Cooperation Within Teams: A Review of Social Preferences in One-Shot Prisoner's Dilemma Game

Vivek Suneja & Debashree Das

This study sought to put the focus on the underlying behavioral norms and heuristic principles used by the individuals in the strategic decision-making process which affects the team dynamics within the organization. The conventional assumption in the standard neo-classical economics is the self-interest hypothesis wherein individuals only value materialistic preferences. But in recent years, this assumption has been challenged by several experimental studies that have provided evidential support on how individuals also value social preferences while making their strategic choices. This study provides a comprehensive review of the impact of social preferences on cooperation in the context of the one-shot prisoner's dilemma game and understand the social complexities involved in the functioning of the team.

Vivek Suneja is Head & Dean & ***Debashree Das*** (E-mail: debashree763@gmail.com) is a Doctoral Student, Faculty of Management Studies, University of Delhi, Delhi 110007

Introduction

Team is defined as a "group(s) of two or more individuals who must interact cooperatively and adaptively in the pursuit of shared value objectives" (Converse et al., 1993). Teamwork is considered as the most vital strategies for organizational development and is widely used by various organizations across multiple domains (De Paola et al., 2019). Many instances have been found where some of the leading business organizations failed due to inefficient team management and the underlying issue of free-riding within the teams that not only hampers the productivity but also reduces the employee morale. The problem of free-riding and low individual outputs leads to sub-optimal usage of human resources which distorts the entire purpose of forming well-structured teams (He, 2012; Backes-Gellner et al., 2014). The existence of free-riders within the organization affects the overall team psyche and the sucker effect hampers the output of other members who feel ex-

ploited (Hütter & Diehl, 2011; Tavoletti et al., 2019; Delfgaauw et al., 2022). However, the problem associated with free riding is not unique to the organization—degree of cooperation or competition demonstrated by the members have been an age-old topic for discussion among researchers. To counter free riding and improve team effectiveness it is necessary for organizations to implement rules which discourage opportunistic behavior (Corgnet et al., 2015), and devise institutional mechanisms which disincentivizes free-riding (Harris, C., 2018).

As there has been a dramatic increase in the use of workplace teams resulting in substantial productivity gains (Glassop, 2002), the concept of team cooperation has attained a central position in theories pertaining to team dynamics, due to its consistently significant relationship with organizational effectiveness and its facilitative effect on group productivity (Delarue, et al, 2008). Hence, this study sought to put the focus on the underlying behavioral norms and heuristic principles used by the individuals in the strategic decision-making process which affects the team dynamics within the organization.

Strategic Cooperation: Evolution of Behavioral Game Theory

Cooperation is a key ingredient for team success, but can be counter effective in the presence of non-compliant group members who perpetually evade the norms established within the team. The functioning of team involves work interdependencies wherein individual contribution is dependent on the contribution made by the other members. Hence, to build a cohesive team, such work interdependencies require mutual cooperation by the members.

To build a cohesive team, such work interdependencies require mutual cooperation by the members.

The standard game-theoretical framework is based on the fundamental assumptions of 'self-interest' which suggests that all rational individuals are in pursuit of achieving their personal objectives which maximizes their own welfare. The preferences demonstrated by people are egocentric and self-centered, and individual choice is the result of acting in a rational way that aims to achieve their own preferred outcome. In contrast to this, the social preference models defy these rules of exclusive self-centered rationality and claim that individuals also value the monetary payoffs of others, and are concerned about group welfare. The study by Fehr and Fischbacher (2002) revealed that increasingly large number of economic agent's value social preferences. Economic agents care not just about their own monetary payoffs and tangible benefits, but are also concerned about the distribution of money payoffs between them and the other agents involved in the social dilemma game.

It is widely believed that for any team to function effectively, its members must be able to work collaboratively. For co-

operation to develop within team, the notion of collective rationality is one of the most fundamental issues that need to be resolved which can encourage members to voluntarily cooperate. To achieve a collectively superior outcome, there is a need that all the economic agents can accomplish consensus over a common goal (Sugden, 2015; Bacharach, 2006; Gold & Colman, 2020). A "rationally more rewarding" outcome can be derived when the members voluntarily cooperate within teams; it can lead to a win-win situation not only for individual members but also for the entire organization.

Researchers have provided significant experimental evidence that has contradicted the self-interest hypothesis underlying the standard game-theoretic models, and shown that in real-life scenarios, many people are motivated by concerns beyond their own material benefits (Charness & Rabin, 2002; Levitt & List, 2007). Social preference theory led to the emergence of a new wave of experimental research that offers alternate perspectives and insights into the strategic choices made by economic agents. The objective of this paper is to review these recent developments, and to highlight the varied types of preferences demonstrated by the players that contradict the standard paradigm of social dilemma games. To uncover the real-world complexities, the most commonly researched social-dilemma game is the two-person prisoner's dilemma game. In this study, we explore and review the various kinds of social preferences that players demonstrate in the one-shot prisoner's dilemma game and assess the impact of behavioral norms on the individual's strategic decision- making process.

