments of redemptions' costs and contributes to our understanding of how people psychologically process the discounted credit. We document disproportionate redemption discounting, a new mental accounting effect, and discuss factors that moderate this effect as well as this effect's related behavioral consequences – information useful for firms and managers selling discounted credit.

### 3. Study 1

In Study 1, we find that, when a single discounted credit is depleted on two redemption occasions, the upstream redemption feels less discounted than the downstream redemption. In this study, we also show that this effect disappears when people redeem undiscounted credit, demonstrating that the disproportionate redemption discounting we uncover is not the same effect as payment depreciation.

#### 3.1. Method

Participants were 144 mTurkers (men = 55.3%, median age = 34) from the United States. Participants were randomly assigned to one of two conditions. In one condition, participants read that they purchased a \$20 face value pharmacy gift card for \$10 on promotion (discounted credit condition). In the other condition, participants read that they purchased a \$20 value pharmacy gift card for \$20 (undiscounted credit condition).

Participants entered the virtual pharmacy, where they saw six essential items (e.g., toilet paper; Tylenol) on a display shelf. The items ranged from \$4 to \$16 in price. Participants read that the store “has these essential items still in stock but they are low in supply. You can redeem any of these items below with your prepaid card but you can only redeem one item on this trip.” This study was run in April 2020, at a time when it was not unusual for stores to limit the number of essential items each customer could buy.

After participants chose an item to redeem (Redemption 1), we forwarded participants to a check out page where they imagined paying for this product with their store credit. Then, we asked participants how much money they “feel” like they spent on this redemption to measure Redemption 1's “perceived cost” (open-ended response).

Next, participants imagined that they are back at that store again on a different trip. They viewed the virtual store shelf again and indicated which one item they would redeem. The virtual store had the same available essential item options in stock and participants were only allowed to redeem one product again (Redemption 2). For Redemption 2, participants were allowed to choose the same essential item they chose as Redemption 1 or a different item. After choice, we asked participants for Redemption 2's perceived cost (open-ended response) on a checkout page.

#### 3.2. Results and discussion

All participants imagined sequentially choosing two items to redeem from this store with prepaid credit. After the two redemptions, 31.25% percent of participants depleted their credit. The remainder balance left on the credit was an average of \$4.65 (SD = \$3.99). In this study, we assume that each redemption is truly wanted by participants, as all items on the virtual shelf were essential utilitarian goods, and participants were given the choice to pick out which essential item to buy. Thus, based on our design, product desirability should not be considered an

explanation for discounting differences of Redemption 1 and Redemption 2.

We used the formula (redemption price – redemption perceived cost) ÷ redemption price to calculate the “perceived savings” percentage allocated to each redemption. For example, if someone felt their \$10 priced Redemption 1 was \$7 in perceived cost, this formula would indicate that his Redemption 1's perceived savings is 30%. We used this perceived savings percentage variable to compare whether Redemption 1 and Redemption 2 were perceived as equally discounted.

We ran a 2 (credit type: discounted, undiscounted) × 2 (redemption occasion: 1, 2) mixed subjects ANOVA on perceived savings percentage and found a significant interaction effect;  $F(1, 142) = 4.71, p < .05$ , partial  $\eta^2 = 0.03$ . Those in the discounted credit condition felt, on average, that they saved 7.31% on Redemption 1 and 26.56% on Redemption 2, a 19.25% difference ( $p < .05$ ). In other words, discounted credit users perceived the downstream redemption as more discounted than the upstream redemption, despite how both redemptions were made with the *same* prepaid discounted credit. In contrast, participants who redeemed undiscounted credit did not feel that the downstream redemption was more discounted than the upstream redemption (Redemption 1 perceived savings = 1.13%; Redemption 2 perceived savings = 1.96%; difference = 0.73%;  $p > .10$ ; see Fig. 1).

Study 1 reveals that participants spending discounted credit are more inclined to mentally discount a downstream redemption than an upstream redemption, supporting H<sub>1</sub>. We find that this effect does not occur when consumers redeem undiscounted prepaid credit, supporting H<sub>3</sub>. Because we know payment depreciation should occur for both discounted and undiscounted credit (Gourville & Soman, 1998), we conclude that the disproportionate redemption discounting is distinct from payment depreciation.

