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The Dynamics of Individual Preferences in Repeated Public Good Experiments

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Abstract

We investigate the stability of individual behavior in a repeated public good experiment over time by reinviting subjects back to the lab up to four times in one week intervals. We exclude effects due to learning about others' behavior and reputation building by employing a non-learning and non-reputation environment: subjects are neither told nor paid their earnings until the very end of their participation and thus deprived of any feedback information and strategic possibilities to signal their intentions. This experimental design thus leaves unstable preferences as the most likely source for unstable behavior. We observe that, in the first wave of the experiment, subjects contribute to the public good in accordance to other-regarding preferences, but become more selfish in the latter waves of the experiment and consequently contributions to the public good decrease over time. The decline is mainly caused by initially conditional cooperators who turn into free riders over the course of the experiment.

Keywords: Individual preferences, consistency, stability, experimental economics

JEL: C90, C91, C72, C73

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1. Introduction

The rational choice model used to describe individual decisions in modern economic theory does not explicitly assume that preferences are stable over time. However, using comparative statics in economics makes stable preferences a necessary *implicit* assumption, since only under this condition can comparisons between different equilibria claim validity. This holds for selfish preferences as well as for those theories which assume some kind of other-regarding behavior expressed by social preferences.[1]

Although the assumption of stable preferences is crucial for large parts of economic theory, it has seldomly been scrutinized in the literature. Yet even in the the early days of modern economic theory Pareto apparently had some doubts about it. According to Bruni and Sugden (2007), Pareto accepted the assumption of well-defined stable preferences only in situations, in which a person has the opportunity to gain some experience of the decision being made.[2] Such concerns about the stability of preferences were, however, quickly brushed aside in the literature and only revived again by von Weizsäcker (1971), who characterized endogenously changing preferences. More recently, Andersen et al. (2008) and Zeisberger et al. (forthcoming) look at the stability of risk preferences and Meier and Sprenger (2010) investigate the stability of time preferences.

The motivation for this study arises from two seemingly contradictory recent experimental findings by Brosig et al. (2011) and Volk et al. (forthcoming) on the stability of other-regarding preferences in dictator games and public good games respectively. In both studies subjects repeat the basic decision three times with a substantial amount of time passing by between each repetition or *wave* (one month intervals in the case of the repeated dictator games and 2.5 months in the case of the repeated public good games). Brosig et al. (2011) report a strong dynamic towards more selfishness in the latter waves of their experiment as less money is given to the recipient, while Volk et al. (forthcoming) find stable aggregate behavior. If anything,

[1]Other-regarding preferences include *altruism* (see, e.g., Becker 1974, Andreoni and Miller 2002), *warm glow* (see, e.g., Andreoni 1989, Andreoni 1990), *inequality aversion* (see, e.g., Fehr and Schmidt 1999, Bolton and Ockenfels 2000, Charness and Rabin 2002), and *reciprocity* (see, e.g., Sugden 1984, Falk and Fischbacher 2006).

[2]Plott 1996 later developed his quite similar idea of *discovered preferences*, e.g. people not knowing their own preferences in unfamiliar decision situations before learning them through experience.

a slight, though statistically insignificant, increase in the amount of money contributed to the public good is observed, thus pro-social behavior does not seem to erode in their experiment.

However, since important differences in the characteristics of the respective games are not perfectly incorporated by the experimental designs employed, the studies do not allow for direct comparisons or conclusions on the stability of other-regarding preferences. Most importantly, there is a strategic element to public good games (see, e.g., Andreoni 1988) that dictator games do not possess. It is argued that, if a public good game is played repeatedly and feedback is given to subjects, it could be rational for the players to signal a high willingness to cooperate (*reputation building*) in order to induce a high level of cooperation in the whole group, even though they actually have a strong preference for free riding. If that was indeed the case, giving feedback and paying subjects after each repetition as done by Volk et al. (forthcoming), is likely to trigger cooperative behavior.

In this study we also conduct a series of repeated public good experiments, but employ a non-learning and non-reputation environment by neither paying our subjects nor giving any kind of feedback until the end of the experiment. We elicit our subjects preferences on cooperation four times in one week intervals by using a variant of the strategy method (Selten 1978) introduced to public good games by Fischbacher et al. (2001). We find the same dynamic as reported by Brosig et al. (2011) in dictator games: pro-social behavior declines significantly over time, as roughly one third of initially conditional cooperators turn into free riders and the amount of money contributed to the public good decreases.

