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An Experimental Investigation of Social Norms

Abstract:

Several economists have maintained that social and internalized norms can enforce cooperation in public good situations. This experimental study investigates impacts of social and internalized norms for cooperation among strangers in a public good game. The experiment has two treatment effects. First, it reveals each person's identity and his contribution to the public good. Second, it presents the public good game in a language which suggests associations to social and internalized norms for cooperation. Both treatment effects increase voluntary contributions significantly. These results suggest two important policy tools to crowd in social and internalized norms in a public good situation.

Keywords: Cooperation, Framing, Public goods, Social approval, Social norms.

JEL classification: A13, C91, D11, H41

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1. Introduction

Several economists have maintained that social and internalized norms can enforce cooperation in public good situations (Arrow 1971, Ullmann-Margalit 1977, North 1981, Andreoni 1990 and Holländer 1990). A social norm is a rule of behavior that is enforced by social sanctions (Coleman 1990). These sanctions take the form of approval or disapproval. A social norm is internalized if it is enforced by internal sanctions such as feelings of self-respect or guilt (Lindbeck 1997). An example of a social norm is: “One should not litter”. In many cities a social norm against littering is strictly enforced. In these cities littering is socially unacceptable, and a person throwing his ice-cream-paper on the street will feel social disapproval from people observing him. Such disapproval is typically indirect in nature. People will not necessarily berate a person who litters. Simply the fact that this person knows that he is doing something that the people around him do not like makes him feel social disapproval. Many people do not litter even if they know that nobody is observing them, because littering imposes a feeling of guilt. These people have internalized a social norm against littering.

Social and internalized norms are typically conditional in nature: The social and internal approval a person receives from adhering to a norm is felt more strongly as the number of people adhering to this norm increases. The conditional nature of a norm gives rise to a coordination game. On the one hand, if a person believes that other people will adhere to a social norm, then it is rational for him to adhere to it as well. On the other hand, if a person believes that other people will not adhere to a social norm, then it is not rational for him to adhere to it. Framing effects may play a significant role in determining the equilibrium of this coordination game (Camerer and Fehr 2001). If the framing of the game makes a person more optimistic about the other people's adherence to a norm, then the person will be more likely to adhere to this norm.

This paper presents an experimental investigation of social and internalized norms for cooperation among strangers in a public good game. The experiment has two treatment effects. First, it reveals each person's identity and his contribution to the public good. This is done by making each subject stand up and write his contribution to the public good on a blackboard in front of the other participants. If the subjects have preferences for social approval, and expect the other participants to socially disapprove of free riding, then this treatment effect should increase contributions. The second treatment effect is introduction of associative framing. This is done by presenting the public good game in a language which suggests associations to social and internalized norms for cooperation.

Words like “cooperate” and “free-ride” are used frequently in this presentation. If norms for cooperation are conditional, and the associative framing makes subjects more optimistic about the other subject's adherence to a norm for cooperation, then this treatment effect should increase contributions. The data shows that both by making each person's identity and contribution to the public good common knowledge, and by giving subjects associations to social and internalized norms for cooperation, voluntary contributions are increased significantly.

The experiment indicates that social and internalized norms for cooperation may play a prominent role in the provision of a public good. Moreover, it suggests two policy recommendations: Firstly, revealing each person's identity and his contribution to the public good may increase voluntary contributions due to social norms for cooperation. This insight seems to be known to charities who publicly list benefactors and their respective contributions. Blood banks also make use of this insight by providing donors with stickers or T-shirts proclaiming “I give blood.” Secondly, presenting the social dilemma in language that suggests associations to social and internalized norms for cooperation may increase voluntary contributions due to the conditional nature of social and internalized norms. Many hotels take advantage of this insight by asking their guests whether they will do their share to improve the environment, and thereafter explaining that one way they can improve the environment is to re-use their towels.

Several economists have maintained that social norms can have an impact on economic outcomes. Involuntary unemployment has been explained on the basis of social norms that discourage unfair wages (Akerlof 1980), and social norms that discourage underbidding of wages (Lindbeck and Snower 1988). Moreover, Lindbeck et al. (1999) analyze the economic consequences of social norms telling people not to live on welfare. A number of authors have also argued that social norms might evolve and enforce cooperation (Arrow 1971, Ullmann-Margalit 1977 and North 1981). Holländer (1990) provides a formal analysis of such an argument by modeling social norms for cooperation in a public good game.

