

Running head: DIFFUSION OF ENTITLEMENT

Diffusion of Entitlement:  
An Inhibitory Effect of Scarcity on Consumption

Daniel A. Effron

Department of Psychology

Stanford University

Dale T. Miller

Graduate School of Business

Stanford University

Published in 2011 in *Journal of Experimental Social Psychology*, Vol 47, pp. 378-383

The version of record is available at <http://doi.org/10.1016/j.jesp.2010.10.009>

### Abstract

Four studies demonstrated that increasing a desirable commodity's scarcity (i.e., decreasing its supply or increasing demand for it) can inhibit people from claiming the commodity for themselves, thereby delaying its consumption. In Study 1, participants were slower to claim a commodity when its supply was limited versus unlimited. In Study 2, participants expressed more disapproval of someone who took the last commodity compared to the second-last commodity. Participants in Study 3 anticipated that increased demand for a commodity would make them less likely to claim it despite wanting it more. Study 4 showed that the more participants there were who could claim a commodity, the longer it went unclaimed. The inhibitory effect of scarcity was mediated by diminished entitlement to the commodity (Study 3), and increasing entitlement reduced the inhibition against taking scarce commodities (Studies 1 and 2). These findings are discussed in the context of individuals' concern with equality.

Keywords: scarcity, diffusion of entitlement, inhibition, equality norm, social behavior, social influence

## Diffusion of Entitlement:

### An Inhibitory Effect of Scarcity on Consumption

In many contexts, a social norm entitles individuals to no more than an equal-sized portion of shared commodities (Deutsch, 1975). This *equality norm* can influence people's perceptions of fairness, and reduce their consumption of limited resources (Allison, McQueen, & Schaerfl, 1992; Harris & Joyce, 1980; van Dijk & Wilke, 1995; van Dijk, Wilke, Wilke, & Metman, 1999). When this norm is applicable, how do people respond to an increase in a commodity's scarcity caused by diminished supply or heightened demand? If a commodity can be easily partitioned into equal parts, people can continue to meet the requirements of equality by simply reducing further the amount they consume (Rutte, Wilke, & Messick, 1987). Yet some scarce commodities are difficult or impossible to partition, such as objects (e.g., paintings) or privileges (e.g., sitting down on a crowded bus), making equal division impossible. How people respond to the scarcity of these indivisible commodities is the focus of the present paper.

Prior theory and research suggests that scarcity should *increase* consumption when equal division is impossible. One reason is that the impossibility of equal division may free people from the equality norm. Scholars have argued that people distribute commodities more selfishly when equal division becomes difficult (Allison & Messick, 1990; McLean Parks et al., 1996; Young, 1995). Another reason is that scarcity increases commodities' attractiveness by indicating that they are desired by others (Worchel, Lee, & Adewole, 1975) or difficult to obtain (Brock & Ostrom, 1968; Brock & Brannon, 1992; see Lynn, 1991 for a review), or by limiting freedom of choice and sparking reactance (Brehm, 1966; Cialdini, 1988). Unconstrained by the equality norm, heightened attraction could be expected to increase consumption.

By contrast, we consider the possibility that the equality norm can continue to operate even when equal division is impossible, and, as a result, that scarcity *decreases* consumption in this context. Imagine a party with a dearth of appetizers. As the number of guests increases relative to the number of appetizers, we argue, guests will not feel more comfortable violating the equality norm by taking an appetizer. Instead, they may be more reluctant to take one, ironically causing the appetizers to last longer than if there had been more appetizers and fewer guests. More generally, we propose that even when a commodity cannot be divided equally, scarcity can delay its consumption by inhibiting people from taking it for themselves.

We describe this phenomenon as *diffusion of entitlement*. By *entitlement* we mean a shared understanding of the social legitimacy or appropriateness of performing a particular action. Diffusion of entitlement predicts that as the number of people who want a desirable, indivisible commodity increases relative to the number of people who can have it, the less entitled each person will feel to take it, and thus the more time will elapse before someone does so. (Diffusion of *responsibility* describes how, as the number of people who are able to do something *undesirable* increases, the more time elapses before someone does so; Darley & Latané, 1968; Latané & Nida, 1981). Thus, the fewer appetizers there are to feed more guests, the more time should elapse before an appetizer is taken.

We conducted four studies to test whether scarcity can inhibit consumption when equal division is impossible. First, we examined whether decreasing a commodity's supply can increase hesitation to claim it for oneself (Study 1) and increase disapproval of others who claim it (Study 2). Next, we examined whether increasing demand for a commodity can increase individuals' reluctance and hesitation to claim it (Studies 3 and 4). To test the role of diffusion of entitlement and equality in these effects, we examined whether granting an individual more

entitlement than others would reduce inhibition against taking scarce commodities (Studies 1 and 2), and whether felt entitlement would mediate the effect of scarcity on inhibition (Study 3). In conducting these studies, we sought to rule out the alternative explanations that the inhibition against consuming a commodity was due to a reluctance to deplete it (Folkes, Martin, & Gupta, 1993) or the mere presence of others (Petty, Williams, Harkins, & Latané, 1977).