2. Experimental Design and Procedures

In this study we conduct a series of four identical standard linear one shot public good experiments at one week intervals *(waves)*. In each wave subjects are pooled into groups of four and endowed with 10.00 EUR, which they could either keep for themselves or contribute to the public good. The payoff function of subject i is given by

$$\pi_i = 10 - x_i + 0.4 \sum_{j=1}^{4} x_i \tag{1}$$

where x_i denotes the amount of money contributed to the public good.

Given this payoff function it is a dominant strategy for a payoff maximizing individual not to invest into the public good, while efficiency requires that the entire endowment is contributed to the public good.

We employ a variant of the strategy method (Selten 1978) introduced to public good games by Fischbacher et al. (2001) to elicit our subjects' preferences in each wave. The mechanism consists of two tasks. In the first task, which we will refer to as the *unconditional contribution*, we simply ask our subjects to indicate how much money from their initial endowment they wish to contribute to the public good. In the second task, the *conditional contribution scheme*, each subject is asked to indicate how much money he or she wishes to contribute, conditional on what the other group members have contributed on average (rounded to integers). To calculate the sum of contributions to the public good, we take the unconditional contributions of three group members and the conditional contribution scheme of the fourth group member, whose contribution is based on the average of the other three group members' unconditional contributions. Picking the forth group member randomly ensures that the mechanism is incentive compatible. Applying the strategy method is essential, because the subjects' direct response in the unconditional contribution task is influenced by both preferences and beliefs about what others might contribute. For example, a perfectly conditional cooperator always wishes to match the average contribution made by the other group members, so his response to the unconditional contribution task directly reflects his belief about what the others will contribute. A decline in contributions can therefore be explained solely by changing beliefs rather than changing preferences, whereas the conditional contribution scheme task eliminates the role of beliefs and thus gives us a clear picture of a subject's preferences and preferences only.

Before the start of each experiment, subjects are given written instructions in which both the basic public good decision situation and the incentive compatible strategy method mechanism are explained in detail. In addition, each subject is asked to answer a number of control questions regarding the characteristics of our experiment see, which only starts after all subjects have answered all control questions correctly. Thus we have strong confidence that our participants perceived and understood our experiment correctly.

Eliciting our subjects' preferences in each wave will only allow for valid comparisons of preferences, if subjects perceived every repetition of the experiment as completely identical, faced an identical decision situation every time, and are in the same state of knowledge in every wave. This raises a number of issues the experimental design has to address. Most importantly, subjects must not be given an incentive to conceal their true preferences strategically in order to trigger high cooperation levels, thus learning about the other participants' behavior needs to be excluded. Therefore subjects are neither told nor paid their earnings until the end of their participation and hence no feedback information is available which otherwise could have served as a means to manipulate.

Subjects also remain anonymous throughout the entire experiment as each participant enters and leaves the laboratory on his own and gets seated in a sound-proof single cabin. The group compositions are designed such that no subject interacts with another subject more than once over the course of the entire experiment.

Adding uncertainty about being able to take part in the next wave is another feature of our design that ensures that subjects receive every repetition of our experiment as identical. It also excludes possible portfolio effects arising from a subjects' certain knowledge of taking part in the experiment a fixed number of times. Before the start of each wave our subjects are informed that the probability of taking part in the next wave was 50 %[3], with immediate payment carried out only to those, who drop out of the experiment at the end of a wave. An additional benefit of this design is that it ensures that incentives for people acting on the principle of Andreoni's *warm glow* are kept up. If no beneficiary noticed their generosity - because all results and payoffs were only revealed only towards the end of the experiment - these incentives might have been compromised otherwise.

In order to avoid endowment effects we employ a randomized payment mechanism. Subjects are only paid their earnings of one randomly picked wave multiplied with the number of waves they participated in. In the first wave 192 subjects participated. The experiment was conducted using z-Tree (Fischbacher 2007).

[3]As a protection against no-shows we randomly invited 62.5 % of all participants to the next wave but only 80 % of them would take part in the actual experiment (hence the probability of taking part was 50 %). The other 20 % provided cover for no-shows and were sent home with their payoff resulting from the former waves plus a 5.00 EUR show up fee if enough other people showed up. No show up fee was paid to subjects, who took part in the actual experiment.

3. Results

Over the course of the experiment we observe a decline in pro-social behavior as measured by both the unconditional and conditional contribution to the public good.

As mentioned before, our subjects' response to the unconditional contribution is likely influenced by both preferences and beliefs. However, since our experimental design deprives the subjects of any feedback information and thus does not give them an opportunity to update their beliefs, we feel it is worthwhile reporting our data on the unconditional contribution as well as the data obtained by the conditional contribution scheme.