A common approach in the economic analysis of social norms is to assume that people have preferences for social approval (see Akerlof 1980, Lindbeck and Snower 1988, Lindbeck et al 1999, Holländer 1990). Moreover, the choice of whether to approve or disapprove of a person is not explicitly modeled. It is instead simply assumed that people who do not obey a social norm experience social disapproval. The experiment presented in this paper finds empirical support for these assumptions. It shows that simply the suspicion that someone dislikes one's behavior may constitute a

significant social cost for somebody disobeying a social norm. This finding is in line with Brennan and Pettit (1993) and Loewenstein (2000) who argue that social sanctions can be indirect in nature and thus, need not involve substantial costs on the sanctioners' part. The finding is, however, in contrast to Coleman (1990) and Elster (1988 and 1989) who both stress that sanctioning of others generally involves costs, and that it is only in an individual's self-interest to sanction if the benefits of sanctioning exceed these costs.

In the economic analysis of social norms it is also common to assume that a social norm is conditional (see Lindbeck and Snower 1988, Lindbeck et al. 1999). The experiment presented in this paper does also find empirical support for this assumption. The fact that the associative framing increases contributions significantly can be explained by a conditional norm. If a norm is conditional, and the framing of the game makes a person more optimistic about other people's adherence to the norm, then this person will be more likely to adhere to the norm.

Gächter and Fehr (1999) have conducted an experiment, which investigates the behavioral impact of social norms. In Gächter and Fehr's study, revealing each person's identity and his contribution to the public good has a significant effect on behavior among people who have some knowledge of each other¹. However, in contrast to the experiment presented in this paper, such an introduction of social sanctions does not have any significant effect on behavior among strangers. The experiment presented in this paper suggests that the insignificant impact of social sanctions among strangers in Gächter and Fehr (1999) may be due to unnecessary abstractions in the presentation of the public good game.

2. Experimental Design

The experiment is embedded in the following public good game. The 10 participants have 10×150 kroner (10 × \$ 17) in a box. Each subject i has to decide how much money $g_i \in [0,150]$ to take from this box. Subject i 's monetary payoff is given by

$$\pi_i = g_i + 2 \frac{1}{10} \sum_j (150 - g_j), j=1, \dots, n$$

This payoff formula ensures each participant an income of at least 30 kroner (\$ 4) and at most 420 kroner (\$ 49). The participants get no payments except from the payments they earn in the one period

¹ See Fox and Guyer (1978) and Andreoni and Petri (2000) for similar results.

public good game². This payoff structure does not differ from the ones normally used in experimental research on public goods (see Ledyard 1995).

One person at a time is asked to come up to the box. He then receives two envelopes, a "group envelope" and a "personal envelope". In addition, he receives 150 kroner from the box. He has to bring the money and the envelopes behind a screen where nobody, including the experimenters, can see him. Behind this screen he has to divide the 150 kroner between the two envelopes, and seal them. To secure absolute discretion, he then has to put both envelopes in a larger envelope, which he brings back to his seat.

When all of the participants have been through the above procedure, one person at a time steps forward to the box to return the group envelope. The sum of the money in the group-envelopes is then calculated. This sum is multiplied by two, and thereafter divided equally between all ten participants. In addition to this money, each participant receives the money he puts in his personal envelope. He has to keep this envelope sealed until he has left the lab.

The experiment has two treatment effects: Introduction of non-verbal social sanctions and introduction of associative framing. This yields four different treatments (see Figure 1). In a no-sanctions-treatment one person at a time has to return his sealed group envelope to the box. An experimenter mixes the ten group envelopes. Then, he randomly draws one envelope at a time from the box, counts the amount of money in the envelope, and writes the sum on the black board. This is done in front of all the participants. This procedure ensures full anonymity with regard to the contribution of each participant³, thus making social sanctioning impossible.

Figure 1: The four different treatments

		Sanctions	
		no-sanctions	sanctions
Framing	non-associative	non-associative/no-sanctions	non-associative/sanctions
	associative	associative/no-sanctions	associative/ sanctions

² On average each student earned 238 kroner (\$ 27), which covers opportunity costs for the one-hour session.

³ Of course, this would not be strictly true if, for example, all subjects contributed nothing.

In a sanctions-treatment one person at a time has to come up to the box with his sealed group envelope. In front of all participants he has to open his envelope, count the amount of money in the envelope, write the sum on the black board, and then put the money into the box. This procedure ensures revelation of every participant's choice and identity, thus making non-verbal social sanctioning possible.

In the associative-treatment the public good game is presented in language which suggests associations to social and internalized norms for cooperation. The ten subjects are referred to as a "community". The box is referred to as "the community box". The money in the box is said to belong to the community. The group envelope is marked "the community", whereas the personal envelope is marked "mine". Finally, the strategy choice is presented as follows: Each person can choose either to be a free-rider by taking money from the community box, or to be a cooperator by not taking money from the community box.