### Study 1

Study 1 sought to demonstrate that diminished supply can delay consumption of a commodity. Each participant and a confederate simultaneously were allowed to claim the privilege of completing a desirable task (the commodity), either believing that only one of them could complete it (*limited* supply condition) or that both could (*unlimited* supply condition). To measure inhibition, we timed how long participants delayed claiming the privilege, predicting that they would hesitate longer when its supply was limited. We expected that this inhibition would arise because participants felt equally entitled to the commodity as the confederate, and we sought to rule out the alternative possibilities that it would simply reflect participants' reluctance to complete the task alone or to exhaust its supply (Folkes et al., 1993). Hence, a third condition aimed to disinhibit participants by making them feel more entitled than the confederate.

### *Method*

#### *Participants*

Forty-four university students (22 females, 21 males, 1 unknown;  $M$  age = 20.14 years,  $SD = 5.21$ ) completed the study individually in exchange for either \$5 or partial course credit.

#### *Procedure*

*Preliminaries.* Participants and a male or female confederate sat back-to-back at separate tables to begin a study about “communicating about attitudes and preferences.” (Confederate gender did not moderate our results). The confederate was called the “communication partner” based on the idea that the equality norm is stronger in cooperative relationships (McLean Parks et al., 1996). A bell had been placed on each table. As a cover story, a male experimenter explained that the research investigated people’s ability to communicate by ringing the bell without speaking, and he asked participants to remain silent for the remainder of the study. A first survey on “consumer preferences” assessed, among filler items, which of two tasks participants would prefer to perform at the present moment: taste-testing jellybeans or completing surveys about food preferences. We expected that tasting jellybeans would be more desirable.

*Manipulation of supply.* Participants read that they could volunteer to complete one of the two tasks, and that after completing it, they would attempt to communicate with the confederate about it by using the bell. Participants randomly assigned to the *limited* supply condition read that only one person (i.e., themselves or the confederate) was permitted to do each task, whereas participants in the *unlimited* supply condition instead read that they and the confederate could both do the same task or could each do a different task. The experimenter and confederate were blind to this manipulation.

*Entitlement manipulation.* Procedures for participants in the *limited-entitled* condition were identical to those in the limited condition, with one exception. At the beginning of the study, the confederate “remembered” a scheduling conflict, and asked to leave 10 minutes early without loss of compensation. Annoyed, the experimenter reluctantly agreed to this request. Because the confederate would now receive the same compensation as participants for less time,

we expected that participants would feel more entitled to complete the desirable task. Results of a separate pilot study suggested that the manipulation had its intended effect.<sup>i</sup>

*Dependent measure.* When participants had read the manipulation of supply, the experimenter asked them and the confederate to ring their bells if they wanted to volunteer for the jellybean task. We measured the time elapsing between when the experimenter completed the instruction and when participants rang the bell. (The confederate did not ring). A computer program surreptitiously recorded audio and graphed a waveform of sound against time (Apple, 2006); inspection of the graph allowed us to measure time with precision to approximately .1 seconds.

After participants completed a filler task, the experimenter separated them from the confederate, probed them for suspicion, and debriefed them.

### *Results*

#### *Exclusions*

We excluded participants who did not prefer to do the jellybean task ( $n = 9$ ), expressed suspicion about the confederate or guessed the hypothesis ( $n = 5$ ), or took vastly longer than the mean time to ring the bell (i.e., 4.78 *SDs*).<sup>ii</sup> Exclusion did not differ by condition,  $\chi^2(2) < 1$ .

#### *Time to claim the desirable task*

The time elapsing before participants rang the bell to claim the desirable (jellybean) task ranged from .27 to 7.27 seconds. We analyzed this variable after correcting its positive skew with a natural log transformation, and found that its mean differed among the three conditions,  $F(2, 26) = 6.95, p < .005$  (see Table 1). As hypothesized, participants took longer to claim the desirable task in the limited condition than in the unlimited condition,  $F(1, 26) = 13.84, p < .005$ ,

$d = 2.44$ . Also as hypothesized, participants took longer to claim it in the limited condition than in the limited-entitled condition,  $F(1, 26) = 4.60, p < .05, d = .93$ .