We intended to put subjects into an identical decision situation in each repetition of the experiment, which includes the uncertainty of taking part in the next wave. Since our subjects knew that the whole experiment would not last longer than four weeks, we can only claim to have set up identical decision situations for the first three waves. Therefore and for the purpose of having more independent observations in our data samples we report our data both after three waves ($N = 48$) and four waves ($N = 24$).

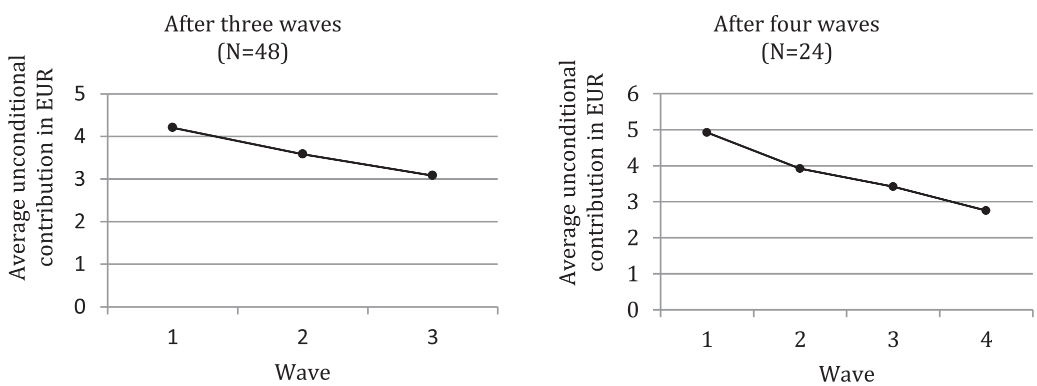

Figure 1: Average Unconditional Contributions

Figure 1 illustrates the decline in the average unconditional contributions over three and four waves respectively. The decline is statistically significant in both cases at the 1 % level.[4]

[4]Two-tailed Wilcoxon signed-rank tests Wave 1 vs. Wave 3 and Wave 1 vs. Wave 4 respectively.

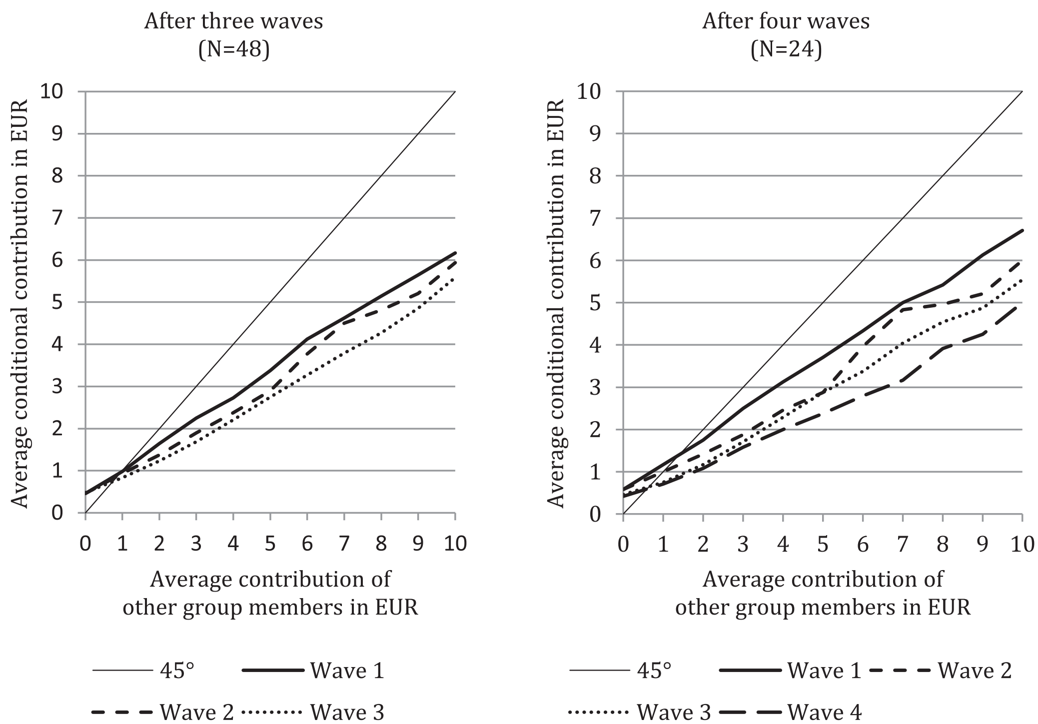

Figure 2: Average Conditional Contributions

Figure 2 represents the average conditional contributions over three (four) waves for each of the eleven individual decisions made by the 24 (48) subjects in the second task of our experiment. On average people are imperfect conditional cooperators as contributions increase fairly linerarly in the others' average contributions but lie below the 45 degree line which would indicate perfectly conditional cooperation. Notably though the level of conditional contributions to the public good declines monotonically over the course of our experiment. The decline is statistically significant for most of the eleven contribution decisions based on the others' average contributions. Only at the extremes do we not observe statistically significant differences in behavior(see Table 1).

