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More than outcomes: The role of self-image in other-regarding behavior

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More than outcomes: The role of self-image in other-regarding behavior

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Abstract

We conduct a modified dictator game in order to analyze the role self-image concerns play in other-regarding behavior. While we generally follow Konow (2000), a cognitive dissonance-based model of other-regarding behavior in dictator games, we relax one of its assumptions as we allow for individual heterogeneity among individuals' standards of behavior. Subjects' self-image, their belief regarding the average socially appropriate behavior of others and our proxies for the cognitive dissonance costs are positively correlated with the dictator game choices. We also find that subjects whose choices involve two psychologically inconsistent cognitions indeed report higher levels of experienced conflict and take more time for their decisions (our proxies for cognitive dissonance).

JEL classifications: C72, C91, D03, D80

Keywords: social preferences; other-regarding behavior; self-image; cognitive dissonance; social norms

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1 Introduction

By now other-regarding behavior is an established result in numerous field and laboratory settings. Outcome-based models (e.g., Andreoni, 1990; Fehr and Schmidt, 1999; and Bolton and Ockenfels, 1999) explain these findings by not only considering own but also others' payoffs in the utility function. However, recent empirical evidence has cast some doubt on this approach. Dictator exit experiments analyzed subjects' behavior when a costly exit option to get out of a dictator game is provided (Dana et al., 2006; Broberg et al., 2007; Lazear et al., 2012). A substantial amount of subjects sorts out of the dictator game, although this means they get a lower payoff. DellaVigna et al. (2012) and Andreoni et al. (2011) provide evidence of sorting out in a related field setting. Strategic ignorance experiments analyzed subjects' allocation game choices when they could have avoided being informed about the consequences of their own choice on others (Dana et al., 2007; Larson and Capra, 2009; Grossman, 2010; Matthey and Regner, 2011; van der Weele, 2013). Significantly fewer subjects behave other-regarding when the consequences can be avoided in comparison to a transparent baseline case with full information.

The explanatory power of outcome-based models appears to be limited in these situations and several alternative theoretical approaches have been developed to address this gap. The aim of this paper is to further contribute to this research on the nature of social preferences. Our focus is on the role the self-image plays in decision making and cognitive dissonance (Festinger, 1957) serves as the psychological basis to model self-image concerns. A person experiences cognitive dissonance when she holds two psychologically conflicting cognitions. The modern theory of cognitive dissonance (Aronson, 1992; Beauvois and Joule, 1996) argues that dissonance primarily revolves around the self and a piece of behavior that violates that self-concept.¹ We relate to this modern version of dissonance theory as it explains other-regarding behavior as being driven by individuals' desire to maintain their self-image. Any divergence of actual behavior from that self-image would lead to the unpleasant feeling of cognitive dissonance.² In particular, we build on Konow (2000), a cognitive dissonance-based model of other-regarding behavior in dictator games. We relax one assumption of Konow (2000) as we allow for individual heterogeneity among subjects' standards of behavior. Hence, we explicitly consider an individual's self-image in the decision making process and test this aspect experimentally.

A week before the actual experiment prospective subjects took part in a personality test

¹See Harmon-Jones and Mills (1999) for a review of the current state of dissonance theory. In contrast to social psychology where dissonance theory has been frequently applied only few articles in economics use it to explain decision making (see, for instance, Akerlof and Dickens, 1982; Rabin, 1994; Konow, 2000; Oxoby, 2003, 2004).

²Note that also other approaches exist to model self-image concerns, see section 2.

embedded in the ‘self-concept inventory’ (SCI) by von Georgi and Beckmann (2004) in order to assess their self-image with respect to other-regarding behavior. In the experiment subjects face a series of four dictator choices where they allocate an endowment between themselves and an unknown receiver. While in the first scenario the transfer reaches the receiver for sure, in the next three scenarios the dictator decisions are implemented with a probability $p < 1$ (varying between 0.8 and 0.9). With the remaining probability the dictator keeps the entire endowment and the receiver gets nothing, even if the dictator allocated a positive amount. After all transfer choices have been made, subjects learn that they can choose which of the four scenarios they want to apply. Assuming they sent the same positive amount in all scenarios they have an opportunity to reduce their transfer (in expectations) without derogating their initially intended allocation. The design i) elicits a subject’s degree of other-regarding behavior in an allocation decision, and ii) gives us an indication to what extent the subject is willing to yield to the temptation of possibly keeping all the money (by selecting an implementation probability for the transfer of $p < 1$). In addition, it allows us to analyze the factors that influence these decisions.

Our results indicate strong support for our behavioral predictions. Subjects’ self-image, their belief regarding the average socially appropriate behavior of others and our proxies for the cognitive dissonance costs are positively correlated with the dictator game choices. Moreover, we find that subjects whose choices indicate that they face a close tradeoff between monetary payoff and the disutility from cognitive dissonance report higher levels of experienced conflict and take more time for their decisions (our proxies for cognitive dissonance).

Our experiment contributes to the empirical evidence of the ‘moral wiggle room’ effect. It adds uncertainty about the implementation of a transfer to the situational excuses that people tend to exploit in order to justify behaving selfishly. The results generally support the approach of existing self-image models in order to explain other-regarding behavior: people desire to maintain a comfortable self-image and deviations come at a psychological cost. In particular, we find that it is not necessarily a universal one-for-all behavioral standard that people apply to themselves. Instead, we find individual heterogeneity in subjects’ self-image with respect to other-regarding behavior.

The paper is organized as follows. Section 2 presents our experiment: its theoretical background, the design and hypotheses. Results are presented and discussed in section 3. Section 4 concludes.

2 Experiment

2.1 Theoretical background

Outcome-based models (e.g., Andreoni, 1990; Fehr and Schmidt, 1999, and Bolton and Ockenfels, 1999) can be regarded as the first generation of social preferences models. They assume that people are truly concerned about how much others have. However, recent experiments (Konow, 2000; Dana et al., 2006; Dana et al., 2007; Broberg et al., 2007; Larson and Capra, 2009; Grossman, 2010; Haisley and Weber, 2010; Hamman et al., 2010; Matthey and Regner, 2011; Bartling and Fischbacher, 2012; Lazear et al., 2012; van der Weele, 2013) suggest that a substantial amount of individuals do not use own and other payoffs as their sole motivation. Although subjects in these experiments may share with others if forced into an allocation situation, some of them are found to exploit situational excuses for not sharing. They, for instance, shared less when the relationship between own action and consequences for someone else is less salient in comparison to a baseline case with a transparent relationship.

