

Gratitude as Moral Sentiment: Emotion-Guided Cooperation in Economic Exchange

David DeSteno
Northeastern University

Monica Y. Bartlett
Gonzaga University

Jolie Baumann
Northeastern University

Lisa A. Williams
University of New South Wales

Leah Dickens
Connecticut College

Economic exchange often pits options for selfish and cooperative benefit against one another. Decisions favoring communal profit at the expense of self-interest have traditionally been thought to stem from strategic control aimed at tamping down emotional responses centered on immediate resource acquisition. In the present article, evidence is provided to argue against this limited view of the role played by emotion in shaping prosociality. Findings demonstrate that the social emotion gratitude functions to engender cooperative economic exchange even at the expense of greater individual financial gains. Using real-time inductions, increased gratitude is shown to directly mediate increased monetary giving within the context of an economic game, even where such giving increases communal profit at the expense of individual gains. Moreover, increased giving occurred regardless of whether the beneficiary was a known individual or complete stranger, thereby removing the possibility that it stemmed from simple awareness of reciprocity constraints.

Keywords: emotion, behavioral economics, decision making, cooperation

Economic exchange constitutes a frequent and integral facet of human social life. However, the familiarity of exchange behaviors belies the risks inherent in them. Exchanges, especially when temporally separated, open individuals to the potential of both great gain and great loss. If one's partner absconds with the initial provision of resources or money, one may be the victim of an asymmetric loss. Similarly, if one receives an initial benefit, refusing to return the favor can provide an asymmetric gain. Engaging in such purely self-interested behaviors will undoubtedly increase one's benefits in the short term but in the long term will result in poorer outcomes if one earns a reputation as a selfish cheat (Frank, 1988). Humans, after all, tend to flourish when ensconced in stable and supportive social networks.

The ultimate answer to why individuals temper self-interested actions is, consequently, clear; however, understanding of the

mechanisms by which such decisions are made remains clouded. Many models suggest that cooperative economic behavior directly stems from explicit consideration of the strategic perils of acting selfishly, with individuals utilizing cognitive control to tamp down emotional responses centered on acquiring immediate gain (Berns, Laibson, & Loewenstein, 2007). For example, individuals often act cooperatively in iterated prisoner's dilemma games, as they recognize that initial selfish behavior tends to be readily punished in successive rounds of the game (cf. Axelrod, 1984). In the present article, we argue that this view of emotions may be shortsighted.

If the ability to act cooperatively in economic exchange, and thereby build trust, is socially adaptive, then it would make sense that specific emotional responses exist to foster it. Indeed, many economists (e.g., Frank, 1988; Smith, 1790/1976) and biologists (e.g., Trivers, 1991) have theorized that specific affective states or moral sentiments underlie economic cooperation. Surprisingly, little empirical evidence has been put forward to confirm these conjectures to date. One exception stems from our previous work on the social sequelae of gratitude that demonstrated its ability to mediate helping behavior toward individuals who request assistance (Bartlett & DeSteno, 2006). Simply put, feelings of gratitude were shown to increase the probability of engaging in effortful assistance when it was requested, with this causal relation being dissociable from simple reciprocity concerns. Although not speaking to the issue of cooperation directly, recent work by Algoe and colleagues provides evidence of gratitude's role in cementing social bonds. With experience-sampling procedures, the frequency

David DeSteno and Jolie Baumann, Department of Psychology, Northeastern University; Monica Y. Bartlett, Department of Psychology, Gonzaga University; Lisa A. Williams, School of Psychology, University of New South Wales; Leah Dickens, Department of Psychology, Connecticut College.

This research was funded by a grant from the National Science Foundation (BCS 0645384).

Correspondence concerning this article should be addressed to David DeSteno, Department of Psychology, Northeastern University, Boston, MA 02115; or Monica Y. Bartlett, Department of Psychology, Gonzaga University, 502 East Boone Avenue, Spokane, WA 99258-0102. E-mail: d.desteno@gmail.com or bartlett@gonzaga.edu

and intensity of gratitude stemming from dyadic encounters involving gift exchanges were shown to predict intentions to foster relationships with benefactors (Algoe, Haidt, & Gabel, 2008).

