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Second Thoughts on Free Riding *

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Second Thoughts on Free Riding[*]

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Abstract

We use the strategy method to classify subjects into cooperator types in a large-scale online Public Goods Game and find that free riders spend more time on making their decisions than conditional cooperators and other cooperator types. This result is robust to reversing the framing of the game and is not driven by free riders lacking cognitive ability, confusion, or natural swiftness in responding. Our results suggest that conditional cooperation serves as a norm and that free riders need time to resolve a moral dilemma.

Keywords: Response Time; Free Riding; Public Goods; Experiment
JEL Codes: C70; C90; D03

1 Introduction

Is cooperation and prosocial behavior intuitive to people, or is their first instinct to free ride and behave selfishly? The answer to this question bears the promise of providing insights to the motives behind cooperative and prosocial behavior. As pointed out by Gächter (2012), finding out whether cooperation is instinctive or not is especially important for understanding behavior in novel situations.

One way to address this question is to study response times in economic experiments. Response times are measured as the time it takes to make a decision and are used to indicate whether a choice is made intuitively or after a deliberate thought process. They have been studied in psychology for decades (e.g. Luce, 1986) and have recently received more attention in economics, too (e.g. Wilcox, 1993 and Rubinstein, 2007). Empirical findings on the relationship between response times and prosociality are mixed. Rubinstein (2004, 2007) suggests that response times are relatively short for prosocial acts such as splitting the pie equally in Dictator and Ultimatum Games. However, in Dictator Games without the salient equal split option, Piovesan and Wengström (2009) found that selfish acts were made faster than more prosocial acts.

Concerning cooperation, Rand et al. (2012) argue that cooperation in Public Goods Games is intuitive as subjects who contribute more tend to spend less time on making their decision.[1] In this paper, we add to this literature by testing the hypothesis raised by Gächter (2012) that "conditional cooperators are intuitively cooperative and selfish people take a reflected free ride". To the best of our knowledge, our paper is the first study of response times which is able to distinguish between cooperator types such as free riders and conditional cooperators, i.e. subjects who are willing to cooperate provided that others cooperate, too.[2] Previous studies (Rand et al., 2012; Lotito et al., 2013; Tinghög et al., 2013) have focused on Public Goods Games in which subjects could not condition their choices on the choices of others. Using such methods, it is impossible to infer whether someone who does not contribute to a common pool is a free rider or a conditional cooperator with pessimistic beliefs about the others' contributions. To

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[1] Lotito et al. (2013) corroborate their findings, whereas Tinghög et al. (2013) contest these results by forcing subjects to decide under time pressure.

[2] Conditional cooperators are found to be the most common type, typically with about half to two thirds of all individuals being classified as such (e.g. Fischbacher et al., 2001, Kocher et al., 2008, and Thöni et al., 2012).

circumvent this problem, we employ the strategy version of the Public Goods Game introduced by Fischbacher et al. (2001).

We use data from an online Public Goods Game conducted with a large and random sample of the Danish adult population. We find clear and significant evidence that free riders spend much more time on making a decision than conditional cooperators and other cooperator types. The median free rider spent more than 400 seconds, whereas the median conditional cooperator spent less than 90 seconds.

Our experimental procedure enables us to match choice data with, among other things, rich individual-level data from the Danish population registers. This technique provides us with a series of novel control variables such as the subjects' general swiftness in responding to surveys, their cognitive ability, and their educational attainment. We use these control variables to address the concern that free riders tend to be slower in making their (non-)cooperative choices, simply because they are generally slower in responding to questions ("swiftness"), which could be due to lacking cognitive ability or being less educated. None of these hypotheses can explain our findings, however. In fact, free riders scored significantly higher on a cognitive reflection test.

We also implement two treatments in which the game is framed in reverse. In the *Give* treatment, subjects choose how much to contribute to a common pool, whereas in the *Take* treatment subjects choose how much to withdraw from that pool. This treatment variation serves as a manipulation check. A given level of cooperation generally requires typing different numbers in the two treatments. For example, a free rider in our experiment must type 0 (i.e. no contribution) in the Give treatment but type 50 (i.e. withdraw everything) in the Take treatment. We use the treatment variation to control for a predisposition towards choosing high or low numbers or the fact that typing a one-digit number is faster than typing a two-digit number.

Our results support the hypothesis that conditional cooperators base their decision on intuition and that free riders base their decision on deliberation. We interpret our results as follows: Conditional cooperation serves a norm and breaking this norm by choosing to free ride leads to a moral dilemma which requires more deliberation to overcome. That is, the seemingly selfish free riders appear to have second thoughts as they are affected by the norm of conditional cooperation and only manage to free ride after a time-consuming justification process.

2 Sample and design

The Public Goods Game discussed here was part of the first wave of the Internet Laboratory for Experimental Economics (iLEE1) at the University of Copenhagen in May 2008 (see Thöni et al., 2012 for a description of iLEE1).[3] Statistics Denmark recruited a representative subject pool of the Danish adult population aged 18-80 years for us. In order to maintain subject-subject and subject-experimenter anonymity, Statistics Denmark sent hard-copy invitation letters to the subjects (see Appendix, Figure A.1) who participated remotely. Subjects were paid for their participation via electronic bank transfers.

Our study sample consists of 2,081 subjects who completed the Public Goods Game. These were randomly assigned to the Give and Take treatments in a between-subjects design in proportion 2:1 (1,391 vs. 690). 48.4% of our sample are women and the average participant was 45.6 years old ($\sigma = 14.5$), had 13.4 years of education ($\sigma = 2.5$), and had a gross income in 2008 of 343,864 DKK ($\approx$ 60,000 USD). See Appendix, Section A for descriptive statistics.

In the Give treatment, subjects were matched in groups of four. Each subject was endowed with 50 DKK. First, all four group members decided how much, if anything, they wanted to contribute to a common pool without knowing how much the others had contributed. Subjects could contribute any integer amount between 0 and 50 DKK. We used both written instructions and illustrations to explain that contributions to the common pool would be doubled and split evenly between the four group members independent of their individual contributions. Hence, a marginal contribution of 1 DKK was worth 2 DKK to the group, but only 0.5 DKK to the contributor. Subjects received no feedback before proceeding to the second stage in which all four group members indicated how much they wished to contribute *conditional* on how much the other group members had contributed on average. Specifically, subjects indicated their contribution given that the others had contributed 0 DKK, 5 DKK,..., 50 DKK on average. Hence, each subject submitted 11 conditional choices. We paid subjects by randomly picking the unconditional choices of three group members and the corresponding conditional choice of the fourth group member.