In order to explain such behavior in a general class of situations, it is helpful to relate it to existing theories in psychology. Cognitive dissonance, the concept we employ to explain such behavior, was first described by Festinger (1957) as the negative drive state that arises if a person holds two cognitions that are psychologically inconsistent. For example, there may be a dissonance between a person's beliefs and her behavior, which is experienced as unpleasant, and produces a motivation to reduce this dissonance. This concept has been sharpened in the modern theory of cognitive dissonance (Aronson, 1992; Beauvois and Joule, 1996) which argues that such dissonance primarily revolves around the self and a piece of behavior that violates that self-image.³

Konow (2000) was the first to use the concept of cognitive dissonance to explicitly explain behavior in dictator games. In his model, individuals maximize a utility function that is increasing in the share of money they keep for themselves, $0 \leq y_i \leq \bar{y}$, and decreasing

³Besides cognitive dissonance other approaches exist to model the role the self-image plays in decision making. Akerlof and Kranton (2000, 2005) incorporate identity in the utility function of individuals. They show that behavior in line with one's identity results in positive payoffs, while behavior that contrasts the own identity has the opposite effect. Bodner and Prelec (2003) as well as Bénabou and Tirole (2011) use a dual self approach to account for self-image as a motivation. Via the dual self which serves as an observer of one's own actions informative signals about the own identity or self-image are provided. In their theory of self-concept maintenance, Mazar et al. (2008) suggest that people try to find a balance between two motivational forces (cheating in order to get a high material payoff versus maintaining the self-concept of being honest). In equilibrium the extent of their cheating would still just be compatible with their positive self-concept of being honest. Nyborg (2011) considers duty-oriented consumers who compare actual behavior against some ideal standard. A utility loss results when actual behavior falls short of the standard. While these models vary in their approach and terminology, their central message is arguably a common one. People desire to maintain a comfortable self-image.

in the amount of cognitive dissonance they experience and the extent of self-deception they engage in. Cognitive dissonance arises, if the share y_i an individual keeps for herself deviates from the share she believes is fair to keep, ϕ_i . Self-deception is present, if the individual makes herself believe that a certain share ϕ_i is fair to keep and if this share deviates from the fair entitlement η . This fair entitlement is determined by the accountability principle: individuals' payoffs should not depend on variables they have no control over.⁴ Hence, without factors that individuals can reasonably influence the fair entitlement η would be an equal split of the endowment \bar{y} .

Given the share y_i and the belief ϕ_i , the amount of cognitive dissonance an individual experiences in Konow's model depends on the parameter α_i , which determines the relevant dissonance function and may vary across individuals and contexts. Similarly, given the fair entitlement η and the individual's belief about the fair share ϕ_i , the (emotional) costs of self-deception that arise if $\eta < \phi_i$ depend on the parameter β_i . The individual i then solves the following problem:

$$\text{Max}_{y,\phi} \quad u_i(y_i, \phi_i, \eta, \alpha_i, \beta_i) \equiv v(y_i) - f(y_i - \phi_i, \alpha_i) - c(\phi_i - \eta, \beta_i)$$

That is, she chooses the share y_i and also has a belief ϕ_i about the fair share. This results in the monetary payoff $v(y_i)$, and potential costs of cognitive dissonance, $f(y_i - \phi_i, \alpha_i)$, in case the individual's share y_i is greater than the belief about the fair share ϕ_i and of self-deception, $c(\phi_i - \eta, \beta_i)$, in case the individual's belief about the fair share ϕ_i is greater than the fair share η .

While we generally follow the approach of Konow (2000), we introduce one new aspect. People may unequivocally agree on η being the fair share, but this objective view may not be what individuals subjectively perceive as their standard of behavior. It may well be that keeping everything possible is the behavioral standard some people apply to themselves and, hence, such a choice would result in a comfortable self-image. No costs of cognitive dissonance or self-deception would arise, because the individual simply does not apply the objectively fair share η to herself. In allocation situations, for example, some people will behave fairly, perceive their behavior as fair and enjoy being in line with their standard. In contrast, others behave selfishly, perceive their behavior as egoistic and still enjoy consistency with their standard. This is not to say that costs of self-deception and cognitive dissonance may not be present anymore. We simply allow people to have a behavioral standard of, say, egoism and, in turn, to be truly content with selfish choices. In the extreme, individuals may apply a behavioral standard of keeping everything, while being fully aware that the objectively appropriate choice would be a

⁴Konow (2000) distinguishes between discretionary and exogenous variables. In his experiment the endowment can depend on subjects' production in a real-effort task. Their productivity is a discretionary variable and should affect payoffs, while the piece rate assigned by the experimenter is an exogenous one and should not. Konow (2001, 2010) employ a set of principles, also considering efficiency and needs aspects.

fair split ($\eta = \phi_i$). A discrepancy between y_i and ϕ_i results. However, independently of α_i , they would not incur any costs of cognitive dissonance, because egoism is their subjective behavioral standard which is consistent with a transfer of zero.

Hence, we assume that, besides the original model components of Konow (2000), also an individual's self-image Δ_i^* with respect to pro-social behavior affects the decision in an allocation situation. Individual i maximizes utility $u_i(y_i, \phi_i, \eta, \alpha_i, \beta_i, \Delta_i^*)$. If the fair share η corresponds to the self-image Δ_i^* , the individual's choice y_i depends, as described before, on ϕ_i, α_i and β_i . If the individual's subjective view, Δ_i^* , deviates from the fair share η , then a choice of y_i in line with Δ_i^* results (independently of ϕ_i, α_i and β_i).

2.2 Design

The study is designed to elicit the key components of the cognitive dissonance model and test its relevance. It consists of a personality test (conducted via an online platform) and, one week afterwards, a laboratory experiment (a dictator game variant with subsequent elicitation of beliefs followed by a post-experimental questionnaire). The purpose of the test is to elicit subjects' self-image with respect to pro-social behavior. In the experiment, a dictator game variant, subjects chose how to split an endowment between them and another subject. Subsequently, we elicited subjects' beliefs regarding the socially appropriate choice. The post-experimental questionnaire contained questions that we used as a proxy for the cognitive dissonance costs. See table 1 for a timeline of the study.

The *personality test* was used to assess subjects' preferred behavioral standard Δ^* . It was embedded in the 'self-concept inventory' (SCI) by von Georgi and Beckmann (2004), and was administered to the subjects a week before the lab experiment through an Internet platform. We slightly adjusted the survey and replaced questions of one of its five dimensions by questions on other-regarding behavior, in order to assess the subjects' image of themselves in the dimension of interest for us. The questions that were used for this scale as well as more information about the SCI can be found in the appendix. Our six questions on other-regarding behavior were asked for the first time in this framework. A test of the new scale in a separate survey with 110 subjects confirmed its reliability (Cronbach's $\alpha = 0.79$).

