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Bought but never used: How and when unused utility reduces subsequent spending

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Abstract

Consumers often buy products that they later do not use. How does failing to use purchased products affect subsequent spending? Six experiments demonstrate that when consumers do not use their purchased products, it decreases their subsequent discretionary spending across product categories due to an aversion to wasted money. We find that this effect is driven primarily by perceived money waste and not product waste. Consequently, the effect persists even when consumers avoid product waste, such as by donating their unused products, but is mitigated when they avoid money waste, such as when their unused products are freely acquired. We also find that failing to use products decreases discretionary spending only when consumers perceive the failure as a temporary setback on their goal to avoid waste but not as an unredeemable goal failure. Moreover, the effect is unique to perceived waste and does not generalize to other forms of financial mismanagement, such as excess spending beyond one's budget. Overall, our research builds a psychological understanding of how consumers think about unused utility and when and why it leads to a future reduction in consumption and spending.

KEYWORDS

discretionary spending, financial decision-making, mental accounting, unused utility, waste, waste aversion

1 | INTRODUCTION

Julie likes shopping for shoes, but when she thinks back on her purchases, she realizes that on several occasions, she has bought shoes that she never used. Indeed, Julie's closet has numerous items that have been lying unused for years. How might this realization affect Julie's subsequent spending? On the one hand, Julie might feel discouraged or helpless to avoid waste and therefore continue spending frivolously. On the other, confronting her own wastefulness might motivate Julie to try harder to cut back on wasteful spending in the future. In the present research, we address these questions empirically.

As the above anecdote illustrates, people generally like to shop. The mere acts of shopping, spending, and buying are emotionally rewarding to many consumers beyond the utility of any products purchased (Babin et al., 1994; Nataraajan & Goff, 1992). As a result, consumers often buy products they later fail to use. The resulting state of unused utility is generally considered unpleasant (Bolton & Alba, 2012; Okada, 2001; Sun & Trudel, 2017) because it conflicts with a normative goal of avoiding waste (Arkes & Blumer, 1985;

Arkes, 1996). How does such waste affect consumers' subsequent discretionary spending and consumption?

The literature does not offer a clear answer. Research on product waste examines how it affects subsequent consumption of the same product or a product substitute (Arkes, 1996; Bolton & Alba, 2012; Catlin & Wang, 2013; Cripps & Meyer, 1994; Okada, 2001; Sun & Trudel, 2017), but not how waste affects consumption and spending in general. However, the research on related constructs, such as budgeting and overspending (Heath & Soll, 1996; Soman & Cheema, 2004; Soman & Lam, 2002), offers some clues. A review of this literature suggests competing predictions regarding how prior waste might influence future consumption, conceptualized more specifically here as discretionary spending. On the one hand, reminding consumers of prior wastefulness might be a discouraging signal of goal failure, thereby impeding goal progress (Bandura & Cervone, 1983) and failing to reduce later spending. On the other hand, such a reminder might cue a stronger sense of waste aversion (Bolton & Alba, 2012), encouraging consumers to course-correct toward achieving a waste-reduction goal (Carver & Scheier, 1990; Carver, 1979) and spend less at the next opportunity.

In the present research, we propose and show that the latter (vs. former) outcome of an unused utility reminder is more likely to occur. Our theorizing suggests that this occurs because consumers, by default, may view waste reduction as a graded (rather than a binary or "all-or-nothing") goal.

Consistent with the applied psychology literature (e.g., Hennecke & Freund, 2014), we define a graded goal as one in which incremental progress toward an endpoint may be seen in itself as a partial success. In contrast, a binary goal is one in which incremental progress is seen as meaningless unless the endpoint is reached. For instance, trying to run more miles, walk more steps, or get a better grade on an exam are graded goals on which partial progress improves the outcome. On the other hand, finishing a marathon, completing a fitness challenge, or passing an exam (e.g., the bar) are binary goals on which partial progress does not improve the outcome.

Consistent with the literature (e.g., Bagozzi & Dabholkar, 1994), we suggest that consumers typically do not view a waste reduction goal as binary, having fixed endpoints (e.g., limiting waste to less than two clothing items this year) but rather as graded (e.g., limiting waste to as little as possible this year) with incremental measures of progress. Hence we predict that a reminder of prior wastefulness (e.g., a reminder that one has already wasted three clothing items this year) does not inherently suggest a complete and unredeemable goal failure as would be the case with it being framed as a binary goal (e.g., a goal to waste fewer than two items), but rather a setback that can be overcome through course-corrective action, such as the subsequent reduction in spending and waste. Our studies further support this prediction by showing that the negative effect of unused utility on spending is attenuated when consumers are primed to think of waste reduction as a binary (or an "all-or-nothing") goal. This is consistent with prior literature that argues that failing to restrict spending can increase subsequent spending when the goal to restrict spending as viewed as binary (Soman & Cheema, 2004).

Furthermore, we also distinguish between the effects of wasting products and overspending beyond one's budget (Heath & Soll, 1996; Soman & Lam, 2002). While prior work on overspending has typically shown that greater spending in a product category reduces consumers' subsequent spending in the same category, we argue that the effects of waste are more general and observed across product categories. Hence, wasting a product not only reduces consumption and spending in the same product category but also in unrelated categories. Relatedly, our findings highlight a novel application that can benefit consumers—"waste tracking." Currently, many consumers track their budgets and spending (but not waste) on mobile or online platforms, such as Mint, EveryDollar, or Empower. Conversely, businesses routinely track their waste to optimize their resource use, yet tracking waste is atypical among consumers. We show that tracking waste (rather than tracking spending) can encourage consumers to reduce their discretionary spending and avoid waste.

