

# Financial Deprivation Prompts Consumers to Seek Scarce Goods

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Consumers assess their well-being subjectively, largely by comparing the present state of their lives to the state of comparable others and to their own state earlier in time. The authors suggest that consumers similarly assess their financial well-being, and when these evaluations highlight a deficit in their financial position, they pursue strategies that mitigate the associated sense of financial deprivation. Specifically, consumers counteract the relative deficit in their financial resources by acquiring goods that are consequently unavailable to other consumers in their environment. The results from five studies suggest that the inferiority and unpleasant affect associated with financial deprivation motivates consumers to attend to, choose, and consume scarce goods rather than comparable abundant goods. These effects diminish when scarce goods are limited because other people have already obtained them and when consumers attribute their unpleasant feelings to a source unrelated to financial deprivation.

People throughout the world strive to maintain a stable sense of well-being (Diener 1984), and financial comfort is a critical component of general well-being and life satisfaction (e.g., Diener and Biswas-Diener 2002; Diener and Oishi 2000; Diener and Seligman 2004). To assess their financial state, consumers tend to compare their income, assets, and possessions to the same indicators of similar others and themselves in the past (Diener 1984; Diener et al. 1999). Consequently, even consumers who are objectively wealthy might experience a sense of deprivation when they compare their financial states to those of their wealthier counterparts and to their own states during more robust

economic times. Indeed, according to a recent survey (Fidelity 2011), 42% of millionaires in the United States do not feel wealthy, suggesting that even objectively rich consumers sometimes feel financially deprived.

Despite the prevalence of economic hardship, relatively little is known about how people consume when faced with the specter of financial deprivation. We consider this question by examining whether financially deprived consumers might cope with the perceived deficit in their financial position by seeking scarce rather than abundant goods. We posit that financial deprivation shapes how consumers attend to goods in their environment, select between scarce and abundant goods, and decide how many scarce rather than abundant goods to consume. Five studies investigate the suggested relationship between financial deprivation and consumers' tendency to seek scarce goods by testing whether (1) financial deprivation leads consumers to attend to, choose, and consume scarce rather than abundant goods, (2) certain psychological variables moderate financially deprived consumers' tendency to prefer scarce goods, and (3) motivational factors might contribute to or attenuate these effects. Our results suggest that financially deprived consumers seek goods that seem relatively unavailable to others to diminish the sense that they are comparatively deprived. Thus, consumers tend not to prefer scarce goods when (1) those goods are limited in availability because other people have consumed them previously rather than because those goods are limited in supply, and (2) they attribute the unpleasant feelings associated with

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deprivation to an extraneous source, which weakens their motivation to alleviate that state by acquiring scarce goods.

## THEORETICAL DEVELOPMENT

### Subjective Well-Being and Financial Deprivation

The term “subjective well-being” encompasses a range of phenomena and captures how people cognitively and affectively evaluate their life overall (Diener et al. 1999, 277). The term “cognitive responses” describes the content of those evaluations, and the term “affective responses” refers to the feelings of pleasantness or unpleasantness that those evaluations inspire. Although well-being is measured using a variety of techniques, people tend not to calculate their well-being by relying solely on objective standards but by using a variety of comparisons to subjectively relevant standards—their desired state of well-being, the level of well-being they experienced earlier in their lives, and the well-being of similar others (Diener 1984; Diener et al. 1999; Schwarz and Strack 1999). Thus, well-being assessments are a function of comparisons to past selves and similar peers (i.e., social comparisons: Festinger 1954), though research suggests that social comparisons are stronger predictors of well-being than comparisons to past selves (Diener et al. 1999). In addition, people’s sense of well-being fluctuates according to how they feel about important life domains, including health, family, and relevantly in this context, wealth and financial comfort (Diener 1984; Diener et al. 1999).

In the current work, we focus on consumers’ subjective financial well-being as wealth is important to most consumers and is difficult to evaluate in the absence of comparison standards (e.g., Diener and Biswas-Diener 2002; Hsee et al. 2009). Although certain objective standards such as income are pertinent to financial well-being, subjective components tend to play a more fundamental role (Diener et al. 1999). Thus, we define and quantify financial well-being according to where consumers believe they fall, subjectively, along a continuum from financially deprived to financially privileged. When consumers evaluate their financial position unfavorably, they experience *financial deprivation*, which we define as an unpleasant psychological state in which consumers feel financially “inferior” or “worse off” relative to a salient comparison standard because they perceive a deficit in their financial resources. As such, financial deprivation might be correlated with other aversive states (e.g., feeling sad) but has distinct antecedents and consequences, even from states of deprivation in other life domains (e.g., Diener et al. 1999; Mead et al. 2011).

### The Current Research: Deprivation and Preference for Scarce Goods

Subjective well-being assessments can be distressing when they highlight shortcomings, particularly when people engage in upward social comparisons, comparing themselves to relatively superior peers (e.g., Festinger 1954; Suls and Miller 1977). To cope with the unpleasant consequences that follow upward social comparisons, consumers use

a variety of mechanisms (Gibbons, Benbow, and Gerrard 1994; Tesser 2000, 2001). For instance, they sometimes respond defensively by trying to devalue the importance of a given dimension. However, pursuing this strategy might not be possible for a dimension as salient and subjectively relevant as consumers’ financial position. A second possibility is that consumers respond nondefensively by actively seeking ways to enhance their financial state. In the absence of opportunities to materially improve their financial position, however, we argue that consumers might turn to compensatory consumption to restore their sense of well-being (e.g., Tesser 2000, 2001). Although consumers generally spend less when they feel financially deprived (Karlsson et al. 2004, 2005), we suggest that financial deprivation prompts consumers to selectively seek resources that are capable of mitigating the sense of deprivation. Since financial deprivation implies a relative deficit in resources, we suggest that acquiring resources that are thereby denied to others might counteract consumers’ sense of resource disparity by conferring relative gains. Specifically, scarce resources—those that are available to a limited sample of the population—have this capacity because consumers who acquire scarce goods necessarily possess resources that at least some members of the population do not possess. In contrast, otherwise similar abundant resources are widely available to others in the environment, and therefore they lack the capacity to mitigate the subjective experience of relative deprivation. In sum, we suggest that financial deprivation prompts consumers to seek scarce rather than abundant goods because acquiring scarce goods offsets their sense of resource disparity and therefore mitigates their sense of relative deprivation.

### Bridging the Current Research with Previous Scarcity Research

The existing scarcity literature provides a range of rational reasons why consumers’ prefer scarce rather than abundant goods. Scarcity tends to increase the perceived value of virtually any acquirable good, particularly when that good conveys desirable attributes such as uniqueness, popularity, status, and expensiveness (e.g., Brock 1968; Fromkin 1970; Lynn 1989, 1991; Rucker and Galinsky 2008; Verhallen 1982). Consumers also tend to prefer scarce goods when those goods are limited due to “market” forces, such as limited supply or high popularity, rather than “nonmarket” forces, such as accidental limits in supply (e.g., Verhallen 1982; Verhallen and Robben 1994) because they rely on market forces as cues for value.

Research has begun to extend these rational accounts by examining the moderating role of psychological variables on preferences for scarcity (e.g., Inman, Peter, and Raghurir 1997). However, less research has directly examined how consumers’ subjective sense of well-being shapes their consumption decisions. Specifically, research has not focused on whether financial deprivation prompts consumers to seek scarce goods, why these scarce goods provide value, and how financial deprivation systematically influences a range of consumers’ re-

sponses to goods of varying availability. We attempt to address this gap by examining the influence of consumers' subjective financial position on their attention toward and preferences for scarce goods and how the motive to cope with the unpleasant feelings associated with deprivation might contribute to potential differences in these responses.

Drawing from the literature on motivated perception, we expect deprivation to influence consumers' attention to and preference for scarce goods (e.g., Balcetis and Dunning 2006; Kunda 1990). This work demonstrates that people's motives influence a range of judgments, from those requiring effortful information processing to those involving the perception of visual information that remains below conscious awareness (e.g., the perception of money or ambiguous figures; Balcetis and Dunning 2006; Bruner and Goodman 1947). In essence, people's desires systematically direct their patterns of gathering, perceiving, and processing visual information in the environment. Since money plays a significant role in motivating human behavior (Lea and Webley 2006), we suggest that financial deprivation might similarly prompt consumers to seek stimuli that are capable of mitigating the aversive psychological consequences of deprivation. Thus, we expect deprived consumers to display a heightened sensitivity to the presence of scarce goods.

In sum, we expect financial deprivation to prompt consumers to acquire scarce goods, and we expect these consumers to adopt specific patterns of attention and consumption in the service of obtaining those scarce goods: (1) heightened attention to scarce stimuli in the environment and (2) increased preference for scarce rather than abundant stimuli. We build on the previous scarcity research by suggesting that financial deprivation influences various stages of a consumer's decision-making process—beginning with how they deploy attentional resources and concluding with their preference for and consumption of scarce goods.

