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I Don't Have Now, But I Will Make Sure I Have Later: Saving For the Future Under Resource Deficiency Mindset

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Consumers are less likely to save under a resource deficiency mindset than under a resource abundance mindset. However, when shifting consumers' focus to their future-self (vs. their current self), the effect is reversed and saving behavior increases under a resource deficiency mindset.

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How Past, Present, and Expected Future Resource Scarcity Shapes Decision Making for One's Present and Future Wellbeing

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Paper #1: Early-life Scarcity, Life Expectancy, and Decision-Making

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Paper #2: The Food Scarcity Heuristic: People Overestimate the Caloric Content of Scarce Foods

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Paper #3: Acting on Information: Reminders of Resource Scarcity Promote Adaptive Behavior and Flexible Thinking

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Paper #4: I Don't Have Now, But I Will Make Sure I Have Later; Saving for the Future Under Resource Scarcity Mindset

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SESSION OVERVIEW

"I'd like to live as a poor man with lots of money." Pablo Picasso got it right. Only a poor man can truly value having lots of money, because only when one experiences a scarcity of resources does one feel the need to regain resources and appreciate having them.

This special session seeks to provide an overarching look at the impact of resource scarcity, whether experienced in the past, activated in one's mind in the present, or induced to be associated with one's future, on people's decision making and, consequently, their present and future well-being.

Resource scarcity is the extent to which an individual experiences a shortage of resources (Abrams 1992). Recent literature has drawn our attention to the profound effects that experiencing resource scarcity has on people's decisions and behaviors (e.g., Laran & Salerno 2013; Levontin, Ein-Gar, & Lee 2015; Roux, Goldsmith & Bonezzi 2015; Shah, Mullainathan, & Shafir 2012; Sharma & Alter 2012; Zhu & Ratner 2015). This special session aims to build on and extend this previous work by addressing the following overarching question: How does experiencing resource scarcity throughout one's life impact one's judgments and decision making? What are the short and long term effects of experiencing resource scarcity on consumer well-being? Four papers will attempt to answer these questions.

The first paper, by Mittal and Griskevicius, investigates the impact of resource scarcity experienced in the past. They find that experiencing scarcity during childhood prompts people to hold expectations of a shorter life span, which leads them to save less for retirement. The next two papers look at the immediate consequences of experiencing resource scarcity in the present. Specifically, the second paper by Sevilla and Salerno shows that, when individuals are made to believe that certain foods are scarce, they value that resource more, as evident by their overestimation of the food's caloric value. The third paper by Goldsmith, Roux, and Wilson demonstrates how considerations of scarcity heightens people's information-processing abilities by making them better able to identify information relevant to the costs and benefits inherent to different outcomes, and adap-

tively respond to this information to benefit the self. Finally, the last paper explores how associating resource scarcity with one's future influences people's decision-making. Specifically, Ein-Gar, Levontin and Lee find that a scarcity mindset prompts people to put away less money for saving. However, when people are asked to consider their future-self, a scarcity mindset leads them to allocate more money to savings.

Taken together, these four papers provide a panoramic view, from past to future, of how resource scarcity affects our lives and impacts our present and future well-being. Specifically, the first two papers explore how facing resource scarcity can hinder consumer well-being, due to lower perceptions of longevity and increased food valuation. Conversely, the third and fourth papers demonstrate a positive impact of experiencing scarcity, in terms of greater cognitive flexibility and greater saving to benefit one's future self.

Early-life Scarcity, Life Expectancy, and Decision-Making

EXTENDED ABSTRACT

Disparities in financial outcomes stemming from socioeconomic inequalities are a matter of concern for policy makers, researchers, and the society. Yet why people at the bottom of the pyramid respond by behaving in ways that worsen their situation is an unresolved puzzle. A leading reason offered by recent research is that growing up with less leads to certain psychological tendencies that make it difficult to escape poverty (Haushofer and Fehr 2014). However, very little is known about what these psychological tendencies are and what behaviors they affect. Our goal in this paper is to propose one such tendency and to examine its impact on people's financial decisions.

We propose that financial disparities among people from dissimilar socioeconomic backgrounds are a result of differences in their subjective life expectancy – the age up to which people expect to live. Our predictions are derived from life history theory (Stearns 1992), and we conducted three experiments to test our hypotheses. Results show that people's subjective life expectancies are closely tied to their childhood socioeconomic status. Those who grew up in resource-poor environments expected to live up to a significantly lower age as compared to those who grew up in resource-rich environments. Furthermore, in line with recent research, we find that childhood-rooted differences were most strongly evoked in stressful contexts such as when people faced financial threats in their current environment. Finally, we show how differences in subjective life expectations lead to differences in people's financial decisions such as their retirement allocation.