In the non-associative-treatment the instructions are written in a language which is not meant to give associations to social norms for cooperation. The ten subjects are referred to as "participants in the experiment". The box is simply referred to as "the box". The money in the box is said to belong to the participants in the experiment. The group envelope is marked "back in the box", whereas the personal envelope is marked "mine". Finally, the strategy choice is presented as follows: Each person can choose either to take money from the box, or not to take money from the box.

For each treatment the instructions (see appendix) make all the relevant information given above common knowledge for all participants. The instructions are read aloud. Then, the participants get time to study the instructions individually. Finally, each participant has to answer questions that investigate the subjects' understanding of the instructions. Those subjects revealing a lack of understanding get special tutoring before the experiment starts. No oral communication is allowed at any stage of the experiment.

Eight experimental sessions were conducted in February and March 2001. Ten students participated in each of the session, and two sessions were conducted for each treatment. No student participated in more than one session. Altogether 80 different students took part in the experiment, 20 in each treatment. A session lasted approximately one hour. The students were recruited from the Blindern campus of the University of Oslo⁴. The size of the pool and precautions taken in the recruiting process

⁴ About 25 000 students are registered at the Blindern campus of the University of Oslo.

ensured that the participants in each session were strangers. This was confirmed in a questionnaire filled in anonymously by the participants after the experiment.⁵ As no oral communication was allowed, they remained unfamiliar with each other throughout the experiment. When a session was over, the participants had to leave the experimental lab individually. These precautions were taken to reduce the possibility that the subjects might sanction each other after the experiment.

3. Predictions

The traditional neoclassical model does not explicitly consider the impact of social and internalized norms on behavior. Not considering social interaction, this model predicts that none of the subjects will contribute to the public good, because they care only about their monetary payoff. In contrast to the predictions of the neoclassical model, however, experiments show that subjects contribute from 30 percent to 70 percent in one-shot public good games, or in the early rounds of finitely repeated public good games (see survey by Ledyard 1995). One explanation of these contributions may be that subjects do not understand the game. It is well known that people learn not to be a sucker during the first periods in a repeated public good experiment (Andreoni 1995, Ledyard 1995). A second explanation is that people contribute due to internalized norms. Andreoni (1990) has provided a theoretical analysis of how internalized norms increase voluntary contributions in public good games⁶. Innovative experiments support Andreoni's theoretical analysis (Andreoni 1995, Palfrey and Prisbrey 1997). Moreover, an experiment by Bohnet and Frey (1999) indicates that internalized social norms for giving are reinforced if the members of each group are allowed to observe each other's faces prior to playing.

In the experiment presented in this article, misunderstanding of the game and internalized norms are motives to contribute, which are present in all four treatments. The following two subsections will discuss treatment dependent motives to contribute: Social sanctions and associative framing.

3.1 Social Sanctions

On the background of casual observations of real life social norms for cooperation among strangers, it is expected that social norms can enforce cooperation in a public good experiment. If subjects have preferences for social approval from strangers, and expect the other participants to socially disapprove of free riding, then the introduction of indirect social sanctions should increase contributions. Thus,

⁵ 80% of the participants reported not to have seen the face of any of the other participants in their session before. Only two persons (2.5%) reported that they knew both the name and the face of some of the other participants in their session (one contributed 100% (associative/sanctions-treatment) and one contributed 3% (non-associative/no-sanctions-treatment)).

⁶ Andreoni (1990) refers to a positive internal sanction as a "warm glow".

Hypothesis 1: Introduction of social sanctions among strangers increases contributions.

This hypothesis is in contrast to Gächter and Fehr (1999) who conclude from their experiment that social sanctions do not have any significant behavioral effect among strangers. The insignificant impact of social sanctions among strangers in Gächter and Fehr (1999) may be due to the abstract and artificial situation constituted by a laboratory experiment. The abstract setting may induce subjects to feel that social norms for cooperation in real life do not apply in the laboratory. The experiment presented in this paper tries to avoid unnecessary abstractions. Actual money is used throughout the experiment. The participants can see that there is money in the box. Then, each of the subjects receives 150 kroner from the box. Each subject has to divide these 150 kroner between two envelopes: one for the group and one for himself. This puts the subjects in a more concrete situation as opposed to traditional experiments, in which subjects are asked to specify their contribution to the public good on a computer or a piece of paper. Such a concrete framing may induce subjects to find social norms for cooperation in real life relevant in the experimental setting. On this background, Hypothesis 1 is expected to hold despite the results of Gächter and Fehr (1999).