The Take treatment was identical to Give, except that the endowments were now initially placed in the common pool from which the subjects could withdraw up to 50

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[3]The choice data from this game has also been studied in Thöni et al. (2012) and Fosgaard et al. (2013).

DKK each. See Appendix, Section B for details.

Response times were measured in seconds from opening the screen with conditional decision-making until submitting the 11 conditional choices and they ranged from 9 seconds to 4.7 days since no time restrictions applied. They were not significantly different across the two treatments ($p = 0.571$, Mann-Whitney test). The median response time was 102 seconds in the Give treatment and 105 seconds in the Take treatment.

3   Results

We identify three cooperator types for our analysis. "Free riders" are those subjects who contribute nothing to the common pool independent of the others' contributions. "Conditional cooperators" are those who weakly increase their own contribution in response to an increase by the others with at least one strict increase. "Other cooperators" is the residual category, which consists of subjects who make a positive contribution in at least one of the 11 instances. This category includes, for instance, unconditional cooperators who contribute the same positive amount independent of the others' contribution choices. A majority of the participants were conditional cooperators. In the Give treatment, 68% were conditional cooperators (Take: 55%), 15% were free riders (Take: 21%), and 17% were other cooperators (Take: 24%).

Figure 1 shows that free riders were much slower than the cooperators. The median response time in the Give treatment was 459 seconds (Take: 410 seconds) for the free riders, 87 seconds (Take: 81 seconds) for the conditional cooperators, and 89 seconds (Take: 94 seconds) for the other cooperators. Hence, the median free rider was about *five times slower* than the median conditional cooperator in either treatment. Interestingly, response times varied more for free riders than for cooperators. Nonparametric tests show that free riders were significantly slower than both the conditional cooperators and the other cooperators. However, the response times of the conditional cooperators and other cooperators were not significantly different.[4]

Table 1 shows that these results are robust to controlling for other factors in a series of Tobit regressions of response times on cooperator types. We have set conditional

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[4]Mann-Whitney tests: Free riders *versus* conditional cooperators: $p < 0.001$ (Give), $p < 0.001$ (Take). Free riders *versus* other cooperators: $p < 0.001$ (Give), $p < 0.001$ (Take). Conditional cooperators *versus* other cooperators: $p = 0.964$ (Give), $p = 0.126$ (Take).

Figure 1: Boxplots of response times across cooperator types
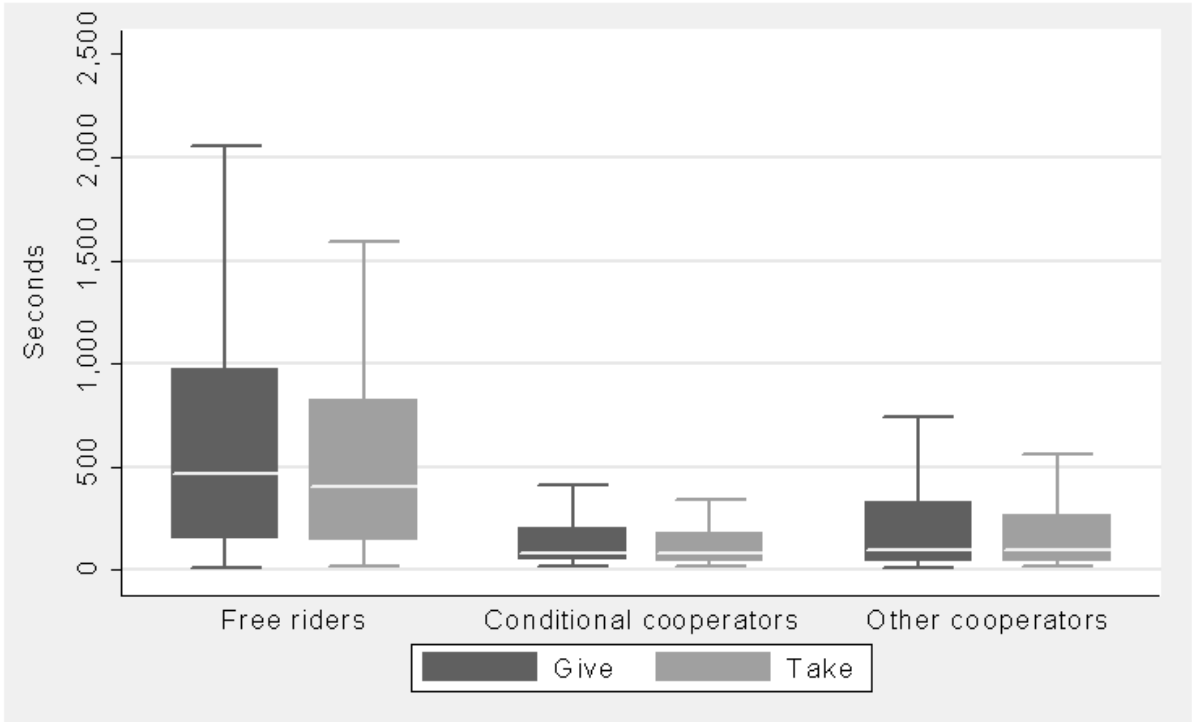
Notes: The white line inside a box shows the median, the top and bottom of a box show the 25th and 75th percentile, respectively. The whiskers show the extreme observations within the 1.5 interquartile range.

cooperators as the baseline category and top-coded response times at 600 seconds to prevent our results from being driven by extreme outliers. We find that free riders were more than four minutes slower on average than the conditional cooperators (see columns 1 and 4, first line). This difference in speed is highly significant and robust to other estimation procedures (see Appendix, Section C). The other columns of Table 1 serve to demonstrate that these pronounced differences in response times are not explained by differences in general swiftness, reading pace, cognitive ability, or other observable characteristics such as age, gender and education.

Swiftness is a dummy variable that measures whether the subject spent 0-30 seconds ("fast", 35% of the subjects), 31-60 seconds ("medium", 45%) or more than 60 seconds ("slow", 20%) on answering three simple survey questions about his or her own age, gender, and education.[5] The construction of the dummy variable *Reading* is similar.