At present, however, no evidence speaks to the role of gratitude within the realm of economic exchange. This lacuna is problematic, as monetary exchanges not only represent a primary mode of resource distribution but also stem from decisions that frequently pit potentials for immediate gains against immediate losses in ways that decisions to comply with requests for assistance do not.¹ Moreover, the actual consideration and presence of money has been shown to decrease both feelings of interdependence with others and prosocial helping (Vohs, Mead, & Goode, 2006). Given these facts, we believed that investigation of gratitude's direct impact on economic decision making would constitute an important and potentially generative endeavor.

Given that gratitude is theorized to build social relationships through encouraging prosocial action (McCullough, Kimeldorf, & Cohen, 2008), we theorized that gratitude would increase the probability of cooperative decision making even in the economic realm. That is, unlike simple positivity or happiness for which no consistent evidence of heightened economic cooperation exists (Hertel, Neuhof, Theuer, & Kerr, 2000), we believe that gratitude will increase cooperative financial decision making, even at the expense of individual asymmetric gains. As such, it will function as an affective mechanism designed to increase and extend the stability of exchange-based relationships.

Experimental Overview

To examine whether gratitude enhances economic cooperation, we utilized a procedure developed previously in our lab to induce gratitude (Bartlett & DeSteno, 2006). In this paradigm, participants believe they are completing an experiment on individual versus dyadic performance when they are suddenly confronted with a situation requiring them to recomplete a long and onerous task. To induce gratitude, a confederate posing as another participant in the study assists the true participant at some cost to herself in terms of time and effort, thereby saving the participant from having to complete the onerous task.

After the emotion induction, participants were moved to separate rooms where they believed they would complete a different study on economic behavior. The primary measure involved playing the "give some dilemma game" (GSDG), which, akin to the prisoner's dilemma, pits self-interest against communal interest. In one condition, participants believed they would be playing with the confederate whom they had just met; in the other, they believed they would be playing with an individual who was a complete stranger. In both conditions, financial decisions would be made in private. The inclusion of the stranger condition is necessary to address concerns that any cooperative behavior directed toward the partner might stem from awareness of reciprocity constraints alone. Simply put, inducing gratitude necessarily involves the presence of a benefactor. Consequently, if we are to argue that gratitude is a causal force in shaping cooperative economic behavior, we must be able to differentiate its influence from actions motivated by simple adherence to a reciprocity norm.

Of import, the use of the GSDG as specified here differs from previous methods to assess cooperation in ways that extend beyond movement into the economic realm. Unlike previous work

(cf. Bartlett & DeSteno, 2006), no direct requests for cooperation occur and decisions about whether to be cooperative occur in private with the assurance of no further contact between individuals. These conditions function to reduce any external pressures to disregard self-interest for strategic reasons and, as such, provide a stringent test for the ability of gratitude to increase prosocial financial decisions.

Method

Participants

Eighty-five individuals took part in this experiment and were randomly assigned to one of four conditions that crossed the two manipulated variables (i.e., emotion: control vs. gratitude; game partner: benefactor vs. stranger). In addition to course credit for their participation, participants received monetary compensation from \$0 to \$12 resulting from decisions made while playing the economic game.

Procedure

Participants believed that they were one of two individuals taking part in the experiment. In actuality, the other "participant" was a confederate who was blind to the hypotheses of the study. Upon the participant's arrival, the experimenter seated her and the confederate at individual computer workstations. The experimenter explained that the session would consist of two different studies. The first study examined individual versus dyadic performance on different cognitive measures. The second study, to be conducted in a different room for the "Behavioral Economics Lab," examined economic decision making. At this point, the experimenter provided instructions for the first study.

