

How Sharing Contexts Influence Purchase Amounts: The Case of Food Choices

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Abstract

This work focuses on the impact of sharing contexts on consumers' decision processes and purchase-amount decisions. Four studies, using both hypothetical and real (incentive-compatible) choices, find that people regularly purchase more in sharing (vs. non-sharing) contexts. Evidence is presented suggesting that a significant portion of this effect is driven by a cognitive bias arising in sharing contexts that focuses people on what they will give to others, and away from what they will receive from others. Consequences of this bias include the noted surplus in purchase amounts, over-consumption, and waste.

Keywords: sharing; purchase amounts; decision processes

Introduction

This paper formally examines how sharing (vs. non-sharing) contexts influence purchase-amount decisions. In contrast to non-sharing contexts in which people choose only for themselves, the sharing contexts of interest here are those in which it is announced—*before* purchase decisions are made—that the members of a group will share with each other (e.g., potluck dinners or group picnics). Rationally, unless members of a group intend to consume more or less in sharing contexts, there should be no effect of these contexts on average purchase-amount decisions: People will consume the same average amount and, thus, should purchase the same average amount. Yet, these sharing contexts may artificially complicate purchase-amount decisions by making relevant not only what people intend to personally consume, but also the amount they expect to give to, and receive from, others. Sharing contexts may further give rise to specific motivational drivers, including social norms (Becker 2005), self-image concerns, or considerations of free-riding off of others' purchases (Kiyonari and Barclay 2008)—all of which are largely irrelevant in non-sharing contexts. Thus, purchase-amount decisions could differ significantly between sharing and non-sharing contexts.

Two factors likely to have a significant influence on

how people approach decisions in sharing (if not all) decision contexts are (i) their egocentric perspectives of the choice context and (ii) the aspects of the choice context under their control. Egocentric perspectives (Zhang and Epley 2009) bias the manner in which information is perceived and/or the information to which one simply has access. In sharing contexts, people have direct (limited/no) access to their (others') personal resources, motives, and intentions. Such informational asymmetries focus the individual on the more-easily accessed information (Zhang and Epley 2009), which will consequently tend to be more influential at the time of choice (Higgins 1996). Concurrently, while people have control over what they will purchase, consume, and give in sharing contexts, they are likely to have little or no control over what others will purchase, consume, and give. Together, the information and control asymmetries inherent in sharing contexts should bias peoples' thoughts toward the amount they intend to give (and personally consume), and away from the amount they expect to receive. Given the regularity with which people make decisions in sharing contexts, this giving-bias is likely to become an ingrained aspect of their decision-making processes in those contexts (Amir and Levav 2008).

Two pilot studies, using participants recruited from Amazon Mechanical Turk (hereafter, AMT) supported the existence of a giving-bias in sharing contexts. The first pilot study asked 25 participants the seemingly simple question, "What does it mean to share with someone?" Fifty-six percent indicated that sharing was the act of giving to another, 24% indicated that it was an act of allowing or offering others access to or the use of something, and 0% made any mention of either (i) receiving from others, or (ii) others being in debt to the giver. The second pilot study asked 30 participants to indicate (i) the type of food they would bring to a potluck, (ii) the amount they would bring, and (iii) how they decided on that amount. Fifty-seven percent indicated that they decided the amount to bring based on the amount they expected to give, while 0% indicated considering the

amount they would receive from others.

We are not suggesting that people in sharing contexts explicitly believe they will receive nothing from others but, instead, that the amount they expect to receive is not salient or focused on at the time of the purchase-amount decision and, therefore, not integrated into that decision.

To summarize, our general hypothesis is that people, despite not intending to consume more, will purchase significantly more in sharing than non-sharing contexts. Further, a significant proportion of the observed increase in purchase amounts should be directly attributable to the outlined giving-bias, in addition to other causes such as social desirability concerns or uncertainty in others' preferences. Since giving intentions should increase the amount purchased, while receiving expectations should decrease the amount one needs to purchase for personal consumption, focusing on the former while ignoring the latter should inflate purchase amounts. Formal hypotheses are presented and tested across four experiments.