Prisoner's Dilemma Game

The game was originally framed by Merrill Flood and Melvin Dresher at RAND in 1950 and was later enacted with prison verdict setting by Albert Tucker. The basic framework of the game is pre-sented through a binary choice matrix wherein two or more individuals have to simultaneously decide between two strategic choices. The theoretical basis of "Prisoner's" Dilemma involves two prisoners who are arrested and imprisoned for a crime. Each prisoner is kept in isolation in different cells with no scope of communication. To convict either one or both the prisoners for the crime, the prosecutors require their personal confession which can provide sufficient evidence to convict as per the law. In this scenario, each prisoner has two strategic options: either to cheat upon the other by claiming that the crime is committed by the other prisoner, or to cooperate with the other by remaining silent and not confessing. The possible outcomes are:

- If both Prisoner 1 and Prisoner 2 cheat and put the blame on the other, each of them will have to serves two years in prison.
- If Prisoner 1 cheats but Prisoner 2 remains silent, then Prisoner 1 will be set free while the entire blame of the crime will be on Prisoner 2 and will have to serve three years in prison.

- If Prisoner 1 remains silent but Prisoner 2 cheats, then as per the evidence Prisoner 1 will have to serve three years in prison while Prisoner 2 will be set free.
- If both Prisoner 1 and Prisoner 2 remain silent, both of them will serve less than one year in prison.

Since cheating provides the prisoners more benefit than cooperating with one another by remaining silent, so theoretically all self-interested prisoners choose to cheat with the other player. But in reality, several experimental research studies based on the framework of Prisoner's Dilemma game have demonstrated that individuals displayed a strategic bias towards mutual cooperation. There is no single solution or a fixed perspective that can help resolve this social conflict between the players. This study explores and review the various kinds of 'social' preferences that players demonstrate, and how this may induce them to cooperate in the single shot prisoner's dilemma game.

The structure of the standard prisoner's dilemma game has been simplified in Table 1, which incorporates two strategies for the players—either they can cooperate or defect.

Table 1 Structure of the Game

PRISONER'S DILEMMA GAME		Player 2	
	Cooperate (C)	**Defect (D)**	
Player 1	**Cooperate (C)**	Gain (G), Gain (G)	Sucker (S), Temptation (T)
	Defect (D)	Temptation (T), Sucker (S)	Loss (L), Loss (L)

When both players opt for cooperation strategies, i.e. the strategy to mutually cooperate and opt for CC their collective benefit will be maximized and both individuals will be rewarded for this cooperation. This Gain is denoted as payoff "G".

- When both players do not Cooperate, i.e. the strategy to mutually defect and opt for DD. For this both the individuals will lose and this is denoted as payoff "L" which is the worst collective result.
- If one player cooperates and the other does not, the co-operator loses and receives the lowest payoff "S", while the defector gains and receives the largest payoff "T".

The intersections of these two strategies gives rise to four possible outcomes: G (gain) and L (loss) which are the payoffs derived for mutual cooperation and mutual defection, respectively, while the temptation to unilaterally defect provides payoff T, and the payoff S as the loss borne due to unilateral cooperation. The strategic move to opt for Defect establishes (D, D) as the Nash equilibrium, but it leads to a pareto-inferior outcome. A mutually beneficial result can be derived if players collectively coordinate in the game and both the players can benefit if they choose to Cooperate. This outcome is also experimentally verified in the literature which highlights that agents tend to value social preferences that can motivate them to cooperate in the game, and

they do not necessarily attempt to maximize their own individual payoffs (Schneider & Shields, 2022).

As the Prisoner's Dilemma game is often used as a model for describing social dilemmas and studying the phenomenon of cooperation, several prominent theories and models have emerged that have explored the dimensions of individual's social preferences in order to understand the dynamics of cooperative choice.

Reciprocity

Reciprocity is characterized as being 'kind' toward someone who is also expected to be kind towards you (Positive Reciprocity) and to be 'unkind' toward someone who is expected to be unkind (Negative Reciprocity). This motivation to reciprocally act in a social dilemma game, gives rise to two possible outcomes: One, where both individuals are kind towards one another, or the other where both choose to be unkind. This conditional behavior is dependent on the behavior projected by others in the game. Any non-cooperative action of the opponent that provides unfair distribution of resources is interpreted as 'unkind', this action is reciprocated by the other player with defection strategy for being unkind (Greig & Bohnet, 2008). Thus, reciprocity is propensity of the player to penalize the other player by decreasing his payoff when he is perceived to be 'unkind' and act generously by increasing the opponent's payoff when he is believed to be 'kind' (Fehr & Schmidt,1999; Bolton & Ockenfels, 2000). The recent experimental studies found that economic agents are more sensitive towards norms of Negative Reciprocity than Positive Reciprocity, it is considered as relatively fair to punish defectors for not cooperating than rewarding the co-operators for their compliance (Shaw et al., 2019; Chernyak et al., 2019).