As part of the study on performance, participants jointly completed a test of general knowledge for which they would receive a single score. This task was used solely to give legitimacy to an emotion-manipulation check that assessed feelings toward the other participant. Upon completion of this knowledge task, the experimenter returned and told participants to turn toward their respective computers in order to complete a word perception task. Participants, working individually, had to decide whether strings of letters flashed on the screen constituted English words. They were instructed to do this as quickly and as accurately as possible and were told that they would receive their score after each block of trials. In reality, the scores had been created ahead of time and were identical for all participants. This task was designed to be very tedious, as it required vigilance and was repetitive. The experimenter explained that after the third block of trials, all 3 scores would appear on the screen to be manually recorded. Although this task was completed in both conditions, its purpose was solely to provide an aversive experience that would play a central role in the induction of gratitude.

¹ Requests for assistance, at least as operationalized in previous work in this area, involve decisions of whether to devote time and effort to help another. As such, the decision is one of loss versus expected status quo (i.e., going on one's way). The economic decisions used here involve the opportunity to gain money and correspondingly stand as an opportunity for maximizing self-interest.

At this point in the procedure, the common script diverged in the two emotion conditions (i.e., gratitude vs. control) to induce the appropriate state. After the inductions, participants completed an emotion manipulation check before being moved individually to separate testing rooms to play the economic game.

Manipulations and Measures

Emotion manipulation. In the gratitude condition, after participants finished the third block of the word perception task and were waiting for the computer to display their scores, the computer appeared to crash. In actuality, the computer was programmed to present a rapid series of images mimicking video interference followed quickly by a black screen. Ostensibly having completed her individual tasks, the confederate gathered her belongings and began to leave the room to find the experimenter to begin the second experiment. At this point, she stopped after noticing that the participant was having a problem. The experimenter entered the room at this point, noticed the computer problem, and then explained that a technician would be called to fix the computer. She also informed the participant that he or she would need to start this onerous task again from the beginning. The confederate was told that she was free to leave, given the delay that this would cause to the start of the second experiment, and that she would still receive credit for participation.

While the experimenter went to call the technician, the confederate attempted to see if she could help the participant. Following a scripted series of comments and behaviors, the confederate tried to figure out what was wrong with the computer by entering key sequences and checking wires and plugs. At a given point, she surreptitiously hit a key on the keyboard that, after a brief preset interval, caused the computer screen to “come on” with the participant’s scores being displayed. The experimenter then allowed the participant to continue with the experiment from that point as opposed to completing the tedious word perception task again. She also informed the confederate that the second experiment would indeed be completed.

In the control condition, no computer crash occurred. After both individuals had completed the word perception task, the confederate carried on a brief exchange with the participant on a benign topic. This interaction was included to allow a verbal exchange of a similar length to that which occurred in the gratitude condition, thereby balancing contact with the confederate.

Emotion measures. As part of a questionnaire designed to assess their emotions and feelings toward their partner in the general knowledge task, participants were asked to indicate the degree to which certain descriptors applied using 5-point scales (Bartlett & DeSteno, 2006). Gratitude was assessed as the mean response to three items: “How grateful/appreciative/positive do you feel toward the other participant?” ($\alpha = 0.83$). General positivity, or happiness, was assessed as the mean response to three items: “How happy/amused/content do you feel?” ($\alpha = 0.73$).

Economic cooperation. The GSDG, much like the prisoner’s dilemma, constitutes an economic game characterized by a motivational conflict between a behavioral choice serving one’s own interest and one serving a collective interest. In short, the GSDG functions so that mutual exchange results in higher payoffs than mutual defection, but in lower payoffs than unilateral defection (Nelissen, Dijkster, & deVries, 2006; van Lange & Kuhlman, 1994).

In the current version of the GSDG, participants were provided with four tokens that were worth \$1 each to them but \$2 to the partner. Participants could choose how many tokens they wanted to give to the partner while they believed the partner was making a similar decision. The best cooperative outcome is for each participant to give all four tokens to the other, thereby resulting in a payoff of \$8 for each of them. Pure self-interest, however, is best served by giving none, thereby ensuring that one will retain at least \$4 but potentially up to \$12 if the partner were to give all four tokens and, thereby, be left with nothing. Note that we used a single iteration game to rule out the impact of strategic considerations involving potential punishment on subsequent rounds.