In the remainder of this manuscript, we review several literatures around unused utility, waste aversion, and goal pursuit (summarized in Table 1), leading to a series of predictions regarding how and when unused utility influences later spending. We then present six experiments that converge to support our hypotheses, showing that (1) reminders of unused utility reduce subsequent spending because (2) these reminders motivate consumers to improve their progress toward a waste reduction goal unless (3) the goal is framed as binary. Our findings help to build a psychological understanding of how consumers think about unused utility and why it leads to a future reduction in spending. In so doing, our research also addresses theoretical tension present in the goal literature, using goal type as a related mechanism to explain the effects of unused utility.

2 | DURABLE PRODUCTS AND UNUSED UTILITY

Most consumer products are "durables," meaning that they may be used several times during their lifetime. Many of the benefits from durable products are realized during consumption, which is temporally separated from when they are purchased (Gourville & Soman, 1998). From a behavioral economic perspective, consumers should be motivated to use durable products sufficiently to perceive that they avoided wasting money (Arkes, 1996; Arkes & Blumer, 1985) and that the price they paid was justified (Brockner, 1992; Staw, 1976). Consequently, consumers must track their usage on a mental account to reconcile their temporally delayed benefits with the cost they paid (Gourville & Soman, 1998; Okada, 2001; Soster et al., 2010). As the product gets used, the initial payment gets canceled (Gourville & Soman, 1998; Thaler, 1985), and the product is amortized, such that its mental book value—consumers' perception of the products' remaining utility—declines (Okada, 2001). Hence, at any point during a product's lifetime, consumers can estimate the mental book value of the product, which is the value they attribute to its remaining life, or utility, at that time

TABLE 1 Overview of selected empirical findings on waste aversion.

Article	Topic examined	Description of key findings	Effect of waste on subsequent wasteful resource spending
Arkes and Blumer (1985)	Waste Aversion	Waste aversion increases the sunk cost effect - the tendency to continue an endeavor once an investment in money, effort, or time has been made.	Mixed effects
Arkes (1996)	Waste Aversion	Consumers often forgo economically attractive opportunities to avoid waste.	
Ross et al. (2021)	Waste Aversion and downsizing	To minimize the losses and waste associated with disposal, consumers high in waste aversion are likely to retain items, rather than downsize, from an ordered (vs. disordered) set.	
Bolton and Alba (2012)	Waste Aversion	Consumers are averse to wasting unused utility, especially when forward-thinking or when resources are scarce.	Decreases wasteful resource spending
van Herpen and De Hooge (2019)	Waste Aversion	Wasting products with unused utility leads to discomfort and lowers product and brand attitudes, especially when the brands are visible at the time of waste.	
Cripps and Meyer (1994)	Waste aversion and product replacement	Waste aversion makes consumers more likely to delay product replacement and neglect the opportunity costs arising from deteriorating product performance.	
Okada (2001)	Waste aversion and product replacement	Waste aversion increases consumers' likelihood to replace durable products that have not been fully amortized (i.e., depreciated) by trading them in rather than buying a replacement product on sale, despite them offering an equivalent cash incentive.	
Tang et al. (2022)	Scarcity and waste	Reminding consumers of a scarcity experience induces them to be more selfishly oriented and to experience less anticipated guilt of waste, thereby increasing their usage amount.	
Sun and Trudel (2017)	Recycling and waste	Positive emotions associated with recycling overpower the negative emotions associated with wasting. Thus, consumers use larger amounts of resources when recycling is an option.	Increases wasteful resource spending
Catlin and Wang (2013)	Recycling and waste	Recycling leads to increased resource usage. For instance, restroom paper hand towel usage increases after introducing a recycling bin.	
Ma et al. (2019)	Recycling and waste	Engaging in recycling leads individuals to use significantly more resources in the future. Increased environmental self-identity and feelings of pride explain this effect.	
Soman and Cheema (2004)	Overspending money	Spending more than a budget increases consumers' subsequent discretionary spending.	

(Okada, 2001). For example, the mental book value of a product bought for $10 might be perceived to be $5 or less when the consumer has used it roughly half as many times as it is meant to be used over its lifetime. Perceived utility therefore declines until it is completely exhausted, at which time consumers retire their durable products (Okada, 2001).

However, consumers often fail to use durable products sufficiently to completely amortize the costs of acquiring them. In such situations, the product's utility remains at least partially "unused" in the sense that its mental book value never reaches zero (Okada, 2001). This leads to an aversive state of unused or wasted product utility (Gourville & Soman, 1998; Okada, 2001). Current research has not yet examined perceived waste's impact on consumers' subsequent discretionary spending behavior. However, extant research on related constructs, such as overspending and budgeting, offers some insights.

Interestingly, the literature has shown conflicting outcomes. Several studies suggest that constructs related to perceived waste, such as overspending, may lead consumers to restrict their subsequent discretionary consumption and spending (Heath & Soll, 1996; Soman & Lam, 2002). Conversely, other research shows a "what-the-hell effect" whereby consumers continue to spend without restraint following perceived overspending (Soman & Cheema, 2004; Soster et al., 2010). Based on these findings, perceived waste may or may not decrease subsequent spending. To reconcile this theoretical tension, we identify the psychological impact of perceived product

waste on goal pursuit and motivation and how they affect subsequent behavior.