In Study 1 (N=123), we examined our basic prediction that people's life expectancy varies depending on their childhood resources in response to conditions of financial threat. We experimentally manipulated threat by having participants write three indicators that suggest the economy is becoming increasingly unpredictable and that resources are becoming scarcer (Mittal & Griskevicius 2016). Those in the control condition wrote three indicators that suggest the economy is getting better and that resources are becoming abundant. We then measured the age to which people expected to live up to using a slider scale running from 18 to 100 years, and the level of their current and childhood resources (Rindfleisch et al. 1997). As

predicted, there was a significant Condition X Childhood SES interaction ($F(1, 119)=7.45, p=.007$). Results showed that although subjective life expectations for people from different backgrounds were similar in the control condition ($\beta=.02, p=.863$), they diverged in the resource threat condition. Consistent with our predictions, we found that people who grew up in resource-poor environments expected to live to a significantly lower age than people who grew up in resource-rich environments in the resource constraints condition ($\beta=.50, p<.001$). Importantly, these expectations did not vary as function of respondents' current economic conditions.

Study 2 ($N=101$) conceptually replicated and extended the findings from the first study by examining whether people's childhood resources impacted the number of years they thought their retirement would last. Participants arrived in lab in small groups and were randomly assigned to either the resource abundant control or the resource scarcity threat condition. Same manipulations as in Study 1 were used. Next, participants reported the age to which they expected to live up to using the same measure as in Study 1. In addition, they indicated the number of years they expected their retirement savings to last assuming they retired at the age of 67. Consistent with the results from Study 1, there was a significant Condition x Childhood Resources interaction for subjective life expectancy ($F(1, 97)=16.7, p<.001$). Further analyses showed that people who grew up in resource-poor environments expected to live to a significantly lower age than people who grew up in resource-rich environments in the resource threat condition ($\beta=.49, p<.001$). We also found a significant Condition X Childhood Resources interaction for longevity of retirement ($F(1, 97)=9.03, p=.003$), such that threat led people from poor backgrounds to expect to live a significantly less number of years after retirement as compared to people from richer backgrounds ($\beta=.39, p=.005$). A mediated moderation model ascertained that the observed effect of scarcity and childhood resources on post-retirement longevity was mediated by subjective life expectancy (95% CI [.94, 7.59]).

The goal of Study 3 ($N=259$) was to examine whether different life expectations in response to financial threats would influence people's investment allocation decisions. Financial threat was manipulated using the same methodology as in studies 1 and 2. Next, people indicated the average age to which they thought people lived up to. Additionally, they indicated the percentage of their annual salary that they wished to allocate for their retirement. People's responses were recorded on a slider scale running from 0% to 25%. Results mirrored the basic finding from Studies 1 and 2. There was a significant Condition x Childhood Resources interaction for subjective life expectancy ($F(1, 255)=5.6, p<.05$). In addition, there was a significant Condition x Childhood Resources interaction for desired retirement allocation ($F(1, 255)=6.25, p<.05$). Analyses suggested that people growing up poorer expected to live to a significantly lower age than people who grew up in resource-rich environments in the resource scarcity condition ($\beta=.28, p<.001$) and were willing to invest less towards their retirement ($\beta=.18, p<.05$). A mediated moderation model ascertained that the effect of childhood resources and current threat on retirement allocation was mediated by people's subjective life expectancy (95% CI [0.03, 0.48]).

These studies provide important new insights into why people from resource deprived backgrounds might make decisions that paradoxically end up hurting them even more. We show that people's subjective life expectations are shaped by people's socioeconomic backgrounds and play a crucial role in driving their financial behaviors later in life. We believe this work has important implications for public policy and researchers who wish to better understand and

improve decision making among people from disadvantaged backgrounds.