## Summary of Hypotheses

Our hypotheses collectively suggest that financial deprivation will prompt consumers to acquire goods that diminish their subjective sense of deprivation. Specifically, financially deprived consumers will seek scarce rather than abundant goods, which will manifest in their attention, choice, and consumption patterns:

- H1a:** Financial deprivation will enhance consumers' detection of scarce rather than abundant goods (studies 1–2).
- H1b:** Financial deprivation will enhance consumers' selection of scarce rather than abundant goods (studies 4–5).
- H1c:** Financial deprivation will enhance consumers' consumption of scarce rather than abundant goods (study 3).

We further suggest a boundary condition for this effect: that deprived consumers' preferences for scarce goods will de-

pend on the extent to which they believe those target goods are not already obtained by many other consumers in their environment. Since we expect deprived consumers to seek scarce goods because they expect those goods to ameliorate a prevailing experience of financial deprivation, we suggest that those consumers will only prefer scarce goods when they believe those goods are actually limited to others in the environment and hence capable of restoring the relative deficit in their resources. When goods are merely scarce because other consumers have already obtained them, however, those goods will no longer confer relative gains and thus lose their attractiveness to deprived consumers. We restate this proposition formally in hypothesis 2:

- H2:** Financially deprived consumers will seek scarce rather than abundant goods when they believe the target goods are limited to other people in their environment, but this effect will diminish when consumers believe that the target goods are scarce because other people have already consumed many units of those goods (study 4).

Finally, our hypotheses rely on the proposition that motivational drives lead financially deprived consumers to improve their dampened state of well-being. To reiterate, previous research has shown that consumers are motivated to ameliorate aversive feelings associated with unfavorable self-assessments (e.g., Gibbons et al. 1994; Suls and Miller 1977). We build on this work by suggesting that motives induced by financial deprivation will affect a range of processes as consumers seek restoration: consumers will respond systematically to scarce rather than abundant goods in contexts involving visual perception, choice, and consumption (hypothesis 1) and only to the extent that those goods seem relatively unobtainable to other consumers in their environment (hypothesis 2). Therefore, cues that temper this motivation are likely to dampen deprived consumers' preference for scarce goods. Accordingly, hypothesis 3 suggests that financially deprived consumers' responsiveness to scarce goods is a strategic coping mechanism that involves motivational components:

- H3:** The unpleasant affective state associated with the experience of financial deprivation will motivate consumers to cope with their state by seeking scarce rather than abundant goods (study 5).

We tested our hypotheses by both measuring (studies 1 and 3) and manipulating (studies 2, 4, and 5) financial deprivation and by examining its relationship to consumers' attention to and preference for scarce goods. Since comparisons to past selves and others jointly influence well-being, we measured financial deprivation with a series of items that captured consumers' financial standing relative to both comparison standards. Since social comparison tends to contribute most to well-being assessments (e.g., Diener et al. 1999), we utilized social comparison paradigms to manipulate financial deprivation. Across five studies, we collected a range of responses to financial deprivation, including how accurately participants

could identify which of two stimuli was more scarce or abundant within an array (studies 1 and 2), the quantity of scarce rather than abundant candy they consumed (study 3), and whether they chose to receive either a scarce or abundant candy for their own consumption (studies 4 and 5). Our results show that financial deprivation heightens consumers' attention to and preference for scarce goods, suggest that the perceived inaccessibility to others rather than the popularity of scarce goods contributes to this effect, demonstrate the critical involvement of motivational factors in this process, and suggest boundary conditions that limit these effects.

## STUDY 1: DEPRIVATION AND ATTENTION TO SCARCITY I

We designed study 1 to examine the basic relationship between financial deprivation and attention to scarce stimuli (hypothesis 1a). Our goal was to demonstrate that deprived consumers are attuned to opportunities to alleviate this negative state and thus more sensitive to the presence of scarce stimuli. To test this hypothesis, we measured participants' financial well-being relative to their peers' and their own well-being in the past and then asked them to complete a task that required them to identify the relative frequency of two stimuli presented in unequal ratios. Since we expected financially deprived participants to be more sensitive to the opportunity to acquire scarce rather than abundant stimuli, we expected them to perform with greater accuracy on this task when we framed it as a scarcity-seeking rather than an abundance-seeking exercise.

### Method

Ninety-five individuals ( $M_{\text{age}} = 21.59$ ,  $SD = 6.81$ ; 64 females, 29 males, three not specified; 63% white, 19% Asian, 7% Hispanic, 6% black, 1% other ethnicities, 4% not specified) in a public park in New York City volunteered to participate in this study. In this study and the subsequent studies, participants' age, gender, and ethnicity did not interact with our key variables of interest, so we refrain from discussing those demographic variables further.

We approached individuals who were seated alone and asked them if they would complete a short study. To measure subjective financial well-being, we asked participants to complete a five-item questionnaire about their financial position relative to their peers and to their own position the previous year using a 9-point scale (see the appendix for the items).

Since deprivation is an unpleasant affective state, we considered the possibility that it might heighten participants' motivation toward completing tasks in general, or induce systematic processing (Bless et al. 1990; Fiedler 1988; Schwarz 1990). To control for these possibilities, we administered the Cognitive Reflection Task (CRT) developed by Frederick (2005). The CRT consists of three questions that are associated with analytical thinking and has been used to measure differences in systematic processing and cognitive elaboration (Alter et al. 2007; Frederick 2005). We therefore expected the CRT to cap-

ture any differences in performance between participants who felt relatively deprived rather than privileged.

Next, we measured participants' ability to determine the relative prevalence of two distinct objects. We gave participants a packet of 12 visual arrays, each of which displayed 30 gumballs of two different colors: black and white. We varied the 12 arrays in this packet according to how the gumballs were scattered on the page, the ratio of the two gumballs (i.e., four of each ratio: 10 : 20, 12 : 28, 14 : 16), and which color was more abundant. Participants received the same packet of 12 arrays in a randomized sequence. We instructed participants to view each array and determine the relative frequency of the black and white gumballs based on their initial reaction. However, we manipulated the task's framing by asking half of the participants to identify which gumball color was more scarce (the scarcity-seeking condition) and the other half to identify which gumball color was more abundant (the abundance-seeking condition). Critically, both conditions required sensitivity to the scarce and abundant stimuli regardless of the task framing. As such, both conditions assessed the same cognitive ability—discrimination between stimuli of unequal frequencies—with the task's framing as the only between-subjects manipulation. Participants' performance based on the framing of their instructions served as our dependent measure.

### Results

We first examined participants' responses to the five financial well-being items. Participants' responses were strongly related ( $\alpha = .81$ ), so we collapsed them to form a single financial well-being index, with lower scores indicating lower subjective financial well-being (financial deprivation). Next, we examined participants' performance on the discrimination task. For each condition (task frame: scarcity-seeking vs. abundance-seeking), we calculated the total number of arrays in which participants correctly identified the relative frequency of the gumball colors. Performance on each of the 12 arrays was coded as correct or incorrect, and we summed participants' correct scores to derive a measure of their performance between zero and 12.

We then conducted regression analyses to examine the relationship between participants' financial well-being and their performance on the discrimination task depending on the framing of their instructions. Thus, predictors were participants' financial well-being scores, the framing of their instructions (0 = seek scarce gumball; 1 = seek abundant gumball), and their interaction. Results showed that participants were more accurate when their financial well-being was lower rather than higher ( $\beta = -.31$ ,  $t(91) = 3.12$ ,  $p = .002$ ) and marginally better when they were asked to detect the scarce rather than abundant stimuli ( $\beta = -.73$ ,  $t(91) = 1.95$ ,  $p = .054$ ). Critically, and consistent with our first hypothesis, we also found the expected interaction between participants' financial well-being scores and their task framing ( $\beta = .77$ ,  $t(91) = 2.06$ ,  $p = .04$ ). Participants' performance followed a similar pattern in each condition (scarcity-seeking vs. abundance-seeking), but the relationship between financial well-being and performance was markedly stronger among par-

ticipants in the scarcity-seeking condition ( $\beta = -.44$ ,  $t(45) = -3.27$ ,  $p = .002$ ) than among participants in the abundance-seeking condition ( $\beta = -.13$ ,  $t < 1$ ). Consistent with the significant interaction result, a Fisher's Z-test suggested that the correlations were significantly different in magnitude ( $z = 1.66$ ,  $p = .04$ , one-tailed). Thus, the more participants felt financially deprived, the better they discriminated between scarce and abundant gumballs, but this was particularly so when they were asked to seek the more scarce rather than the more abundant color.

We considered the possibility that other extraneous variables drove the relationship between participants' subjective financial well-being and their performance on the discrimination task. For example, financial deprivation might inspire transient differences in processing style, which might in turn explain participants' tendency to do better on the task. This account seemed unlikely for two reasons. First, although financially deprived participants tended to be better at discriminating between scarce and abundant gumball colors, only when asked to seek the scarce (vs. abundant) gumball color did they significantly outperform participants who felt better off financially, providing evidence of a specific sensitivity toward scarce rather than abundant stimuli. Second, our results were unchanged when we included the CRT as a covariate in our analyses. We found no relationship between participants' financial deprivation scores and their performance on the CRT ( $\beta = .006$ ,  $t < 1$ ), suggesting that deprivation-related differences in cognitive ability or information processing were unlikely to have driven the relationship between financial deprivation and performance. In the remaining studies, we administered the CRT and similar measures of cognitive ability and found no relationship between deprivation and cognitive ability, so we refrain from discussing these measures further.

