

Self-Centered Social Exchange: Differential Use of Costs Versus Benefits in Prosocial Reciprocity

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Maintaining equitable social relations often requires reciprocating “in kind” for others’ prosocial favors. Such in-kind reciprocity requires assessing the value of a prosocial action, an assessment that can lead to egocentric biases in perceived value between favor givers versus favor receivers. In any prosocial exchange, 1 person (the giver) incurs a cost to provide a benefit for another person (the receiver). Six experiments suggest that givers may attend more to the costs they incur in performing a prosocial act than do receivers, who tend to focus relatively more on the benefits they receive. Givers may therefore expect to be reciprocated on the basis of the costs they incur, whereas receivers actually reciprocate primarily on the basis of the benefit they receive. This research identifies 1 challenge to maintaining a sense of equity in social relations and predicts when people are likely to feel fairly versus unfairly valued in their relationships.

Keywords: egocentrism, egocentric bias, social exchange, reciprocity, equity

Reciprocity is the social glue that holds groups and societies together. People expect that favors done for others will be returned in kind—“you scratch my back and I’ll scratch yours”—with the goal of maintaining a sense of equity in social relationships. This norm of reciprocity enables prosocial acts to flourish between otherwise disconnected groups or individuals, creating an environment in which people can expect that the costs they incur for the benefit of others will eventually be returned to them. Although direct reciprocation for each exchange is expected more in some relationships than others (Clark, 1984), maintaining an overall sense of equity and fairness within a relationship is important for both short-term casual relationships as well as long-term communal relationships (Adams, 1965; Hatfield, Walster, & Berscheid, 1978).

Much is known about the norm of reciprocity’s ability to influence behavior (Cialdini, 2000; Gouldner, 1960), but relatively less is known about how people decide *how much* to reciprocate for a given prosocial action. Efficiently managing prosocial exchanges

requires a person to reciprocate at a level that matches the other person’s expectations, just as efficiently managing an economic exchange requires a buyer to pay the price at which an owner is willing to sell a good or service. If someone helps you move out of an apartment, how much should you spend on a thank-you gift to show your appreciation? If you are overburdened at work and a colleague spontaneously helps you to complete the tasks piling up on your desk, how much effort should you expend to return the favor when your colleague becomes similarly overburdened in the future? If a person receiving a favor reciprocates too little compared with what the favor giver expects, he or she can be seen as ungrateful or unfair (Hatfield et al., 1978) and leave the original favor giver feeling angry or unappreciated (Walster, Walster, & Berscheid, 1978). If a person receiving a favor reciprocates too much compared with what a favor giver expects, he or she can waste limited resources of time, effort, or money (Regan, 1971) and can leave a favor giver feeling guilty or unpleasantly indebted (Paese & Gilin, 2000; Walster et al., 1978). Any gaps between how a giver and a receiver calculate the value of a social exchange can produce inefficiency in social relations, creating perceptions of inequity and unfairness that lead to relationship conflict (Richardson, Vandenberg, Humphries, 1987; Sulthana, 1987; Thibaut, 1950), personal distress (Bakker, Schaufeli, Sixma, Bosveld, & van Dierendonck, 2000), and even poor physical health (Siegrist, 2005; Walster et al., 1978).

This research investigates how differences in the way that givers and receivers calculate the value of a prosocial action can lead to predictable gaps between expected and actual reciprocity for favors. We suggest that how much people reciprocate another’s favor, and how much a giver expects to be reciprocated, is a

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function of the perceived value of the favor itself. Because the value of such prosocial exchanges is inherently ambiguous, evaluating the value of a favor is likely to be influenced by whatever information about the favor is most accessible at the time of judgment (Higgins, 1996). We predict that favor givers would be more attentive to the costs that they incurred to provide a favor, whereas favor receivers would be more attentive to the benefits they received from the favor itself. Favor givers should therefore expect to be reciprocated on the basis of the cost they incurred, whereas favor receivers would actually reciprocate on the basis of the benefit they received. When costs and benefits are evaluatively mismatched, such as when a person works extremely hard to provide only a small benefit for another person, then expected and actual reciprocity will be mismatched as well. Understanding the egocentric nature of social judgment helps to predict when social exchanges are likely to be efficient and seemingly fair, and when they are likely to be inefficient and seemingly unfair.

Ambiguous Social Exchange

In economic exchanges, the value of a consumer good or service is explicitly stated on a price tag or directly negotiated between buyers and sellers. The economic exchange rate—how much a person needs to pay in return for the good or service—is therefore relatively clear. In social exchanges, however, the value of a prosocial action is rarely discussed or explicitly stated (Brown, 1986). Few friends, politicians aside, would negotiate the price of a thank-you gift before coming over to help in moving from one apartment to another. And few colleagues would quantify the amount of future help that would be needed to provide some amount of help in the present. Without such explicit negotiation, attempts to fairly repay or reciprocate for prosocial actions are based on people's subjective assessments about the value of a prosocial action (Messick & Sentis, 1983). The social exchange rate—how much a person needs to reciprocate to match another person's expectation of a fair reciprocity—can therefore be relatively unclear and ambiguous (Blau, 1964; Heyman & Ariely, 2004). Such ambiguity, we predict, can create a systematic discrepancy between how givers and receivers evaluate the value of a favor that, in turn, can create a discrepancy between expected and actual reciprocity in prosocial exchanges.

Equity theory has long posited that people are motivated to maintain a sense of equity between their inputs into a relationship and the outputs they receive, and that the inherent subjectivity of human judgment can lead to different evaluations of inputs and outputs between different individuals. "One difficulty with finding neat solutions," Adams (1965, p. 273) wrote, "is that A's perception of his rewards, costs, and investments are not necessarily identical to B's perception of A's situation." Despite this long-standing awareness of subjectivity, however, equity theorists and those interested in social reciprocity have paid far more attention to the consequences of inequitable exchanges than to the causes of them. This current research provides a substantive theoretical contribution by bringing together research on social judgment (illuminating cognitive mechanisms that predict how two equally sighted people may evaluate the very same stimulus differently) with research on equity and social exchange (illuminating why such differences in evaluation matter so deeply for interpersonal and intergroup relations). In particular, it provides a cognitive

mechanism for understanding how subjective evaluations of equity arise and how these evaluations can produce prosocial exchanges that seem equitable or inequitable.

Egocentric Social Judgment

People naturally view the external world through their own senses and interpret those senses using their own beliefs, attitudes, knowledge, and emotional states. This inherent feature of perception and evaluation means that social judgments can be egocentrically biased (Hastorf & Cantril, 1954; Kenny & DePaulo, 1993; Keysar & Barr, 2002; Nickerson, 1999; L. Ross & Ward, 1995, 1996). People, for instance, are generally more aware of their own contributions to a group project than are others in the group and therefore tend to claim more credit for the group's output than other group members are willing to give them (Brawley, 1984; Forsyth & Schlenker, 1977; Leary & Forsyth, 1987; M. Ross & Sicoly, 1979). People are also more aware of their own inner thoughts and observable actions than others are and therefore tend to overestimate the extent to which their thoughts and actions are detected by others (Gilovich, Medvec, & Savitsky, 2000; Gilovich, Savitsky, & Medvec, 1998). This does not mean that all social judgments are inevitably egocentric. Adults, for instance, acquire the ability to adopt another person's perspective and consider how they might evaluate the world from a different psychological vantage point. But such perspective taking appears to be both deliberate and effortful, meaning that egocentrism may often be the default perspective in social judgment that is only subsequently undone by an explicit consideration of another's differing perspective (Epley, Keysar, Van Boven, & Gilovich, 2004; Epley, Morewedge, & Keysar, 2004; Keysar & Barr, 2002).

Such egocentric biases reflect the self-centered basis of social judgment and are not to be confused with *egoistic* biases that reflect a self-serving motivation to think well of oneself or one's group (Dunning, 1999; Kunda, 1990). Although a self-centered evaluation may sometimes lead to a self-serving judgment, the former need not lead to the latter. For instance, people are more aware of their own contributions to a group project than they are to others' contributions. This can lead people to overestimate their responsibility for the good things that happen within their group but also to overestimate their responsibility for the bad things that happen (M. Ross & Sicoly, 1979). People are also more likely to notice and attend to their own behavior and inner emotional states than to others' behavior and emotional states. This can lead people to overestimate the extent to which others are noticing and attending to their desirable behavior but also to overestimate the extent to which others are noticing their undesirable behavior and judging them harshly as a result (Epley, Savitsky, & Gilovich, 2002; Gilovich, Kruger, & Medvec, 2002). What matters for understanding egocentric biases in everyday judgment is not people's motivation to think well of themselves compared with others, but rather the information that is likely to be more or less accessible from one's own perspective compared with another person's perspective.