The Food Scarcity Heuristic: People Overestimate the Caloric Content of Scarce Foods

EXTENDED ABSTRACT

Past work has demonstrated that scarce objects are perceived as being higher in value (Brock 1968; Fromkin 1970; Verhallen 1982). This perception may have an evolutionary basis, as in ancient times valuable objects were scarce due to their instrumentality for survival in harsh living environments (e.g. Ellis et al. 2009). Such scarce and valuable items included foods that were higher in caloric content (e.g. Pochron 2005). In this research, we investigate whether consumers make the inverse inference, that foods that are perceived as scarce are also higher in calories. We hypothesize this will occur as items perceived as scarce lead consumers to feel relatively deprived of resources, which makes them overvalue the item and overestimate its calories. Our theorizing is in line with past work showing that when financially deprived, consumers seek scarce items (Sharma & Alter 2012), and with past work showing that consumers tend to devalue items that are not immediately needed (Brendl, Markman & Messner 2003). Furthermore, we also expect that the effect will be attenuated when people are able to consume the target food, as this will reduce their need for resources. Our hypothesis is analog to past research demonstrating that while we know that consumers find scarce items to be more valuable (e.g. Brock 1968; Cialdini 2009), they also believe that all valuable items are scarce. In this case, we demonstrate that while highly caloric items may be seen as intrinsically more valuable (Laran and Salerno 2013), consumers will also infer that all foods they perceive as scarce also contain more calories.

Three studies test our hypotheses. Study 1 used a two (food frame: common vs. scarce) x two (food type: healthy vs. indulgent) mixed design. Food frame was between-subjects while food type was within-subjects. Participants ($N = 169$) were told that the researchers were working with an online food vendor to learn more about people's perceptions of the foods the vendor sells. Participants then read some information about the food vendor that varied by condition. In the common food frame condition, participants read that the foods sold by the vendor were common and widely available. Participants in the scarce food frame condition read that the foods were scarce and limited in availability. Participants were then shown 12 pictures of different food items and asked to estimate the number of calories of each food. Six of the foods were healthy (kiwi, blackberries, avocado, radish, dragonfruit, jicama) and six were indulgent (dark chocolate, honey, red wine, cheese, peanut butter, caramel). To determine whether the effect of the food frame was specific to healthy (versus indulgent foods), an average calorie estimate was calculated for both the healthy and indulgent foods. Results showed a main effect of food frame regardless of food type: participants in the scarce food condition rated the healthy foods as higher in calories ($M = 113.04$) than participants in the common food condition ($M = 93.97; F(1, 166) = 7.61, p < .01$). Similarly participants in the scarce condition rated the foods as higher in calories ($M = 156.16$) than participants in the common food condition ($M = 133.42; F(1, 166) = 6.77, p = .01$). An ancillary study in which we controlled for the potential effect of price perceptions by setting an identical cost/price to the different items regardless of scarcity frame, replicated this same pattern of results.

Studies 2-3 build on study 1 by showing evidence of the underlying mechanism responsible for the effect of food frame on calorie perceptions. Study 2 used a one factor (food frame: common

vs. scarce) between-subjects design. Participants ($N = 136$) read the same food frame manipulation from study 1 and then estimated the amount of calories shown in a picture of a serving of kiwi. After estimating the number of calories, participants indicated their current perceptions of resource availability (e.g., “my resources are scarce”). Results showed that participants in the scarce food condition rated the kiwi as higher in calories ($M = 82.48$) than participants in the common food condition ($M = 67.37$; $F(1, 134) = 4.36, p < .05$). In addition, participants in the scarce condition indicated perceiving their own resources to be more scarce ($M = 5.04$) than participants in the common condition ($M = 4.16$; $F(1, 134) = 6.19, p = .01$). A mediation analysis revealed that perceptions of resource scarcity mediated the effect of food frame on calorie perceptions.

Study 3 ($N = 211$) provided further support for this process in a design where we used cashews as our stimulus and manipulated as opposed to measured resource availability. We manipulated resource availability by introducing a condition where participants were allowed to consume as opposed to just evaluate the scarce item they were exposed to. We hypothesized that allowing subjects to consume the scarce product would mitigate their lack of resources, which in turn would deactivate the effect. Consistent with this prediction, we found that while the effect replicated in the absence of the manipulation ($M_{scarce} = 118.82$ vs. $M_{common} = 71.25$; $t(92) = 3.36, p = .001$), it did not when it was present ($M_{scarce} = 82.95$ vs. $M_{common} = 75.78$; $t(115) < 1, n.s.$)

This research builds on past work on the relationship between scarcity and value (Brock 1968; Cialdini 2009) to show that not only do participants believe that scarce items are more valuable, but that they also attribute a higher caloric content to this type of items. Furthermore, we demonstrate that this occurs because scarce items make consumers feel deprived of resources, and such deprivation leads to the overvaluation and subsequent caloric overestimation of the product.