Next we aim to identify which individual behavorial patterns are responsible for the decline in pro-social behavior we observe on the aggregate level. In a first step, we classify each subject in each wave into five different types, based on their behavior:

Table 1: Significance Levels for Conditional Contributions

	Average contribution of other group members										
	0	1	2	3	4	5	6	7	8	9	10
W1 vs. W3 (N=48)	.938	.170	.020	.032	.053	.071	.061	.072	.123	.244	.490
W1 vs. W4 (N=24)	1.000	.057	.041	.031	.036	.033	.032	.021	.079	.053	.137

Two-tailed Wilcoxon signed-rank tests

1. *Free rider*s contribute at most two EUR in any of the eleven decisions of the conditional contribution scheme or zero in all but one decision.
2. The contributions of *conditional cooperators* increase in the other's average contribution.
3. *Triangle cooperators* initially increase contributions to some point and decrease them afterwards
4. *Unconditional cooperators* always contribute their entire endowment
5. *Others*

Table 2: Classification of Subjects

	After three waves		After four waves	
	N	Share	N	Share
1. Free riders	42	29.17 %	28	29.17 %
2. Conditional cooperators	80	50.56 %	52	54.17 %
3. Triangle cooperators	9	6.25 %	8	8.33 %
4. Unconditional cooperators	3	2.08 %	4	4.17 %
5. Others	10	6.94 %	4	4.17 %
	144	100.00 %	96	100.00 %

Note: In each wave each subject is classified. Only those subjects who took part in all three (four) waves are included. Therefore we have 144 (48x3) observations after three waves and 96 (24x4) observations after four waves.

Table 2 shows the distribution of types in our experiment. Based on this classification we devide our samples into four subgroups:

1. Free rider in every wave
2. Conditional cooperator who becomes free rider
3. Conditional cooperator in every wave
4. Others

Table 3 shows the number of subjects in each subgroup after three and four waves respectively. The decline in average contributions in the whole sample caused by conditional cooperators who become free riders (subgroup

Table 3: Subgroups Based on Type Classification

	After three waves	After four waves
1. Free rider in every wave	9	3
2. Conditional cooperator who becomes free rider	7	5
3. Conditional cooperator in every wave	20	9
4. Others	12	7

2) is very apparent (see Figure 3). Individual contributions in this subgroup do not decline abruptly but gradually (see Appendix A for full data on subgroup 2) and subjects seem to follow a well-behaved behavioral pattern right from the beginning of the experiment. Thus it is unlikely that subjects turned into free rider as a result of learning the incentives of the public good game in between two repetitions after having misperceived them before. By the end of the experiment's third (forth) wave, 7 out of 27 (5 out of 14) conditional cooperators have turned into free riders, so roughly 30 % of those subjects responsible for the best part of initial cooperation in the sample stop cooperating at one point.

