ORIGINAL PAPER

Framing effects in the prisoner's dilemma but not in the dictator game

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Abstract

We systematically investigate prisoner's dilemma and dictator games with valence framing. We find that give versus take frames influence subjects' behavior and beliefs in the prisoner's dilemma games but not in the dictator games. We conclude that valence framing has a stronger impact on behavior in strategic interactions, i.e., in the prisoner's dilemma game, than in allocation tasks without strategic interaction, i.e., in the dictator game.

Keywords Prisoner's dilemma · Dictator game · Framing · Give · Take · Cooperation · Generosity

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1 Introduction

Countless papers have demonstrated that framing can affect behavior despite underlying information and options remaining the same (see recent reviews by Gerlach and Jaeger 2016; Cartwright 2016). But when and how precisely do frames change behavior?

There is ample evidence in the literature suggesting that frames affect behavior in social dilemmas (e.g., Dufwenberg et al. 2011; Khadjavi and Lange 2015; Gächter et al. 2017b; Fosgaard et al. 2017). However, for dictator games, the evidence is mixed with some studies reporting significant differences (e.g., Korenok et al. 2014; Krupka and Weber 2013), while others do not (e.g., Grossman and Eckel 2015; Gächter et al. 2017a).

Hence, based on the literature, it seems that framing effects are more pronounced and robust in public good games than in dictator games. However, most of the aggregated evidence is based on studies that use different designs and, for example, vary subject pools, efficiency gains, number of repetitions, and numbers of players.

With this paper, we attempt to compare the impact of framing in social dilemmas and dictator games by making the different classes of games and the conducted experiments as similar as possible. We run experiments with two-person social dilemma games[1] and dictator games in the same subject pool, apply give and take frames without loaded language, and introduce comparable efficiency gains for generosity or cooperation. We observe that give and take frames influence subjects' behavior and beliefs significantly in our social dilemma games but not in the dictator games.

1.1 Related literature

Without additional assumptions, most theories of other-regarding preferences (e.g., Fehr and Schmidt 1999; Bolton and Ockenfels 2000; Charness and Rabin 2002) predict no differences between two frames of the same decision problem. Yet, simply naming a prisoner's dilemma game "Community Game" or "Wall Street Game" influences cooperation rates significantly, with higher cooperation under the first frame (e.g., Liberman et al. 2004). Engel and Rand (2014) observe significantly more cooperation in prisoner's dilemma games with a cooperative frame compared to a competitive frame and show that behavior in a neutral frame follows the behavior of the cooperative frame. Ellingsen et al. (2012) argue that social frames, like

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[1] The two-person social dilemma games are continuous prisoner's dilemma games which Goerg and Walkowitz (2010) show to be analogous to two-person public good games. With regard to the action set, Gangadharan and Nikiforakis (2009) experimentally show that for two players similar results can be observed with two actions (full or no contribution) as with 11 actions (11 levels of contributions). However, this does not hold for four players.

naming a game, provide a coordination device helping to select between multiple equilibria with social preferences. They support this account by showing framing effects in simultaneous but not sequential prisoner's dilemmas.

Another common form of framing is valence framing which describes the identical strategic decision as a decision to take or give a certain amount. In repeated public good games, higher contributions are usually observed in the give frame (e.g., Andreoni 1995; Sonnemans et al. 1998; Willinger and Ziegelmeyer 1999; Cookson 2000). However, the size of the framing effect might differ between subject pools (Goerg and Walkowitz 2010). Investigating valence and social frames in one-shot public good games, Dufwenberg et al. (2011) demonstrate that frames affect not only subjects' contributions but also their first- and second-order beliefs. Cox et al. (2013) argue, based on revealed altruism (Cox et al. 2008), that positive and negative frames result in different games with different degrees of expected reciprocity. Similarly, Gächter et al. (2017b) observe that people seem inclined to cooperate more when establishing a common resource compared to maintaining it. They argue that this finding can be explained by the share of conditional cooperators and their beliefs about cooperation which are influenced by the give and take frames.

If framing effects are at least partially caused by beliefs about strategic behavior, they should be weaker in games without strategic interaction. However, no clear picture emerges from the literature on framing effects in dictator games.[2] Dreber et al. (2013) observe no significant effects of social frames on generosity. Investigating give and take frames for donations to charity, Grossman and Eckel (2015) conclude that generosity is not influenced by the frame.