Acting on Information: Reminders of Resource Scarcity Promote Adaptive Behavior and Flexible Thinking

EXTENDED ABSTRACT:

Past research demonstrated that reminders of resource scarcity prompt the desire to advance one’s own welfare (Roux, Goldsmith, & Bonezzi 2015). We posit that, as a consequence, reminders of resource scarcity increase cognitive flexibility, which facilitates the ability to (i) identify information in the decision environment that informs how one’s own welfare can be advanced (i.e., information relevant to the costs and benefits inherent to different outcomes), and (ii) adaptively respond to this information. We provide evidence for our proposed mechanism across five experiments. We demonstrate that considerations of resource scarcity (vs. control) increase cognitive flexibility (experiment 1) and prompt more flexible information processing (experiment 2). We further show that participants in a scarcity condition (vs. control) are more likely to adapt how they allocate monetary resources (experiment 3) and expend their actual effort (experiment 4) as a function of information in the decision environment. Finally, we provide evidence that consumers reminded of resource scarcity (vs. control) more adaptively integrate external information that bears on the cost and benefits inherent to different outcomes into their tradeoff perceptions (experiment 5).

In experiments 1-4, 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. In experiment 1, following the scarcity manipula-

tion, participants’ cognitive flexibility was assessed using a 7-item measure (Martin and Rubin 1995). Participants in the scarcity condition showed greater self-reported cognitive flexibility ($p=.03$). Experiment 2 provided convergent support for these results using a category inclusiveness task, where participants had to rate the extent to which strong, intermediate, and weak exemplars belonged in a given category; a validated correlate of cognitive flexibility (Isen et al. 1985; 1987). Exposure to reminders of resource scarcity increased category inclusiveness ($p=.02$).

Experiment 3 tested for the consequences of this theoretical mechanism by examining if reminders of resource scarcity also promote the adaptive allocation of resources. Following the scarcity manipulation, participants played one of two economic games: dictator or ultimatum. In the former, allocating very little money to the other player is the best way to advance one’s own welfare. In the latter, allocating too little money can jeopardize one’s chances of earning anything, making it more strategic to incur some cost (i.e. allocate some money to the other player) in order to increase the chances of benefitting from the game (i.e. retaining some money). Therefore, we utilize game-type as a manipulation of information in the decision environment that is relevant for understanding the costs and benefits of expending one’s resources (here, money). Results indicated that participants in the scarcity condition were more likely ($p<.01$) to adapt their resource allocation to game-type than those in a control condition ($p>.6$; interaction: $p=.01$).

Experiment 4 tested for a similar pattern of results in allocations of actual effort. Following the scarcity manipulation, participants were asked to make a choice between either two comparable or two non-comparable options (Cho et al. 2013). Expending one’s effort evaluating comparable options should improve one’s likelihood of identifying the best option. However, engaging in effortful comparisons between non-comparable options is unlikely to yield such results. Therefore, we utilize choice set comparability as a manipulation of information in the decision environment that is relevant for understanding the costs and benefits of expending one’s effort on the product selection task. Results showed that participants in the scarcity condition were more likely to incorporate this information into their effort allocation ($p<.01$): they spent more time evaluating comparable options than non-comparable options; whereas choice set comparability produced no effect on effort in the control condition ($p>.3$; interaction: $p=.02$). These findings from experiments 3 and 4 are consistent with our prediction that scarcity increases cognitive flexibility, which promotes the ability to adapt one’s behavior to tradeoff-related information in the decision environment.

Experiment 5 provided more direct evidence in support of the notion that reminders of scarcity (vs. control) cause people to adaptively integrate relevant external information into their tradeoff perceptions. Participants in the scarcity condition were first 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, participants had the opportunity to win an herbal tea of their choosing, with either a high or low probability of winning (between participants). Therefore, we utilize one’s probability of winning as a manipulation of information in the decision environment that is relevant for understanding the costs and benefits of expending one’s effort on carefully evaluating the teas (i.e., the potential benefit is greater if one’s probably of winning is high vs. low). After choosing from a set of twenty teas, participants were asked to rate their agreement with the statement “The benefit I could get from carefully thinking about the teas did not seem worth the effort.” We observed a main effect of the probability of winning, such that the perceived benefit was greater when the probability of

winning was high ($p < .01$). However, consistent with prior results, this was qualified by an interaction between the probability and the scarcity manipulations ($p = .05$): probability of winning affected tradeoff perceptions among participants in the scarcity condition, but not in the control condition. These results support the notion that when the decision environment presents information that is relevant to informing cost-benefit tradeoffs, participants reminded of resource scarcity (vs. control) are more likely to attend to and incorporate that information into their tradeoff perceptions.

