Resource Scarcity Spurs Effortful Pursuit of Rewards

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Four experiments demonstrate that resource scarcity induces an achievement orientation and consequently spurs consumers’ effortful pursuit of rewards. Consistent with the achievement-based account, the positive effect of scarcity on effort tolerance is moderated by effort perception; consumers’ lay belief about the effort-outcome link; and self-affirmation.

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Effects of Resource Scarcity on the Consumer Decision Making Process
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Paper #1: Resource Scarcity Spurs Effortful Pursuit of Rewards
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Paper #2: Childhood Resource Scarcity and Planning Fallacy
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Paper #3: When Thoughts of “Having Less” Promote the Desire to Become One’s Best: Reminders of Resource Scarcity Increase the Desire for Self-Improvement
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SESSION OVERVIEW
Consumers are surrounded with cues that emphasize the limited nature of resources. Given the pervasiveness of scarcity cues, consumer researchers have started to document the impact of resource scarcity on various aspects of consumer behavior, such as cognition (Laran and Salerno 2013; Mehta and Zhu 2016; Sharma and Alter 2012), motivation (Roux, Goldsmith, and Bonezzi 2015), attention (Mani et al. 2013), physiological responses (Sevilla and Redden 2014; Zhu and Ratner 2015), and decision making (Griskevicius et al. 2013).

Despite the recent findings demonstrating the linkage between resource scarcity and consumer behavior, we are still scratching the surface of the effects of scarcity. As an attempt to provide deeper insights into the range of scarcity effects on the consumption process, the four papers in the current special session illustrate the impact of resource scarcity on the following consumer decision making stages: need recognition, purchase planning, purchase decision, and post-purchase behaviors (Kotler and Armstrong 2004). Enhancing our knowledge of the interplay between resource scarcity and consumer decision making, these papers examine how various constraints influence consumers’ pursuit of rewards, planning, product choice, and word-of-mouth engagement.

The first two papers examine how resource scarcity shapes consumers’ need recognition and purchase planning. Fan, Zhu and Jiang show that the salience of resource scarcity stimulates consumers’ desire to demonstrate their achievement, which consequently spurs consumers’ effortful pursuit of rewards. Mittal, Laran and Griskevicius further find that when facing financial scarcity, people growing up wealthier tend to have higher self-efficacy beliefs, increasing the likelihood of the planning fallacy because of their underestimation of task time. The third paper by Goldsmith, Tezer and Roux reveals the impact of resource scarcity on consumer’s product choice. Specifically, they find that resource scarcity increases consumers’ interest in and willingness to pay for products that offer self-improvement related benefits. Finally, the fourth paper by Paley, Tully and Sharma examine the post-purchase behaviors under scarcity. They argue that consumers with financial constraints reduce purchase-related word-of-mouth because of the decreased pleasure of discussing monetary outlays.

Taken together, the four papers in the current special session demonstrate the impact of resource scarcity on consumer behavior at various decision making stages. With an attempt to integrate the impacts of resource scarcity in consumer research, this session should appeal to a broad ACR audience interested in topics such as scarcity, consumer motivation, social sharing, planning, and consumer judgment and decision making.

Resource Scarcity Spurs Effortful Pursuit of Rewards

EXTENDED ABSTRACT

The face of human society is ever changing. As we mastered mass production, resource availability has emerged as the order of living in modern industrialized societies, starting to supplant scarcity (Côté 1993, 1996; Riesman 1950). Simultaneously, individuals’ drive to exert effort and achieve rewards has been a fundamental force propelling human society forward (McClelland 1961).

One question that arises is: how does the increasing resource availability in our society affect individuals’ effort exertion during the pursuit of rewards? More importantly, will activating a general sense of resource scarcity versus resource abundance lead to different level of effort tolerance? While extant literature has extensively examined the impact of resource availability on consumers’ cognitive performance (Mani et al. 2015; Mehta and Zhu 2016; Mittal et al. 2015), attention allocation (Mullainathan and Shafir 2013; Shah, Mullainathan, and Shafir 2012) and choice strategies (Griskevicius et al. 2013; Laran and Salerno 2013; Roux, Goldsmith, and Bonezzi 2015; Zhu and Ratner 2015), the motivational consequences of scarcity versus abundance on consumer effort exertion remains an intriguing, uninvestigated question. This issue holds significance as consumers are frequently exposed to contextual cues that may remind them of resource scarcity or resource abundance in daily lives, and such encounters can impact their motivational orientation and affect subsequent reward achievements.