In the laboratory we conducted a *modified dictator game*. Dictators received an endowment of 10 EUR, which they could allocate between themselves and a randomly chosen receiver with an endowment of 0 EUR. Whether a subject acted as dictator or receiver was determined randomly at the end of the experiment, i.e., all subjects made the allocation decisions. Receivers only learned the outcome, not the choice of the dictator, and dictators knew that. The allocation choice was made for four different scenarios, of which subjects were informed in detail in the instructions. In scenario 1, the dictator's

transfer was carried out with certainty, i.e., it reached the receiver and was subtracted from the dictator's account with certainty. In scenario 2, the transfer was carried out with 90% probability only. With the remaining 10% probability, the dictator would keep her 10 EUR endowment and the receiver would not get anything, independently of the size of the transfer. In scenario 3, the transfer was carried out only with 80% probability, with 20% both players kept their initial endowments. Scenarios 1-3 were chosen to test whether dictators would adjust their transfers in order to compensate the receiver for the loss in transfer probability, or whether they would just consider their nominal transfer. The probabilities were varied in scenarios 2 and 3 to test whether the quantitative difference between a transfer probability of 0.8 or 0.9 would matter in addition to the qualitative difference between a probability of 0.9 and certainty. In scenario 4, the computer decided randomly (50%/50%) whether the transfer was carried out with certainty or only with 80% probability. This scenario allows us to look at the effect of letting the computer choose the transfer probability, i.e., not directly taking a selfish decision. Before subjects made their decisions for all four scenarios, they were informed that afterwards it 'would be decided' which scenario applied. No particular decision mechanism was mentioned. More specifically, after subjects had made all decisions, they were shown a screen with their transfers for all scenarios and could choose themselves which scenario they wanted to apply. Hence, they had the chance to decide whether their transfer would reach the receiver with certainty or not. Letting subjects choose the transfer probability themselves allowed us to test the sincerity of subjects' motives to truly transfer money to the receiver, rather than just assigning a transfer to appear fair, but secretly hope for it not to take place. That is, a positive transfer can be guaranteed (by selecting scenario 1) if a dictator really wants to and receivers know that. Note that this is different to the situation in Dana et al. (2007). In their plausible deniability treatment transparency is reduced, because receivers are not able to differentiate whether their payoff is due to the dictator's choice or nature (in case the dictator was cut off). In our design a transfer of zero can be traced back to the choice of the dictator and moral wiggle room arises from the fact that uncertainty about the implementation of the transfer is introduced. The setting is similar to Haisley and Weber (2010) who compare dictator choices when the receiver's payoff depends on an ambiguous lottery or one with known probabilities. They find that ambiguity about the dictator choice's consequences serves as a justification for not behaving pro-socially.⁵

After the decision task we elicited ϕ , the *subjects' beliefs* regarding the socially appropriate transfer and scenario choice. The instructions distributed at the start of the experiment only mentioned the existence of a second part and stated that further in-

⁵Other manipulations of moral wiggle room used in previous studies are the option to strategically ignore the consequences of one's own choice on others (Dana et al., 2007; Larson and Capra, 2009; Grossman, 2010; Matthey and Regner, 2011; and van der Weele, 2013) and the possibility to delegate responsibility to someone else (Dana et al., 2007; Hamman et al., 2010; Bartling and Fischbacher, 2012).

instructions will be given on the screen. In order to avoid strategic behavior of subjects, they were first asked to tell us what they believe is the socially appropriate behavior in part 1 (scenario and transfer). Then, detailed instructions about the belief elicitation procedure were distributed. After reading these instructions, subjects practiced the procedure in a similar table for an exemplary task. After all subjects had successfully completed this task, the belief assessment commenced. Subjects were asked what they believe is the average socially appropriate transfer and scenario choice. They were given a table with four columns for the four different scenarios and 5 rows for 5 intervals of transfers: $[0, 2)$, $[2, 4)$, $[4, 6)$, $[6, 8)$, $[8, 10]$. They had to distribute a probability mass of 100% across the 20 cells of this table. Beliefs were compared to the average expected value of the socially appropriate transfer and scenario choice and their accuracy was rewarded using a quadratic scoring rule. Subsequently, subjects were also asked for their belief about the average actually chosen transfer and scenario choice using the same elicitation mechanism.

Finally, subjects filled in a *post-experimental questionnaire*, where we asked i) how hard it was for them to choose their transfers and the scenario that would apply; ii) which transfer and scenario they thought the receiver had expected them to choose, and iii) for their own judgement of their behavior in the dictator game, i.e., whether on a scale from 1 to 5 they found their behavior generous, fair, rational, clever and egoistic. The latter was assessed to get an indication whether the standard that subjects feel their behavior implies objectively reflects their transfer/scenario choice. In addition, we asked subjects (on a scale from 1 to 5) how important it is for them to have and comply with certain principles in life, and how unpleasant they find it not to comply with these principles. These two questions serve as a proxy for α , the cost of cognitive dissonance in the utility function. We also asked for socio-demographic variables like age and gender.

2.3 Hypotheses

We derive the following hypotheses regarding behavior in the experiment.

Hypothesis 1 *Higher scores in the dimension ‘other-regarding behavior’ of the self-concept inventory are, ceteris paribus, related to higher dictator transfers.*

The dimension ‘other-regarding behavior’ embedded in the SCI test serves as a proxy for the behavioral standard Δ^* individuals consider appropriate. All else equal, a higher standard should lead to more other-regarding behavior, that is, higher transfers.

Hypothesis 2 *Higher beliefs regarding the average socially appropriate choice of transfer and scenario are, ceteris paribus, related to higher dictator transfers.*

Table 1: Timeline of the study

part of the study	variables collected
personality test (online, one week before experiment)	self-image
experiment	<ol style="list-style-type: none"> 1) dictator game transfers in the 4 scenarios 2) choice which scenario should be implemented 3) socially appropriate behavior (transfer and scenario) 4) beliefs about the average socially appropriate behavior 5) beliefs about the average actually chosen transfers and scenarios
post-experimental questionnaire	<ol style="list-style-type: none"> 1) experienced conflict 2) own judgement of dictator game behavior 3) proxy for the cost of cognitive dissonance 4) socio-demographics

A subject's belief ϕ about the socially appropriate choice has, all else equal, a positive effect on the actual transfer of the subject. If a subject believes keeping everything is 'fair', she will not incur any costs of cognitive dissonance if she chooses a transfer of zero. In contrast, for a subject with a belief of $\phi = \eta$ a dictator transfer of zero would result in substantial costs of cognitive dissonance (given the self-image is not egoistic and the weight of cognitive dissonance is positive). In turn, a generous dictator transfer is more likely.

Hypothesis 3 *Subjects for whom personal principles are important and who find it unpleasant to deviate from them transfer more in the dictator game.*

The importance of personal principles in life together with the degree to which deviation from these principles is experienced as unpleasant serves as a proxy for the cost of cognitive dissonance α in the utility function.⁶ The more important principles are to an individual and the more unpleasant she finds a deviation from them, the higher is the weight of cognitive dissonance a person experiences. The higher the cost of cognitive dissonance α is, the more likely it is that the individual behaves pro-socially.