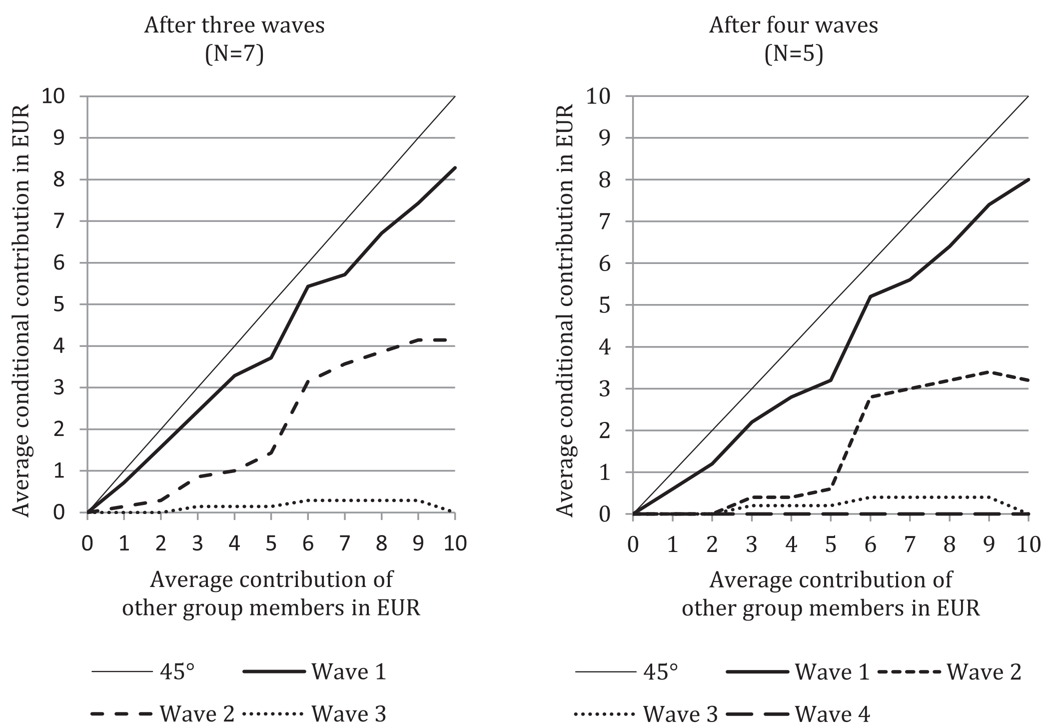

Figure 3: Average Conditional Contributions in Subgroup 2

Conditional cooperators in every wave (subgroup 3) only slightly decrease their contributions over time (Figure 4). The decline in cooperation as measured by a two-tailed Wilcoxon signed-rank test comparing the first and third (forth) waves is statistically insignificant (see Table 4). Independent one-sample t-tests, however, reveal that the means for several of the decisions made in the conditional contribution task significantly differ from expected means under the assumption of perfect conditional cooperation in waves three and four, whereas they do not in the respective first waves (see also Table 4). Testing perfect conditional cooperation thus makes a slight decline in contributions by conditional cooperators statistically visible.

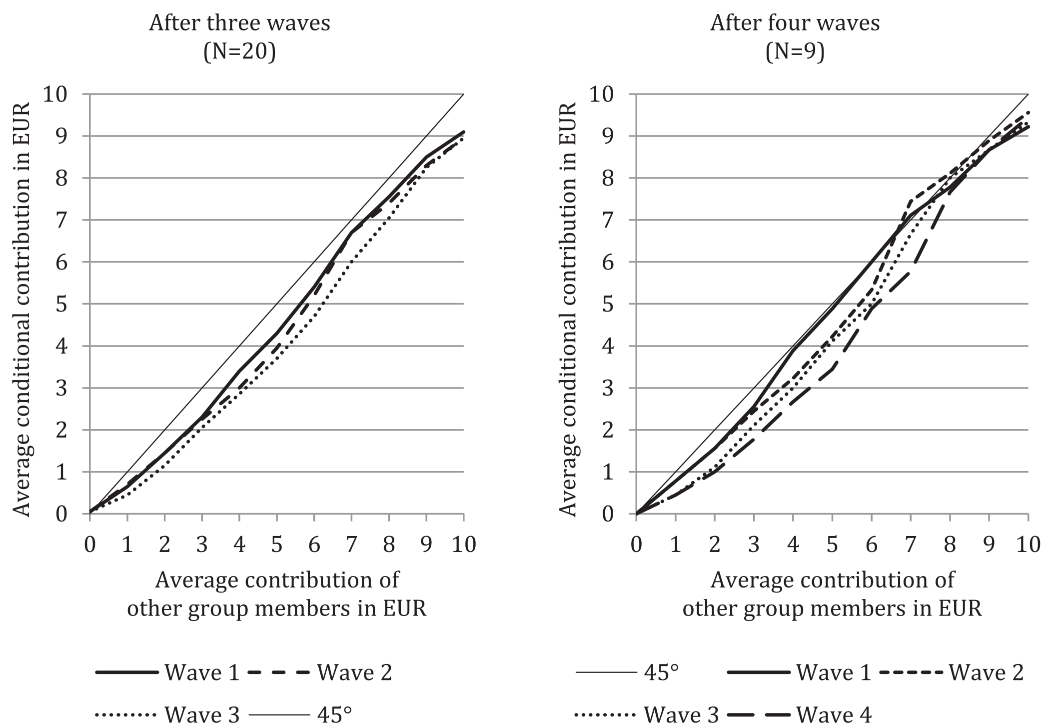

Figure 4: Average Conditional Contributions in Subgroup 3

As some subjects in subgroup 4 decide rather randomly on conditional contributions in the first wave and then adapt a well-behaved systematic pattern in the latter waves, contributions by chance slightly increase within subgroup 4 over time (see Appendix B for the complete individual data on members of subgroup 4). Thus the magnitude of the decline in cooperation in our sample is probably underestimated in our previous statistical analysis.