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[5]The purpose of the questions was to validate the subjects' identities as we cannot be certain that an invited subject about whom we have access to register data also was the person who actually made choices in the experiment (and not, say, the teenage son of an invited subject). We have discarded 41 subjects from our original sample on this account. Note that the invited subjects were not informed that we know their characteristics.

Table 1: Regressions of response times in seconds on cooperator types

	Give			Take		
	(1)	(2)	(3)	(4)	(5)	(6)
Free rider	268.5***	253.6***	241.6***	259.0***	250.8***	235.7***
	(16.9)	(17.0)	(16.6)	(20.4)	(20.1)	(19.9)
Other cooperator	47.4**	43.9**	40.9**	34.0	41.7*	50.5**
	(15.9)	(15.7)	(15.3)	(18.9)	(19.1)	(18.7)
Swiftness, fast[a]		-54.4**	-14.1		-74.3**	-42.9
		(18.9)	(19.1)		(24.3)	(24.5)
Swiftness, medium[b]		-50.7**	-29.5		-36.9	-22.3
		(16.1)	(15.8)		(21.1)	(20.7)
Reading, fast[c]			-134.5***			-112.9***
			(15.9)			(21.3)
Reading, medium[d]			-76.4***			-53.7**
			(14.5)			(19.6)
Age		1.28**	0.91		-0.046	-0.35
		(0.49)	(0.48)		(0.63)	(0.61)
Female		43.7***	41.8***		64.3***	59.3***
		(11.7)	(11.4)		(15.7)	(15.3)
Education		2.08	1.81		-0.22	-0.87
		(2.48)	(2.42)		(3.10)	(3.03)
Cognitive reflection test		26.9***	21.0***		16.1*	12.3
		(5.75)	(5.64)		(7.74)	(7.59)
Progressive matrices test		-5.10*	-4.21*		-1.85	-0.78
		(2.07)	(2.01)		(2.73)	(2.68)
Constant	173.4***	114.9**	191.8***	151.5***	159.0**	223.8***
	(6.99)	(44.5)	(44.8)	(10.4)	(56.6)	(57.0)
Observations	1391	1361	1361	690	669	669

Notes: Tobit regression with response times top-coded at 600 seconds as the dependent variable. Standard errors in parentheses. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The variable indicates whether a subject spent 0-2 minutes ("fast", 33% of the subjects), 2-4 minutes ("medium", 41%), or more than 4 minutes ("slow", 26%) on reading the instructions for the game. The variable may capture both a person's ability/willingness to deliberate and his or her natural swiftness.

We also use two measures of cognitive ability as control variables: A three-item *Cognitive reflection test* which measures the ability to perform system 2-thinking (Frederick, 2005) and a 20-item *Progressive matrices test* which measures the ability to think logically in novel situations (Beauducel et al., 2010). On average, the subjects submitted 1.46 correct answers ($\sigma = 1.10$) in the cognitive reflection test and 8.64 correct answers

$(\sigma = 3.24)$ in the progressive matrices test.

We observe that women were generally slower than men and that subjects who spent relatively little time on reading the instructions also spent less time on submitting their contribution choices.

Table 2 shows that the only observed characteristics that robustly correlate with being a free rider are the time spent on reading the instructions and the score on the cognitive reflection test. Those who read the instructions more slowly (more carefully we presume) and those with a tendency to reflect more cognitively are more likely to be free riders.[6] In contrast, natural swiftness and education are uncorrelated with free riding.

Earlier studies have pointed out that subjects in public goods game experiments are often confused about the incentive structure of the game (e.g. Andreoni, 1995, Houser and Kurzban, 2002, and Bayer et al., 2013). Ferraro and Vossler (2010) argue that many subjects erroneously believe conditional cooperation to be payoff maximizing. If this were true, confused conditional cooperators may experience less of a trade-off between maximizing own payoff and the payoff of the group. Observed differences in response times between conditional cooperators and free riders could thus be driven by a link between conditional cooperation and confusion rather than by a link between free riding and struggling to break a social norm.

To asses this concern, we asked six questions about the incentive structure of the game immediately after the Public Goods Game. Subjects were paid for providing correct answers to questions like: "A person who only cares about own income and expects the others to contribute 25 DKK on average would contribute __ DKK". In line with the literature, we find that only about half of the subjects answered all questions correctly. However, only 14% of the free riders in either treatment were confused. Importantly, our regressions in Table 1 (and to a lesser degree in Table 2) are robust to discarding the confused subjects (see Appendix, Tables A.2 and A.7). We conclude that differences in confusion across cooperator types cannot account for our main finding.

In summary, we find that free riders are slow making their choices and conclude

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[6]The median free rider spent 180 seconds on reading the instructions in the Give treatment (Take: 211 seconds), the median conditional cooperator spent 147 seconds (Take: 152 seconds), and the median other cooperator spent 161 seconds (Take: 129 seconds). Mann-Whitney tests: Free riders *versus* conditional cooperators: $p < 0.001$ (Give), $p < 0.001$ (Take). Free riders *versus* other cooperators: $p = 0.015$ (Give), $p < 0.001$ (Take). Conditional cooperators *versus* other cooperators: $p = 0.216$ (Give), $p = 0.007$ (Take).

Table 2: Regressions of being a free rider on individual characteristics

	Give		Take	
	(1)	(2)	(3)	(4)
Swiftness, fast[a]	-0.020	0.002	-0.088	-0.046
	(0.029)	(0.031)	(0.043)	(0.046)
Swiftness, medium[b]	-0.009	0.001	-0.069	-0.044
	(0.025)	(0.025)	(0.039)	(0.040)
Reading, fast[c]		-0.070**		-0.154***
		(0.022)		(0.033)
Reading, medium[d]		-0.024		-0.154***
		(0.021)		(0.032)
Age	0.001	0.001	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Female	-0.030	-0.031	-0.006	-0.015
	(0.019)	(0.018)	(0.032)	(0.031)
Education	0.010*	0.009*	0.004	0.003
	(0.004)	(0.004)	(0.006)	(0.006)
Cognitive reflection test	0.052***	0.048***	0.047**	0.039*
	(0.009)	(0.009)	(0.016)	(0.015)
Progressive matrices test	0.004	0.005	0.009	0.012*
	(0.003)	(0.003)	(0.006)	(0.006)
Observations	1361	1361	669	669

Notes: Logit regression. Marginal effects at means are reported with standard errors in parentheses. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

that this indicates that they have "second thoughts", i.e. need time to deliberate about whether they ought to break a social norm of (conditional) cooperation. We find no evidence that free riders are generally slow in responding, less intelligent or less educated. Instead, they tend to be more cognitively able, read the instructions carefully, and tend to be less confused than cooperators.