### 4. Study 2

In Study 2, we test whether the disproportionate redemption discounting is moderated by a priori credit depletion certainty. We predict consumers may feel it is premature and inaccurate to allocate a large piece of their anticipated discounted credit savings to upstream redemptions when downstream redemptions may never materialize. The natural difference in credit depletion certainty at various redemption occasions likely causes disproportionate discounting of these redemptions. By that logic, if consumers know, a priori to making any redemptions, that they will *definitely* use all of their credit, credit depletion certainty should be constantly high across all redemptions occasions and all redemptions made with the same credit should be viewed as equally discounted.

#### 4.1. Method

Participants were 123 university students (men = 40.4%, median age = 20 years), who read a scenario, inspired by Soman and Gourville (2001), in which they imagined prepaying for either a discounted or undiscounted 3-day ski pass, depending on their randomly assigned condition:

Imagine that you are planning to go on a ski vacation in Colorado for three days in the last few days of the season with your friends. Before you arrive, you see as an online promotion, the resort is offering non-refundable 3-day passes. Normally, lift tickets cost [\$100 per day, but this 3-day pass is \$200, which can be considered getting a discount]/[\$67 and this pass is \$200, which can be considered equivalent to paying for 3 days]. You decide to purchase a pass online ahead of time to avoid queuing for lift tickets each day.

We then randomly assigned these participants to a second condition that varied their likelihood of using the ski pass for all three days. Those in the low certainty condition read:

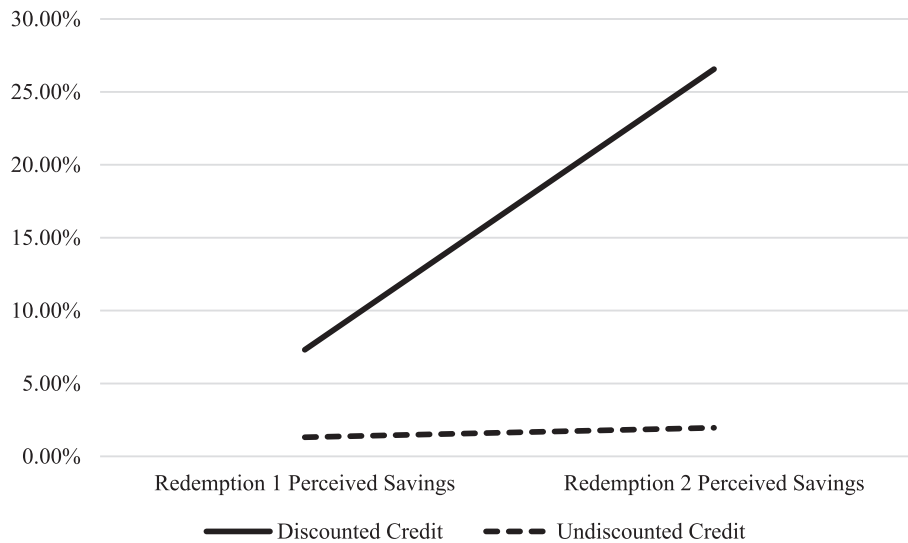


Fig. 1. Study 1 Perceived Savings of Each Redemption.

In days when conditions are bad, your ski group may consider skipping skiing and doing something else instead in the area. For the 3 days you are planning on skiing, you see a forecast that there may be some time when skiing conditions are not ideal,

but those in the high certainty condition read:

You will definitely go ski for all three days. In fact, your friends have already all agreed to ski the entire time and even rented a ski house next to the slopes.

Participants sequentially learned that they went skiing on each day and indicated how much they perceived to have paid for ski access for each day (open-ended response) before finding out if they are able to ski on the next day. For example, on the first page of the survey after the scenario introduction, participants read that they went skiing on Day 1 of their trip. They provided their perceived cost of their ski access for Day 1 before we presented information and questions about Day 2 skiing on the next page and Day 3 skiing on the page after that. Participants learned they had skied all three days (thus depleting the full value of the credit) only when the questions regarding the third day appeared on the last page.