Table 4: Significance Levels for Subgroup 3

	Average contribution of other group members										
μ_0	0	1	2	3	4	5	6	7	8	9	10
W1 vs. W3[1]	1.000	1.000	.383	.672	.281	.188	.375	.238	.375	.469	.625
W1 vs. W4[1]	1.000	1.000	.500	.375	.250	.250	.500	.375	.875	1.000	1.000
t-test W1[2]	.330	.202	.086	.064	.144	.135	.181	.379	.154	.116	.009
t-test W3[2]	.330	.001	.001	.005	.007	.013	.018	.052	.087	.048	.006
t-test W1[2]		.695	.482	.512	.860	.877	1.000	.855	.655	.438	.065
t-test W4[2]		.013	.017	.023	.057	.065	.049	.163	.438	.397	.095

[1] Two-tailed Wilcoxon signed-rank tests
[2] $H_0 : \overline{x} = \mu_0$

When subjects in subgroup 4 are removed from the sample, the dynamic towards more selfishness becomes even more evident (see Table 5, Figure 5).

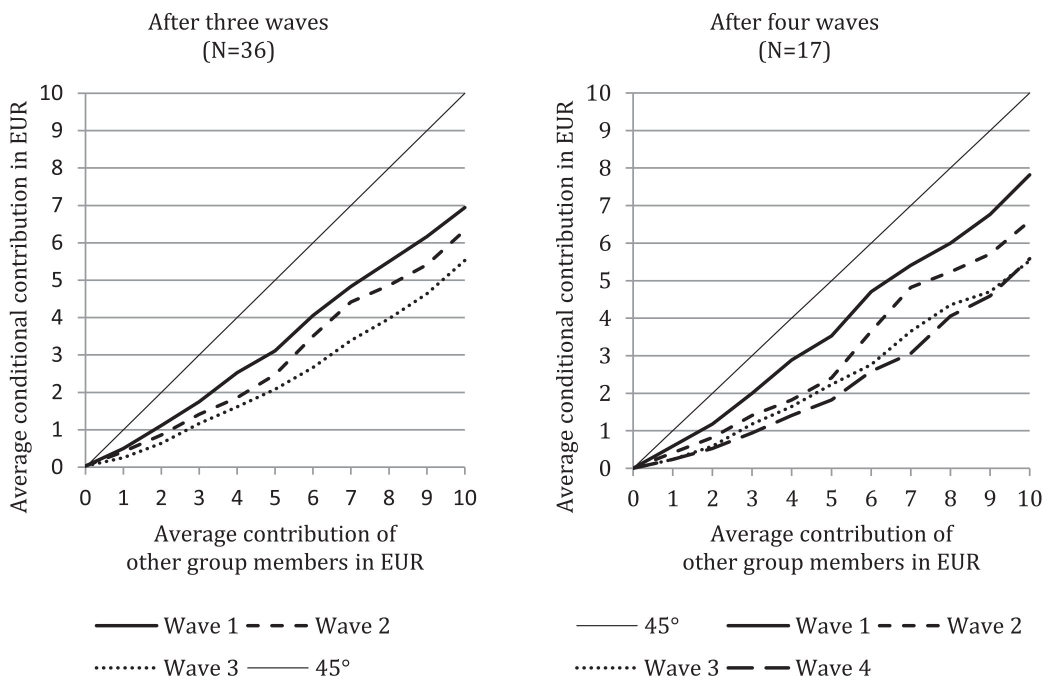

Figure 5: Average Conditional Contributions Without Subgroup 4

Table 5: Significance Levels for Conditional Contributions Without Subgroup 4

	Average contribution of other group members										
	0	1	2	3	4	5	6	7	8	9	10
W1 vs. W3 (N=36)	1.000	.138	.017	.041	.014	.004	.005	.004	.006	.008	.043
W1 vs. W4 (N=17)	1.000	.359	.055	.031	.023	.023	.021	.016	.035	.035	.063

Two-tailed Wilcoxon signed-rank tests

4. Discussion & Conclusion

We conducted a series of four repeated standard linear one shot public good games in one week intervals and employed an experimental design suited to the task of eliciting our subject's cooperation preferences by excluding effects due to learning and reputation building. We find a significant decline in pro-social behavior, which is mainly caused by roughly one third of initially conditional cooperators who turn into free riders over the course of the experiment. Our data supports previous evidence reported by Brosig et al. (2011), who conducted repeated dictator games and found a dynamic towards more selfish behavior in the latter waves of their experiment.

