Online Appendix to
"The Effect of Sequentiality on Cooperation in Repeated Games"

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Contents

A Experimental Procedures

In all sessions, participants first took part in ten binary dictator games (DG). The dictator could either choose to keep 50 points for oneself and give 12 points to the recipient or keep c points and give c points to the recipient. Across the ten DGs, c ranged from 30 to 48 points with increments of two points. All participants made choices in the role of dictator. They were explained that at the end of the session, pairs would be randomly formed and roles would be randomly assigned to determine the payment.

The experiment then proceeded to the main part. The Seq treatments covered seven sessions of 60 participants, and the Sim treatments covered two sessions with 40 participants and two with 50 participants. All participants played 50 repeated games.[1] We chose a large number of repeated games per session because previous studies have shown the importance of learning (Dal Bó and Fréchette, 2011). At the beginning of the session, participants were randomly assigned to matching groups of ten. Participants were not aware of the matching groups. At the beginning of each repeated game, pairs were randomly formed within the matching groups. Within the same session, participants in different matching groups faced different mutual co-operation payoffs. This feature minimizes possible session effects that may, for example, stem from a correlation between a tendency to cooperate and preferences for a particular time slot.

The level of understanding of the instructions was tested through a set of non-incentivized control questions about the PD's parameters (payoffs and continuation probability) and about the matching protocols within and across repeated games. Participants were not time-constrained and were allowed to proceed with the experiment only after they correctly answered all questions. We kept record of the number of times a participant submitted the answers to the control questions with at least one mistake. Below we report an English translation of the control questions:

1. How many points do you earn in a round if both you and the other participant choose A?
2. How many points do you earn in a round if both you and the other participant choose B?
3. How many points do you earn in a round if you choose A and the other participant chooses B?
4. How many points do you earn in a round if you choose B and the other participant chooses A?

[1] In one of the sessions, the laboratory assistant accidentally implemented 51 repeated games.

5. You are in round two of a match. What is the probability that the match ends after this round?
6. True or false? I will be paired with the same participant in all rounds of a match.
7. True or false? I will be paired with the same participant across all matches.

At the end of the session, we conducted a short survey, collecting information on gender, origin, age, and educational background. We also asked participants to self-report how risk averse they are. In particular, we asked: "How much of a risk taker would you evaluate yourself on a scale from 1 to 6?"

The final payment of a participant was determined by her earnings in one of the ten randomly drawn DGs plus the total earnings over all rounds of a randomly drawn repeated game. Each point earned during the experiment was worth 0.1€. Participants received a show-up fee of 6€ in the treatments with $\delta = 0.5$ and of 7€ in the treatments with $\delta = 0.75$. The show-up fee was larger in the latter treatments because these sessions took longer.

B Translated Instructions

B.1 Instructions Simultaneous Games, $\delta = 0.5$

General instructions

Welcome to the experiment.

All participants receive the same instructions. Please read them carefully.

Do not communicate with any of the other participants during the entire experiment and turn off your cell phone. If you have questions, raise your hand, and wait until the experimenter comes to you to answer your question in private.

You receive a show-up fee of €6. The amount of money you earn on top of this depends on decisions made by you and other participants. Earnings are expressed in points during the experiment. Points convert to Euros in the following way: 10 points = €1. You will be paid your earnings in cash at the end of the experiment. The experiment is anonymous. Your identity will not be revealed to other participants and the identity of others will not be revealed to you.

The experiment consists of two parts. For both parts, you will get a separate set of instructions. The instructions for Part 1 are on the next page. The instructions for Part 2 will be distributed after Part 1 has finished.

Instructions Part 1

There are two players: player 1 and player 2. The task of player 1 is to choose between UP or DOWN. Player 2 is a passive player.

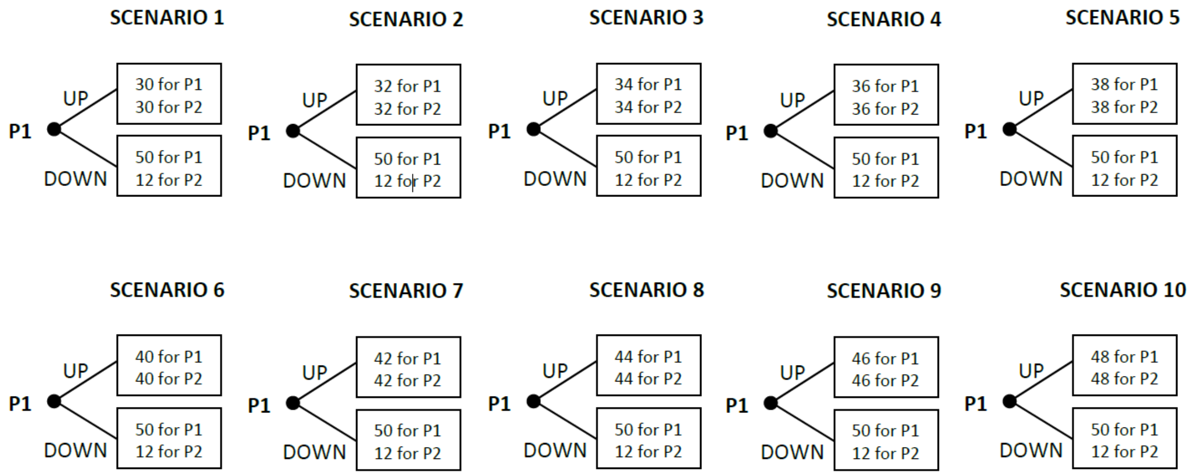
- If player 1 chooses UP, both players earn the same amount, which will be between 30 and 48 points depending on the scenario.
- If player 1 chooses DOWN, player 1 earns 50 points and player 2 earns 12 points.

In the experiment, there will be 10 scenarios. The figures below show the payoffs in points for both players in each of these 10 scenarios. P1 refers to player 2 and P2 to player 2.

For each scenario we ask you the following: if you have the role of player 1, what do you choose, UP or DOWN?

In order to calculate your earnings, the computer program randomly divides all participants into pairs of a player 1 and a player 2. You will be paid for the role of player 1 or player 2. At the point of decision-making, you don't know which role you have. Also, the computer program randomly selects 1 out of the 10 scenarios that will be used for payment. At the point of decision-making, you don't know which scenario is selected.

At the end of the experiment, you will be informed about the role for which you are paid, the randomly selected scenario and your earnings in Part 1.



Instructions Part 2

In Part 2 you will make decisions in several sequences of rounds. Each sequence of rounds is referred to as a **match**.

In each match, you will be paired with another participant for one or more rounds. Within a match, pairs remain the same. There will be 50 matches in total, and after each match you are randomly paired with another participant for a new match.

At the end of the experiment, one of the 50 matches will be randomly selected for payment by the computer program. Your payment depends on the total points you have earned in that match.

Choices and earnings

In each round of a match, you and the paired participant make a choice between option A and option B.

Earnings in a round will be indicated on your computer screen in a table like the one below with Z>Y>X>W:

- If both of you choose A, you both earn Y points.
- If you choose A and the other chooses B, you earn W points and the other earns Z points.
- If you choose B and the other chooses A, you earn Z points and the other earns W points.
- If both of you choose B, you both earn X points.

The table is the same for all participants you will be paired with, and remains the same throughout Part 2.

Table: Earnings in points with Z>Y>X>W*

Both choose A	Y	Y
You choose A and other chooses B	W	Z
You choose B and other chooses A	Z	W
Both choose B	X	X

At the end of each round, you will get to see the choice of the paired participant and your earnings in points in that round. You will also get to see the history of choices within the current match.

Number of rounds in a match

The number of rounds in a match is determined **randomly**. At the end of each round, there is a 50% probability that the match continues for at least another round. The computer virtually tosses a fair coin (50% probability of landing on heads and 50% probability of landing on tails) and the outcome of the coin toss will appear on your screen at the end of each round. If the outcome of the coin toss is heads, the match continues to a next round. If the outcome of the coin toss is tails, the match ends.

Control questions

Before decision-making in Part 2 starts, you will be asked to answer a number of control questions on the computer screen. Once everyone has answered all questions correctly, Part 2 starts.

B.2 Instructions Sequential Games, $\delta = 0.5$

General instruction and instructions for Part 1 are identical to those in Section B.1.

Instructions Part 2

In Part 2 you will make decisions in several sequences of rounds. Each sequence of rounds is referred to as a **match**.

In each match, you will be paired with another participant for one or more rounds. Within a match, pairs remain the same. There will be 50 matches in total, and after each match you are randomly paired with another participant for a new match.

At the end of the experiment, one of the 50 matches will be randomly selected for payment by the computer program. Your payment depends on the total points you have earned in that match.

Choices and earnings

In each match you will make decisions in the role of player 1 or player 2. Before each match starts your role will be randomly selected by the computer program and indicated on the screen. It will remain the same throughout that match.

In each round, player 1 and player 2 make a choice between option A and option B.

If you are player 1, you make this choice unconditionally, so you simply choose between A and B.

If you are player 2, you can condition your choice on the choice of player 1. This means you will observe the choice of the other before making your choice between A and B.

Earnings in a round will be indicated on your computer screen in a table like the one below with Z>Y>X>W:

- If both of you choose A, you both earn Y points.
- If you choose A and the other chooses B, you earn W points and the other earns Z points.
- If you choose B and the other chooses A, you earn Z points and the other earns W points.
- If both of you choose B, you both earn X points.

The table is the same for all participants you will be paired with, and remains the same throughout Part 2.

Table: Earnings in points with Z>Y>X>W

Both choose A	Y	Y
You choose A and other chooses B	W	Z
You choose B and other chooses A	Z	W
Both choose B	X	X

At the end of each round, you will get to see your earnings in points in that round. Participants with the role of player 2 will get to see the choice of the paired player 1 in that round, and participants with the role of player 1 will get to see the choice of the paired player 2 in that round. You will also get to see the history of choices within the current match.