4.2. Results and discussion

We ran a 2 (credit type: discounted, undiscounted) × 2 (credit depletion certainty: low, high) × 3 (redemption occasion: 1, 2, 3) mixed-subjects ANOVA on perceived cost of ski access for each day. Table 1 reports full details (means, standard deviations, contrasts) about this

Table 1 Study 2 Results.

Purchase Occasion	Mean Perceived Purchase Cost by Condition Type	
<b>Discounted Credit</b>	<b>High Certainty (SD)</b>	<b>Low Certainty (SD)</b>
Day 1 Redemption	\$74.50 (\$13.65) <sup>a</sup>	\$87.65 (\$34.21) <sup>a*</sup>
Day 2 Redemption	\$75.38 (\$13.56) <sup>a</sup>	\$73.59 (\$20.16) <sup>b</sup>
Day 3 Redemption	\$64.67 (\$22.36) <sup>b</sup>	\$43.68 (\$32.48) <sup>c*</sup>
<b>Undiscounted Credit</b>	<b>High Certainty (SD)</b>	<b>Low Certainty (SD)</b>
Day 1 Redemption	\$74.03 (\$25.12) <sup>a</sup>	\$71.36 (\$11.58) <sup>a</sup>
Day 2 Redemption	\$68.84 (\$10.65) <sup>a</sup>	\$72.64 (\$14.42) <sup>a</sup>
Day 3 Redemption	\$67.35 (\$19.44) <sup>a</sup>	\$69.04 (\$10.46) <sup>a</sup>

Notes: Contrast effects are denoted by superscript letters and asterisks. Means in the same condition (column) that share a letter are insignificantly different from each other at  $p = .05$ . Means in the same row that contain asterisks are statistically different at  $p = .05$ .

significant three-way interaction ( $F(1, 119) = 6.58, p = .01$ , partial  $\eta^2 = 0.05$ ).

Results of this model suggest that participants only felt that the three days’ ski access was different in cost from one another when participants imagined using discounted credit and had low credit depletion certainty ( $F(1, 33) = 17.07; p < .001$ , partial  $\eta^2 = 0.34$ ) but not in any other condition ( $ps > 0.10$ ). For example, examining those who were using discounted credit, we see that participants with high depletion certainty felt that Day 1’s ski access costed \$74.50 on average (Day 3 = \$64.67) while participants with low depletion certainty felt that Day 1’s ski access costed \$87.65 on average (Day 3 = \$43.68), a significant difference ( $p < .05$ ).

Study 2 replicates the main effect results of Study 1. Disproportionate redemption discounting occurs when people redeem discounted credit; the effect does not hold when people redeem undiscounted credit. In addition, Study 2 finds that discounted credit users who are less certain that they can fully deplete their credit are more susceptible to disproportionate redemption discounting, supporting H<sub>2</sub>. We argue that this low credit depletion certainty is more reflective of real life than high credit depletion certainty, as consumers are aware that many gift cards and store-credits are never fully depleted (Pechmann & Silk, 2013).

5. Study 3

In Study 3, we test a context in which discounted credit sellers can help consumers discount their discounted credit redemptions more proportionately. We propose that when sellers frame discounted credit savings in percentages, consumers may feel more inclined to consider all redemptions as discounted by that percentage. This is because, when discounted credit savings are framed in dollars, a consumer may feel the need to personally decide how much discount to assign to each redemption. If, instead, these savings are framed solely as a percentage, consumers may use that percentage as an anchor or a guide. They can apply that already-provided percentage across all redemptions, which allows them to perceive each redemption as equally discounted.

5.1. Method

Participants were 181 undergraduate students from a large U.S. public university (men = 55.2%, median age = 19 years) who completed the survey for course credit. The study scenario was a local furniture advertising selling discounted credit. The participants were randomly assigned to the dollar (i.e., “Imagine that you took advantage of this promotion and got a \$120 gift card for \$60. This means that you can save

up to \$60 on furniture in this store”) or percentage (i.e., “Imagine that you took advantage of this promotion and got a \$120 gift card at 50%. This means that you can save up to 50% off on furniture in this store”) condition. In this study, we also controlled for stimulus selection and calculation difficulty by running multiple versions of this stimulus, which varied the discount size of this \$120 gift card (e.g., “\$120 gift card for \$90”/ “\$120 gift card at 25% off”).