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Appendix

This document is structured as follows: Section A compares our respondents with the non-respondents from our representative sample of the Danish adult population. Section B presents translated experimental instructions. In Section C, we provide robustness checks of the regressions presented in the main paper. Figure A.1 shows the invitation letter.

A   Representativeness of sample

Statistics Denmark created a random sample of the Danish adult population aged 18-80 years in late 2007 consisting of 40,000 adults. We randomly invited 22,027 persons for participation in the first wave of the iLEE panel in 2008. In Table A.1, we compare our study sample with the non-respondents from the sample of 40,000 adults. We see that due to self-selection, our study sample is younger, better educated, and has a higher income than the representative population.

Table A.1: Representativeness of sample

	Respondents	Non-respondents	t-test
Age	45.6	48.0	$p < 0.001$
	(14.5)	(16.4)	
Female	0.484	0.505	$p = 0.069$
	(0.500)	(0.500)	
Years of education	13.4	12.1	$p < 0.001$
	(2.49)	(2.94)	
Gross income (DKK)	343,864	279,794	$p < 0.001$
	(247,839)	(249,630)	
Observations	2,081	37,829	

Notes: Means are reported with standard deviations in parentheses. p-values come from two-sided tests.

B   Instructions

In this section, we show translated instructions. Original instructions were in Danish and presented on four screens per treatment. We show instructions for treatment Give below. Treatment Take used the same instructions except for text indicated in brackets.

Before the subjects proceeded to the game described below, they played a simple Public Goods Game with the same parameters as the main game discussed here and in the respective framing (referred to as part 1 below). In part 1, the rules of the game were carefully explained, including the use of graphical illustrations shown in Figure A.2 (Give treatment) and Figure A.3 (Take treatment). Subjects were able to review the instructions for part 1 during part 2 by clicking the respective button on the screen. They could also click a button to use a built-in calculator.

Figure A.1: Invitation letter to iLEE1 in 2008

DANMARKS STATISTIK

Name
Address

Kære **Name**

Danmarks Statistik og Internet Laboratoriet for Eksperimentel Økonomi (iLEE) ved Økonomisk Institut på Københavns Universitet inviterer dig hermed til at deltage i et eksperiment vedrørende økonomiske beslutningsprocesser.

Eksperimenter er et vigtigt redskab inden for økonomisk forskning, idet de er med til at skabe en bedre forståelse for, hvordan mennesker træffer økonomiske beslutninger. I sidste ende kan dette være med til at forbedre den førte økonomiske politik. Et økonomisk eksperiment kan tage mange forskellige former – eksempelvis kan det gå ud på, at deltagerne skal købe og sælge varer på et fiktivt marked eller træffe beslutninger om at investere.

For at opnå et repræsentativt billede har Danmarks Statistik udvalgt et stort antal personer fra hele Danmark, som nu får mulighed for at deltage i eksperimentet. Du er blandt de tilfældigt udtrukne. Din deltagelse er naturligvis frivillig, men vi håber meget, at du vil deltage. Der kræves ingen særlig kendskab til hverken økonomi eller computere for at kunne deltage i eksperimentet, og dine beslutninger i eksperimentet bliver behandlet strengt fortroligt og anonymt.

Ved at deltage i eksperimentet får du mulighed for at tjene penge. Vi kan ikke garantere dig, at du vil tjene et bestemt beløb, idet din indtjening vil afhænge af dine egne samt andre deltageres beslutninger. De nærmere regler er beskrevet på hjemmesiden.
For at sikre deltagerne fuld anonymitet logger alle deltagere ind med et tilfældigt udvalgt nummer. Vi laver en række forskellige eksperimenter, og alle deltager derfor ikke i det samme eksperiment. For at se detaljerne i netop dit eksperiment, herunder opgaven, tidsforbrug mv., bedes du snarest muligt logge ind på vores hjemmeside:

www.econ.ku.dk/ilee med dit login nummer: **28.826-6**

Hvis du har problemer med at logge ind eller har yderligere spørgsmål, er du velkommen til at kontakte Økonomisk Institut på e-mail **ilee@econ.ku.dk** eller telefon 35 32 44 09.

Med venlig hilsen og på forhånd tak for din hjælp.