Hypothesis 4 *Subjects who ultimately choose a scenario more favorable to them than the certain transfer experience cognitive dissonance taking this decision, leading to longer*

⁶Some individuals may report a high importance of personal principles and have in mind principles like egoism or selfishness. However, the evidence suggests that the majority of subjects understands 'personal principles' as being social principles. Individual deviations from this interpretation are possible but should not affect the aggregate analysis.

decision times and higher reported difficulty in making this choice.

Subjects' choice of a scenario potentially involves a tradeoff. For subjects who decided to transfer the same positive amount in all scenarios, selecting a scenario other than 1 means a higher expected monetary payoff but also more cognitive dissonance experienced due to possibly sending less than what the original transfer at scenario 1 would imply. If choosing an advantageous scenario results in much more disutility from cognitive dissonance than the utility gain from the monetary payoff, the decision is straightforward and scenario 1 is selected. If the utility gain from the monetary payoff is much bigger than the cognitive dissonance disutility or Δ^* implies egoistic behavior, the decision is also straightforward, leading to the egoistic choice. If, however, disutility from cognitive dissonance and utility gain from the monetary payoff are about equal, the tradeoff between them is close and the decision becomes more difficult. Subjects who send positive amounts when the transfer is certain but ultimately choose an outcome more favorable to them should face such a tradeoff. Their initial transfer of a positive amount indicates that they are pro-social, yet their scenario choice shows that they were willing to make a more egoistic choice. Subjects who do not thwart their initial intentions by switching to a more favorable scenario may also face a tradeoff, but their behavior indicates that is not close enough to make them change their mind. Hence, on average, they have and report less difficulty with the decision, and need less time for it.

Besides self-image concerns, other approaches exist that have been found to successfully explain other-regarding behavior. In addition to monetary payoffs social-image models allow individuals to be also motivated by the desire to be liked and respected by others (see, for instance, Bénabou and Tirole, 2006; Ellingsen and Johannesson, 2008; and Andreoni and Bernheim, 2009). Social reputation may well matter, but it requires that one's action is signalled to the relevant community. Only part of the empirical evidence mentioned before deals with situations where subjects' decisions are 'public'. When the decision remains 'private' the desire to gain social approval cannot quite explain other-regarding behavior. In our experiment the dictator decision was not revealed to the recipient, only the outcome which may be determined in a probabilistic way. Moreover, participation was anonymous. It seems unlikely that social-image concerns played a role in this environment. Likewise, it seems improbable that procedural concerns (see, e.g., Bolton et al., 2005; Trautmann, 2009; Krawczyk, 2011) matter in the context of our experiment. Such models extend the notion of fairness beyond outcomes and also consider process fairness, that is, how outcomes have been achieved. Hence, people may prefer lotteries over certain outcomes. However, our scenarios that involve a lottery (2-4) would imply an even more unequal payoff distribution (given a transfer of less than 5 and equal transfers across scenarios). Of course, a preference for lotteries may play a role in the scenario choice of subjects who equalize the expected amount sent across scenarios. We keep this in mind in our analysis.

2.4 Participants and Procedures

118 subjects were recruited among students from various disciplines at the local university using the ORSEE software (Greiner, 2004). In order to take part in the lab experiment it was compulsory to complete the online personality test a week before the scheduled session. In each session gender composition was approximately balanced and subjects took part only in one session. The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007) and took, on average, 60 minutes. The average earnings in the experiment have been €13.43 (including a €2.50 show-up fee for the experiment and an additional €5 for the online questionnaire).

Upon arrival at the laboratory subjects were randomly assigned to one of the computer terminals. Each computer terminal is in a cubicle that does not allow communication or visual interaction among the subjects. Subjects were given time to privately read the instructions and were allowed to ask for clarifications. In order to check the understanding of the instructions subjects were asked to answer some control questions. After all subjects had answered the questions correctly the experiment started. At the end of the experiment subjects were paid in cash according to their performance. Privacy was guaranteed during the payment phase. A random generator determined for each subject which part (modified dictator game or belief elicitation) of the lab experiment was to be paid. If the first part was chosen, it also determined whether the subject acted as dictator or receiver. This procedure was announced in the instructions.

3 Results

Decisions in our modified dictator game can be separated into i) the amounts subjects sent in the respective dictator scenarios and ii) what they chose when we let them pick which of the four scenarios should be executed. We use the four amounts sent to assess a subject's degree of other-regarding behavior in a dictator game. The choice which scenario should apply gives us an indication to what extent the subject is willing to yield to the temptation of possibly keeping all the money.

3.1 Dictator transfers

We first present descriptive statistics of our key variables. This is followed by a regression-based analysis of dictator transfers in order to test our behavioral predictions.

In order to assess how other-regarding a subject behaves in the dictator game we consider all four decisions subjects provided. We compute the degree of other-regarding behavior as the average expected values of the four decisions (transfers are multiplied with their respective probability of getting executed, summed, and divided by four). Subjects who

never send anything are labelled ProSelfs. After the decision tasks we asked subjects about the socially appropriate behavior (amount and scenario). Then we asked for subjects' beliefs regarding the average socially appropriate transfer and scenario choice. The variable *belief* is the expected value of the amount they indicated, i. e., the amount multiplied by the degree of certainty of the respective scenario (1, 0.9, 0.8, 0.9). See figure 1 for the histograms of subjects' transfers/beliefs.

We used questions embedded in the self-concept inventory (SCI) to measure a subject's self-image with respect to her other-regarding behavior. Internal reliability is acceptable (Cronbach's $\alpha = 0.74$). The variable *SelfImage* is an individual's average score in the six questions. A high value means a stronger tendency of the individual to have an other-regarding self-image. See figure 2 for the Z-standardized distribution of *SelfImage* (mean of 0 and standard deviation of 11.22).

Subjects were also asked to self-assess their behavior in the experiment, that is, whether on a scale from 1 to 5 they found their behavior generous, fair, rational, clever and egoistic. The scores of the last two items were reversed in order to make the scales comparable. Answers for the five items were highly correlated (Cronbach's $\alpha = 0.73$) and we use their average as the variable *SelfAssessment*. Finally, the variable *principles* expresses how important it is for them to have and comply with certain principles in life, and *dissonance* how unpleasant they find it not to comply with these principles. Figure 2 provides the distributions of these variables.