### *Discussion*

Study 1 suggested that scarcity can delay consumption of a desirable commodity. Participants hesitated longer before claiming the privilege of performing their preferred task when only one person was permitted to perform it (limited supply condition) compared to when more than one person was permitted (unlimited supply condition). This hesitation seems not to have merely arisen from a reluctance to “deplete” the supply or to perform the task alone: When participants thought that the confederate would receive the same payment for spending less time completing the study – a manipulation that pilot testing suggested made participants feel that they were more entitled to the commodity than the confederate – they hesitated less before claiming the desirable, “scarce” task. These findings are consistent with the idea that the inhibitory effect of scarcity stems from the diffusion of entitlement.

### Study 2

An alternative interpretation of Study 1 is that scarcity inhibited consumption because it made equal division impossible. We find this interpretation less persuasive than diffusion of entitlement given that making equal division impossible without increasing scarcity seems to *increase* selfishness in the distribution of commodities (Allison & Messick, 1990; McLean Parks et al., 1996). Study 2 nonetheless helped distinguish between these two interpretations by examining reactions to a person who took either the last or the second-to-last commodity; in both cases, the commodity already could not be equally divided. If scarcity increases diffusion of entitlement, then participants should react more negatively to the person who takes the last commodity.

Study 2 also tested an important boundary condition. If diffusion of entitlement is a product of the equality norm, then entitlement should not diffuse away from an individual to whom that norm does not apply (i.e., someone who is more entitled to the commodity than everyone else). We thus predicted that participants would disapprove more of taking the last versus the second-to-last commodity only when the person who took it was no more entitled than others who wanted it.

### *Method*

#### *Participants*

Commuters ( $N = 103$ ; 55 females, 47 males, 1 unknown;  $M$  age = 29.87 years,  $SD = 8.72$ ) completed the study in exchange for candy while waiting for trains.

#### *Procedure*

Participants read about 10 coworkers eating lunch together. One of them (“Jerry”) either remarks that it is his birthday (*more entitled* condition) or that it is a day like any other (*equally entitled* condition). Someone then puts a plate down in the middle of the table, urging the coworkers to help themselves. On the plate is either one chocolate (*scarcer* condition) or two chocolates (*less scarce* condition) that are “too small and firm to be divided.” Jerry takes a chocolate without hesitating.

Twelve items assessed participants’ disapproval (principal-factors analysis revealed a one-factor solution,  $\alpha = .78$ ; stars indicate reverse coding; endpoints: 1 = “Not at all,” 7 = “Very;”): how embarrassed Jerry should be; how rude, appropriate\*, and legitimate\* his behavior was; how considerate\*, selfish, arrogant, likeable\*, and moral\* participants found him; how much the other coworkers minded his behavior; and how annoyed and upset participants themselves would be if they were among the coworkers. A manipulation check asked how entitled Jerry was

to take the chocolate compared to the other coworkers (-4 = “Much less entitled;” 0 = “Equally;” 4 = “Much more entitled”).

### *Results and discussion*

#### *Manipulation check*

As predicted, participants perceived Jerry as more entitled to take a chocolate relative to the other coworkers when it was his birthday ( $M = .78, SD = 1.07$ ) than when it was not ( $M = -.35, SD = .83$ ),  $t(100) = 5.92, p < .0001$  (one participant did not respond to this item).

#### *Disapproval*

We first squared the disapproval measure to reduce its negative skew. A 2x2 ANOVA revealed two significant main effects,  $F(1, 99) = 24.64, p < .0001$  for entitlement and  $F(1, 99) = 8.39, p < .005$  for number of chocolates, as well as the predicted interaction,  $F(1, 99) = 4.59, p < .05$  (see Figure 1). Planned contrasts confirmed that when it was not his birthday, Jerry elicited more disapproval for taking the last chocolate (*scarce* condition;  $M = 22.51, SD = 3.99$ ; untransformed  $M = 4.73, SD = .42$ ) than for taking the second-to-last chocolate (*less scarce* condition;  $M = 18.17, SD = 3.86$ ; untransformed  $M = 4.24, SD = .48$ ),  $F(1, 99) = 13.08, p = .0005$ . When it was his birthday, however, taking the chocolate elicited little disapproval, regardless of whether it was the last ( $M = 16.39, SD = 4.17$ ; untransformed  $M = 4.01, SD = .60$ ) or the second-to-last ( $M = 15.74, SD = 5.35$ ; untransformed  $M = 3.91, SD = .70$ ),  $F(1, 99) = .65, ns$ .

As predicted by diffusion of entitlement, scarcity increased disapproval for taking a commodity that already was impossible to divide equally. Supporting the role of entitlement in this process, granting the person who took the commodity more entitlement than others (i.e., exempting him from the equality norm) eliminated this effect.

