

Group-Decision Making: The Role of Norms and Spillovers to Individual Decisions *

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Abstract

Most managerial decisions in organizations and firms are made by groups. We study two novel questions that add to the understanding of such group-decision making. First, we investigate the role of social norms in group-decision making. Second, we explore whether the involvement in group-decision making affects the decisions of the group members in subsequent individual decisions. These questions are addressed in a 2×2 laboratory experiment that is based on a take-frame dictator game with an external recipient. Taking decisions are either made in groups or individually, and the injunctive norm of giving is either clear or unclear. At the end of the experiment, all participants make an additional individual decision on whether to also donate a share of their show-up fee to the external recipient. We find the following results. First, the clear norm induces more contributions towards the external recipient than the unclear norm. Second, groups and individuals are not different with respect to their dictator-game decisions. Third, we find no evidence that the clarity of the norm has a different effect on group decisions than on individual decisions. Fourth, participants who were previously part of a group-decision process donate more of their show-up fee to the external recipient than participants who previously made individual decisions. Fifth, this latter effect is larger in the presence of the clear norm. We discuss potential mechanisms behind these findings.

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1 Introduction

Many (economic) decisions are made by groups. For example, management boards of firms and organizations, families, committees or political parties aggregate the individual preferences of their members to arrive at a joint decision.¹ In light of the prevalence and importance of group contexts, a growing strand of literature studies the nature of group-decision making and explores how group behavior is different from individual behavior (see Charness and Sutter 2012 for an overview and below for more references). Our paper adds to this literature by studying two aspects of group-decision making which are largely ignored in the existing literature.

First, we study if injunctive social norms affect group decisions differently than individual decisions.² It is well known that norms affect the behavior of individuals (see details and references below). However, although norms play a key role in many group-decision contexts,³ little is known about the effects of norms on group decisions, and whether norms affect group decisions differently than individual decisions. There are several potential reasons for why norms play a different role in group-decision making than in individual decisions. For example, there may be an increased level of social control in group decisions relative to individual decisions (e.g., because arguments/opinions have to be discussed within the group). This social-control aspect may keep group members from violating the norm although norm-violation would be their individual choice in absence of social control. The group-decision making process could also induce more norm violations. For example, once a rather selfish group member promotes the violation of a norm in the group discussion, other members might be inclined to think that it is actually acceptable to violate the norm and act selfishly.

The relative importance of these two mechanisms is likely to be related to the clarity of the social norm. In the presence of a clear norm, groups may be more inclined to follow the norm than individuals (e.g., because social control has more ‘bite’ if the norm is clear as no group member dares to argue in favor of breaking the norm and others are also less likely to follow a suggested norm violation), whereas groups may be less inclined to abide by the norm with an unclear norm (e.g., because social control has less ‘bite’ and the

¹Following most of the literature on group-decision making, we consider *unitary* groups that do not have a hierarchy and where ex-ante equal group members aggregate preferences into a single group decision (see, e.g., Charness and Sutter 2012 or Balafoutas et al. 2015).

²Following for example Krupka et al. (2017), we focus on injunctive social norms, rather than descriptive social norms, in our paper. See further below for a nuanced discussion and definition of injunctive norms. For reasons of brevity, we usually refer to an ‘injunctive social norm’ simply as ‘social norm’ or ‘norm’ throughout the paper.

³For example, consider management-board decisions in the context of environmental protection. There may be a prevailing social norm that the firm should take into account external environmental costs of its actions. while the decision that maximizes firm profits in the short run is potentially harmful for the environment. The management board, as a group, then needs to make a decision that may either be compliant or non-compliant with the norm.

bar for arguing in favor of acting selfishly and following selfish suggestions is lower). We shed light on the role of norms in group-decision making, relative to individual decisions, through an exogenous manipulation of the clarity of the norm in a dictator game with an external recipient. The exogenous manipulation allows us to investigate whether the clarity of the norm has a different effect in group decisions than in individual decisions.