Table 2 shows results of regressions set up to test hypotheses 1 to 3. Column I contains results of an OLS specification with robust standard errors and the amount sent as the dependent variable. The coefficient of *SelfImage* – an individual's tendency to have an other-regarding self-image – is positive and significant at the 5%-level. The coefficient of a subject's *belief* ϕ is also positive and significant at the 5%-level. The coefficients of *principles* and *dissonance*, our proxies for the cost of cognitive dissonance, are positive and significant at the 1%- and 5%-level. Their interaction term appears to have an antagonistic effect (its coefficient is smaller than the main effects). A possible explanation is that if either *dissonance* or *principles* are very high, the other variable becomes less important. The choices of subjects to whom principles are very important do not depend on high dissonance, because these subjects do not violate these important principles. Similarly, if a violation of principles hurts a subject a lot, she does not violate these principles even if they are only moderately important to her. Control variables (age, gender) are not statistically significant.

While these results support hypotheses 1 to 3, we look at the determinants of dictator game transfers in more detail in additional regression specifications. For this purpose we estimate a probit model with a dummy variable that is 1 if the subject kept everything (ProSelf type) as the dependent variable and robust standard errors, see column II of

table 2.⁷ The coefficient of *SelfImage* is again negative and highly significant. However, the coefficient of a subject's *belief* ϕ is not significant. Only the coefficient of *dissonance* is negative and significant at the 5%-level.

Table 2: Determinants of dictator game transfers

dependent variable	I: amount sent		II: type ProSelf	
	coeff.	st.error	coeff.	st.error
SelfImage	.0293	.013 **	-.0294	.0109 ***
belief	.252	.1164 **	-.0994	.1043
principles	.9834	.4319 **	-.5849	.5337
dissonance	1.452	.5199 ***	-1.302	.6508 **
principles * dissonance	-.3534	.1322 ***	.2859	.1614 *
age	.0769	.0635	-.0473	.0578
female	-.1292	.3717	-.0826	.3075
constant	-4.429	2.012 **	3.299	2.362

Specification I is an OLS regression and II a probit model (marginal effects are reported);

N = 118; significance levels: *** = 1%, ** = 5%, * = 10%

It seems that the self-image with respect to other-regarding behavior is an important factor to identify subjects who keep everything for themselves. In contrast, subjects' beliefs about the socially appropriate behavior do not seem to be a determinant of ProSelves. Dictator transfers of zero are, of course, also possible in the original Konow (2000) model, that is, without a behavioral standard of egoism. Either, individuals engage in perfect self-deception ($\phi = 0$), or they are immune to cognitive dissonance ($\alpha = 0$). Our data shows that ProSelves' belief ϕ about the socially appropriate choice (mean 3.35) is not significantly different from other subjects' ϕ (mean 3.63, ranksum test, $p = .55$), see also the scatter plot of transfer and ϕ in figure 4 (top right). At least some of them are fully aware that keeping everything is not socially appropriate. Moreover, figure 4 (top left, bottom left) shows that subjects with very low *SelfImage* scores tend to keep everything while their belief ϕ is relatively high.⁸ Subjects with a relatively high belief ϕ would have to be immune to cognitive dissonance for the original model to predict very low dictator transfers. However, our proxies for the cost of cognitive dissonance α do not indicate significant differences between ProSelves (mean of *principles*: 3.91; mean of *dissonance*: 3.36) and other subjects (mean 4.03, ranksum

⁷The results are robust for other model specifications (values between 0.5 and 3 instead of zero to identify ProSelves).

⁸Subjects' assessment of their behavior elicited in the post-experimental questionnaire confirms this. Subjects who allocate nothing or very little (ProSelves) are, on average, aware that their behavior is egoistic (*SelfAssessment* mean of 2.12 in comparison to the mean of other subjects, 2.85, ranksum test, $p < .01$).

test, $p = .86$; mean 3.51, ranksum test, $p = .92$). Hence, it seems that ProSelves keep everything mostly due to their *SelfImage*.

Overall, we find a significant correlation between beliefs about the average socially appropriate behavior and choices in the dictator game. However, ϕ does not seem to play a role for the behavior of ProSelves. In further analysis we look at an alternative way to assess subjects' beliefs. The literature on social norms is not conclusive about what makes people obey a norm. Bicchieri (2006) distinguishes between normative expectations (what we believe others think we ought to do) and empirical expectations (what we expect others to do). Besides ϕ (or the normative expectations) we also asked subjects for their belief regarding the average actually chosen transfer and scenario choice. Modifying specifications I and II of table 2 we replaced ϕ with subjects' empirical expectations. The coefficient of the belief about the average behavior of others is positive and highly significant, while the relevance of other variables is not affected. In specification I the coefficient is .49 in contrast to .25 of ϕ . It seems that empirical expectations have a bigger impact on decisions, in line with the findings of Bicchieri and Xiao (2009) who also analyzed dictator game settings.

3.2 Scenario choice

We analyze what subjects choose when we let them pick which of the four scenarios should be executed in order to test whether they have a tendency to exploit moral wiggle room under uncertainty. If subjects transferred the same positive amount in all four scenarios and they selected the certain transfer we categorize them as GenuineProSocial. In contrast, if they picked a scenario where the transfer could fail – having entered the same positive amount in all scenarios – they are labeled WigglingProSocials. While they behave other-regarding, they tend to exploit moral wiggle room.

Among subjects who sent a positive amount (pro-socials) the majority (69) transferred the same amount in all scenarios, while 12 pro-socials decreased their transfer with the failure chance increasing. For these subjects selecting a scenario other than 1 meant the unambiguous opportunity to reap a monetary gain (in expectations). Out of 81 subjects 36 picked scenario 1. In contrast, 45 picked a scenario that did not guarantee the transfer. Some pro-socials increased the amount to be sent when the chance of a failed transfer rose. They may have tried to keep the amount to be actually sent at the same level. When they did this in a consistent way,⁹ the choice of the scenario does not matter. This applies to 16 subjects and they are as well regarded as GenuineProSocials. Finally,

⁹We did not check whether their choices comply with expected utility theory as we cannot assume subjects calculate this properly. The sequence of choices needed to look like they tried to level the actual amount. This means strongly monotonically increasing amounts sent or monotonically increasing amounts sent in combination with a final choice to their disadvantage.

for subjects who never sent anything (ProSelfs) the scenario choice via its variation of transfer failure chance has no meaning. Figure 3 shows histograms of the scenario choice for ProSelfs (top left) and pro-socials who sent less (top right), the same (bottom left), and more (bottom right) when the chance of transfer failure increased.

The categorization results in 21 subjects who never sent a positive amount (ProSelfs), 45 WigglingProSocials who picked a scenario with a possibly favorable outcome and 52 GenuineProSocials who resisted to this temptation (or evaded our manipulation).