Players yielded a more satisfactory outcome when they voluntarily chose to cooperate than defect when their opponent cooperated.

In the Prisoner's Dilemma experimental games, the impact of norms of reciprocity were quite evident wherein it was found that individuals were willing to cooperate in order to match their opponent's good faith (Morris & Girotto, 1998). Experimental evidence in the literature (Hayashi et al., 1999; Kiyonari et al., 2000) suggests that players even in simultaneous one-shot Prisoner's Dilemma games behave reciprocally and expect the same to be reciprocated by their partners. It was observed that players yielded a more satisfactory outcome when they voluntarily chose to cooperate than defect when their opponent cooperated. Rabin (1993) makes a similar prediction on the norms of reciprocity, based on a "kindness" function. It was observed that, players are willing to sacrifice more money to be kind if they believed that their opponents are also being kind in return. However, the study by Isoni and Sugden (2019) proposes that this ideology of cooperation due to "reciprocal kindness" is not feasible, mutually beneficial outcome can be derived

only when there exists trust through "reciprocal cooperation". Hence, mutual cooperation can be sustained as an equilibrium in the one-shot game if players trust their counterpart and are reciprocally motivated to cooperate.

Altruism

Unlike the norms of reciprocity, altruism reflects unconditional cooperation and being kind towards the other players irrespective of their intentions and choices (Anderoni, 1989; Andreoni & Miller, 2002). The key difference that differentiates altruism from reciprocally motivated individuals is that an altruistically motivated person will never penalize the opponent for his/her strategic choices by decreasing the payoff. Rather, for an altruistic person, the utility increases with the increase in the well-being of the other players (Gintis et al., 2001; Baumert et al., 2014). The evolution of the norms of Altruism is considered as a significant factor for the intellectual and moral development of humanity that can ensure a sustainable future (Mangone, 2020).

Some researchers state that cooperation is not predominantly caused by altruism, it is often due to inability to understand and due to the initial confusion that may cause subjects to cooperate. But under repeated treatment conditions, experiments have shown that there exist some players who continue to cooperate irrespective of what the other player does. The study by Shafir and Tversky (1992) simulated the Prisoner's Dilemma game on 80 undergraduate students and found that the degree of cooperation was 3% despite knowing the other person had defected in the game. Batson and Moran (1999) examined similar effects of prosocial behavior and concluded that empathic emotion can arouse the altruistic motivation of the players to increase the other's welfare. The study by Weiss and Peres (2014) also supported this clause and found that in the standard prisoner's dilemma game, the egoist players who only valued their own payoffs were at a disadvantageous position relative to the players who chose to cooperate for a mutually-advantageous payoff. It is believed that altruists tend to do better in the strategic situations than those motivated solely by a concern for their own well-being.

Trust

Trust can be defined as the positive beliefs that one agent has about the behavior by other agents (Cox et al., 2001). Trusting behavior is considered as one of the vital factors that can reinforce cooperation in one-shot prisoner's dilemma game (Ostrom & Walker, 2003; Janssen, 2008). It was found that rise of cooperation in non-repeated games between anonymous agents is possible when the agents have the ability to recognize the trustworthiness of other agents. The greater the trust, the greater

The greater the trust, the greater will be the positive externalities delivered through cooperation, and this increases the welfare of the entire group.

will be the positive externalities delivered through cooperation, and this increases the welfare of the entire group. But at the same time, the non-compliance and disloyalty by the other player will generate a greater degree of negative externalities through non-cooperation. If the trust on the other player is reciprocated by the other's trustworthy behavior, then both the players will be better off by consensually playing to cooperate in the game. But trustful behavior carries the risk of negative consequences, when the trust is abused by the other player and reciprocated by untrustworthy behavior. This can lead to revengeful motives which can crumble the entire group dynamics. Hence, player's trust is a fundamental prerequisite for the other's cooperation (Ferrin et al., 2008). The study by Yamagishi et al. (2005) also emphasized that the social dilemma game is a multiplicative function of cooperation and trust, wherein players can be encouraged to achieve a mutually beneficial outcome by building trust within the members.

The trust built through elicited promises between the agents was also found to be effective in nurturing the partnership agreements between the players who were willing to voluntarily cooperate (Chen & Zhang, 2021). According to Cook & Cooper (2003), players are initially reluctant co-operators, as they generally hesitate to cooperate due to the fear of non-compliance by the other players. The benefit of mutual cooperation can be materialized only if there is substantial amount of assurance that the other players in the group will also cooperate. Besides situational factors, the personality type of high self-control and righteousness was also found to be effective in raising cooperation by the members (Young & McGrath, 2020).