Second, we study if previous group-decision making (in situations with either a clear or unclear social norm) affects subsequent individual decisions. Group decisions require consensus and compromises, and group members are therefore not always able to enforce their preferred individual decision (either because their individual opinion did not reflect the aggregated opinion of the group or because an individual did not want to express her preferred choice in the group context). As a result, group members may wish to correct the consensus-based group decision in subsequent individual behavior.⁴ A further possible reason for spillovers from group decision-making to subsequent individual decisions is that individuals learn arguments in favor or against a particular behavior in the course of the group decision. In a subsequent individual-choice context, they may then imitate the previous group behavior. Despite the reasonable intuition behind both these considerations, the literature on group behavior largely neglects the interaction between group decisions and subsequent individual choices of the former group members. We use exogenous exposure to group memberships to study the spillovers of group decisions to subsequent individual behavior.

We address these questions using a laboratory experiment. Our experimental design is based on a take-frame dictator game with an external recipient. The external recipient is endowed with a fixed amount of money and decision makers have to decide how much they wish to take away from the recipient.⁵ We vary two dimensions: First, decisions are either made individually or in groups. Second, decision makers are exposed to either a clear or unclear norm with respect to leaving money for the recipient. This design renders four experimental groups: i) individual decision / unclear norm, ii) individual decision / clear norm, iii) group decision / unclear norm, iv) group decision / clear norm.

The group-decision treatments follow the usual practice in the literature (e.g., Sutter 2009a or Kocher et al. 2017): two participants are randomly assigned to form a group and have to find an agreement about the amount that each group member shall withdraw from the recipient (using a private chat). In the corresponding individual treatments individuals have to decide alone how much to withdraw from the recipient.

⁴For an exemplary application, consider a situation in which a team of employees arrives at a group decision and individual members of the team then have discretionary room to implement the group decision individually. The individual employee might want to make up for the team-based decision when it comes to the subsequent implementation of the group decision.

⁵We opted for framing the decision as ‘withdrawal’/‘take away’, rather than ‘donation’ or ‘giving’, in order to induce participants to assign money to the recipient and to avoid the lower bound of zero giving.

Treatments with a clear norm aim at inducing a strong injunctive norm that clearly signals to participants what is ought to be done in the context of the dictator-game decision. Social norms can generally be either ‘injunctive’ (what is ought to be done) or ‘descriptive’ (what actions are regularly taken).⁶ Throughout our paper, we follow literature such as Krupka et al. (2017) and focus on injunctive social norms regarding what is ought to be done (rather than focusing on descriptive norms). We implement the clarity of the injunctive norm by establishing certainty among decision makers about the deservingness of the external recipient. This is achieved by communicating to decision makers that the recipient is a well-known local association that supports children with cancer. Since most people agree that this charity is highly deserving, the injunctive social norm of what is ought to be done becomes clear.⁷ In the corresponding treatments with the unclear norm, decision makers are not informed about the exact recipient. They are instead told that the recipient is some association (*Verein*) which remains unspecified. This set-up establishes uncertainty about the deservingness of the recipient.⁸ As a result, it does not become that clear what is ought to be done in the dictator-game decision; that is, the injunctive norm is not clear.

The overall goal of this part of our experimental design is to manipulate the norm of taking-away-money-from-the-recipient such that i) participants in the clear-norm treatments receive an unambiguous signal about the deservingness of the recipient and that leaving-money is the choice in order (clear injunctive norm), whereas ii) participants in the unclear-norm treatment remain uncertain about the deservingness of the recipient and, accordingly, the behavior that is in order (unclear injunctive norm). We label the treatment variants as ‘clear’ and ‘unclear’ because in one case the identity of the recipient is ‘clear’, while it is ‘unclear’ in the other case. As a result, in one case it becomes ‘clear’ what is ought to be done, and in the other case this is not as ‘clear’.⁹ This part of our

⁶ See the discussion of injunctive and descriptive social norms in Krupka et al. (2017). They define injunctive norms “as jointly recognized beliefs, among members of a population, regarding the appropriateness of different behaviors” (page 1710) or, more easily, the existence of a “behavioral rule” that “characterizes what one ought to do” (page 1708). We rely on this definition when we talk about injunctive norms in our paper.