Number of rounds in a match

The number of rounds in a match is determined **randomly**. At the end of each round, there is a 50% probability that the match continues for at least another round. The computer virtually tosses a fair coin (50% probability of landing on heads and 50% probability of landing on tails) and the outcome of the coin toss will appear on your screen at the end of each round. If the outcome of the coin toss is heads, the match continues to a next round. If the outcome of the coin toss is tails, the match ends.

Control questions

Before decision-making in Part 2 starts, you will be asked to answer a number of control questions on the computer screen. Once everyone has answered all questions correctly, Part 2 starts.

C Supplement on Theory

C.1 Standard Theory of a Repeated Sequential PD

We illustrate that the threshold for mutual cooperation to be an equilibrium outcome is the same under sequential decision-making than under simultaneous decision-making by comparing the expected payoff of a grim trigger strategy (GT) to that of *always defect* (AD). GT is generally defined as follows: "choose C on the first move and continue to do so on future moves as long as both players choose C; if one of the players chooses D, then switch to D forever after" (see for example Dal Bó and Fréchette, 2011). This strategy can be implemented as follows for the first mover in a sequential PD: "choose C in round 1 and continue to do so in round $t > 1$ as long as both players chose C in round $t-1$; if one of the players chose D in round $t-1$, choose D in t and forever after." For the second mover, a GT strategy is implemented as follows: "choose C (D) in round t if the first mover chooses C (D) in round t; choose D unconditionally in round t and forever after if one of the players chose D in round $t-1$".

Both players playing GT constitutes a subgame perfect equilibrium (SPE) if the rate at which players discount the future is sufficiently low, that is, if discount factor δ is sufficiently high (see Propositions 4 and 5 in Friedman, 1971). Given that the first mover plays GT, the second-mover expected payoff of GT is higher than that of AD if:

$$\begin{aligned} c + \delta c + \delta^2 c + \ldots &\geq t + \delta d + \delta^2 d + \ldots \\ c + \frac{\delta}{1-\delta} c &\geq t + \frac{\delta}{1-\delta} d \\ \delta &\geq \frac{t-c}{t-d} \equiv \delta^*. \end{aligned}$$

For the first mover the expected payoff of GT is higher than AD, given that the second mover plays GT, if:

$$\begin{aligned} c + \delta c + \delta^2 c + \ldots &\geq d + \delta d + \delta^2 d + \ldots \\ \frac{c}{1-\delta} &\geq \frac{d}{1-\delta}, \end{aligned}$$

which holds by definition. The condition thus reduces to $\delta \geq (t-c)/(t-d) \equiv \delta^*$ (see also Wen, 2002, who proves a folk theorem for repeated sequential games in general).

C.2 Basin of Attraction

We follow Dal Bó and Fréchette (2011) and simplify the repeated simultaneous PD to a game with two strategies, namely always defect (AD) and a conditionally cooperative strategy (CC) à la GT. The basin of attraction of AD is calculated as the maximum probability of the partner using a CC strategy that makes it optimal for a player to always defect. If we assume that p is the probability that the partner uses CC, then the expected payoff of CC is larger than that of using the AD strategy if:

$$\begin{aligned} p(c+\delta c+\dots)+(1-p)(s+\delta d+\dots) &> p(t+\delta d+\dots)+(1-p)(d+\delta d+\dots) \\ p\left(c+\frac{\delta c}{1-\delta}\right)+(1-p)\left(s+\frac{\delta d}{1-\delta}\right) &> p\left(t+\frac{\delta d}{1-\delta}\right)+(1-p)\left(d+\frac{\delta d}{1-\delta}\right) \\ p &> \frac{d-s}{c+d-t-s+\frac{\delta(c-d)}{1-\delta}} \equiv \bar{p}. \end{aligned} \quad (1)$$

It can easily be seen that if $\delta < (t-c)/(t-d) \equiv \delta^*$, $\bar{p} > 1$, which implies that AD is the optimal strategy then. If $\delta > \delta^*$, there exists a $0 < \bar{p} < 1$ so that CC is optimal for $p > \bar{p}$.

To use the concept of the basin of attraction in the sequential PD, we also simplify the repeated sequential PD to a game with two strategies, namely AD and CC. We start with calculating the basin of attraction of AD for the second mover by calculating the maximum probability of the first mover using a CC strategy that makes it optimal for the second mover to always defect. If we assume that p_1 is the probability that the first mover uses CC, then the expected payoff of CC for the second mover is larger than that of using the AD strategy if:

$$\begin{aligned} p_1(c+\delta c+\dots)+(1-p_1)(d+\delta d+\dots) &> p_1(t+\delta d+\dots)+(1-p_1)(d+\delta d+\dots) \\ c+\frac{\delta c}{1-\delta} &> t+\frac{\delta d}{1-\delta} \\ \delta &> \frac{t-c}{t-d} \equiv \delta^*. \end{aligned} \quad (2)$$

The second mover will thus be "fully attracted" to AD if $\delta < \delta^*$ and to the CC strategy if $\delta > \delta^*$. The implication for the first mover (in a complete information environment) is that he will also be "fully attracted" to AD if $\delta < \delta^*$ and to the CC strategy if $\delta > \delta^*$. The same calculations hold if instead of using a CC strategy, the second mover would use a TFT strategy or another strategy with limited punishment.

C.3 Quantal-Response Predictions

Assume that the probability that a player chooses l is equal to $P_l = \frac{e^{\lambda E\pi_l}}{\sum_l e^{\lambda E\pi_l}}$ with expected payoff $E\pi_l$ calculated on the basis of choice probability P_l. Parameter $\lambda \in (0,\infty)$ stands for the degree of precision of decision-making, so is inversely related to the degree of noise (McKelvey and Palfrey, 1995). Quantal-response equilibrium predictions for the reduced repeated games, with k either equal to AD or to CC, are shown in Figure C.1. In the figure, the likelihood of AD is shown as a function of λ. On the one hand, the figure shows that the predicted effect of sequentiality on the likelihood of AD, thus on the cooperation rate, is in line with the prediction based on SizeBAD. On the other hand, the figure shows that the likelihood that first and second movers in Seq choose AD is predicted to decrease as c or δ increases even if $\delta > \delta^*$.

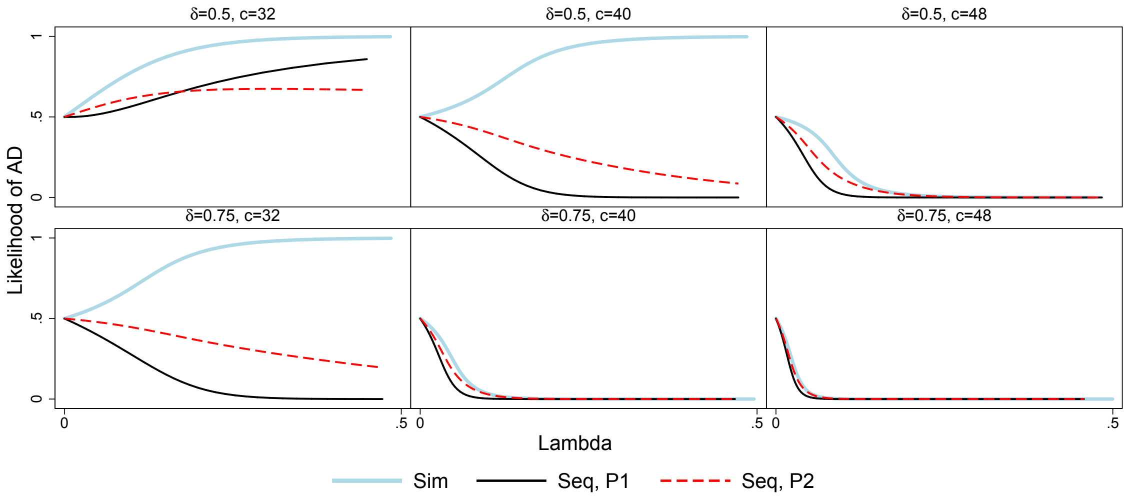


Figure C.1: Quantal-response predictions.

Note: Calculated using Gambit version 15 (McKelvey, McLennan and Turocy, 2016).

C.4 Heterogeneity in Other-Regarding Preferences

Assume that player i has a commonly known utility of the form

$$U_i = \begin{cases} \pi_i - \rho_i(\pi_i - \pi_j) & \text{if } \pi_i > \pi_j, \\ \pi_i + \sigma_i(\pi_j - \pi_i) & \text{if } \pi_i < \pi_j, \\ \pi_i & \text{otherwise,} \end{cases} \tag{3}$$

with $\rho_i = \rho_j$ and $\sigma_i = \sigma_j$, and $\sigma_i \leq \rho_i \leq 0$, $\sigma_i \leq 0 \leq \rho_i \leq 1$ or $0 \leq \sigma_i \leq \rho_i \leq 1$. Parameter ρ_i indicates player i's preference in cases in which she earns more than her partner, and σ_i indicates her preference in cases in which she earns less than her partner. The utility function corresponds to that of Charness and Rabin (2002), but without the reciprocity component. Restricting σ_i and ρ_i as mentioned above allows for three types of players, namely competitive types, difference averse types, and types concerned about efficiency. To calculate SizeBAD, we assume again that a player i is faced with a choice between strategy AD and strategy CC at the start of a repeated PD.