Reputation

Reputation building is another significant factor that influences player's strategic choice in the game. Kreps et al. (1982) showed that the tit-for-tat strategy becomes the dominant strategy when majority of the players chose to cooperate in the game so as to build reputation within the group which triggers the other players to also comply with the group norms. Another alternative explanation on how reputation effects emerge in the game is the notion of "indirect reciprocity" (Leimar & Hammerstein, 2001; Mujcic & Leibbrandt, 2018; Gong & Yang, 2019; Balliet et al., 2021). Reputation through the norms of indirect reciprocity emerges when players cooperate in the current period to provide a future signaling benefit to the other players in the long-run. The players choose to cooperate in the present game not in anticipation of cooperation from the other player in the current match but due to expectation of an indirect benefit that can be garnered from a future match through the reputation that one builds. The availability of reputational information from third-party sources was found to increase the level of strategic cooperation and reduce the free-riding opportunistic behavior of the agents in the social dilemma interactions (Samu et al., 2020). The study by Nowak and Sigmund (1988) further suggest that individuals classify players and react based on the public image

created within the network. If a player's reputation is good, then other players choose to mostly cooperate in the game and tend to defect when matched with a player with a bad reputation.

Guilt

Besides reputation effects, players also tend to cooperate in the game to escape the guilt of non-cooperation in the game. Charness and Dufwenberg (2006) highlight that tacit promises strengthen the bond between the players and convey reliable information about their intended choices to the other player. The formation of bonds motivates the players to adhere to norm-abiding behavior which tends to crowd out the negative motivation of the players to exploit the others for their own selfish interests. Miettinen (2006) supports that the 'offence' of not abiding by the cooperative norm induces a sense of guilt when players tend to betray the other players who stick to the socially-accepted norm of cooperation. People are guilty about defecting if their opponent did not reciprocate in the same manner and chose to cooperate in return. The study by Ketelaar and Au (2003) provided evidence that people who feel guilty after defecting in the one-shot prisoner dilemma game have a tendency to cooperate more in the later rounds of the game. This arousal of empathy towards the other player who is anticipated to cooperate in the game leads to greater cooperation in the subsequent rounds. The empathetic motivation to cooperate can satisfy player's personal goal of avoiding guilt and safeguarding their own self-perception (Batson et. al, 1988).

Experimental studies have shown that the norm of guilt plays a vital role in influencing player's behavior in the social dilemma situations. Several other experiments (Fehr & Rockenbach, 2003; Falk & Kosfeld, 2006) claimed that the sense of guilt due to unilateral defection can be eased by penalizing the players with monetary fine. The study by Hopfensitz & Reuben (2009) further asserted that this monetary punishment will disincentivize and discourage players to defect in the game, only if it can arouse the feeling of guilt or shame.

Communication

The standard game theory assumes talk to be a cheap mode of communication which does not have any significant impact on the player's behavior in social dilemma games (Crawford, 1998; Farrell & Rabin, 1996). However, several seminal works using experimental game theory have evaluated the positive effect of communication in increasing the degree of cooperation (Ostrom & Walker, 1991; Bouas & Komorita, 1996). The multilateral benefits of communication on cooperation are: firstly, it helps in shaping group identity and reducing the strategic uncertainty between the players (Balliet, 2010; Bochet et al, 2006; Sally, 1995; Isaac & Walker, 1988); secondly, it helps to build trust among players and develop similar beliefs that encourage people to cooperate (Bicchieri & Lev-On, 2007); thirdly, it enables players to establish an informal agreement and engage in a com-

mitment to cooperate (Kerr & Kaufman-Gilliland,1994).

Communication is essentially through the medium of verbal or non-verbal language that can enable people to collaboratively work together. The study by Bohnet & Frey (1999) explored the effect of face-to-face interaction on player's strategic choices, and found that by just "seeing" the face of the opponent, the revelation of identity can increase the frequency of cooperation. The formation of tacit partnership is a way of making a credible promise to comply with the group norms in order to attain a mutually beneficial outcome. With respect to the mode of communication, it was found that face-to-face interactions in contrast to other artifi-