Next, all participants read about making three \$40 redemptions at this furniture store; they indicated their perceived cost of each purchase (open-ended responses). Finally, we gathered measures of credit depletion certainty at different redemption occasions, asking “How confident are you that you will deplete the remainder of your gift card in future visits?” and “How certain are you that you will use the entirety of your gift card that you prepaid for?” on 1 (“not at all”) to 9 (“extremely”) scales ( $\alpha = 0.92$ ) after they read about Redemption 1.

## 5.2. Results and discussion

We ran a 2 (discount frame: dollars, percentage)  $\times$  3 (redemption occasion: 1, 2, 3) mixed-subjects ANOVA on perceived cost of redemption and found a significant interaction effect;  $F(1, 178) = 4.15, p < .05$ , partial  $\eta^2 = 0.02$ . To describe this interaction, participants felt that Redemption 3 was \$7.98 less expensive than Redemption 1 and \$3.99 less expensive than Redemption 2 when the discounted credit’s discount was framed in dollars. In contrast, these differences shrank when the discount is framed in percentages (Redemption 1 – Redemption 3 = \$1.27; Redemption 2 – Redemption 3 = -\$0.90).

A one factor ANOVA (discount frame: dollar, percentage) on credit depletion certainty revealed that discount frame did not statistically impact credit depletion certainty ( $M_{\text{percentage}} = 6.64, SD = 1.98; M_{\text{dollars}} = 7.04, SD = 2.04; F(1, 180) = 1.76, p > .10$ , partial  $\eta^2 = 0.01$ ). Together, these results suggest that whether sellers frame discounted credit as dollars off or percentages off face value does not affect participants’ certainty of depletion judgments but these framing differences do impact disproportionate redemption discounting tendencies.

Study 3 reveals that participants who see a discounted credit savings framed as a percentage are more likely to evenly discount their redemptions than participants who see them framed as dollars. The percentage frame likely reduces consumers’ need to personally choose how to divide and allocate these savings; instead, the percentage serves as a constant predetermined amount of savings to anchor on and apply to every redemption’s account. Study 3 thus reveals a tactic that sellers can use to attenuate buyers’ disproportionate redemption discounting effect, supporting H4.

## 6. Study 4

Up to this point, the studies primarily focused on consumers’ mental accounting of discounted credit. The primary dependent variable of interest was the psychological construct of “perceived cost” of redemptions. We found that downstream redemptions feel less costly or more discounted than upstream redemptions. In Study 4, we test if discounted credit users consequently have higher willingness to pay during downstream versus upstream redemptions.

### 6.1. Method

Participants were 262 undergraduate students (males = 61.8%; median age = 20) from a large public university in the United States. Participants imagined prepaying for a \$50 face value credit to Grubhub, a restaurant-food delivery platform. Participants were randomly assigned to one of two conditions. Those in the “discounted credit” condition versus “undiscounted credit” condition imagined paying \$25 versus \$50 respectively for this \$50 credit. Next, participants were randomly assigned to one of two redemption occasion conditions. Those in the upstream redemption condition imagined that they have the full

\$50 left on their credit balance to redeem for benefits. Those in the downstream redemption condition imagined that they have used up half of their credit already, leaving them with \$25 left on their credit balance to redeem for benefits.

Participants next examined a restaurant menu and were told to indicate the item from this menu they would most likely order for dinner. We indicated that participants can use their Grubhub credit to pay for all or a portion of their entrée redemption. The menu had entrees that ranged in price from \$8 to \$26. Participants were not forced to purchase any of the entrees if nothing on this menu appealed to them. In total, 8 participants in the undiscounted credit condition and 6 participants out of the 262 total participants did not choose any entrée, so we removed them from analyses. We note that keeping them in our analyses does not change the results of this study if we code their selected entrée choice as zero in price.