For the simultaneous-move PD, the condition under which the expected payoff of CC is larger than that of AD now becomes:

$$p\left(c + \frac{\delta c}{1-\delta}\right) + (1-p)\left(s + \frac{\delta d}{1-\delta} + \sigma_i(t-s)\right) > p\left(t + \frac{\delta d}{1-\delta} - \rho_i(t-s)\right) + (1-p)\left(d + \frac{\delta d}{1-\delta}\right)$$

$$p > \frac{d - s - \sigma_i(t-s)}{c + d - t - s + \frac{\delta(c-d)}{1-\delta} + (\rho_i - \sigma_i)(t-s)} \equiv \tilde{p}(\rho_i, \sigma_i). \tag{4}$$

As can be seen from condition 4, the threshold above which CC is preferred over AD is a negative function of ρ_i for a given σ_i. If $\rho_i > 0$, which implies that player i dislikes having more money than player j, player i prefers CC more easily than if $\rho = 0$. If, in addition $\sigma_i = 0$, then it holds that $\tilde{p} < \bar{p}$. Instead, if $\rho_i < 0$, which would imply that player i prefers to have a higher payoff than the partner, player i prefers CC less easily than if $\rho_i = 0$. For example, if $\sigma_i = 0$, it holds that $\tilde{p} > \bar{p}$. If we focus on the effect of σ_i on $\tilde{p}$, it can be shown that for a given ρ_i, $\tilde{p}$ decreases as σ_i increases. As σ_i increases, player i is thus relatively more inclined to choose CC than AD.
For second movers in the sequential-move PD, the condition under which the expected payoff of CC is larger than that of AD only depends on ρ_i because π_{P2} is never lower than π_{P1}. Player i chooses CC in the role of second mover if:

$$\begin{aligned} c + \frac{\delta c}{1-\delta} &> t + \frac{\delta d}{1-\delta} - \rho_i(t-s) \\ \delta &> \frac{t - c - \rho_i(t-s)}{t - d - \rho_i(t-s)} \equiv \tilde{\delta}^*(\rho_i). \end{aligned} \tag{5}$$

If $\rho_i > 0$, then $\delta^*(\rho_i) < \delta^*$, implying that the second mover prefers CC over AD more easily than if $\rho_i = 0$. If $\rho_i < 0$, then $\delta^*(\rho_i) > \delta^*$, implying that CC is now less easily preferred. If we assume that ρ_i is distributed in interval $[-1, 1]$, the implication is that the conditional cooperation rate in a population of players can now be in between 0 and 100 percent. Moreover, for a given distribution of ρ_i, condition 5 is more easily satisfied, the higher c or the higher δ.
Finally, we focus on the first mover. Under complete information, which refers to players being informed about each other's type, the cooperation rate of first movers and thus the overall cooperation rate corresponds one-to-one with the second-mover conditional cooperation rate. Under the more realistic assumption that players are uncertain about each other's type, the cooperation rate of first movers does not necessarily correspond to the conditional cooperation rate (e.g. Kartal and Müller, 2018). Assume, for example, that first movers are uncertain about the type of second movers but know the distribution of types in the population. Intuitively, removing the information about the second-mover type exposes the first mover to strategic risk. This has two implications. First, the first mover's choice to use CC becomes a matter of comparing the expected payoff with that of AD rather than merely copying the second-mover strategy. Second, σ_i enters the trade-off. Specifically, if p_2 represents the probability that the second mover uses CC, then player i prefers CC over AD in the role of first mover if:

$$\begin{aligned} p_2\left(c + \frac{\delta c}{1-\delta}\right) + (1-p_2)\left(s + \frac{\delta d}{1-\delta} + \sigma_i(t-s)\right) &> d + \frac{\delta d}{1-\delta} \\ p_2 &> \frac{d - s - \sigma_i(t-s)}{c - s + \frac{\delta(c-d)}{1-\delta} - \sigma_i(t-s)} \equiv \tilde{p_2}(\sigma_i). \end{aligned} \tag{6}$$

Condition 6 is more easily satisfied, implying that player i is more likely to choose CC in the role

Table C.1: Predicted cooperation rates with social preferences.

	$\delta = 0.5$			$\delta = 0.75$		
	$c = 32$	$c = 40$	$c = 48$	$c = 32$	$c = 40$	$c = 48$
Predicted						
Sim	[0-30%]	[0-80%]	[0-100%]	[0-80%]	[0-100%]	[0-100%]
P2 Seq	30%	80%	100%	80%	100%	100%
P1 Seq	30%	80%	100%	80%	100%	100%
Seq	30%	80%	100%	80%	100%	100%
Observed						
Sim	2.7%	15.8%	51%	24.8%	78.5%	95.5%
P2 Seq	43.9%	72.5%	93.2%	83.3%	89.3%	95.4%
P1 Seq	9.5%	61.8%	95.3%	69.8%	89%	95%
Seq	7%	53.7%	92.1%	65.1%	84.4%	93%

Note: The table shows predicted cooperation rates and conditional cooperation rates (P2 Seq) under common knowledge if it is assumed that $\sigma_i = 0$ and $\rho_i \in (-0.13, 0.29)$ for 50% of the players, $\rho_i \in (-0.55, -0.13)$ for 20% of the players, and $\rho_i \in (0.29, 0.55)$ for 30% of the players. Cooperation rates observed in the first rounds of the last twenty repeated games of the experiment are included as well.

of first mover, the higher σ_i. The implication for the aggregate cooperation rate of first movers is that it will be between 0 and 1 depending on the distribution of σ_i and the game parameters.

Example

Take as an example the six parameterizations in the PD games in our experiment and consider the following distribution of 50% (near-)payoff-maximizing, 20% spiteful and 30% pro-social players: $\rho_i \in (-0.13, 0.29)$ for 50% of the players, $\rho_i \in (-0.55, -0.13)$ for 20% of the players, and $\rho_i \in (0.29, 0.55)$ for 30% of the players. With this distribution, the conditional cooperation rate of second movers would be equal to 0.30 in treatment $\delta = 0.5, c = 32$, to 0.80 in treatments $\delta = 0.75, c = 32$ and $\delta = 0.5, c = 40$, and to 1 in the three other treatments. Moreover, with this distribution an expected-payoff-maximizing first mover (i.e. with $\sigma_i = 0$) finds it optimal to choose AD in treatment $\delta = 0.5, c = 32$ and CC in all other treatments. To illustrate, Table C.1 gives an overview of predicted cooperation rates. As can be seen, comparative statics are much in line with the cooperation rates observed in the experiment. In particular, c and δ have a positive effect on the cooperation rate in Seq, and the conditional cooperation rate can be below 100% even if $\delta > \delta^*$. A major discrepancy left between predicted and observed cooperation rates is that the first mover cooperation rate is well below the second-mover conditional cooperation rate in treatment $\delta = 0.5, c = 32$. This is because the predictions do not take into account that, in the experiment, there is strategic uncertainty left for the first mover in Seq, related to not knowing the type of the second mover. If this is taken into account along the lines of solving (6), then the predicted first-mover cooperation rate would be 0.

D Representative Players versus Heterogeneity

We evaluate how likely it is that observed distributions of individual-level conditional cooperation and defection rates, as shown in Figure 4 of the main text, can stem from individuals making random choices with different probabilities in different treatments. To do so, we first compare observed distributions of first-round conditional cooperation rates with simulated *iid* distributions using the following procedure:

1. For each treatment, consider first the N subjects who encountered cooperation by the matched first mover in the role of second mover across $m_i > 0$ first rounds, where i is a subject-specific identifier. Let $M = \sum_{i=1}^{N} m_i$ be the total number of choices made by the N subjects in the treatment.

2. For each treatment, simulate $N \times M$ conditional cooperation choices by drawing from a binomial distribution characterized by a success probability (i.e. simulated conditional cooperation equal to 1) corresponding to the overall conditional cooperation rate observed in that treatment.

3. Calculate for subject 1 to N in each treatment the simulated conditional cooperation rate based on the simulated decisions obtained in step 2.

4. Run for each treatment an OLS regression without a constant term and with standard errors clustered at the matching group level of the observed conditional cooperation rate on the simulated conditional cooperation rate.

5. Test for each treatment using a Wald test whether the coefficient estimated in step 4 is statistically significantly different from 1 and store the test's p-value.

6. Repeat steps 2 to 5 200 times for each treatment.

Figure D.1 shows an example of individual-level simulated conditional cooperation rates obtained from the above-described procedure. The simulated rates in Figure D.1 can be easily compared to the observed rates in Figure 4. It can be seen that the distributions of the simulated rates are generally smoother than the respective distributions of the observed rates, with smaller differences in conditional cooperation rates across subjects under both $\delta < \delta^*$ and $\delta > \delta^*$.