### Study 3

Studies 1 and 2 operationalized scarcity as diminished supply. Study 3 operationalized it as demand, testing the hypothesis that increasing the number of people who want a commodity will inhibit consumption. Study 3 also examined whether people expected demand for the commodity to simultaneously increase their motivation and decrease their entitlement to claim it. Support for this prediction would be found if participants expected to perceive a scarce commodity as more valuable but to feel less comfortable taking it. Finally, Study 3 provided a direct test of the mediating role of entitlement.

#### *Method*

##### *Participants*

Twenty-five students (10 males, 14 females, 1 unknown; age:  $M = 20.63$ ,  $SD = 1.97$ ) completed Study 3 online at the beginning of a longer survey session in exchange for a \$5 gift card to an online retailer.

##### *Procedure*

Participants considered two different scenarios in which they had an opportunity to claim a desirable commodity (a free 1-GB flash drive) while attending a career fair with nine acquaintances. The scenarios differed only in how many of the acquaintances wanted the commodity: two (*low demand*) or nine (*high demand*). Three items measured *entitlement* by asking in which scenario participants would feel that it was more appropriate and legitimate for them to take the flash drive, and in which scenario they would be more entitled to take it ( $\alpha = .92$ ). Finally, participants indicated in which scenario they would be more likely to take the flash drive, and in which scenario they would perceive it as being more valuable. Scale endpoints

were “Much more in [low-demand] Scenario A” (-4) and “Much more in [high-demand] Scenario B” (+4), with the midpoint labeled “Equally in both scenarios.”

Finally, participants indicated how much they would want the flash drive (1 = “Not at all;” 5 = “Very much”) and stated in which scenario there were more people who wanted the flash drive (comprehension check).

### *Results and discussion*

#### *Preliminaries*

Two participants failed the comprehension check and were thus excluded from analysis. Overall, participants expressed moderate desire for the commodity ( $M = 3.09$ ,  $SD = 1.24$ ).

#### *Likelihood of taking the commodity and perceived value*

As predicted, participants thought they would be more likely to take the commodity when demand for it was low, indicated by a mean response significantly lower than the scale midpoint ( $M = -.87$ ,  $SD = .35$ ),  $t(22) = 2.47$ ,  $p < .05$ . At the same time, they said they would perceive it as more valuable when demand for it was high, ( $M = 1.13$ ,  $SD = .31$ ),  $t(22) = 3.65$ ,  $p = .001$ .

#### *Mediation by entitlement*

We followed the logic of within-subjects mediation (Judd, Kenny, & McClelland, 2001) to examine whether scarcity’s effect on the anticipated likelihood of taking the commodity could be explained by entitlement. First, we confirmed that participants thought they would feel more entitled to take the commodity when demand for it was low ( $M = -.72$ ,  $SD = 1.39$ ),  $t(22) = 2.50$ ,  $p < .05$ . Second, greater entitlement in a given scenario predicted greater likelihood of taking the commodity in the same scenario,  $b = 1.05$ ,  $t(21) = 8.02$ ,  $p < .001$ . Finally, the intercept in the same equation indicated that if participants had expected to feel equally entitled in both scenarios, they would not have expected to be more likely to take the commodity in either

scenario,  $b = -.11$ ,  $t(21) = .53$ , *ns*. Calculating the Sobel test, using standard errors derived from equations in the first and second steps described above, revealed that the indirect effect through entitlement was significant,  $z = 2.39$ ,  $p < .05$ . Thus, entitlement significantly mediated the effect of demand for the commodity on the anticipated likelihood of taking it.

In sum, Study 3 suggests that people expect the increased scarcity of a limited commodity to make them want it more but also to make them more likely to inhibit their motivation to take it.

#### Study 4

In Study 4, we sought to show that increasing demand for a limited commodity would inhibit people from claiming it, thereby making it last longer. Participants in groups of varying sizes had an opportunity to claim the privilege of performing a desirable task that was either limited or unlimited in supply. When a commodity's supply is limited, increasing the number of people who want it increases its scarcity by definition. We thus hypothesized that only when the task was limited would increasing group size increase inhibition, which we operationalized as the amount of time that elapsed before someone claimed the task.

#### *Method*

##### *Participants*

Students ( $N = 158$ ; 62 males, 94 females, 2 of unknown gender;  $M$  age = 19.28,  $SD = 1.31$ ) received partial course credit or \$8 to complete a study on “communicating about attitudes.”

##### *Procedure*

*Manipulation of group size.* Unbeknownst to participants, we randomly scheduled them to complete the study in groups of two, four, or six. Due to no-shows, our sample comprised an

approximately equal number of groups with between two and five participants, and one group with six participants, for a total of 45 groups.