The current research proposes that overall perception of scarcity versus overall perception of abundance increases consumers’ effort tolerance. We argue that this effect occurs because scarcity induces an achievement orientation in the reward-seeking process, i.e., the motivation by which individuals strive to be competent after effort inputs (Elliot and Church 1997). The activated tendency to seek achievement subsequently enhances consumers’ effort exertion during the pursuit of rewards. Our theorization is based on several separate streams of research suggesting that scarcity brings higher perceived constraints and deprives people’s sense of personal control (Lachman and Weaver 1998; Mittal and Griskevicius 2014), the feeling of achievement can potentially serve as a mean to restore personal control through the behaviour-outcome contingency (Heckhausen 1993; Seligman 1975), and that effortful process often provides a sense of value and competence (Aranson and Mills 1959; Norton, Mochon, and Ariely 2012; Weiner 1972).

In experiment 1, participants (N = 171) were asked to either recall three or four situations where they felt that resources are scarce or abundant (Fischhoff et al. 2003; Mehta and Zhu 2016; Roux et al. 2015), or recall three or four things they did during the past week as a baseline control condition. Next, in an ostensibly unrelated task,
participants were asked to type some randomly generated 6-letter strings (e.g., “rlgows”) in the reversed order (e.g., “swoglr”). For each correct string typed, participants received a monetary reward and they were given a maximum of 3 minutes for the task. As expected, participants in the scarcity condition typed more strings and persisted longer in the task than those in the abundance and control conditions (No significant difference was found between the two).

Experiment 2 demonstrates that, rather than activating a general motivation to earn monetary incentives, scarcity only increases consumers’ intention to pursue rewards when the reward-seeking process requires effort exertion. We employed a 2 (scarcity vs. abundance) × 2 (effortful vs. effort-free) between subject design (N = 447). After completing the same resource manipulation as experiment 1, participants indicated their intention to join a customer reward program. We manipulated effort perception by informing participants that they would need to call the customer service and provide a 10-digit validation code to the representative in order to receive a monetary rebate after each purchase (effortful condition), or that they would receive the monetary rebate after each purchase without any extra procedure (effort-free condition). Whereas participants in the scarcity (vs. abundance) condition indicated higher intention to join the effortful reward program, there was no significant difference across the two groups when the reward program was effort-free.

Experiment 3 provides direct process evidence by showing the mediating role of achievement orientation and the moderating role of consumers’ lay belief about the relationship between effort and achievement. After finishing the same resource (scarcity vs. abundance) recall manipulation as in experiments 1 and 2, undergraduates (N = 209) indicated their intention to join an effortful reward program provided by a chain coffee shop, which required consumers to download a smartphone app and enter a 10-digit validation code into the app to receive a future discount after each purchase. Consistent with our theorization, participants in the scarcity (vs. abundance) condition indicated higher intention to join the reward program, an effect mediated by achievement motivation and attenuated for those participants who did not believe that greater effort leads to greater achievement (Mirels and Garrett 1971).

Experiment 4 provides further process evidence by demonstrating the moderating role of self-affirmation through a 2 (scarcity vs. abundance) × 2 (affirmation vs. control) between subject design. Participants (N = 470) first read a fictitious news article that highlighted either the scarcity or abundance of five natural resources, and wrote about how the article could be relevant to them and affect their personal life. Next, while half of the participants wrote about three or four positive aspects of themselves, or occasions in which they behaved positively (Blanton et al. 2001; the self-affirmation condition), the other half listed three or four features of their immediate environment (the control condition). Finally, all participants indicated their intention to join a customer reward program similar to the one used in experiment 3. As expected, participants in the scarcity (vs. abundance) condition indicated higher intention to join the reward program, a difference that disappeared when the participants’ sense of achievement was restored through self-affirmation.