If the coefficient estimated in step 5 is not statistically significantly different from 1, we can conclude that the observed conditional cooperation rates' distribution is not significantly different from the simulated one. Instead, if the estimated coefficient is statistically different from 1, then it can be concluded that the simulated distribution does not well approximate the observed distribution. Concerning defection rates observed in the first rounds, we follow the same procedure

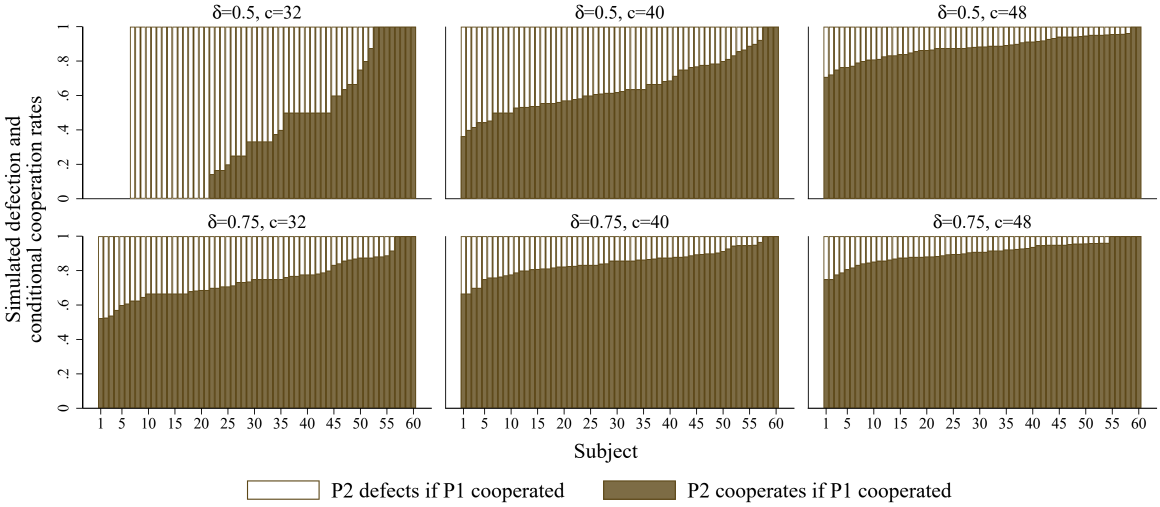


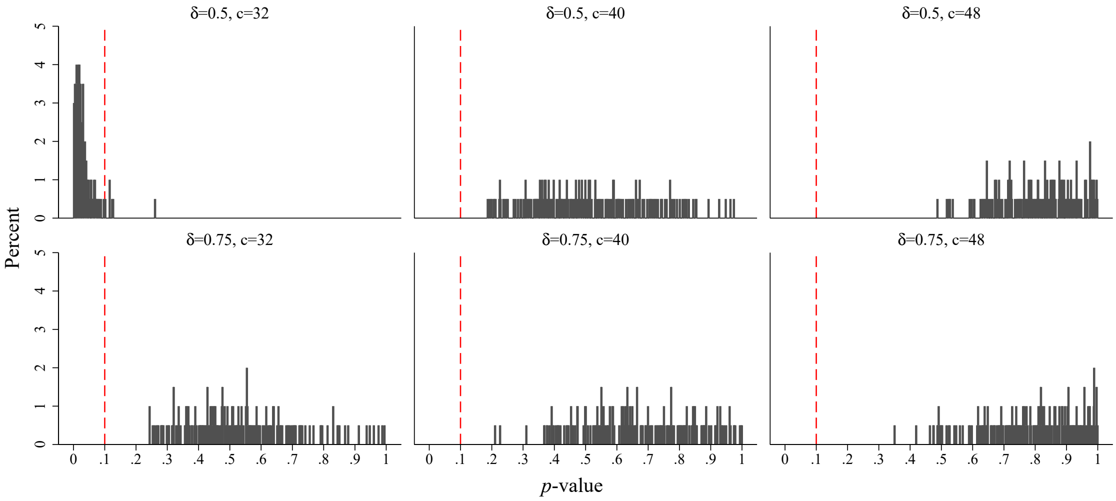
Figure D.1: Simulated conditional cooperation rates by subject.

Note: The figure illustrates distributions of simulated conditional cooperation rates obtained with the above-described procedure. Patterns tend to be stable across different simulations.

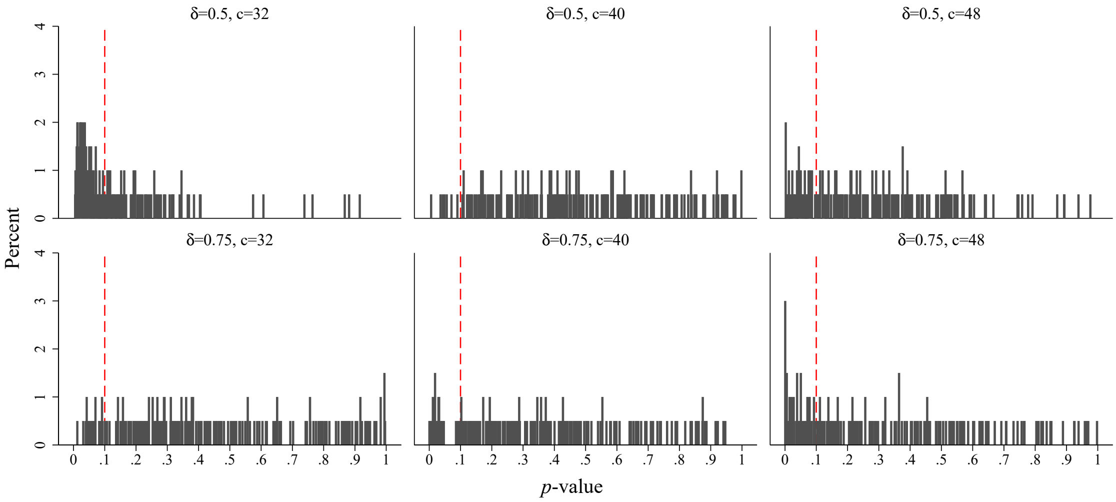
but replace conditional cooperation with defection. Figure D.2 reports for each treatment the distribution of the 200 p-values obtained from step 6 of the procedure.

We first focus on conditional cooperation rates. Figure D.2a shows that the distribution of p-values in $\delta = 0.5, c = 32$ is skewed towards values which are well below the 10% significance level. In particular, 97% of the p-values in our simulation is lower than 10%. This result implies that the observed distribution of conditional cooperation choices in $\delta = 0.5, c = 32$ is substantially different from the simulated distributions. We hereby confirm that consistent with a heterogeneity interpretation, the observed distribution of conditional cooperation choices in this treatment follows from a few subjects being highly motivated to conditionally cooperate rather than from many subjects randomizing. Instead, in the treatments with $\delta > \delta^*$, none of the p-values is below 10%. This result is consistent with a heterogeneity explanation because next to pro-social types also rational payoff maximizers have an incentive to conditionally cooperate if $\delta > \delta^*$.

Next, we consider defection rates. Figure D.2b shows that not just in treatment $\delta = 0.5, c = 32$ but also in treatments $\delta = 0.5, c = 48$, $\delta = 0.75, c = 40$ and $\delta = 0.75, c = 48$, a substantial proportion of the p-values in our simulation is now below 10%. The percentages are 18.5%, 16%, and 30.5%, respectively. We take this as additional evidence in favor of heterogeneity. The reason is that in these last three treatments, defection types can quite easily be separated from rational payoff maximizers and pro-social types. The result that much more than 10% of the p-values in these treatments is lower than 10% shows that defection choices in these treatments are not the outcome of randomization but are well-motivated decisions. In $\delta = 0.5, c = 40$,



(a) Conditional cooperation



(b) Defection

Figure D.2: Observed versus simulated *iid* choices of second movers.

Note: The figure reports distributions of p-values obtained from step 5 of the above-described procedure. Notice that the conditional cooperation rates used to simulate *iid* distributions in the six treatments are 0.40 in $\delta = 0.5, c = 32$, 0.64 in $\delta = 0.5, c = 40$, 0.89 in $\delta = 0.5, c = 40$, 0.78 in $\delta = 0.75, c = 32$, 0.85 in $\delta = 0.75, c = 40$, and 0.91 in $\delta = 0.75, c = 48$. The vertical dash lines highlight the 10% significance level.

$\delta = 0.75, c = 32$, in which behavior does not translate easily into types, the distribution of p-values is closer to uniform and defection types cannot be easily separated from other types.

E Estimation of Repeated-Game Strategies

E.1 General Description

We have used a framework that builds upon the assumption that players choose AD or CC at the start of the repeated game. By estimating the frequencies of repeated-game strategies that participants have used in our experiment, we provide evidence that the simplification is justified.[2] Theoretically, the threshold δ^* above which mutual cooperation is supported in a Nash equilibrium is different if other cooperative strategies than CC are used. For example, it can be shown that the first mover in Seq using the strategy "Defect in round 1 and then tit-for-tat" (D-TFT) in combination with the second mover applying "Cooperate in round 1 and then TFT" (C-TFT) or "Cooperate in round 1 and then GT" (C-GT) constitutes an equilibrium leading to mutual cooperation for the parameters in our experiment. In contrast, equivalent combinations of strategies in Sim can at best constitute an equilibrium with partial cooperation.[3]

The empirical identification of repeated-game strategies is notoriously challenging because the experimenter only observes choices. By using maximum likelihood, we estimate the relevance of a set of predetermined strategies within each treatment using an approach common in the literature (e.g. Dal Bó and Fréchette, 2011; Fudenberg, Rand and Dreber, 2012; Bigoni et al., 2015). See Section E.2 for a detailed description. In an initial step, we estimated strategies AD, GT, TFT, and *always cooperate* (AC) for all players, strategy D-TFT for players in Sim and first movers in Seq, and strategies C-TFT and C-GT for second movers in Seq. Given that the latter two strategies were estimated to have a frequency close to zero, we decided to leave them out and focus on the first five strategies.[4] Table E.1 reports the results for the treatment with $\delta < \delta^*$ and jointly for all treatments in which $\delta > \delta^*$. It is important to mention that heterogeneity in strategies across treatments with $\delta > \delta^*$ is quite substantial. Nevertheless, we decided to pool data from these treatments because this simplification is not crucial for our discussion.[5] Estimations are based on choices from all rounds of the last 20 repeated games. Results are qualitatively similar if based on all repeated games (see Table E.2).

The first observation that can be made in the table is that the estimated share of cooperative

[2] Romero and Rosokha (2018) and Dal Bó and Fréchette (2019) directly elicit strategies and show that these correspond to a large extent to the estimated strategies.

[3] The reason is that in Seq, there is no punishment of the first mover's initial defection so that from round 2 onwards both players cooperate. In Sim, the player using TFT punishes in round 2 the first-round defection by the partner by defecting oneself in round 2, which sets in a series of switching back and forth between cooperation and defection. To reach full cooperation against a player who uses D-TFT in Sim, one more round of patience is needed.