3.2 Associative Framing

Norms against littering, spitting on the sidewalk, free riding on public transportation, and cutting the line are some examples of social and internalized norms enforcing cooperation in every day social dilemmas. If norms for cooperation are conditional, then a framing of the public good game, which enhances the subjects associations to real life norms for cooperation, should increase contributions. This is because the associative framing makes subjects more optimistic about the other subject's adherence to a social norm for cooperation. Thus,

Hypothesis 2: Giving subjects associations to norms for cooperation increases contributions.

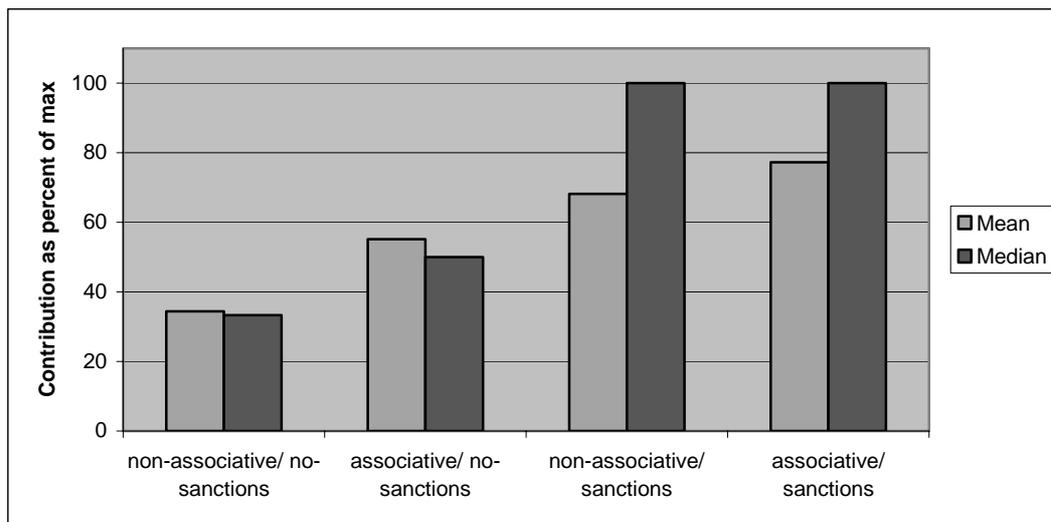
There is a large amount of literature suggesting that behavior in a public good experiment is dependent on the framing of the public good game. It has been shown experimentally, for example, that contributions are significantly higher if the social dilemma is presented as the provision of a public good instead of the prevention of a public bad (Andreoni 1995, Sonnemans et al. 1998, Willinger and Ziegelmeyer 1999, and Park 2000). Moreover, Elliott et al. (1998) have shown that cooperative or non-cooperative solutions may be elicited via institutional frames which implicate business standards of teamwork or autonomy, respectively. In Cookson (2000) subjects contribute more when the payoff

function is decomposed in terms of a gift, which is multiplied and distributed to the other players, rather than the equivalent public good from which everyone benefits.

4. Results

The descriptive data indicates that the hypotheses are in general well borne out. In the following a person's contribution is denoted in percent of his maximum possible contribution. Figure 2 shows the contribution mean and median for the four different treatments⁷. The contribution is lowest in the non-associative/no-sanctions-treatment, in which subjects in average contribute 34.4 percent. Introducing associations to norms for cooperation in the associative/non-sanctions-treatment increases the average contribution to 55.1 percent, whereas introducing non-verbal social sanctioning in the non-associative/sanctions-treatment increases the average contribution to 68.2 percent. Finally, introducing both non-verbal social sanctioning and associations to norms for cooperation in the associative/sanctions-treatment increases the average contribution to 77.3 percent.

Figure 2: Mean and median contribution levels



The data clearly support Hypothesis 1: Introduction of social sanctions among strangers increases contributions. The hypothesis that contributions in the non-associative/sanctions-treatment are *not* higher than contributions in the non-associative/no-sanctions-treatment is rejected at a 0.05 level of significance (Wilcoxon-Mann-Whitney one-sided exact test⁸, $p=0.011$). The hypothesis that

⁷ See Figure 4 in the appendix for the cumulative distribution.

⁸ The independence condition of the test is met because no student participates more than one time.

contributions in the associative/sanctions-treatment are *not* higher than contributions in the associative/no-sanctions-treatment, is also rejected at a 0.05 level of significance (same test, $p=0.044$). Moreover, the hypothesis that contributions in the non-associative/sanctions-treatment and the associative/sanctions-treatment are *not* higher than contributions in the non-associative/no-sanctions-treatment and the associative/no-sanctions-treatment, can be rejected at a 0.005 level of significance ($p=0.0021$). These results provide empirical support for the underlying assumption of economic analysis of social norms (Akerlof 1980, Lindbeck and Snower 1988, Lindbeck et al 1999, Holländer 1990). People do indeed have preferences for social approval. Moreover, the results suggest an important policy tool: Revealing each person's identity and his contribution to the public good may increase voluntary contributions due to social norms for cooperation.