Cartwright and Ramalingam (2019) observe no significant differences between average levels of generosity. However, framing affects the distributions and the take frame leads to more extreme contributions with greater free riding. Gächter et al. (2017a) demonstrate that framing influences individuals' perceptions of norms on fair sharing but not on actual generosity in the presence of peers. Other studies extend the action set of the dictator games into both domains with the choice to give or take being present at the same time (Bardsley 2008; List 2007). Korenok et al. (2014) show for such games that giving is not equivalent to not taking. Krupka and Weber (2013) compared a standard dictator game with a bully version where both options of giving and taking were available. Outcomes that result from giving under the standard frame of the dictator game are considered more socially appropriate than the same outcomes resulting from taking in the bully game.

Strong framing effects are reported by Capraro and Vanzo (2019). In their extreme dictator games, the dictator chooses between two options: $0.50 for the dictator and $0 for the recipient or vice versa. The decisions are framed with words having different connotations. Generosity is higher if the decision is framed as one of stealing or taking compared to giving and donating. Similar effects can be observed in the trade-off game (Capraro and Rand 2018; Tappin and Capraro 2018).

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[2] We ignore dictator games with give and take options that do not focus on framing effects, e.g., papers that investigate property rights (e.g., Hoffman et al. 1994; Eichenberger and Oberholzer-Gee 1998; Oxoby and Spraggon 2008).

There, players unilaterally determine the payoffs for themselves and two others by choosing either an equitable or an efficient option. Framing options as, e.g., equalize, fair, or do good, result in significant framing effects.

To summarize, across different designs and frames, there is ample evidence that framing affects behavior in social dilemmas. However, in dictator games, the evidence is mixed with some studies reporting framing effects, while others do not. Yet, most of the designs are not directly comparable, especially between the papers investigating social dilemmas and the ones investigating dictator games. In the following, we try to bridge this gap and investigate framing effects in social dilemma games and dictator games within a comparable framework. Our give and take frames are based on a neutral description of the situation and our experiments are all conducted within the same subject pool.

2 Experimental design

We investigate a give and a take frame of the prisoner's dilemma game and the dictator game. The games are implemented as one-shot games and each participant plays only one game and one frame.

2.1 Prisoner's dilemma games

The prisoner's dilemma games are implemented as continuous choice games. They allow subjects to simultaneously choose a degree of cooperation instead of a dichotomous decision to cooperate or to defect (Goerg and Walkowitz 2010). Cooperation is welfare enhancing and increases the joint payoffs. In the give frame, cooperation is expressed by the amount given to the other player. In the take frame, it is expressed by the amount left to the other player. Words like "give" or "take" are avoided and we only change the direction of the transfer. In both frames, two players are randomly matched and each subject receives an initial endowment of 100 Talers.

In the give frame subject, i decides about an integer amount a_i^{PDG} between 0 and 100 to be transferred to the matched player. The transferred amount is doubled and credited to the matched player's account. The game is symmetric. The matched player j simultaneously decides on an amount a_j^{PDG} to be doubled and transferred to player i. Thus, the payoff function for player i, based on amounts a_i^{PDG} and a_j^{PDG}, is given as:

$$\pi_i = 100 - a_i^{\mathrm{PDG}} + 2a_j^{\mathrm{PDG}}, \ \text{with} \ a_i^{\mathrm{PDG}}, \ a_j^{\mathrm{PDG}} \in \{0, 1, \dots, 100\}$$

The payoff for player j is derived analogously.

The take frame is very similar. However, the players simultaneously decide on amounts a_i^{PDT} and a_j^{PDT} they want to transfer from the matched player's endowment. The amount remaining in the matched player's account is doubled. Player i's payoff function is given as:

$$\pi_i = 2 * \left(100 - a_j^{\text{PDT}}\right) + a_i^{\text{PDT}}, \text{ with } a_i^{\text{PDT}}, a_j^{\text{PDT}} \in \{0, 1, \ldots, 100\}$$

The payoff for player j is derived analogously.