The current research contributes to the existing scarcity literature by documenting a positive linkage between scarcity and consumers’ effort tolerance during reward-seeking. By systemically investigating the mechanism underlying this effect, this research also extends our understanding of achievement orientation in the marketing context. Further, our research offers rich practical implication for marketers in terms of how to better utilize the level of consumer effort embedded in their marketing activities.

## Childhood Resource Scarcity and Planning Fallacy

### EXTENDED ABSTRACT

25% of children in the U.S. live below the poverty line and 23% more can be classified as living in low-income households (Addy and Wight 2012). How does growing up in a world of resource scarcity affect people’s judgment and decision making? Previous research has predominantly found that growing up in resource-deprived conditions is associated with poor judgment and decision making. This paper suggests that this may not always be true.

We report results from three experiments showing that people growing up wealthier are more likely to exhibit a planning fallacy by underestimating the time it would take them to carry out future tasks. Additionally, consistent with recent research, the effects of childhood environment on planning fallacy were observed only under current conditions of financial threat. This suggests that the effects of childhood resource scarcity on people’s planning psychology may be dormant until they experience a threat later in life.

The goal of Study 1 (N = 138) was to examine whether childhood resources influence people’s estimates of task completion times. Participants were randomly assigned to one of two conditions: financial threat or control. Those in the financial threat condition wrote three indicators that suggest the economy is becoming increasingly unpredictable and that resources are becoming scarcer. Those in the control condition wrote three indicators that suggest the economy is getting better and that resources are becoming abundant. Next, participants were informed that they would be seeing a piece of text on the next screen and that their task was to accurately count the number of times the letter ‘e’ appears in it. But before they started, they were asked to estimate the time they thought it would take them to complete the task. The number of seconds participants entered served as the dependent variable. Finally, a validated measure assessed participants’ level of childhood resource-availability (Rindfleisch et al. 1997).

Results from Study 1 show that people from different childhood environments had significantly different task completion estimates in response to threat (F(1, 134) = 13.46, p < .001). As predicted, people who reported higher childhood resources estimated that it would take them a shorter time to complete the task especially in the financial threat condition (β = -.26, p = .030) but not in the control condition. This means that those from resource-rich backgrounds exhibited a planning fallacy during conditions of financial threat. No effects were observed for the actual time spent on the task.

Study 2 replicated the results of Study 1 using a consumer shopping task. Participants (N = 141) were randomly assigned to either a control or a financial threat condition as in Study 1 and were told that their task was to search and report the current prices for products on a ‘holiday shopping’ list from three popular retail websites: Amazon.com, Target.com, and Walmart.com. Before beginning the shopping task though, they were asked to estimate the time they thought it would take them to do the task given that most people took about 325 seconds to do it (based on a pretest).

Results from Study 2 once again showed that people’s estimates of how long it would take them to complete the shopping task depended on resource availability during childhood as well as their current condition (F(1, 137) = 6.3, p = .013). Further analysis confirmed that people with greater level of childhood resources estimated lower amount of time (planning fallacy) but only in the financial threat condition (β = -.29, p = .016). As predicted, there were no differences in actual time taken to complete the shopping task indicating that time estimates do reflect an error in judgment.
Study 3 investigated the psychological mechanism underlying the effect of childhood resource scarcity on planning fallacy. Considerable past research suggests that the tendency to havelower time estimates for future tasks (i.e. planning fallacy) occurs because of people’s optimistic beliefs regarding their own abilities (Buehler, Griffin, and Peetz 2010; Kruger and Dunning 1999; Taylor and Brown 1988). Based on this work, we predicted that people from different socioeconomic backgrounds may have different estimates of task completion times because of varying levels of self-efficacy. Thus, we tested whether self-efficacy may be a psychological mechanism underlying this effect.