## 6.2. Results and discussion

We ran a 2 (credit type: discounted, undiscounted)  $\times$  2 (redemption occasion: upstream, downstream) between-subjects ANOVA on the price of the selected entrée (focal redemption) and found a significant interaction ( $F(1, 244) = 6.78, p < .01, \eta_p = .03$ ). For those in the undiscounted credit condition, redeeming an upstream versus a downstream redemption did not influence the average price of the chosen redemption ( $M_{\text{upstream}} = \$12.16, SD = \$4.51; M_{\text{downstream}} = \$11.17, SD = \$3.88; p > .10$ ); however, for those in the discounted credit condition, those making an upstream redemption chose a less expensive option ( $M = \$13.38, SD = \$5.56$ ) than those making a downstream redemption ( $M = \$15.56, SD = \$4.91$ );  $p < .05$ .

Results of this study suggest that the remaining balance on a discounted credit not only influences the perceived cost of the next redemption (as seen in Studies 1–3), but also willingness to pay for the next redemption. Even though all discounted credit consumers were purchasing an entrée with a \$50 gift card (bought at \$25), those with \$50 left on their card balance purchased a less expensive entrée when compared to those with \$25 left on their card balance. Thus, in this study, we find that discounted credit holders appear to have a higher willingness to upgrade to more expensive redemption choices as their credit balance diminishes, supporting H5.

## 7. General discussion

This article identifies that discounted credit users do not necessarily perceive all redemptions made with a single discounted credit as equally discounted. In Study 1, we find the basic effect of disproportionate redemption discounting; discounted credit users feel that upstream redemptions are less discounted than downstream redemptions. This effect does not hold when people redeem undiscounted credit. Study 2 identifies credit depletion certainty as a moderator; discounted credit users who are certain that their credit will be depleted in the future are less likely to unevenly discount their redemptions. Study 3 finds that the disproportionate redemption discounting effect is mitigated when the discounted credit is framed solely in percentage terms at point of sale. Study 4 finds that redemption occasion (upstream vs. downstream) not only influences perceived cost but also influences users’ willingness to pay and redemption choice.

### 7.1. Contributions

This research advances work on price promotions. Despite a rich body of literature on price promotions in business research (Bogomolova, Szabo, & Kennedy, 2017; Chandrashekar & Grewal, 2006; Chu & Liao, 2010; Kuntner & Teichert, 2016), we know of no studies that specifically examine the “discounted credit” promotion. We begin to address this research gap by defining what discounted credit is and exploring how consumers using discounted credit make choices. Noting

the prevalence of discounted credit sales in various retail industries, our research informs readers about the unique psychology behind discounted credit redemptions as well as provides ideas on how businesses should frame and sell discounted credit.

This work also contributes to mental accounting theory. While previous literature on malleable mental accounting has only documented that individuals are capable of choosing under which mental account to allocate an ambiguous gain (Cheema & Soman, 2006), our research shows that individuals are also capable of mentally splitting one gain into pieces and dividing those pieces across multiple redemption accounts of their choosing. In addition, most existing malleable mental accounting literature documents how individuals are pleasure machines who capitalize on categorization ambiguity when mentally recording new gains and losses in order to maximize pleasure and bypass self-control (Cheema & Soman, 2006; Kivetz, 1999; Shafir & Thaler, 2006). We identify that disproportionate redemption discounting is one example in which malleable mental accounting facilitates self-control. Our results establish that consumers can use malleable mental accounting to express their uncertainty judgments and expectations of future loss, opting out of enjoying a discount prematurely.

## 7.2. Limitations

A major assumption this work makes is that discounted credit users are not evaluating all redemptions made with the same discounted credit as a bundle. In our experiments, we ask consumers how discounted or costly they perceive a redemption to be at “checkout time”, which leads redemptions’ perceived costs to be always evaluated in isolation from one another. While it is possible that certain discounted credit users will see redemptions made with a single discounted credit as a bundle instead of as separate components, we think that this possibility is unlikely, especially in the gift card context. Redemptions made with the same gift card often do not belong in the same product categories and might be temporally separated; they shouldn’t feel cognitively associated with one another to merit grouping together as a bundled cost.