Isak Isaksen
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Figure A.2: Illustration explaining the Give treatment
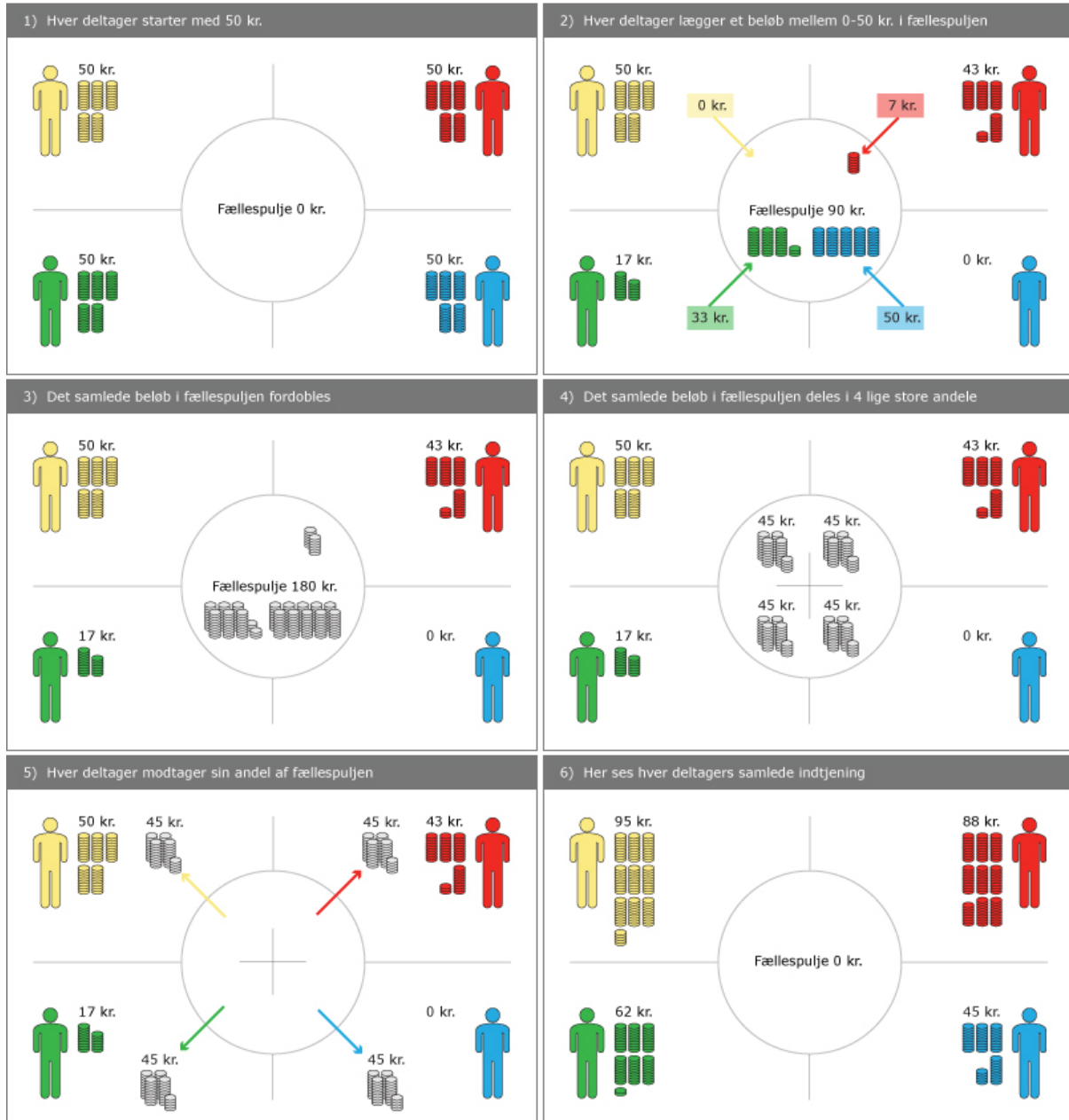
Translated text: "1) Every participant starts with 50 DKK. 2) Every participant puts an amount between 0-50 DKK in the common pool. 3) The total amount in the common pool is doubled. 4) The total amount in the common pool is divided in 4 equal shares. 5) Every participant receives his or her share from the common pool. 6) Here is every participant's total earnings."

Figure A.3: Illustration explaining the Take treatment
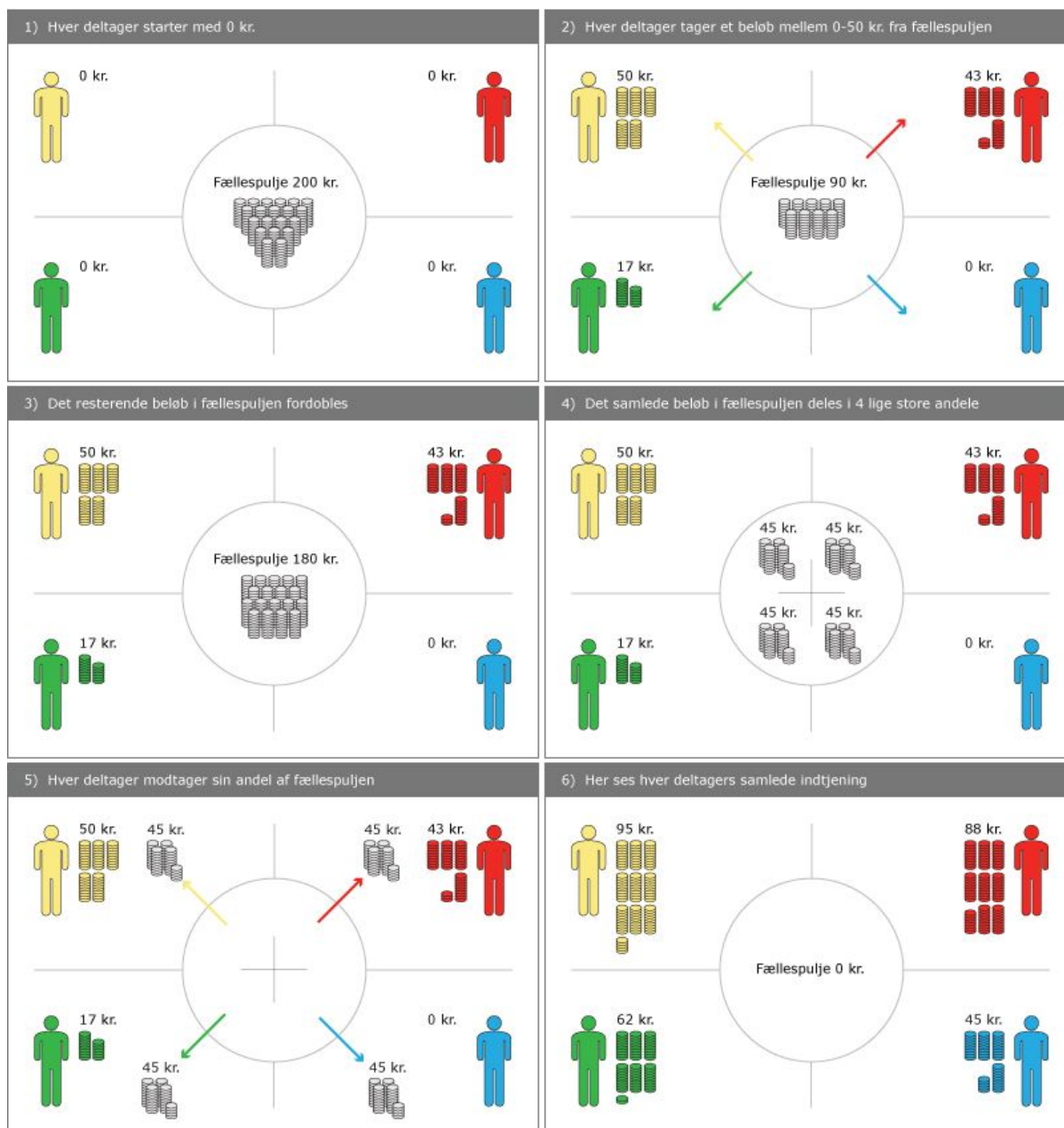
Translated text: "1) Every participant starts with 0 DKK. 2) Every participant withdraws an amount between 0-50 DKK from the common pool. 3) The total amount in the common pool is doubled. 4) The total amount in the common pool is divided in 4 equal shares. 5) Every participant receives his or her share from the common pool. 6) Here is every participant's total earnings."