Table 2 Impact of Social Preferences in One- shot Prisoner's Dilemma Game

Social Preferences	Definition	Study
Reciprocity	Willingness of the player to take actions that decrease the opponent's payoff when it is perceived to be 'unkind' and act generously by increasing the opponent's payoff when it is believed to be 'kind'.	Rabin (1993); Fehr & Schmidt (1999) and Bolton; Ockenfels (2000); Shaw et al., (2019); Chernyak et al., (2019); Isoni, A., & Sugden, R. (2019)
Altruism	Unconditionally cooperate and be kind towards the other player irrespective of their intentions, the utility increases with the increase in the well-being of the other players.	Andreoni (1993); Andreoni and Miller (1995); Anderson et al. (1998); Baumert et al., (2014); Weiss & Peres (2014); Gintis et al. (2001); Mangone, E., (2020).
Trust	Positive beliefs and expectation that one player has about the behaviour of other players.	Cox (2001); Ostrom and Walker (2003); Cook & Cooper (2003); Yamagishi, T. (2005); Janssen, M. A. (2008); Young, S. G., & McGrath, R. E (2020); Chen, Y., & Zhang, Y (2021).
Reputation	Reputation through the norms of indirect reciprocity emerges when players cooperate in the current period to provide a future signalling benefit to the other players in the long-run.	Nowak and Sigmund, (1998); Leimar and Hammerstein (2001); Leimar & Hammerstein, (2001); Mujcic, R., & Leibbrandt, A., (2018); Gong, B., & Yang, C. L., (2019); Samu et al., (2020); Balliet et al., (2021)
Guilt	Feeling of remorse when a player tends to betray the other players who stick to the socially-accepted norm of cooperation.	Ketelaar and Au (2003); Charness and Dufwenberg (2006); Miettinen (2006); Fehr and Rockenbach (2003); Falk and Kosfeld (2006)
Communication	Enables players to establish an informal agreement and develop similar beliefs that can reduce strategic uncertainty.	Isaac and Walker (1988);Ostrom and Walker(1989); Kerr and Kaufman-Gilliland(1994); Sally (1995); Bouas and Komorita(1996); Bohnet and Frey (1999); Bochet et al. (2006); Bicchieri and Lev-On (2007);Balliet (2010)

cially mediated communication channels provided the highest amount of information required by the players to acquaint with other players which encourages them to cooperate (Frohlich & Oppenheimer, 1998). Researchers also found that another important aspect that can increase cooperation and resolve inter-personal conflict is through a verbal apology.

The impact of social preferences on Prisoner's Dilemma games is summarized in Table 2:

Discussion

The prediction that players shall always mutually defect in the one-shot prisoner's dilemma game is fallacious, and increasingly large number of empirical investigations have proved that individuals tend to demonstrate a fairly high rate of cooperation. As we have seen, various experimental evidences have found that decision-makers violate the principle of individual utility maximization and do not solely try to maximize their own material benefit.

As proposed in the literature, the explanation which justifies cooperation in one-shot prisoner dilemma games involves social preferences. Social preference theories typically assume that individuals look beyond their own self-interest and care about the monetary payoffs of others. The literature suggests that these social preferences influence the strategic choices of the individuals in the social dilemma games: i) Reciprocity: some people may be reciprocally motivated whereby they get utility from cooperating with those who are cooperative and from defecting with those who are uncooperative; ii) Altruism: some people are pro-socially inclined wherein they get utility from the welfare of all the players, and are willing to cooperate irrespective of what the other player does; iii) Trust: some people may be motivated by the positive beliefs that they have about the other player, which induces them to cooperate as there is substantial assurance that the opponent will also cooperate; iv) Reputation: some people are motivated to cooperate in order to optimize their personal well-being by building positive reputation effects within the group that can assure them of future economic benefits; v) Guilt: some players may adhere to norm-abiding behavior of cooperation to crowd out the negative self-perception that emerges when players tend to cheat the other players for their own selfish interests; vi) Communication also proved to be an effective channel that increased cooperation within members by building trust and social affinity between players.

It is hence evident that economists are also beginning to investigate wider implications of social preferences that help in explaining the cooperative outcomes in social dilemma situations that substantially deviate from standard predictions based on self-interested preferences of the economic agents. Our study captures the heterogeneity of preferences and reviews the significance of social preferences that guide the individual's behavior in a one-shot prisoner's dilemma game context.

Through this study, we challenge the status-quo of the unidirectional competitive forces that drive the members to non-cooperate and provide an alternate perspective that encourages members to cooperate within teams. The study also captured the individual-level heterogeneity with respect to member's social preferences by systematically reviewing the impact of various behavioral norms on the member's strategic decisions.

Conclusion

Economic agents are exposed to various strategic interactions that are transactional in nature. These negotiations are driven by several emotional biases and behavioral norms that may result in disapproval or approval of the other person's actions, leading to several conflicts within the team. The strategic interdependence within team members makes the coordination within teams even more complex, as it involves an exhausting series of mental calculations based on different possibilities and strategic motives of the other members involved in the decision-making process. The study summarizes and provides insights into the heuristic-based decision-making process and helps us understand the social complexities involved in the functioning of the team.

In many social dilemma situations, individuals may comply with the theoretically defined rules of the game and maximize their own payoff at the cost of the entire group who end up losing, while some individual's may deviate from the standard prediction and choose to cooperate for the welfare of the entire group. To resolve this tension between self-interest and group interest, the study identifies behavioral norms that govern the strategic interactions between the players. It can be concluded from the study that the cooperation is an intrinsically group-level concept which requires mutual agreement by all the team members. Individuals need to give up their self-interested preferences and modify their preferences by anticipating the relative gains that could be encashed if they choose to voluntarily cooperate with the other members.