Experiments

Each of the following four experiments examines the influence of sharing contexts on purchase-amount decisions in the domain of food choices. The food-choice domain was chosen because (i) food is regularly purchased and consumed in the presence of others and is most typically divisible—both necessary conditions for sharing to occur—and (ii) food choices are regularly influenced by perceptual (Chandon and Wansink 2007) and cognitive (Parker and Lehmann 2014) processes. Hence, any impact of sharing contexts on purchase-amount decisions should be observable in the domain of food choices. Further, food choices are substantively relevant and their consumption and waste consequences are observable. Sample size in each experiment was determined by the needs of co-run experiments (exp. 1 & 2) or the availability of participants (exp. 3a & 3b).

Experiment 1: Purchase-Amounts in Sharing Contexts as a Function of Group-Size

The primary hypotheses tested in experiment 1 are:

H1: People will purchase significantly more food in sharing (vs. non-sharing) contexts.

H2: The influence sharing (vs. non-sharing) contexts have on purchase-amounts is driven by a giving-biased decision-process: People will focus on the amount they will give to others (and personally consume) and neglect the amount they will receive from others in sharing contexts.

The giving-biased decision process proposed here yields a specific prediction regarding the influence of group size: Each additional group member is a person whom the individual may consider giving to and, thus, purchase amounts should increase with the group size (holding budget concerns constant) in sharing contexts.

Hence, the third hypothesis tested in experiment 1 is:

H3: The influence of sharing (vs. non-sharing) contexts on purchase amounts will be moderated by group size. Purchase amounts will increase with group size in sharing, but not non-sharing, contexts.

Method. One hundred sixty AMT participants were asked to imagine that they were dining at a Buffalo wings restaurant and were randomly assigned to one of four between-subjects conditions in a 2 (group size: 3 vs. 10) x 2 (context: sharing vs. non-sharing). The sharing condition explicitly stated that all group members would order what they liked, but that everyone would share when the food arrived. The non-sharing condition explicitly stated that there would be no sharing during the meal. Participants indicated the number of wings they would order, responded to an attention-check and several follow-up questions, and reported their age and gender.

Results. Eight participants that failed the attention check were eliminated from the following analyses (final $N = 152$). The amount participants would normally eat was included as a covariate in the following analyses.

A 2 (group size: 3 vs. 10) x 2 (context: sharing vs. non-sharing) between-subjects ANOVA revealed the expected significant interaction ($F(1,147) = 4.58, p = .034$; table 1). Planned contrasts revealed that group size did not influence the number of wings participants ordered in the non-sharing conditions ($F < 1, NS$). However, participants in the sharing conditions ordered significantly more wings when the group had ten, versus three, members ($F(1,147) = 7.94, p < .006$), supporting H3. Notably, the amount ordered did not significantly vary by decision context when the group consisted of 3 individuals. This may suggest an important boundary condition: Perhaps as group size decreases people more readily recognize the give-and-take nature of the sharing context (e.g., it may be easier to imagine or visualize receiving from one or a few others). Alternatively, the amount one plans to give to smaller groups should be less and perhaps measurement error or other statistical noise overshadows the influence of the sharing contexts on those decisions.

Table 1: Average number of wings purchased by condition (standard deviations in parentheses).

		Sharing	Non-Sharing
Group	3	13.76 (6.03)	12.15 (7.55)
Size	10	17.53 (8.84)	10.61 (6.83)

An equivalent analysis of the participants' intended consumption levels revealed participants intended to eat less in sharing contexts ($M = 9.52$ vs. 9.97 ; $F(1,147) = 13.56, p < .001$). Thus, the greater number of wings ordered in the sharing (vs. non-sharing) condition cannot be attributed to intended levels of consumption.

Lastly, an equivalent analysis of the amount participants intended to give to others revealed the expected main effect of sharing context ($M_{\text{sharing}} = 6.73$ vs. $M_{\text{non-sharing}} = 1.40$; $F(1,147) = 30.77$, $p < .001$), which was qualified by a significant interaction with group size ($F(1,147) = 3.96$, $p < .05$). Hayes's (2013) PROCESS macro (model 8) for testing moderated mediation confirmed that the amount participants intended to give was a significant mediator of the interaction between group size and choice context (sharing vs. non-sharing) on purchase amounts (95% CI, lower = .2551, upper = 3.9442), directly supporting H2. Several alternative accounts of the results pertaining to expected cost/payment, contextual generosity, and preference uncertainty were examined but not supported.