The perspective-driven nature of social judgment is relevant for social exchange because of the differing perspectives between favor givers and receivers. Note that the typical prosocial exchange requires a giver to incur some cost to provide some benefit to a receiver (Barrett, Dunbar, & Lycett, 2002). A person may, for

instance, buy a gift for a colleague, wait in line to obtain concert tickets for a friend, pick up an acquaintance at the airport, or help a neighbor move to a new apartment. The costs incurred in these acts may be relatively small or large: The gift is inexpensive or expensive, the wait is several minutes or several hours, the airport pickup is in rush hour or normal traffic, or the neighbor is moving across the hall or across town. The benefits received may also be relatively small or large: The gift is undesirable or desirable, the tickets are for poor seats or excellent seats, a cab fare from the airport could be relatively cheap or relatively expensive, or one's neighbor may be in a good or bad position to move without assistance. The costs incurred to perform favors can entail the time, effort, money, or inconvenience that givers would otherwise not experience. The benefits provided by the favor can entail any positive consequences that come from the favor, including the time, effort, money, and inconvenience saved from receiving the favor.

Most important for this research, those who give favors directly experience the cost of delivering the favor but can only indirectly know of the benefits they provide, whereas those who receive favors directly experience the benefit and may not even be aware of the cost incurred. This fundamental difference in perspective between givers and receivers means that the cost incurred for doing a favor is likely to be relatively more accessible to favor givers, whereas the benefit provided by the favor is likely to be relatively more accessible to favor receivers. Because of this basic difference in perspective, and the egocentric biases in judgment that commonly result, we predicted that favor givers' expectations for how much they would be reciprocated would be relatively sensitive to the cost they incurred to perform a favor but relatively insensitive to the benefit they provided for receivers, whereas favor receivers' actual reciprocity would be relatively insensitive to the cost incurred and instead be more sensitive to the benefit received from the favor.

Notice that these predictions are not based on egoistic motivations to think well of oneself. Such egoism would predict that givers would simply overestimate the value of their favor compared with receivers because of motivated reasoning and therefore feel chronically underappreciated in social exchanges. Equity theorists have long suggested this result (Adams, 1963), but there is little empirical evidence suggesting that people feel chronically underappreciated because of motivated reasoning. In contrast, our predictions are based on the cognitive determinants of social judgment, focusing on the information that is most accessible from one perspective or another. These differing perspectives can help to explain when people are likely to feel underappreciated but also when they are likely to feel overappreciated.

The impact of egocentric biases in social judgment has been widely demonstrated, but their impact on the dynamics of social reciprocity has not been widely considered (Flynn, 2003; Flynn & Brockner, 2003). Existing research demonstrates that people receiving small favors—from flowers in the airport to small acts of kindness from strangers—are often inclined to reciprocate at a value that far exceeds the objective value of the favor (McGuire, 2003; Regan, 1971). Favor receivers, in fact, tend to evaluate a favor as more valuable than do the initial favor givers (Flynn, 2003). This immediate sense of gratitude and the need for reciprocity among favor receivers likely reflects the concern to avoid being perceived as unfair or ungrateful and therefore being willing

to err on the side of being more generous than they might need to be (Haselton & Buss, 2000).

More than this simple main effect between givers and receivers, however, our hypotheses predict an interaction between givers and receivers in their relative sensitivity to costs and benefits when calculating the value of a prosocial act and the value of the reciprocity necessary to fairly repay the favor. This asymmetry can create a gap between how givers expect to be reciprocated and how they are actually reciprocated when cost and benefit information diverge. In particular, receivers may be in danger of reciprocating too little when givers provide a small benefit at a high cost but reciprocating too much when givers provide a large benefit at a low cost.

Although we generally predict an asymmetry between givers and receivers in attention to both costs and benefits, there are reasons to expect that it may be more pronounced in one's sensitivity to costs. In particular, the cost incurred by someone doing a favor is often known only to the person doing the favor and not to the person receiving the benefit. Gifts in a social exchange, for instance, generally do not come tagged with the degree of careful thought invested in finding the "perfect gift," the exact amount of money spent on the gift, or the number of hours and total effort spent to provide the benefit. Explicitly discussing the cost incurred in a social exchange violates clear social norms that distinguish social exchanges from purely economic exchanges (Brown, 1986). Such differences in the accessibility of costs may make asymmetries in the attention paid to cost between givers and receivers relatively more reliable than asymmetries in the attention paid to benefits.

Overview

We conducted six experiments to test the possibility of an egocentric gap in the assessed value of a social exchange (Experiments 1–4), to identify its underlying mechanism (Experiments 2 and 6), and to address alternative interpretations of our results (Experiment 5). These experiments used either hypothetical exchanges (Experiments 1, 5, and 6), recalled exchanges (Experiment 2), or actual exchanges in the laboratory (Experiments 3 and 4). Because one's own perspective is often primary in judgment, we predicted that favor givers would still expect to be compensated for the cost they incurred, even when they were well aware that favor receivers could not know the cost they incurred (Experiment 3). If this gap between givers and receivers is due to an egocentric bias in the consideration of costs versus benefits of a prosocial action, then givers should be faster to report the costs incurred to perform a prosocial action than to report the benefits provided, whereas the opposite should occur for receivers (Experiment 2). Egocentric attention to costs versus benefits should be eliminated by an explicit request to adopt another's perspective, suggesting that egocentric biases in social exchange stem from a simple failure to consider the other role's perspective, rather than from an inability to do so (Experiment 6). This research extends the existing work on egocentric biases in social judgment into the interpersonal domain of reciprocity and social exchange, extends the existing work on equity by providing a better understanding of the psychological mechanisms that lead to equitable versus inequitable exchanges, and identifies one systematic challenge to maintaining a sense of equity in interpersonal relations.

Experiment 1: Imagined Favors

Social exchanges occur across a wide variety of contexts in everyday life that cannot be easily replicated in a laboratory environment (Foa & Foa, 1975). We therefore sought convergent evidence over the course of this research by using a variety of methodological approaches, including scenarios that provide contexts representative of everyday experience, memories of real social exchanges in everyday life, and laboratory experiments that enable better measurement and procedural control.

Experiment 1 involved the first approach in which participants were asked to imagine either providing help to a friend (favor givers) or receiving help from a friend (favor receivers) in two different scenarios. These scenarios manipulated the cost incurred by the favor giver as well as the benefit provided to the favor receiver. We expected that those assigned to the role of favor giver would expect to be reciprocated mainly on the basis of the cost they incurred relative to favor receivers, whereas favor receivers would predict reciprocating largely on the basis of the benefit received relative to favor givers. Because our predictions were about the amount that people will reciprocate, rather than whether or not they would be motivated to reciprocate, our main dependent measure was the amount of money participants would be interested in spending, or expect would be spent, on an act of reciprocity.

Method

Two hundred seventy-two students and staff members were approached in a university dining hall and completed the experiment in exchange for a bottle of water or a candy bar. Participants were randomly assigned to one of the eight conditions in a 2 (Role: receiver vs. giver) \times 2 (Cost: low vs. high) \times 2 (Benefit: low vs. high) between-participants design.

Participants were asked to imagine being in two different prosocial exchanges, written from the perspective of either the person giving the favor or the person receiving the favor. In each scenario, the cost incurred by the giver was either relatively low or high, and the benefit received by the receiver was either relatively low or high. In one scenario, the favor giver waited in line for either 30 min (low cost) or 2 hr (high cost) to buy tickets to a baseball game for the favor receiver. These tickets were either for bad seats (upper deck in the left outfield, second furthest seats from home plate—low benefit) or for good seats (second row behind first base—high benefit). In the other scenario, the favor giver loaned his or her truck to a friend (the favor receiver) to help the friend move to a new apartment. Loaning the truck was either relatively easy because the favor giver was going to be out of town (low cost), or relatively difficult because the favor giver needed it for commuting to work (high cost). The benefit gained from the truck by the favor receiver was either relatively low because renting a truck was easy and inexpensive (low benefit), or relatively high because renting a truck was difficult and expensive (high benefit).

Following each scenario, favor givers learned that the favor receiver was planning to buy them either a gift (in the baseball ticket scenario) or a special dinner (for two people, following the moving scenario) to show their gratitude. Favor givers reported how much they expected favor receivers to spend on this gift or dinner, and favor receivers reported how much they thought they would actually spend. These served as our dependent measures for the magnitude of expected versus predicted reciprocity.

Results and Discussion

We predicted that the favor givers' expected reciprocity would be relatively more sensitive to the cost they incurred than would the receivers' predicted reciprocity, whereas favor receivers' predicted reciprocity would be more sensitive to the benefit they received than would the givers' expected reciprocity. Notice that we are predicting two significant two-way interactions (Role \times Cost, and Role \times Benefit), rather than a significant three-way interaction, because we do not predict that the effect of role on sensitivity to cost will depend on the level of benefit or that the effect of role on sensitivity to benefit will depend on the level of cost.