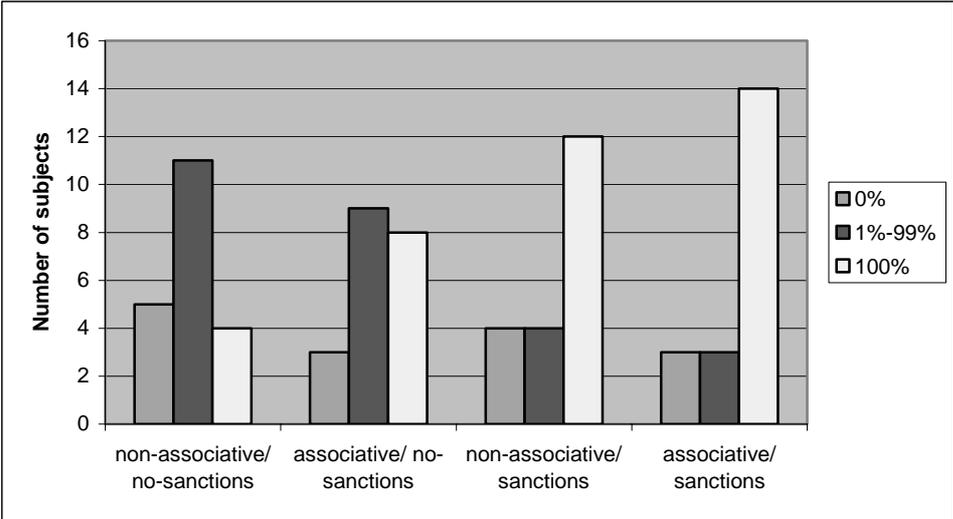
The data do also support Hypothesis 2: Giving subjects associations to norms for cooperation will reinforce the impact of social and internalized sanctions. The hypotheses that contributions in the associative/no-sanctions-treatment are *not* higher than contributions in the non-associative/no-sanctions-treatment is rejected at a 0.1 level of significance ($p=0.090$). Moreover, the hypothesis that contributions in the associative/sanctions-treatment and the associative/non-sanctions-treatment are *not* higher than contributions in the non-associative/sanctions-treatment and the non-associative/no-sanctions-treatment, can be rejected at a 0.1 level of significance ($p=0.079$). These results suggest an important policy tool: Voluntary contributions to a public good may increase if the social dilemma is presented in language that suggests associations to social and internalized norms for cooperation. Moreover, these results indicate that norms are indeed conditional, which is an underlying assumption in economic analysis of social norms (Lindbeck and Snower 1988, Lindbeck et al 1999).

The hypotheses that contributions in the associative/sanctions-treatment are *not* higher than contributions in the non-associative/sanctions-treatment can not be rejected ($p=0.25$). This insignificant effect of associative framing in a sanctions-treatment can be explained by a "ceiling effect". There is not much room for a significant increase in voluntary contributions due to associative framing, because the contribution level is already very high due to social sanctions.

Figure 3 shows the number of subjects contributing: 1) nothing, 2) an amount strictly between zero and hundred percent, and 3) one hundred percent. In the following these subjects will be referred to as non-contributors, intermediate contributors, and full contributors, respectively. Note from the figure that the number of non-contributors is similar across all four treatments. Moreover, there is a non-negligible fraction of full contributors in all treatments. Finally, introducing social sanctions or

associative framing decreases the number of intermediate contributors, while increasing the number of full contributors. These observations suggest that there are three types of people⁹: First, there are some people who do not contribute anything irrespective of the presence of social sanctions or associative framing. These people do not seem to care about social approval, or have any internalized norms for cooperation. This observation is in line with an experiment by Andreoni and Miller (2001) in which approximately one quarter of the subjects do *not* respond to non-monetary incentives. Second, there are some people who are full contributors even when there is no introduction of social sanctions or associative framing. These people seem to have strongly internalized norms for cooperation, or they may have misunderstood the game. Third, more than 80 percent seem to be responsive to the introduction of social sanctions or associative framing. Such people seem to care about social approval. Moreover, they seem to have internalized social norms for cooperation.

Figure 3: Number of subjects in different contribution intervals



⁹ A similar classification of people is suggested in Ledyard 1995, pp. 172-173.

