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Reconciling Pro-Social vs. Selfish Behavior: Evidence for the Role of Self-Control

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Abstract

Reconciling Pro-Social vs. Selfish Behavior: Evidence for the Role of Self-Control

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We test the proposition that individuals may experience a self-control conflict between short-term temptation to be selfish and better judgment to act pro-socially. Using a dictator game and a public goods game, we manipulated the likelihood that individuals identified self-control conflict, and we measured their trait ability to implement self-control strategies. Consistent with our hypothesis, we find that trait self-control exhibits a positive and significant correlation with pro-social behavior in the treatment that raises likelihood of conflict identification, but not in the treatment that reduces likelihood of conflict identification.

Keywords: self-control, pro-social behavior, altruism, experiment

JEL Classification: D01, D03, D64, D70

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Lured by temptation, individuals may find themselves acting against their better judgment. Self-control failure, famously termed "akrasia" in Plato's Protagoras (Plato, 1986/B.C. 380), represents a central issue of both philosophy and modern-day social sciences. Problems of self-control persist throughout domains of our daily life.[1] For example, the dieter faced with the opportunity to indulge in a delicious creamy cake may perceive a conflict between indulging and maintaining a good figure. The student may feel conflicted between the desire to go to the cinema and her better judgment to stay home and study (e.g., O'Donoghue and Rabin, 1999; Burger *et al.*, 2009). And, similarly, the fashionista might feel conflicted between the temptation to purchase new boots and her better judgment to maintain a responsible budget.

Perhaps less intuitively, but no less importantly, the question of pro-social versus selfish behavior may be understood in similar terms. This conceptualization may help reconcile conflicting notions in economics of the selfish Homo Economicus and the pro-social Homo Behavorialis. That individuals should care much about their own self-interest seems almost tautological and requires little further exposition, but that individuals also should care about the interests of others – even at the expense of those of their own – has attracted significant interest (for an overview on social preference see e.g., Fehr and Schmidt, 2006).[2] For example, many individuals voluntarily contribute to charity or to public goods (e.g., recycling), and they pay their taxes even though economic theory expects them not to, given low likelihood of punishment.[3] Nonetheless, one could imagine that even individuals of pro-social inclination on occasion may feel tempted to act selfishly and hence underreport income to the authorities. That is, pro-social preferences potentially fly in the face of basic urges for personal gain – or greed – and the individual may thus experience a self-control conflict between better judgment to act pro-socially and temptation to act selfishly.

Only recently has the psychological literature started to explore how the question of pro-social versus selfish behavior relates to that of self-control. Loewenstein (1996; 2000) suggests that selfish behavior may be motivated by visceral urges or drive-states, resembling cravings for relief of hunger, pain, and sexual deprivation. O'Donaghue and Loewenstein (2007) argue that

[1] For work on self-control and time inconsistency, see e.g., hyperbolic and quasi-hyperbolic discounting models by Strotz (1955) and Laibson (1997), the "planner-doer" model by Thaler and Shefrin (1981), and the dual-self model by Fudenberg and Levine (2006).
[2] For pioneering work in this area see e.g., Kahneman *et al.*, (1986a; 1986b).
[3] There exists an extensive literature on the motivation behind pro-social behavior. For example, Bénabou and Tirole (2006) classify the motivations into three broad categories: intrinsic, extrinsic and image motivation, and a similar classification is found in Ariely *et al.* (2009)

such selfish urges often may conflict with the "colder," more abstract preferences for altruism, as visceral urges for sweets could conflict with more abstract preferences for a fine figure or good health. At present, there is but preliminary evidence for this idea. Most notably, Pronin *et al.* (2008) show that decisions about others resemble decisions about "future selves," both classes of which contrast to decisions about less abstract "present selves." Moreover, Curry *et al.* (2008) find in a standard public goods game that individuals' discount rates are negatively associated with their contribution to the public good. That is, more "impatient" individuals contributed less to the public good than did "patient" ones. While indeed supportive of the hypothesis that the question of pro-social versus selfish behavior may represent a problem of self-control, existing empirical evidence is not conclusive.

In this paper we attempt a direct test of the hypothesis that pro-social versus selfish behavior may represent a self-control problem. In so doing, we rely on two conditions necessary for successfully exercising restraint in the face of temptation; Myrseth and Fishbach (2009) propose a two-stage model of self-control, which postulates that an individual in the face of temptation first identifies conflict or not between indulging and pursuing a higher-order goal and, second, that the individual next employs self-control strategies only if conflict was identified at the first stage (see Figure 1). Such self-control strategies may take a variety of forms, and common examples include willpower (e.g., Baumeister *et al.*, 1994), and pre-commitment (Thaler and Shefrin, 1981; Schelling, 1984). Critically, self-control strategies are relevant to the decision to indulge only when the individual has identified self-control conflict. Therefore, one strategy for investigating whether the problem of pro-social versus selfish behavior resembles one of self-control is to test whether self-control strategies are positively associated with pro-social behavior when individuals have identified self-control conflict, but less so or not at all when individuals have not.

(Figure 1)

Determinants of conflict identification in the face of temptation have been explored only recently. In some contexts, the question is almost trivial and identification of conflict virtually obvious. For example, the diabetic dieter probably knows that having even a single, tempting chocolate may incur major costs. However, the question of self-control conflict is more

ambiguous for the non-diabetic dieter who faces the same chocolate. Having this one chocolate alone will not incur major costs, but doing so regularly might. Similarly, the good citizen may find that not reporting his annual income would represent a major threat to his self-image (and possibly also to his criminal record), but failing to report but a few small windfalls is a more ambiguous matter. Myrseth and Fishbach (2010) use the term epsilon cost temptation to denote tempting opportunities that incur nothing but trivial costs when consumed in small amounts but potentially serious costs when consumed extensively. They argue that individuals identify self-control conflict in the face of epsilon cost temptation if and only if two conditions are met: (a) the focal consumption opportunity must be viewed in relation to multiple additional opportunities, and (b) the decision maker must assume that similar choices are made for each opportunity. That is, considering the question of whether or not to have a delicious creamy cake will evoke self-control conflict in the dieter if the dining opportunity is viewed in relation to future opportunities for dessert consumption, but not if the dining opportunity is viewed in isolation, as a singular episode. Similarly, the question of whether or not to withhold from the tax authorities a few small amounts may elicit self-control conflict in the good citizen if the income reporting is viewed in relation to future reports, but not if the reporting is viewed in isolation.

Myrseth and Fishbach (2010) show that subtle framing manipulations are sufficient to influence identification of self-control conflict in the face of epsilon cost temptation. They find that presenting a calendar displaying the current month with a grid separating the dates increased participants' subsequent consumption of potato chips compared to participants whom were presented a non-gridded calendar of the current month. The reason for this, they argue, is that the gridded calendar activated an isolated (versus interrelated) frame of the choice opportunity; it made participants more likely to isolate the date in question and thus less likely to see the decision task in relation to similar future opportunities. Consequently, the grid reduced the likelihood that participants would identify a conflict between the temptation to have chips and long-term health or dieting goals. Indeed, participants who were viewing the gridded calendar reported that they experienced less conflict during their decision to have chips or not than did those who were viewing the non-gridded calendar.[4] Furthermore, participants' trait ability to

[4] Experienced conflict was assessed by averaging participants' answers to two questions: (1) to what extent they felt mixed feelings when deciding whether or not to have more potato chips, and (2) to what extent they felt conflicted when deciding whether or not to have more chips. The questions were posed immediately after participants finished consuming potato chips.

implement self-control strategies, measured by Rosenbaum's (1980) psychometric scale,[5] positively predicted chips consumption for those who were viewing the calendar without the grid (and who identified conflict) but not for others who were viewing the calendar with (and who were less likely to identify conflict). That is, participants who viewed the calendar without the grid, more likely than those who viewed the calendar with, identified self-control conflict and therefore leveraged their self-control strategies to resist the tempting chips.