3 | WASTE AVERSION AND GOAL PURSUIT

Because consumers have finite monetary resources, they seek to use them as efficiently as possible (Fernbach et al., 2015). This desire for monetary efficiency manifests in many ways. For instance, it encourages consumers to pursue discounts to get more utility for each dollar spent (Koley et al., 2016; Fernbach et al., 2015; Lichtenstein et al., 1990; Thaler, 1985). It also encourages consumers to avoid wasting products they've already purchased (Bolton & Alba, 2012; Coulter & Ligas, 2003; Gourville & Soman, 1998; Lastovicka et al., 1999; Okada, 2001). Therefore, when consumers fail to use purchased products, especially durables, a waste-avoidance goal is violated.

Goal violations or setbacks can have contrasting effects on subsequent goal-related behavior. In some cases, a setback on a goal might motivate consumers to work harder on goal achievement to get back on track (Cannon et al., 2019; Carver & Scheier, 1990, 2004). For example, after doing poorly on the midterm, a student may work harder than usual for the rest of the term to improve her grade. Similarly, in a consumption context, consumers on a strict budget would restrict subsequent spending after making a larger-than-normal purchase (Heath & Soll, 1996). In other circumstances, consumers may disengage from their goal after experiencing a setback, such as forgoing spending restraint after failing to stick to a budget (Soman & Cheema, 2004).

We propose that a key determinant of which response consumers will pursue is the way in which the goal is framed. Specifically, when consumers view a goal as binary (i.e., "all-or-nothing"), a setback may be viewed as an abject and unredeemable failure (Heath et al., 1999; Soman & Cheema, 2004), therefore demotivating them from persisting (Bandura & Simon, 1977; Bandura, 1986). That is, a sense that one has completely failed a goal leads to a performance deterioration on the goal (i.e., the what-the-hell effect; Cochran & Tesser, 1996; Soman & Cheema, 2004). In contrast, goals can also be framed as having graded outcomes, such that performance is delineated on a spectrum. Incremental improvements count towards better performance, so consumers are motivated to try to do better on graded goals following a setback (Soman & Cheema, 2004).

We argue that depending on how consumers frame the goal of avoiding waste, unused utility may either increase or decrease consumers' willingness to limit their subsequent discretionary spending. By default, we propose that a waste-avoidance goal is likely to be viewed as graded. This is because consumers usually are not good forward planners (Cripps & Meyer, 1994) and, as an example, often neglect opportunity costs (Frederick et al., 2009; Spiller, 2011), which leads to a tendency to overbuy when presented with small sales or discounts (Fernbach et al., 2015; Thaler, 1980). Furthermore, while making a purchase, consumers typically do not consider precisely how often (Friedman & Dhar, 2019; Goodman & Irmak, 2013; Mittelman et al., 2020) or for how long (Sun et al., 2021) they plan use their durable products. Thus, consumers typically do not have a fixed reference point regarding whether their waste-avoidance efforts count as a goal failure or success (Arkes & Blumer, 1985; Bolton & Alba, 2012), making it less likely that a waste-avoidance goal will be viewed as binary. For example, consumers are not likely to plan how many times they must use their products to amortize them fully or how many maximum products they can waste every year or month (Arkes & Blumer, 1985; Bolton & Alba, 2012). As a result, they're more likely to view the waste avoidance goal as graded and perceive product waste as a setback rather than a failure of the goal. As the goal literature suggests (Soman & Cheema, 2004), when a setback on a graded goal does occur, consumers will try to improve their performance on the waste avoidance goal because it still seems attainable, thereby cuing persistence. Therefore, at baseline, we predict the following:

H1 A reminder of unused (vs. used) utility will have a negative effect on subsequent discretionary spending.

H2 The negative effect of unused (vs. used) utility on subsequent spending will be attenuated when the waste-avoidance goal is framed as binary (vs. graded).

4 | PRODUCT WASTE VERSUS MONEY WASTE

Adding further nuance, we argue that the unused utility effect on spending is driven primarily by an aversion to wasting money rather than wasting products per se. When consumers fail to use their purchased products, they violate at least two goals: avoiding wasting money and consuming sustainably (Guillard, 2018; Webb et al., 2008). However, because most consumers have limited monetary resources (Shah et al., 2015), avoiding money waste should outweigh the desire to consume sustainably (Deloitte, 2022). Consequently, while both money and product waste could potentially increase subsequent waste aversion and reduce spending, we suggest that the effect of unused utility will be more strongly driven by perceived money waste than product waste, in contrast to prior literature (Bolton & Alba, 2012).

If our theorizing is correct, even if consumers ultimately donate their unused products (thereby minimizing product waste; Guillard, 2018), the thought of unused utility should still reduce their subsequent discretionary spending because the aversion to money waste remains. Our prediction contrasts with previous research on the licensing effect (Khan & Dhar, 2006) and recycling (Bolton et al., 2006; Catlin & Wang, 2013; Sun & Trudel, 2017), which argue that good behaviors like recycling or donating should license consumers to forgo restraint. We test this possibility as a means of showing the generalizability of the core negative effect of unused

utility on spending (H1) while suggesting that, as we theorized, the effect is due primarily to an aversion to monetary (rather than material) waste. Conversely, when consumers perceive product waste without money waste, such as when they fail to use products they acquired for free, we expect an attenuated effect of unused utility on spending. Formally, we hypothesize an interaction between utility usage and the product's acquisition (paid vs. free) on subsequent spending:

H3 The negative effect of unused (vs. used) utility on subsequent spending will only emerge when consumers paid to acquire the products, but not when the unused products were acquired for free.