## 7.3. Future research

As the first work to study the psychology of discounted credit, this work primarily focuses on examining the perceived costs users mentally assign to redemptions. However, discounted credit influences a range of other dependent variables beyond perceived costs.

Because consumers often derive quality, value, and utility inferences from costs (Lichtenstein & Burton, 1989; Zeithaml, 1988), future research can explore if there are differences in inferred quality across discounted credit redemptions. For example, a product purchased as an upstream redemption may feel undiscounted and high quality while that same product purchased as a downstream redemption may feel more discounted and low quality. On a related note, future research can determine whether discounted credit could be a viable price promotion to bypass the problem of reference price reduction, a common problem that many other types of price promotions face. For example, while a 20% discount on a product may cause consumers to devalue this product’s inherent worth, redeeming this product with a 20% off discounted credit may circumvent this outcome.

Another potential area in the discounted credit domain that merits future research is exploring the range of different consumer emotions that might accompany buying and spending discounted credit. Specifically, consumers may feel increasing relief as they get closer to credit depletion. However, discounted credit users may also experience varying levels of fear of never depleting their credit to its maximum potential across redemption occasions. Finally, people might also feel post-purchase regret if they are eager to deplete their store credit yet don’t actually like the redemption options at that store. We note that these predicted emotional responses of using discounted credit might also

generalize to all prepaid credit.

A related variable to explore in the future could be the pain of payment discounted credit users feel during redemptions. It is possible that perceived costs and pain of payment for redemptions are highly correlated as lower cost may yield lower pain. It is also possible that pain of payment for redemptions are uniformly low when people redeem discounted credit because spending credit is known to instill lower pain than spending cash (Raghubir & Srivastava, 2008) and users might feel only pleasure as they redeem their discounted credit for benefits. Pain of payment may also be a predictor of related downstream choices. For example, lower pain of paying might give discounted credit users license to spend their credit on hedonic redemptions instead of utilitarian redemptions (Kivetz, 1999; O’Curry & Strahilevitz, 2001).

## 8. Conclusion

Consumers who pay for multiple purchases using a single discounted credit do not necessarily mentally consider each redemption as equally discounted. On average, discounted credit users more heavily mentally discount redemptions when they are closer to depleting discounted credit. This effect primarily occurs because discounted credit lends itself well to users mentally altering redemptions’ perceived costs. Varying redemptions’ cost perceptions is related to differences choices, making disproportionate redemption discounting and spending discounted credit important ideas to understand.