We proceed to test whether we are able to identify subjects who should face a close tradeoff between cognitive dissonance and utility from the monetary payoff (hypothesis 4). In order to proxy for the tradeoff between utility from the monetary payoff and cognitive dissonance we use two variables. We took the *decision time* provided by z-tree when subjects had to select one of the four scenarios. Average decision times for the types are 8.05 (ProSelfs), 19.38 (WigglingProSocials), and 9.74 (GenuineProSocials). The distributions are slightly right-skewed. Hence, we use the logarithm of the decision times in the further analysis. In the post-experimental questionnaire we asked subjects how hard it was for them to pick one of the four scenarios to be implemented.¹⁰ This is subjects' *experienced conflict*.

Subjects categorized as WigglingProSocials should have two inconsistent psychological cognitions. They sent positive amounts in the dictator scenarios. Then, they decided to pick a scenario with a possibly favorable outcome for themselves – in contrast to the genuine types. The GenuineProSocials were as well tempted but resisted picking a scenario favorable to them. Hence, we run a probit regression with robust standard errors, see Table 3. The dependent variable is the type WigglingProSocial. In specification I we consider all observations, while specification II takes two aspects into account that potentially confound the results. First, ProSelfs may be influenced by the fact that they do not really have a choice to make. When zero is to be sent, the probability of the transfer to actually take place does not matter (13 out of 21 nevertheless picked the original transfer). Second, also subjects who leveled (those who equalized the expected amount sent across scenarios) did not really have a choice to make. Therefore, we exclude the ProSelf types and the levelers among the pro-socials in order to focus on subjects who were in a comparable context. This reduces observations to 81 for specification II.

In both specifications there is a positive and significant correlation (at the 1%-level) of the type WigglingProSocial with the *experienced conflict* and *decision time*. WigglingProSocials seem to experience a tradeoff between disutility from cognitive dissonance and utility from the monetary payoff. This result supports hypothesis 4 and replicates the findings of Matthey and Regner (2011) in a different context.

¹⁰The precise (translated) text of this question is: “Did you find it easy to decide, which of the four scenarios in part 1 should take place?”

Table 3: Probit with type WigglingProSocial as dependent variable

	I		II	
	coeff.	st.error	coeff.	st.error
experienced conflict	.8415	.2318 ***	.8966	.3059 ***
log(decision time)	.3317	.1171 ***	.4966	.1562 ***
age	.0635	.0539	.1049	.0715
female	.0474	.2881	.1358	.4168
constant	-3.515	1.273 ***	-5.196	1.657 ***
Pseudo R^2	.26		.35	

Specification I considers all 118 observations; in II ProSelf types and subjects who seem to equalize the expected amount sent across scenarios are taken out which reduces observations to 81;

standard errors in parentheses; significance levels: *** = 1%, ** = 5%, * = 10%;

marginal effects are reported.

4 Conclusion

The paper contributes to a growing literature that aims at a better understanding of the nature of social preferences. In general, it points out the importance of factors more subtle than material outcomes as drivers of this behavior.¹¹ In particular, it brings attention to self-image concerns as a motivation for other-regarding behavior.

Economic models based on cognitive dissonance explain behavior as being driven by individuals' desire to avoid a divergence between the behavior they consider appropriate for the situation in question and the behavior they actually choose, since such a divergence would lead to two psychologically inconsistent cognitions and induce unpleasant cognitive dissonance (e.g. Festinger, 1957; Aronson, 1992; Beauvois and Joule, 1996). We build on the seminal work of Konow (2000) modifying it in one respect. We allow individuals to have different behavioral standards. That is, we acknowledge that for some people it is desirable to behave in a fair way, while others apply a behavioral standard of egoism to themselves. Subjects adhering to roughly the same behavioral standard would provide evidence against this modification. However, the distribution of our proxy for subjects' behavioral standard Δ^* , their *SelfImage* with respect to other-regarding behavior, is rather heterogenous. Different subjects indeed have different standards for their own extent of pro-social behavior. Moreover, we find that subjects' *SelfImage* is

¹¹For empirical evidence see, e.g., the studies of Konow (2000), Dana et al. (2006), Dana et al. (2007), Broberg et al. (2007), Larson and Capra (2009), Grossman (2010), Haisley and Weber (2010), Matthey and Regner (2011), Bartling and Fischbacher (2012), Lazear et al. (2012), van der Weele (2013). Our experimental design creates moral wiggle room by introducing uncertainty about the implementation of the transfer, a situational excuse that has not been employed so far.

a significant determinant of choices in our modified dictator game. In particular, this is true for subjects who keep everything (ProSelves). Our results also indicate that subjects with a higher belief about socially appropriate behavior, and subjects for whom it is more important to comply with personal principles (and unpleasant not to comply with them) are more generous. This leads to the interpretation that self-image concerns (more specifically the desire to comply to one's self-image in order to avoid cognitive dissonance and self-deception via the manipulation of beliefs) play a significant role as a driver of pro-social behavior. Moreover, we find that subjects whose choices indicate that they face a close tradeoff between monetary payoff and the disutility from cognitive dissonance report higher levels of experienced conflict and take more time for their decisions (our proxies for cognitive dissonance).¹²

What are implications of these results from a policy perspective? Generally, it appears fruitful to expose the consequences of people's choices on others in order to rein in selfish behavior. In particular, consumers – once informed not only about the economic but also the social and environmental impact of their action – may take responsible decisions more often. Information about externalities being readily available makes it less likely these consequences would be ignored and more likely they will be taken into account to comply with one's self-image. However, this information needs to be as reliable and credible as possible since uncertainty seems to open up new ways to exploit moral wiggle room and to slip away from acting responsibly.

Self-image as a target for policy intervention may also have a more stable effect than social-image concerns. Ariely et al. (2009) analyze the effects of extrinsic motivation (an additional monetary incentive) and social reputation (public visibility of the task) in a donation context. They find a crowding-out of social-image concerns by monetary incentives. In a public setting the level of donations is not increased by introducing additional monetary incentives, while in a private setting monetary incentives raise the donation level. As Ariely et al. (2009) note this has important policy implications with respect to extrinsic motivation. The effect of tax benefits to facilitate adoption of a new environmentally friendly technology should be less successful when they concern a highly visible product (like a hybrid car), since the signalling value of the social reputation effect is reduced by the monetary incentive. There appears to be no indication that such a crowding-out effect of social reputation by monetary incentives applies to self-image effects as well, at least not at a substantial level. Moreover, visibility of the choice

¹²GenuineProSocials would act in accordance to their behavioral standard when selecting the dictator transfers and they would resist the temptation of possibly keeping all the money when choosing a scenario. For them deviating would be too psychologically costly. In contrast, WigglingProSocials initially would behave in line with their behavioral standard, but when choosing a scenario they would yield to the temptation of possibly keeping all the money. They would experience cognitive dissonance, but the monetary gain outweighs that psychological cost. Accordingly, WigglingProSocials report a higher experienced conflict and take more time for their decisions in our experiment.

should not have a detrimental effect on the self-image. But clearly more research is needed to improve understanding of the interplay between extrinsic motivation, social-, and self-image concerns in determining human decisions.