## Discussion

In study 1, deprived participants identified the relative frequency of two types of stimuli across a series of visual arrays with greater accuracy than relatively privileged participants when instructed to identify the scarce stimulus. This effect was significantly weaker when participants were asked to identify the abundant stimulus, suggesting that the scarcity-focused nature of the task accentuated this relationship. In addition, participants who felt more deprived than others did not tend to process information more deeply on a cognitive reflection task that did not involve scarce stimuli. This result suggests that deprivation-induced differences in processing cannot explain the results and provides further support that the mere framing of the discrimination task contributed to these effects.

## STUDY 2: DEPRIVATION AND ATTENTION TO SCARCITY II

The initial results in study 1 are encouraging, but since financial deprivation was not manipulated, they cannot address the causal relationship between financial deprivation

and consumers' attention to scarce stimuli. Accordingly, we specifically designed study 2 to test this relationship. Since financially deprived participants in study 1 were systematically more accurate when asked to seek scarce stimuli but not when asked to seek abundant stimuli, we framed the task in study 2 as a scarcity-seeking exercise. Specifically, we asked participants to determine the relative frequency of characters from the *Where's Waldo?* book series. In this series, readers are challenged to scour detailed illustrations in search of Waldo, a character dressed in distinctive red-and-white striped clothing. Based on the nature of this challenge, we felt this paradigm would be appropriate to measure attention to scarce stimuli. In addition, we computerized this task, enforcing a 2-second time limit within which participants could respond. This limit served two functions: it minimized the likelihood that participants could strategically count the stimuli presented, and it standardized how much time participants spent assessing each array. Consistent with study 1, we expected financially deprived participants to be more sensitive to scarce stimuli in their environment and thus to perform with greater accuracy on this task.

## Method

One hundred and eighteen undergraduates enrolled in an introductory marketing course at New York University participated in this study for partial course credit. To manipulate financial deprivation, we randomly assigned participants to one of two conditions of a writing task involving social comparison. Specifically, we instructed participants to describe a situation when they compared themselves to their peers and felt relatively worse off (deprived condition) or better off (privileged condition) financially. Specifically, our instructions stated:

Please recall a situation in which you were financially [worse/better] off in comparison to peers around you. It can be any time when you felt your financial position was relatively [worse/better] than theirs. Please describe the context of this situation in which you felt financially [worse/better] off in comparison to your peers—what happened, how you felt about being [worse/better] off, etc. Please try to focus specifically on aspects related to being [worse/better] off than your peers financially.

Next, we gave participants a computerized task that assessed their ability to discriminate between stimuli of unequal frequencies. A cover story explained that they were piloting a game called *Which Waldo?* that was developed by the creators of the *Where's Waldo?* book series. In this task, participants viewed a series of five different arrays, each displaying an unequal ratio (11 : 9) of two of the five main characters from the book series (i.e., Waldo, Wenda, Odlaw, Wizard, and Woof). We informed participants that their objective was to identify which character was presented fewer times in each array. We also informed them that each array would appear on their screen for two seconds, after which they would be prompted to type

their answer. To familiarize participants with the characters and format of the activity, we provided pictures of the five characters appearing in the activity and gave them three trial rounds before the five activity rounds began. Since we had only five different characters, some characters necessarily appeared in more than one array. We considered the possibility that participants might become overly familiar with reappearing character images, potentially enhancing their ability to identify those characters. To mitigate this possibility, we used different images for characters appearing in more than one array rather than reuse identical images of those characters. Participants' accuracy in identifying the relatively scarce character in each array was our dependent variable.

After completing the activity, participants answered several follow-up questions, including how much they enjoyed the activity and whether they "eyeballed" or "methodically counted" the characters in the arrays. We designed these questions to preserve the authenticity of the cover story and to investigate the nature of participants' strategies on the discrimination task. Finally, participants recalled the scenario writing task from earlier in the experiment, rated how difficult it was to write about their experience (1 = not at all difficult, 9 = very difficult), and completed the financial well-being index from study 1.

## Results

**Manipulation Check.** We content coded the scenarios written by participants in each condition to verify that our experimental manipulation worked as intended. Two independent research assistants who were unaware of our hypotheses and experimental conditions rated the cognitive and affective aspects of participants' responses about their financial position using a 5-point scale (1 = felt much worse off than peers and expressed very negative emotions; 3 = felt neither better nor worse off than peers and were emotionally neutral; 5 = felt much better off than peers and expressed very positive emotions). Since the coders' ratings were highly correlated ( $r(116) = .83, p < .0001$ ), we combined them to form a single manipulation check measure. Participants in the deprived condition ( $M = 1.94, SD = .53$ ) indicated stronger feelings of inferiority and unpleasant affect than did participants in the privileged condition ( $M = 4.06, SD = .57; t(116) = 20.17, p < .0001$ ), indicating that our manipulation worked as intended. In addition, ratings of the writing task's difficulty did not vary by condition ( $t < 1$ ).

**Attention to Scarce Stimuli.** We next examined the effect of our deprivation manipulation on participants' performance. As in study 1, performance on each of the five arrays was computed as a binary measure, with higher scores indicating better overall performance on the task (perfect score = 5). As predicted, participants who wrote about feeling deprived (vs. privileged) were better at identifying scarce *Where's Waldo?* characters ( $t(113) = 2.60, p = .01; M_{deprived} = 3.76, SD = 1.06$  vs.  $M_{privileged} = 3.15, SD = 1.41$ ). The analysis also showed that participants did not

differ in their scarcity-detection strategies (where "eyeballing" = 1 and "methodically counting" = 9;  $M_{deprived} = 3.01, SD = 1.43$  vs.  $M_{privileged} = 2.74, SD = 1.57, t = 1$ ). Directly replicating the result in study 1, we also found a significant correlation between participants' financial well-being scores and their task performance ( $r(116) = -.19, p = .04$ ).

## Discussion

Study 2 demonstrated a causal relationship between financial deprivation and attention to scarce stimuli (hypothesis 1a) as participants who wrote about feeling financially deprived rather than privileged performed systematically better on a task that was framed as a scarcity detection exercise. Having established that deprived people preferentially attend to scarce stimuli, in the remaining studies we focused on the tendency for financially deprived consumers to prefer scarce rather than abundant but otherwise similar goods (hypotheses 1b and 1c). In these studies, we also evaluated several potential mechanisms behind this relationship, including whether deprived consumers were motivated to prefer scarce goods.

## STUDY 3: DEPRIVATION AND CONSUMPTION OF SCARCE M&MS

We designed study 3 to investigate the relationship between deprivation and consumption of scarce goods (hypothesis 1c). Participants consumed M&Ms of two different colors that varied in availability, after which we measured their prevailing sense of financial deprivation. We expected participants who felt more deprived to consume a higher percentage of scarce rather than abundant M&Ms.

## Method

One hundred and eighty-seven undergraduates enrolled in an introductory marketing course at New York University participated in this study for partial course credit. First, we gave participants a translucent cup of 20 M&Ms, ostensibly to thank them for participating in the study. Each cup had a capacity of 3.25 ounces and was wide enough (bottom diameter of 2.5 inches) for participants to clearly see the contents: 15 M&Ms of one color (abundant M&Ms) and 5 M&Ms of another color (scarce M&Ms). To account for extraneous effects based on color preferences, we used a variety of colors (e.g., red, yellow, green) that an earlier sample of participants rated as similarly rare and likable. We also counterbalanced the M&Ms colors that were presented as scarce rather than abundant in participants' cups.

To reiterate, we expected deprived participants to consume a larger proportion of scarce M&Ms because scarce items are generally associated with being less available to others and are therefore capable of alleviating the sense of relative deprivation when consumed. However, previous research has shown that scarce goods are also associated with uniqueness and become more desirable to those who have

a higher need for uniqueness (Lynn 1991). Although consumers generally might not express their uniqueness by consuming goods that are commonly available, we felt it important to examine this possibility since little is known about how scarcity affects how people consume goods that are typically commonly available. Thus, we considered the possibility that any potential effect of deprivation on participants' consumption of scarce M&Ms might be driven by a need for uniqueness. To account for the possibility that deprived participants might consume scarce M&Ms in pursuit of uniqueness, we asked our participants to complete an adapted version of Tian, Bearden, and Hunter's (2001) *Consumers' Need for Uniqueness* (CNFU) scale, which captures consumers' desire for self-expression and counterconformity. Finally, we measured financial deprivation with a version of the well-being questionnaire from studies 1 and 2. At the end of the study, an experimenter collected the study materials and recorded the number of M&Ms that participants did not consume. The number of scarce rather than abundant M&Ms consumed was our dependent measure.

## Results

Consistent with study 1, participants' responses to the subjective well-being questionnaire was strongly related ( $\alpha = .87$ ), so we again combined them to form a single financial well-being index, with lower scores indicating financial deprivation. Next, we assessed participants' preference for scarce goods by calculating the percentage of scarce and abundant M&Ms that they consumed. We then conducted a regression analysis to examine the relationship between participants' subjective well-being and their consumption of scarce rather than abundant M&Ms. The predictor variable was each participant's score on the financial well-being index, and we included participants' score on the CNFU scale as a covariate (though this covariate did not ultimately influence our results). The outcome variable was the proportion of consumed M&Ms of the scarce rather than abundant color.