The managers need to appreciate this rationale and establish cooperation as a common knowledge within the organization wherein team members are encouraged to comply with this group norm and collectively contribute to achieve the organizational goals. Through the comprehensive literature review, the study categorically identifies the main behavioral norms (Reciprocity, Altruism, Trust, Reputation, Guilt). These normative factors were observed to have a much stronger impact on the strategic team cooperation than the other functional dimensions of team management. Hence, managers need to emphasize on these affective norms which can positively lead to a harmonious internal environment within organization and deter team conflicts.

References

Andreoni, J. (1989), "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence", *Journal of Political Economy*, 97(6): 1447-58.

Andreoni, J. & Miller, J. H. (1993), "Rational Cooperation in the Finitely Repeated

Prisoner's Dilemma: Experimental Evidence", *The Economic Journal*, 103(418): 570-85.

Bacharach, M. (2006), "Beyond Individual Choice: Teams and Frames in Game Theory" in Gold, N. & Sugden, R. (eds), Theories of Team Agency, Princeton University Press. ISBN: 9780199287260.

Backes-Gellner, U., Werner, A. & Mohnen, A. (2014), "Effort Provision in Entrepreneurial Teams: Effects of Team Size, Free-riding and Peer Pressure", *Journal of Business Economics*, 85(3): 205–230. doi:10.1007/s11573-014-0749-x

Balliet, D. (2010), "Communication and Cooperation in Social Dilemmas: A Meta-analytic Review", *Journal of Conflict Resolution,* 54(1): 39-57.

Balliet, D., Wu, J. & Van Lange, P. A. M. (2021), "Indirect Reciprocity, Gossip, and Reputation-based Cooperation", *Social Psychology: Handbook of Basic Principles,* 3: 265-87.

Batson, C. D. & Moran, T. (1999), "Empathy induced Altruism in a Prisoner's Dilemma", *European Journal of Social Psychology*, 29(7): 909-24.

Batson, C. D., Dyck, J. L., Brandt, J. R., Batson, J. G., Powell, A. L., McMaster, M. R. & Griffitt, C. (1988), "Five Studies Testing Two New Egoistic Alternatives to the Empathy-altruism Hypothesis", *Journal of Personality and Social Psychology,* 55(1): 52.

Baumert, A., Schlösser, T. & Schmitt, M. (2014), "Economic Games: A Performance–based Assessment of Fairness and Altruism", *European Journal of Psychological Assessment,* 30: 178–92. https://doi.org/10.1027/1015–5759/a000183.

Bicchieri, C. & Lev-On, A. (2007), "Computer-mediated Communication and Cooperation in Social Dilemmas: an Experimental Analysis", *Politics, Philosophy & Economics,* 6(2): 139-68.

Bochet, O., Page, T. & Putterman, L. (2006), "Communication and Punishment in Voluntary Contribution Experiments", *Journal of Economic Behavior & Organization*, 60(1): 11-26.

Bohnet, I. & Frey, B. S. (1999), "The Sound of Silence in Prisoner's Dilemma and Dictator Games", *Journal of Economic Behavior & Organization,* 38(1): 43-57.

Bolton, G. E. & Ockenfels, A. (2000), "ERC: A Theory of Equity, Reciprocity, and Competition", *American Economic Review,* 90(1): 166-93.

Bouas, K. S. & Komorita, S. S. (1996), "Group Discussion and Cooperation in Social Dilemmas", Personality and Social Psychology Bulletin, 22(11): 1144-50.

Charness, G. & Dufwenberg, M. (2006), "Promises and Partnership", *Econometrica,* 74(6): 1579-1601.

Charness, G. & Rabin, M. (2002), "Understanding Social Preferences with Simple Tests", *The Quarterly Journal of Economics,* 117(3): 817-69.

Chen, Y. & Zhang, Y. (2021), "Do Elicited Promises Affect People's Trust?—Observations in the Trust Game Experiment", *Journal of Behavioral and Experimental Economics*, 93: 101726.

Chernyak, N., Leimgruber, K. L., Dunham, Y. C., Hu, J. & Blake, P. R. (2019), Paying Back People Who Harmed Us But Not People Who Helped Us: Direct Negative Reciprocity Precedes Direct Positive Reciprocity in Early Development", *Psychological Science,* 30(9): 1273-86.

Converse, S., Cannon-Bowers, J. A. & Salas, E. (1993), "Shared Mental Models in Expert Team Decision Making, Individual and Group Decision- making" *Current Issues*, 221: 221-46.

Cook, K. S. & Cooper, R. M. (2003), "Experimental Studies of Cooperation, Trust, and Social Exchange", in E. Ostrom and J.W.

Walker (eds.), Trust and Reciprocity: Interdisciplinary Lessons for Experimental Research, New York: Russell Sage Foundation.

Corgnet, B., Hernán-González, R. & McCarter, M. (2015), "The Role of the Decision-Making Regime on Cooperation in a Workgroup Social Dilemma: An Examination of Cyberloafing", *Games*, 6(4): 588–603. doi:10.3390/g6040588

Cox, J. C. Sadiraj, K. & Sadiraj, V. (2001), Trust, Fear, Reciprocity, and Altruism, University of Arizona, mimeo.