To explore our hypothesis that the problem of pro-social versus selfish behavior may represent one of self-control, we have applied the empirical strategy from Myrseth and Fishbach (2010) in two classic experimental games: the dictator game and the public goods game. These games pit pro-social behavior against self-interest. If pro-social versus selfish behavior could represent a self-control conflict, we would expect participants' trait self-control, as measured by Rosenbaum's (1980) scale, to positively predict pro-social behavior for participants who had just previously viewed a calendar without a grid, but less so or not at all for participants who had viewed a calendar with.

I. Experimental Design

A. Experimental Treatments

In both dictator game and public goods game, we employed three between-subjects treatments – the isolated frame, the standard frame, and the interrelated frame. The isolated and interrelated frames were manipulated with the procedure from Myrseth and Fishbach (2010). Participants viewed a calendar showing the present month, and the calendar contained either a grid that separated the dates or no such grid (see Appendix A). Moreover, the date of the experiment was highlighted in grey in the gridded calendar, but not in the non-gridded calendar. Because we expected participants who viewed the gridded calendar to adopt a more isolated view of their subsequent choice opportunities, we refer to this treatment as the isolated treatment. Conversely, because we expected participants who viewed the calendar with no grid to adopt a less isolated frame, whereby the choice opportunities would be viewed relatively more related to each other, we refer to this as the interrelated treatment. We denote the third treatment, without a calendar, as the standard treatment.

[5] The Rosenbaum scale is further discussed in the Experimental Design section. Also see Appendix C.

To capture individuals' self-control, we used the Rosenbaum Self-Control Schedule (Rosenbaum, 1980). The psychometric scale measures individuals' cognitive skills for exercising self-control in the face of temptation. Each participant is asked to respond to 36 statements using a 6-point Likert-scale.[6] Cognitive skills, such as willpower, have been found to be relatively stable within individuals across time, and thus may be said to represent a personality trait, which we refer to as trait self-control. The Rosenbaum Self-Control Schedule has been externally validated against several criteria, such as coping with seasickness (Rosenbaum and Rolnick, 1983) and saving versus spending (Romal and Kaplan, 1995). Henceforth, we refer the outcome of the Rosenbaum Self-Control Schedule only as the Rosenbaum score.

We expect pro-social behavior to depend on the interaction between identification of self-control conflict (induced by the treatments) and success at the conflict stage (see Figure 1). The isolated treatment yields a lower probability of conflict identification relative to that of other treatments. Hence, trait self-control as measured by the Rosenbaum score is expected to exhibit a weaker correlation with pro-social behavior. In contrast, the interrelated treatment yields a higher probability of conflict identification. Hence, trait self-control is expected to exhibit a stronger positive correlation with pro-social behavior.

B. Games

We recruited participants from various undergraduate and graduate classes at three universities in Medellín, Colombia, 2008. For the dictator game, we held six sessions with 18-31 participants per session. Individuals were randomly assigned within a session to one of the three treatments. In the public good game, we held six sessions, two for each of the experimental treatments, with 24-28 participants per session. Individuals were randomly assigned to sessions and thus to treatments. Nobody participated in more than one experimental session, and none were students of mathematics, psychology, or economics.

[6] Each statement is graded from -3 to +3. Thus, "perfect" self-control corresponds to +108 and no self-control at all to -108. See appendix B.

Dictator Game

We employed a standard dictator game, designating the Colombian Red Cross as recipient (e.g., similar to Eckel and Grossman, 1996). Treatments were randomized within sessions.

The experiment was conducted as follows. For a given session, the experimenter first distributed instructions to participants. Subsequently, the experimenter distributed answer sheets. For the isolated and interrelated treatments, the first page of the answer sheets contained a calendar that displayed the current month. For the standard treatment, however, there was no calendar. Thus, participants in the isolated and interrelated frames were subjected to the calendar manipulation immediately prior to making their allocation decisions. The experimenter then collected the answer sheets and distributed a questionnaire that contained the Rosenbaum Self-Control Schedule. Finally, participants indicated their demographics, and the session closed.

A session lasted up to an hour. Average session earnings were 13,000 Colombian pesos (including a 5,000 peso show-up fee).[7] A receipt of the donations was posted on a bulletin board within five days of the completed session in the building adjacent to that in which the experiment was conducted.[8]

Public Goods Game

We employed a standard linear public goods experiment. Each group consisted of four members. Each member was endowed with 20 tokens, to be divided between a public and a private good. The payoff for member *i*, measured in units of tokens, was calculated according to the payoff function

$$\pi_i = 20 - c_i + 0.4\sum_{i=1}^{4} c_i \,, \tag{1}$$

[7] The exchange rate at the time of the experiment was approximately 1 USD=1,762.00 Colombian pesos.

[8] To ensure credibility, invitations to the experiment were done jointly by the experimenters and the head administrator who later posted experimental id numbers, and their respective donations, as well as the total amount donated to the Red Cross Colombia. This procedure was outlined as part of recruitment as well as in the instructions.

where c_i is member i's contribution to the public good. The contribution to the public good yielded a marginal return to each member of 0.4 tokens. The choice of parameter values reflects the features of a public good; full contribution to the public good is Pareto optimal, while the dominant strategy is zero contribution. In other words, the dominant strategy is to free-ride.

Our game followed the experimental design of Fischbacher *et al.* (2001), also used in numerous follow-up studies (e.g., Fischbacher and Gächter, 2010). Participants were asked to make both an unconditional and a conditional contribution to the public good. In the case of the unconditional contribution, they were asked simply how much they would like to contribute to the public good (as in a standard public goods game). In the case of the conditional contribution, participants were asked how much they would like to contribute conditional on the average contribution of other group members, the contribution of which ranged from 0 to 20, rounded to the nearest integer. Participants were randomly assigned to groups of four (from the same session).[9] To make each decision incentive compatible, the unconditional contribution was the payoff-relevant decision for three randomly selected members. Using their average unconditional contribution, the contribution of the fourth member was given by her conditional contribution table. Then, each member's monetary payoff is computed by equation (1). Each token in the experiment was exchanged for 750 Colombian pesos.

The experiment was conducted as follows. For a given session, the experimenter first read aloud the instructions. As part of the instructions, participants next completed some practice problems to help them fully understand the task. Subsequently, the experimenter distributed answer sheets to participants. For the isolated and interrelated treatments, the first page contained a calendar that displayed the current month. For the standard treatment, however, there was no calendar. Thus, participants in the isolated and interrelated frames were subjected to the calendar manipulation immediately prior to making their allocation decisions. The experimenter then collected the answer sheets and distributed a questionnaire that contained the Rosenbaum Self-Control Schedule. Finally, participants indicated their demographics, and the session closed. The sessions lasted about 1.5 hours (for an outline of the procedure, see Appendix B).The average earnings per participant were 25,000 Colombian pesos (including a 5,000 show-up fee).

[9] The selection was anonymous. Hence no participant knew to which group he/she belonged.

II. Results

A. Dictator Game

In table 1, we summarize the descriptive results from the dictator game. We cannot based on a Kruskal-Wallis test reject the null hypothesis of no difference in donations across treatments. Similarly, we cannot reject the null hypothesis of no difference in Rosenbaum score across treatments. This implies that participants in the three treatments had the same level of trait self-control.

(Table 1)

We hypothesized that participants' trait self-control, as measured by the Rosenbaum score, would exhibit a stronger positive correlation with charitable giving in the interrelated treatment; participants in the interrelated treatment more likely would identify self-control conflict than would participants in the other two treatments. We tested this hypothesis with an OLS regression, and we report the results in table 2. We included an interaction between the Rosenbaum and the dummy variable identifying the interrelated treatment, but we did include not the dummy variable alone; the interrelated treatment represented the baseline treatment. We also included two dummy variables to identify the treatments (the isolated treatment and the standard treatment) and interaction variables between the Rosenbaum score and dummy variables for each of the other two treatments.