5 | UNRELATED CATEGORY SPENDING

As a final consideration, we propose that the negative effect of unused utility on spending is robust across product categories. This is because a waste-avoidance goal is likely to be represented abstractly enough in consumers' minds (Raghunathan et al., 2006) to affect not only subsequent spending in the product category in which waste occurred but across other unrelated categories as well. Our prediction is in contrast to mental budgeting findings suggesting that spending in a category (e.g., entertainment) reduces spending primarily on other products or services within the same category (Heath & Soll, 1996; Soman & Lam, 2002). As suggested by our theorizing, waste-avoidance goals are not tied to specific categories, and hence violating them affects spending across categories. We test this as an additional means of demonstrating the generalizability of our hypotheses.

6 | OVERVIEW OF THE STUDIES

We conducted six experiments to test our hypotheses and form a rigorous understanding of the effects of unused utility on consumption. Study 1 tested the hypothesized negative effect of unused utility on subsequent discretionary spending, whether that spending occurs in an unspecified domain (Study 1a; H1) or in a product category unrelated to the initial waste (Study 1b). Study 2 tested our more nuanced prediction that the effect on spending is due to an aversion to financial (vs. material) waste. Specifically, Study 2a shows that the effect of unused utility on spending is attenuated when consumers did not pay for the wasted product (H3), while Study 2b shows that the effect emerges whether or not the wasted product is ultimately donated (lending generalizability to H1). As a more direct test of our proposed goal-based mechanism (H2), Study 3 manipulates goal type and shows that the spending effect is attenuated when consumers' waste-reduction goal is framed as binary (vs. graded). Lastly, distinguishing waste from related constructs, such as excess spending, and demonstrating the practical importance of unused utility reminders, Study 4 shows that tracking prior waste (vs. excess spending) is more effective at curbing subsequent spending.

All studies utilized random assignment of participants to conditions in between-participants designs. To maximize internal validity, the same operationalization of spending—adapted from Durante and Laran (2016)—was employed across studies as the dependent variable. That is, after the initial stimuli presentation, participants were asked to imagine themselves in a neighborhood store with $100 in their wallet and to indicate how much they would spend at this store on an analog slider scale ranging from $0 to $100. To enhance external validity, a variety of product scenarios and situation descriptions were used across studies. Complete stimuli, measures, attention checks, participant exclusion criteria (e.g., missing data) and sample size criteria, and manipulation checks are presented in Supporting Information: Web Appendices A, B, C, D, and E, respectively.

7 | STUDY 1: USED VERSUS UNUSED PRODUCT

Across two samples, Study 1 tested the robustness of the core effect predicted by our theorizing: that a reminder of prior unused (vs. used) utility would decrease consumers' subsequent discretionary spending. Study 1a showed the basic effect without specifying the spending category, and Study 1b replicated the effect when spending was specified to be in a product category unrelated to the initial unused product. Regardless of product category, we predict that unused (vs. used) utility decreases consumers' desire to spend money.

7.1 | Study 1a

7.1.1 | Method

Participants were 221 US residents recruited from MTurk (M_{Age} = 41.66, SD = 12.57; 51.6% female) to participate in a two-cell (utility usage: used vs. unused) between-participants design. All participants were asked to imagine that they had bought a jacket worth $85 a couple of years ago. Participants in the unused (used) condition were further asked to imagine that they had barely used the jacket (got so much use out of the jacket that they had nearly worn it out) since buying it. To reinforce the manipulation, participants were asked to write a few sentences about how they would feel in this situation. Participants responded to the spending measure immediately after completing the writing task.

7.1.2 | Results/Discussion

A one-way ANOVA confirmed our prediction via a significant effect of utility usage on subsequent spending ($F(1, 219) = 8.86$, $p = 0.003$; $\eta_p^2 = 0.04$). As predicted, participants spent less money when

reminded of prior unused (M = \$22.79, SD = 2.19) versus used utility (M = \$32.09, SD = 2.22). This study therefore provides preliminary support for our hypothesis (H1) that unused utility reduces subsequent discretionary spending.

7.2 | Study 1b

7.2.1 | Method

The current study aimed to replicate study 1a among another sample of 298 US residents (M_{Age} = 40.57, SD = 13.44; 55.4% female) recruited from a different sampling frame (Connect). The procedure was similar to that of study 1a, with a few notable exceptions. First, participants began the study by indicating their favorite product category to shop for among eight possible choices excluding clothing (e.g., home goods, tech goods, shoes, art supplies, etc.). This was to be used later in framing the spending dependent variable. Second, for the utility usage manipulation, participants imagined that they had purchased four new clothing items worth \$200 (rather than a jacket for \$85, as in study 1a) a year ago. Those in the unused (used) condition imagined that they had barely used any of them (gotten a lot of use out of them) since buying them. Finally, in framing the spending measure, participants' choice of preferred nonclothing shopping category was piped in to ensure that (1) the spending context was personally relevant to participants and (2) the spending category was unrelated to the product category described in the utility usage manipulation (i.e., clothing). Otherwise, the procedure was identical to study 1a.

7.2.2 | Results/Discussion

As before, a one-way ANOVA confirmed our prediction via a significant effect of utility usage on subsequent spending ($F(1, 296) = 4.90$, $p = 0.03$; $\eta_p^2 = 0.02$). As before, participants spent less in an unrelated product category in the unused (M = \$39.03, SD = 2.09) versus used utility condition (M = \$45.59, SD = 2.10). These results replicate those of study 1a, showing that the negative effect of unused utility on spending is robust to product category.