Participants consumed an average of 6.10 M&Ms ( $SD = 7.19$ ; 38% of participants ate zero M&Ms and 12% ate all 20 M&Ms), and participants tended to eat more M&Ms (both scarce and abundant) the worse off they felt financially ( $\beta = -.16$ ,  $t(182) = 2.14$ ,  $p = .03$ ). Most importantly, however, financially deprived participants tended to consume not just a greater quantity of M&Ms overall but to selectively consume the scarce M&Ms. Specifically, the key regression analysis revealed that participants who felt worse off financially consumed a greater proportion of the M&Ms that were less widely available in their cup ( $\beta = -.18$ ,  $t(182) = 2.41$ ,  $p = .02$ ). Whereas scarce M&Ms only constituted 19% ( $M = 2.27$ ,  $SD = 2.86$ ) of the total M&Ms consumed by participants who scored one standard deviation above the mean well-being score (a score of 7.56), scarce M&Ms constituted 29% ( $M = 3.90$ ,  $SD = 4.91$ ) of the total M&Ms consumed by those who reported well-being scores one standard deviation below the mean score (a score of 4.82). These results indicate that the relationship between

participants' financial well-being and consumption is driven by differences in the proportion of scarce M&Ms consumed.

Finally, we examined participants' responses to the financial well-being index and the CNFU scale, but we did not find a significant relationship between those variables ( $\beta = -.04$ ,  $t < 1$ ,  $p = .61$ ) or between scores on the CNFU scale and the proportion of scarce M&Ms that participants consumed relative to their total consumption of M&Ms ( $\beta = -.03$ ,  $t < 1$ ,  $p = .61$ ). However, we reran our analysis including this scale as a covariate to ensure that any influence of financial deprivation on preference for scarce candy persisted beyond participants' need for uniqueness and self-expression. Including the CNFU scale as a covariate did not change the results ( $\beta = -.18$ ,  $t(182) = 2.39$ ,  $p = .02$ ).

## Discussion

In study 3, participants with lower subjective well-being scores consumed a greater proportion of scarce M&Ms. Our results thus far suggest that financial deprivation heightens consumers' attention to scarce stimuli (studies 1 and 2) and correlates with their consumption of scarce rather than abundant goods (study 3). Our results also suggest that these effects are unlikely to be driven by differences in deprived consumers' cognitive reflection, need for uniqueness, or self-expression. We designed our last two studies to test whether financially deprived consumers seek scarce stimuli specifically to cope with their sense of deprivation by examining two conditions under which deprived consumers might not prefer scarce goods. Our goals, specifically, were to determine whether the relatively limited availability of scarce goods drives consumers' preferences (hypothesis 2; study 4) and whether motivational factors contribute to this effect (hypothesis 3; study 5).

In study 4, we built on the previous studies in several ways. First, using the experimental procedure from study 2, we manipulated rather than measured financial deprivation to examine its causal effect on consumers' selection of scarce goods (hypothesis 1b). Second, we investigated whether our effects were exclusively driven by the experience of financial deprivation rather than financial privilege by eliminating the privileged condition (as in study 2) from our manipulation of participants' financial position. We focused instead on the contrast between participants in the deprived condition and a neutral control condition. Third, we sought evidence that deprived consumers prefer scarce goods because they are less available to most people by manipulating why participants believed the scarce goods were relatively unavailable. Specifically, we examined whether deprived participants' preference for scarce goods diminished when those goods were limited in availability because many consumers had already acquired them. If deprived consumers seek goods that seem less available to others, they should only prefer scarce goods when those goods seem to be relatively unavailable to others, not when they have been consumed by others already and therefore cease to confer a sense of relative advantage on subsequent consumers (hypothesis 2).

Finally, we attempted to control for the possibility that deprived consumers prefer scarce goods for alternative reasons—because scarcity signals status, popularity, or expensiveness (e.g., Fromkin 1970; Lynn 1989, 1991; Rucker and Galinsky 2008; Verhallen 1982) to those who seek power, social inclusion, or uniqueness. We minimized these possibilities by (1) offering participants common candy (vs. gourmet candy) as previous research has shown that status can only be conferred by goods that are strongly (vs. weakly) associated with status (Rucker and Galinsky 2008), (2) manipulating the perceived supply of the candy to others (scarce due to an accidental limitation in supply vs. prior consumption by others), and (3) explicitly matching the economic value of the scarce and abundant varieties of candy. We aimed to show that deprived consumers prefer scarce goods even when those goods are limited due to an accidental restriction in supply (but not prior consumption by others), when they are equal in price value, and when they are not strongly linked with status. Notably, this prediction differs from those in previous scarcity research as we examine accidental supply restrictions rather than market-driven supply restrictions. Doing so mitigates the possibility that deprived participants might prefer scarce goods because they rely on “market” indicators rather than the mere inaccessibility of the goods as cues for value. Going forward, however, we abbreviate this condition using a “supply-side” scarcity label for simplicity. We similarly abbreviate restrictions in availability due to prior consumption by others with a “demand-side” scarcity label.

#### STUDY 4: BOUNDARY CONDITIONS OF DEPRIVATION AND CHOICE

In study 4, we shifted to a decision context in which participants chose to consume either a scarce or an abundant candy. We expected deprived consumers to prefer scarce candy specifically when it appeared to be limited to most people (i.e., supply-side restriction) rather than limited due to wide consumption by others (i.e., demand-side restriction). Thus, we expected a greater proportion of participants in the deprived (vs. control) conditions to choose scarce candy when it was framed as limited due to supply-side (vs. demand-side) reasons.

#### Method

One hundred and sixty-five undergraduates enrolled in an introductory marketing course at New York University participated in this study for partial course credit. The study followed a  $2 \times 2$  between-subjects design that crossed a financial deprivation (deprived vs. control) manipulation with a scarcity-framing (supply-side vs. demand-side) manipulation. For our dependent measure, we recorded participants' choice of scarce or abundant candy.

First, we manipulated financial deprivation using a similar experimental procedure as in study 2 but with one key difference. Half of the participants wrote about a time when they felt financially “worse off” (deprived condition) than

their peers, and the other half wrote about a time when they felt “neither better nor worse” (control condition) than their peers. Next, we gave participants a handout, which stated that we were offering Hershey's Bars or Twizzlers to everyone who completed our study, ostensibly to thank them for their time. On this handout, we informed participants that we had an uneven number of Hershey's Bars and Twizzlers remaining, but that they should select whichever candy they preferred more. Along with these instructions, we included a picture of a vending machine as a visual of the available candy. This vending machine displayed an unequal proportion (2 vs. 8) of Hershey's Bars and Twizzlers in two rows of the machine. To control for extraneous differences in candy preferences, we counterbalanced which candy was presented as less available. In addition, given the common association between scarcity and price value, we explicitly labeled each candy with a price of \$1.00 (Lynn 1989). To reiterate, by matching the candy on price, we aimed to account for the possibility that the perceived expensiveness of the candy leads participants to choose the scarcer candy.

For our scarcity-framing manipulation, we provided participants with one of two reasons to explain why one of the candy types was less widely available. Specifically, we informed half of the participants that we had fewer of one candy remaining because we accidentally bought unequal amounts of candy (supply-side condition); we informed the other half that the less available candy had been more popular (demand-side condition). We told participants in both conditions that they should, however, feel free to choose whichever candy they most preferred.

We expected this manipulation to systematically change the extent to which participants believed that the scarcer candy was limited because it had been obtained by other people. To ensure that participants perceived the supply-side and demand-side scarcity explanations appropriately, we conducted a brief, two-condition (scarcity-framing: supply-side vs. demand-side) pilot study using a separate sample of 204 individuals recruited from Mechanical Turk, a national online participant pool maintained by Amazon.com, who participated in exchange for 50 cents. We asked participants to indicate how strongly they agreed with three explanations underlying the limited availability of the scarcer candy (i.e., prior consumption by consumers; greater popularity among consumers; an accidental limit in supply to consumers, reverse-scored) using a 7-point scale (1 = strongly disagree, 7 = strongly agree). Participants' responses to these items were highly related ( $\alpha = .74$ ), so we combined them to form a single manipulation check measure, with higher scores reflecting stronger agreement with a demand-side rather than supply-side explanation. As intended, participants who received the demand-side explanation agreed to a greater extent that the candy was scarce due to greater popularity and consumption by others ( $M = 5.46$ ,  $SD = 1.06$ ) than did participants who received the supply-side explanation ( $M = 3.53$ ,  $SD = 1.44$ ;  $t(202) = 10.89$ ,  $p < .001$ ).

Participants indicated their candy choice by circling which



option (Twizzlers vs. Hershey's Bars) they wished to receive on their handout. We collected participants' handouts, measured their subjective financial well-being using our financial well-being index, and gave participants the candy of their choice at the end of the experiment.