2.2 Dictator games

The dictator games mimic our prisoner's dilemma games but with one player remaining passive. Therefore, our dictator games have the following features, similar to the social dilemma games: a neutral framing is applied to identical action sets; we avoid terms like "give" or "take"; we induce efficiency gains from generosity; the initial endowment is not earned.

One player is endowed with 200 Talers. The other player receives no initial endowment. In the give frame, the endowment is allocated to the dictator i who decides on an integer amount a_i^{DGG} between 0 and 200 to be transferred to the passive receiver j. As in the prisoner's dilemma game with the give frame, the transfer is doubled. Thus, the payoff functions for dictator i and receiver j are given as:

$$\pi_i = 200 - a_i^{\text{DGG}}, \text{ with } a_i^{\text{DGG}} \in \{0, 1, \ldots, 200\}$$
$$\pi_j = 2a_i^{\text{DGG}}, \text{ with } a_i^{\text{DGG}} \in \{0, 1, \ldots, 200\}$$

In the take frame, the endowment is given to the passive player j. The dictator i decides on the amount a_i^{DGT} to be transferred away from the passive player. The amount left to the passive player is doubled resulting in the following payoff functions:

$$\pi_i = a_i^{\text{DGT}}, \text{ with } a_i^{\text{DGT}} \in \{0, 1, \ldots, 200\}$$
$$\pi_j = 2 * \left(200 - a_i^{\text{DGT}}\right), \text{ with } a_i^{\text{DGT}} \in \{0, 1, \ldots, 200\}$$

2.3 Parameter choice

The games and the parameters are chosen to generate a large overlap between the games.[3] We use two games with two players. The introduction of the efficiency gain in the dictator games ensures that cooperation as well as generosity increases the overall welfare (as measured by total payoffs in euros). Hence, potential differences in the magnitude of framing effects cannot be attributed completely to the absence or presence of efficiency gains.

In the prisoner's dilemma games, every combination of actions and resulting payoffs in the give frame can be linked to corresponding decisions in the take frame that result in the same payoffs. Thus, both frames are strategically identical and do have

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[3] Since the prisoner's dilemma game is a strategic game and the dictator game is an individual decision, an exact match of both games is not possible. Several approaches are viable but they result in different areas of overlap in decisions or payoffs.

the same Nash equilibrium of "no cooperation", i.e., no transfers in the give frame and full transfers in the take frame. Every level of generosity in the give frame of the dictator game with the resulting payoffs can also be linked to a corresponding decision in the take frame. A purely selfish money maximizing dictator would show no generosity in both frames, i.e., no transfer in the give and full transfer in the take frame. The total sum of payoffs would be the same in all four treatments if players were rational money maximizers.[4] Similarly, the total sum of payoffs would be the same in all treatments, if subjects were unconditional cooperators who fully cooperate or were completely altruistic with maximal generosity.[5]

In dictator games, the average generosity is typically around 30% of the initial endowment (see Engel 2011).[6] At roughly this point, our games have another overlap in payoffs and decisions. If player's cooperation level is 1/3 (give or leave 1/3 of the initial endowment) and if the generosity level is 1/3 (again give or leave 1/3 of the initial endowment), payoffs would correspond in all frames and games (around 133 Talers).

2.4 Implementation

The experiments were conducted at the Cologne Laboratory for Economic Research at the University of Cologne. Subjects received a show-up fee of 2.5 euros. After the experiment, the earned Talers were converted into euros and individually payed to the subjects. We applied an exchange rate of 1 Taler = 0.08 euro cent.

We implemented a between-subjects design with each subject playing only one one-shot game with one frame. In each session, one game type (either prisoner's dilemma or dictator game) and both types of frames (give and take frame, for different subjects) were implemented. Subjects were not aware of the fact that the other frame was also applied in the same session, respectively, and received private instruction sheets only for their actual frame. There was only one decision round. While we confronted subjects with different frames, we implemented the frames using language that was as neutral as possible. Instead of labeling decisions as "give" or "take" decisions, only the recipient of the transfers was changed in the description. In the give frame, subjects in the role of Person A were told that they had the opportunity to transfer any part of their endowment to Person B. In the take frame, they had the opportunity to transfer any part of Person B's endowment to themselves.[7] After the decision, we elicited beliefs. In the prisoner's dilemma games, we asked subjects which amount they believed the matched player would transfer (first-order belief) and what amount the matched player would expect to

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[4] No cooperation and no generosity would result in payoffs of (100, 100) in the prisoner's dilemma games and (200, 0) in the dictator games.