Experiment 2: What Drives Purchase-Amount Decisions In Sharing (vs. Non-Sharing) Contexts?

Experiment 2 tests the giving-bias argued to arise in sharing contexts via moderation. Since focusing people on neglected information can de-bias decision processes (Higgins 1996; Kahn, Luce, and Nowlis 2006), focusing them on the amount they will likely receive *before* the purchase-amount decision should de-bias the process and significantly reduce purchase amounts.

H4a: In sharing contexts, focusing people on the amount they expect to receive from others (vs. not) before the purchase-amount decision will significantly reduce the amount of food purchased.

In contrast, explicitly focusing their pre-decision attention on the amount they will give to others should have little to no impact on the amount purchased. Hence:

H4b: In sharing contexts, focusing people on the amount they expect to give to others (vs. not) before the purchase-amount decision will not significantly reduce the amount of food purchased.

Importantly, those who are more motivated by generosity should be those most concerned with the amount they will give in sharing situations. Hence, these people will inherently be more likely to (i) focus on what they will give to others and (ii) neglect what they will receive from others. Therefore, that the moderating influence of focusing people on what they expect to receive will be the most pronounced among those more motivated by generosity in sharing contexts. Formally:

H5: The greater the motivation to be/appear generous, the greater the extent to which focusing people on the amount they expect to receive from others (before the purchase-amount decision) will reduce purchase amounts.

Method. Three-hundred ninety-eight AMT participants completed experiment 2. Forty-six participants failed one or both of two attention checks pertaining to crucial aspects of the experiment were dropped from the

following analyses—leaving a final sample size of 352. All participants were (i) shown a picture of a plate containing a variety of picnic sandwiches, (ii) informed that “each picnic sandwich is about ¼ the size of a traditional, sliced bread sandwich,” and (iii) asked the number of picnic sandwiches they would typically eat. Participants were then asked to imagine they would be attending a picnic with nine friends and randomly assigned to one of five between-subjects conditions: one non-sharing condition and four sharing conditions organized in a 2 x 2 factorial design (the factors and levels are detailed below). Participants assigned to the non-sharing condition were given the following instructions: *In terms of food, it has been decided that each person will bring his or her own lunch. You've decided to bring picnic sandwiches for yourself.* Those assigned to the sharing conditions were informed: *In terms of food, it has been decided that the group will share the food that is brought during lunch. The group has decided that each person should bring picnic sandwiches of his/her preference to share.*

All participants were asked the number of sandwiches they (i) anticipated receiving from others and (ii) expected to give to others. In the non-sharing condition, both questions were answered *after* the purchase-amount decision. Within the sharing conditions, the timing of these questions was manipulated in 2 (receiving salient: no vs. yes) x 2 (giving salient: no vs. yes) between-subjects design. Those in the baseline-sharing condition answered both questions *after* the purchase amount decision, as in the non-sharing condition. Those in the receiving-salient condition indicated the amount they expected to receive *before*, and the amount they expected to give *after*, the purchase-amount decision. Those in the giving-salient condition did the opposite. Finally, participants in the receiving and giving-salient (hereafter R&G-salient) condition answered both questions *before* the purchase amount decision. Lastly, participants answered four questions measuring their generosity motives and several other follow-up questions.

Results. An omnibus ANOVA revealed that purchase amounts were significantly influenced by the condition to which participants were assigned ($F(4,346) = 10.68$, $p < .001$; table 2), as expected, and that participants' typical consumption levels were a significant covariate ($F(1,346) = 7.32$, $p < .008$). Further, replicating experiment 1 and supporting H1, purchase amounts were significantly higher in the baseline-sharing than the non-sharing condition ($F(1,346) = 37.00$, $p < .001$). Note, purchase-amounts in all sharing conditions were significantly greater than those in the non-sharing condition (table 2).