⁷Experiments have shown that giving in dictator games increases if the recipient is a charity rather than a student (Eckel and Grossman 1996). To make the norm even clearer, we i) included an efficiency factor such that the recipient loses more than the dictator gets, ii) used the ‘withdrawal’ framing, and iii) reduced social distance by using a local charity. All contributions to the external recipient were of course truthfully donated to the mentioned association.

⁸To make this clear, we informed decision makers about ‘associations’ (*Vereine*) in Germany and emphasized that they are highly diverse and devoted to many different types of objectives (Germany has more than 600,000 associations with a highly heterogeneous nature, e.g., culture, sports, hobbies (pigeon breeding), gun clubs, charity, etc.).

⁹Labels ‘strong’ vs ‘weak’ or ‘certain’ vs ‘uncertain’ would be reasonable alternatives to the labels that we chose (‘clear’ vs ‘unclear’). However, irrespective of the label choice, the two treatment variants serve the purpose of manipulating the injunctive norm exogeneously and either signal to participants what is ought to be done or leave them uncertain about the appropriate behavior.

design allows us to study if an exogenous change in the norm has a differential effect on groups than on individuals.

In order to study the effect of the clarity of the norm on group decisions (the first question above), we use the amount that is taken away from the recipient as the outcome variable. We particularly investigate i) if this outcome variable differs between groups and individuals, ii) if it is affected by the clarity of the norm, and iii) if an effect of the norm on the outcome variable is different for group-decision makers relative to individuals. In order to study the spillover effect of group-decision making on subsequent individual behavior (the second question above), we implement an additional individual decision upon the end of the experiment (i.e., after the above series of actions is finished). Here, all experimental participants are provided the opportunity to donate a share of their show-up fee to the recipient; this donation decision is always an individual decision (regardless of the treatment). The outcome of interest then is the donation amount. This feature of the experimental design offers the opportunity to identify the effect of being part of a group-decision process on a subsequent individual decision.

We find the following main results in the first part of the experiment where we focus on the take-away-from-recipient decision. First, across all treatments, the amount that is withdrawn from the recipient is considerably and significantly lower in presence of a clear norm relative to the presence of an unclear norm. Second, groups do not differ significantly from individuals in the taking decision. Third, we do not find evidence that groups respond differently to the clarity of the norm than individuals. That is, the interaction between the group decision and being exposed to a clear vs unclear norm is not significantly different from zero. This result speaks to our first question above and suggests that, in our setup, the clarity of the norm does not impact groups differently than individuals.

The second part of the experiment, which focuses on the subsequent individual decision to donate a share of the show-up fee to the recipient, yields the following main results. First, donations are higher among participants who were assigned to one of the treatments with a clear norm. Second, participants who were part of a group decision donate significantly more than participants who previously made individual decisions. This particularly speaks to our second question above and provides evidence that being part of a group-decision process affects subsequent individual behavior. This finding may imply that former members of groups intend to make good for a group decision that does not reflect their individual preferences. Third, we find evidence that the clear vs. unclear norm has a different effect on individuals who were previously part of a group-decision process. In particular, the interaction of being in a group treatment and being exposed to a clear norm has a positive coefficient, which implies that people may try to make good for a previous group decision particularly in the presence of a clear norm.

Our paper speaks to several strands of literature. We particularly contribute to the growing literature on group-decision making. This literature studies if and how group decisions are different from individual decisions. A series of papers shows that groups make decisions which are more in line with usual game-theoretic predictions than individuals (see the overview and conclusions of Charness and Sutter 2012 and Sutter 2009b). For example, groups send and accept smaller amounts in the ultimatum game (Bornstein and Yaniv 1998) and perform better in intellectual tasks (Maciejovsky and Budescu 2007). However, a few papers also find that groups behave less selfishly than individuals (Kocher and Sutter 2007; Mueller and Tan 2013) or that they do not differ from individuals in public-good contributions (Cox and Stoddard 2018). We particularly relate to studies that examine group vs individual behavior in dictator games: whereas Cason and Mui (1997) find that groups are more generous than individuals, Luhan et al. (2009) find that groups behave more selfishly. More recent studies observe no difference between groups and individuals in dictator decision making (Franzen and Pointner 2014; Ito et al. 2016). In light of these conflicting findings, a first contribution of our paper is to provide further evidence on dictator-game behavior of groups vs individuals and to put forward a potential underlying mechanism that might shed light on the conflicting findings in the literature.¹⁰