[4] We also estimated more complex strategies for players in Sim and first movers in Seq, including several memory-two strategies, but these exercises do not give us much additional insight.

[5] Estimates by treatment are available upon request.

Table E.1: Estimated repeated-game strategies.

	$\delta < \delta^*$			$\delta > \delta^*$		
	Sim	Seq, P1	Seq, P2	Sim	Seq, P1	Seq, P2
AD	0.727	0.404	0.588	0.336	0.073	0.111
	(0.000)	(0.046)	(0.000)	(0.033)	(0.202)	(0.088)
AC	0.000	0.015	0.000	0.028	0.059	0.000
	(0.366)	(0.332)	(0.481)	(0.294)	(0.310)	(0.500)
GT	0.000	0.001	0.247	0.296	0.222	0.328
	(0.366)	(0.471)	(0.057)	(0.036)	(0.136)	(0.063)
TFT	0.000	0.034	0.165	0.201	0.566	0.562
	(0.366)	(0.205)		(0.085)	(0.012)	
D-TFT	0.273	0.546	–	0.139	0.080	–
γ	0.262	0.350	0.234	0.351	0.312	0.356
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Coop. strat.	0.273	0.596	0.412	0.664	0.927	0.889

Note: The table shows estimates from maximum likelihood based on data from all rounds of the last 20 repeated games (with p-values in parentheses). Parameter $\gamma \in [0, \infty)$ captures the quality of fit between observed and prescribed behavior; the higher γ, the worse the fit. The share of cooperative strategies (coop. strat.) is equal to 1 minus the share of AD.

strategies of second movers out of all strategies in the game where $\delta < \delta^*$ is very close to the conditional cooperation rate based on all rounds of the last 20 repeated games (see Table F.4 in the Appendix). Likewise, for $\delta > \delta^*$ the estimated share is in the range of conditional cooperation rates reported for the five treatments in which $\delta > \delta^*$. These findings show that most of the cooperative strategies of second movers fall within the category of CC. A second observation is that in both Sim and Seq AD is overall used less frequently and (conditionally) cooperative strategies are used more frequently in the games with $\delta > \delta^*$ than in the game with $\delta < \delta^*$, which is consistent with the evidence on cooperation rates reported in the previous section.

If we focus on the effect of sequentiality on the type of strategies adopted, we see that cooperative strategies are generally used more frequently by first and second movers in Seq than by players in Sim. This finding does not come as a surprise for $\delta > \delta^*$ and is consistent with results reported on cooperation rates. However, for $\delta < \delta^*$ the finding is not trivial because the observed cooperation rate does not differ between Sim and Seq. Remarkably, the strategy most frequently used by first movers in the game where $\delta < \delta^*$ is D-TFT (54.6% of the time) instead of AD (40.4% of the time). This finding contrasts to Sim, where AD is more common than D-TFT (72.7% versus 27.3%).

Other insights from the estimations are related to strategies used within the set of conditionally cooperative strategies. Comparing the set of conditionally cooperative strategies between Sim and Seq reveals that different types of such strategies are used. Overall, TFT is more prominent in Seq than in Sim, among both first and second movers. In Sim, GT and TFT are roughly equally popular for $\delta > \delta^*$ and D-TFT is most common for $\delta < \delta^*$. In Seq, first movers tend to prefer D-TFT over TFT if $\delta < \delta^*$ and TFT over D-TFT if $\delta > \delta^*$. Second movers tend to use GT more frequently than TFT if $\delta < \delta^*$ (24.7% versus 16.5%) and swap if $\delta > \delta^*$ (32.8% versus 56.2%).

Table E.2: Estimated repeated-game strategies over all repeated games.

	$\delta < \delta^*$			$\delta > \delta^*$		
	Sim	Seq, P1	Seq, P2	Sim	Seq, P1	Seq, P2
AD	0.695	0.285	0.640	0.302	0.075	0.123
	(0.000)	(0.050)	(0.000)	(0.034)	(0.153)	(0.123)
AC	0.000	0.017	0.000	0.012	0.025	0.000
	(0.438)	(0.320)	(0.469)	(0.306)	(0.313)	(0.493)
GT	0.000	0.017	0.283	0.288	0.165	0.220
	(0.438)	(0.193)	(0.002)	(0.019)	(0.205)	(0.041)
TFT	0.000	0.017	0.077	0.251	0.615	0.657
	(0.438)	(0.192)		(0.033)	(0.002)	
D-TFT	0.305	0.665	–	0.146	0.121	–
γ	0.356	0.421	0.289	0.417	0.400	0.391
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Coop. strat.	0.305	0.715	0.360	0.698	0.925	0.877

Note: Estimates from maximum likelihood based on all rounds of all repeated games. p-values are in parentheses. The share of cooperative strategies (coop. strat.) is equal to 1 minus the share of AD.

E.2 Details about the Methodology

We provide a description of the Strategy Frequency Estimation Method (SFEM) proposed by Dal Bó and Fréchette (2011), which we use to estimate shares of repeated-game strategies. We postulate a strategy set $\mathcal{S}$ and assume that participants in the experiment could only choose their actions according to a strategy $s \in \mathcal{S}$. For each participant, the sequence of actions prescribed by all postulated strategies is contrasted to the sequence of actions observed in the experiment. To define a prescribed sequence of actions, the behavior of each participant's partner in the previous round in a repeated game (or the previous stage for second movers in Seq) is taken as given. The maximum likelihood estimation takes into account that, in each round, participants might make a mental error in the implementation of their strategy, thereby deviating from the prescribed action.

More precisely, let $d^i_{gt}(\mathbf{h})$ and $s^i_{gt}(\mathbf{h})$ be respectively participant i's observed action and participant i's action as prescribed by strategy s in round t of repeated game g for a given history $\mathbf{h}$. In any round, the probability that the observed action is equal to the prescribed one is modeled as follows:

$$\Pr\left(d^i_{gt}(\mathbf{h}) = s^i_{gt}(\mathbf{h})\right) = \frac{1}{1 + \exp\left(\frac{-1}{\gamma}\right)} \equiv \beta. \tag{7}$$

Thus, $1-\beta$ can be interpreted as the probability of making a mental error. The parameter $\gamma > 0$, which is to be estimated, captures the quality of fit between observed and prescribed behavior.

As $\gamma \to 0$, $\beta \to 1$, implying that the action prescribed by strategy s fits the experimental observation perfectly. Conversely, as $\gamma \to \infty$, $\beta \to 0.5$, i.e., a random draw fits perfectly the experimental observation. Starting from the comparison between observed and prescribed actions in each round (Equation 7), we can extend the comparison to all rounds of interest. Let y^i_{gt} be an indicator equal to 1 if prescribed and observed actions coincide, and 0 otherwise. Given Equation 7, the likelihood of observing strategy s for participant i is

$$p_i(s) = \prod_g \prod_t \left(\frac{1}{1+\exp\left(\frac{-1}{\gamma}\right)} \right)^{y^i_{gt}} \left(\frac{1}{1+\exp\left(\frac{1}{\gamma}\right)} \right)^{1-y^i_{gt}} . \tag{8}$$

Finally, we aggregate at the population level and obtain the log-likelihood $\sum_i \ln(\sum_s \phi_s p_i(s))$, with ϕ_s representing the frequency of strategy s in the experimental data. Maximum likelihood allows to estimate both parameters γ and ϕ_s.

F Supplementary Tables

Table F.1: Cooperation rates by treatment.

		Round 1					All rounds				
		$c = 32$		$c = 40$		$c = 48$	$c = 32$		$c = 40$		$c = 48$
Repeated games 1 to 50											
	Sim	6.2	$\lll$	29.1	$\ll$	55.4	6.1	$\lll$	23.9	$\lll$	46.5
		(0.7)		(7.6)		(8.7)	(0.3)		(4.6)		(7.5)
$\delta = 0.5$		$\wr$		$\wr$		$\rotatebox{-90}{$\lll$}$	$\wr$		$\rotatebox{-90}{$\lll$}$		$\rotatebox{-90}{$\lll$}$
	Seq	10.0	$\lll$	44.1	$\lll$	83.0	8.9	$\lll$	41.9	$\lll$	81.6
		(3.0)		(5.6)		(5.4)	(2.6)		(4.9)		(5.2)
	Sim	22.3	$\lll$	72.4	$\ll$	91.9	14.7	$\lll$	59.0	$\ll$	81.3
		(10.2)		(10.7)		(3.3)	(6.4)		(7.6)		(4.7)
$\delta = 0.75$		$\rotatebox{-90}{$\ll$}$		$\wr$		$\wr$	$\rotatebox{-90}{$\lll$}$		$\wr$		$\wr$
	Seq	57.5	$\ll$	77.5	$\approx$	86.0	47.0	$\lll$	69.4	$<$	81.5
		(9.0)		(3.8)		(4.0)	(6.8)		(4.8)		(4.1)
Repeated games 31 to 50											
	Sim	2.7	$\lll$	15.8	$\lll$	51.0	2.6	$\lll$	12.8	$\lll$	43.5
		(1.8)		(3.9)		(8.1)	(1.4)		(1.1)		(5.0)
$\delta = 0.5$		$\wr$		$\rotatebox{-90}{$\lll$}$		$\rotatebox{-90}{$\lll$}$	$\wr$		$\rotatebox{-90}{$\lll$}$		$\rotatebox{-90}{$\lll$}$
	Seq	7.0	$\lll$	53.7	$\lll$	92.1	6.3	$\lll$	48.5	$\lll$	88.2
		(3.0)		(8.2)		(2.8)	(2.3)		(6.5)		(3.7)
	Sim	24.8	$\lll$	78.5	$\approx$	95.5	16.8	$\lll$	66.4	$<$	86.5
		(11.0)		(12.7)		(3.6)	(8.0)		(11.8)		(4.9)
$\delta = 0.75$		$\rotatebox{-90}{$\ll$}$		$\wr$		$\wr$	$\rotatebox{-90}{$\ll$}$		$\wr$		$\wr$
	Seq	65.1	$<$	84.4	$\approx$	93.0	46.9	$\ll$	74.1	$\ll$	89.1
		(10.3)		(5.1)		(3.7)	(7.8)		(6.5)		(4.0)

Note: The unit of observation is a participant in a round. Differences between treatments are tested using probit regressions with standard errors clustered at the matching group level (in parentheses). $<$, $\ll$, and $\lll$ refer to $p < 0.1$, $p < 0.05$. and $p < 0.01$, respectively.