The procedures and materials for Study 3 (N=152) were identical to those used in Study 1. The only major change in Study 3 was the inclusion of an established measure of self-efficacy beliefs (Lachman and Weaver 1998). Results again showed that people from wealthier childhoods underestimated task completion times especially in response to financial threat (F(1, 148) =5.48, p = .021), replicating findings from Studies 1 and 2. Furthermore, we also found a similar interaction for self-efficacy beliefs (F(1, 148) = 6.57, p = .011), such that participants from wealthier childhoods reported significantly higher self-efficacy in the financial threat condition (β = .45, p < .001) but not in the control condition. Finally, a 5000 resample bootstrap using PROCESS macro revealed an indirect effect of childhood resources and financial threat on time estimates via self-efficacy beliefs, b = -3.08, 95% CI [-8.89, .42], establishing statistical mediation.

Taken together, three studies showed that people from wealthier backgrounds underestimated the time it would take them to complete future tasks in response to conditions of threat, indicating a planning fallacy. Furthermore, mediation analyses showed that the reason for this effect is that facing financial threat changed people’s perceptions of self-efficacy as a function of their childhood environment. People from wealthier backgrounds indicated greater self-efficacy in response to threat, leading them to commit a planning fallacy. These studies are among the first to show that growing up wealthy can have negative effects on consumers’ judgment and decision making.

When Thoughts of “Having Less” Promote the Desire to Become One’s Best: Reminders of Resource Scarcity Increase the Desire for Self-Improvement

EXTENDED ABSTRACT

Although a great deal of research has investigated how consumers make trade-offs between choice outcomes that offer comparatively utilitarian versus hedonic benefits (e.g., Dhar and Wertenbroch 2000), far less is known about the psychological antecedents of how consumers weigh self-improvement related benefits in their decision making (Allard and White 2015). The current research addresses this by examining how considerations of resource scarcity affect the desire for self-improvement and the relevant consequences for consumer decision making.

We draw from previous research demonstrating that reminders of resource scarcity promote the desire to advance one’s own welfare (e.g., Aaroe and Petersen 2013; Durante et al. 2015; Roux, Goldsmith and Bonezzi 2015) to offer the novel prediction that considerations of resource scarcity will increase the desire for self-improvement, and accordingly will increase consumers’ interest in and willingness to pay for products offering self-improvement related benefits. Indeed, products that offer self-improvement related benefits contribute to advancing one’s own welfare through the improvement of one’s relative standing (Sedikides and Skowronski 2000; Sedikides et al. 2006). Having superior qualities or skills can be considered as a resource that an individual possess over others (Brock and Brannon 1992). Further, these types of resources can be particularly useful for the advancement of one’s own welfare in contexts of heightened interpersonal competition (e.g., an economic recession; Durante et al. 2012; Griskevicius et al. 2012; Hill et al. 2012).

We tested our predictions in four experiments. Experiments 1 (N=82) first examined whether considerations of resource scarcity increase the desire for self-improvement. Participants in the scarcity condition were asked to recall times when they felt resources were scarce, whereas those assigned to the control condition were asked to list activities they did in the past week (Roux et al. 2015). Next, all participants completed a 4-item desire for self-improvement measure (Allard and White 2015). Finally, all participants completed a 4-item measure designed to assess their perceptions of scarcity (Roux et al. 2015). Participants in the scarcity condition showed an increased desire for self-improvement (M_{Scarcity}=2.45 vs. M_{Control}=2.06; p=.04). Further, participants’ perceptions of scarcity mediated the effect of scarcity on the desire for self-improvement (95% CI=[.013; .396]).

Next, experiment 2 (N=116) tested whether the effect of scarcity on self-improvement carries over to product choice. Participants first completed the scarcity manipulation used in experiment 1. Next, participants were presented with a choice between two bottles of VitaminWater, one which was framed as offering self-improvement related benefits (i.e., improving mental performance) and one which was not (i.e., providing hydration; Allard and White 2015). Considerations of scarcity increased choice of the self-improvement related product (P_{Scarcity}=65.9% vs. P_{Control}=46.7%; p=.05).