Figures

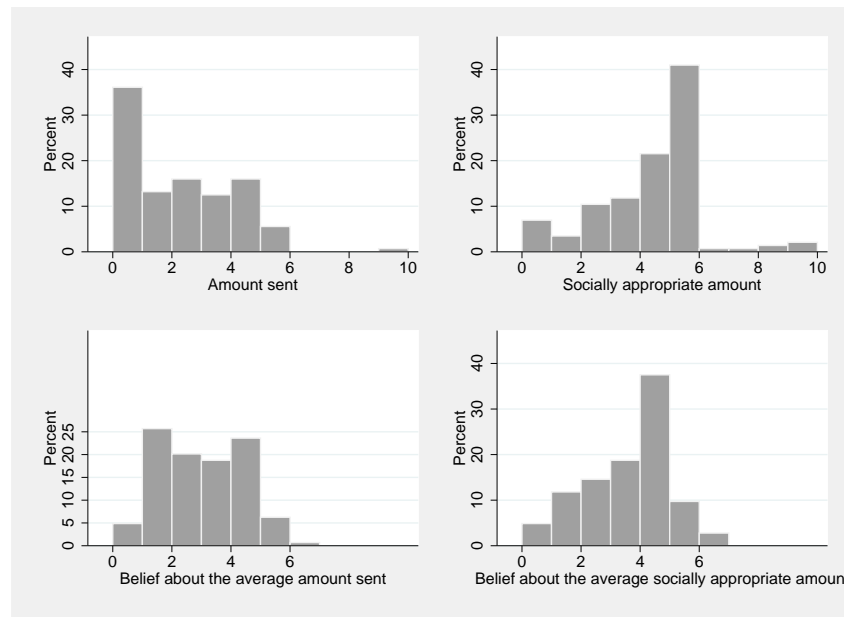


Figure 1: Histograms (from top left to bottom right) of the amount sent, the socially appropriate amount, the belief about the average amount sent and the belief about the average socially appropriate amount.

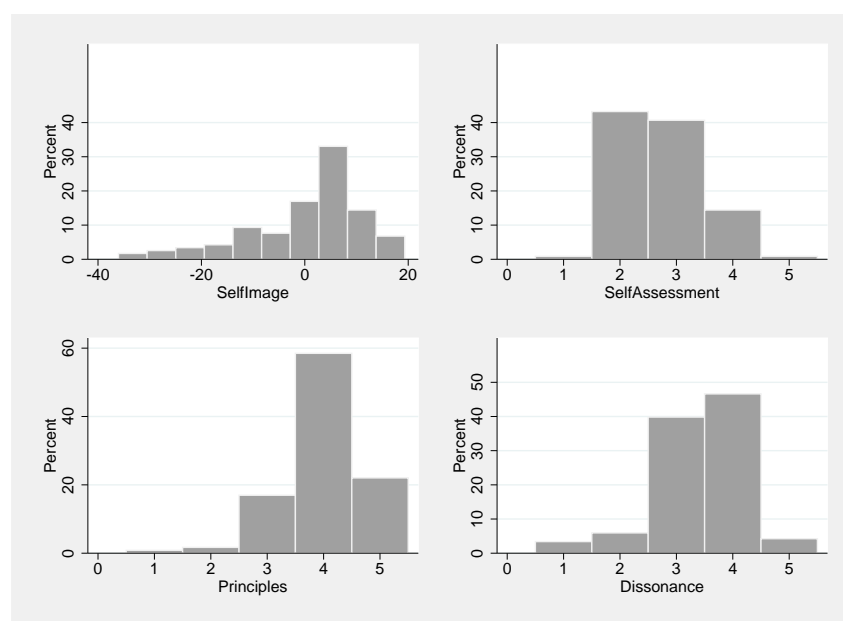


Figure 2: Histograms of the variables SelfImage (Z-standardized score of the dimension ‘other-regarding behavior’ of the SCI), SelfAssessment (average score of five items that elicited subjects’ judgement of their dictator game choices), principles (how important is it to have and comply with certain principles in life) and dissonance (how unpleasant is it not to comply with these principles)

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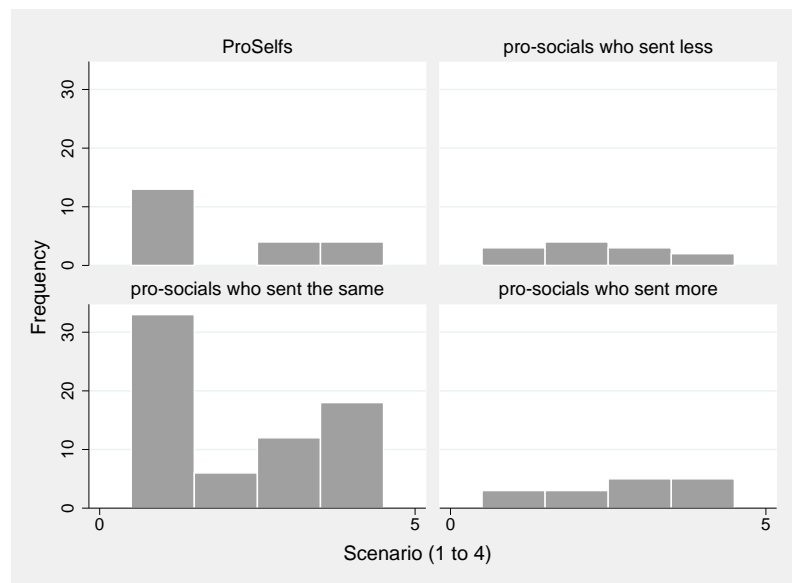


Figure 3: Scenario choices of subjects

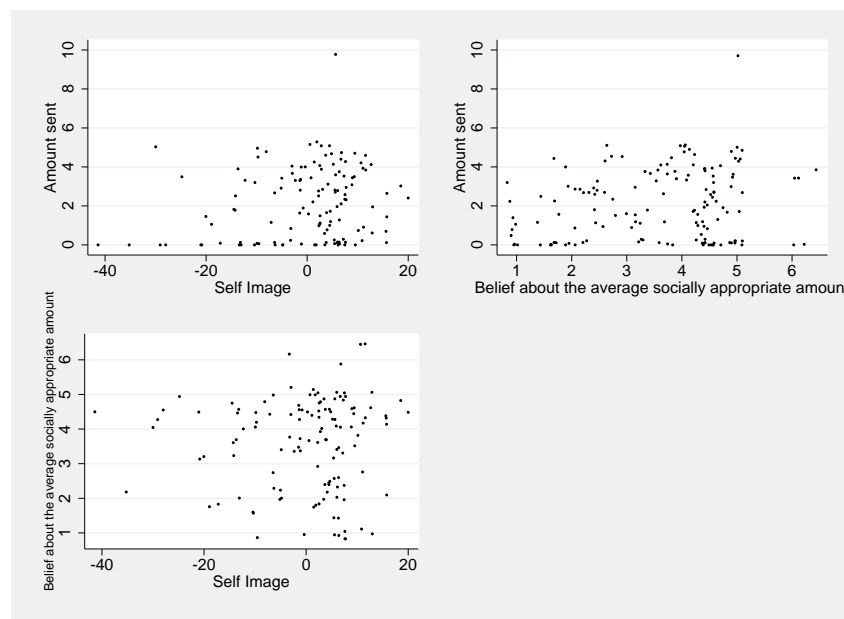


Figure 4: Scatter plots of SelfImage vs. amount sent, belief about the average socially appropriate amount vs. amount sent and SelfImage vs. belief about the average socially appropriate amount