*Preliminaries.* A female experimenter seated participants around the perimeter of the laboratory. A bell was placed on the table in front of each participant. In a “first study,” participants wrote about what they liked best about being a being a member of their university community, a time when they felt especially connected to their university community, and a time when they received help from another student at their university. This task, ostensibly a survey of student attitudes, was actually intended to prime a sense of collective identity, which has been associated with greater use of the equality norm and more egalitarian behavior (Kramer & Brewer, 1984; Leung & Iwawaki, 1988).

A “second study” employed a similar cover story as Study 1. Participants learned that they would play a cooperative guessing game in which they would attempt to communicate, by ringing a bell, about one of two tasks, each of which took equal amounts of time to complete and were equally easy to communicate about: “the writing task,” which involved writing numbers backwards by 13s starting at 975, and “the watching task,” which involved watching a short video clip by a popular comedian. A different sample of 33 participants all thought that the watching task sounded more desirable.

*Manipulation of supply.* Participants in the *limited* supply condition read that only one person could do the watching task, whereas participants in the *unlimited* supply condition read that there was no limit to the number of people who could do either task. Everyone who participated in the same group was randomly assigned to the same condition, to which the experimenter was blind.

*Dependent measure.* The experimenter asked participants to ring their bells if they wished to volunteer for the watching task. The time elapsing before the first participant rang was recorded as in Study 1. If no one rang within 20 seconds, the experimenter proceeded.

*Additional measures.* While the experimenter ostensibly prepared the tasks, participants wrote responses to suspicion probe questions, supplied demographic information, and indicated how many of the other participants in their group were friends or were acquaintances but not friends. Finally, participants were debriefed.

## *Results*

### *Exclusions*

We excluded groups in which no one rang a bell within twenty seconds, in which someone rang before the experimenter completed the instructions, or that were regression outliers.<sup>iii</sup> Excluded groups ( $n = 4$ : a 2-person, 3-person, 5-person, and 6-person group) were evenly split between the limited and unlimited conditions.

Ten participants (6%) suspected that we were interested in their choice of tasks, but no one guessed the hypothesis or thought that we were timing their behavior. We retained groups with these 10 participants for our analyses, but our findings remain statistically significant if we exclude them.

### *Time to claim the desirable task*

The time elapsing before someone claimed the desirable task (i.e., the watching task) ranged from .30 to 7.42 seconds. We hypothesized that this time would be longer when the supply of the desirable task was limited versus unlimited. We additionally hypothesized that only when the supply was limited would increasing the group size further lengthen this time. To test these hypotheses, we regressed the natural log of the seconds before the task was claimed

against group size (mean-centered), supply (-1 = unlimited, 1 = limited), and their interaction.<sup>iv</sup>

We also included as covariates the average proportion of each group identified as friends or acquaintances.

Regression results are shown in Table 2. The significant main effect of supply indicates that, as in Study 1 and as predicted, participants overall were slower to volunteer for the desirable task when it was limited than when it was unlimited. The predicted interaction with group size also emerged (see Figure 2). Simple slopes analysis confirmed our hypothesis that when the desirable task was in limited supply, participants would be slower to claim it as the size of the group increased,  $b = .29$ ,  $\beta = .46$ ,  $t(35) = 2.15$ ,  $p < .05$ . Also as predicted, this was not the case when the supply was unlimited: the larger the group, the faster the task was claimed, though not significantly so,  $b = -.17$ ,  $\beta = -.27$ ,  $t(35) = 1.21$ , *ns*. In summary, the more people present who could claim a limited commodity, the longer it lasted.

### *Discussion*

Study 4 once again demonstrated the inhibitory effect of scarcity on consumption. Overall, and consistent with Study 1, groups of naïve participants were slower to claim a desirable commodity when its supply was limited. In addition, when supply was limited, increasing the number of participants who presumably wanted the commodity further delayed consumption. This finding is predicted by diffusion of entitlement, and is especially striking given that, in the absence of social influence, increasing the size of a group should by chance alone shorten the length of time before someone performs any given behavior (Latané, 1981). When the commodity's supply was unlimited, increasing group size did not delay consumption. This observation indicates that our results cannot be explained by the possibility that the mere presence of others inhibits consumption (Petty et al., 1977). Instead, we argue, larger groups

increased inhibition only when the commodity's supply was limited because only then (by definition) did increasing demand also increase scarcity.

### General Discussion

The present research suggests that scarcity can inhibit people from acting on their motivations to claim a commodity for themselves when equal division is impossible. Despite the fact that scarcity increases a commodity's perceived value and therefore presumably the motivation to consume it (Study 3; see Lynn, 1991, for a review), the present research shows that increasing scarcity can delay consumption. When a commodity's supply decreased, participants were slower to take it for themselves (Studies 1 and 4) and expressed more disapproval of someone else who took it (Study 2). When more people were present who wanted a limited commodity, they each became more reluctant to take it (Study 3) and hesitated longer before doing so (Study 4).