## References

- Arkes, H. R., & Blumer, C. (1985). The psychology of sunk cost. *Organizational Behavior and Human Decision Processes*, 35(1), 124–140.
- Berger, J., Draganska, M., & Simonson, I. (2007). The influence of product variety on brand perception and choice. *Marketing Science*, 26(4), 460–472.
- Bogomolova, S., Szabo, M., & Kennedy, R. (2017). Retailers’ and manufacturers’ price-promotion decisions: Intuitive or evidence-based? *Journal of Business Research*, 76 (July), 189–200.
- Cardcash (2018). On why people buy gift cards for themselves. Blackhawk Network 2018 Spring Summit Research. <https://www.cardcash.com/gift-card-statistics/>.
- Chandrashekar, R., & Grewal, D. (2006). Anchoring effects of advertised reference price and sale price: The moderating role of saving presentation format. *Journal of Business Research*, 59(10–11), 1063–1071.
- Cheema, A., & Soman, D. (2006). Malleable mental accounting: The effect of flexibility on the justification of attractive spending and consumption decisions. *Journal of Consumer Psychology*, 16(1), 33–44.
- Chen, Y., Moorthy, S., & Zhang, Z. J. (2005). Research note—price discrimination after the purchase: Rebates as state-dependent discounts. *Management Science*, 51(7), 1131–1140.
- Cheng, A., & Cryder, C. (2018). Double mental discounting: When a single price promotion feels twice as nice. *Journal of Marketing Research*, 55(2), 226–238.
- Choi, J. J., Laibson, D., & Madrian, B. C. (2009). Mental accounting in portfolio choice: Evidence from a flypaper effect. *American Economic Review*, 99(5), 2085–2095.
- Chu, H., & Liao, S. (2010). Buying while expecting to sell: The economic psychology of online resale. *Journal of Business Research*, 63(9–10), 1073–1078.
- Cohen, J. B., & Basu, K. (1987). Alternative models of categorization: Toward a contingent processing framework. *Journal of Consumer Research*, 13(4), 455–472.
- Consumer Union (2006). Consumer reports: Holiday shopping poll reveals how Americans plan to shop for the 2006 holidays. Consumer Reports. <https://tinyurl.com/yc4sbhg8>.
- Darke, P. R., & Chung, C. M. (2005). Effects of pricing and promotion on consumer perceptions: It depends on how you frame it. *Journal of Retailing*, 81(1), 35–47.
- Data, First (2018). Prepaid consumer insights study. *Fiserv*.
- Diamond, W. D., & Campbell, L. (1989). The framing of sales promotions: Effects on reference price change. In Thomas K. Srull (Ed.), *NA - Advances in Consumer Research* (Vol. 16, pp. 241–247).
- Drèze, X., & Nunes, J. C. (2004). Using combined-currency prices to lower consumers’ perceived cost. *Journal of Marketing Research*, 41(1), 59–72.
- Edelman, B., Jaffe, S., & Kominers, S. D. (2016). To group or not to group: The profitability of deep discounts. *Marketing Letters*, 27(1), 39–53.
- Ellsberg, D. (1961). Risk, ambiguity and the savage axioms. *The Quarterly Journal of Economics*, 75(4), 643–669.
- Garretson, J. A., & Burton, S. (2003). Highly coupon and sale prone consumers: Benefits beyond price savings. *Journal of Advertising Research*, 43(2), 162–172.
- González, E. M., Esteva, E., Roggeveen, A. L., & Grewal, D. (2016). Amount off versus percentage off—when does it matter? *Journal of Business Research*, 69(3), 1022–1027.
- Gourville, J. T., & Soman, D. (1998). Payment depreciation: The behavioral effects of temporally separating payments from consumption. *Journal of Consumer Research*, 25 (2), 160–174.