To test these hypotheses, we first standardized participants' responses to each scenario and collapsed them into a single composite measure (including scenario as a within-participants variable does not qualify any of the following analyses and is therefore not discussed further). We then submitted this composite measure to a 2 (Role: receiver vs. giver) \times 2 (Cost: low vs. high) \times 2 (Benefit: low vs. high) between-participants analysis of variance (ANOVA). This analysis yielded a significant main effect for cost, $F(1, 264) = 7.95, p < .001, \eta_p^2 = .03$, qualified by a significant cost by role interaction, $F(1, 264) = 8.01, p = .0005, \eta_p^2 = .03$, and a significant benefit by role interaction, $F(1, 264) = 4.03, p < .05, \eta_p^2 = .02$. As can be seen in Figure 1, favor givers expected more valuable reciprocity when they incurred a high cost to provide the favor than when they incurred a low cost, $F(1, 264) = 15.76, p < .0001, \eta_p^2 = .06$. The amount that favor receivers predicted they would reciprocate was completely unaffected by the cost incurred by the giver ($F = 0, ns$). In contrast, the amount that favor receivers predicted they would be willing to spend on an act of reciprocity was greater when they received a high benefit than when they received a low benefit, $F(1, 264) = 5.89, p < .05, \eta_p^2 = .02$. The amount favor givers expected to be reciprocated was completely unaffected by the benefit they provided ($F = 0.18, ns$). No other main effects or interactions were significant.

These results confirm our main prediction of an asymmetry between givers and receivers in social reciprocity. Those who imagined providing a favor to another person expected to be reciprocated on the basis of the cost they incurred to provide the favor, whereas those who received the favor reported that they would actually reciprocate on the basis of the benefit they received. This effect emerged even though both the cost and benefit information in the social exchange was explicitly stated to both favor givers and favor receivers. In everyday experience, however, the cost incurred to deliver a favor to another person may be completely unknown to the person receiving the benefit. A person may not know, for instance, how much time his or her friend stood in line to get them concert tickets, the amount of inconvenience incurred to help an acquaintance move, or the amount of effortful deliberation that went into purchasing a gift. The results of Experiment 1 suggest that even when such cost information is known to both givers and receivers, those receiving a favor may still fail to reciprocate on the basis of the cost incurred to provide the favor.

Experiment 2: Recalled Favors

Experiment 2 examined more naturally occurring favors by asking participants to recall social exchanges from their everyday

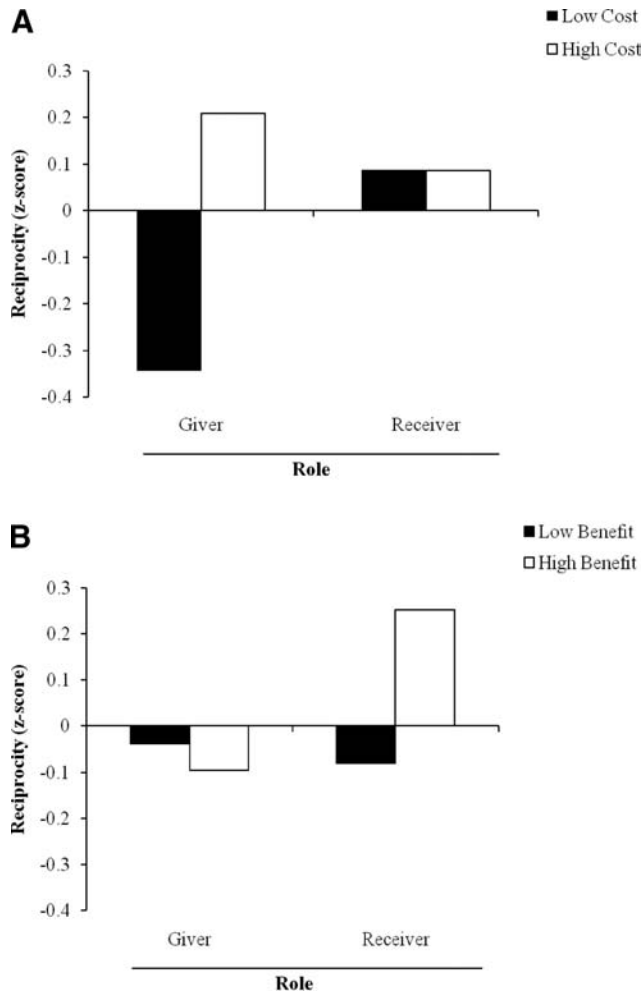


Figure 1. Expected versus actual amount of reciprocity by favor givers and favor receivers according to the cost incurred by the favor giver (A) and the benefit received by the favor receiver (B) in Experiment 1.

lives. We predicted the same pattern of results as in Experiment 1, with favor givers being more sensitive to cost and favor receivers being relatively more sensitive to benefits. Because we did not manipulate cost and benefit but, rather, allowed it to vary naturally based on the situation, we predicted that the recalled cost of the favor would predict the amount givers expected to be reciprocated but not the amount receivers thought they should actually reciprocate. We predicted that the recalled benefit of the favor, however, would predict the receiver's actual reciprocity more strongly than the giver's expected reciprocity.

Beyond replicating Experiment 1 with naturally occurring favors, Experiment 2 also provided an initial test of the underlying mechanism that may produce the egocentric gap between givers and receivers. In particular, we believe this gap is caused by differences in the accessibility of costs and benefits to givers and receivers. If so, then favor givers should be faster to report the costs they incurred to perform a favor than to estimate the benefit they provided by performing the favor, whereas favor receivers should be faster to report the benefit provided by the favor than to report the cost incurred by the giver.

Method

Fifty-five museum visitors participated in exchange for small gifts. Participants were randomly assigned to either the role of favor giver or favor receiver. Favor givers were asked to either recall a recent favor that they did for friends, colleagues, or neighbors, whereas favor receivers were asked to recall a favor that they received from friends, colleagues, or neighbors. To limit the likelihood of truly extreme favors, we asked participants to recall one of three common categories of favors—asking for or receiving a ride, pet-sitting, and assisting with a move—and then to describe the favor. All participants were able to do so. Givers then indicated how much they expected the other person to spend on a thank-you gift to reciprocate the favor, and receivers reported how much they would actually spend on a thank-you gift to reciprocate the favor.

Participants then estimated the cost and benefit of the favor. Specifically, both givers and receivers estimated (in counterbalanced order) how much of a burden, such as extra time, effort, hassle, annoyance, or money, it was for the givers to perform the favor on a scale ranging from 1 (*no burden at all*) to 9 (*a great deal of burden*) and how helpful the favor was to the receiver, such as in saved time, effort, hassle, annoyance, or money, on a scale ranging from 1 (*not helpful at all*) to 9 (*extremely helpful*). The time taken to estimate the cost and benefit served as an additional dependent measure.

Finally, participants reported whether the receivers had actually reciprocated the favor or not, how they had done so, the time and location of the favor, and their relationship to the other person in the exchange.

Results and Discussion

Unlike in Experiment 1, cost and benefit varied naturally, and our main analyses therefore address the correlations between reciprocity and costs versus benefits. Consistent with Experiment 1, we expected that the estimated costs would be more strongly correlated with givers' assessments of reciprocity, whereas the estimated benefits would be more strongly correlated with receivers' assessments of reciprocity.

To test the prediction, we first calculated the partial correlation between cost and reciprocity, controlling for the benefit and whether the receiver had already returned the favor. As can be seen in Table 1, the giver's expected reciprocity was highly correlated

Table 1
Estimated Costs and Benefits From Experiment 2

Variable	Partial correlations		Reaction times (s)	
	Givers	Receivers	Givers	Receivers
Estimated cost	.53	-.04	9.24	13.35
Estimated benefit	-.05	.49	10.17	9.64

Note. Entries under "Partial correlations" in the first row report the relationship between estimated cost and expected or actual reciprocity, controlling for the estimated benefit, and in the second row report the relationship between estimated benefit and expected or actual reciprocity, controlling for the estimated cost. Entries under "Reaction times" report the average time (in seconds) for participants to make the cost and benefit estimates.

with the estimated favor cost when controlling for the perceived benefit and whether the favor had been returned ($p < .005$), but the receiver's intended reciprocity was not ($p = .86$), $z = 2.11$, $p < .05$. Similarly, the receiver's intended reciprocity was highly correlated with the estimated favor benefit when controlling for the perceived cost and whether the favor had been returned ($p < .05$), but the giver's expected reciprocity was not ($p = .78$), $z = 1.98$, $p < .05$.

To test our second prediction that givers would be faster to report the cost they incurred but receivers would be faster to report the benefit they received, we submitted the log transformed response times to a 2 (Role: giver vs. receiver) \times 2 (Measure: cost vs. benefit) mixed-model ANOVA with measure as a within-participant variable. The analysis revealed a significant interaction, $F(1, 50) = 11.25$, $p < .005$, $\eta_p^2 = .18$. As can be seen in Table 1, favor givers estimated the cost they incurred to perform a favor more quickly than they estimated the benefit they provided, $F(1, 28) = 4.26$, $p < .05$, $\eta_p^2 = .13$. Favor receivers, however, did precisely the opposite and estimated the benefit they received from the favor more quickly than they estimated the cost incurred to provide the favor, $F(1, 21) = 8.88$, $p < .01$, $\eta_p^2 = .30$.