## Results

**Manipulation Checks.** To examine whether our financial deprivation manipulation worked as intended, two independent research assistants who were unaware of our hypotheses and experimental conditions rated participants' responses on the scenario writing task using the same scale from study 2. The coders' ratings were highly correlated ( $r(163) = .66$ ,  $p < .0001$ ), so we averaged them to form a single manipulation check measure. As intended, participants in the deprived condition ( $M = 1.86$ ,  $SD = .70$ ) indicated stronger feelings of inferiority and unpleasant affect than did participants in the control condition ( $M = 3.04$ ,  $SD = .31$ ;  $F(1, 163) = 189.46$ ,  $p < .0001$ ). Ratings in the control condition did not differ from the midpoint value of 3, consistent with our "neutral" label ( $p > .05$ ). In concert with the results of our pilot test, these ratings suggest that both manipulations worked as intended.

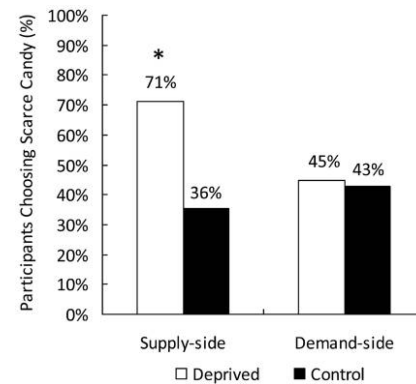
**Subjective Financial Well-Being.** As an additional measure of the perceived deficit in participants' financial position, we examined participants' responses to our financial well-being index ( $\alpha = .84$ ). As expected, results revealed a significant main effect of deprivation on participants' sense of financial well-being as participants in the deprived condition ( $M = 3.45$ ,  $SD = 1.01$ ) indicated being in a worse financial position relative to their peers and to earlier times in their lives than did participants in the control condition ( $M = 5.39$ ,  $SD = .90$ ;  $F(1, 161) = 172.01$ ,  $p < .0001$ ). No other effects were significant.

**Choice of Scarce Candy.** We conducted a binary logistic regression analysis to assess the influence of our two independent variables, financial deprivation (0 = control, 1 = deprived) and scarcity-framing (0 = supply-side, 1 = demand-side), and their interaction on participants' choice of candy (scarce vs. abundant). There was a significant relationship between financial deprivation (deprived vs. control) and selection of scarce candy (Wald  $\chi^2(165) = 9.91$ ,  $p = .002$ ) but no relationship between scarcity framing (supply-side vs. demand-side) on selection of scarce candy ( $p > .05$ ). We found the expected interaction effect (Wald  $\chi^2(165) = 4.71$ ,  $p = .03$ ), which is depicted in figure 1.

Follow-up analyses based on the two  $2 \times 2$  contingency tables revealed the predicted results. A larger proportion of participants in the deprived condition chose the scarce rather than abundant candy when scarcity was supply driven (71.1%) rather than demand driven (44.7%;  $\chi^2(165) = 5.95$ ,  $p = .02$ ). In the control condition, participants' choice of scarce candy did not depend on whether scarcity was demand driven (42.9%) or supply driven (35.6%;  $p > .05$ ).

FIGURE 1

HIGHER PROPORTION OF DEPRIVED PARTICIPANTS CHOOSE SCARCE CANDY WHEN SCARCITY IS DRIVEN BY SUPPLY-SIDE RATHER THAN DEMAND-SIDE FACTORS (STUDY 4)



NOTE.—\* indicates that mean significantly differs from the 50% chance level, suggesting that participants were partial to scarce rather than abundant candy in comparison to the other conditions and a neutral baseline.

Finally, the only mean that significantly differed from 50% was the mean in the deprived-supply-side condition (71.1%;  $\chi^2(165) = 6.74$ ,  $p = .009$ ; all remaining  $p > .05$ ), suggesting that participants did not selectively seek scarce candy except in the deprived-supply-side condition.

## Discussion

Study 4 established a causal relationship between financial deprivation and consumers' choice of goods. We also aimed to demonstrate that deprived consumers prefer scarce (vs. abundant) goods when those goods seem relatively unavailable to others in their environment. To do so, we investigated the conditions under which deprived consumers preferred scarce goods. Our results suggest that consumers who experience a deficit in their financial position prefer scarce rather than abundant goods but only when they believe that other consumers are less likely to have possessed those scarce goods previously. In addition, it is unlikely that our participants chose scarce goods when they felt deprived because those goods were associated with expensiveness or status since we matched the price value of the available options and used commonly available candy (vs. goods that were more strongly associated with status) as our target good. These results provide insight into why deprived consumers prefer scarce goods and when those same scarce goods become less attractive. Specifically, under conditions of financial deprivation, scarce goods entice consumers when they are framed as limited in supply rather than popular among consumers. We propose that these results arise

because deprived consumers are motivated to minimize the relative deficit in their financial position (hypothesis 3), which we examined directly in our final study.

### Evidence for the Motivational Account

We designed our final study to test whether deprived consumers seek scarce goods because they are motivated to lessen the deficit in their subjective financial well-being. To do this, we considered an alternative possibility: that financial deprivation merely changes how people think rather than activates a distinct motivational state. For example, in our studies thus far, it is possible that financial deprivation primed concepts associated with scarcity, thereby changing the way our participants perceived and judged scarce stimuli. That is, by asking participants to answer questions about (studies 1 and 3) and ruminate over (studies 2, 4, and 5) their financial position, we might have activated scarcity-related concepts (e.g., the scarcity of their financial resources), prompting participants to pay more attention to and select scarce stimuli without the involvement of motives. We believe this account is unlikely since we (1) found an interaction between financial deprivation and the framing of our discrimination task on participants' performance in study 1, (2) asked participants to complete our financial well-being questionnaire after we measured their consumption of scarce candy in study 3, and (3) found an interaction between financial deprivation and scarcity-framing on participants' choice of scarce candy in study 4. However, we designed study 5 specifically to investigate whether, rather than priming concepts associated with scarcity, financial deprivation motivates consumers to seek scarce goods to ameliorate the sense of inferiority associated with that state.

To establish the critical role of motivational factors in this process, and to rule out the cognitive account, we adopted a misattribution paradigm that numerous researchers have used to demonstrate that motivation underlies various behavioral phenomena (e.g., cognitive dissonance, perception, social comparison, and self-esteem maintenance; see Kunda 1990; Schachter and Singer 1962; Tesser 2000, 2001; Tesser, Millar, and Moore 1988; Zanna and Cooper 1974). For example, in response to the debate over whether cognitive dissonance processes involve motivation, Zanna and Cooper (1974) showed that dissonance reduction requires the involvement of arousal that participants cannot explain and are thus motivated to resolve. When participants experience dissonance but receive an explanation for their feelings (i.e., an arousal-provoking adrenaline pill), they no longer act on dissonance cues (Zanna and Cooper 1974). Building on attribution paradigms such as this one, we suggest that consumers should only prefer scarce goods when they implicitly attribute any unpleasant affect they experience to their state of deprivation; attributing the associated unpleasantness to an irrelevant source should attenuate their preference for scarce goods.

## STUDY 5: DEPRIVATION, MISATTRIBUTION, AND CHOICE

Our primary objective in study 5 was to provide a more comprehensive explanation of the process underlying consumers' selection of scarce goods under conditions of financial deprivation by using a misattribution paradigm to examine the critical involvement of motivation. In line with our previous studies, we expected deprived participants who did not receive the misattribution manipulation to implicitly attribute the resulting unpleasant feelings to their experience of deprivation, leading them to seek scarce rather than abundant goods. In contrast, we expected deprived participants in the misattribution conditions to misattribute the unpleasant state arising from deprivation to an external source, thereby eliminating any systematic preference for scarce goods.

### Method

Seventy-eight students at New York University participated in this study in exchange for \$7.00. First, we manipulated financial deprivation using the procedure from study 4. Once participants completed this manipulation, we introduced the misattribution manipulation, which we disguised as a routine evaluation of our research equipment. Specifically, we asked participants to evaluate the sound quality of headphones after listening to an audio clip of whale songs. Adapting this manipulation from research by Van Boven and colleagues (2010), we led half of the participants to attribute potential unpleasant feelings to this audio clip. We chose this manipulation because previous research has successfully manipulated the emotional effect of similarly ambiguous whale songs to influence the perceived intensity of participants' emotions (Van Boven et al. 2010). In our cover story, we asserted that the audio clip spanned a broad spectrum of sound wave frequencies, which would allow participants to determine the quality of the headphones. In addition, we told participants in the misattribution condition the following: "Despite the usefulness of the whale sounds for this purpose, a lot of people report that the clip worsens their mood. Specifically, they say it induces feelings of agitation, unrest, and discontent."

After evaluating the headphones, participants completed a "Candy Preferences Study" in which they made seven choices between two types of candy. We informed all of the participants that we happened to have a limited supply of one type of candy than another but that they should select the candy they most preferred as one of their selections would be given to them at the end of the experiment. As in study 4, this aspect of the design added practical relevance to the task since participants' responses actually influenced which candy they received. Also consistent with study 4, we again included visual depictions of each choice set in a vending machine, alternated which candy was presented as more scarce, varied the placement of the candy in the vending machine, and included price labels of \$1.00 on both rows of candy in the vending machine to control for potential differences in the candy's assumed price value.