8 | STUDY 2: MONEY WASTE VERSUS PRODUCT WASTE

Study 2, conducted across two samples, was designed to test our theorizing around aversion to money waste (rather than product waste) as the predominant driver of utility usage's effect on discretionary spending. In Study 2a, this was tested by also manipulating whether or not participants spent their own money to acquire the product that was used or unused. We expected that the effect would be attenuated when the product was acquired for free (received as a gift). Study 2b further tests this idea by showing that the effect on spending remains, even when participants minimize product waste by eventually donating the used/unused product.

8.1 | Study 2a

8.1.1 | Method

Participants were 515 US residents (M_{Age} = 39.89, SD = 12.63; 51.1% female) recruited from MTurk to participate in a 2 (utility usage: used vs. unused) × 2 (product acquisition: purchased vs. gift) between-participants experiment. To enhance personal relevance and engagement, participants were first asked to choose one out of 21 backpacks in a hypothetical shopping task. In the purchased condition, participants imagined that their they purchased their chosen backpack for \$80. Conversely, in the gift condition, participants imagined that they received their chosen backpack as free holiday gift from their employer.

Next, similar to prior studies, participants in the unused (used) utility imagined that they had barely used the backpack (had gotten a lot of use out of their backpack) since receiving it five years ago. As before, participants wrote one or two sentences about how they would feel in this scenario. The same subsequent spending measure as described in Study 1a was used here. (Figure 1).

8.1.2 | Results/Discussion

A 2 (utility usage) × 2 (product acquisition) factorial ANOVA further supported our predictions. As before, results revealed a marginally significant main effect of utility usage on subsequent spending ($F(1, 511) = 3.40$, $p = 0.07$, $\eta_p^2 = 0.01$) such that spending was lower in the unused (M = \$24.03, SD = 1.26) versus used utility condition (M = \$27.35, SD = 1.29). More importantly, the ANOVA revealed the expected two-way interaction between factors ($F(1, 511) = 3.76$, $p = 0.05$; $\eta_p^2 = 0.01$; see Figure 2). Specifically, when participants imagined paying for the backpack, subsequent spending was lower in the unused (M = \$23.26, SD = 1.72) versus used utility condition (M = \$30.08, SD = 1.87, $F(1, 511) = 7.20$, $p = 0.008$), replicating findings from our previous studies. Conversely, when participants imagined receiving the backpack as a gift, utility usage had no effect on subsequent spending. Specifically, subsequent spending was similar in the unused (M = \$24.80, SD = 1.85) versus used utility condition (M = \$24.63, SD = 1.87, $F(1, 511) < 0.01$, $p = 0.95$). Together, these findings support H3 and our more general theorizing around money rather than product waste aversion explaining the negative effect of unused utility on spending.

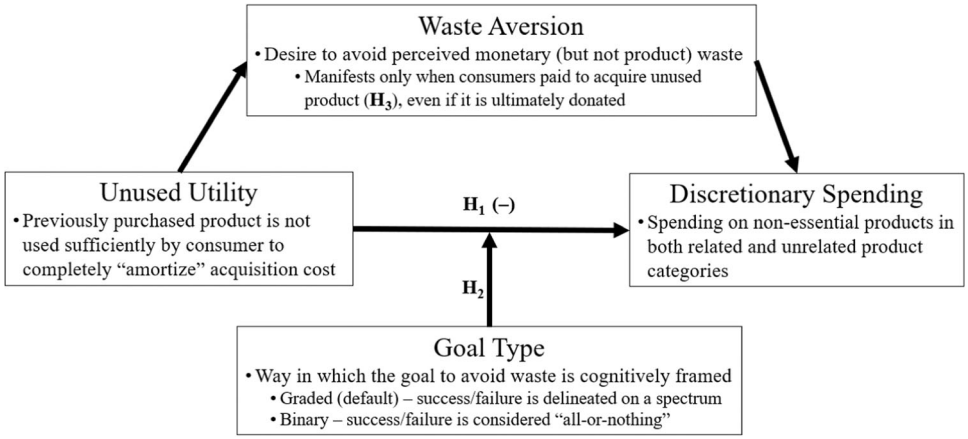

FIGURE 1 Conceptual Model and Hypotheses. Notes—waste aversion was not directly measured or manipulated, but aversion to monetary (vs. product) waste was assessed as a mechanism by manipulating proxy variables (whether or not the product was acquired as a gift in Study 2a and whether or not consumers imagined donating the product in Study 2b).

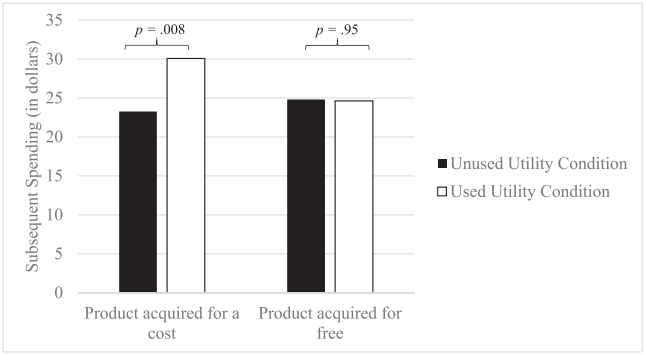

FIGURE 2 Study 2a: Utility usage × initial product acquisition interaction on subsequent spending.

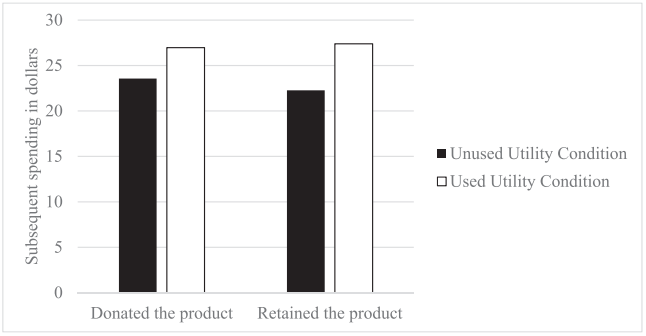

FIGURE 3 Study 2b: Effect of utility usage on spending when product is donated versus retained.