We next simultaneously tested (Hayes 2013) if the effect of sharing contexts on purchase amounts was mediated by the amount participants (i) intended to eat, (ii) intended to give to others, and (iii) expected to receive

from others. Supporting H2, the influence of baseline sharing (vs. non-sharing) contexts on purchase-amounts was significantly mediated by the amount participants intended to give (95% CI, lower = 8.8767, upper = 16.5655) and intended to eat (95% CI, lower = .0176, upper = 4.1573), but not by the amount they expected to receive (95% CI, lower = -1.7549, upper = 2.7914). In sum, sharing contexts once again significantly increased purchase amounts, an effect primarily driven by giving intentions. For the remaining analyses, we focus on the four sharing conditions to directly examine H4a/b and H5.

Table 2: Average number of picnic sandwiches purchased by condition (means with the same superscript within a given column are significantly different at $p < .05$).

Condition	Mean	SD
Non-Sharing	5.89	5.58
Sharing		
Baseline	20.23 ^{a,b}	17.17
Receiving-Salient	12.24 ^{a,c}	11.34
Giving-Salient	19.19 ^c	12.13
R&G-Salient	15.39 ^b	14.17

As expected, even when accounting for giving intentions, receiving expectations, and typical consumption levels, purchase amounts were significantly reduced by the receiving-salient manipulation ($M_{\text{salient}} = 13.77$ vs. $M_{\text{not-salient}} = 19.75$; $F(1,281) = 14.96$, $p < .001$), supporting H4a. Conversely, significant effects were not found for the giving-salient manipulation ($M_{\text{salient}} = 17.25$ vs. $M_{\text{not-salient}} = 16.32$; $F(1,281) = 1.54$, $p > .21$), supporting H4b, or the interaction between the two salience manipulations ($F(1,281) = 2.79$, $p = .10$). The results are robust: removing the covariates strengthens the effect of the receiving-salient manipulation and further weakens the giving-salient and interaction effects.

Four items measuring participants' motivations to be and appear generous were highly correlated ($\alpha = .85$) and averaged into a single measure of generosity motives. The generosity-motive measure (mean-centered) was added to the model used in the previous analysis and interacted with the two salience manipulations to test H5. Doing so did not meaningfully alter any of the primary results, but did reveal a significant interaction between generosity-motives and the receiving-salient manipulation ($F(1,277) = 6.98$, $p < .009$). This interaction was decomposed via a spotlight analysis (Spiller et al. 2013) at ± 1 SD on the generosity-importance measure. Consistent with our theory, it was found that the receiving-salient manipulation significantly decreased purchase amounts among those more motivated by generosity ($LSM_{\text{salient}} = 13.86$ vs. $LSM_{\text{not-salient}} = 20.62$; $t = 4.72$, $p < .001$). Conversely, the receiving-salient manipulation had no influence on those less motivated by generosity ($LSM_{\text{salient}} = 15.20$ vs. $LSM_{\text{not-salient}} = 15.81$; $t = .34$, $p > .73$).

Generosity-motivation did not have a significant main effect or other significant interaction effects on purchase-amounts. In sum, these results directly support H5 and are consistent with the contention that the proposed giving bias will be strongest amongst those more strongly motivated by being/appearing generous. No other meaningful differences were found related to our other follow-up questions.

In sum, participants purchased significantly more food in the baseline- (vs. non-) sharing condition, replicating experiment 1 and supporting H1. Focusing on the sharing conditions, it was found that making receiving considerations salient significantly reduced the amount of food purchased—supporting H4a—while making giving considerations salient had no significant influence on purchase amounts—supporting H4b. Lastly, it was found that the mitigating influence of the receiving-salient manipulation on purchase amounts was stronger for those participants more motivated by generosity, supporting H5. Although possible, it seems unlikely that focusing participants on the amount they expected to receive decreased the need to be generous. Indeed, no correlation was found between our receiving-salient manipulation and participants' self-reported generosity motives.

Experiments 3a and 3b: Real-World Purchase-Amount Decisions in Sharing Contexts

Experiments 3a and 3b were both field experiments completed by executive MBA students in a South American country. In total, we were allowed access to four sections of students. We discuss the commonalities between the two experiments here, and the differences within the respective methods sections below.