In contrast to study 4, however, we told participants in every condition that the scarce candy was limited due to supply restrictions rather than popular demand. We also created six new choice sets using different combinations of candy (e.g., Gummy Bears, Skittles, Twix) since participants made seven candy choices rather than one choice. We were concerned that making seven consecutive candy choices might raise suspicions about our study's purpose, so we took several steps to mitigate this concern. First, in our cover story, we informed participants that we were most interested in their opinions about candy and which ones they preferred over others. Second, we attempted to mask our interest in scarcity in the task itself by including control choice sets that displayed equal quantities of the two candy types. Specifically, we ensured that only four of the seven choice sets displayed unequal quantities (2 vs. 8) of candy; the three remaining choice sets offered equal quantities (8 vs. 8). Finally, at the end of the study, we asked participants whether anything about the task seemed strange or unusual and whether they knew the study's purpose. Participants did not indicate suspicion about our interest in scarcity, and they believed the study's purpose was to understand which types of candy people most prefer.

Our dependent variable was the number of times participants chose the less (vs. more) available candy from the four target vending machines. After completing the study, we asked participants to recall the scenario writing task from earlier in the experiment and complete a version of our financial well-being index based on how they felt during the task. Finally, we thanked the participants and gave them the candy they selected from one of the target choice sets.

## Results

**Manipulation Check.** Two independent research assistants who were unaware of our hypotheses and experimental conditions rated participants' responses regarding their financial position using the 5-point scale from the previous studies. The coders' ratings were highly correlated ( $r(76) = .80, p < .0001$ ), so we averaged them to form a single manipulation check measure. As intended, participants in the deprived condition indicated stronger feelings of inferiority and unpleasant affect ( $M = 1.60, SD = .63$ ) than did participants in the control condition ( $M = 3.22, SD = .37; t(76) = 13.93, p < .0001$ ). Ratings in the control condition did not differ from the midpoint value of 3, ( $t < 1$ ), consistent with our "neutral" control label. No other effects on the manipulation check were significant, and none of the participants indicated suspicion about the purpose of the tasks.

**Subjective Financial Well-Being.** Next, we conducted an analysis of variance to examine the effect of our misattribution and deprivation manipulations on participants' subjective financial well-being. There was no main effect of the misattribution manipulation as participants' financial well-being scores did not differ between the no misattribution ( $M = 4.84, SD = 19.4$ ) and misattribution ( $M = 5.15, SD = 1.50$ ) conditions ( $F < 1$ ). Not surprisingly, however, participants in the deprived (vs. control) conditions reported a greater deficit

in their financial well-being ( $M_{\text{deprived}} = 4.55, SD = 1.73$  vs.  $M_{\text{control}} = 5.55, SD = 1.44; F(1, 74) = 9.54, p = .003$ ). Critically, this main effect was qualified by a significant interaction between the deprivation and misattribution manipulations ( $F(1, 74) = 5.10, p = .03$ ). Participants who were not led to associate the whale sounds with unpleasant affect reported greater subjective financial well-being in the control condition ( $M = 5.87, SD = 1.69$ ) than in the deprived condition ( $M = 3.98, SD = 1.69; F(1, 32) = 10.61, p = .003$ ). In contrast, participants in the control ( $M = 5.32, SD = 1.22$ ) and deprived conditions ( $M = 5.02, SD = 1.65$ ) reported similar states of financial well-being when they were told that the whale sounds might induce an unpleasant affective state ( $F < 1$ ). These results indicate that the misattribution manipulation had its intended effect: neutralizing the influence of financial deprivation on participants' subjective sense of financial well-being.

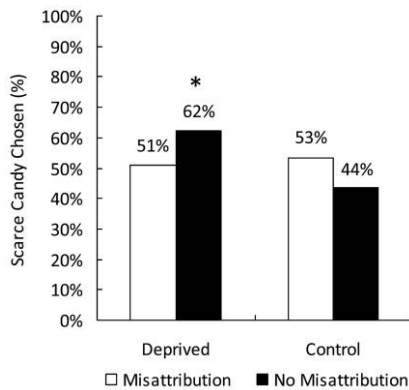
**Choice of Scarce Candy.** An analysis of variance revealed no main effects of the deprivation (deprived vs. control) and misattribution (misattribution vs. no misattribution) manipulations on participants' selection of candy (all  $p < .05$ ), but we found the predicted interaction between these two variables ( $F(1, 74) = 5.09, p = .03$ ). Participants in the deprived (vs. control) condition selected scarce rather than abundant candy, except when they attributed their feelings to the clip of whale songs. Specifically, in the no misattribution condition, on average deprived participants selected a larger proportion of scarce (vs. abundant) candy ( $M = 62.19\%, SD = 17.70$ ) than control participants ( $M = 43.61\%, SD = 17.13; F(1, 32) = 9.65, p = .004$ ). In the misattribution condition, the proportion of scarce candy selected by deprived ( $M = 50.95\%, SD = 21.73$ ) and control ( $M = 53.40\%, SD = 22.67$ ) participants did not differ significantly ( $F < 1$ ; see fig. 2). According to a series of one-sample  $t$ -tests, the only mean that was significantly different from 50% was the mean in the deprived-no misattribution condition ( $t(18) = 3.00, p < .01$ ; all other  $t < 1.63$ ), suggesting that participants either ignored or were indifferent to scarcity in the other conditions. In further support of the relationship between deprivation and preference for scarce goods, participants who reported a greater deficit in their financial position, measured by the financial well-being index, tended to select a larger proportion of the scarce candy ( $r(76) = .23, p = .04$ ). These results replicated the findings from studies 1–4 and confirmed our hypothesis that misattributing the unpleasantness associated with deprivation to an extraneous cue eliminates systematic preferences for scarce goods.

## Discussion

In study 5, we provided further evidence that consumers seek scarce rather than abundant items when they feel financially deprived. We also directly examined the possibility that our participants merely selected scarce candy because deprivation primed them to attend to scarce stimuli. Had the cognitive account explained the data, participants in the de-

FIGURE 2

PROPORTION OF SCARCE CANDY CHOSEN DEPENDING ON THE PRESENCE OF A MISATTRIBUTION CUE (STUDY 5)



NOTE.— \* indicates that mean significantly differs from the 50% chance level, suggesting that participants were partial to scarce rather than abundant candy in comparison to the other conditions and a neutral baseline.

prived condition should have chosen scarce candy regardless of whether they were prompted to misattribute the unpleasantness associated with deprivation to the clip of whale songs. Contrary to this alternative account, when deprived participants blamed their feelings on a plausible alternative source, they no longer felt subjectively deprived or selected scarce rather than abundant goods. Our results suggest that participants implicitly attributed the unpleasantness they experienced to their state of deprivation unless another source was provided. As a result, these participants preferred scarce rather than abundant goods and reported lower subjective financial well-being when asked to recall the deprivation manipulation (the scenario writing task).

Our findings suggest that financial deprivation leads consumers to seek scarce rather than abundant goods. Specifically, in studies 1 and 2, we manipulated scarcity independent of constructs such as uniqueness, popularity, expensiveness, and status, and we showed that deprivation heightens attention to scarce stimuli. In these two studies and the remaining ones, we showed that consumers' tendency to seek scarce items cannot be explained entirely by factors such as cognitive elaboration (study 1), need for uniqueness (study 3), perceived popularity (study 4), price inferences (studies 4 and 5), or status associations (studies 3–5). Instead, we suggested that financial deprivation motivates consumers to seek scarce goods that other people have not acquired to cope with their shaken sense of financial well-being.

## GENERAL DISCUSSION

Across a series of five studies, we examined how scarcity in the environment affected patterns of attention, choice,

and consumption as a function of (1) consumers' subjective financial well-being, (2) the reason why scarce goods were limited, and (3) the motivational drives associated with financial deprivation. We found that financial deprivation enhanced consumers' attention to and preference for scarce stimuli but not when consumers attributed their experience of deprivation to an irrelevant source or believed that those scarce stimuli were limited because many other consumers already possessed them. In addition, these effects persisted when we controlled for consumers' need to express uniqueness and the extent to which scarce goods were associated with attributes such as expensiveness and status.

Our results suggest that strategically seeking items that most consumers are less likely to possess is one way that consumers cope with the imbalance in their financial well-being when it might not be possible to materially change their actual financial position. Furthermore, due to the subjective and comparative components of financial well-being, feelings of financial deprivation are likely to arise in both times of plenty and times of shortage. While consumers tend to experience greater financial well-being during economic booms than during recessions, subjective comparisons can induce a sense of deprivation because the small, extremely wealthy minority becomes particularly salient as its wealth grows; meanwhile, although income disparity tends to shrink during times of economic hardship, consumers are likely to focus on earlier boom periods when they were financially more comfortable. Thus, the drive to consume scarce goods should persist throughout the economic cycle—even for goods that are artificially or accidentally scarce.