#### *Why does scarcity inhibit consumption?*

Our results are consistent with the concept of diffusion of entitlement, which predicts that as a commodity's supply diminishes or as demand for it rises, one's entitlement to claim it and thus one's comfort doing so decrease. Supporting the role of entitlement in our findings, participants became less reluctant to take a scarce commodity when they felt more entitled to it than a confederate (Study 1), they expressed less disapproval of someone who took a scarce commodity when they perceived him as more entitled than others (Study 2), and they anticipated being reluctant to consume a scarce commodity only to the extent that they expected to feel relatively disentitled to do so (Study 3). These results also speak to the role that the equality norm plays in the inhibition against taking scarce commodities. An individual who is more entitled than others to a commodity is presumably exempt from the requirement of receiving no

more than an equal share of it. The equality norm can apparently exert a powerful influence even when equal division is impossible.

*Contributions to prior literature*

The diffusion of entitlement effect advances research on social psychological forces that inhibit or disinhibit the consumption of resources. Our focus on entitlement and equality differs from prior work examining how resource consumption depends on the reluctance to deplete a resource (Folkes et al., 1993), the mere presence of others (Petty et al., 1977), and social labels or roles (Kehret-Ward & Yalch, 1984; Samuelson & Allison, 1994). Moreover, whereas others have assumed that the impossibility of equal division makes resource distribution more selfish (Allison & Messick, 1990; McLean Parks et al., 1996; Young, 1995), presumably because, in part, it frees people from equality norm, the present research indicates that individuals remain concerned with equality even when it is impossible to attain.

*When will scarcity inhibit?*

We believe that scarcity can simultaneously increase two opposing forces: the motivation to consume a commodity, and the inhibition against doing so (cf. Lewin, 1958). Our data suggest that scarcity will sometimes increase the inhibitory force more than it will increase the motivating force. Whether the net effect of scarcity is motivating or inhibiting, however, will depend on several factors.

*Social norms.* Scarcity will most likely increase inhibition when the equality norm is operating. Different norms might produce different effects. For example, in consumer contexts, scarcity may motivate purchasing behavior (Cialdini, 1988) because of a “first-come, first-served” norm. In other contexts, norms might designate a single individual as most entitled to a commodity based on need or contribution to producing the commodity (Deutsch, 1975), or based

on social roles (Samuelson & Allison, 1994). These norms may prevent entitlement from diffusing away from a single individual, thus dampening the inhibitory effect of scarcity.

*Value of the commodity.* As a scarce commodity's value increases, taking it represents a greater violation of equality. Thus, individuals' greater desire to take more valuable commodities may be offset by a greater inhibition against doing so. When commodities are extremely valuable, however, scarcity's motivating effect on consumption may be even stronger than its inhibitory effect, thus making individuals willing to violate the equality norm.

*Divisibility of the commodity.* The goal of the present research was to examine the effect of scarcity on indivisible commodities. When commodities are easily divisible, the equality norm can be satisfied simply by partitioning the commodity into smaller parts. In such cases, the inhibitory effect of scarcity should manifest itself not as delayed consumption but as diminished consumption (Rutte et al., 1987).

#### *Implications and conclusion*

The present research demonstrated that a commodity's scarcity can delay its consumption. One implication of the counterintuitive finding that commodities can last longer when more people want them is that the inhibitory effect of scarcity could prevent commodities from being used efficiently, as when the last appetizer goes to waste because none of the hungry guests takes it. At the same time, the inhibitory effect of scarcity could potentially be leveraged to achieve the goals of conserving scarce resources and preventing overconsumption.

## References

- Allison, S. T., McQueen, L. R., & Schaerfl, L. M. (1992). Social decision making processes and the equal partitionment of shared resources. *Journal of Experimental Social Psychology*, 28, 23-42.
- Allison, S. T., & Messick, D. M. (1990). Social decision heuristics in the use of shared resources. *Journal of Behavioral Decision Making*, 3, 195-204.
- Apple, C. (2006). *Garage band*. Cupertino, CA.
- Brehm, J. (1966). *A theory of psychological reactance*. New York: Academic Press.
- Brock, T. C., & Brannon, L. A. (1992). Liberalization of commodity theory. *Basic and Applied Social Psychology*, 13, 135-144.
- Brock, T. C., & Ostrom, T. M. (1968). Implications of commodity theory for value change. *Psychological foundations of attitudes*. New York: Academic Press.
- Cialdini, R. B. (1988). *Influence: Science and practice*. UK: Harper Collins.
- Darley, J. M., & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology*, 8, 377-383.
- Deutsch, M. (1975). Equity, equality, and need: What determines which value will be used as the basis of distributive justice. *Journal of Social Issues*, 31, 137-150.
- Folkes, V. S., Martin, I. M., & Gupta, K. (1993). When to say when: Effects of supply on usage. *Journal of Consumer Research*, 20, 467-477.
- Harris, R. J., & Joyce, M. A. (1980). What's fair? It depends on how you phrase the question. *Journal of Personality and Social Psychology*, 38, 165-179.
- Judd, C. M., Kenny, D. A., & McClelland, G. H. (2001). Estimating and testing mediation and moderation in within-subject designs. *Psychological Methods*, 6, 115-134.