Experiment 3 (N=170) tested whether the effect of scarcity on the desire for self-improvement had implications for willingness-to-pay (WTP) using an incentive-compatible, consequential choice task (adapted from Becker, DeGroot and Marschak 1964). Participants first completed the scarcity manipulation used in studies 1 and 2. Next, participants were presented with a set of Post-it Notes, for which self-improvement benefits were either highlighted or not (adapted from Allard and White 2015). WTP was assessed using 20 binary choices, where participants had to indicate their preference between receiving the product they had been shown or a certain amount of money ($0.10-$2.00 in $0.10 increments). Participants were instructed that, following the completion of the experiment, the computer would randomly select one of their choices and they would receive the option selected. Results showed an interaction between scarcity and self-improvement related benefits (p<.01). When self-improvement related benefits were highlighted, scarcity increased WTP (M_{Scarcity}=$0.73 vs. M_{Control}=$0.47; p=.03), but conversely decreased WTP (M_{Scarcity}=$0.43 vs. M_{Control}=$0.56; p=.04) when these benefits were not highlighted.

Experiment 4 (N=81) tested whether individual differences in desire for control (DFC; Burger and Cooper 1979) moderated the effect of scarcity on self-improvement. Prior research has shown that the desire for self-improvement is rooted in the desire to control future outcomes (Sedikides and Skowronski 2000; Sedikides et al. 2006; Trope, Gervey, and Bolger 2003), suggesting that the preference for self-improvement related benefits, following considerations of resource scarcity, should be accentuated (attenuated) for individuals that have a higher (lower) DFC. Participants first completed the 20-item Desirability of Control Scale (Burger and Cooper 1979). Next, scarcity was manipulated by asking participants to list things they would be unable to do if certain resources were unavailable (e.g., water; Roux et al. 2015). Participants in the control condition were asked to list things that they could do with the same resources. Finally, participants reported their likelihood of trying a smartphone application offering self-improvement related benefits (Allard and
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White 2015). Results revealed that scarcity increased trial intentions ($M_{好奇心}=5.07$ vs. $M_{好奇心}=4.26$, $p=.04$). Further, there was a significant interaction between scarcity and DFC ($β=.86; p=.014$), with scarcity (vs. control) increasing trial intentions for participants whose DFC score was 5.00 ($β=.38; p=.05$) and above.

In summary, across four experiments, we demonstrate that considerations of resource scarcity promote the desire for self-improvement, which in turn increases consumers’ interest in and willingness to pay for products offering self-improvement related benefits. Although further research is necessary to fully understand the boundaries of these effects, this research provides an important step towards a better understanding of the specific desires that are instantiated in response to considerations of resources scarcity and their consequences.

Too Constrained to Converse: Financial Constraints Reduce Word-of-Mouth

EXTENDED ABSTRACT

Financial constraints are defined as the belief that one’s financial situation restricts her desired consumption (Tully, Hershfield, and Meyvis 2015). Such constraints are prevalent and span multiple socioeconomic levels (Lusardi, Schneider, and Tufano 2011; Moore 2013), and researchers have demonstrated how such constraints impact a range of preferences and purchasing decisions. However, less research has examined whether financial constraints influence post-purchase behavior. In this work, we examine one form of post-purchase behavior that has been shown to greatly impact both consumers’ future behavior and company performance: word-of-mouth.

Word-of-MOUTH (WOM) is the highest ranked source for trustworthy recommendations of products and services (Nielsen 2015). Accordingly, it is increasingly important for companies to understand factors that drive purchase-related WOM. In this work, we argue that financial constraints reduce the propensity to engage in WOM. Although it may be enjoyable for people to tell others about purchases they have made, we argue that the pleasure of discussing one’s purchases is lessened when one feels financially constrained, because monetary outlays are less pleasant to discuss. Accordingly, we do not expect financial constraints to reduce consumers’ likelihood of sharing in general. Instead, we expect this effect to be specific to one’s monetary outlays (e.g., products they have purchased vs. received as gifts).