B.1 Instructions for the Give treatment

[Screen 1: Instructions]
Instructions - part 2

You are in a **new group** in part 2. You and every group member again receive **an initial endowment of 50 DKK from us** [Your group again starts with an **endowment of 200 DKK from us**]. You are, however, about to be in two different situations now.

Situation 1 resembles the first part of the experiment. You must decide how much you would like to give to [withdraw from] the common pool **without knowing** how much the others contribute [withdraw].

In **Situation 2** you must decide how much you would like to give [withdraw], **if you know** how much the other group members on average give to [withdraw from] the common pool. You must fill a decision table as the one you see here:

Example - Situation 2:

If the others on average put [withdraw] ... DKK in [from] the common pool	then I put [withdraw] ... DKK in [from] the common pool
0	[ ]
5	[ ]
.	.
.	.
.	.
45	[ ]
50	[ ]

When everyone in the group has made their decisions in Situation 1 and Situation 2, one of the four members is randomly picked.

For the picked group member, the decision table from Situation 2 will count. For the three other group members, who have not been picked, the decision from Situation 1 will count. When you make your decisions in Situation 1 and Situation 2, you will not be informed whether you have been picked. **You are therefore requested to carefully consider all decisions as they might turn out to be relevant for you.**

Example 1

Assume that you have been picked. This means that it is your decision table which counts. For the three other group members it is the decision from Situation 1 that counts. Assume that they have chosen to put 0, 10, and 20 DKK in [withdraw 50, 40, and 30 DKK from] the common pool, i.e. 10 DKK [40 DKK] on average. If you have decided in your decision table to contribute 8 DKK [withdraw 42 DKK] in case the others contribute 10 DKK [withdraw 40 DKK] on average, then the total amount in the common pool is 0 + 10 + 20 + 8 = 38 DKK. This amount is doubled to 76 DKK and shared equally such that each group member receives 19 DKK from the common pool plus the amount they

have decided to keep [withdraw].

Example 2
Assume that you have not been picked. This means that for you and two other group members, it is the decision in Situation 1 which counts. Assume that your decision in Situation 1 was to contribute 40 DKK [withdraw 10 DKK] and that the two others contribute 20 and 30 DKK, respectively. On average, you and the two other group members put 30 DKK [withdraw 20 DKK]. If the picked group member has chosen to put 10 DKK in [withdraw 40 DKK from] the common pool, when the others on average put 30 DKK [withdraw 20 DKK], then the total amount in the common pool will be 40 + 30 + 20 + 10 = 100 DKK. This amount is doubled to 200 DKK and shared equally such that every group member receives 50 DKK from the common pool plus the amount they have decided to keep [withdraw].

Note that averages will be rounded to nearest 5 DKK. For example, 13.5 DKK will be rounded to 15 DKK.

[Continue]

[Screen 2: Unconditional decision making]
Situation 1

Once again, you must decide how much to put into [withdraw from] the common pool. You can enter an integer between 0 and 50.

I would like to put [withdraw] __ DKK in [from] the common pool.

[Confirm your decision]

[Screen 3: Conditional decision making]
Situation 2

Please enter how much you would like to contribute [withdraw] if you knew how much the others on average contributed to [withdrew from] the common pool. Please fill out all 11 cells in the decision table. In each of the cells, you can enter integers between 0 and 50.

If the others on average put [withdraw] ... DKK in [from] the common pool	then I put [withdraw] ... DKK in [from] the common pool
0	[ ]
5	[ ]
10	[ ]
15	[ ]
20	[ ]
25	[ ]
30	[ ]
35	[ ]
40	[ ]
45	[ ]
50	[ ]

17

[Screen 4: Confusion questions]
What would different kinds of people do?

You are now requested to fill out the two tables below. The tables are similar to the decision table, which you have just filled out. Now, however, you must fill out the first table as if you were only interested in your own income, and the other table as if you only cared about others' income.

You receive 5 DKK for every correct answer, i.e. up to 30 DKK in total.

Imagine that you are a person, who only cares about **own** income.

A person, who only cares about own income and
expects the others to contribute [withdraw] 0 DKK
on average, would contribute [withdraw]   __ DKK to [from] the common pool
A person, who only cares about own income and
expects the others to contribute [withdraw] 25 DKK
on average, would contribute [withdraw]   __ DKK to [from] the common pool
A person, who only cares about own income and
expects the others to contribute [withdraw] 50 DKK
on average, would contribute [withdraw]   __ DKK to [from] the common pool

Imagine now that you are a person, who only cares about **others'** income.

A person, who only cares about others' income and
expects the others to contribute [withdraw] 0 DKK
on average, would contribute [withdraw]   __ DKK to [from] the common pool
A person, who only cares about others' income and
expects the others to contribute [withdraw] 25 DKK
on average, would contribute [withdraw]   __ DKK to [from] the common pool
A person, who only cares about others' income and
expects the others to contribute [withdraw] 50 DKK
on average, would contribute [withdraw]   __ DKK to [from] the common pool

[Confirm your answers]

C Robustness checks

In this section, we provide robustness checks of the regressions presented in Tables 1 and 2 in the main paper. We make the following robustness checks:

Table A.2: Regressions from Table 1 in the main paper using only subjects that answered all of the incentivized post-experiment control questions correctly (see Screen 4 in the instructions).

Table A.3: Regressions from Table 1 in the main paper, but with top-coding at 300 seconds.

Table A.4: Regressions from Table 1 in the main paper, but with OLS regressions and response times observations above 600 discarded.

Table A.5: Regressions from Table 1 in the main paper, but with OLS regressions and response times observations above 300 discarded.

Table A.6: Regressions from Table 1 in the main paper, but with median regressions.

Table A.7: Regressions in Table 2 in the main paper using only subjects that answered all of the incentivized post-experiment control questions correctly (see Screen 4 in the instructions).

Table A.8: Regressions in Table 2 with linear probability model (LPM) regressions instead of logit regressions.