Participants completed the GSDG on computers in separate rooms. They believed that another individual was simultaneously playing the game. Half of the participants believed that they were playing the game with the person they had just met in the previous study; the other half believed that they were playing with a stranger.

Results

A 2×2 (Emotion \times Partner Identity) analysis of variance (ANOVA) showed that the manipulation successfully produced elevated gratitude; participants felt more grateful when receiving assistance from a benefactor ($M = 3.94$, $SD = 0.71$) than when they did not ($M = 3.33$, $SD = 0.76$), $F(1, 81) = 14.16$, $p < .001$, $d = 0.84$.² With respect to our primary prediction, a similar analysis confirmed that gratitude resulted in greater cooperative decisions in the GSDG. As displayed in Figure 1, grateful participants gave more money (i.e., tokens) on average to their partners than did control participants, $F(1, 81) = 5.20$, $p < .03$, $d = 0.52$.³ Of cardinal import, this pattern did not vary according to the identity of the partner ($F_{\text{interaction}} < 1$), thereby demonstrating that token giving could not be attributed to simple reciprocity concerns; by definition, participants had never interacted with the stranger. Similarly, the influence of gratitude on increased token giving could not be attributed to general positive affect. Although both heightened gratitude and positivity were associated with increased giving in terms of zero-order correlations ($r_{\text{gratitude}} = .29$, $p < .01$; $r_{\text{positivity}} = .21$, $p < .06$), only gratitude remained a reliable predictor when token giving was regressed on both gratitude ($\beta = 0.32$, $p = .03$) and positivity ($\beta = 0.14$, $p = .41$). Consequently, the seeming relation between positivity and increased giving can be seen to be spurious.

To provide additional certainty of the causal impact of gratitude, we conducted the mediational analysis depicted in Figure 2. Confirming predictions, the impact of the manipulation on cooperative decisions was negligible when controlling for gratitude. Accordingly, the ability of the manipulation (i.e., receipt of a favor) to engender cooperative exchange occurred as a direct function of

² Effects of the manipulation were parallel across partner identity conditions ($F_{\text{interaction}} < 1$).

³ Note that, unlike in Bartlett and DeSteno (2006), no main effect for familiarity with the other emerged. This lack of difference in giving to the benefactor or the stranger most likely stems from the fact that decisions occurred in private and in the absence of requests for cooperation. Without the expectation of seeing a familiar other again, contingencies for helping this person become similar to those for helping a stranger.

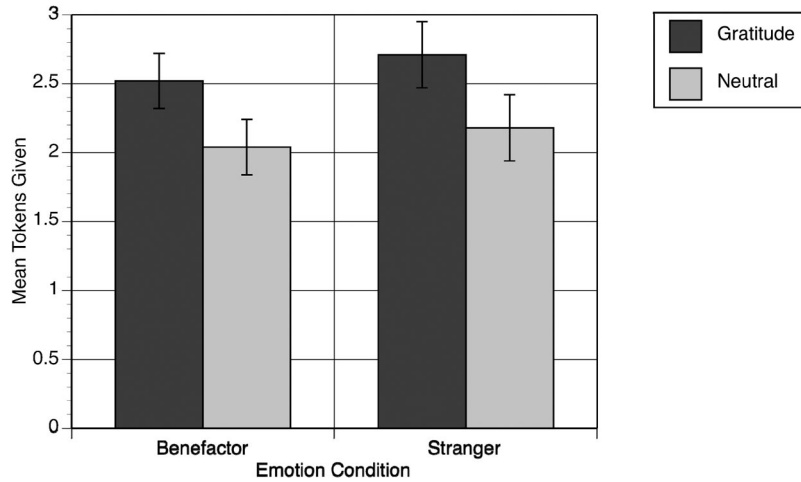


Figure 1. Mean dollar tokens given as a function of emotion condition and game partner. Note that the term *benefactor* refers to the known partner (who did not supply any benefit in neutral condition). Error bars indicate ± 1 standard error.