These results replicate those from Experiment 1 using a more naturally occurring set of favors that participants recalled from memory. Those giving a favor expected to be reciprocated on the basis of the cost they incurred, whereas those receiving the favor actually reciprocated (or reported that they would reciprocate) on the basis of the benefit they received. Those giving a favor were also quicker to report the cost they incurred than to report the benefit they provided, whereas those receiving a favor were quicker to report the benefit they received than to report the cost incurred. These findings are consistent with an inherent difference between most givers and receivers in a social exchange: Givers directly experience the cost incurred to provide a favor, whereas receivers directly experience the benefit provided.

Experiment 3: Laboratory Favors

Experiment 3 expands on the results presented thus far in three ways. First, this experiment used a paradigm in which the cost incurred by the favor giver was clearly unknown to the favor receiver. We did so not to investigate whether favor receivers would once again overlook this cost information but, rather, to investigate whether favor givers would again expect to be reciprocated on the basis of the cost they incurred, even though they knew that this information was unavailable to favor receivers. We expected that favor givers would indeed—perhaps quite unfairly—expect to be reciprocated on the basis of the cost they incurred even in this case, largely on the basis of existing research demonstrating the profound degree to which one's own egocentric perspective can influence subjective evaluations (e.g., Nickerson, 1999; Royzman, Cassidy, & Baron, 2003). Correcting or overcoming the influence of such private information on subjective evaluations can be surprisingly difficult, and people may therefore take the private information into account when making social judgments, even in contexts where only the publicly available information could influence judgment (Chambers, Epley, Savitsky, & Windschitl, 2008).

Second, Experiment 3 used a real social exchange in a laboratory context, rather than an imagined or recalled exchange. Participants

randomly assigned to be favor receivers asked the participant randomly assigned to be a favor giver to do them a favor that would provide either a relatively small or a relatively large benefit and that would come at either a relatively small or a relatively large cost to the favor giver. Those requesting the favor were unaware of the cost that would be incurred by the person performing the favor, but both participants were clearly aware of the benefit provided.

Finally, Experiment 3 included not only measures of the estimated value of an anticipated or predicted reciprocation but also some exploratory measures of the anticipated or predicted desire to reciprocate in a social exchange. Previous research has demonstrated the power of social exchange to activate the desire to reciprocate for another and has demonstrated that receivers tend to be more motivated to reciprocate than givers often expect (Cialdini, 2000; Flynn, 2003; McGuire, 2003). Small favors, such as flowers, kind words, or spare change, can spark a strong motivation to reciprocate, just as large favors can, and we did not expect that asymmetric attention to costs or benefits would alter participants' motivation to reciprocate or their reports of gratitude. Our hypotheses are instead directly focused on egocentric biases in how people calculate social exchange rates: how *much* people choose to reciprocate for a given prosocial action. Distinguishing between the value of reciprocity that follows a prosocial action and the basic motivation or inclination to reciprocate for prosocial actions would suggest a potentially important boundary condition on our analyses.

Method

Participants and procedure. Two hundred thirty university undergraduates participated in exchange for \$2. Unacquainted participants were randomly assigned within each dyad to the role of giver and receiver, and dyads were randomly assigned to condition in a 2 (Cost: low vs. high) \times 2 (Benefit: low vs. high) between-group design. Participants did not know beforehand that they had been paired together.

Participants in a dyad were independently led to two separate rooms, with only one dyad participating in the experiment at any given time. Favor receivers were told that because of the special nature of the experiment, they would be unable to complete all of the tasks required for the experiment and that we were therefore allowing them to ask a participant in another experiment (actually the favor giver) to help them out. If the favor giver agreed to help, then favor receivers would win an extra prize at the end. Those in the high-benefit condition learned that their prize would be a unique-looking coffee mug, whereas those in the low-benefit condition learned that their prize would be an unattractive pencil.

To better control this request, we gave favor receivers a simple script to follow when asking the other person for help. Receivers informed the givers that they needed a favor because the experiment they were completing involved more work than could be done by one person alone. Receivers then asked if the favor giver could finish one part of the experiment for them and showed the favor giver the benefit they themselves would receive if the giver agreed to perform the favor (i.e., either the mug or the pencil). Favor receivers who agreed to ask for help (all but 1 participant) were then led to their partner's laboratory room and delivered the request. When finished, favor receivers returned to their original

laboratory room and completed a 5-min filler task, after which they completed the dependent measures described below.

All favor givers agreed to the request for help. Those randomly assigned to the low-cost condition were then given a written passage and asked to cross out all instances of the letter "e." Those in the high-cost condition did the same and then also crossed out all instances of the letter "f" in a second passage. Favor receivers, however, were only told that this task for givers was different from person to person, and the time required completing the task varied from 2 min to 10 min. Favor givers were told that the receivers were not aware of the length of the task.

Dependent measures. Favor receivers were asked to imagine that they were going to buy a thank-you gift for the favor giver and reported how much they thought they would spend on the gift. Favor givers imagined that the favor receiver was going to buy them a thank-you gift and reported how much they expected the favor receiver would spend on the gift. These served as our key measures of social reciprocity.

When finished with this primary measure, favor receivers then reported how grateful they felt toward the other participant and how strongly they felt the desire to thank the other participant. Favor givers estimated how grateful the favor receiver would feel and how motivated the favor receiver would be to reciprocate.

Finally, participants completed a series of manipulation checks. Two tested the benefit manipulation: estimating the retail price of the prize (the mug or the pencil) and indicating how much they actually liked the prize (or estimating how much the receiver would like the prize) on a scale ranging from 0 (*not at all*) to 10 (*a great deal*). The other two tested the cost manipulation: estimating how much time (in minutes) the favor giver spent performing the task and estimating how much effort the favor giver expended to perform the task on a scale ranging from 0 (*no effort*) to 10 (*a lot of effort*).

Results and Discussion

Three original dyads were not included in the following analyses: one because the favor receiver refused to ask for help, one because the receiver did not complete the entire questionnaire, and one because a participant's response on the key reciprocity measure was more than three standard deviations from the condition mean. This left 112 dyads in the following analyses. All analyses are performed at the level of the dyad.

Manipulation checks. The benefit manipulation appeared to be effective, as both givers and receivers reported that the mug was worth more than the pencil ($M_s = \$3.88$ vs. $\$.035$), $F(1, 108) = 259.27$, $p < .0001$, $\eta_p^2 = .71$, and that the mug was liked more than the pencil ($M_s = 5.19$ vs. 3.53), $F(1, 108) = 35.95$, $p < .0001$, $\eta_p^2 = .25$. There were no significant interactions on these measures.

The cost manipulation also appeared to be effective, but only for favor givers and not for favor receivers. Favor givers reported spending more time in the high-cost condition than in the low-cost condition ($M_s = 9.59$ vs. 5.17), $F(1, 108) = 64.35$, $p < .0001$, $\eta_p^2 = .37$, and reported expending more effort in the high cost condition than in the low cost condition ($M_s = 5.35$ vs. 4.08), $F(1, 108) = 8.26$, $p < .005$, $\eta_p^2 = .07$. The effect of cost condition was nonsignificant for favor receivers, both in the amount of time spent ($M_{\text{high cost}} = 6.44$, $M_{\text{low cost}} = 5.82$), $F(1, 108) = 1.76$, ns , and the amount of effort expended ($M_{\text{high cost}} = 4.62$, $M_{\text{low cost}} = 4.02$),

$F(1, 108) = 2.74$, $p = .10$, $\eta_p^2 = .02$. The interaction between role and cost condition on estimated time was significant, $F(1, 108) = 19.55$, $p < .0001$, $\eta_p^2 = .15$. The interaction between role and cost condition on estimated effort, however, was nonsignificant, $F(1, 108) = 1.42$, $p = .24$, $\eta_p^2 = .01$. As expected given the experimental design, the cost incurred to provide a favor was generally better known to favor givers than to favor receivers.

Reciprocity. A 2 (Role: giver vs. receiver) \times 2 (Cost: high vs. low) \times 2 (Benefit: high vs. low) mixed-model ANOVA on our key measure of reciprocity revealed a main effect of benefit, $F(1, 108) = 22.19$, $p < .0001$, $\eta_p^2 = .17$, qualified by the predicted Cost \times Role interaction, $F(1, 108) = 6.64$, $p < .05$, $\eta_p^2 = .06$. As can be seen in Figure 2, favor givers expected to be given a more valuable reciprocation gift in the high-cost condition than in the low-cost condition, $F(1, 108) = 5.71$, $p < .05$, $\eta_p^2 = .05$, but favor receivers did not show any sensitivity to this cost difference in their predicted reciprocation ($F < 1$, ns). More important for maintaining a sense of equity in social relations, this differential sensitivity to cost led favor receivers to reciprocate less generously than favor givers expected when they incurred a relatively high cost to perform a favor ($M_s = \$1.62$ vs. $\$.20$), $F(1, 108) = 3.64$, $p = .06$, $\eta_p^2 = .03$.