Some recent papers study differences in lying behavior between groups and individuals, and find that group decisions are less honest than individual decisions (e.g., Sutter 2009a, Conrads et al. 2013, Chytilová and Korbelt 2014, Kocher et al. 2017).¹¹ While this literature strand shows that groups and individuals behave differently in the context of honesty, we find no evidence that groups behave differently selfish than individuals (regardless of the strength of the norm). Our (dictator-game based) finding of no differences between groups and individuals is therefore in line with recent findings in public-good and dictator-game contexts (e.g., Franzen and Pointner 2014; Ito et al. 2016; Cox and Stoddard 2018; see above), but different to the findings in the context of dishonesty and lying behavior.

The results of our second research question – the effect of group-decision making on subsequent individual behavior – relate to a literature showing that individual behavior is affected by group membership – with group identity being the driving mechanism (Akerlof and Kranton 2000; Goette et al. 2006; Charness et al. 2007; Chen and Li 2009). However, these papers do not study the effect of actual group-decision making (where the group has to agree on a joint decision) on individual behavior, but examine situations

¹⁰Balafoutas et al. (2015, page 320) discuss the differences between groups and individuals in dictator games and state that *'given the inconclusiveness of existing results, additional evidence on the aggregation of social preferences within small teams seems desirable'*.

¹¹There are several potential reasons for why groups act more dishonest than individuals; for example: diffusion of responsibility, and learning in the group discussion about arguments in support of lying (Behnk et al. 2017; Kocher et al. 2017).

where individuals make individual decisions while being related to others via a previously assigned joint group membership.

Sutter (2009b) considers the effect of group-decision making – rather than just group membership – on individual behavior. In one of his treatments, participants make investment decisions individually in all 9 rounds of the experiment, whereas in another treatment, participants first make individual investment decisions in rounds 1-3, followed by group decisions in rounds 4-6, and then again individual decisions in rounds 7-9. The results indicate that investments go up once decisions are made in teams, but then do not go down again when decisions are again made individually. Similarly, Luhan et al. (2009) conduct an experiment in which group and individual-decision making in a dictator game are compared. Their design makes participants either take three dictator decisions as individuals or an individual decision in stage 1, followed by a group decision in stage 2, followed by another individual decision in stage 3. They also observe that being part of a group-decision-making process is contagious in the sense that the later individual decision gets more selfish compared to those individuals who only make individual decisions.¹²

Both studies show that individuals imitate prior group behavior in subsequent individual choices, and are thus related to our observation that the experience of group-decision making affects subsequent individual behavior. However, in contrast to these studies, we do not observe that former group members imitate the learned group behavior. Instead, we find that individuals seem to make good for the group-decision in that they give more to the recipient after having been involved in group-decision making. Our results also indicate that this difference is amplified by a clear norm, which is probably due to the greater discrepancy between norm-conformity and profit-maximization in this case. We further add to the existing papers in that we use a different experimental design to identify the effect of group-decision making on subsequent behavior. Whereas the other two studies use a design where each participant in the group treatments makes both group and individual decisions before making a final individual decision, participants in the group treatment of our experiment have only made a group decision before making a final individual decision. As a result, we isolate the effect of group-decision making on the subsequent individual decision, while the final individual decision in the other studies is driven by a combination of both previous individual and previous group-decision making.

We further relate to the literature on the effect of social norms on behavior. This literature shows that norms (mostly descriptive) affect the behavior of *individuals* along many dimensions. For example, social norms matter in the context of charitable giving or voluntary payments (Andreoni and Scholz 1998; List and Lucking-Reiley 2002; Frey and Meier 2004; Feldhaus et al. 2019), public good contributions (Fehr and Fischbacher

¹²A similar design is used in Kocher et al. (2017). However, they do not explicitly discuss the data from the third stage.