[5] Full cooperation and full generosity would result in payoffs of (200, 200) in the prisoner's dilemma games and (400, 0) in the dictator games.

[6] Albeit, there is usually no peak at the 30% level of individual contributions.

[7] This is in contrast to other papers which used give and take frames. A translation of the instructions is provided in "Electronic supplementary material".

Table 1 Summary of gathered observations

Game	Frame	#Observations/ decisions	# Subjects	% female	Avg. age
Prisoner's dilemma	Give	52	52	55.7	24.4
Prisoner's dilemma	Take	54	54	50	23.1
Dictator game	Give	48	96	65.1	25.2
Dictator game	Take	48	96	49.8	26.0

be transferred (second-order belief). In the dictator games, we asked the recipient which amount they believed the matched dictator would transfer (first-order belief) and we asked dictators what matched recipients thought would be transferred (second-order belief). Beliefs were incentivized. Subjects received 10 Talers for a correctly stated belief.

Subjects were recruited from the local ORSEE database (Greiner 2015). Decisions and beliefs were gathered using pen and paper followed by a questionnaire programmed in z-Tree (Fischbacher 2007).

In total, 298 subjects participated: 106 in the prisoner's dilemma games, 192 in the dictator games (96 in the role of the dictator and 96 in the role of the passive receiver).[8] 55% of the subjects were female and the average age was 24.9 years (see Table 1).

3 Results

Figure 1 gives the level of cooperation in the prisoner's dilemma games and generosity in the dictator games. In addition, corresponding first-order beliefs and standard errors are reported.[9]

In the prisoner's dilemma game, cooperation is significantly higher in the give frame than in the take frame ($p < 0.001$).[10] On average, the cooperation level is more than twice as high when subjects can transfer to the matched player instead of transferring to themselves. Table 2 provides the results of Tobit regressions confirming the negative and significant influence of the take frame ($r = -35.97$, $p > 0.001$, Model 1). Model 2 demonstrates that women tend to cooperate more and cooperation increases with age. Yet, the framing effect remains large and significant when controlling for gender and age ($r = -31.15$, $p < 0.001$).

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[8] We initially ran dictator sessions in which we matched one passive receiver to several dictators. To avoid a potential problem of deception, we dropped these sessions and re-ran the dictator sessions with a one-on-one matching.

[9] To make transfers comparable across give and take frames, transfers in the take frames were transformed. In the take frame cooperation is measured by (100-a) in the prisoner's dilemma game, and generosity by (200-a) in the dictator game.

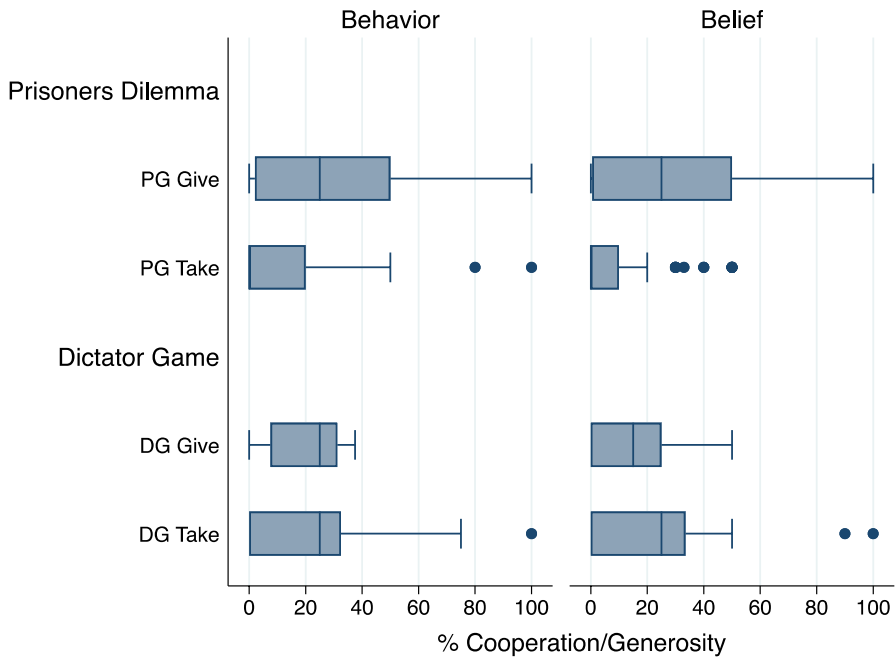[10] Two-sided Mann–Whitney U tests are applied if not stated otherwise.