gratitude; the more grateful one felt as a result of receiving assistance, the more cooperatively one acted in the GSDG.⁴

Discussion

These findings demonstrate that gratitude functions to enhance cooperative as opposed to selfish economic behavior. Although refraining from giving money to a partner in the GSDG maximizes an individual’s financial payoffs, thereby constituting the rational choice in a single shot exchange if one wanted to optimize profits, increasing levels of gratitude were directly associated with decisions to act more cooperatively and, thereby, maximize communal profit. Therefore, gratitude can be seen as an emotional state that decreases the probability of selfish economic action, most likely in the service of fostering trust and stable economic exchange that together constitute a necessary element for social flourishing (Frank, 1988; Smith, 1790/1976). As such, gratitude may be one example of a class of social emotions that function to build social and economic capital through increasing the probability that individuals will engage in behaviors that promote long-term well-being (DeSteno, 2009).

Of import, these findings also show that this increased prosociality does not stem from simple adherence to a norm of reciprocity. Indeed, increased giving among grateful participants occurred at similar levels regardless of whether they believed they were playing with someone who had previously helped them or someone with whom they were completely unfamiliar. If concerns for reciprocity were the primary cause of increased giving, such giving should not have occurred among grateful participants who played the GSDG with a stranger. Similarly, the mediational analysis demonstrates that monetary giving was a direct function of the intensity of gratitude experienced.

In addition, we were able to show that this influence of gratitude is distinct from that of general positive affect. Although gratitude is experienced as a positive emotion, it is associated with distinct outcomes and predictive validity. Such differentiation of states possessing the same valence is central to advancing understanding of the roles played by emotional responses in guiding adaptive behavior. Within the realm of negative states, functional differentiation is much clearer at present. For example, although both anger and disgust are experienced as negative, each emotion has been repeatedly shown to shape judgment and behavior in ways meant to address discrete classes of threat (i.e., conflict vs. contagion; Lewis & Haviland-Jones, 2000). With respect to positive states, gratitude can be seen as a countervailing force to simple positivity, or happiness, in that it focuses one on the acquisition of long-term benefits as opposed to immediate pleasures.

The fact that gratitude, like many emotions (e.g., DeSteno, Petty, Wegener, & Rucker, 2000; Lerner, Small, & Loewenstein, 2004; Schwarz & Clore, 1996), can exert an influence on judgments that are incidental to its evocation suggests that its devel-

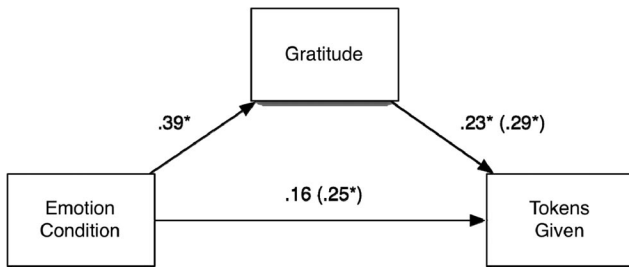


Figure 2. Path model depicting relations among manipulated emotion condition (dummy coded: neutral = 0, gratitude = 1), gratitude intensity, and dollar tokens given. Numbers in parentheses represent zero-order correlations. * $p < .05$.

⁴ The significance of the indirect (i.e., mediational) path was confirmed with a products of coefficients procedure recommended by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) for models with a dichotomous independent variable and continuous mediator ($Z' = 1.84, p < .01$).

opment may have been accompanied by a profound spandrel.⁵ Gratitude most likely was shaped by pressures involving the need to form stable interindividual exchange relationships for the development of social and economic capital (cf. Trivers, 1971). Accordingly, it functions to inhibit short-term motivations for selfish resource acquisition by fostering decisions and actions centered on communal benefit. However, in instances where one is feeling grateful because of the actions of one individual but then is quickly confronted by another individual requesting exchange or assistance, gratitude, although incidental to this situation, may nonetheless increase the odds for cooperation with this new person.