- Groenfeldt, T. (2014). Prepaid cards to hit \$200 billion in merchant sales in 2014. *Forbes*. <https://tinyurl.com/y9pb26et>.
- Gunasti, K., & Baskin, E. (2018). Is a \$200 nordstrom gift card worth more or less than a \$200 gap gift card? The asymmetric valuations of luxury gift cards. *Journal of Retailing*, 94(4), 380–392.
- Heath, C., & Soll, J. B. (1996). Mental budgeting and consumer decisions. *Journal of Consumer Research*, 23(1), 40–52.
- Henderson, P. W., & Peterson, R. A. (1992). Mental accounting and categorization. *Organizational Behavior and Human Decision Processes*, 51(1), 92–117.
- Horne, J. (2007). The four 'knowns' of sports mega-events. *Leisure Studies*, 26(1), 81–96.
- Hsee, C. K. (1996). The evaluability hypothesis: An explanation for preference reversals between joint and separate evaluations of alternatives. *Organizational Behavior and Human Decision Processes*, 67(3), 247–257.
- Imas, A. (2016). The realization effect: Risk-taking after realized versus paper losses. *American Economic Review*, 106(8), 2086–2109.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1986). Fairness and the Assumptions of Economics. *Journal of Business*, 59(4), 285–300.
- Khouja, M., Pan, J., Ratchford, B. T., & Zhou, J. (2011). Analysis of free gift card program effectiveness. *Journal of Retailing*, 87(4), 444–461.
- Kivetz, R. (1999). Advances in research on mental accounting and reason-based choice. *Marketing Letters*, 10(3), 249–266.
- Krishna, A., Briesch, R., Lehmann, D. R., & Yuan, H. (2002). A meta-analysis of the impact of price presentation on perceived savings. *Journal of Retailing*, 78(2), 101–118.
- Kuntner, T., & Teichert, T. (2016). The scope of price promotion research: An informetric study. *Journal of Business Research*, 69(8), 2687–2696.
- Lichtenstein, D. R., & Burton, S. (1989). The relationship between perceived and objective price-quality. *Journal of Marketing Research*, 26(4), 429–443.
- Mela, C. F., Gupta, S., & Lehmann, D. R. (1997). The long-term impact of promotion and advertising on consumer brand choice. *Journal of Marketing Research*, 34(2), 248–261.
- National Retail Federation (2019). Half of holiday shoppers have already started. <https://nrf.com/media-center/press-releases/half-holiday-shoppers-have-already-started>.
- Novemsky, N., & Kahneman, D. (2005). The boundaries of loss aversion. *Journal of Marketing Research*, 42(2), 119–128.
- O'Curry, S., & Strahilevitz, M. (2001). Probability and mode of acquisition effects on choices between hedonic and utilitarian options. *Marketing Letters*, 12(1), 37–49.
- Offenberg, J. P. (2007). Markets: Gift cards. *Journal of Economic Perspectives*, 21(2), 227–238.
- Pechmann, C., & Silk, T. (2013). Policy and research related to consumer rebates: A comprehensive review. *Journal of Public Policy & Marketing*, 32(2), 255–270.
- Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, 17(1), 4–28.
- Price, E. (2018). Use target's 10% off gift card promotion today to buy stuff for you. *Lifehacker*. <https://tinyurl.com/y9jtdhnd>.
- Rabin, M., & Thaler, R. H. (2001). Anomalies: Risk aversion. *The Journal of Economic Perspectives*, 15(1), 219–232.
- Raghubir, P., & Srivastava, J. (2008). Monopoly money: The effect of payment coupling and form on spending behavior. *Journal of Experimental Psychology: Applied*, 14(3), 213.
- Rainwater, L., Coleman, R. P., & Handel, G. (1959). Workingman's Wife: Her Personality. *World and Life Style*, 581–622.
- Raise (2021). About Raise. <https://www.raise.com/press>.
- Read, D., Loewenstein, G., Rabin, M., Keren, G., & Laibson, D. (1999). Choice bracketing. *Journal of Risk and Uncertainty*, 19(13), 171–197.
- Shafir, E., & Thaler, R. H. (2006). Invest now, drink later, spend never: On the mental accounting of delayed consumption. *Journal of Economic Psychology*, 27(5), 694–712.
- Soman, D., & Gourville, J. T. (2001). Transaction decoupling: How price bundling affects the decision to consume. *Journal of Marketing Research*, 38(1), 30–44.
- Thaler, R. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior & Organization*, 1(1), 39–60.
- Thaler, R. (1983). Transaction utility theory. In Richard P. Bagozzi, & Alice M. Tybout (Eds.), *NA - Advances in Consumer Research* (Vol. 10, pp. 229–232). Ann Arbor, MI: Association for Consumer Research.
- Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, 4(3), 199–214.
- Thaler, R. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, 12(3), 183.
- Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5(4), 297–323.
- Vana, P., Lambrecht, A., & Bertini, M. (2018). Cashback is cash forward: Delaying a discount to entice future spending. *Journal of Marketing Research*, 55(6), 852–868.
- Winer, R. S. (1986). A reference price model of brand choice for frequently purchased products. *Journal of Consumer Research*, 13(2), 250–256.
- Xie, J., & Shugan, S. M. (2001). Electronic tickets, smart cards, and online prepayments: When and how to advance sell. *Marketing Science*, 20(3), 219–243.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2–22.

**Dr. Andong Cheng** is an assistant professor of business administration at the University of Delaware. Her research focuses on mental accounting, financial decision making, and consumer personalities. Her work has been published in journals such as the *Journal of Marketing Research*, *Journal of Consumer Psychology*, and *Journal of Retailing*.

**Dr. Ernest Baskin** is an assistant professor of food marketing and Gerald Peck Fellow at Saint Joseph's University. His research focuses on consumer judgment and decision making with a particular interest in consumption decisions as well as consumer biases and context effects using experimental methodology and survey design. His work has been published in journals such as the *Journal of Consumer Research*, the *Journal of Marketing Research*, *Journal of Consumer Psychology*, *Appetite*, *European Journal of Marketing* and the *Journal of Business Research*.