In all conditions students were given a budget roughly equivalent to five U.S. dollars that they could use to purchase their lunch from a set menu of empanadas (six different types of empanadas were available to choose from to account for intrinsic food preferences, allergies, and other dietary concerns). This budget allowed them to choose up to ten empanadas each, far more than the typical individual can eat in a single meal. Participants were informed that any portion of their budget not spent on food would be given to them in cash (i.e., the experiments were incentive-compatible). During the lunch break, the students received the empanadas—at which point the amount consumed and leftover was recorded—and were given any change they were owed.

Measuring waste is not straightforward since people may not intend to waste food that is not immediately consumed. For this reason, we hypothesize the effect of sharing (vs. non-sharing) contexts on the amount consumed but not on the amount wasted. Specifically:

H6: Consumers will consume significantly more food in sharing (vs. non-sharing) contexts.

Experiment 3a: Method. One hundred fifteen students divided across two sections participated in experiment 3a. Immediately prior to filling out the order-sheets, participants were told either (i) to order what they wanted for lunch with no mention of sharing (the non-sharing condition) or (ii) to order what they wanted for lunch but that the class would be sharing all of the food when it was delivered (the baseline-sharing condition). Once the students had finished lunch, they were asked to indicate the number of empanadas they had consumed.

Experiment 3a: Results. Eight students in the baseline-sharing condition were unexpectedly unable to attend lunch. We exclude these responses, but this has no effect on the results. Those in the baseline-sharing condition purchased significantly more empanadas than did those in the non-sharing condition ($M_{\text{baseline-sharing}} = 5.58$ vs. $M_{\text{non-sharing}} = 4.15$; $F(1,104) = 15.78$, $p < .001$). Thus, H1 was supported using a fully incentive-compatible design with real choices under budget constraints. Participants in the baseline-sharing condition also ate significantly more empanadas than did those in the non-sharing condition ($M_{\text{baseline-sharing}} = 4.51$ vs. $M_{\text{non-sharing}} = 3.80$; $F(1,104) = 5.17$, $p < .025$), supporting H6. The number of empanadas leftover was also significantly greater in the baseline-sharing than in the non-sharing condition ($M_{\text{baseline-sharing}} = 1.08$ vs. $M_{\text{non-sharing}} = .35$; $F(1,104) = 5.17$, $p < .025$).

Experiment 3b: Method. Eighty-five students divided across two sections participated in experiment 3b. To address issues that might have arisen in experiment 3a from participants perceiving their lunch budget as windfall gains (Arkes et al. 1994) or house money (Clark 2002), participants in this experiment were asked to complete an unrelated survey and informed that the school would be compensating them for their time by buying them lunch. Explicitly linking participants' efforts on the brand survey with the money they were given to order lunch should make participants less likely to consider that money as a windfall (Arkes et al. 1994).

All participants were placed in a sharing context in experiment 3b, but we manipulated the salience of the amount expected to be received from others between conditions in order to test H4a. Specifically, the baseline-sharing condition was identical to the one in experiment 3a. In contrast, the receiving-salient sharing condition asked participants to answer the following question—translated into Spanish—before placing their orders: “Of the total number of empanadas you intend to eat, how many will be from what your classmates ordered?”

Experiment 3b: Results. Supporting H4a, participants in the baseline-sharing condition purchased significantly more empanadas than did those in the receiving-salient sharing condition ($M_{\text{baseline-sharing}} = 5.38$ vs. $M_{\text{receiving-salient}} = 3.88$; $F(1,82) = 11.67$, $p < .001$). Participants in the

baseline-sharing condition also ate more empanadas than did those in the receiving-salient sharing condition, but not significantly so ($M_{\text{baseline-sharing}} = 4.07$ vs. $M_{\text{receiving-salient}} = 3.80$; $F < 1$, NS). Thus, H6 is only directionally supported in experiment 3b. Next, the number of empanadas leftover was significantly greater in the baseline-sharing condition than in the receiving-salient sharing condition ($M_{\text{baseline-sharing}} = 1.31$ vs. $M_{\text{receiving-salient}} = .08$; $F(1,82) = 6.75$, $p < .02$).