(Table 2)

We expected the sign to be positive on the interaction between the Rosenbaum and the dummy for the interrelated treatment. Furthermore, we predicted that coefficients on the interactions between the Rosenbaum and the other two treatment dummies would be smaller than that on the interaction between the Rosenbaum and the interrelated treatment dummy.

The estimated parameter for the interaction between the interrelated treatment and the Rosenbaum score is positive and significant at the 1% level.[10] This means that higher self-control in the interrelated frame is correlated with larger donations. The regression shows that the estimated parameter for the interaction between the isolated treatment and the Rosenbaum is

[10] Results are robust also when using Tobit rather than OLS with robust standard errors.

negative and not significant, suggesting a weaker correlation between trait self-control and giving in the isolated than in the interrelated treatment. Moreover, the regression shows that the estimated parameter for the interaction between the standard treatment and the Rosenbaum score is positive and not significant. Taken together, the regression provides evidence for our hypothesis that trait self-control exhibits a stronger positive correlation with donating in the interrelated treatment (calendar without a grid) than in the isolated treatment (calendar with a grid). This effect is of economic significance. The marginal effect of the Rosenbaum score in the interrelated treatment is 0.08. In the interrelated treatment, a one standard deviation increase in the Rosenbaum score (approximately 33 units in the test score) increases donations by about 1,862 Colombian pesos. Compared to the predicted mean contribution of 8,688, this corresponds to a 21% increase in donations relative to the aforementioned baseline.

B. Public Goods Game

In table 3, we present the descriptive results from the public goods game. We cannot based on a Kruskal-Wallis test reject the null hypothesis of no difference in unconditional contributions across treatments. Similarly, we cannot reject the null hypothesis of no difference in Rosenbaum score across treatments.

(Table 3)

We hypothesized that participants' trait self-control, as measured by the Rosenbaum score, would exhibit a stronger positive correlation with unconditional contribution in the interrelated treatment; participants in the interrelated treatment more likely would identify self-control conflict than would participants in the other two treatments. We test this hypothesis with an OLS regression, results reported in table 4. We included an interaction between the Rosenbaum and the dummy variable identifying the interrelated treatment, but we did include not the dummy variable alone; the interrelated treatment represented the baseline treatment. We also included two dummy variables to identify the treatments (the isolated treatment and the standard treatment) and interaction variables between the Rosenbaum score and dummy variables for each of the treatments.

(Table 4)

We expected the sign to be positive on the interaction between the Rosenbaum and the dummy for the interrelated treatment. Furthermore, we predicted that coefficients on the interactions between the Rosenbaum and the other two treatment dummies would be smaller than that on the interaction between the Rosenbaum and the interrelated treatment dummy.

As in the dictator game, the coefficient for the interaction between the interrelated treatment and the Rosenbaum is both positive and significant at the 5%-level, indicating that higher self-control in the interrelated treatment is positively correlated with contribution to the public good. The estimated coefficients for the interaction terms between the isolated and standard treatment are both negative and not significant, suggesting a weaker correlation between trait self-control and contribution in the isolated and standard treatments than in the interrelated treatment. Taken together, the regressions provide evidence for our hypothesis that trait self-control exhibits a stronger positive correlation with contribution to the public good in the interrelated than in the isolated treatment. As with the dictator game, this effect is of economic significance. The marginal effect of the Rosenbaum score in the interrelated treatment is approximately 0.08. In the interrelated treatment, a one standard deviation increase in the Rosenbaum score (approximately 20 units in the test score) increases contributions by about 1,6 tokens. Compared to the predicted mean contribution of 8.6, this corresponds to an 18% increase in donations relative to the aforementioned baseline

III. Discussion

Our objective was to test the hypothesis that individuals may experience a self-control conflict between acting in the interest of self or in that of others. In so doing, we have explored a hypothesis that would help reconcile conflicting ideas in economics about the selfish Homo Economicus and the pro-social Homo Behavioralis. While the literature to date has documented the existence of both selfish and pro-social preferences (for overview see e.g., Fehr and Schmidt, 2006), we have here explored how individuals may possess both. Indeed, we found evidence that individuals may experience a conflict between their better judgment to act in the interest of others

and a temptation to act in that of their own. These findings shore up past evidence from psychology.

To conceptualize the question of selfish versus pro-social behavior as a problem of self-control problem may prove insightful at a number of levels. The literature on self-control is extensive, and it offers a substantial conceptual toolkit. The application of models of intrapersonal conflict (e.g., Thaler and Shefrin, 1981; Schelling, 1984; Fudenberg and Levine, 2006) may advance the study of pro-social behavior. For example, one could imagine application to strategic settings, where the question of pro-social versus selfish behavior determines predicted equilibria. How the "rational self" strategizes against her own impulses, which in part may be determined by the agent's beliefs about others' beliefs, may prove crucial for understanding pro-social outcomes. Furthermore, and at a more practical level, the conceptual toolkit for the study of self-control may provide useful prescriptive measures to facilitate Pareto optimality. The application of self-control strategies, such as commitment devices, may help promote pro-social behavior and thus Pareto optimal allocations. The role of the policy maker, then, may be to help individuals help themselves to help others.

Our findings also reveal that subtle cues in the environment may prove sufficient to alter an individual's perception of an allocation opportunity between oneself and others. The cues may thereby determine the extent to which individuals use their own cognitive resources to promote pro-social behavior. We demonstrated this both in the context of charitable giving using a dictator game, and in the context of a social dilemma using a public goods game. We further show that the results are of economic significance. We therefore conclude that relatively costless measures may influence individuals to use their cognitive resources to promote pro-social behavior.

Though we have provided evidence for the conceptualization that temptation to act in the interest of oneself may conflict with better judgment to act in the interest of others, we do not claim universality. Rather, we believe our conceptualization applies in situations where feelings of greed dominate those (if any) to act pro-socially. Of course, as O'Donaghue and Loewenstein (2007) suggest, there is good reason to think that the pattern may reverse in other circumstances. Specifically, when empathetic emotion is particularly strong, individuals may feel tempted to be pro-social even knowing that they ought not. For example, one could imagine a face-to-face interaction with a beggar whom one suspects is a "con," seeking "easy" money. One knows better, but one cannot help yielding to the sorry gestures. Because our present space of inquiry

concerned the relationship between self-control and feelings of greed, we deliberately designed our studies to minimize feelings of empathy by keeping the recipient of pro-social behavior highly or moderately abstract (an anonymous group in the public goods game or the Red Cross, respectively). Had the recipient been a lively baby, we would of course have expected a different emotional reaction. Future research may explore the effect of tuning up feelings of empathy while tuning down those of greed.

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Table 1. Descriptive statistics - the dictator game

	Isolated treatment		**Standard treatment**		**Interrelated treatment**		**HO: No difference between treatments (Kruskal-Wallis p)**
Variable	Obs	Mean	Obs	Mean	Obs	Mean	
Donation	51	7892.16 (4158.50)	49	8321.43 (4608.642)	46	8691.30 (4959.91)	0.646
Rosenbaum score	47	35.85 (25.73)	48	34.04 (24.54)	45	33.13 (23.12)	0.777

Note. Standard deviations in parentheses

Table 2. Estimation results - the dictator game.

Dep. var: Donation in 1,000	OLS
	Coef.
Isolated treatment	2.28
	(1.49)
Standard treatment	1.22
	(0.78)
Rosenbaum score x Isolated treatment	-0.01
	(-0.42)
Rosenbaum score x Standard treatment	0.03
	(1.13)
Rosenbaum score x Interrelated treatment	0.08***
	(2.98)
Constant	6.02***
	(6.61)
Number of observations	140
R-squared	0.07

Note: *** denotes significance at the 1% level, ** at the 5% significance level, * at the 10% significance level.
Note: the regression controls for the university where sessions were run but the result isomitted; t-statistics in parenthesis; robust standard errors.