Our results, however, are in contrast to the stable aggregate behavior observed by Volk et al. (forthcoming) in their repeated public good experiments. Since in their experiment feedback was given after each repetition, and hence effects due to learning and reputation building cannot be ruled out, methodological differences in the experimental setup could possibly explain these seemingly contradictory findings. A second reason for these differences could be the substantial difference in the amount of time in-between two waves in their experiment and ours. Possibly pro-social behavior first erodes and then regenerates over time. The fact that older people are not less pro-social than younger people supports this hypothesis.

A possible explanation for the decline of pro-social behavior could be the human tendency to adaption. As neurosciences tell us, the reward system of the brain adapts rather quickly. Tobler et al. (2005) show that the human brain's reward system lowers its production of dopamine in response to a positively evaluated stimulus if that stimulus is given repeatedly. In the context of our study, contributing to the public good might be a stimulus that causes a *warm glow* or another kind of positive feeling, which declines if that stimulus is triggered again in the next wave, leading the subject to reduce his contribution to the public good.

Merritt et al. (2010) review research on a *moral self-licensing* effect, which delivers another possible explanation for our findings. The effect describes people's tendency to engage in "behaviors that are immoral, unethical, or otherwise problematic" on the back of an "impeccable track record [which] increaes their propensity to engage in otherwise suspect actions". Again, in the context of our study, contributing to the public good in an early wave could satisfy people's desire to comply to the underlying social norm in a public good game, which likely includes not to free ride on fellow group members, and afterwards licensee them to act on their own individual selfish preferences.

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Appendix A: Individual data of subjects in subgroup 2

After three waves:

	#1			#2			#3			#4			#5			#6			#7		
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	0
2	2	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	3	2	0
3	3	1	0	4	0	0	3	0	0	1	1	1	0	0	0	3	1	0	3	3	0
4	4	1	0	5	0	0	4	0	0	1	1	1	0	0	0	4	1	0	5	4	0
5	5	2	0	5	0	0	5	0	0	1	1	1	0	0	0	5	2	0	5	5	0
6	5	2	0	7	0	0	6	10	0	2	2	2	5	0	0	6	2	0	7	6	0
7	5	3	0	7	0	0	7	10	0	2	2	2	5	0	0	7	3	0	7	7	0
8	6	3	0	8	0	0	8	10	0	2	2	2	6	0	0	8	4	0	9	8	0
9	6	3	0	10	0	0	9	10	0	2	2	2	7	0	0	9	5	0	9	9	0
10	8	3	0	10	0	0	10	10	0	3	0	0	7	0	0	10	6	0	10	10	0

The first row of the table lists the seven subjects in subgroup 2 after three waves. The second row indicates the three waves of the experiment. The first column indicates the average contribution of the other three group members. Each of the other columns shows the conditional contribution scheme of a particular subject in a particular wave.

After four waves:

	#1				#2				#3				#4				#5			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
2	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0
3	3	0	0	0	1	1	1	0	0	0	0	0	3	1	0	0	4	0	0	0
4	4	0	0	0	1	1	1	0	0	0	0	0	4	1	0	0	5	0	0	0
5	5	0	0	0	1	1	1	0	0	0	0	0	5	2	0	0	5	0	0	0
6	6	10	0	0	2	2	2	0	5	0	0	0	6	2	0	0	7	0	0	0
7	7	10	0	0	2	2	2	0	5	0	0	0	7	3	0	0	7	0	0	0
8	8	10	0	0	2	2	2	0	6	0	0	0	8	4	0	0	8	0	0	0
9	9	10	0	0	2	2	2	0	7	0	0	0	9	5	0	0	10	0	0	0
10	10	10	0	0	3	0	0	0	7	0	0	0	10	6	0	0	10	0	0	0

The first row of the table lists the five subjects in subgroup 2 after four waves. The second row indicates the four waves of the experiment. The first column indicates the average contribution of the other three group members. Each of the other columns shows the conditional contribution scheme of a particular subject in a particular wave.