5. Conclusion

Several economists have maintained that social and internalized norms can enforce cooperation in public good situations (Arrow 1971, Ullmann-Margalit 1977, North 1981, Andreoni 1990 and Holländer 1990). The experiment presented in this paper detects two possible policy tools to crowd in such norms. One policy tool is to reveal each person's identity and his contribution to the public good. Indeed, the experiment suggests that it is possible to increase contributions to a public good by establishing an arrangement where the stakeholders can observe each other's contributions to the public good. It is worth noting the inexpensive nature of this policy compared to surveillance systems such as the police. An example of this is public transportation. Instead of intensifying the ticket controls at subway stations, it may be just as efficient simply to let a free rider be observable to as many of the other passengers as possible. An arrangement observed in some cities is a physical obstacle at the entrance to the underground. For safety reasons the obstacle is easily passed without a ticket, but a non-ticket-carrier jumping over the hindrance cannot avoid being observed by other passengers.

A second policy tool is to give subjects associations to social and internalized norms for cooperation. The experiment suggests that if people are reminded of norms for cooperation when they are about to make a decision of whether to cooperate or free-ride, then they are more likely to cooperate. This may, for example, suggest that posters at subway stations, reminding the passengers of the public nature of the supply of public transportation and of norms for cooperation, can reduce free riding.

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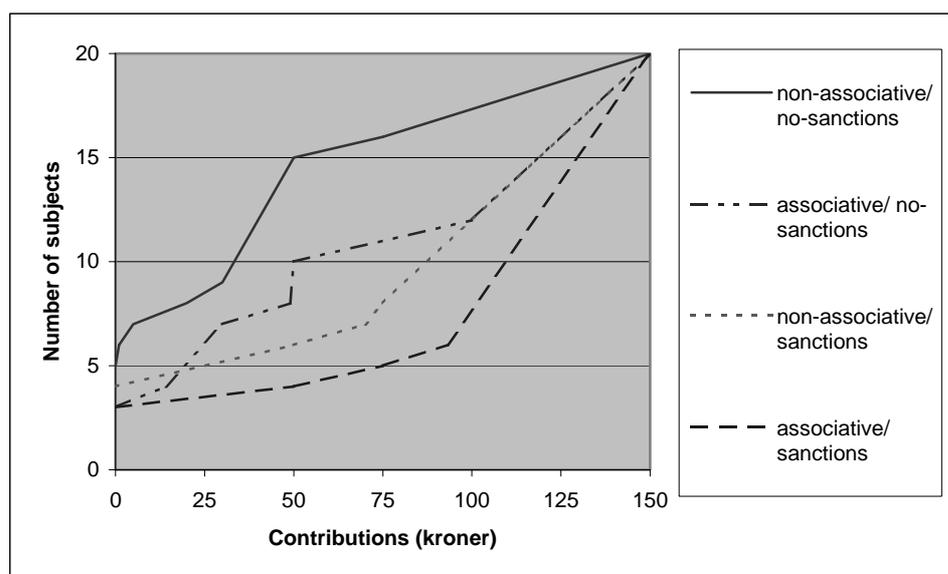
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The cumulative distribution function

Figure 4: The cumulative distribution function (number of subjects contributing the given amount or less)



Instructions (Translated from Norwegian)

Non-associative framing treatments:

The experiment is to proceed in silence. Talking is prohibited.

You and the 9 other experimental participants in the room have 1500 kroner in this box.

You can either take money out of the box or you can leave the money in the box. If you decide to take money from the box, you may decide for yourself how much money to take, but the amount may not exceed 150 kroner. After all participants have had the opportunity to take or not to take money out of the box, the amount of money remaining in the box will be counted. This amount will be doubled and will then be divided between *all* ten participants.

This means that your total earnings from this experiment are dependent upon the choices that you and the other participants make under the following rule:

$$\begin{aligned} \text{Your total earnings:} &= \text{The money you take from the box} \\ &+ \text{One tenth of twice the sum of money remaining in the box} \end{aligned}$$

Note that regardless of what the other participants choose to do, you will receive the most money if you take all 150 kroner out of the box. However, as a group, all of the participants will receive the most money if no one takes any money out of the box.

[Non-sanction treatment: No one will know whether you take money out of the box or not.]

[Sanction treatment: All of the other participants will know if you take money out of the box or not.]

One person at a time will be asked to come forward. After coming forward you will receive two envelopes, one marked "back in the box" and one marked "mine". You will also receive 150 kroner from the box (2 fifty kroner notes, 1 20 kroner coin, 2 ten kroner coins, 1 five kroner coin and 5 one kroner coins). You will bring both the money and the envelopes with you behind a screen. While no one can see, you will divide the money between the two envelopes as you see fit: If you don't want to take any money out of the box, put all 150 kroner in the envelope marked "back in the box" and put nothing into the envelope marked "mine." If you want to take all 150 kroner out of the box, put all 150 kroner into the envelope marked "mine" and put nothing into the envelope marked "back in the box." If you want to take some money then put some money into the envelope marked "mine" and put the rest into the envelope marked "back in the box."