Fig. 1 Box plot for the degree of cooperation in the prisoner's dilemma games and the degree of generosity in the dictator games. The bold line gives the median, the box the 25th and 75th quartiles, and whiskers the 1.5×IQR. In the give frame of the prisoner's dilemma game transferring everything would correspond to 100% cooperation, in the give frame of the dictator game transferring everything would correspond to 100% generosity. Transfers in the take frames are transformed for comparability

Table 2 Tobit regressions

	Cooperation in the prisoner's dilemmas		Generosity in the dictator games	
	(1)	(2)	(3)	(4)
Frame (1=take)	−35.97***	−31.15***	−3.619	−1.71
	(9.68)	(8.101)	(9.212)	(8.953)
Gender (1=female)		24.93***		17.18*
		(9.29)		(9.54)
Age		2.723***		0.60
		(0.734)		(0.61)
Constant	28.54***	−26.40**	34.80***	8.78
	(6.20)	(18.02)	(5.10)	(17.09)
Subjects/observations	106	106	96	96

Robust standard errors in parentheses

***$p<0.01$; **$p<0.05$; *$p<0.1$

Cooperation levels and first-order beliefs are significantly correlated in the give frame and in the take frame (both $\rho > 0.46$, $p < 0.001$, Spearman rank correlation). Analogously, cooperation levels and second-order beliefs are also correlated in both frames (both $\rho > 0.51$, $p < 0.001$). Thus, beliefs mirror give and take decisions: higher cooperation is expected in the give frame than in the take frame. These differences are highly significant for first- and second-order beliefs (both $p < 0.001$).

In the dictator games, we do not observe significant differences between the two frames. Neither do we observe significant differences in dictators' transfers ($p = 0.699$), nor in receivers' first-order beliefs about transfers ($p = 0.14$), nor in dictators' second-order beliefs ($p = 0.449$). In the regressions of Table 2, the frame coefficient is small and insignificant on its own ($r = -3.618$, $p = 0.695$, Model 3) and while controlling for gender and age ($r = -1.713$, $p = 0.849$, Model 4). Again, we observe gender differences with women exhibiting higher levels of generosity.

4 Discussion

We ran a series of prisoner's dilemma and dictator games with give and take frames. While the framing influences behavior and beliefs significantly in the prisoner's dilemma game, it neither influences behavior nor beliefs in the dictator game.

These results are in line with the results on social frames by Ellingsen et al. (2012) and Dreber et al. (2013) who find strong effects in strategic interactions but no, or only minor, effects in non-strategic situations. One possible reason could be that in strategic interactions subjects try to predict matched players' behavior and the exact framing of the decision problem might provide a focal point or serve as a coordination device. This explanation was already proposed by Nikiforakis (2010), Dufwenberg et al. (2011), and Ellingsen et al. (2012). If players have other-regarding preferences, a social dilemma can turn into a coordination game and framing could act as a coordination device affecting beliefs and equilibrium selection. Thus, frames would not influence preferences, but only relevant beliefs. Our data from the dictator and prisoner's dilemma games would support this argument.[11]

Our findings in the prisoner's dilemma games are also in line with the findings by Gächter et al. (2017b) who investigate common pool resource games and observe different beliefs when transfers establish a common pool resource (give decision) versus when they maintain a common pool resource (take decision). They show that the combination of beliefs and attitudes on conditional cooperation can explain the decreased cooperation when trying to maintain the common pool resource. The same argument would be in line with our results and would explain why we observe differences in the prisoner's dilemma game (where beliefs of conditional cooperators and attitudes matter) but not in the dictator game (where beliefs have no strategic value and mostly attitudes matter).

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[11] Our data does not allow for a causal claim of frames influencing beliefs that subsequently influence behavior as we did not elicit them separately. The correlation could also stem from a false consensus effect.