Table A.2: Regressions of response times in seconds on different cooperator types with non-confused subjects only

	Give			Take		
	(1)	(2)	(3)	(4)	(5)	(6)
Free rider	250.5***	244.4***	241.6***	263.3***	255.7***	249.6***
	(22.5)	(22.5)	(22.2)	(25.7)	(24.8)	(25.0)
Other cooperator	82.2**	75.2**	72.6**	90.7**	93.6**	97.0**
	(28.4)	(28.3)	(28.0)	(31.8)	(31.2)	(31.0)
Swiftness, fast[a]		-37.1	-8.05		-62.7	-46.6
		(32.6)	(33.0)		(34.4)	(34.7)
Swiftness, medium[b]		-42.2	-30.7		-18.7	-10.2
		(28.2)	(28.0)		(30.1)	(30.1)
Reading, fast[c]			-111.0***			-66.4*
			(26.6)			(30.6)
Reading, medium[d]			-61.4**			-11.1
			(23.1)			(26.8)
Age		0.61	0.47		-0.13	-0.30
		(0.83)	(0.82)		(0.89)	(0.89)
Female [a]		69.7***	67.0***		71.8**	69.4**
		(19.2)	(19.0)		(22.2)	(22.1)
Education		3.74	3.49		-3.79	-4.47
		(4.14)	(4.10)		(4.42)	(4.39)
Cognitive reflection test		21.1*	15.4		0.61	-0.77
		(9.57)	(9.55)		(11.1)	(11.0)
Progressive matrices test		-10.6**	-8.16*		-5.40	-4.63
		(3.61)	(3.60)		(3.85)	(3.84)
Constant	200.0***	187.0*	226.4**	155.8***	257.5**	286.2***
	(12.3)	(76.6)	(77.5)	(15.2)	(80.6)	(81.8)
Observations	667	659	659	401	392	392

Notes: Tobit regressions with response times top-coded at 600 seconds as the dependent variable. Standard errors in parentheses. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
*, $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

Table A.3: Regressions of response times in seconds on different cooperator types with top-coding at 300 seconds

	Give			Take		
	(1)	(2)	(3)	(4)	(5)	(6)
Free rider [a]	166.0***	156.4***	147.5***	152.0***	147.4***	136.5***
	(11.2)	(11.3)	(10.9)	(12.9)	(12.8)	(12.4)
Other cooperator [a]	17.5	16.5	14.4	18.7	22.4	29.1**
	(9.70)	(9.63)	(9.32)	(11.4)	(11.5)	(11.1)
Swiftness, 0-30s[a]		-39.6***	-13.5		-59.3***	-35.0*
		(11.7)	(11.7)		(14.9)	(14.7)
Swiftness, 31-60s[a]		-32.8**	-19.5*		-30.4*	-19.6
		(9.98)	(9.78)		(12.9)	(12.6)
Instructions, 0-120s[a]			-86.9***			-83.2***
			(9.82)			(12.9)
Instructions, 121-240s[a]			-46.0***			-32.0**
			(9.00)			(11.9)
Age		0.65*	0.42		0.0094	-0.21
		(0.30)	(0.29)		(0.38)	(0.37)
Female [a]		27.5***	26.3***		34.2***	30.3**
		(7.25)	(7.02)		(9.57)	(9.23)
Education		1.29	1.20		-0.44	-0.98
		(1.53)	(1.48)		(1.90)	(1.83)
Cognitive reflection test		16.6***	12.5***		8.72	5.76
		(3.55)	(3.46)		(4.72)	(4.57)
Progressive matrices test		-2.74*	-2.19		-0.82	-0.13
		(1.28)	(1.24)		(1.66)	(1.60)
Constant	142.3***	111.4***	158.6***	128.2***	145.8***	191.3***
	(4.28)	(27.5)	(27.6)	(6.24)	(34.5)	(34.4)
Observations	1391	1361	1361	690	669	669

Notes: Tobit regressions with response times top-coded at 300 seconds as the dependent variable. Standard errors in parentheses. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
*, $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

Table A.4: Regressions of response times in seconds on different cooperator types with cutoff at 600 seconds

	Give			Take		
	(1)	(2)	(3)	(4)	(5)	(6)
Free rider [a]	127.5***	121.4***	116.8***	117.4***	117.8***	106.9***
	(12.3)	(12.6)	(12.4)	(14.4)	(14.5)	(14.3)
Other cooperator [a]	-4.11	-0.90	-1.27	6.47	6.42	15.0
	(10.4)	(10.5)	(10.4)	(12.0)	(12.4)	(12.1)
Swiftness, 0-30s[a]		-24.1	-5.88		-53.0**	-29.5
		(12.7)	(12.9)		(16.2)	(16.2)
Swiftness, 31-60s[a]		-18.1	-9.96		-26.5	-16.2
		(10.9)	(10.8)		(14.1)	(13.8)
Instructions, 0-120s[a]			-61.3***			-82.2***
			(10.8)			(14.2)
Instructions, 121-240s[a]			-29.2**			-29.3*
			(10.0)			(13.2)
Age		0.47	0.37		0.22	0.0086
		(0.32)	(0.32)		(0.42)	(0.41)
Female [a]		22.9**	22.9**		13.1	10.9
		(7.80)	(7.70)		(10.4)	(10.1)
Education		0.94	0.85		-1.29	-1.74
		(1.64)	(1.62)		(2.07)	(2.02)
Cognitive reflection test		15.4***	12.5**		5.95	3.42
		(3.84)	(3.83)		(5.12)	(4.99)
Progressive matrices test		-1.62	-1.16		0.28	0.97
		(1.36)	(1.35)		(1.78)	(1.74)
Constant	130.5***	95.0**	125.4***	119.6***	141.0***	183.5***
	(4.43)	(29.4)	(30.0)	(6.48)	(37.4)	(37.5)
Observations	1194	1169	1169	597	581	581
R^2	0.085	0.112	0.136	0.104	0.139	0.192

Notes: OLS regressions with response times as the dependent variable. Standard errors in parentheses. We have excluded response times exceeding 600 seconds. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
*, $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

Table A.5: Regressions of response times in seconds on different cooperator types with cutoff at 300 seconds