Experiments 3a and 3b: Discussion. Both field experiments, using incentive-compatible designs, supported our predictions: Participants purchased more in sharing contexts (H1), but this effect was reduced when their attention was directed toward the amount they expected to receive from others (H4a). We intentionally kept the baseline-sharing conditions identical in the two field experiments to determine if the results might be statistically comparable across experiments. As expected, these two conditions were statistically indistinguishable in terms of number of empanadas purchased ($M_{3a} = 5.54$ vs. $M_{3b} = 5.38$; $F < 1$, NS), indicating that there were no systematic differences between the samples used for the two field experiments. Given their statistical equivalence, the baseline-sharing conditions from the two field experiments were combined into a single overall “sharing” condition, while the non-sharing (3a) and receiving-salient sharing condition (3b) were combined into a single “other” condition. Contrasting these two conditions—while including the specific experiment from which the results emerged as a dummy-coded covariate—reveals that participants in the sharing conditions ordered significantly more ($M_{\text{sharing}} = 5.47$ vs. $M_{\text{other}} = 4.03$; $F(1,196) = 27.25$, $p < .001$), ate significantly more ($M_{\text{sharing}} = 4.31$ vs. $M_{\text{other}} = 3.80$; $F(1,196) = 5.13$, $p < .03$), and had significantly more leftover food ($M_{\text{sharing}} = 1.18$ vs. $M_{\text{other}} = .23$; $F(1,196) = 11.70$, $p < .0001$). Thus, H1 and H4a were supported. H6 also was supported, but less so in experiment 3b.

General Discussion

Four experiments demonstrate that people tend to purchase significantly more in sharing than non-sharing contexts—the consequences of which can be over-consumption and waste. We proposed that, when making purchase-amount decisions in sharing contexts, people are unknowingly influenced by a cognitive giving-bias: The amount one expects to give is salient and focal, while the amount one expects to receive is largely ignored. Since purchase amounts should increase (decrease) with the amount one expects to give to (receive from) others, this bias leads people to purchase significantly more in sharing contexts, especially when sharing with larger groups. Evidence for this was provided both via mediation (experiments 1 and 2) and moderation

(experiments 2 and 3b) of the effect. Indeed, it was found that focusing people on the amount they expected to receive prior to the purchase-amount decision significantly reduced the amount purchased. This effect was particularly pronounced among those for whom generosity was more important (experiment 2), as would be expected. Thus, although many factors may influence purchase-amount decisions in sharing contexts, a significant portion of the effect can be explained by the proffered giving-bias.

The findings here are consistent with findings that people consume more when they split the bill at a restaurant (Gneezy, Haruvy, and Yafe, 2004). However, in contrast to Gneezy et al.'s argument that consumption is driven by selfish motives, our findings suggest that increased consumption in such contexts may be driven by over-purchasing—that is, by generosity motives.

Importantly, these findings are seemingly inconsistent with two important previous findings: (i) the prevalence of free-riding off others contributions in public goods games and (ii) egocentric anchoring. Indeed, we agree that what we find stands in stark contrast to many findings that people will often free ride in public goods scenarios. However, in contrast to the impersonal nature of many of those investigations, participants in our studies either were among friends or imagined they were. Hence, the motive to be or appear generous is likely stronger in the sharing contexts of interest here. Moreover, most of the examined contexts are those in which each member's contributions can be relatively easily observed—a contextual characteristic shown to reduce free-riding even when other group members are unfamiliar (Kiyonari and Barclay, 2008).

However, we do not believe that our findings are inconsistent with egocentric anchoring (Zhang and Epley, 2009). On the contrary, it is our contention that much of the effect is driven by individuals' perspectives of the context and the inherent biases that result. Still, our results are admittedly inconsistent with egoistic biases, which reflect self-serving motivations. But, as discussed above, we feel this likely reflects the friendly and personal nature surrounding most sharing contexts—particularly those examined in the current work.

In closing, the current set of findings is not intended to fully characterize the influence that sharing contexts have on consumers' purchase-amount decisions, much less on decisions in general. On the contrary, there is much yet to be learned. Hopefully these findings will stimulate further research on the topic.

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