## Theoretical Implications

The present research offers several theoretical contributions. With a specific focus on financial (vs. global) well-being assessments, we demonstrated how the affective and cognitive responses associated with deprivation influence various stages of the consumer decision-making process. Specifically, we examined how deprived consumers initially deploy their attentional resources when surveying the consumption landscape and how they subsequently choose from a range of goods and decide how many of those goods to consume. In addition, we identified novel conditions under which consumers prefer scarce stimuli depending on their prevailing psychological motives and intuitions about why the goods are scarce. For example, previous economics research (e.g., Fromkin 1970; Lynn 1991; Verhallen and Robben 1994) has shown that people prefer scarce goods when those goods are limited due to market forces such as high consumer demand rather than nonmarket forces such as an accidental limit in supply. One reason for this preference is that consumers tend to associate goods that are limited due to popular demand with greater value in the marketplace. However, our research suggests that popular demand might actually decrease the desirability of scarce goods under conditions of financial deprivation. Under these conditions, consumers appear to rely less on popular demand as a cue for value and instead attribute greater value to scarce goods that have been less widely acquired by other consumers. That

is, the restricted availability of goods (even if accidental) enhances deprived consumers' preferences for scarce goods to a greater extent than the perceived popularity or market value of those goods. Since financial well-being evaluations are a function of comparisons to both past selves and others (i.e., social comparison), future research might examine whether attributions about scarce goods produce other unique moderating effects. For example, though social comparison tends to be a key predictor of well-being in many life domains (Diener et al. 1999), consumers might place greater emphasis on comparisons to past selves than to others in some contexts. In these contexts, research could test whether the prior consumption of target goods exerts a similar or lesser influence on consumers' preferences. It is possible that other factors (e.g., getting a good deal by maximizing a transaction's economic value) become more important when comparisons to past selves are more salient.

Further building on previous research, our results indicate that the mere perception of scarcity can enhance deprived consumers' responsiveness to goods, even when those goods are not typically considered scarce. For example, participants in studies 3–5 chose between candy that was limited or abundant relative to other candy in their choice set but that was commonly available outside of the experimental condition. These sets of experimental stimuli are important to note for two reasons. First, these stimuli might reconcile seemingly conflicting results in our work and previous scarcity work. Specifically, the results of studies 3–5 indicate that control participants did not prefer scarce rather than abundant goods, whereas previous literature suggests that people should prefer any good to the extent that it is scarce (e.g., Brock 1968). Although our findings might at first seem counterintuitive, we suspect that control participants were relatively insensitive to the scarcity of the target goods because those goods were inexpensive, common, low-involvement goods (e.g., chocolate bars). For products that are truly scarce (e.g., original works of artwork, seats at exclusive restaurants), we would expect nondeprived participants to similarly prefer scarce goods. Second, the commonness of our stimuli is notable because it suggests that the mechanism underlying our effects differs importantly from the mechanisms underlying previous scarcity effects. For example, commonly available products are presumably less likely to provide signaling value, in contrast to products that are truly scarce in the marketplace. Thus, our results suggest that consumers do not prefer scarce goods solely because those goods offer “market” or “signaling” value but also because those goods compensate for feelings of relative financial deprivation. In sum, our findings contribute to the subjective well-being, economics, and marketing literatures by identifying financial deprivation as a factor that shapes consumers' responses to scarce stimuli, suggesting novel contexts in which consumers prefer scarce goods, revealing boundary conditions under which deprived consumers no longer prefer scarce goods, and illustrating the extent of these responses using multiple dependent measures.

## Future Research Opportunities

Our work also suggests several directions for future research. Just as consumers exploit a variety of mechanisms to cope with unfavorable social comparisons (e.g., Gibbons et al. 1994), it is possible that financially deprived consumers pursue additional strategies to improve their dampened sense of financial well-being. Some of these strategies might lead consumers to seek other types of goods, while others might similarly lead consumers to seek scarce goods but for different reasons from those examined in our work. For example, consumers might also seek scarce goods for retributive purposes. That is, acquiring scarce goods might allow consumers to “get even” with financially superior peers; by consuming limited resources, they necessarily deprive others from enjoying the same privilege. Another possibility is that deprived consumers acquire scarce products to set themselves apart from their financially superior peers. By stressing differences between themselves and those peers, consumers might mitigate feelings of self-threat since evaluations based on social comparison are only meaningful when they are formed relative to similar peers (Festinger 1954; Suls and Miller 1997). In other words, acquiring scarce goods might diminish feelings of inferiority relative to financially superior peers by creating the sense that those peers are no longer suitable comparison standards. These alternative possibilities provide interesting opportunities for future research.

In addition, our work raises questions about how deprivation in other life domains differentially affects consumers' attention to and preference for scarce stimuli. For example, prior research has shown that social ostracism and rejection lead consumers to seek goods that foster group affiliation (Mead et al. 2011). Therefore, socially deprived consumers (unlike financially deprived consumers) might prefer scarce goods that are limited in availability due to demand-side rather than supply-side restrictions. Accordingly, socially deprived consumers who seek inclusion might prefer scarce goods that other consumers have already acquired rather than scarce goods that other consumers do not yet possess. Indeed, financially deprived consumers might make similar choices when their exclusion from a financially comfortable group of peers introduces a strong sense of social exclusion. In that case, they may be more motivated to resolve the experience of social exclusion than to ameliorate the sense of financial deprivation. Thus, our findings highlight the wide-ranging outcomes that subjective experiences of deprivation have on consumer behavior and the need for consumer research to further explore the motives and consequences associated with well-being in specific life domains.

Finally, our work provides a springboard for future consumer research on the direct and indirect effects of motives on visual information processing and consumption decisions. Our results suggest that consumers' motivation to improve their state of deprivation influenced their attentional processes by systematically enhancing their perception of scarce rather than abundant stimuli. These findings address several critical issues: (1) they provide converging evidence that deprivation prompts consumers to seek scarce goods; (2) they suggest that deprived consumers are motivated to

seek fundamentally scarce stimuli since this effect occurs for stimuli stripped of extraneous associations (e.g., status, expensiveness, and uniqueness); and (3) they suggest that responsiveness to scarce stimuli might occur at a lower level of information processing rather than at a higher level of decision making. Since attention precedes choice in many contexts, we anticipated these effects assuming that consumers' motivation to seek scarce goods would affect both how they attended to and selected scarce goods. However, our results do not address the causal links between consumers' attention to and preference for scarce goods. For example, consumers might prefer scarce stimuli because they had systematically attended to those stimuli; on the other hand, consumers' attention to scarce stimuli might be driven by preferences established for those stimuli at an earlier time. Thus, our results pose questions about whether consumers' motives might have indirectly (vs. directly) influenced their consumption decisions by first heightening their visual attention to scarcity cues and then enhancing their selection and consumption of scarce goods. Although testing the causal chain between consumers' attention, selection, and consumption of scarce goods was not a primary focus of our research, it could be an interesting opportunity for future research. Indeed, previous literature on motivated reasoning suggests that consumers' desire for goods can affect their gathering of information, processing and interpretation of visual stimuli, and decision making in the service of attaining those goods (e.g., Balcetis 2008; Balcetis and Dunning 2006). Since these processes do not necessarily occur in sequence, future research might uncover a variety of situational factors that determine the causal order of these processes. Currently, little consumer behavior research has focused, jointly, on the multifaceted influence of motivation on visual perception, choice, and consumption.

### Practical Implications

In addition to the theoretical implications discussed, our findings suggest solutions for policy makers who are interested in increasing the frequency of adaptive behaviors such as consuming healthy foods, participating in physical exercise, and adopting long-term savings plans. Since financial deprivation requires consumers to make trade-offs regarding their spending, it might be possible to encourage financially deprived consumers to pursue more rather than less desirable behaviors by accentuating the scarcity of the more desirable options. Ironically, research has shown that people who have the least financial flexibility might be most vulnerable to potentially unsound financial decisions (Shah, Shafir, and Mullainathan 2011). However, if consumers seek scarce items to cope with their financial position, an emphasis on scarcity in the marketplace might make subjective financial well-being more accessible to consumers. More generally, this might be an effective way to promote consumer welfare, particularly for financially deprived consumers who might benefit most from a boost in their well-being.

Meanwhile, the fact that deprived consumers are especially vulnerable to suboptimal financial decision making

(e.g., Shah et al. 2011) shows that scarcity-focused marketing programs sometimes traverse ethically questionable terrain. Especially from a consumer protection standpoint, policy makers and legislators need to consider when it is acceptable to implement scarcity marketing to stimulate consumption during economic downturns. It is possible that such strategies might prompt transiently deprived consumers to overspend—particularly at a time when poor financial decisions might especially hamper their longer-term financial well-being. Thus, the practical implications of our work are twofold: (1) scarcity marketing can be used in several ways to encourage adaptive behaviors in times of economic hardship, but (2) it is critical to consider enforcing strict ethical boundaries for these strategies to protect consumers against potentially deceptive practices.

Our work suggests that people who feel financially deprived develop a transient affinity for scarce goods. Not only do they selectively detect scarce items against a backdrop of abundant items, they also selectively consume scarce goods rather than abundant but otherwise similar alternatives. These findings suggest a novel route along which deprived consumers unwittingly travel as they attempt to alleviate the discomfort that follows deprivation. Our ability to predict when consumers will preferentially approach scarce goods comes with both benefits and costs. Although scarcity-focused marketing programs might attract deprived people to pursue healthy and financially adaptive consumption patterns, those same consumers are vulnerable to predatory marketing practices that capitalize on this foible. Armed with an understanding of this double-edged sword, policy makers and legislators are ideally positioned to shelter those consumers who especially need protection.