Table 3. Descriptive statistics - the public goods game

	Isolated treatment		**Standard treatment**		**Interrelated treatment**		**HO: No difference between tratments (Kruskal-Wallis p)**
Variable	Obs	Mean	Obs	Mean	Obs	Mean	
Unconditional contribution	56	8.05 (6.28)	47	7.68 (5.96)	53	8.72 (6.61)	0.73
Rosenbaum Score	55	31.51 (20.32)	48	27.98 (19.70)	51	29.41 (19.86)	0.7

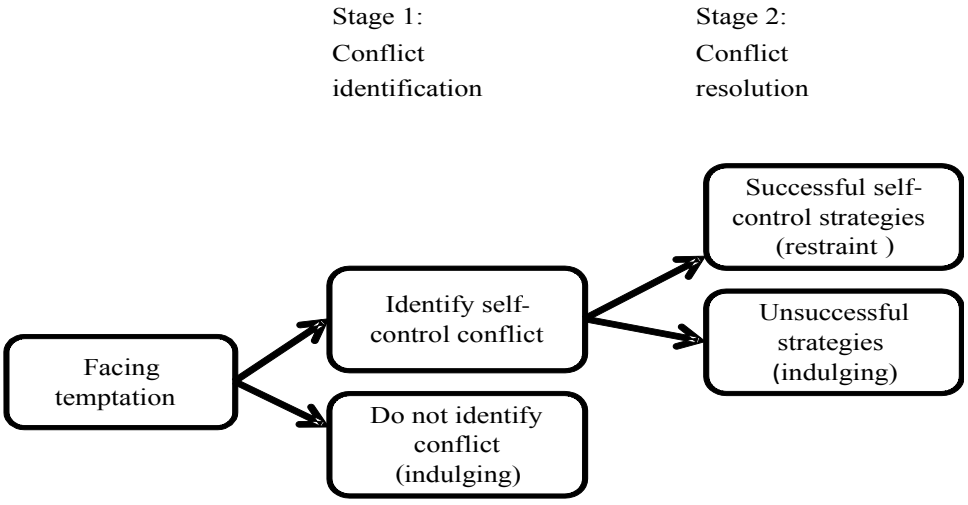
Note. Standard deviations in parentheses

Table 4. Estimation results - the public good game.

Dep. var: Unconditional contribution in tokens	OLS
	Coef.
Isolated treatment	3.23
	(1.57)
Standard treatment	1.99
	(1.01)
Rosenbaum score x Isolated treatment	-0.05
	(-1.03)
Rosenbaum score x Standard treatment	-0.02
	(-0.57)
Rosenbaum score x Interrelated treatment	0.08**
	(1.98)
Constant	6.34
	(4.52)
Number of observations	153
R-squared	0.04

Note: *** denotes significance at the 1% level, ** at the 5% significance level, * at the 10% significance level.
Note: the regression controls for the university where sessions were run but the result isomitted; t-statistics in parenthesis

Figure 1. The two-stage model of self-control.



Source: Myrseth and Fishbach (2009).

Appendix A: Calendars

A.1 The isolated frame (the highlighted date is the same as today's date).

Before we continue with the experiment, please take a moment to consider this month's calendar:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

*What is today's date?*_____

A.2 The interrelated frame.

Before we continue with the experiment, please take a moment to consider this month's calendar:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

*What is today's date?*_____

Appendix B: Experimental Procedure for the Public Good Game

I. General instructions
II. Treatment (one of i, ii or iii.)
    i. Isolated treatment (calendar with grid)
    ii. Standard treatment (no calendar)
    iii. Interrelated treatment (calendar without grid)
III. Decision task (unconditional and conditional contribution)
IV. Belief elicitation. Participants answered how much they believed the other three group members contributed unconditionally on average.
V. Survey questions. Participants completed the Rosenbaum Self-Control Schedule (RSS).

Not for Publication

Appendix C: The Rosenbaum Self-Control Schedule

Note: * = item is reverse scored.

Directions - Indicate how characteristic or descriptive each of the following statements is of you by using the code given below

+3 very characteristic of me, extremely descriptive
+2 rather characteristic of me, quite descriptive
+1 somewhat characteristic of me, slightly descriptive
-1 somewhat uncharacteristic of me, slightly undescriptive
-2 rather uncharacteristic of me, quite undescriptive
-3 very uncharacteristic of me, extremely nondescriptive

l. When I do a boring job, I think about the less boring parts of the job and the reward that I will receive once I am finished.

-3	-2	-1	1	2	3

2. When I have to do something that is anxiety arousing for me, I try to visualize how I will overcome my anxieties while doing it.

-3	-2	-1	1	2	3

3. Often by changing my way of thinking I am able to change my feelings about almost everything.

-3	-2	-1	1	2	3

4. I often find it difficult to overcome my feelings of nervousness and tension without any outside help.*

-3	-2	-1	1	2	3

5. When I am feeling depressed I try to think about pleasant events.

-3	-2	-1	1	2	3

6. I cannot avoid thinking about mistakes I have made in the past.*

-3	-2	-1	1	2	3

7. When I am faced with a difficult problem, I try to approach its solution in a systematic way.

-3	-2	-1	1	2	3

8. I usually do my duties quicker when somebody is pressuring me.*

-3	-2	-1	1	2	3

9. When I am faced with a difficult decision, I prefer to postpone making a decision even if all the facts are at my disposal.*

-3	-2	-1	1	2	3

10. When I find that I have difficulties in concentrating on my reading, I look for ways to increase my concentration.

-3	-2	-1	1	2	3

11. When I plan to work, I remove all the things that are not relevant to my work.

-3	-2	-1	1	2	3

12. When I try to get rid of a bad habit, I first try to find out all the factors that maintain this habit.

-3	-2	-1	1	2	3

13. When an unpleasant thought is bothering me, I try to think about something pleasant.

-3	-2	-1	1	2	3

14. If I would smoke two packages of cigarettes a day, I probably would need outside help to stop smoking.*

-3	-2	-1	1	2	3

15. When I am in a low mood, I try to act cheerful so my mood will change.

-3	-2	-1	1	2	3

16. If I had the pills with me, I would take a tranquilizer whenever I felt tense and nervous.*

-3	-2	-1	1	2	3

17. When I am depressed, I try to keep myself busy with things that I like.

-3	-2	-1	1	2	3

18. I tend to postpone unpleasant duties even if I could perform them immediately.*

-3	-2	-1	1	2	3

19. I need outside help to get rid of some of my bad habits.*

-3	-2	-1	1	2	3

20. When I find it difficult to settle down and do a certain job, I look for ways to help me settle down.

-3	-2	-1	1	2	3

21. Although it makes me feel bad, I cannot avoid thinking about all kinds of possible catastrophes in the future.*

-3	-2	-1	1	2	3

22. First of all I prefer to finish a job that I have to do and then start doing the things I really like.

-3	-2	-1	1	2	3

23. When I feel pain in a certain part of my body, I try not to think about it.

-3	-2	-1	1	2	3

24. My self-esteem increases once I am able to overcome a bad habit.

-3	-2	-1	1	2	3

25. In order to overcome bad feelings that accompany failure, I often tell myself that it is not so catastrophic and that I can do something about it.

-3	-2	-1	1	2	3

26. When I feel that I am too impulsive, I tell myself "stop and think before you do anything."

-3	-2	-1	1	2	3

27. Even when I am terribly angry at somebody, I consider my actions very carefully.

-3	-2	-1	1	2	3

28. Facing the need to make a decision, I usually find out all the possible alternatives instead of deciding quickly and spontaneously.

-3	-2	-1	1	2	3

29. Usually I do first the things I really like to do even if there are more urgent things to do.*

-3	-2	-1	1	2	3

30. When I realize that I cannot help but be late for an important meeting, I tell myself to keep calm.

-3	-2	-1	1	2	3

31. When I feel pain in my body, I try to divert my thoughts from it.

-3	-2	-1	1	2	3

32. I usually plan my work when faced with a number of things to do.

-3	-2	-1	1	2	3

33. When I am short of money, I decide to record all my expenses in order to plan more carefully for the future.

-3	-2	-1	1	2	3

34. If I find it difficult to concentrate on a certain job, I divide the job into smaller segments.

-3	-2	-1	1	2	3

35. Quite often I cannot overcome unpleasant thoughts that bother me.*

-3	-2	-1	1	2	3

36. Once I am hungry and unable to eat, I try to divert my thoughts away from my stomach or try to imagine that I am satisfied.