Appendix B: Individual data of subjects in subgroup 4

After three waves:

	#1			#2			#3			#4			#5			#6		
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
0	0	0	0	0	1	0	2	1	0	0	3	0	0	0	0	10	10	10
1	1	1	0	1	2	1	3	2	2	1	3	1	1	1	1	10	10	10
2	2	2	2	4	2	1	4	2	2	0	3	2	2	2	2	10	10	10
3	2	2	2	6	2	1	4	2	3	0	3	3	3	3	3	10	10	10
4	0	3	3	3	6	3	4	4	4	0	3	4	8	4	4	10	10	10
5	0	3	5	7	5	3	5	4	5	0	3	5	7	5	5	10	10	10
6	0	4	4	4	4	3	4	4	4	0	4	5	5	6	6	10	10	10
7	0	5	2	7	3	4	4	4	5	0	4	5	3	7	7	10	10	10
8	0	3	2	2	2	4	2	4	2	0	4	3	8	8	8	10	10	10
9	0	1	0	2	2	4	1	2	1	0	3	3	10	9	9	10	10	10
10	0	0	0	2	4	4	0	0	0	0	3	4	10	10	10	10	10	10

The first row of the table lists subjects #1 to #6 in subgroup 4 after three waves. The second row indicates the three waves of the experiment. The first column indicates the average contribution of the other three group members. Each of the other columns shows the conditional contribution scheme of a particular subject in a particular wave.

	#7			#8			#9			#10			#11			#12		
	1	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
0	4	0	1	0	0	0	0	0	0	0	6	7	5	0	2	0	0	2
1	2	0	1	2	0	0	1	1	1	2	8	8	4	1	4	1	1	2
2	2	1	1	2	0	0	3	1	3	6	9	8	3	2	3	1	1	2
3	2	1	2	3	0	0	6	2	4	5	10	7	2	4	2	2	1	2
4	2	2	2	3	0	1	3	3	5	4	7	6	1	4	4	2	1	2
5	2	2	2	3	0	1	5	4	6	8	8	9	0	5	4	3	1	2
6	2	4	4	3	1	2	5	5	6	7	7	10	10	5	5	2	1	2
7	4	4	4	4	1	3	5	5	6	0	7	7	9	6	5	2	1	2
8	4	2	4	4	1	4	5	6	7	5	8	8	8	7	8	1	1	2
9	6	2	6	4	1	5	5	7	8	3	9	8	7	8	10	1	1	2
10	2	4	6	4	1	5	10	8	9	2	8	9	6	8	10	0	1	2

The first row of the table lists subjects #7 to #12 in subgroup 4 after three waves. The second row indicates the three waves of the experiment. The first column indicates the average contribution of the other three group members. Each of the other columns shows the conditional contribution scheme of a particular subject in a particular wave.

After four waves:

	#1				#2				#3				#4			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0
1	2	0	0	0	1	1	0	1	1	2	1	0	1	3	1	1
2	2	0	0	0	2	2	2	2	4	2	1	0	0	3	2	2
3	3	0	0	1	2	2	2	3	6	2	1	1	0	3	3	3
4	3	0	1	1	0	3	3	3	3	6	3	1	0	3	4	4
5	3	0	1	1	0	3	5	2	7	5	3	2	0	3	5	5
6	3	1	2	2	0	4	4	3	4	4	3	2	0	4	5	4
7	4	1	3	3	0	5	2	3	7	3	4	2	0	4	5	4
8	4	1	4	4	0	3	2	2	2	2	4	3	0	4	3	3
9	4	1	5	5	0	1	0	0	2	2	4	3	0	3	3	3
10	4	1	5	5	0	0	0	0	2	4	4	4	0	3	4	3

The first row of the table lists subjects #1 to #4 in subgroup 4 after four waves. The second row indicates the four waves of the experiment. The first column indicates the average contribution of the other three group members. Each of the other columns shows the conditional contribution scheme of a particular subject in a particular wave.

	#5				#6				#7			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
0	0	0	0	0	10	10	10	10	4	0	1	0
1	1	1	1	1	10	10	10	10	2	0	1	0
2	2	2	2	2	10	10	10	10	2	1	1	1
3	3	3	3	3	10	10	10	10	2	1	2	1
4	8	4	4	4	10	10	10	10	2	2	2	1
5	7	5	5	5	10	10	10	10	2	2	2	1
6	5	6	6	0	10	10	10	10	2	4	4	2
7	3	7	7	0	10	10	10	10	4	4	4	2
8	8	8	8	0	10	10	10	10	4	2	4	3
9	10	9	9	0	10	10	10	10	6	2	6	3
10	10	10	10	0	10	10	10	10	2	4	6	3

The first row of the table lists subjects #5 to #7 in subgroup 4 after four waves. The second row indicates the four waves of the experiment. The first column indicates the average contribution of the other three group members. Each of the other columns shows the conditional contribution scheme of a particular subject in a particular wave.

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