8.2 | Study 2b

8.2.1 | Method

Participants were 298 US residents (M_{Age} = 42.15, SD = 12.96; 50.3% female) recruited from MTurk to participate in a 2 (utility usage: used vs. unused) × 2 (product disposition: retain vs. donate) between-participants experiment. The utility usage manipulation was similar to that used in study 1a (i.e., jacket context). All participants imagined that they had bought a nice jacket worth $150 a couple of years ago. Participants in the unused (used) condition further imagined that they had barely used the jacket (got so much use out of the jacket that they had nearly worn it out) since buying it. In the donate condition, additional text was included asking participants to further imagine that they had decided to donate the jacket after reflecting on their usage. No additional text was included in the retain condition. Spending was then measured as in prior studies.

8.2.2 | Results/Discussion

A 2 (utility usage) × 2 (product disposition) factorial ANOVA lent further support to our hypotheses and theorizing. Utility usage had a marginally significant main effect on spending ($F(1, 294) = 2.79$, $p = 0.09$, $\eta_p^2 = 0.01$), such that participants indicated lower subsequent spending in the unused (M = $22.91, SD = 1.80) versus used utility condition (M = $27.18, SD = 1.81). No interaction was observed ($F(1, 294) = 0.11$, $p = 0.74$ see Figure 3), indicating that this effect occurred regardless of whether participants imagined keeping or donating the product. This further suggests that the core effect is driven by an aversion to money, not product waste.

9 | STUDY 3: GOAL TYPE

Study 3 tested our proposed goal-based mechanism (H2). Our studies thus far have shown that a reminder of unused (vs. used) utility has a robust, negative effect on subsequent discretionary spending because consumers are particularly averse to wasting money. As

specified in H2, we have further theorized that this waste aversion corresponds to a goal of avoiding waste, which is by default viewed by consumers as a graded (rather than binary) goal. In this study, we manipulate both utility usage and goal type as a more direct test of this hypothesis.

9.1 | Method

Participants were 693 US residents (M_{Age} = 41.20, SD = 12.25; 50.8% female) recruited from Connect to participate in a 2 (utility usage: used vs. unused) × 2 (goal type: graded vs. binary) between-participants experiment. To set up the goal manipulation, an initial scenario reminded participants that people often buy clothes that they later fail to wear, and in the graded (binary) condition, to imagine themselves setting a goal to buy fewer (no more than two) clothing items that they might fail to use after purchase. Participants were asked to write a few sentences about what this goal meant and why they would like to achieve it to reinforce the manipulation.

A second scenario was then presented to manipulate utility usage, similar to previous studies. Specifically, in the unused (used) utility condition, participants were asked to imagine that since setting their goal, they had purchased four new clothing items that they have barely used (gotten a lot of use out of) since purchasing them. In this way, the two manipulations worked together such that unused (used) utility represented an abject goal failure (success) in the binary condition, but merely a setback (mark of progress) in the graded condition. Subsequent spending was measured as before.

9.2 | Results/Discussion

A 2 (utility usage) × 2 (goal type) factorial ANOVA supported our hypotheses. We again observed a significant main effect of utility usage on spending (F = 12.51, p < 0.001, η_p^2 = 0.02), such that participants indicated lower spending in the unused (M = \$14.37, SD = 0.96) versus used utility condition (M = \$19.14, SD = 0.95). There was no main effect of goal type (F(1, 689) = 0.87, p = 0.35). More importantly, we observed the expected two-way interaction between factors (F(1, 689) = 4.28, p = 0.04, η_p^2 = 0.01; see Figure 4). In the graded goal condition, the effect of usage utility on spending was replicated such that spending was reduced in the unused (M = \$12.34, SD = 1.38) versus used utility condition (M = \$19.91, SD = 1.31, F(1, 689) = 15.77, p < 0.001). However, in the binary condition, spending was not different in the unused (M = \$16.39, SD = 1.33) versus used utility condition (M = \$18.37, SD = 1.38, (F(1, 689) = 1.07, p = 0.30). These findings therefore support a goal-based mechanism (H2). Because consumers by default see waste reduction as a graded goal, a reminder of unused utility is merely a setback that motivates goal progress through subsequent spending reduction. However, when waste reduction is framed as a binary goal, unused utility represents an unredeemable failure that serves no motivating function. Consequently, consumers disengage from the waste reduction goal.

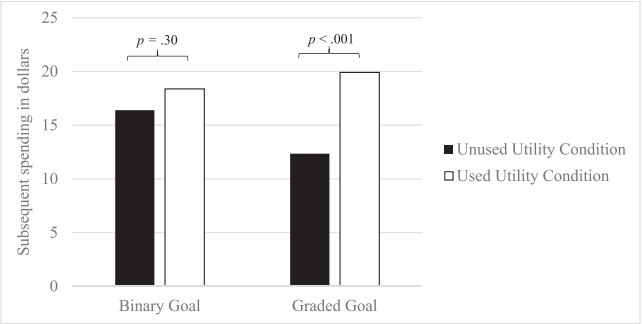

FIGURE 4 Study 3: Utility usage × goal type interaction on subsequent spending.