-3	-2	-1	1	2	3

Not for publication

Appendix C: Experimental Instructions

C.1.: Original Instructions for the Public Good Game

Instrucciones

Usted va a participar en un experimento sobre toma de decisiones. A finales de este experimento, le pagará a usted una cantidad dependiendo de sus decisiones y las decisiones de otros. El pago se hará en efectivo al final del experimento.

A lo largo del experimento, todo tipo de comunicación queda completamente prohibida. Los participantes que se comuniquen quedarán excluidos del experimento y no recibirán ningún pago. Si tiene alguna pregunta, levante la mano para que algún monitor venga a responder la pregunta en privado.

Durante el experimento no hablaremos de pesos sino de "fichas". Sus ganancias en el experimento serán en fichas. Al final del experimento, las fichas serán convertidas a pesos a una tasa de cambio de:

2 fichas = 1500 pesos

Independientemente de sus decisiones, recibirá 5000 pesos por participar en el experimento.

Además tendrá que responder algunos cuestionarios durante el experimento. Algunas preguntas pueden parecerle muy extrañas, sin embargo, le pedimos el favor que las responda seriamente. Todas sus respuestas serán **confidenciales y anónimas.** Para identificarlo usaremos el número de identificación que usted recibió al entrar en el salón. Este mismo número será usado para identificarlo cuando hagamos los correspondientes pagos después del experimento. Antes de que usted abandone el salón, debe entregar a uno de los monitores el número de identificación que

recibió al entrar al salón. El monitor pone ese número dentro de un sobre, lo sella y se lo entrega a usted nuevamente. Cuando vaya a reclamar su pago, usted debe presentar el mismo sobre debidamente sellado y con su número de identificación adentro, tal y como el monitor del experimento se lo entregó antes de abandonar el salón.

A lo largo de estas instrucciones le presentaremos algunos ejemplos, por favor considere los números de los ejemplos como una ilustración. Los números que usted obtendrá en el experimento pueden ser diferentes.

Decisión Básica

El experimento va a funcionar así: Primero vamos a explicar la decisión básica, luego vamos a hacer unas preguntas de control que le ayudarán a entender esta decisión básica.

Usted pertenece a **un grupo de cuatro personas**. Nadie, excepto los monitores sabrán quién pertenece a qué grupo. Los grupos se formarán al azar. Al principio del experimento recibirá un papel donde dice la cantidad de fichas que tiene inicialmente para jugar. Esta será su dotación. Cada una de las cuatro personas del grupo tiene que decidir cómo distribuir su dotación de 20 fichas. Puede poner todas, una parte o ninguna ficha en una **cuenta de un proyecto**. Las fichas que no deposite en la cuenta del proyecto serán automáticamente transferidas a su **cuenta privada**.

Su ingreso de la cuenta privada:

Por cada ficha que deposite en la cuenta privada ganará exactamente una ficha. Por ejemplo, si tiene una dotación de 20 fichas y deposita cero fichas en la cuenta del proyecto (o sea que deposita 20 fichas en su cuenta privada), entonces recibe exactamente 20 fichas. Si en cambio deposita 14 fichas en la cuenta del proyecto (es decir 6 fichas en la cuenta privada) entonces su

ingreso de la cuenta privada son 6 fichas. *Nadie, excepto usted mismo recibe fichas de la cuenta privada.*

Su ingreso de la cuenta del proyecto:

Todos reciben el mismo ingreso por las fichas que usted deposite en la cuenta del proyecto. Por supuesto, usted también obtendrá ingresos por las fichas que otras personas depositen en la cuenta del proyecto. Para cada persona el ingreso de la cuenta del proyecto se determina de la siguiente manera:

Ingreso de la cuenta del proyecto =
Suma de las contribuciones al proyecto x 0.4

Por ejemplo, si la suma de las contribuciones a la cuenta del proyecto es 60 fichas, usted y los otras personas del grupo recibirán 60x0.4=24 fichas para cada uno. Si las cuatro personas del grupo depositan un total de 10 fichas en la cuenta del proyecto, entonces usted y todos los otros reciben 10x0.4=4 fichas por la cuenta del proyecto.

Ingreso total:

Su ingreso total es la suma del ingreso de su cuenta privada más el ingreso de la cuenta del proyecto.

Ingreso de la cuenta privada(= Numero de fichas de dotación inicial – su contribución a la cuenta del proyecto)
+ Ingreso de la cuenta del proyecto (= 0.4 × suma de todas las contribuciones a la cuenta del proyecto)

Ingreso total

Antes de terminar de leer las instrucciones le queremos pedir el favor que responda las siguientes preguntas de control que ayudarán a verificar si ha entendido todo correctamente. Si hay alguna pregunta, por favor levante la mano para que un monitor le responda en privado.

Preguntas de Control

Por favor responda las siguientes preguntas de control. El propósito de estas preguntas es familiarizarlo con los cálculos de los ingresos en fichas que resultan de las diferentes decisiones sobre cómo distribuir sus recursos disponibles. Por favor responda todas las preguntas y escriba los correspondientes cálculos.

1. Cada persona del grupo tiene una dotación de 20 fichas disponibles. Supongamos también que nadie, ni usted, pone nada en la cuenta del proyecto.

   ¿Cuál es su ingreso total? ____

   ¿Cuál es el ingreso de las otras personas de su grupo? ____, ____, y ____

2. Cada persona del grupo tiene una dotación de 20 fichas disponibles. Supongamos también que todos, incluido usted, ponen todos sus recursos en la cuenta del proyecto.

   ¿Cuál es su ingreso total? ____

   ¿Cuál es el ingreso de las otras tres personas de su grupo? ____, ____, y ____

3. Cada persona del grupo tiene una dotación de 20 fichas disponibles. Supongamos también que las otras tres personas del grupo depositan 30 fichas en la cuenta del proyecto.

   a) ¿Cuál es su ingreso total si además de las 30 fichas de las otras tres personas de su grupo usted pone 0 fichas en la cuenta del proyecto?

      Su ingreso total: ____

b) ¿Cuál es su ingreso total si además de las 30 fichas de las otras tres personas de su grupo usted pone 8 fichas en la cuenta del proyecto?

Su ingreso total: ____

c) ¿Cuál es su ingreso total si además de las 30 fichas de las otras tres personas de su grupo usted pone 15 fichas en la cuenta del proyecto?

Su ingreso total: ____

4. Cada persona del grupo tiene una dotación de 20 fichas disponibles. Usted pone 8 fichas en la cuenta del proyecto.

a) ¿Cuál es su ingreso total si además de sus 8 fichas las otras personas del grupo ponen en total otras 7 fichas en la cuenta del proyecto?

Su ingreso total: ____

b) ¿Cuál es su ingreso total si además de sus 8 fichas las otras tres personas del grupo ponen en total otras 12 fichas en la cuenta del proyecto?

Su ingreso total: ____

c) ¿Cuál es su ingreso total si además de sus 8 fichas las otras tres personas del grupo ponen otras 22 fichas en la cuenta del proyecto?

Su ingreso total: ____

Si ha terminado estas preguntas antes que los otros, le recomendamos que piense en otros ejemplos adicionales para que se familiarice con este tipo de situaciones.

Procedimiento

El experimento consiste en la decisión que acabamos de describir. En la siguiente parte explicaremos el procedimiento a usar en detalle.

Como usted sabe, usted tiene una dotación de 20 fichas. Puede poner esas fichas en la cuenta del proyecto y el resto de fichas automáticamente se depositan en la cuenta privada. Cada persona en el grupo tendrá la misma dotación.