## APPENDIX

### ITEMS IN THE FINANCIAL WELL-BEING INDEX

1. Compared to my financial position last year, my financial position this year is:  
*Much worse 1 2 3 4 5 6 7 8 9 Much better.*
2. In comparison to most of my peers, I am financially:  
*Much worse off 1 2 3 4 5 6 7 8 9 Much better off.*
3. Compared to my material possessions last year, my material possessions this year are generally:  
*Much worse 1 2 3 4 5 6 7 8 9 Much better.*
4. In comparison to most of my peers' material possessions, my material possessions are:  
*Much worse 1 2 3 4 5 6 7 8 9 Much better.*
5. In comparison to last year, my ability to spend money freely is:  
*More constrained 1 2 3 4 5 6 7 8 9 Less constrained.*

## REFERENCES

- Alter, Adam L., Daniel M. Oppenheimer, Nicholas Epley, and Rebecca N. Eyre (2007), "Overcoming Intuition: Metacognitive

- Difficulty Activates Analytical Reasoning," *Journal of Experimental Psychology: General*, 136 (4), 569–76.
- Balacetis, Emily (2008), "Where the Motivation Resides and Self-Deception Hides: How Motivated Cognition Accomplishes Self-Deception," *Social and Personality Psychology Compass*, 2 (1), 361–81.
- Balacetis, Emily, and David Dunning (2006), "See What You Want to See: Motivational Influences on Visual Perception," *Journal of Personality and Social Psychology*, 91 (4), 612–25.
- Bless, Herbert, Gerd Bohner, Norbert Schwarz, and Fritz Strack (1990), "Mood and Persuasion: A Cognitive Response Analysis," *Personality and Social Psychology Bulletin*, 16 (2), 331–45.
- Brock, Timothy C. (1968), "Implications of Commodity Theory for Value Change," in *Psychological Foundations of Attitudes*, ed. Anthony G. Greenwald, Timothy C. Brock, and Thomas M. Ostrom, New York: Academic Press, 243–75.
- Bruner, Jerome S., and Cecile C. Goodman (1947), "Value and Need as Organizing Factors in Perception," *Journal of Abnormal Social Psychology*, 42 (1), 33–44.
- Diener, Ed (1984), "Subjective Well-Being," *Psychological Bulletin*, 95 (3), 542–75.
- Diener, Ed, and Robert Biswas-Diener (2002), "Will Money Increase Subjective Well-Being? A Literature Review and Guide to Needed Research," *Social Indicators Research*, 57 (September), 119–69.
- Diener, Ed, and Shigehiro Oishi (2000), "Money and Happiness: Income and Subjective Well-Being across Nations," in *Subjective Well-Being across Cultures*, ed. Ed Diener and Eun-kook M. Suh, Cambridge, MA: MIT Press, 185–218.
- Diener, Ed, and Martin E. P. Seligman (2004), "Beyond Money: Toward an Economy of Well-Being," *Psychological Science in the Public Interest*, 5 (1), 1–31.
- Diener, Ed, Eun-kook M. Suh, Richard E. Lucas, and Heidi L. Smith (1999), "Subjective Well-Being: Three Decades of Progress," *Psychological Bulletin*, 125 (2), 276–302.
- Festinger, Leon (1954), "A Theory of Social Comparison Processes," *Human Relations*, 7 (2), 117–40.
- Fidelity (2011), "Fidelity Survey Finds Millionaires' Outlook for Economy at Highest Level since 2006," <http://www.fidelity.com/inside-fidelity/individual-investing/millionaire-outlook-2011>.
- Fiedler, Klaus (1988), "Emotional Mood, Cognitive Style, and Behavior Regulation," in *Affect, Cognition, and Social Behavior*, ed. Klaus Fiedler and Joseph P. Forgas, Toronto: Hogrefe International, 100–119.
- Frederick, Shane (2005), "Cognitive Reflection and Decision Making," *Journal of Economic Perspectives*, 19 (4), 25–42.
- Fromkin, Howard L. (1970), "Effects of Experimentally Aroused Feelings of Undistinctiveness upon Valuation of Scarce and Novel Experiences," *Journal of Personality and Social Psychology*, 16 (3), 521–29.
- Gibbons, Frederick X., Camilla P. Benbow, and Meg Gerrard (1994), "From Top Dog to Bottom Half: Social Comparison Strategies in Response to Poor Performance," *Journal of Personality and Social Psychology*, 67 (4), 638–52.
- Hsee, Christopher K., Yang Yang, Naihe Lee, and Luxi Shen (2009), "Warmth, Wealth, and Well-Being: Whether Happiness Is Relative or Absolute Depends on Whether It Is about Money, Acquisition, or Consumption," *Journal of Marketing Research*, 46 (June), 396–409.
- Inman, J. Jeffrey, Anil C. Peter, and Priya Raghubir (1997), "Framing the Deal: The Role of Restrictions in Accentuating Deal Value," *Journal of Consumer Research*, 24 (1), 68–79.
- Karlsson, Niklas, Peter Dellgran, Birgitta Klingander, and Tommy Gärling (2004), "Household Consumption: Influences of Aspiration Level, Social Comparison, and Money Management," *Journal of Economic Psychology*, 25 (6), 753–69.
- Karlsson, Niklas, Tommy Gärling, Peter Dellgran, and Birgitta Klingander (2005), "Social Comparison and Consumer Behavior: When Feeling Richer or Poorer Than Others Is More Important Than Being So," *Journal of Applied Social Psychology*, 35 (6), 1206–22.
- Kunda, Ziva (1990), "The Case for Motivated Reasoning," *Psychological Bulletin*, 108 (3), 480–98.
- Lea, Stephen E. G., and Paul Webley (2006), "Money as Tool, Money as Drug: The Biological Psychology of Strong Incentive," *Behavioral and Brain Science*, 29 (2), 161–209.
- Lynn, Michael (1989), "Scarcity Effects on Desirability: Mediated by Assumed Expensiveness?" *Journal of Economic Psychology*, 10 (June), 257–74.
- (1991), "Scarcity Effects on Value: A Quantitative Review of the Commodity Theory Literature," *Psychology and Marketing*, 8 (1), 43–57.
- Mead, Nicole L., Roy F. Baumeister, Tyler F. Stillman, Catherine D. Rawn, and Kathleen D. Vohs (2011), "Social Exclusion Causes People to Spend and Consume Strategically in the Service of Affiliation," *Journal of Consumer Research*, 37 (5), 902–19.
- Rucker, Derek D., and Adam D. Galinsky (2008), "Desire to Acquire: Powerlessness and Compensatory Consumption," *Journal of Consumer Research*, 35 (October), 257–67.
- Schachter, Stanley, and Jerome E. Singer (1962), "Cognitive, Social, and Physiological Determinants of Emotional State," *Psychological Review*, 69 (5), 379–99.
- Schwarz, Norbert (1990), "Feelings as Information: Informal and Motivational Functions of Affective States," in *Handbook of Motivation and Cognition*, Vol. 2, ed. E. Tory Higgins and Richard M. Sorrentino, New York: Guilford, 527–61.
- Schwarz, Norbert, and Fritz Strack (1999), "Reports of Subjective Well-Being: Judgmental Processes and Their Methodological Implications," in *Well-Being: The Foundations of Hedonic Psychology*, ed. Daniel Kahneman et al., New York: Russell Sage, 61–84.
- Shah, Anuj K., Eldar E. Shafir, and Sendhil Mullainathan (2011), "Resource Scarcity and Budgeting Behavior," unpublished manuscript, Princeton University, Princeton, NJ 08544.
- Suls, Jerry M., and Richard L. Miller (1977), *Social Comparison Processes: Theoretical and Empirical Perspectives*, Washington, DC: Hemisphere.
- Tesser, Abraham (2000), "On the Confluence of Self-Esteem Maintenance Mechanisms," *Personality and Social Psychology Review*, 4 (4), 290–99.
- (2001), "On the Plasticity of Self-Defense," *Current Directions in Psychological Science*, 10 (2), 66–69.
- Tesser, Abraham, Murray Millar, and Janet Moore (1988), "Some Affective Consequences of Social Comparison and Reflection Processes: The Pain and Pleasure of Being Close," *Journal of Personality and Social Psychology*, 54 (1), 49–61.

- Tian, Kelly T., William O. Bearden, and Gary L. Hunter (2001), "Consumers' Need for Uniqueness: Scale Development and Validation," *Journal of Consumer Research*, 28 (1), 50–66.
- Van Boven, Leaf, Joanne Kane, A. Peter McGraw, and Jeanette Dale (2010), "Feeling Close: Emotional Intensity Reduces Perceived Psychological Distance," *Journal of Personality and Social Psychology*, 98 (6), 872–85.
- Verhallen, Theo M. M. (1982), "Scarcity and Consumer Choice Behavior," *Journal of Economic Psychology*, 2 (December), 299–322.
- Verhallen, Theo M. M., and Henry S. J. Robben (1994), "Scarcity and Preference: An Experiment on Unavailability and Product Evaluation," *Journal of Economic Psychology*, 15 (2), 315–31.
- Zanna, Mark P., and Joel Cooper (1974), "Dissonance and the Pill: An Attribution Approach to Studying the Arousal Properties of Dissonance," *Journal of Personality and Social Psychology*, 29 (5), 703–9.