Unlike Experiments 1 and 2, however, this experiment did not reveal a significant differential sensitivity to benefit between givers and receivers ($F < 1$, ns). Favor givers expected to be given a

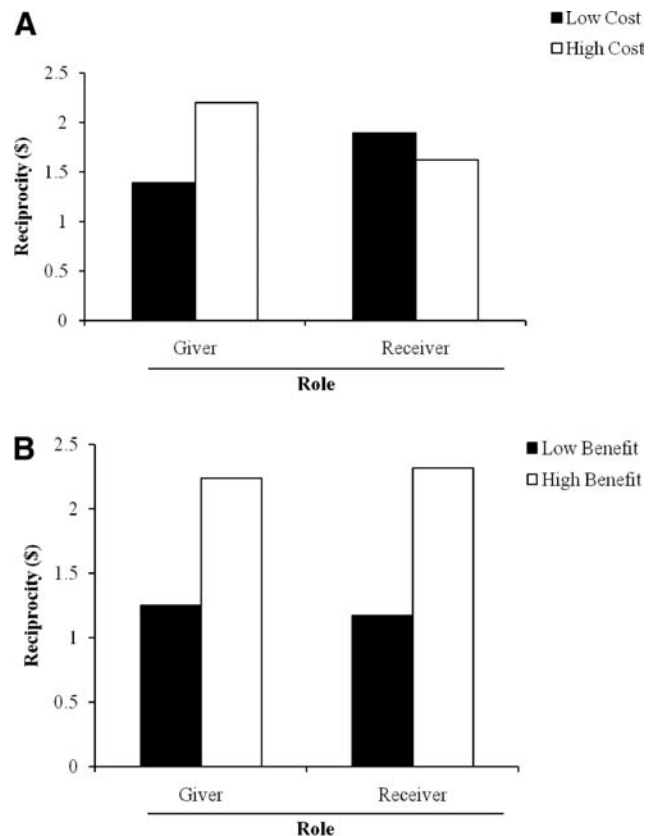


Figure 2. Expected versus actual amount of reciprocity by favor givers and favor receivers according to the cost incurred by the favor giver (A) and the benefit received by the favor receiver (B) in Experiment 3.

more valuable reciprocation gift when the benefit was high than when it was low ($M_s = \$2.24$ vs. $\$1.25$), $F(1, 108) = 8.55$, $p < .005$, $\eta_p^2 = .07$, and favor receivers reported that they would indeed buy a more valuable reciprocation gift when the benefit was high than when it was low ($M_s = \$2.23$ vs. $\$1.17$), $F(1, 108) = 17.64$, $p < .0001$, $\eta_p^2 = .14$.

These data suggest, albeit not conclusively, that the more stable asymmetry between givers and receivers may be in the attention paid to costs, rather than in the attention paid to benefits. This pattern also emerged, albeit much more weakly, in Experiment 1, in which the effect of role on cost was at least directionally larger than the effect of role on benefits. In Experiment 3, however, the cost incurred to provide a favor in a social exchange was clearly known only to the favor givers. Despite being aware that favor receivers could not reciprocate on the basis of this unknown information, favor givers nevertheless expected to be reciprocated according to the cost they incurred. Maintaining a sense of equity may, at times, pose a real challenge for a person receiving a favor if they are expected to reciprocate on the basis of unknown information.

Additional analysis suggested that this egocentric bias observed in the overall value of reciprocity did not significantly influence the motivation or inclination to reciprocate. Recall that favor receivers reported how grateful they felt and how motivated they were to reciprocate, and favor givers anticipated how grateful receivers would feel and how motivated they would be to reciprocate. We averaged these two measures together ($r = .75$, $p < .0001$) to create a single composite measure for each participant, and then submitted that composite to a 2 (Role: receiver vs. giver) \times 2 (Cost: low vs. high) \times 2 (Benefit: low vs. high) mixed-model ANOVA. This analysis yielded a significant main effect for role, $F(1, 108) = 19.40$, $p < .001$, $\eta_p^2 = .15$, and for benefit $F(1, 108) = 29.74$, $p < .001$, $\eta_p^2 = .22$. Receivers expressed more gratitude and motivation to reciprocate than givers expected them to ($M_s = 5.78$ and 4.19 , respectively). Consistent with past research (Tesser, Gatewood, & Driver, 1968; Wilke & Lanzetta, 1970), gratitude and motivation to reciprocate were also generally higher when the benefit was high than when it was low ($M_s = 5.52$ and 4.09 , respectively). There was no significant effect of cost, nor any interactions that approached significance on this measure. Differential sensitivity to cost did not influence assessments of gratitude or the motivation to reciprocate, but it did influence how people determined the amount that should be spent to reciprocate "in kind." This suggests that the motivation to reciprocate may be automatically triggered by prosocial actions and be relatively independent of their scope, but the amount that people choose to reciprocate is more directly based on the perceived value of the prosocial action itself.

Experiment 4: Real Reciprocity

The preceding experiments have all relied on participants' estimates of the value they either expected to receive through reciprocity from another person or the value they expected to spend to reciprocate another's favor. Experiment 4 measured actual reciprocity by having participants complete a procedure similar to that in Experiment 3, but with two important modifications. First, favor receivers were given \$3 at the end of the experiment, along with the opportunity to give some of it to the favor giver to "show their

appreciation." Although this experimental design loses some of the mundane realism of Experiments 1 and 2, it gains psychological realism by requiring participants to reciprocate in real dollars. Second, favor receivers in Experiment 4 were told how much time the giver spent on average performing the favor, whereas this cost information was unknown in Experiment 3.

The actual amount of money that favor receivers provided to favor givers served as our measure of reciprocity. We simplified the design of Experiment 3 by including only the conditions in which the perspective of the giver and receiver were theoretically mismatched in terms of costs and benefits (high cost/low benefit, and low cost/high benefit), as these conditions are the most informative for examining the existence of our predicted egocentric bias. We predicted a significant interaction between what favor givers expected to receive and what they actually received across these two conditions.

Method

Participants. Eighty-two university undergraduates participated in this short experiment for \$1, plus the amount out of \$3 they received or retained at the end of the experiment.

Procedure. The procedure was identical to Experiment 3, with three exceptions. First, it included only the mismatched cost and benefit conditions: high cost/low benefit, and low cost/high benefit. Second, favor receivers learned about the cost incurred by the favor givers, being told that the givers spent 5 min performing the favor in the low-cost/high-benefit condition or that they spent 10 min in the high-cost/low-benefit condition. Finally, Experiment 3 included an actual opportunity to reciprocate at the end of the experiment. In particular, after receiving either the pencil or the mug, favor receivers were given \$3 that they were told could be distributed between themselves and the favor givers any way they liked. To ensure that this was clearly seen as an act of reciprocity (rather than being interpreted in some other fashion), favor receivers were told that it might feel good for them to get a chance to show their gratitude for the other person's help by returning some amount of money to the other participant. Receivers then indicated how they would like to divide the \$3 on a scale labeled in 20-cent increments.

Givers were then told how much the favor receiver decided to give them, and then reported how much they had initially expected the other participant to give. Asking favor givers to report their expectations after learning of the actual division has the potential to dampen the gap between givers and receivers because of a hindsight bias (Hawkins & Hastie, 1990), but we designed the procedure this way to more closely mimic experiences in everyday social exchange, in which it is unusual to explicitly state the amount one expects another to reciprocate before learning of the actual reciprocity. Favor givers also reported how generous the receiver was compared with their expectations on a -5 to 5 scale, where -5 represented *much less generous*, 0 *about right*, and 5 *much more generous*.

Finally, both givers and receivers estimated the retail value of the mug or the pencil. Givers also indicated how much effort they spent in performing the favor, and receivers estimated how much effort they thought the giver spent (on a 1 to 9 scale).

Results and Discussion

Manipulation checks. As in Experiment 3, both givers and receivers estimated that the mug was worth more than the pencil ($M_{\text{mug}} = \$4.36$, $M_{\text{pencil}} = \$0.39$), $F(1, 39) = 70.52$, $p < .0001$, $\eta_p^2 = .64$. Givers also reported expending more effort in the high-cost/low-benefit condition ($M = 4.53$) than in the low-cost/high-benefit condition ($M = 3.27$), $F(1, 39) = 4.25$, $p < .05$, $\eta_p^2 = .10$. Although receivers were told how much time the giver spent performing the favor, this did not lead them to estimate that more effort was spent in the high-cost/low-benefit condition ($M = 4.47$) than in the low-cost/high-benefit condition ($M = 5.05$), $F(1, 39) = 0.79$, *ns*. This produced a significant role by cost interaction, $F(1, 39) = 4.52$, $p < .05$, $\eta_p^2 = .10$. Spending more time on an equally difficult task also means spending more effort on that task, but this truism was apparent only to those who were actually expending the effort and not to those who were reaping the benefits.

Reciprocity. As predicted, a 2 (Role: receiver vs. giver) \times 2 (Condition: high cost/low benefit vs. low cost/high benefit) mixed-model ANOVA yielded a significant effect of condition, $F(1, 39) = 12.93$, $p = .001$, $\eta_p^2 = .25$, qualified by the predicted significant interaction, $F(1, 39) = 5.04$, $p < .05$, $\eta_p^2 = .11$. As can be seen in Figure 3, there was no significant difference between actual ($M = \$1.24$) and expected ($M = \1.14) reciprocity in the high-cost/low-benefit condition, $F(1, 18) = 0.64$, *ns*, but in the low-cost/high-benefit condition, receivers gave significantly more ($M = \$1.84$) than givers expected ($M = \1.39), $F(1, 21) = 5.04$, $p < .05$, $\eta_p^2 = .19$.