Cada persona del grupo tiene que hacer dos tipos de decisiones, a las que nos referiremos de aquí en adelante como "**contribución incondicional"** y como "**tabla de contribuciones"**

- En la **contribución incondicional** usted debe decidir cuántas de las fichas que tiene disponibles deposita en la cuenta del proyecto. Escriba esta cantidad al lado de *"Su contribución incondicional a la cuenta del proyecto"* en la segunda página de su hoja de decisión. Usted debe escribir un **número entero** que **no puede ser menor a cero ni mayor a las 20 fichas que usted tiene en su dotación**. La diferencia entre su dotación de 20 fichas y las fichas que pone en la cuenta del proyecto es automáticamente depositada en su cuenta privada.

- Su segunda tarea es completar la **tabla de contribuciones** en la tercera página de la hoja de decisión. En la tabla de contribución usted debe indicar para cada posible contribución promedio de las otras tres personas del grupo (aproximado al siguiente entero; por ejemplo si el promedio es 17,5 piense en 18) el número de fichas que usted quiere poner en la cuenta del proyecto. Usted decidirá cuanto contribuir dependiendo de lo que las otras personas contribuyan. Esto será más claro cuando vea el siguiente ejemplo de una tabla de contribución.

Contribución promedio (aproximada) de las otras tres personas a la cuenta del proyecto	**Su contribución a la cuenta del proyecto es:**
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Los números en la columna izquierda son los posibles valores promedio (aproximados) de las contribuciones de las otras personas del grupo. Supongamos en el ejemplo que las otras personas tienen 20, 20 y 20 fichas, entonces en promedio pueden contribuir máximo 20 fichas ((20+20+20)/3=20).

Usted simplemente tiene que escribir en la columna de la derecha cuántas fichas quiere contribuir en la cuenta del proyecto dado que los otros contribuyen en promedio (aproximado) la cantidad de fichas de la columna izquierda. Tiene que completar todas las casillas de la columna derecha. Por ejemplo, debe escribir cuántas fichas quiere contribuir a la cuenta del proyecto si los otros contribuyen en promedio 0 fichas a la cuenta del proyecto; cuánto contribuye si los otros contribuyen 1 o 2 o 3, fichas, etc. En cada casilla debe escribir un número entero no menor de

cero y no mayor a su dotación de 20 fichas. Por supuesto que puede escribir el mismo número en diferentes casillas.

Después que todos los participantes en el experimento han hecho su contribución incondicional y han completado la tabla de contribuciones, una persona de cada grupo será seleccionada al azar. Para las personas seleccionadas aleatoriamente el ingreso se determinará de acuerdo con la tabla de contribuciones. Para las otras tres personas del grupo que no son seleccionadas aleatoriamente la contribución incondicional determinará el ingreso. Cuando usted está decidiendo la contribución incondicional y la tabla de contribuciones, usted no sabe si va a ser seleccionado aleatoriamente, así que piense cuidadosamente los dos tipos de decisiones porque cualquiera puede ser relevante para usted. Los siguientes dos ejemplos servirán para aclarar este punto:

Ejemplo 1: Suponga que después de que ha entregado sus decisiones usted es seleccionado al azar. Esto implica que la decisión relevante para sus ingresos es la tabla de contribuciones. Para las otras tres personas la decisión incondicional es la decisión relevante. Supongamos que ellos han hecho contribuciones incondicionales de 0, 2 y 4 fichas. La contribución promedio aproximada es entonces 2 (=(0+2+4)/3).

Si usted ha indicado en su tabla de contribuciones que usted contribuiría una ficha a la cuenta del proyecto si los otros contribuían 2 fichas en promedio, entonces la contribución a la cuenta del proyecto es 0+2+4+1=7. Entonces todas las personas del grupo ganan un ingreso de 0.4x7=2.8 de la cuenta del proyecto más el respectivo ingreso de la cuenta privada.

Si en cambio usted ha indicado que contribuiría 19 fichas a la cuenta del proyecto si los otros contribuían 2 en promedio, entonces la contribución total a la cuenta del proyecto es 0+2+4+19=25. Todas las personas del grupo ganan un ingreso de 0.4x25=10 fichas de la cuenta del proyecto más el respectivo ingreso de la cuenta privada.

Ejemplo 2: Ahora suponga que usted no es seleccionado aleatoriamente. Esto quiere decir que para usted y para dos otras persona del grupo la contribución incondicional es la decisión de ingreso relevante. Suponga además que su contribución incondicional al proyecto es de 16 y que

la de las otras tres personas es 18 y 20. La contribución incondicional promedio del grupo es entonces 18 (=(16+18+20)/3).

Si la persona del grupo que ha sido seleccionada aleatoriamente indicó en la tabla de contribuciones que contribuiría una ficha a la cuenta del proyecto si las otras tres personas contribuían en promedio 18, entonces la contribución total a la cuenta del proyecto es 16+18+20+1=55 fichas. Por lo tanto, todas las personas del grupo ganarían 0.4x55=22 fichas de la cuenta del proyecto adicionalmente a sus respectivos ingresos de las cuentas privadas.

Si la persona del grupo seleccionada aleatoriamente indicó en la tabla de contribuciones que contribuiría 19 fichas a la cuenta del proyecto si las otras tres personas contribuían en promedio 18, entonces la contribución total a la cuenta del proyecto es 16+18+20+19=73 fichas. Por lo tanto, todas las personas del grupo ganarían 0.4x73=29.2 fichas de la cuenta del proyecto adicionalmente a sus respectivos ingresos de las cuentas privadas.

La selección aleatoria de los participantes se hará de la siguiente forma. A cada persona del grupo se le asigna un número entre 1 y 4 que puede ver en la última página de su hoja de decisión. Un participante seleccionará al azar una de las cuatro cartas **después** que todos los participantes han tomado su decisión incondicional y han completado la tabla de contribuciones y el cuestionario. Si la carta que es seleccionada corresponde al número en su hoja de decisión entonces la tabla de contribuciones condicionales en la tercera página es relevante para usted. Si no, la contribución incondicional en la primera página es la decisión relevante. Recuerde que usted sabe cuál de las dos decisiones es la decisión relevante para sus pagos sólo después que ha entregado sus decisiones, por lo tanto debe completar las dos páginas cuidadosamente.

La cantidad de fichas que usted gane se convertirá a pesos que serán pagados en efectivo. Tiene alguna pregunta? Por favor levante la mano y un monitor vendrá a responder la pregunta privadamente.

C.2.: Guessed Contributions for the Public Good Game

Identificación en el experimento:_____

Cuánto cree usted que los otros integrantes contribuyeron incondicionalmente a la cuenta del proyecto?

Hace un rato usted escribió su contribución incondicional y llenó una tabla con un número de contribuciones condicionales. Ahora, usted nos dirá cuándo cree que los otros integrantes de su grupo han escrito como sus contribuciones **incondicionales**.

Por favor escriba el número de fichas que **usted cree que los otros tres jugadores** en su grupo han contribuido a la cuenta del proyecto. En otras palabras, qué número sospecha usted que ellos escribieron?

AHORA usted puede ganar más dinero **si adivina correctamente Contribución promedio (aproximada) de las otras tres personas a la cuenta del proyecto**. Usted puede ganar tres fichas adicionales si la verdadera contribución de los otros es igual a lo que usted adivinó, o si está una ficha por encima o por debajo. Asi por ejemplo, si la verdadera contribución de los otros tres es 7 y usted dice 6 o dice 8, usted gana 2 fichas más, pero si usted dice 9 no ganará.

Contribución promedio (aproximada) de las otras tres personas a la cuenta del proyecto	Marque con una x la casilla que usted cree que corresponde a los que los otros tres contribuyeron incondicionalmente a la cuenta del proyecto. ***SÓLO MARQUE UNA CASILLA***
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

C.3.: Original Instructions for the Dictator Game

Note: the last sentence of the instructions varied according to the location of the experiment

Instrucciones Generales

Usted va a participar en un experimento sobre toma de decisiones. Independientemente de sus decisiones, usted recibirá 5000 pesos colombianos (COP) sólo por participar en el experimento.