Table F.2: Cooperation rate by treatment including individual-level controls.

		Round 1					All rounds				
		$c=32$		$c=40$		$c=48$	$c=32$		$c=40$		$c=48$
Repeated games 1 to 50											
	Sim	6.5	$\ll$	30.8	$\lll$	55.7	6.3	$\ll$	25.6	$\lll$	46.6
		(2.7)		(6.8)		(10.5)	(2.2)		(5.3)		(10.0)
$\delta = 0.5$		$\wr$		$\wr$		$\wr$	$\wr$		$\wedge\wedge$		$\wedge\wedge$
	Seq	10.1	$\lll$	46.4	$\lll$	82.9	8.9	$\lll$	44.1	$\lll$	81.5
		(3.8)		(7.9)		(6.6)	(3.2)		(7.4)		(6.5)
	Sim	22.4	$\lll$	75.6	$\lll$	91.6	14.8	$\lll$	61.7	$\lll$	81.1
		(8.5)		(10.3)		(6.6)	(5.7)		(7.8)		(7.3)
$\delta = 0.75$		$\wedge\wedge\wedge$		$\wr$		$\vee\vee\vee$	$\wedge\wedge\wedge$		$\wr$		$\wr$
	Seq	57.6	$\ll$	79.4	$\ll$	86.0	47.0	$\lll$	70.8	$\ll$	81.5
		(8.5)		(5.9)		(4.5)	(7.5)		(7.0)		(4.4)
Repeated games 31 to 50											
	Sim	2.6	$<$	17.7	$\lll$	51.2	2.6	$<$	14.8	$\lll$	43.7
		(1.2)		(6.6)		(10.6)	(1.2)		(4.0)		(9.2)
$\delta = 0.5$		$\vee\vee$		$\wedge\wedge\wedge$		$\wedge\wedge\wedge$	$\vee$		$\wedge\wedge\wedge$		$\wedge\wedge\wedge$
	Seq	7.1	$\lll$	56.3	$\lll$	91.8	6.3	$\lll$	51.4	$\lll$	88.1
		(3.8)		(10.4)		(4.2)	(3.0)		(8.9)		(5.0)
	Sim	25.2	$\lll$	80.9	$<$	94.9	17.1	$\lll$	68.3	$\lll$	86.1
		(11.3)		(9.8)		(6.2)	(7.8)		(7.7)		(6.7)
$\delta = 0.75$		$\wedge\wedge\wedge$		$\wr$		$\vee\vee\vee$	$\wedge\wedge\wedge$		$\wr$		$\wr$
	Seq	65.2	$\approx$	86.5	$\approx$	93.0	46.9	$\ll$	75.7	$<$	89.1
		(11.3)		(8.0)		(4.3)	(9.2)		(9.4)		(4.4)

Note: The unit of observation is a participant in a round. Differences between treatments are tested using probit regressions with standard errors clustered at the matching group level (in parentheses) and including individual-level controls for other-regarding preferences, risk preferences, proneness to mistakes and experienced length of repeated games. Other-regarding preferences are proxied by a pro-sociality indicator taking value 1 if the participant chooses an equal distribution in a dictator game with the same parameters of the stage-game PD, and value 0 if (s)he chooses the selfish option (see also Section A). Risk preferences are proxied by a continuous variable ranging from 1=very risk averse to 6=very risk seeking elicited through self-reports. Proneness to mistakes is proxied by a continuous variable counting the number of times that the participant submitted answers that had at least one mistake in the quiz with control questions ran before the experiment started. Experienced length of repeated games is measured by taking the difference between expected and median realized length of the first ten repeated games. $<$, $\ll$, and $\lll$ refer to $p < 0.1$, $p < 0.05$. and $p < 0.01$, respectively.

Table F.3: Cooperation rate by treatment including data from Dal Bó and Fréchette (2011).

			Round 1					All rounds				
			$c = 32$		$c = 40$		$c = 48$	$c = 32$		$c = 40$		$c = 48$
Repeated games 1 to 50												
		Sim	8.8	$\lll$	22.3	$\lll$	43.5	8.1	$\lll$	19.6	$\lll$	38.5
			(1.6)		(4.5)		(5.8)	(1.8)		(2.7)		(4.4)
	$\delta = 0.5$		$\wr$		$\rotatebox{-90}{$\lll$}$		$\rotatebox{-90}{$\lll$}$	$\wr$		$\rotatebox{-90}{$\lll$}$		$\rotatebox{-90}{$\lll$}$
		Seq	10.0	$\lll$	44.1	$\lll$	83.0	8.9	$\lll$	41.9	$\lll$	81.6
			(3.0)		(5.6)		(5.4)	(2.6)		(4.9)		(5.2)
		Sim	23.9	$\lll$	67.1	$\lll$	88.6	17.6	$\lll$	58.9	$\lll$	78.8
			(5.3)		(9.2)		(2.5)	(3.4)		(6.1)		(3.3)
	$\delta = 0.75$		$\rotatebox{-90}{$\lll$}$		$\wr$		$\wr$	$\rotatebox{-90}{$\lll$}$		$\wr$		$\wr$
		Seq	57.5	$\ll$	77.5	$\approx$	86.0	47.0	$\lll$	69.4	$<$	81.5
			(9.0)		(3.8)		(4.0)	(6.8)		(4.8)		(4.1)
Repeated games 31 to 50												
		Sim	4.4	$\lll$	17.1	$\lll$	41.4	3.9	$\lll$	16.3	$\lll$	36.9
			(1.5)		(3.2)		(6.6)	(1.5)		(2.5)		(4.6)
	$\delta = 0.5$		$\wr$		$\rotatebox{-90}{$\lll$}$		$\rotatebox{-90}{$\lll$}$	$\wr$		$\rotatebox{-90}{$\lll$}$		$\rotatebox{-90}{$\lll$}$
		Seq	7.0	$\lll$	53.7	$\lll$	92.1	6.3	$\lll$	48.5	$\lll$	88.2
			(3.0)		(8.2)		(2.8)	(2.3)		(6.5)		(3.7)
		Sim	24.5	$\lll$	71.0	$\ll$	96.1	16.2	$\lll$	65.3	$\ll$	88.3
			(9.9)		(11.5)		(3.0)	(7.0)		(8.9)		(4.2)
	$\delta = 0.75$		$\rotatebox{-90}{$\ll$}$		$\wr$		$\wr$	$\rotatebox{-90}{$\lll$}$		$\wr$		$\wr$
		Seq	65.1	$<$	84.4	$\approx$	93.0	46.9	$\ll$	74.1	$\ll$	89.1
			(10.3)		(5.1)		(3.7)	(7.8)		(6.5)		(4.0)

Note: Data on Sim include data from the first up to 50 repeated games played in the experiment of Dal Bó and Fréchette (2011). Differences between treatments are tested using probit regressions with standard errors clustered at the matching group level (in parentheses). $<$, $\ll$, and $\lll$ refer to $p < 0.1$, $p < 0.05$. and $p < 0.01$, respectively.

Table F.4: Cooperation rates in Seq by role and treatment.

		Round 1					All rounds				
		$c = 32$		$c = 40$		$c = 48$	$c = 32$		$c = 40$		$c = 48$
Repeated games 1 to 50											
	$\delta = 0.5$	13.2	⋘	52.4	⋘	87.2	12.2	⋘	47.7	⋘	84.8
		(3.6)		(5.2)		(5.0)	(3.2)		(4.9)		(4.6)
P1		⤊		⤊		≀	⤊		⤊		≀
	$\delta = 0.75$	63.1	≪	83.1	≈	89.7	50.0	⋘	72.3	<	83.5
		(8.6)		(3.2)		(3.3)	(7.1)		(4.6)		(3.9)
	$\delta = 0.5$	39.9	≪	64.1	⋘	88.9	37.2	⋘	71.6	⋘	90.9
		(9.0)		(5.2)		(3.2)	(6.9)		(3.7)		(2.8)
P2		⤊		⤊		≀	⤊		⤊		≀
	$\delta = 0.75$	78.0	≈	85.2	≈	90.6	81.2	⋘	90.9	≈	93.9
		(5.2)		(2.6)		(2.6)	(1.8)		(1.6)		(1.4)
Repeated games 31 to 50											
	$\delta = 0.5$	9.5	⋘	61.8	⋘	95.3	9.1	⋘	53.9	⋘	90.6
		(3.7)		(8.2)		(2.3)	(3.0)		(6.7)		(3.0)
P1		⤊		⤊		≀	⤊		⇈		≀
	$\delta = 0.75$	69.8	≪	89.0	≈	95.0	49.7	≪	76.3	≪	90.8
		(10.1)		(4.0)		(3.2)	(8.2)		(6.3)		(3.7)
	$\delta = 0.5$	43.9	≪	72.5	⋘	93.2	35.8	⋘	78.4	⋘	94.0
		(11.1)		(4.1)		(2.6)	(7.6)		(2.5)		(2.3)
P2		⤊		⤊		≀	⤊		⤊		≀
	$\delta = 0.75$	83.3	≈	89.3	<	95.4	82.4	⋘	93.3	≈	95.6
		(4.5)		(3.2)		(1.7)	(1.4)		(1.2)		(1.4)