As in the previous experiments, this gap between givers and receivers has implications for maintaining a sense of equity within relationships. Givers rated receivers as being more generous than they expected when they incurred little cost to deliver a relatively high benefit ($M = 1.32$) but as being less generous when they incurred a high cost to deliver a relatively small benefit ($M = -0.53$), $t(39) = 2.89$, $p < .01$.

These data are again consistent with an asymmetry in attention to costs versus benefits among those giving versus receiving a favor in a social exchange. Notice that once again, however, the asymmetry between givers and receivers was primarily on the attention to costs, rather than attention to benefits. Receivers'

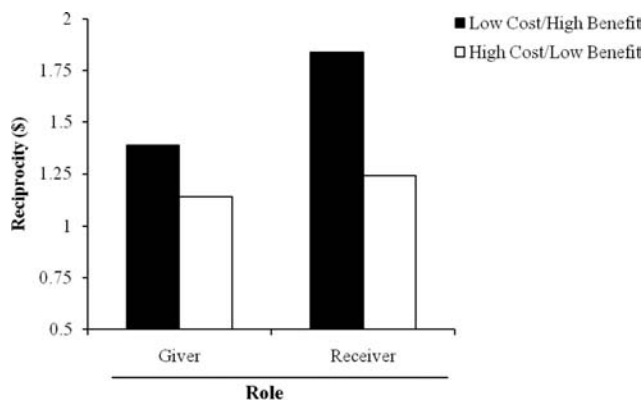


Figure 3. Expected versus actual amount of reciprocity by favor givers and favor receivers when the cost and the benefit were mismatched in Experiment 4.

actual reciprocity was consistent with the benefit they received, with them reciprocating significantly more in the high-benefit/low-cost condition ($M = \$1.84$) than in the low-benefit/high-cost condition ($M = \$1.14$), $F(1, 39) = 18.75$, $p < .0001$, $\eta_p^2 = .32$. Givers also expected the receivers to reciprocate more in the high-benefit/low-cost condition ($M = \$1.39$) than in the low-benefit/high-cost condition ($M = \$1.24$), but this difference was nonsignificant, $F(1, 39) = 0.70$, *ns*. Given that costs and benefits were pitted against each other, this null effect would be expected if favor givers were attending to costs more than were favor receivers.

Experiment 5: Explicit Reciprocity Rules

We have suggested that this difference between givers and receivers is produced by an egocentric bias in the accessibility of costs and benefits and, therefore, the attention paid to the information in assessments of reciprocity. The reaction time results of Experiment 2 are consistent with this hypothesis, as favor givers were faster to report the cost they incurred than the benefit they provided, whereas the opposite was true for favor receivers.

Notice that this accessibility mechanism suggests that people are not naturally inclined to adopt another side's perspective in a social exchange and are therefore influenced more heavily by the information that is accessible to their own perspective. This difference in accessibility between givers and receivers implies that the inconsistency in reciprocity is not intentional but, rather, is an accidental feature of everyday intuitive judgment. A potentially more deliberative alternative interpretation of the gap between givers and receivers is that a person's perspective influences the information that they believe they should attend to when considering how to reciprocate (Amir & Ariely, 2007). That is, those receiving a favor may explicitly believe they should be considering the benefit provided by the favor giver when thinking about the cost of a thank-you gift and are therefore simply behaving in line with what they believe is appropriate in their situation. Likewise, favor givers may believe that they should be reciprocated on the basis of the cost they incur relatively more than the benefit they provide. On this account, one's own perspective does not alter attention to costs and benefits so much as it alters the explicit decision rule (or perceived norms) that people consult when considering reciprocation. If people are indeed using such an explicit decision rule, then they should be able to report that rule at the time of evaluation. If, however, the egocentric biases observed so far are produced by more automatic default processes in evaluation as we have suggested, then people would not be expected to report following a rule that would be consistent with their more naturalistic behavior.

We tested this hypothesis in Experiment 5 by having participants read the same scenarios as in Experiment 1, and then indicated whether they thought it was more important to consider the cost incurred by the giver or the benefit provided to the receiver when determining the appropriate degree of reciprocity for the favor. Notice that the alternative interpretation based on an explicit decision rule would predict responses consistent with the actual behavior observed in the previous experiments, whereas our accessibility hypothesis does not make an unambiguous prediction in this experiment. This experiment is therefore not designed to

test the accessibility explanation we have offered but, rather, to test an alternative interpretation based on explicit decision rules.

Method

One hundred eighty-two university students recruited by e-mails were randomly assigned to the role of receiver and giver. They were asked to report how important they considered the giver's cost and the receiver's benefit to be when thinking about how much they should reciprocate or be reciprocated for the two favor scenarios used in Experiment 1 on a 1 (*not important at all*) to 9 (*extremely important*) scale. The order of these two questions was counterbalanced across participants.

Results and Discussion

In contrast to the results we actually observed in Experiment 1 and elsewhere, collapsing the standardized responses across the two scenarios indicated that receivers thought that it was relatively more important to consider the cost incurred by the giver ($M = 0.29$) than to consider the benefit they received ($M = 0.05$), $F(1, 180) = 7.39$, $p < .01$, $\eta_p^2 = .04$. Favor givers, however, thought the opposite: that it was less important to consider the cost they incurred ($M = -0.34$) than to consider the benefit they provided ($M = -0.05$), $F(1, 180) = 8.62$, $p < .005$, $\eta_p^2 = .06$ (see Figure 4). This produced a significant interaction, $F(1, 180) = 15.84$, $p < .0001$, $\eta_p^2 = .08$, but in precisely the opposite pattern of the results that emerged from participants who were actually considering reciprocating in these very same scenarios in Experiment 1.

These results suggest an interesting disconnect between how people think they should reciprocate in a social exchange and how they actually reciprocate in that exchange. Favor givers in this experiment reported that it was more important to consider the benefit they provided when thinking about how much they should be reciprocated, but their behavior in the preceding experiments demonstrated that they actually consider the cost to be more important. Likewise, favor receivers in this experiment reported that it was more important to consider the cost incurred by the giver when thinking about how much they should reciprocate, but their behavior in the preceding experiments demonstrated that they actually consider the benefit they receive to be more important. Combining the results of this experiment

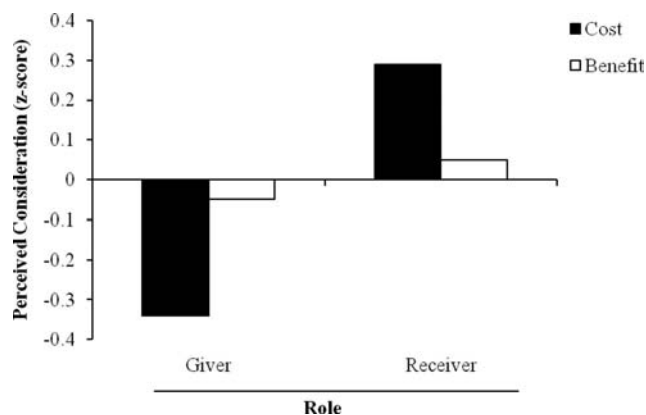


Figure 4. The attention that favor givers and receivers believed cost and benefit should receive when considering reciprocity in Experiment 5.

and the results of the previous experiments, we suggest that although both givers and receivers believe they should reciprocate on the basis of what matters to the other side, they failed to do so because of the differential accessibility of information in givers' and receivers' minds.

It is not, we suggest, that people think the other role's perspective is irrelevant when calculating the value of a social exchange, but rather that they fail to consider it naturally in the midst of a social interaction (or imagined interaction). If so, then explicitly encouraging participants to consider the other side's perspective should bring their expected and actual reciprocity in line with what they might endorse as the appropriate way to reciprocate if they are actually called upon to do so. Such a finding would be consistent with existing research demonstrating that egocentric biases resulting from differences in attention can be eliminated or even reversed when people are explicitly led to consider the other side's perspective (Epley, Caruso, & Bazerman, 2006; Regan & Totten, 1975; Savitsky, Epley, & Gilovich, 2001; Savitsky, Van Boven, Epley, & Wight, 2005; Storms, 1973). We tested the moderating role of perspective-taking directly in one final experiment.

Experiment 6: Perspective Taking

Participants in Experiment 6 imagined participating in a social exchange similar to that used in Experiment 1. Approximately half were asked, before considering reciprocation, to consider their friend's potentially differing perspective in the social exchange using a perspective-taking manipulation adapted from existing research. We expected that this manipulation would reduce the egocentric bias between expected and actual reciprocity observed in the preceding experiments.