Cualquier tipo de comunicación queda completamente prohibida durante el experimento; los participantes que no cumplan esta regla y se comuniquen entre ellos quedarán excluidos del experimento y no recibirán ningún pago. Si tiene alguna pregunta, por favor levante la mano para que algún monitor venga a atenderle

Primero usted participará en una tarea de toma de decisiones, y después le pediremos responder algunos cuestionarios. Algunas preguntas pueden parecerle muy extrañas, sin embargo, le pedimos el favor que las responda seriamente. Todas sus respuestas serán **confidenciales y anónimas.** Para identificarlo durante y después del experimento usaremos el número que usted recibió al entrar en el salón; este mismo número será usado para identificarlo cuando hagamos los correspondientes pagos después del experimento.

IMPORTANTE: Por favor escriba su número de identificación en todas sus hojas de respuesta para que nosotros podamos pagarle.

Cuando se acabe el experimento, les pedimos salir del salón. Cuando usted salga, debe entregar a uno de los monitores el número de identificación que recibió al entrar. El monitor pondrá ese número dentro de un sobre, lo sellará y se lo entregará nuevamente para garantizar que sus respuestas quedan confidenciales y anónimas. Cuando vuelva a reclamar su pago (unos 20 minutos después de que termine el experimento), usted debe presentar el mismo sobre

debidamente sellado y con su número de identificación adentro, tal y como el monitor del experimento se lo entregó antes de abandonar el salón. El pago se hará de manera individual y privada en otro sobre sellado para proteger la confidencialidad de sus ganancias.

Descripción del experimento.

Usted ha recibido una dotación de 15 000 COP; Su tarea en el experimento es decidir cómo repartir esta cantidad entre usted y la Cruz Roja Colombiana. En la "hoja de decisión" que le será entregada posteriormente, usted debe indicar qué cantidad de esos 15 000 COP quiere conservar para usted mismo y qué cantidad quiere donar. En este experimento cualquier decisión que usted tome es válida, es decir, usted puede donar todo, una parte o nada.

Al final del experimento, todas las donaciones de los participantes serán sumadas y mandadas a la Cruz Roja Colombiana y una copia del recibo de la donación será pegado en la cartelera del IDEA (/Departamento de Ingeniería Sanitaria) máximo 5 días después de que se acabe el experimento .

Appendix C.4.: Guessed Contributions for the Dictator Game

Identificación en el experimento:_____

Cuanto cree usted que los otros participantes de esta sesión donaron en promedio a la Cruz Roja Colombiana?

Usted recibirá 2000 COP adicionales si adivina correctamente o dentro un margen de 1000 COP por encima o por debajo del promedio correcto.

POR EJEMPLO: Si el promedio verdadero de las donaciones de los otros participantes es 10 000, usted recibirá 2000 COP adicionales si adivinó 9000, 10000 o 11000

Por favor, indique su estimación en la línea debajo:

_____

Not for publication

Appendix D: Experimental Instructions (Translated from Spanish)

D.1.: Original Instructions for the Public Good Game

Instructions

You will be taking part in an experiment on decision-making. The experiment is designed so that your earnings will depend on both your own decisions and the decisions of others. Your earnings will be paid in cash at the end of the session.

Talking is not allowed throughout the entire session. Any violation of this rule will result in exclusion from the session and not receiving any payment. If you have any questions regarding these instructions, please raise your hand and a member of the experimenter team will attend to you.

Your earnings in this experiment will be in tokens. At the end of the experiment, the tokens will be converted into Colombian pesos (COP) at an exchange rate of:

2 tokens = 1500 COP.

Regardless of what decisions you make, you will receive a show-up fee of 5,000 COP.

During the experiment, you will have to answer a few questionnaires. Although some questions may appear strange to you, we ask you to still take them seriously. All your answers will be treated **confidentially and anonymously**. The identification number you received when entering

the room will be used to identify you when paying you after the experiment. Before you leave the room, you should hand the identification number you received when entering the room to a member of the experimenter team. The experimenter will put this number in an envelope, seal it, and return it to you. When you go to collect your earnings, you should return the sealed envelope with your identification number still inside, the way it was handed to you before you left the room.

Along with these instructions, we will present you with a few examples. The numbers used are only for illustration purposes. The numbers you will encounter in the experiment could be different.

The basic decision

You will now learn how the experiment is conducted. First we will introduce the basic decision-making situation. Then we will ask you to answer control questions that will help you gain an understanding of the decision-making situation.

You will be a **member of a group of four people**. No one, except the experimenters, knows who belongs to what group. The groups are assembled randomly. At the beginning of the experiment, you will receive (on paper) **a number of tokens, called an "endowment."** Each of the four members of the group has to decide how to divide his or her endowment. You can put all, some, or none of your tokens into the project account. Each token you do not deposit in the project account will automatically be transferred to your **private account**.

Your income from the private account:

For each token you put into your private account, you will earn exactly one token. For example, if you have an endowment of 20 tokens and you put zero tokens into the project account (and therefore 20 tokens into the private account), then you will earn exactly 20 tokens **from the private account**. If instead you put 14 tokens into the project account (and therefore 6 tokens

into the private account), then you will receive an income of 6 tokens from the private account. *Nobody except you earns tokens from your private account.*

Your income from the project account:

Everybody receives the same income from the project account, which is based on the total number of tokens the group puts into it. Your income from the project account will therefore be determined not only by the number of tokens you decide to put into the project account, but also by the number of tokens the other group members invest in it. For each group member, the income from the project account will be determined as follows:

Income from the project account = the sum of all contributions to the project account x 0.4

For example, if the sum of all contributions to the group account is 60 tokens, you and the other group members will earn 60x0.4=24 tokens from the project account. If the four group members deposit a total of 10 tokens into the project account, then you and the others will earn 10x0.4=4 tokens from the project account.

Your total income:

Your total income is the sum of the income from your private account and the income from the project account:

Income from your private account (=your endowment – your contribution to the project account)
+ Income from the project account (=0.4 x the sum of all contributions to the project account)
Total income

Before we finish reading the instructions, please answer the following control questions. This will help you make sure you have understood everything correctly. If you have any questions or

problems, please raise your hand. A member of the experimenter team will attend to you and answer your question in private.

Control questions

Please answer the following control questions. Their purpose is to make you familiar with calculating the various incomes in tokens that you might earn depending on the decisions you will make about endowment allocation. Please answer all questions and write down all calculations.

1. Assume that you have an endowment of 20 tokens. Assume also that all group members (including yourself) put nothing into the project account.

   What is your total income? _____

   What are the incomes of the three other group members?_____,____ and ____

2. Assume that you and the other team members each have an endowment of 20 tokens. the same as the other three group members. Assume also that all group members (including yourself) put their entire endowments into the project account.

   What is your total income? _____

   What are the incomes of the three other group members?_____,____ and ____

3. Assume you have an endowment of 20 tokens. Assume also that the other group members collectively put a total of 30 tokens into the project account.

   a) What is your total income if you, in addition to the 30 tokens from the other three group members, put 0 tokens into the project account?

      i. Your total income is _____.

b. What is your total income if you, in addition to the 30 tokens from the other three group members, put 8 tokens into the project account?

    i. Your total income is_____.

c. What is your total income if you, in addition to the 30 tokens from the other three group members, put 15 tokens into the project account?

    i. Your total income is_____.

4. Assume that you have an endowment of 20 tokens and that you put 8 tokens into the project account.

    a. What is your total income if the other three group members, in addition to your 8 tokens, put a total of 7 tokens into the project account?

        i. Your total income is _____.

    b. What is your total income if the other three group members, in addition to your 8 tokens, put a total of 12 tokens into the project account?

        i. Your total income is_____.

    c. What is your total income if the other three group members, in addition to your 8 tokens, put a total of 22 tokens into the project account?

        i. Your total income is_____.

If you finish these questions before the other participants, we advise you to think about additional examples to familiarize yourself further with these types of decision-making situations.