While we observe no framing effects in our dictator games, Capraro and Vanzo (2019) observe strong framing effects in their extreme dictator games. However, the frames in Capraro and Vanzo (2019) are based on words with strong normative connotations (e.g., give, take, donate, steal), whereas our framing manipulation is rather conservative and subtle, based on a neutral description of the situation. Krupka and Weber (2013) also observe significant differences in their dictator games with give and take options. However, the take option is not investigated independently, but in conjunction with a give option. Thus, subjects judge the social appropriateness of the take and give option in direct comparison. Again, our manipulation is more subtle using a between-subjects design that prevents subjects from comparing give and take options at the same time.

Besides our main results on framing, we observe that women tend to be more cooperative in the prisoner's dilemma game and more generous in the dictator game. In addition, cooperation tends to increase with age. Both effects are consistent with the previous literature (e.g., List 2004; Gächter and Herrmann 2011; Arechar et al. 2018; Brañas-Garza et al. 2018).

In this paper, we used a comparable framework for prisoner's dilemma and dictator games to jointly investigate framing effects based on a neutral description of decision situations in the same subject pool. While our results, together with the existing literature, do not rule out framing effects in dictator games, our paper implies that valence framing leads to larger effects in prisoner's dilemma games than in dictator games. Naturally, other parameter combinations, resulting in different overlaps between the two game types, are conceivable and it remains to be shown whether our results hold for theses combinations too.

References

Andreoni, J. (1995). Warm glow versus cold prickle: The effects of positive and negative framing on cooperation in experiments. *Quarterly Journal of Economics, 110,* 1–21.

Arechar, A., Gächter, S., & Molleman, L. (2018). Conducting interactive experiments online. *Experimental Economics, 21*(1), 99–131.

Bardsley, G. (2008). Dictator game giving: Altruism or artefact? *Experimental Economics, 11*(2), 122–133.

Bolton, G., & Ockenfels, A. (2000). ERC: A theory of equity, reciprocity, and competition. *American Economic Review, 90*(1), 166–193.

Brañas-Garza, P., Capraro, V., & Rascón-Ramírez, E. (2018). Gender differences in altruism on Mechanical Turk: Expectations and actual behaviour. *Economics Letters, 170,* 19–23.

Capraro, V., & Rand, D. G. (2018). Do the right thing: Experimental evidence that preferences for moral behavior, rather than equity or efficiency per se, drive human prosociality. *Judgment and Decision Making, 13*(1), 99–111.

Capraro, V., & Vanzo, A. (2019). The power of moral words: Loaded language generates framing effects in the extreme dictator game. *Judgment and Decision Making, 14*(3), 309–317.

Cartwright, E. (2016). A comment on framing effects in linear public good games. *Journal of the Economic Science Association, 2*(1), 73–84.

Cartwright, E., & Ramalingam, A. (2019). Framing in public good games: Choices or externalities? *Economics Letters, 179,* 42–45.

Charness, G., & Rabin, M. (2002). Understanding social preferences with simple tests. *Quarterly Journal of Economics, 117*(3), 817–869.

Cookson, R. (2000). Framing effects in public goods experiments. *Experimental Economics, 3,* 55–79.

Cox, J. C., Friedman, D., & Sadiraj, V. (2008). Revealed altruism. *Econometrica, 76,* 31–69.

Cox, J. C., Ostrom, E., Sadiraj, V., & Walker, J. M. (2013). Provision versus appropriation in symmetric and asymmetric social dilemmas. *Southern Economic Journal, 79,* 496–512.

Dreber, A., Ellingsen, T., Johannesson, M., & Rand, D. (2013). Do people care about social context? Framing effects in dictator games. *Experimental Economics, 16,* 349.

Dufwenberg, M., Gächter, S., & Hennig-Schmidt, H. (2011). The framing of games and the psychology of play. *Games and Economic Behavior, 73*(2), 459–478.

Eichenberger, R., & Oberholzer-Gee, F. (1998). Rational moralists: The role of fairness in democratic economic politics. *Public Choice, 94,* 191.

Ellingsen, T., Johannesson, M., Mollerstrom, J., & Munkhammar, S. (2012). Social framing effects: Preferences or beliefs? *Games and Economic Behavior, 76*(1), 117–130.