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Appendix

A. Self-concept Inventory (SCI)

The self-concept inventory assesses a subject's concept of herself, in particular in the dimensions I-strength vs. uncertainty, attractiveness vs. marginality, trust vs. reserve, orderliness vs. carelessness and assertiveness vs. cooperation. Each of these dimensions is covered by 8 questions. The SCI is generally regarded as a very reliable test (reliabilities of the scales are at least .73; see von Georgi and Beckmann, 2004). We replaced the attractiveness vs. marginality dimension with the following items to assess subjects' self-concept in the dimension other-regarding behavior. Items were rated on a 1 to 5 scale between the two extremes. Scores were reversed so that a high value represents a high score in the dimension other-regarding behavior.

- a) When making decisions .. I account for the consequences my actions have on others vs. .. I primarily care for my own welfare.
- b) Everybody should also consider the interests of others. vs. It is okay if everybody cares mainly about her-/himself.
- c) I am rather concerned with .. my group faring well vs. .. myself faring well.
- d) I happily share with others. vs. I care primarily for myself.
- e) For me it is important .. that everybody is doing as well as possible. vs. .. that mainly I am doing as well as possible.
- f) If somebody is in need, I am happy to share vs. I am not happy to share.

B. Experimental Instructions

Welcome and thanks for participating in this experiment! In this experiment you can earn a certain amount of money, which depends on your and the other participants' decisions in the experiment. **It is, therefore, important that you read the following instructions carefully.** Please note that these instructions are only meant for you and that you are not allowed to exchange any information with the other participants.

Similarly, during the entire experiment it is not allowed to talk to the other participants. If you have any questions, please raise your hand. We will answer your question(s) individually. Please do not ask your question(s) aloud. It is very important that you follow these rules, since otherwise we have to stop the experiment. Please also turn off your mobile phones now.

General procedure

The experiment lasts about 60 minutes. It consists of two parts. In each part you make decisions. Each decision situation will be explained again briefly on the screen. While you make decisions, the other participants also make decisions which may influence your payoffs.

Your payoff from the experiment depends on your decision and potentially on the decisions of the other participants. But only one of the parts is chosen randomly and you are paid in cash according to the payoff from this part. The exact procedure according to which your payoff is determined is explained below. All amounts in the decision situations are given in EUR. They are paid out in exactly the given amount at the end of the experiment. In addition you receive 2.50 EUR as a show-up fee. After you filled in a questionnaire the experiment ends and you receive your payoff.

Overview of the experiment:

- Reading of the instructions, answering test questions (at the end of the instructions)
- Two parts with decision situations
- Questionnaire
- Payment and end of the experiment

Detailed procedure

In the two parts of the experiment you are randomly matched with another participant of the experiment. **You can be sure not to meet the same participant twice.**

Part 1

You get an initial amount of 10 EUR. The participant randomly assigned to you for this part gets an endowment of 0 EUR. However, you have the opportunity to transfer some of your endowment to this participant.

There are 4 different scenarios:

Scenario 1: The transfer will definitely take place. This means that the transfer will definitely be withdrawn from your endowment and added to the endowment of the other participant.

Scenario 2: The transfer will take place with a probability of 90%. However, with a probability of 10% it will not occur.

- If the transfer will take place, it will be withdrawn from your endowment and added to the endowment of the other participant.
- If the transfer will not take place, the endowments remain as before: 10 EUR for you and 0 EUR for the other participant, independently of your transfer.

Scenario 3: The transfer will occur with a probability of 80%, with a probability of 20% it will not occur.

- If the transfer will take place, it will be withdrawn from your endowment and added to the endowment of the other participant.
- If the transfer will not take place, the endowments remain as before: 10 EUR for you and 0 EUR for the other participant, independently of your transfer.

Scenario 4: The computer decides randomly (50% / 50%), if you are in scenario 1 or in scenario 3, that is, whether your transfer will definitely take place or if it will occur with a probability of 80%.

Procedure of part 1

First you select your transfers for all 4 scenarios. Then it will be decided which scenario will occur. After that the computer determines, if the transfer will take place or not (except for scenario 1 in which the transfer will definitely take place). Afterwards, the respective transfer will be carried out.

Payoff

If at the end of the experiment part 1 is to be paid out, there are two possibilities:

1. You receive an endowment of 10 EUR minus your transfer.
2. You get an endowment of 0 EUR plus the transfer of the participant assigned to you.

Which of the two possibilities will occur, is determined randomly (50% / 50%), if part 1 is relevant for your payoff. How your payoff is determined will be explained in detail in the course of the instructions.

Part 2

Instructions for this part will be shown on your screen.

Your payoff from the experiment

For your payoff only **one** of the parts is relevant and it is chosen randomly (step 1). If part 1 is chosen for your payoff, a second step will determine, if your own decision is relevant for your payoff or the decision of the participant who has been assigned to you for this part (step 2). If you or the participant assigned to you have made several decisions in the chosen part, the decision relevant for your payoff will be chosen randomly (step 3).

Example of the determination of the payoff:

Step 1: Part 1 is chosen as relevant for your payoff.

Step 2: The decision of the participant assigned to you is chosen as relevant for your payoff.

Step 3: Only one of the four scenarios will be realized and, hence, only the decision in this scenario will be implemented. More specifically, the other participant has, for example, transferred „X“ EUR to you in the realized scenario. Therefore, you receive „X“ EUR.

You will receive the determined payoff in cash immediately after the experiment ends, that is, after having completed the questionnaire. The other participants will not be able to see your payoff.

Explanation concerning probabilities

Probabilities of 80% or 90% can be imagined as follows:

Without being able to see you pull one ball out of a bowl with 100 balls. If the bowl contains 20 red and 80 black balls, the probability to pull a red ball is 20%, the probability to pull a black ball is 80%. If the bowl contains 10 red and 90 black balls, the probability to pull a red ball is 10%. The probability to pull a black ball is 90%.