We demonstrate the predicted effect with consumers’ real purchases using a range of purchase categories, measures of WOM, and audience types. Through both mediation and moderation, we provide evidence for the proposed process, while ruling out other possible accounts (e.g., impression management concerns, decreased interest in sharing in general).

In study 1, we assessed the relationship between WOM frequency and perceived financial constraints. In counterbalanced order, we measured participants’ financial constraints using a 4-item scale. We also measured the frequency with which participants discuss both products and brands they buy. Participants who felt more financially constrained indicated talking less frequently about products they purchase, $b = -.248$, $t(398) = -3.81$, $p < .001$. They also reported having less frequent discussions about brands they buy, $b = -.330$, $t(398) = -4.89$, $p < .001$. This relationship emerged irrespective of whether participants indicated their financial constraints before or after reporting their frequency of purchase-related word-of-mouth.

In study 2, we explored the association between consumers’ financial constraints and their decision to discuss their purchases in an anonymous online context. We created two real online chat rooms and invited participants to engage with others about their purchases (vs. a pretested alternative topic: local/state parks). We measured participants’ financial constraints using the 4-item scale from study 1 and then tracked their posting behavior. Results revealed that those who felt financially constrained were less likely to choose to post in the purchases chatroom, $b = -1.86$, $SE = .082$, $p = .023$.

In study 3, participants first identified an upcoming discretionary purchase. Next, they were randomly assigned to one of two between-subjects conditions. They either reflected on the factors contributing to their financial constraints (financial constraint condition) or listed 10 facts they know to be true (control condition). Then, participants indicated their likelihood of engaging in WOM. As predicted, financially constrained consumers were less likely to engage in both online and interpersonal WOM about the purchase they mentioned, $F(1, 251) = 5.23$, $p = .023$. This effect was explained by reduced anticipated pleasure from discussing one’s purchase, 95% CI [-.8788, -.1251] (Hayes 2013).

In study 4, we considered whether financially constrained consumers were less likely to share because they did not want to publicize unnecessary spending for fear of negative judgments from others. Therefore, we examined whether the proposed effect persisted for utilitarian purchases. Participants wrote about an upcoming hedonic or utilitarian purchase and then were assigned to one of the two financial constraint conditions from study 3. Although participants were more willing to discuss hedonic (vs. utilitarian) purchases, $F(1, 400) = 27.96$, $p < .001$, this effect did not depend on their level of financial constraints, $F < 1$. Critically, financially constrained participants were less likely to share regardless of purchase type, $F(1, 400) = 7.18$, $p = .008$. Participants in the financially constrained condition anticipated less pleasure from discussing their purchases. These findings mediated the effect of financial constraints on reduced WOM, 95% CI [-.4843, -.0177], and other process accounts (e.g., self-presentation concerns) could not similarly explain the effect, $F < 1$.

We have proposed that financially constrained consumers are less likely to engage in word-of-mouth because of the reduced pleasure associated with discussing their monetary expenditures. If this effect is indeed a function of financially constrained consumers’ aversion to discussing their monetary outlays, then our results should not apply to all word-of-mouth contexts. Instead, the effect should be specific to contexts in which participants are discussing their own monetary expenditures. Thus, study 5 followed a 2 (financial constraint vs. control) x 2 (product: purchase vs. gift) design. Conducted during the holiday season, all participants identified a future discretionary purchase and then imagined either purchasing that item or receiving it as a gift. They then received either the financial constraint or control condition, and then tracked their posting behavior. Results revealed that those who imagined purchasing the item mentioned, participants in the financial constraint condition had lower posting intentions than participants in the control condition, $F_{purchase\_single\_effect}(F(1, 852) = 9.85, p = .002$; however, the same difference did not emerge among those who imagined receiving the item as a gift, $F_{gift\_single\_effect} < 1$.

In sum, we find that financially constrained consumers are less likely to engage in WOM for their purchases. This research is among the first to examine how financial constraints affect consumers’ post-purchase behavior, and contributes to our understanding of the drivers of WOM. From a managerial perspective, it suggests that the extent to which companies can dissociate purchases from the costs spent, they may more effectively increase social media engagement.