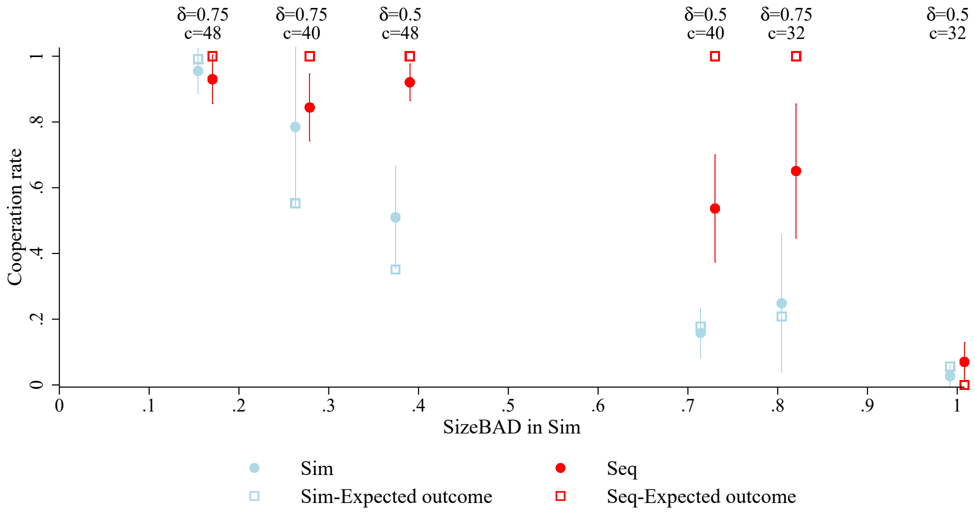
Note: For first movers (P1) cooperation rates are reported and for second movers (P2) conditional cooperation rates are reported. Differences between treatments are tested using probit regressions with standard errors clustered at the matching group level (in parentheses). In round 1 of repeated game 50 standard errors could not be computed for P1 in $\delta = 0.5, c = 48$ nor for P2 in $\delta = 0.75, c = 32$ because of perfect fit. $<$, $\ll$, and $\lll$ refer to $p < 0.1$, $p < 0.05$. and $p < 0.01$, respectively.

Table F.5: Effect of c and δ on cooperation under $\delta > \delta^*$.

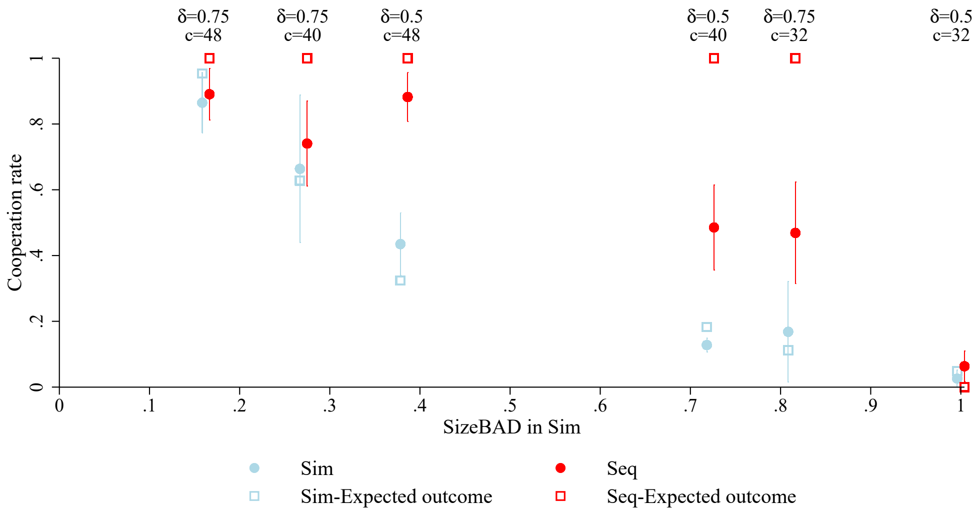
	Round 1		All rounds	
	(1) Sim	(2) Seq	(3) Sim	(4) Seq
c	0.041***	0.022***	0.038***	0.031***
	(0.000)	(0.000)	(0.000)	(0.000)
δ	0.438***	0.168**	0.347***	0.131*
	(0.000)	(0.010)	(0.000)	(0.067)
Observations	3000	6000	9480	21120

Note: The table reports marginal effects from probit regressions with standard errors clustered at the matching group level. The variable δ is a dummy taking value 1 when $\delta = 0.75$, and 0 otherwise. The variable c is a continuous variable ranging from 32 to 48. Data are based on the last 20 repeated games of the treatments with $\delta > \delta^*$. p-values are in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

G Supplementary Figures



(a) Round 1



(b) All rounds

Figure G.1: Cooperation rates with expected outcomes.

Note: The graphs show cooperation rates and 95% confidence intervals across the last 20 repeated games depending on the SizeBAD (including treatment labels and expected outcomes). Estimates and confidence intervals are based on predictions from probit regressions ran on treatment dummy with clustered standard errors at the matching group level. In Sim expected outcomes are calculated as the cooperation rates in Dal Bó and Fréchette (2011) using data from repeated game 31 to the highest available repeated game smaller or equal to 50.

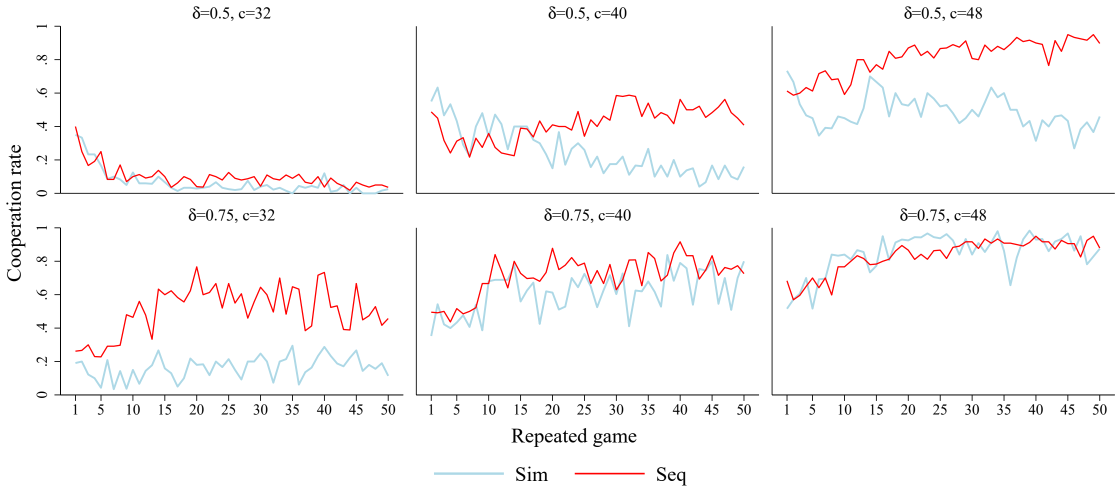
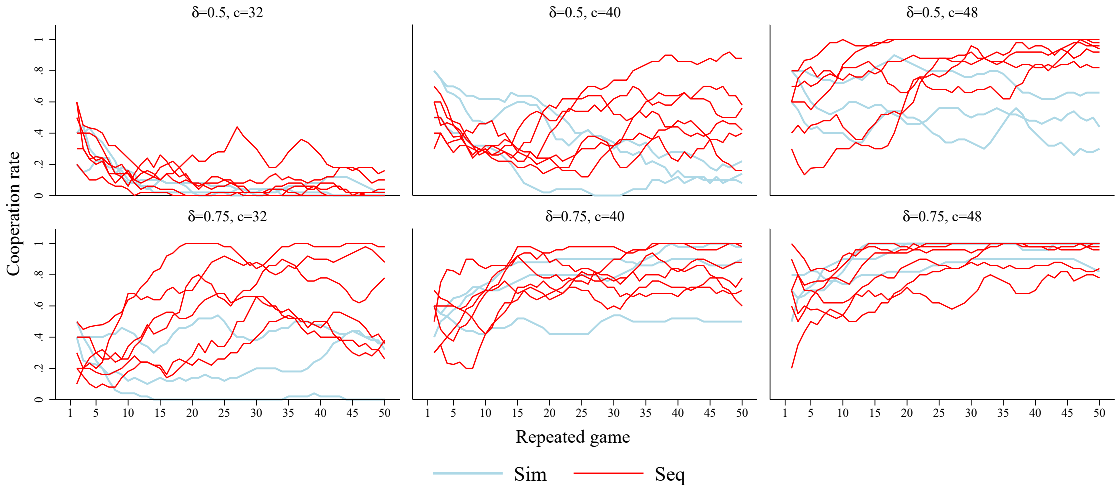
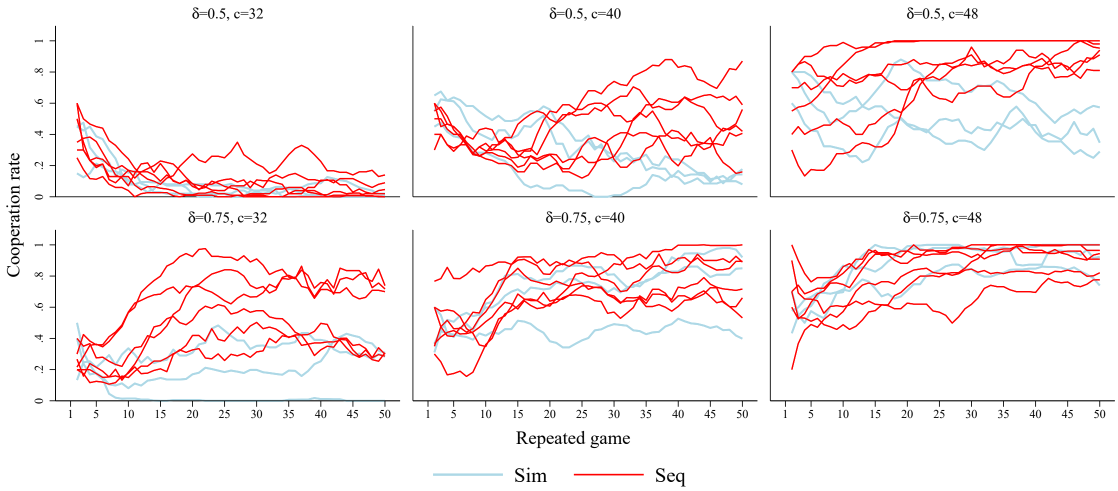


Figure G.2: Evolution of cooperation rates–All rounds.