After you have done this, seal both envelopes and put them both into a big, brown envelope which you will then take with you back to your seat. You may take the envelope marked "mine" home with you when the experiment is finished but you will put the contents of the envelope marked "back in the box" back into the box at a later point in the experiment.

Once everyone has divided the money between the two envelopes, one person at a time will be asked to come forward with the envelope marked "back in the box".

[Non-sanction treatment: When you come forward you will put the closed envelope into the box. You will then return to your seat. Once everyone has placed their envelopes marked "back in the box" into the box, the envelopes will be mixed. We will then open the envelopes one at a time, count the money, write the amount on the blackboard, and put the money back into the box.

Thus no one will know whether or not you have taken money from the box. Likewise, you won't know what any of the other participants have chosen to do.]

[Sanction treatment: When you come forward you will open the envelope and count the money in front of the other participants. You will then write the amount on the blackboard. You will then put the money into the box and return to your seat.

Thus the other participants will know whether or not you have taken any money from the box. Likewise, you will know what each of the other participants has chosen to do.]

The amount of money now present in the box is doubled, and this new sum is divided equally between *all* ten experimental participants.

At the end of the experiment each person will leave the lab separately.

Examples:

- If no one takes anything from the box, 1500 kroner will remain in it. Double this sum (=3000) is then divided equally between all participants such that each participant will receive 300 kroner.
- If everyone takes 150 kroner from the box, no money will remain in it, thus leaving no money to be divided equally. Each participant will then only receive the 150 kroner that he took.
- If none of the other participants take anything, but you take 150 kroner, then $(1500-150=)$ 1350 kroner will remain in the box. Double this sum (=2700) is then divided equally between all participants (=270 for each). You will then receive the 150 kroner you have taken and the additional share from the box; making a total of $(150 + 270=)$ 420 kroner. Each of the other participants will then receive 270 kroner.
- If all of the other participants take 150 kroner, but you take nothing, then 150 kroner will remain in the box (the money you did not take). Double this sum (=300) is then divided equally between all participants. You will then receive only the share from the box, i.e. 30 kroner. Each of the others will receive $(150 + 30=)$ 180 kroner.
- Suppose half of the experimental participants (5 persons) take 150 kroner, 4 take nothing and you:
 1. take nothing.
 - The box then contains 750 kroner $(1500 - 5 \times 150)$.
 - Double this sum (=1500) is then divided equally (150 for each).
 - **You receive 150 kroner.**
 - The 4 who did not take anything receive 150 kroner each (the same as you).
 - The 5 who took 150 kroner receive 300 kroner each $(150 + 150)$.

- **In total all experimental participants receive 2250 kroner** ($150 + 4 \times 150 + 5 \times 300$).
- 2. take as much as possible (150 kroner).
- The box then contains 600 kroner ($1500 - 6 \times 150$).
- Double this sum (=1200) is then divided equally (120 for each).
- **You receive 270 kroner** ($150 + 120$).
- The 4 who did not take anything receive 120 kroner each.
- The 5 who took 150 kroner from the box receive 270 kroner (the same as you).
- **In total all experimental participants receive 2100 kroner** ($270 + 4 \times 120 + 5 \times 270$).

Note the following:

- In total, the group receives more money the more the people choose not to take money from the box. In the example above we see that the total payment to all of the participants declines from 2250 to 2100 when you take 150 kroner from the box as compared to when you take nothing.
- Regardless of what the others choose to do, the more you take from the box the greater your payment. In the example above we see that your payment increases from 150 to 270 when you take 150 kroner as compared to when you take nothing.

Associative framing treatments:

The experiment is to proceed in silence. Talking is prohibited.

You and the 9 other experimental participants in this room constitute a community. The community has 1500 kroner in a community box.

You can either free ride on the community by taking money from the community box, or cooperate with the community by not taking anything from the community box. If you want to free ride on the community, you may decide how much money to take from the community box, but the amount may not exceed 150 kroner. After everyone in the community has the opportunity to free ride on the community or to cooperate with the community, the amount of money remaining in the community box will be counted. This amount will be doubled and will then be divided equally between *all* ten community members.

This means that your total earnings from this experiment are dependent upon the choices that you and the other participants make under the following rule:

Your total earnings: = The money you take from the community box
 + One tenth of twice the sum of money remaining in the community box.