In summary, we proposed and found that reminders of resource scarcity promote a cognitively flexible thinking style which allows consumers to (i) identify information in the decision environment that informs cost-benefit tradeoffs, and (ii) adaptively respond to this information. We believe these findings offer theoretical insights into the psychology of scarcity and beyond, in addition to practical insights into when and why resource scarcity might improve decision outcomes.

I Don't Have Now, But I Will Make Sure I Have Later; Saving for the Future Under Resource Scarcity Mindset

EXTENDED ABSTRACT

Based on data from the Federal Reserve, there has been a noticeable uptick in the growth of total savings deposits since the economic crisis in late 2008. However, despite this positive trend of total saving deposits American households are not saving more (Valuepenguin.com). On the contrary, according to the Google Consumer Survey conducted in October 2015, more than 60% of Americans have less than \$1,000 in savings and over 20% of Americans don't even have a saving account. In a recent survey conducted by Banrate.com, only 17% of Americans said they are more comfortable with their savings today versus a year ago, compared with 31% who said they're less comfortable. Individuals in the lowest income bracket are the ones least likely to have an open savings account in the US (Valuepenguin.com).

When people feel financially deprived, they invest effort to attain financial resources (Karlsson et al 2004; 2005 Shah, Mullainathan & Shafir 2012, Sharma & Alter 2012). In particular, perceived financial deprivation is shown to increase preferences for attaining immediate financial resources (earnings) but not for savings (Sharma & Keller 2017). Put differently, individuals who are poor or feel deprived of financial resources tend to save less than those who are rich or feel rich.

In the current research, we propose that a more general resource deficiency or abundance mindset is sufficient to shift people's behaviors related to financial resources. Past research has shown that activations of resource mindsets shifts individuals' motivations between focusing on themselves and their self-resources and focusing on others and other's resources (Levontin, Ein-Gar & Lee 2015; Roux, Goldsmith & Bonezzi 2015). However, people seem to associate putting money aside with feelings of loss rather than abundance (Karlman, Ratan & Zinman 2014). Building on these past findings, the current work show the influence of resource deficiency or abundance mindsets on saving behavior. In particular, we examine the hypothesis that people will save *less* under a resource deficiency mindset than under a resource abundance mindset. However, we also examine how this effect can be reversed. We show how under a resource deficiency mindset people are *more* likely to save if they focus on their future-self rather than their current-self. Past research has demonstrated that focusing on future self can promote savings (Ersner-Hershfield et al 2009; 2011). Counter to intuition, we show that this effect emerges under a resource deficiency mindset We con-

ceptualize this shift in saving behavior as a shift in focus from self to "others" since future-self is more psychologically distant than one's current-self. We conducted two experiments to test our propositions.

Experiment 1: Participants ($n=85$) watched a short video clip of a bag being emptied (resource deficiency mindset) or filled (resource abundance mindset) with different items (Levontin, et al., 2015). Next, participants were asked to imagine that they received a bonus of \$1,000 at the end of the year and could either spend the money on their current-self (a dream vacation, a luxurious restaurant, maintenance expenses), on others (present for a loved one), or on their futures-self (save the money by putting the money in a saving account, put it in the bank for future use). The amount of money allocated to the future-self (savings) served as our DV. Results show that as expected, participants in the resource deficiency mindset condition assigned less of the bonus money to saving ($M=516.93$, $SD=274.93$) than participants in the resource abundance mindset condition ($M=638.84$, $SD=285.90$; $t(1,82) = 1.99$, $p=0.05$).

Experiment 2: In a 2 X 2 design, following the resource mindset manipulation (as in Experiment 1) participants ($n=140$) wrote a letter to themselves, thinking about who they are now (current-self condition) or who they will be in 10 years (future-self condition; van Gelder, 2013). Finally, they completed the bonus task as in Experiment 1. Results show two main effects qualified by an interaction. In the current-self condition, participants in the resource deficiency condition saved *less* ($M=584.933$, $SD=329.033$) than those in the resource abundance condition ($M=669.36$, $SD=306.99$; $F(1,294) = 2.732$, $p=.099$), replicating the results of Experiment 1. However, in the future-self condition participants in the resource deficiency condition assigned *more* of the bonus money to savings ($M=624.25$, $SD=309.91$) than participants in the resource abundance condition ($M=516.33$, $SD=339.07$; $F(1,294) = 3.95$, $p=.048$).

These results offer theoretical and practical insights by highlighting the wide influence of a general (rather than a specific) resource mindset and its effect on saving behavior. Since resource deficiency mindset is easily activated in every-day life (Levontin et al., 2015), savings will only increase if future-self perceptions are also activated prior to savings decisions.

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