Crawford, V. (1998), "A Survey of Experiments on Communication via Cheap Talk", *Journal of Economic Theory,* 78(2): 286-98.

De Paola, M., Gioia, F. & Scoppa, V. (2019), "Free-riding and Knowledge Spillovers in Teams: The Role of Social Ties", *European Economic Review,* 112: 74-90.

Delarue, A., Van Hootegem, G., Procter, S. & Burridge, M. (2008), "Teamworking and Organizational Performance: a Review of Survey based Research", *International Journal of Management Reviews*, 10(2): 127-48.

Delfgaauw, J., Dur, R., Onemu, O. & Sol, J. (2022), "Team Incentives, Social Cohesion, and Performance: A Natural Field Experiment", *Management Science,* 68(1): 230-56.

Falk, A. & Kosfeld, M. (2006), "The Hidden Costs of Control", *American Economic Review,* 96(5): 1611-30.

Farrell, J. & Rabin, M. (1996), "Cheap Talk", *Journal of Economic Perspectives,* 10(3): 103-18.

Fehr, E. & Fischbacher, U. (2002), "Why Social Preferences Matter–the Tmpact of Non selfish Motives on Competition, Cooperation and Incentives", *The Economic Journal*, 112 (478): C1-C33.

Fehr, E. & Rockenbach, B. (2003), "Detrimental Effects of Sanctions on Human Altruism", *Nature,* 422(6928): 137-40.

Fehr, E. & Schmidt, K. M. (1999), "A Theory of Fairness, Competition, and Cooperation", *The Quarterly Journal of Economics*, 114(3): 817-68.

Ferrin, D. L., Bligh, M. C. & Kohles, J. C. (2008), "It Takes Two to Tango: An Interdependence Analysis of the Spiraling of Perceived Trustworthiness and Cooperation in Interpersonal and Intergroup Relationships", *Organizational Behavior and Human Decision Processes,* 107(2): 161-78.

Frohlich, N. & Oppenheimer, J. (1998), "Some Consequences of e-mail vs. Face-to-face Communication in Experiment", *Journal of Economic Behavior & Organization*, 35(3): 389-403.

Gintis, H., Bowles, S., Boyd, R. & Fehr, E. (2003), "Explaining Altruistic Behavior in Humans", *Evolution and Human Behavior*, 24(3): 153-72.

Glassop, L. I. (2002), "The Organizational Benefits of Teams", *Human Relations*, 55(2): 225-49.

Gold, N. & Colman, A. M. (2020), "Team Reasoning and the Rational Choice of Payoff-dominant Outcomes in Games". *Topoi*, 39(2): 305-16.

Gong, B., & Yang, C. L. (2019), "Cooperation Through Indirect Reciprocity: The Impact of Higher-order History", *Games and Economic Behavior*, 118: 316-41.

Greig, F. & Bohnet, I. (2008), "Is There Reciprocity in a Reciprocal exchange Economy? Evidence of Gendered Norms from a Slum in Nairobi, Kenya", *Economic Inquiry,* 46(1) 77-83.

Harris, C. (2018), "Institutional Solutions to Free-riding in Peer-to-peer Networks: a Case Study of Online Pirate Communities", *Journal of Institutional Economics,* 14(5): 901-24.

Hayashi, N., Ostrom, E., Walker, J. & Yamagishi, T. (1999), "Reciprocity, Trust, and the Sense of Control: A Cross-societal Study", *Rationality and Society,* 11(1): 27-46.

He, J. (2012), "Counteracting Free-riding with Team Morale—An Experimental Study", *Project Management Journal*, 43(3): 62-75.

Hopfensitz, A. & Reuben, E. (2009), "The Importance of Emotions for the Effectiveness of Social Punishment", *The Economic Journal,* 119(540): 1534-59.

Hütter, M. & Diehl, M. (2011), "Motivation Losses in Teamwork: The Effects of Team Diversity and Equity Sensitivity on Reactions to Free-riding", *Group Processes & Intergroup Relations*, 14(6): 84-56.

Isaac, R. M. & Walker, J. M. (1988), "Communication and Free riding Behavior: The Voluntary Contribution Mechanism", *Economic Inquiry,* 26(4): 585-608.

Isoni, A. & Sugden, R. (2019), "Reciprocity and the Paradox of Trust in Psychological Game Theory", *Journal of Economic Behavior & Organization,* 167: 219-27.

Janssen, M. A. (2008), "Evolution of Cooperation in a One-shot Prisoner's Dilemma Based on Recognition of Trustworthy and Untrustworthy Agents", *Journal of Economic Behavior & Organization,* 65(3-4): 458-71.

Kerr, N. L. & Kaufman-Gilliland, C. M. (1994), "Communication, Commitment, and Cooperation in Social Dilemma", *Journal of Personality and Social Psychology,* 66(3): 513.