The Experimental Procedure

The experiment consists of decision-making situations similar to the one we just described. We will now explain the procedure in detail.

As you know, you have an endowment of 20 tokens. You can put these tokens into a project account. Any remaining tokens will automatically be deposited into your private account. Each person in the group will have the same endowment.

Each group member is asked to make two types of decisions. In the following instructions, we will refer to them as the **"unconditional contribution"** and the **"contribution table decision."**

- With the unconditional contribution, you decide how many tokens you want to put into the project account. Write this amount under *"Your unconditional contribution to the group account"* on the first page of your decision sheet. You must write down an **integer number that is neither smaller than zero nor larger than the total number of tokens you were given in your endowment (20).** The difference between your endowment of 20 tokens and the amount you put into the project account is automatically transferred to your private account.

- Your second task is to fill out the **contribution table** on page 3 of the decision sheet. In the contribution table, please indicate how many tokens you would like to put into the project account for each possible average contribution of the other three group members (rounded up or down to the nearest integer number; for example, if the average is 17.5, then write 18). What you actually contribute will depend on what the other group members actually contribute. This will become clear to you if you take a look at the following contribution table example:

(Rounded) Average contribution of the other group members to the project account.	Your contribution to the project account is:
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

The numbers in the left column are the possible (rounded) average contributions of the other three group members. Assume for this example that the other three group members can contribute a maximum of 20 tokens each ((20+20+20)/3=20).

Using the column on the right, simply write down how many tokens you would like to contribute to the project account for each possible average contribution of the others. You must make an entry in each field of the right column. For example, write down how many tokens you want to contribute to the group account if the others contribute an average of 0 tokens to the group account; how many you want to contribute if the others contribute an average of 0 tokens to the group account; how many you want to contribute if the others contribute an average 1 or 2 or 3 tokens, etc. In each field, you must write down an integer number that is neither smaller than zero nor larger than the total number of 20 tokens in your endowment. You can of course write down the same number in different fields.

After all participants have made their unconditional contribution decisions and have filled out their conditional contribution tables, one member of each group will be selected randomly. For the randomly selected group member, only the contribution table will be income relevant. For the three group members who are not selected, the unconditional contribution decision will be the

income-relevant decision. When you make your unconditional contribution and when you fill out the contribution table, you do not know whether you will be selected randomly. You will therefore have to think carefully about both types of decisions since both could affect your earned amount. The following two examples should illustrate this:

Example 1. Assume that after you hand in your decisions, you are randomly selected. This implies that your income-relevant decision will be determined by your contribution table. For the other three group members, the unconditional contribution is the income-relevant decision. Assume they have made unconditional contributions of 0, 2, and 4 tokens. The rounded average contribution is therefore 2 ((0+2+4)/3=2).

If you have indicated in your contribution table that you will put 1 token into the project account if the others contribute 2 tokens on average, then the total contribution to the group account is 0+2+4+1=7. Thus, all group members earn an income of 0.4x7=2.8 from the project account plus the respective incomes from their private accounts.

If you have indicated instead that you will contribute 19 tokens to the project account if the others contribute 2 on average, then the total contribution to the project account is 0+2+4+19=25. All group members then earn an income of 0.4x25=10 tokens from the project account plus the respective incomes from their private accounts.

Example 2. Now assume that you are not selected randomly, which means that for you and two other group members, the unconditional contribution is the income-relevant decision. Assume further that your unconditional contribution to the project account is 16, and that those of the other two group members are 18 and 20. The average unconditional contribution is then 18 ((16+18+20)/3).

If the randomly selected group member indicated in the contribution table that he or she contributes 1 token to the group account when the other three group members contribute 18 on average, then the total contribution of the group to the group account is 16+18+20+1=55 tokens. All group members will therefore earn 0.4x55=22 tokens from the group account in addition to the respective incomes from their private accounts.

If the randomly selected group member instead indicated in the contribution table that he or she will contribute 19 tokens to the group account if the other three group members contribute 18 on average, then the total contribution of the group to the group account is 16+18+20+19=73 tokens. Each group member will therefore earn 0.4x73=29.2 tokens from the group account in addition to the income from his or her private accounts.

The random selection is arranged in the following manner. Every person in each group is assigned a number from 1 to 4. This number is found on the last page of your decision sheet. A participant will randomly pick one of four cards **after** all participants have made their unconditional contributions and have completed the contribution table and the questionnaire. If the card that is picked corresponds to the number on your decision sheet, then the contribution table on the third page becomes income-relevant for you. If not, then the unconditional contribution on the first page is your income-relevant decision. Remember that you do not know which of the two decisions will be relevant for your earnings until you have handed in all your decisions. You should therefore complete both pages carefully.

The amount of tokens you earn will be converted into pesos and then paid in cash. Do you have any questions? Please raise your hand and a member of the experimenter team will attend to you and answer your question in private.

D.2.: Guessed Contributions for the Public Good Game (Translated from Spanish)

Experimental ID number:_____

How much do you think the other participants contributed unconditionally to the project account?

A moment ago, you wrote down your unconditional contribution and completed the conditional contribution table. Now, please tell us how much you think the other participants from your group contributed **unconditionally.**

Please write down the number of tokens **you believe the other three players** from your group have contributed on average to the project account. In other words, what number do you suspect they wrote down?

NOW you can earn more money if you **correctly guess the average contribution (rounded) of the other three players to the project account.** You can earn two additional tokens if the true average contribution of the others is equal to what you guessed, or if it is one token more or less. For example, if the true average contribution of the other three is 7 and you guess 6 or 8, you get two more tokens, while if you guess 9 you do not.

Average contribution (rounded) of the other three persons to the project account	Please mark an *x* in the box that corresponds to what you think the other three contributed unconditionally to the project account. ***ONLY MARK ONE BOX***
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

D.3.: Instructions for the Dictator Game (Translation)

Please note: variations are displayed within parentheses

General Instructions

You are about to participate in an experiment on decision-making. Regardless of what decision you make, you will receive 5,000 Colombian pesos (COP) for participating in the experiment.

Now that we have begun, all communication is strictly forbidden. Participants who communicate will be excluded from the experiment and will not receive payment. If you have any questions, please raise your hand and a member of the experimenter team will attend to you.

First you will take part in a decision-making task and then you will have to answer a few questionnaires. Although some questions may appear strange to you, we ask you to still take them seriously. All your answers will remain **confidential and anonymous**. To identify you during and after the experiment, we use only the numbers you received when you entered the room. These numbers will be used to identify you when paying you at the end of the experiment.

Please note: You must write your identification number on all your answer sheets in order for us to be able to pay you.

When the experiment is over, you will be asked to leave the room. As you leave the room, you should hand in your identification number to a member of the experimenter team. He or she will place the number in an envelope, seal it and hand it back to you to keep your decision anonymous and confidential. Then please walk to the room next door to claim you payment. To receive your payment (about 20 minutes after the end of the experiment), you will need to present the sealed envelope with your identification number still inside, just as it was handed to you before leaving the room. The payment will then be given to you in private in another sealed envelope to keep your earnings confidential.

Decision task: You have been given an endowment of 15,000 COP. Your task is to decide how to divide the 15,000 COP between Red Cross Colombia and yourself. Write down the amount you wish to donate to Red Cross Colombia and how much you would like to keep for yourself on your decision sheet, which will soon be handed to you. In this experiment, any decision is valid. This means that you can donate all, some, or nothing.

After the experiment is over, the experimenters will add all donations and send the total amount to Red Cross Colombia within 5 days. A receipt of the total donation will be posted on the notice board of the IDEA (departamento de Ingeniería Sanitaria).

D.4.: Guessed Contributions for the Dictator Game (Translation)

How much do you think other participates in this session have donated on average?

You will receive an extra 2,000 COP for a correct guess or for a guess that is within a margin of plus or minus one thousand.

EXAMPLE: If the average of the donations made by the other participants is 10,000, you will get an extra 2,000 COP if you guessed 9,000, 10,000, or 11,000.

Please indicate your guess on the line below:

_____

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