Engel, C. (2011). Dictator games: A meta study. *Experimental Economics, 14,* 583–610.

Engel, C., & Rand, D. G. (2014). What does 'clean' really mean? The implicit framing of decontextualized experiments. *Economics Letters, 122,* 386–389.

Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *Qarterly Journal of Economics, 114*(3), 817–868.

Fischbacher, U. (2007). z-Tree: Zurich toolbox for ready-made economic experiments. *Experimental economics, 10*(2), 171–178.

Fosgaard, T. R., Hansen, L. G., & Wengström, E. (2017). Framing and misperception in public good experiments. *The Scandinavian Journal of Economics, 119*(2), 435–456.

Gächter, S., Gerhards, L., & Nosenzo, D. (2017a). The importance of peers for compliance with norms of fair sharing. *European Economic Review, 97,* 72–86.

Gächter, S., & Herrmann, B. (2011). The limits of self-governance when cooperators get punished: Experimental evidence from urban and rural Russia. *European Economic Review, 55*(2), 193–210.

Gächter, S., Kölle, F., & Quercia, S. (2017b). Reciprocity and the tragedies of maintaining and providing the commons. *Nature Human Behaviour, 1*(9), 650–656.

Gangadharan, L., & Nikiforakis, N. (2009). Does the size of the action set matter for cooperation? *Economics Letters, 104,* 115–117.

Gerlach, P., & Jaeger, B. (2016). Another frame, another game? In A. Hopfensitz & E. Lori (Eds.), *Proceedings of norms, actions, games*. Toulouse: Institute for Advanced Studies.

Goerg, S. J., & Walkowitz, G. (2010). On the prevalence of framing effects across subject-pools in a two-person cooperation game. *Journal of Economic Psychology, 31*(6), 849–859.

Greiner, B. (2015). Subject pool recruitment procedures: organizing experiments with ORSEE. *Journal of the Economic Science Association, 1,* 114.

Grossman, P. J., & Eckel, C. C. (2015). Giving versus taking for a cause. *Economics Letters, 132,* 28–30.

Hoffman, E., McCabe, K., Shachat, K., & Smith, V. (1994). Preferences, property rights, and anonymity in bargaining games. *Games and Economic Behavior, 7*(3), 346–380.

Khadjavi, M., & Lange, A. (2015). Doing good or doing harm: Experimental evidence on giving and taking in public good games. *Experimental Economics, 18*(3), 432–441.

Korenok, O., Millner, E. L., & Razzolini, L. (2014). Taking, giving, and impure altruism in dictator games. *Experimental Economics, 17*(3), 488–500.

Krupka, E., & Weber, R. (2013). Identifying social norms using coordination games: Why does dictator game sharing vary? *Journal of the European Economic Association, 11*(3), 495–524.

Liberman, V., Samuels, S. M., & Ross, L. (2004). The name of the game: Predictive power of reputations vs. situational labels in determining prisoner's dilemma game moves. *Personality and Social Psychology Bulletin, 30,* 1175–1185.

List, J. A. (2004). Young, selfish and male: Field evidence of social preferences. *The Economic Journal, 114*(492), 121–149.

List, J. A. (2007). On the interpretation of giving in dictator games. *Journal of Political Economy, 115*(3), 482–493.

Nikiforakis, N. (2010). Feedback, punishment and cooperation in public good experiments. *Games and Economic Behavior, 68,* 689–702.

Oxoby, R. J., & Spraggon, J. (2008). Mine and yours: Property rights in dictator games. *Journal of Economic Behavior & Organization, 65*(3), 703–713.

Sonnemans, J., Schram, A., & Offerman, T. (1998). Public good provision and public bad prevention: The effect of framing. *Journal of Economic Behavior & Organization, 34,* 143–161.

Tappin, B. M., & Capraro, V. (2018). Doing good vs. avoiding bad in prosocial choice: A refined test and extension of the morality preference hypothesis. *Journal of Experimental Social Psychology, 79,* 64–70.

Willinger, M., & Ziegelmeyer, A. (1999). Framing and cooperation in public good games: an experiment with an interior solution. *Economics Letters, 65,* 323–328.