Method

Participants and procedure. Participants ($N = 182$) were approached at a university library and completed the questionnaire in exchange for candy. All participants first read the "moving" scenario used in Experiment 1, following the same procedure used in that experiment with two notable modifications. First, we simplified the full design of Experiment 1 by including only the two conditions in which the perspective of givers and receivers would be mismatched—namely high cost/low benefit and low cost/high benefit. As in Experiment 1, the favor receiver imagined asking a friend to lend his or her truck to help with moving. If the cost to the favor giver was relatively high (it was a large hassle to lend the truck), then the benefit provided to the favor receiver was relatively low (it would have been easy and relatively inexpensive to rent a truck as an alternative). If the cost to the favor giver was low (it was no hassle to lend the truck at all), then the benefit was relatively high (it would have been expensive and difficult to rent a truck as an alternative).

Second, we added a perspective-taking manipulation as an additional independent variable. Those randomly assigned to the perspective-taking condition were asked, before considering the main dependent measures, to "take a minute to think about your friend. As you can imagine, your friend may have different priorities than you do and is likely to evaluate this favor from a different perspective." We based this on existing perspective-taking manipulations intended to draw attention to the potentially differing perspective of another person (e.g., Davis, Conklin, Smith, &

Luce, 1996; Epley et al., 2006). Participants in the control condition, as in the earlier experiments, simply read the scenario and then completed the dependent measure(s).

Dependent measures. Those randomly assigned to be favor givers were asked to imagine that the favor receiver wanted to take them out to dinner as a thank-you gift and were asked to estimate how much they expected the receiver to spend on this dinner for the two of them. Those randomly assigned to be favor receivers reported how much they would actually like to spend on this thank-you dinner.

Results and Discussion

A 2 (Role: receiver vs. giver) \times 2 (Condition: high cost/low benefit vs. low cost/high benefit) \times 2 (Perspective: control vs. perspective taking) ANOVA revealed a main effect of role, $F(1, 174) = 9.77, p < .005, \eta_p^2 = .05$. As seen in Experiment 3, and consistent with prior research, receivers reported that they would be interested in spending more than givers expected them to spend ($M_s = \$46.49$ and $\$37.78$, respectively). More important, this was qualified by the predicted three-way interaction, $F(1, 174) = 9.48, p < .005, \eta_p^2 = .05$.

As can be seen in the top panel of Figure 5, participants in the control condition produced the same asymmetry observed in the previous experiments. Favor givers expected to be reciprocated

more when the cost they incurred was high than when it was low, whereas favor receivers indicated that they would reciprocate more when the benefit they received was high than when it was low, $F(1, 88) = 5.00, p < .05, \eta_p^2 = .05$. Participants in the perspective-taking condition, however, showed precisely the opposite pattern, $F(1, 86) = 4.58, p < .05, \eta_p^2 = .05$. Perspective taking did not simply reduce the egocentric bias observed in the control condition; it reversed the bias entirely. This finding is consistent with the mechanism of differential accessibility to costs and benefits that we have hypothesized. These results also provide additional evidence inconsistent with the possibility that givers and receivers simply carry reciprocity rules that weigh costs and benefits differently. If givers and receivers were indeed engaging in differential weighting, then calling their attention to the other role's perspective would not influence their use of cost and benefit information, because they would already have been considering that information. Finally, these results suggest a fairly useful strategy for calibrating expected and actual reciprocity between givers and receivers in a social exchange, as long as only one of the two parties in a social exchange is engaging in perspective taking.

General Discussion

Cooperative social life operates in many ways that are analogous to cooperative economic life. Economic markets are based on a system of cooperative exchange in which goods and services are traded through a monetary system for their apparent market value. Inefficiencies in these economic markets in which people systematically pay too much or too little for a good or service can create barriers to exchange that may drive some individuals out of the market. Cooperative social life is also based on a system of exchange in which prosocial acts are essentially traded through a system of reciprocity where favors are returned "in kind" on the basis of their apparent social value. Inefficiencies in social markets, in which people systematically reciprocate too much or too little for prosocial acts, can also create barriers to cooperation that may reduce cooperation and ruin long-term relationships.

Unlike economic markets, however, the value of a prosocial action is rarely stated or explicitly discussed. What is required to reciprocate "in kind" is therefore left to a process of inference for both givers and receivers of a prosocial act. The psychological process that underlies this value calculation is critical to understanding when social exchanges are likely to operate efficiently and when they are not. Because the information that is readily accessible to givers and receivers in a prosocial exchange is likely to be systematically different, we predicted their "in kind" calculations would be systematically different as well. In particular, we predicted that favor givers would expect to be reciprocated on the basis of the cost they incurred to perform a favor, whereas favor receivers would primarily (or exclusively) reciprocate on the basis of the benefit they received.

All six experiments reported in this article are consistent with this predicted asymmetry between givers and receivers. In paradigms involving imagined exchanges (Experiments 1 and 6), recalled exchanges (Experiment 2), and actual laboratory exchanges (Experiments 3 and 4), favor givers expected to be reciprocated on the basis of the cost they incurred to provide a favor. Whether imagining that they were waiting in line to purchase tickets for a very short time or a very long time (Experiment 1), providing help

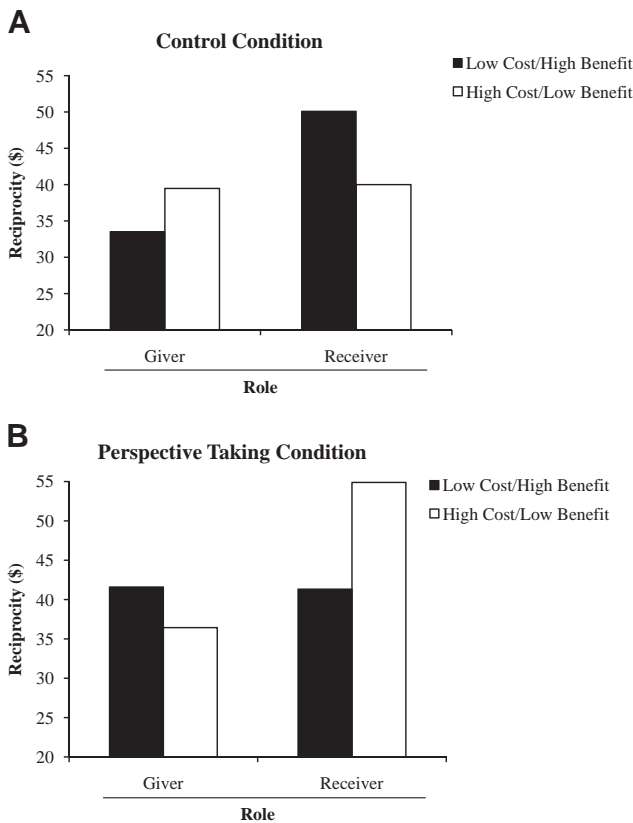


Figure 5. Expected versus actual amount of reciprocity by favor givers and favor receivers in the control conditions (A) and perspective-taking conditions (B) when the cost and the benefit were mismatched in Experiment 6.

to a friend at either minor or substantial inconvenience (Experiments 1 and 6), recalling a recent favor (Experiment 2), or actually working on a boring task for a short or a long time (Experiments 3 and 4), favor givers expected that receivers' reciprocity would reflect a sense of gratitude for the effort they expended. This effect emerged both in contexts in which the cost incurred by the giver was clearly available to the receiver (Experiments 1, 4, and 6) as well as when it was clearly unavailable (Experiment 3).

Favor receivers, however, did not naturally consider the cost incurred by the giver when predicting how much they would reciprocate, or when actually reciprocating, for a prosocial action. Instead, favor receivers' calculation of equivalent or "in kind" reciprocity appeared to be based on the benefit they received from the favor. Favor givers considered the benefit they provided in the social exchange in some of these experiments, as well, with mixed evidence about whether they were less sensitive to benefits than were favor receivers. In the two scenarios used in Experiment 1, favor givers' expected reciprocity was less influenced by the benefit they provided than was the favor receivers' predicted reciprocity. In the recalled favors examined in Experiment 2, favor givers' expected reciprocity was not influenced by the unique benefits provided by their favor, independent of the costs they incurred, whereas favor receivers' reciprocity was strongly predicted by the benefit they received, independent of the estimated costs incurred. This asymmetry did not, however, emerge in the mug-versus-pencil experiments (3 and 4) and could not be unambiguously assessed in Experiment 6. It is therefore unclear whether this inconsistency in sensitivity to benefits is a stable phenomenon or an artifact of these particular experiments. The benefit manipulation in Experiments 3 and 4, for instance, involved a tenfold difference between the value of the low-benefit versus high-benefit object (i.e., the pencil vs. mug) and may simply have been a much stronger and more readily accessible manipulation for everyone, compared with the more subtle cost manipulation. What is clear from these experiments, however, is that favor givers expect to be reciprocated on the basis of the cost they incur in a social exchange, but they are likely to be actually reciprocated only on the basis of the benefit they provide.