Note that regardless of what the other community members choose to do, you will receive the most money if you free ride on the community by taking all 150 kroner out of the community box. However, as a group, the community will receive the most money if everyone cooperates by not taking any money out of the community box.

[Non-sanction treatment: No one will know whether you free ride on the community or not.]

[Sanction treatment: All of the members of the community will know if you free ride on them or not.]

One person at a time will be asked to come forward. After coming forward you will receive two envelopes, one marked "community" and one marked "mine". You will also receive 150 kroner from the box (2 fifty kroner notes, 1 20 kroner coin, 2 ten kroner coins, 1 five kroner coin and 5 one kroner coins). You will bring both the money and the envelopes with you behind a screen. While no one can see, you will divide the money between the two envelopes as you see fit: If you want to cooperate, put all 150 kroner in the envelope marked "community" and put nothing into the envelope marked "mine." If you want to free ride as much as possible, put all 150 kroner into the envelope marked "mine" and put nothing into the envelope marked "community." If you want to free ride a bit, put some money into the envelope marked "mine" and put the rest into the envelope marked "community."

After you have done this, seal both envelopes and put them both into a big, brown envelope which you will then take with you back to your seat. You may take the envelope marked "mine" home with you when the experiment is finished but you will put the contents of the envelope marked "community" back into the box at a later point in the experiment.

Once everyone has divided the money between the two envelopes, one person at a time will be asked to come forward with the envelope marked "community".

[Non-sanction treatment: When you come forward you will put the closed envelope into the box. You will then return to your seat. Once everyone has placed their envelopes marked "community" into the box, the envelopes will be mixed. We will then open the envelopes one at a time, count the money, write the amount on the blackboard, and put the money back into the community box.

Thus no one will know whether or not you chose to free ride on the community. Likewise, you won't know what any of the other community members have chosen to do.]

[Sanction treatment: When you come forward you will open the envelope and count the money in front of the other community members. You will write the amount on the blackboard. You will then put the money into the community box and return to your seat.

Thus the other community members will know whether or not you have taken any money from the box. Likewise, you will know what each of the other community members has chosen to do.]

The amount of money now present in the community box is doubled, and this new sum is divided equally between *all* ten community members.

At the end of the experiment each person will leave the lab separately.

Examples:

- If everyone in the community cooperates, 1500 kroner will remain in the community box. Double this sum (=3000) is then divided equally between everyone in the community such that each community member will receive 300 kroner.
- If everyone in the community free rides as much as possible by taking 150 kroner from the community box, no money will remain in the community box, thus leaving no money to be divided equally. Each community member will then only receive the 150 kroner he took.
- If all other community members cooperate, but you take 150 kroner, then $(1500-150=)$ 1350 kroner will remain in the community box. Double this sum (=2700) is then divided equally between everyone in the community (=270 for each). You will then receive the 150 kroner you have taken and the additional share from the community box; a total $(150 + 270=)$ 420 kroner. Each of the other community members will then receive 270 kroner.
- If all other community members free ride as much as possible (takes 150 kroner), but you cooperate, then 150 kroner will remain in the community box (the money you did not take). Double this sum (=300) is then divided equally between everyone in the community. You will then receive only the share from the community box, i.e. 30 kroner. Each of the others receives $(150 + 30=)$ 180 kroner.
- Suppose half of the community members (5 persons) free ride as much as possible, 4 cooperate and you:
 1. cooperate.
 - The community box then contains 750 kroner $(1500 - 5 \times 150)$.
 - Double this sum (=1500) is then divided equally (150 for each).
 - **You receive 150 kroner.**
 - The 4 who cooperated receive 150 kroner each (the same as you).
 - The 5 who free rode as much as possible receive 300 kroner each $(150 + 150)$.
 - **In total the community receives 2250 kroner** $(150 + 4 \times 150 + 5 \times 300)$.
 2. free ride as much as possible (150 kroner).

- The community box then contains 600 kroner ($1500 - 6 \times 150$).
- Double this sum ($=1200$) is then divided equally (120 for each).
- **You receive 270 kroner** ($150 + 120$).
- The 4 who cooperated receive 120 kroner each.
- The 5 who free rode as much as possible receive 270 kroner (the same as you).
- **In total the community receives 2100 kroner** ($270 + 4 \times 120 + 5 \times 270$).

Note the following:

- In total, the community receives more money the more people choose to cooperate. In the example above we see that the total payment to the community declines from 2250 to 2100 when you free ride as compared to when you cooperate.
- Regardless of what the other community members choose to do, the more you free ride on the community, the greater your payment will be. In the example above we see that your payment increases from 150 to 270 when you free ride as compared to when you cooperate.

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