Ketelaar, T. & Tung Au, W. (2003), "The Effects of Feelings of Guilt on the Behavior of Uncooperative Individuals in Repeated Social Bargaining Games: An Affect-as-Information Interpretation of the Role of Emotion in Social Interaction", *Cognition and Emotion*, 17(3): 429-53.

Kiyonari, T., Tanida, S. & Yamagishi, T. (2000), "Social Exchange and Reciprocity: confusion or a heuristic?" *Evolution and Human Behavior,* 21(6): 411-27.

Kreps, D. M. & Wilson, R. (1982), "Reputation and Imperfect Information", *Journal of Economic Theory*, 27(2): 253-79.

Leimar, O. & Hammerstein, P. (2001), "Evolution of Cooperation Through Indirect Reciprocity", *Proceedings of the Royal Society of London,* Series B: Biological Sciences, 268(1468): 745-53.

Levitt, S. D. & List, J. A. (2007), "What Do Laboratory Experiments Measuring Social Preferences Reveal About the Real World?" *Journal of Economic Perspectives,* 21(2): 153-74.

Mangone, E. (2020), Beyond the Dichotomy Between Altruism and Egoism: Society, Relationship, and Responsibility. IAP-Information Age Publishing. ISBN: 978-1-64802-128-2.

Miettinen, T. (2006), Promises and conventions: An approach to pre-play agreements. Max-Planck-Inst. for Research into Economic Systems, Strategic Interaction Group. DOI: 10.1016/j.geb.2013.03.002.

Morris, M. W., Sim, D. L. & Girotto, V. (1998), "Distinguishing Sources of Cooperation in the One-round Prisoner's Dilemma: Evidence for Cooperative Decisions Based on the Illusion of Control", *Journal of Experimental Social Psychology,* 34(5): 494-512.

Mujcic, R. & Leibbrandt, A. (2018), "Indirect Reciprocity and Prosocial Behavior: Evidence from a Natural Field Experiment", *The Economic Journal,* 128(611): 1683-99.

Nowak, M. A. & Sigmund, K. (1998), "Evolution of Indirect Reciprocity by Image Scoring". *Nature*, 393(6685) :573-77.

Ostrom, E. & Walker, J. (1991), "Communication in a Commons: Cooperation Without External Enforcement", Laboratory Research in Political Economy, 287-322, American Political Science Association Meetings, Panel on Freedom and Organization, Georgia.

Ostrom, E. & Walker, J. (Eds.) (2003), Trust and Reciprocity: Interdisciplinary Lessons for Experimental Research. Russell Sage Foundation. http://www.jstor.org/stable/10.7758/9781610444347.5

Rabin, M. (1993), "Incorporating Fairness into Game Theory and Economics", *The American Economic Review*, Vol (Issue no): 1281-1302.

Sally, D. (1995), "Conversation and Cooperation in Social Dilemmas: A Meta-analysis of Experiments from 1958 to 1992", *Rationality and Society,* 7(1):58-92.

Samu, F., Számadó, S. & Takács, K (2020), Scarce and Directly Beneficial Reputations Support Cooperation. Sci Rep 10, 11486 (2020). https://doi.org/10.1038/s41598-020-68123-x

Schneider, M. & Shields, T. W. (2022), "Motives for Cooperation in the One-Shot Prisoner's Dilemma", *Journal of Behavioral Finance*, forthcoming.

Shafir, E., & Tversky, A. (1992), "Thinking Through Uncertainty: Nonconsequential Reasoning and Choice", *Cognitive Psychology,* 24(4): 449-74.

Shaw, A., Barakzai, A. & Keysar, B. (2019), "When and Why People Evaluate Negative Reciprocity as More Fair Than Positive Reciprocity", *Cognitive Science,* 43(8): e12773.

Sugden R (2015), "Team Reasoning and Intentional Cooperation for Mutual Benefit", *Journal of Social Ontology* 1:143–66.

Tavoletti, E., Stephens, R. D. & Dong, L. (2019), "The Impact of Peer Evaluation on Team Effort, Productivity, Motivation and Performance in Global Virtual Teams", *Team Performance Management: An International Journal.* 25(5–6). https://doi.org/10.1108/TPM-03-2019-0025

Weiss, R., Peres, P. (2014), "Beyond the Altruism-Egoism Dichotomy: A New Typology to Capture Morality as a Complex Phenomenon", in Jeffries, V. (ed) The Palgrave Handbook of Altruism, Morality, and Social Solidarity, Palgrave Macmillan, New York. https://doi.org/10.1057/9781137391865_4

Yamagishi, T., Kanazawa, S., Mashima, R. & Terai, S. (2005), "Separating Trust from Cooperation in a Dynamic Relationship: Prisoner's Dilemma with Variable Dependence", *Rationality and Society,* 17(3): 275-308.

Young, S. G., & McGrath, R. E. (2020), "Character Strengths as Predictors of Trust and Cooperation in Economic Decision-making", *Journal of Trust Research,* 10(2): 159-79.