	Give			Take		
	(1)	(2)	(3)	(4)	(5)	(6)
Free rider [a]	22.6**	20.5*	17.1*	39.0***	38.4***	36.2***
	(7.86)	(7.97)	(7.76)	(9.28)	(9.43)	(9.39)
Other cooperator [a]	-6.51	-5.88	-6.41	4.57	5.52	9.51
	(5.39)	(5.42)	(5.28)	(6.81)	(7.04)	(6.92)
Swiftness, 0-30s[a]		-26.2***	-14.5*		-36.6***	-25.0**
		(6.62)	(6.63)		(9.40)	(9.45)
Swiftness, 31-60s[a]		-18.1**	-13.2*		-21.3*	-16.4*
		(5.72)	(5.61)		(8.37)	(8.22)
Instructions, 0-120s[a]			-42.2***			-34.7***
			(5.66)			(8.44)
Instructions, 121-240s[a]			-19.9***			-3.91
			(5.34)			(8.06)
Age		0.19	0.11		0.044	-0.043
		(0.17)	(0.17)		(0.24)	(0.23)
Female [a]		8.41*	9.04*		7.69	6.31
		(4.11)	(4.00)		(6.11)	(5.97)
Education		-0.47	-0.38		0.015	-0.21
		(0.86)	(0.83)		(1.24)	(1.21)
Cognitive reflection test		4.10*	2.11		4.08	2.83
		(2.01)	(1.97)		(3.03)	(2.97)
Progressive matrices test		-0.31	-0.060		0.040	0.16
		(0.71)	(0.70)		(1.03)	(1.01)
Constant	94.1***	102.6***	123.3***	93.2***	104.6***	120.8***
	(2.29)	(15.5)	(15.7)	(3.67)	(21.8)	(22.3)
Observations	1020	998	998	525	510	510
R^2	0.010	0.044	0.098	0.033	0.076	0.123

Notes: OLS regressions with response times as the dependent variable. Standard errors in parentheses. We have excluded response times exceeding 300 seconds. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
*, $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

Table A.6: Regressions of response times in seconds on different cooperator types

	Give			Take		
	(1)	(2)	(3)	(4)	(5)	(6)
Free rider [a]	372***	380.9***	351.4***	332***	316.3***	284.6***
	(14.3)	(15.0)	(16.2)	(21.4)	(22.1)	(24.1)
Other cooperator [a]	2	2.47	8.45	13	18.3	14.6
	(13.8)	(14.3)	(15.4)	(20.4)	(21.5)	(23.2)
Swiftness, 0-30s[a]		-38.2*	-25.3		-63.6*	-41.8
		(17.1)	(19.1)		(27.3)	(30.1)
Swiftness, 31-60s[a]		-29.6*	-26.0		-48.7*	-28.9
		(14.5)	(15.8)		(23.6)	(25.5)
Instructions, 0-120s[a]			-99.4***			-85.4**
			(16.0)			(26.2)
Instructions, 121-240s[a]			-76.3***			-47.2*
			(14.5)			(24.0)
Age		0.60	0.44		0.48	-0.011
		(0.44)	(0.48)		(0.70)	(0.76)
Female [a]		22.3*	20.4		22.3	21.9
		(10.6)	(11.4)		(17.6)	(18.9)
Education		0.96	0.11		-0.99	-1.18
		(2.25)	(2.42)		(3.48)	(3.73)
Cognitive reflection test		10.5*	7.33		6.25	4.90
		(5.21)	(5.65)		(8.70)	(9.36)
Progressive matrices test		-2.05	-1.02		0.71	0.0092
		(1.88)	(2.02)		(3.08)	(3.31)
Constant	87***	73.6	156.0***	81***	94.4	171.9*
	(6.11)	(40.4)	(45.0)	(11.2)	(63.6)	(70.2)
Observations	1391	1361	1361	690	669	669

Notes: Median regressions with response times as the dependent variable. Standard errors in parentheses. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
*, $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

Table A.7: Regressions of being a free rider on individual characteristics with non-confused subjects only

	Give		Take	
	(1)	(2)	(3)	(4)
Swiftness, fast [a]	-0.006	0.002	-0.086	-0.040
	(0.060)	(0.062)	(0.068)	(0.073)
Swiftness, medium [b]	-0.016	-0.013	-0.105	-0.073
	(0.051)	(0.052)	(0.061)	(0.063)
Reading, fast[c]		-0.028		-0.198***
		(0.048)		(0.052)
Reading, medium[d]		-0.009		-0.201***
		(0.042)		(0.051)
Age	0.003	0.003	-0.000	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Female	-0.054	-0.055	0.031	0.019
	(0.035)	(0.035)	(0.049)	(0.049)
Education	0.007	0.007	0.007	0.007
	(0.008)	(0.008)	(0.010)	(0.010)
Cognitive reflection test	0.059**	0.057**	0.037	0.032*
	(0.018)	(0.018)	(0.024)	(0.024)
Progressive matrices test	0.005	0.006	0.002	0.006*
	(0.007)	(0.007)	(0.008)	(0.009)
Observations	659	659	392	392

Notes: Logit regression. Marginal effects at means are reported with standard errors in parentheses. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.
*, $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$

Table A.8: Regressions of being a free rider on individual characteristics

	Give		Take	
	(1)	(2)	(3)	(4)
Swiftness, 0-30s [a]	-0.018 (0.032)	0.0072 (0.033)	-0.098* (0.049)	-0.049 (0.050)
Swiftness, 31-60s [a]	-0.0082 (0.027)	0.0038 (0.027)	-0.075 (0.043)	-0.044 (0.042)
Instructions, 0-120s[a]		-0.080** (0.027)		-0.19*** (0.043)
Instructions, 121-240s[a]		-0.032 (0.025)		-0.19*** (0.039)
Age	0.0013 (0.00081)	0.0011 (0.00082)	0.00023 (0.0013)	-0.00037 (0.0013)
Female [a]	-0.031 (0.020)	-0.032 (0.020)	-0.0065 (0.032)	-0.013 (0.031)
Education	0.010* (0.0041)	0.010* (0.0041)	0.0037 (0.0063)	0.0029 (0.0062)
Cognitive reflection test	0.054*** (0.0095)	0.050*** (0.0095)	0.047** (0.016)	0.039* (0.015)
Progressive matrices test	0.0040 (0.0035)	0.0045 (0.0035)	0.0092 (0.0056)	0.011* (0.0055)
Constant	-0.13 (0.074)	-0.094 (0.077)	0.071 (0.11)	0.22 (0.12)
Observations	1361	1361	669	669
R^2	0.050	0.057	0.030	0.068

Notes: LPM regressions. Standard errors in parentheses. [a] 0-30s, [b] 31-60s, [c] 0-120s, [d] 121-240s.

*, $p < 0.05$ ** $p < 0.01$, *** $p < 0.001$