10 | STUDY 4: WASTE BUDGETING

The final experiment aims to distinguish our focal construct, waste, from a related construct—excess spending—and demonstrate the pragmatic importance of tracking one's waste (vs. excess spending). Existing budgeting tools help consumers track their spending but do not permit consumers to track their unused utility or waste. However while waste tracking is an unexplored avenue in the context of consumer finances, it is commonly practiced by consumers in the context of food waste, such as with apps like NoWaste and Kitche, and by businesses for managing their inventories. Hence, we propose that waste tracking may be a more effective means to helping consumers reduce subsequent spending in line with personal budget restrictions. This is because, as we have shown, unused utility triggers a powerful sense of waste aversion without discouraging consumers from pursuing a generally desirable waste-reduction goal. This study manipulates tracking as being focused on either waste or excess spending, using imagery meant to simulate a budgeting app. Goal progress is also manipulated to compare the effects of poor (vs. good) progress across budget frames.

10.1 | Method

Participants were 495 US residents (M_{Age} = 42.75, SD = 12.87; 54.3% female) recruited from Connect to participate in a 2 (goal progress: poor vs. good) × 2 (goal type: reducing waste vs. reducing excess spending) between-participants experiment. In the waste reduction goal (excess spending reduction goal) condition, an initial scenario asked participants to imagine that they have decided to track their waste (excess spending) for the next 8 months using a budgeting app to limit it.

Using imagery meant to simulate a typical budgeting app interface, goal progress was then manipulated. Participants saw an online tracker that indicated their waste or excess spending at 3 and

8 months. For the waste reduction goal, this was similar to our previous unused utility manipulations, showing in the poor (good) goal progress condition that participants wasted substantially more (only slightly more). For the excess spending reduction goal, the poor (good) goal progress condition described a substantial (slight) excess of spending. Specifically, for waste reduction, participants in the poor (good) progress condition saw a tracker that indicated they had wasted $60 ($10) worth of products in 3 months and $150 ($30) worth of products in 8 months. For excess spending reduction, participants in the poor (good) progress condition saw they had spent $60 ($10) in 3 months and $150 ($30) in 8 months in excess of their budget. As before, participants were asked to write a few sentences about how they would feel in this scenario to reinforce the manipulations. The dependent variable, subsequent spending, was then measured as in prior experiments.

10.2 | Results/Discussion

A 2 (goal progress) × 2 (goal type) factorial ANOVA supported the practical importance of unused utility reminders. Although not hypothesized, goal progress showed a marginal main effect on subsequent spending ($F(1, 491) = 2.86$, $p = 0.09$, $\eta_p^2 = 0.004$), such that participants indicated lower spending in the poor ($M = \$12.55$, SD = 1.00) versus good progress condition ($M = \$14.93$, SD = 0.99) overall. This is consistent with the goal literature (Soman & Cheema, 2004) which shows that setbacks are often motivating milestones that prompt consumers to perform better, assuming the goal is framed as graded. Similarly, we also observed a significant main effect of goal type on spending ($F(1, 491) = 16.11$, $p < 0.001$, $\eta_p^2 = 0.03$), such that participants indicated lower subsequent spending when pursuing an excess spending reduction goal ($M = \$10.91$, SD = 1.00) versus a waste reduction goal ($M = \$16.56$, SD = 0.99) overall. This was likely because participants in the excess spending goal condition were unintentionally primed to spend less.

More importantly, we observed the expected two-way interaction between factors ($F = 5.32$, $p = 0.02$, $\eta_p^2 = 0.01$; see Figure 5). Decomposing this interaction, the waste reduction condition replicated our prior findings in which spending was significantly reduced in the poor ($M = \$13.75$, SD = 1.41) versus good progress condition ($M = \$19.38$, SD = 1.40, $F = 8.05$, $p = 0.005$). However, within the excess spending reduction condition, subsequent spending did not differ between the poor ($M = \$11.35$, SD = 1.42) and good progress condition ($M = \$10.48$, SD = 1.40, $F = 0.19$, $p = 0.66$). Although, outside the scope of the present research, we speculate that this insignificant effect (with respect to excess spending) may have arisen either because excess spending, unlike waste, does not as strongly cause guilt and motivate consumers to reduce spending, or causes them to reduce spending, but only in related categories, and not generally (Heath & Soll, 1996), or is viewed as a binary goal, and therefore cues a demotivated "what-the-hell" state (Soman & Cheema, 2004) that does not motivate spending restraint.

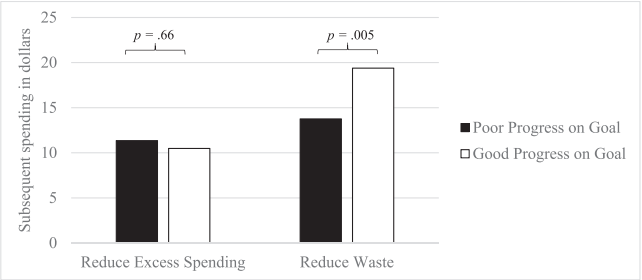

FIGURE 5 Study 4: Goal progress × goal type interaction on subsequent spending.

Overall, study 4 results suggest that consumers using budgeting apps may be more effective at curbing their subsequent discretionary spending after suffering a setback on their waste reduction goal rather than their excess spending reduction goal.

11 | GENERAL DISCUSSION

Consumers like to shop, but often buy products that they later fail to use. When reminded of this unused utility, a sense of waste aversion inhibits subsequent discretionary spending. Six experiments converge to support the robustness and mechanism of this powerful effect. Collectively, our studies show that the effect is robust within and across-product categories (Study 1), driven primarily by perceived money (rather than product) waste (Study 2), attenuated when the waste-reduction goal is framed as binary (Study 3), and pragmatically more impactful than merely reminding consumers of their excess spending (Study 4).