These experiments also investigated the mechanism underlying this gap in reciprocity. Two possibilities seemed likely. One is that givers and receivers are attending to cost and benefit information equally but that their role induces different perceptions of the fair way to calculate "in kind" reciprocity. In particular, givers may come to believe it is more important to reciprocate on the basis of cost than do favor receivers, and they then calculate their expected reciprocity accordingly. Likewise, receivers may believe it is more important to reciprocate on the basis of benefit than do favor givers, and they then calculate their intended or actual reciprocity accordingly. Experiment 5, however, found precisely the opposite result. When directly asked how important it is to consider costs versus benefits, favor givers reported it was more important to consider benefits than costs, whereas favor receivers showed the opposite. The importance these participants explicitly said they should assign to costs and benefit information was not consistent with how participants actually reciprocated in both the scenario and laboratory experiments. Of course, this is far from the first research to suggest that people's beliefs about their mental processes are not always well aligned with their actual mental processes (Nisbett & Wilson, 1977).

The second plausible underlying mechanism is based on the differential attention paid to cost versus benefit information. Because favor givers directly experience the cost incurred to provide a favor, cost information is likely to be more readily accessible to givers than to receivers. Because favor receivers directly experience the benefit provided by the favor, benefit information is likely to be more readily accessible to receivers than to givers. Experiment 2 demonstrated this directly by showing that the favor givers were faster to report the cost they incurred than the benefit they provided, whereas the opposite result occurred for favor receivers. Experiment 6 also demonstrated that shifting people's attention to the other role's perspective eliminated the egocentric bias between givers and receivers and oriented their evaluations to be consistent with that of the other role in a social exchange. These findings from Experiment 6 are consistent with existing research that demonstrates the power of perspective taking to overcome basic egocentric biases in judgment and to potentially coordinate social action (Caruso, Epley, & Bazerman, 2006; Epley et al., 2006; Galinsky, Maddux, Gilin, & White, 2008; Galinsky, Magee, Inesi, & Gruenfeld, 2006; Savitsky et al., 2005).

"Egocentric" biases, by definition, describe judgments that are self-centered and based on information accessible from one's own point of view, but they are often confused with "egoistic" biases that describe judgments motivated by self-interest and an attempt to benefit the self in some material or psychological way. The results of these experiments are clearly more consistent with an egocentric account of the asymmetry between givers and receivers than with an egoistic account. The perspective-taking results of Experiment 6, for instance, did not simply reduce the gap between givers and receivers but reversed it completely. It is important to note, however, that these experiments did not directly measure or manipulate participants' self-interest and, therefore, can only suggest that egoism is unlikely to provide a complete explanation for results we observed. These experiments cannot speak to the impact of self-interest directly, and measuring the extent to which the perceived value of a prosocial action is influenced by self-serving reasoning is an interesting topic for further research.

The impact of perspective taking in Experiment 6 makes it clear that the egocentric bias between givers and receivers is far from an inevitable difference in the perceived value of a social exchange. Factors that increase a person's motivation or ability to adopt the other side's perspective in a social exchange—such as liking for the other person (Frantz & Janoff-Bulman, 2000), being a member of an interdependent culture (Cohen & Gunz, 2002; Wu & Keysar, 2007), being in a position of low status or power (Galinsky et al., 2006), or being naturally inclined to engage in effortful thought (Epley, Keysar, et al., 2004)—should reduce the egocentric bias we observed, whereas factors that decrease the motivation or capacity to adopt the other side's perspective should increase the magnitude of the egocentric bias. The basic attentional mechanism that underlies the difference in evaluation between givers and receivers in a social exchange is likely to provide insight into when the gap between these roles is likely to be large and when it is not.

We believe this research has both practical and theoretical implications. Practically speaking, understanding the mechanisms that guide social exchange and reciprocity can shed light on the causes of relationship discord and inform interventions to alleviate or avoid it. We have focused our research on dyadic exchanges between individuals, but egocentric biases in attention to costs and benefits are also likely to arise in intergroup settings between work

teams, organizations, and even countries. Beyond the implications for creating or eliminating relationship discord, we also think our findings have interesting implications for frequency with which people engage in prosocial exchanges in everyday life and some unintentional benefits that may result from egocentric biases in reciprocity. It seems very reasonable, for instance, that people are especially likely to ask for favors when they are truly in need but to agree to favors only when they believe they can perform them without incurring an extreme cost. If people ask for favors when the benefit they receive would be high and primarily perform favors when the cost incurred would be low, then social exchanges in everyday life may often be mutually beneficial in ways that promote reciprocity as a stable and strong norm. The egocentric biases we have demonstrated in social exchanges may therefore provide insights into when people are likely to ask for and agree to favors, and why social exchanges are such a routine part of everyday life.

Theoretically speaking, our work provides a bridge between the existing literatures on the mechanisms that guide social judgment with the interpersonal consequences that follow from equity in social exchange. Most prominent among the latter is equity theory (Adams, 1963; Walster et al., 1978), which stipulates the importance of equity in social relations and identifies the consequences that follow for a person's motivation, satisfaction, and well being. Our research expands on this theory by attending to the antecedents of perceived equity, identifying one important mechanism to explain potential inconsistencies in perceived equity. Our research also, for the first time, demonstrates how people who are motivated to maintain equity in social relations might nevertheless have difficulty doing so because of egocentric biases that may influence one's evaluation of the favor itself.

Although we believe the experiments we have presented clearly demonstrate the existence of an egocentric bias in some instances of social exchange, there are a wide range of issues we did not address that may provide fruitful avenues for future research. First, these experiments investigated only exchange relationships that are defined by the expectation of direct "in kind" reciprocity for favors (or for harm). Although these represent a significant proportion of people's existing relationships, they do not represent them all (Clark, 1984; Clark & Mills, 1979). Family members, very close friends, or relationship partners can develop into communal relationships that are based on less direct forms of reciprocity (Clark, 1984), and instead are defined by a general concern for a partner's well being (Clark & Mills, 1993; cf. Batson, 1993). Although concerns for equity still exist in these relationships, they are less tied to direct reciprocity and may create differences in the perceived value of prosocial actions within these relationships between givers and receivers (as suggested by Experiment 6). The experiments we have offered cannot determine whether the egocentric biases we observed operate similarly in long-term communal relationships, are nonexistent, or perhaps are even reversed, as seen in the perspective-taking condition of Experiment 6.

Second, these experiments involved immediate evaluations of reciprocity, and some research suggests that the evaluations may change over time. In one series of studies, for instance, givers believed their favors were less valuable than did receivers immediately following the prosocial action, but this pattern changed over time such that receivers valued the favor less and givers valued the favor more after a delay (Flynn, 2003). Whether this

temporal pattern can be explained by a more rapid decay over time among perceived benefits than perceived costs is an interesting possibility. The current experiments lack a temporal manipulation and cannot address this directly.

Finally, these experiments involved low-stakes favors, and they cannot speak to the existence of these differences among more costly or beneficial prosocial actions. Given that the biases we demonstrated appear to be mediated by attention to costs versus benefits, we suggest that the more intensely experienced costs or benefits that come with higher stakes favors might actually increase the magnitude of the egocentric biases we have observed. Understanding how the valuation of economic good varies at higher versus lower stakes is a central topic of research on economic exchange, and it would be a very interesting one for research on social exchange.

Regardless of what future research reveals, perhaps the most interesting implication of this research is for perceptions of equity within social relations. Maintaining a sense of equity within any relationship involving exchange is critical for maintaining a satisfying relationship, and these experiments highlight one potential source of variability in perceptions of equity. When costs incurred and benefits received are roughly equivalent within a social exchange, "in kind" reciprocity is likely to be calibrated, even though people are attending to different information. When costs and benefits are mismatched, however, perceptions of equity are likely to diverge. Reciprocity follows the norm of "an eye for an eye," but it is important to remember that the perceptions of equity exist in the eye of the beholder.

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Call for Nominations: *Journal of Neuroscience, Psychology, and Economics*

The Publications and Communications (P&C) Board of the American Psychological Association has opened nominations for the editorship of the *Journal of Neuroscience, Psychology, and Economics*, for the years 2011–2016. The editor search committee is chaired by Peter Ornstein, PhD.

The *Journal of Neuroscience, Psychology, and Economics (JNPE)*, first published by Educational Publishing Foundation of the APA in 2009, publishes original research dealing with the application of psychological theories and/or neuroscientific methods to business and economics. Therefore, it is the first peer-reviewed scholarly journal that publishes research on neuroeconomics, decision neuroscience, consumer neuroscience, and neurofinance, besides more classical topics from economics and business research.

As an interdisciplinary journal, *JNPE* serves academicians in the fields of neuroscience, psychology, business, and economics and is an appropriate outlet for articles designed to be of interest, concern, and value to its audience of scholars and professionals.

Editorial candidates should be available to start receiving manuscripts in July 2010 to prepare for issues published in 2011. Please note that the P&C Board encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees. Self-nominations are also encouraged.

Candidates should be nominated by accessing APA's EditorQuest site on the Web. Using your Web browser, go to <http://editorquest.apa.org>. On the Home menu on the left, find "Guests." Next, click on the link "Submit a Nomination," enter your nominee's information, and click "Submit."

Prepared statements of one page or less in support of a nominee can also be submitted by e-mail to Molly Douglas-Fujimoto, Managing Director, Education Publishing Foundation, at mdouglas-fujimoto@apa.org.

The deadline for accepting nominations is January 31, 2010, when reviews will begin.