- Kehret-Ward, T., & Yalch, R. (1984). To take or not to take the only one: Effects of changing the meaning of a product attribute on choice behavior. *Journal of Consumer Research, 10*, 410-416.
- Kramer, R. M., & Brewer, M. B. (1984). Effects of group identity on resource use in a simulated commons dilemma. *Journal of Personality and Social Psychology, 46*, 1044-1057.
- Latané, B. (1981). The psychology of social impact. *American Psychologist, 36*, 343-356.
- Latané, B., & Nida, S. (1981). Ten years of research on group size and helping. *Psychological Bulletin, 89*, 308-324.
- Leung, K., & Iwawaki, S. (1988). Cultural collectivism and distributive behavior. *Journal of Cross-Cultural Psychology, 19*, 35-49.
- Lewin, K. (1958). Group decision and social change. In E. E. Maccoby, T. M. Newcomb & E. L. Hartley (Eds.), *Readings in social psychology* (pp. 197-211). New York: Holt.
- Lynn, M. (1991). Scarcity effects on value: A quantitative review of the commodity theory literature. *Psychology & Marketing, 8*, 43-57.
- McLean Parks, J., Boles, T. L., Conlon, D. E., DeSouza, E., Gatewood, W., Gibson, K., et al. (1996). Distributing adventitious outcomes: Social norms, egocentric martyrs, and the effects on future relationships. *Organizational Behavior and Human Decision Processes, 67*, 181-200.
- Petty, R. E., Williams, K. D., Harkins, S. G., & Latané, B. (1977). Social inhibition of helping yourself: Bystander response to a cheeseburger. *Personality and Social Psychology Bulletin, 3*, 575-578.
- Rousseeuw, P. J., & Leroy, A. M. (1987). *Robust regression and outlier detection*. New York: Wiley.

- Rutte, C. G., Wilke, H. A. M., & Messick, D. M. (1987). Scarcity or abundance caused by people or the environment as determinants of behavior in the resource dilemma. *Journal of Experimental Social Psychology, 23*, 208-216.
- Samuelson, C. D., & Allison, S. T. (1994). Cognitive factors affecting the use of social decision heuristics in resource-sharing tasks. *Organizational Behavior and Human Decision Processes, 58*, 1-27.
- van Dijk, E., & Wilke, H. (1995). Coordination rules in asymmetric social dilemmas: A comparison between public good dilemmas and resource dilemmas. *Journal of Experimental Social Psychology, 31*, 1-27.
- van Dijk, E., Wilke, H., Wilke, M., & Metman, L. (1999). What information do we use in social dilemmas? Environmental uncertainty and the employment of coordination rules. *Journal of Experimental Social Psychology, 35*, 109-135.
- Worchel, S., Lee, J., & Adewole, A. (1975). Effects of supply and demand on ratings of object value. *Journal of personality and social psychology, 32*, 906-914.
- Young, H. P. (1995). Dividing the indivisible. *American Behavioral Scientist, 38*, 904-920.

## Footnotes

---

<sup>i</sup> Forty-two participants read a description of either the *limited* or the *limited-entitled* condition, and indicated whether they would feel more, less, or equally entitled to be the one to perform the desirable task. In the *limited* condition, the majority (81.82%) thought that they would feel equally entitled, whereas in the *limited-entitled* condition, the majority (70.00%) thought that they would feel more entitled,  $\chi^2(1) = 11.49, p = .001$ .

<sup>ii</sup> Including this participant strengthened our results in the direction we report.

<sup>iii</sup> Specifically, these were the two groups that exerted undue influence on the estimation of regression coefficients (based on a *DFITS* that exceeded the conventional cutoff, calculated as .53 in our data; Rousseeuw & Leroy, 1987) and either fell unusually far away from the regression line (studentized residual = 3.36) or had an unusually large *x*-value (i.e., the 6-person group; leverage = .24).

<sup>iv</sup> Group (not individual) was the unit of analysis for all statistical tests.