As we have seen in this experiment, such actions clearly occur and can be understood to constitute instances of upstream reciprocity (i.e., passing benefits to third parties; Nowak & Roch, 2006). Mechanisms that allow infrequent instances of such “paying it forward” behaviors have been theorized to increase fitness, altruism, and social functioning within social groups, assuming the primary target of the psychological mechanism is centered on direct reciprocity (Nowak & Roch, 2006; Sober & Wilson, 1998). Consequently, gratitude, through engendering prosocial economic behavior, may constitute an integral force in establishing and perpetuating stable economic exchange which, itself, may complement the association of gratitude with increased well-being and social integration (cf. Algoe et al., 2008; Emmons & McCullough, 2003).

⁵ We use the term *spandrel* in the biological sense to refer to a phenotypic characteristic believed to have developed as a side effect of an adaptation as opposed to being a direct effect of natural selection.

References

- Algoe, S. B., Haidt, J., & Gable, S. L. (2008). Beyond reciprocity: Gratitude and relationships in everyday life. *Emotion, 8*, 425–429.
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Bartlett, M. Y., & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science, 17*, 319–325.
- Berns, G. S., Laibson, D., & Loewenstein, G. (2007). Intertemporal choice—Toward an integrative framework. *Trends in Cognitive Sciences, 11*, 482–488.
- DeSteno, D. (2009). Social emotions and intertemporal choice: “Hot” mechanisms for the building of social and economic capital. *Current Directions in Psychological Science, 18*, 280–284.
- DeSteno, D., Petty, R. E., Wegener, D. T., & Rucker, D. D. (2000). Beyond valence in the perception of likelihood: The role of emotion specificity. *Journal of Personality and Social Psychology, 78*, 397–416.
- Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology, 84*, 377–389.
- Frank, R. H. (1988). *Passions within reason: The strategic role of the emotions*. New York: Norton.
- Hertel, G., Neuhof, J., Theuer, T., & Kerr, N. L. (2000). Mood effects on cooperation in small groups: Does positive mood simply lead to more cooperation? *Cognition & Emotion, 14*, 441–472.
- Lerner, J. S., Small, D. A., & Loewenstein, G. (2004). Heart strings and purse strings: Carry-over effects of emotions on economic transactions. *Psychological Science, 15*, 337–341.
- Lewis, M., & Haviland-Jones, J. M. (2000). *Handbook of emotion* (2nd ed.). New York: Guilford Press.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*, 83–104.
- McCullough, M. E., Kimeldorf, M., & Cohen, A. D. (2008). An adaptation for altruism? The social causes, social effects, and social evolution of gratitude. *Current Directions in Psychological Science, 17*, 281–285.
- Nelissen, R. M. A., Dijk, A. J. M., & deVries, N. K. (2006). How to turn a hawk into a dove and vice versa: Interactions between emotions and goals in a give-some dilemma game. *Journal of Experimental Social Psychology, 43*, 280–286.
- Nowak, M., & Roch, S. (2006). Upstream reciprocity and the evolution of gratitude. *Proceedings of the Royal Society of London, Series B: Biological Sciences, 274*, 605–609.
- Schwarz, N., & Clore, G. L. (1996). Feeling and phenomenal experiences. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 433–465). New York: Guilford Press.
- Smith, A. (1976). *The theory of moral sentiments* (6th ed.). Oxford, England: Clarendon Press. (Original work published 1790)
- Sober, E., & Wilson, D. S. (1998). *Unto others: The evolution and psychology of unselfish behavior*. Cambridge, MA: Harvard University Press.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology, 46*, 35–57.
- van Lange, P. A. M., & Kuhlman, D. M. (1994). Social value orientation and impressions of partner’s honesty and intelligence: A test of the might versus morality effect. *Journal of Personality and Social Psychology, 67*, 126–141.
- Vohs, K. D., Mead, N., & Goode, M. (2006). The psychological consequences of money. *Science, 314*, 1154–1156.

Received May 23, 2009

Revision received September 12, 2009

Accepted September 18, 2009 ■