12 | THEORETICAL IMPLICATIONS

Although existing research has explored waste aversion in general (Arkes & Blumer, 1985; Bolton & Alba, 2012), our research provides theory-driven insight into the effects on subsequent consumption after the waste has already occurred. Extant literature on related constructs like budgeting and excess spending (Heath & Soll, 1996; Soman & Cheema, 2004; Soman & Lam, 2002) suggests competing predictions in this regard. Reminders of prior waste may fail to decrease subsequent spending due to a "what-the-hell effect" following goal failure (Soman & Cheema, 2004; Soster et al., 2010) because consumers are discouraged from pursuing their waste-reduction goal (Bandura & Cervone, 1983). Conversely, a waste reminder might serve as a nudge to course-correct (Carver, 1979; Carver & Scheier, 1990), thereby diminishing subsequent spending. Our research reconciles this theoretical tension, showing the robustness of the latter effect and explaining the divergence via differences in goal framing (i.e., graded vs. binary). We therefore simultaneously extend theories related to unused utility (Gourville & Soman, 1998; Okada, 2001) and goal pursuit (Cannon et al., 2019;

Carver & Scheier, 1990, 2004), and distinguish unused utility and waste from constructs like excess spending (Heath & Soll, 1996; Soman & Cheema, 2004; Soman & Lam, 2002).

Moreover, we add theoretical richness to current accounts of waste aversion by showing more precisely what consumers are primarily averse to. Specifically, our theorizing and findings suggest that the negative effect of unused utility on spending is driven primarily by an aversion to wasting money, rather than wasting the products or materials themselves. This deviates from existing conceptualizations (Bolton & Alba, 2012) and offers new insights into how, when, and why consumers seek to avoid waste. For instance, unlike prior work that shows that consumers let go of consumption restraint after engaging in good behaviors like recycling (Catlin & Wang, 2013; Sun & Trudel, 2017), we find that they continue to exercise restraint after donating unused products that allow them to avoid product waste but not money waste. On the other hand, our data suggests that consumers do not exercise restraint after failing to use a product received as a gift due to the elimination of money waste.

13 | PRACTICAL IMPLICATIONS

Our findings have implications for marketers wishing to implement a green demarketing strategy (Armstrong Soule & Reich, 2015) in which brands encourage consumers to reduce consumption at the category level through a choice of the focal brand. Existing approaches appeal exclusively to environmental sustainability benefits, which is effective only among consumers with existing environmental concerns (Reich & Soule, 2016). To demarket to a broader audience, however, our research suggests that emphasizing the monetary waste-reduction benefits of reduced consumption may be more universally appealing. For instance, Patagonia's classic "Don't Buy this Jacket" ad campaign endeared green consumers toward the brand because it encouraged reduced apparel consumption for the sake of the environment (Lowitt, 2011). However, our findings suggest that appealing to consumers' aversion to monetary waste in addition to environmental benefits may amplify the effectiveness of a green demarketing approach.

In the realm of consumer welfare, the current research suggests that reminders of unused utility may be especially effective at helping consumers curb their discretionary spending. To support this idea, Study 4 utilized stimuli meant to simulate a budgeting app and showed that when consumers tracked their waste (vs. excess spending) to limit it, reminders of poor (vs. good) goal progress generated a stronger reduction in subsequent spending. This suggests the potential impact of a new budgeting tool that focuses consumers on tracking waste rather than, in addition to tracking spending. Combined with our other studies' findings, our data suggest that a broad constituency of practitioners (e.g., policymakers, app designers, etc.) may better facilitate waste reduction goals through reminders of unused utility, regardless of spending category, as long as the initial waste contained a monetary cost.

14 | LIMITATIONS AND FUTURE DIRECTIONS

Although we have attempted to maximize the rigor of the current research, several limitations exist, opening opportunities for future related research. First, we have focused exclusively on how reminders of unused utility affect consumers but did not directly examine how a company or brand might be perceived if they issue a reminder of unused utility. As discussed above, such a reminder may endear consumers to the brand, analogous to Patagonia's campaign. However, as with negative emotional appeals in general, a waste reminder may backfire by leading consumers to associate the aversive emotional state with the message source (Boudewyns et al., 2013; Geuens & De Pelsmacker, 1999). An interesting extension of the current work might examine under which circumstances consumers exhibit a favorable or unfavorable response toward a brand that issues a reminder of unused utility.

Moreover, while we have provided evidence that waste-reduction goals are viewed by consumers as graded, we did not directly measure participants' perceived degree of goal failure or success in our studies. Doing so would provide additional evidence in support of our theorizing, as well as a more nuanced understanding of this factor's effects on subsequent spending.

Additionally, while our theorizing and data suggest that the effect of unused utility on spending only occurs when the waste involves a monetary cost, there still remains a possibility that pure material waste may impact subsequent consumption. A fruitful avenue of future research may build a more targeted theoretical account of the conditions and types of consumption changes resulting from product (vs. money) waste. Specifically, product waste may be more impactful among consumers who are especially sensitive to environmental sustainability concerns or when such concerns are primed through marketing communications.

Lastly, our research implicitly assumes that unused utility affects spending amongst consumers in general. However, it is likely that individual differences, such as materialism (Richins & Dawson, 1992) or anticonsumption (Iyer & Muncy, 2009), may moderate this effect. Future research should consider the role of consumers' individual differences in exploring unused utility effects, potentially offering more targeted implications for policymakers and marketers.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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