## Author Note

Correspondence may be addressed to the first author at Jordan Hall, Building 420, 450 Serra Mall, Stanford, CA 94305, or at [effron@stanford.edu](mailto:effron@stanford.edu). We thank Daniel Bui, Tara Guarino, Max Halvorson, Chelsea Groves Kuhnle, Kiradawn Nguyen, and Ben Phillips for research assistance, and Julia Tobias for helpful feedback on a prior draft.

## Tables

*Table 1.* Study 1: Time to claim task (raw and natural-log-transformed data)

Condition	seconds		ln(seconds)	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Unlimited	.82	.43	-0.34	0.57
Limited	2.68	1.08	0.90	0.44
Limited-entitled	1.79	1.53	0.22	0.94

Table 2. Study 4: Summary of regression analysis performed on time to claim desirable task (natural log of seconds)

	<i>b</i>	$\beta$	<i>t</i> (35)
Group size	.06	.09	.61
Supply	.30	.44	2.97**
Group size X supply	.23	.36	2.38*
Proportion friends	.27	.10	.71
Proportion acquaintances	-2.04	-.27	1.70 <sup>†</sup>
Constant	.42		3.57**

Notes. <sup>†</sup> =  $p < .10$  \* =  $p < .05$ , \*\* =  $p < .01$ . Group size is mean-centered, and supply is coded as -1 = unlimited, 1 = limited. Proportion of friends and acquaintances ranges from 0 to 1.

## Figures

Figure 1. Study 2: Mean disapproval ( $\pm SE$ ) in response to taking the last vs. second-to-last chocolate (untransformed data).

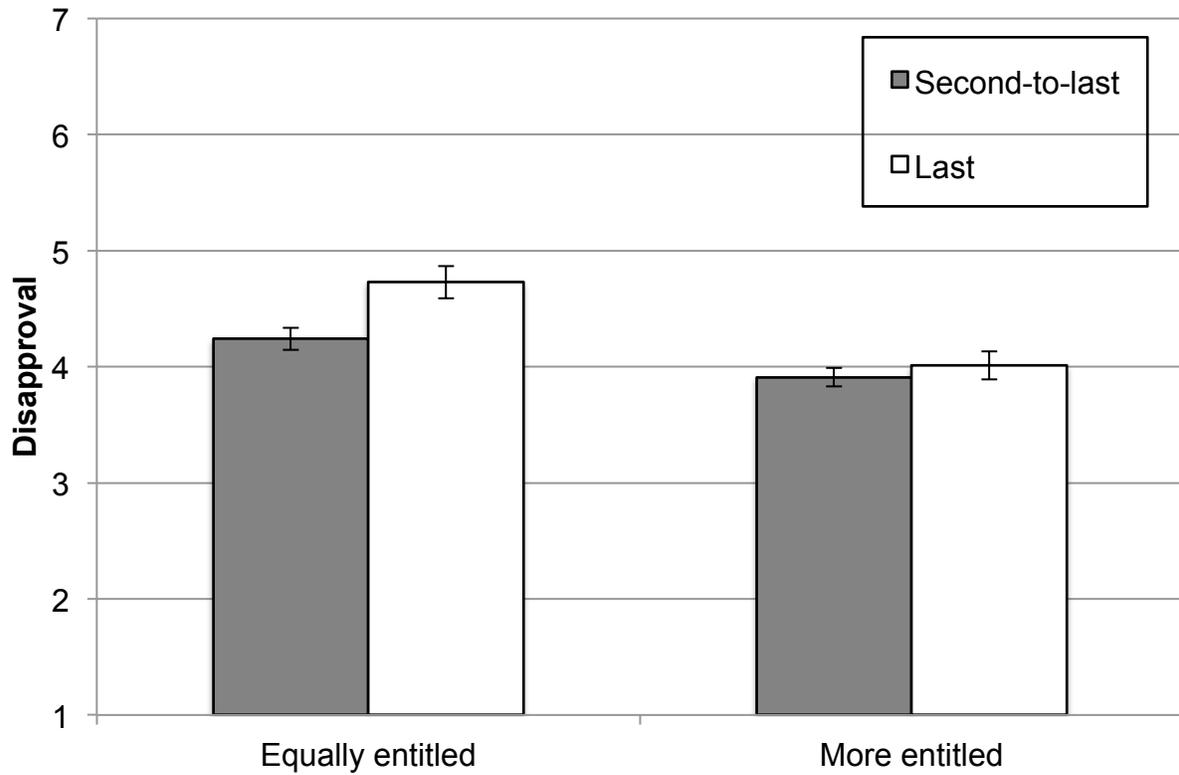


Figure 2: Study 4: Time to claim desirable task (natural log of seconds) as a function of supply and group size manipulations (regression predictions).