Note: The graphs show cooperation rates across repeated games by treatment. The unit of observation is a participant's decision in a round.



(a) Round 1



(b) All rounds

Figure G.3: Evolution of cooperation rates by matching group.

Note: The graphs show five-repeated game moving averages of cooperation rate by repeated game and by treatment. Each line depicts a matching group. The unit of observation is a participant's decision in a round.

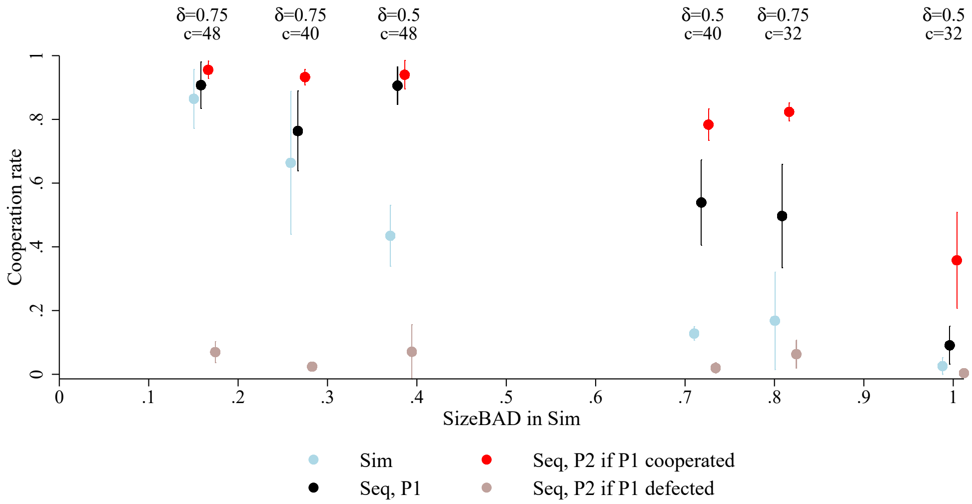
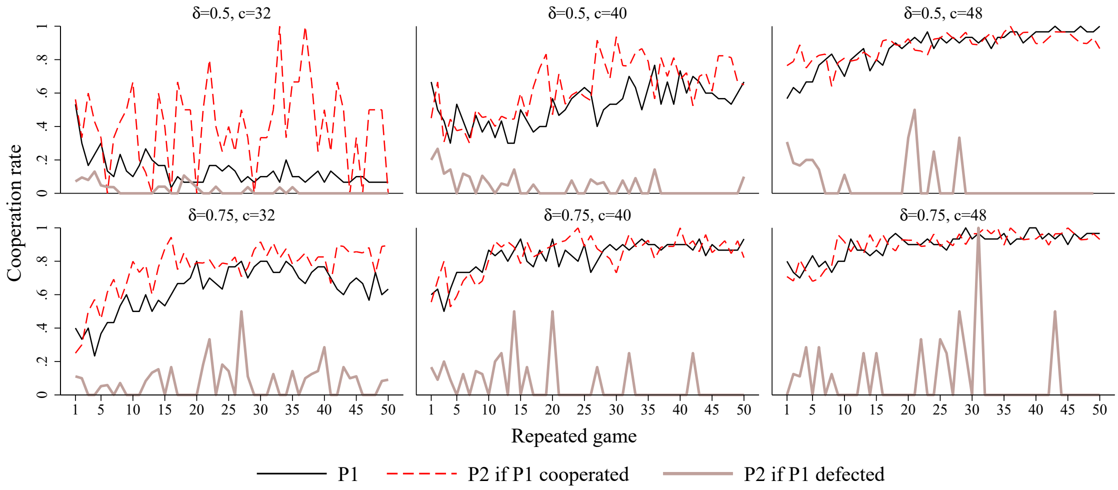
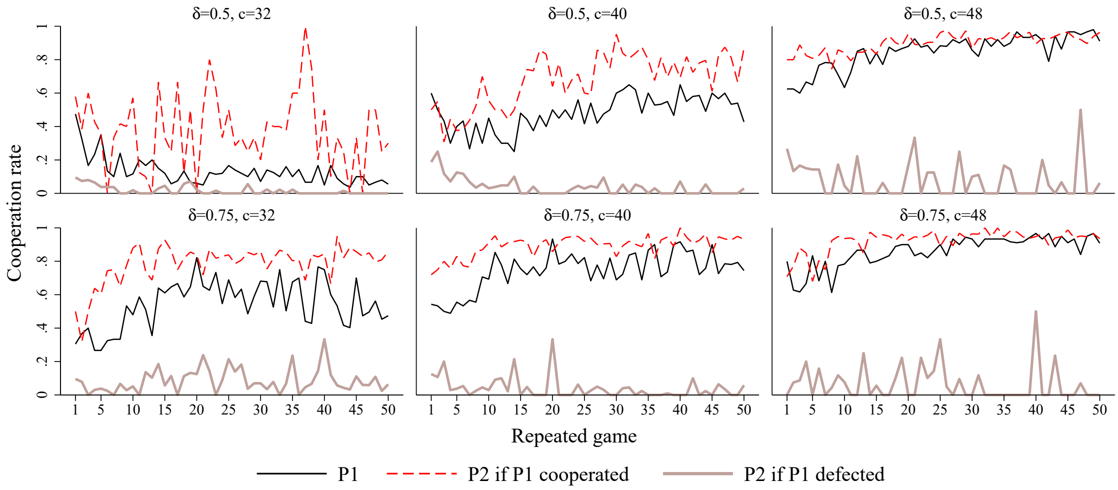


Figure G.4: Cooperation rates by role–All rounds.

Note: The graph shows cooperation rates of P1, cooperation rates of P2 conditional on P1 defecting or cooperating, and cooperation rates in Sim, and 95% confidence intervals, across the last 20 repeated games depending on the SizeBAD (including treatment labels). Estimates and confidence intervals are based on predictions from probit regressions ran on treatment-role dummies with clustered standard errors at the matching group level.



(a) Round 1



(b) All rounds

Figure G.5: Evolution of cooperation rates in Seq by role.

Note: The graphs show cooperation rates across repeated games by role and treatment.

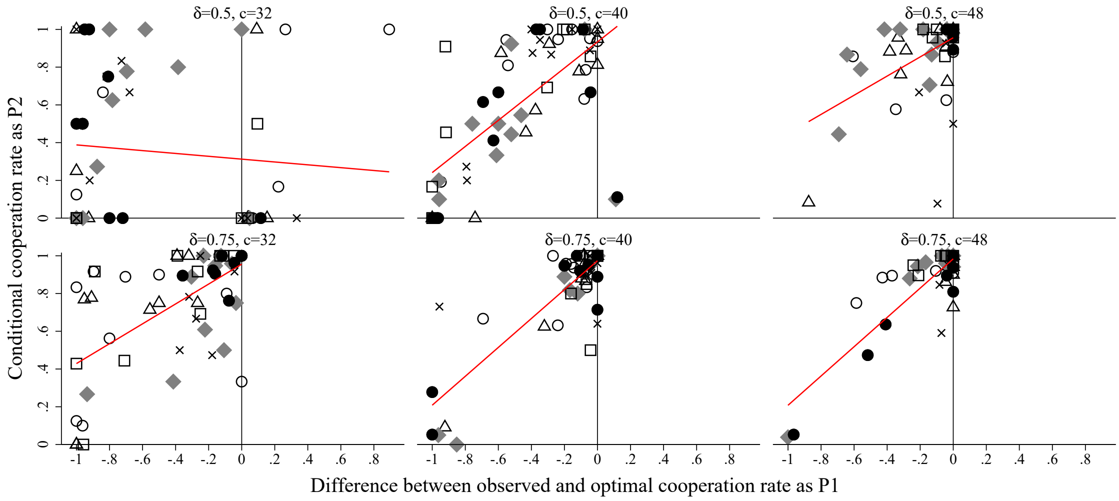


Figure G.6: Cooperation as first and second mover by subject.

Note: The graphs show the conditional cooperation rate in the role of second mover across first rounds as a function of the difference between the first-round cooperation rate in the role of first mover and the first-mover optimal cooperation rate. The first-mover optimal cooperation is equal to 1 if the expected payoff from the cooperative strategy is greater or equal to the expected payoff from the defection strategy given the encountered conditional cooperation rate. In $\delta = 0.5, c = 32$ 6 second movers never encountered cooperation by the first mover, and the remaining 54 second movers encountered cooperation by the first mover 1 to 12 times with a median of 3. In the other treatments, all second movers encountered cooperation by the first mover at least 4 times with the median ranging between 12.5 and 22 across the 5 treatments.

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