2004; Rege and Telle 2004), sustainable behavior (Allcott 2011), tax compliance (Paetzold and Winner 2016; Hallsworth et al. 2017), or agreements and contracts (Danilov and Sliwka 2017; Krupka et al. 2017). We add to this literature by providing evidence that injunctive norms affect the (donation) behavior of groups, something which has not been shown before. In addition, we add to the existing literature in that we study the differential effects of norm type on groups vs individuals. More generally, our paper makes the contribution of bridging the large literature strands on group-decision making and norms.

Finally, our paper speaks to the literature studying charitable giving using dictator games in which the ‘deservingness’ of the recipient is varied between experimental conditions (Eckel and Grossman 1996; Fong 2007; Engel 2011). We confirm the findings of these papers that giving increases when the recipient is clearly ‘deserving’. We add to this literature the new findings that individual giving to an external recipient is affected by previous involvement in group-decision making and that groups, just like individuals, react to the deservingness of the recipient. Our design differs from prior studies as we do not compare giving to a charitable organization to giving to a student. We instead vary the strength of the norm by inducing (un)certainly regarding the degree of deservingness through naming a particularly deserving organization in one treatment and not mentioning the exact organization in the other.

The paper proceeds as follows. Section 2 describes the experimental design. Section 3 discusses theoretical considerations and predictions in the context of our experimental design. Section 4 includes the empirical results, separately for the first (4.1) and second (4.2) research question. We provide a discussion of the empirical results in Section 5 and also conclude the paper in this last section.

2 Experimental Design

Overview. We use a laboratory experiment to address our research questions. The experiment is based on a dictator game with an external recipient. The recipient is assigned a fixed amount (endowment) for each participant of the experiment. The participants then decide how much they wish to take away from the recipient. That is, in contrast to most dictator games where participants decide how much to ‘give’ to the recipient, we opted for a take-frame variant where participants decide how much they wish to ‘withdraw’ from the recipient. The amount that is assigned to the recipient is 6 EUR per experimental participant. The maximum amount that participants could take away from the recipient is 5 EUR. For each 1.00 EUR that participants take away from the recipient and keep for themselves, the recipient loses 1.20 EUR. Participants keep the withdrawn amount for themselves and any money left for the recipient is later actually transferred

to the recipient.

In addition, each participant receives a show-up fee of 4 EUR. In a second decision, subjects are provided an opportunity to donate a share of their show-up fee to the recipient. They keep the share of the show-up fee which they do not donate and the donated share is transferred to the recipient. The total number of participants in our experiment is 282.

We use a fully crossed 2×2 between subjects design where we cross the following dimensions: group decision vs individual decision, clear norm vs unclear norm. As a result, we have four treatment groups: i) individual decision / unclear norm, ii) individual decision / clear norm, iii) group decision / unclear norm, iv) group decision / clear norm. One experimental session took 20-30 minutes in total. In the following, we describe the experimental treatments.

The Group Decision. In treatments with group decisions, two participants are randomly matched to form a group (as in Sutter 2009a or Cox and Stoddard 2018). The group members remain mutually anonymous. The recipient is assigned 6 EUR for *each* group member. That is, the *per capita* endowment is as high as in treatments with individual decisions (see below), making the withdrawal decisions comparable across the treatments (Sutter 2009a also has the same per-capita payoffs in group and individual treatments; see Kocher et al. 2017 for a similar reasoning). The group decision is to decide how much each group member shall withdraw from the recipient. Both group members have to withdraw the exact same amount from the recipient. Otherwise – if the individual withdrawal decisions differ between group members – none of the group members nor the recipient receive any money. This design feature provides a strong incentive for group members to coordinate and reach a group agreement (see again Sutter 2009a and Kocher et al. 2017 for similar design features).

Coordination among group members is enabled through a chat on the computer screen. This chat can be used for up to 5 minutes. We opted for communication via chat because this design feature avoids potential problems of face-to-face communication; for example, that the group members know each other by chance or can make explicit agreements regarding side-payments. However, this anonymous form of communication likely entails a rather low degree of social control than a non-anonymous face-to-face discussion. Hence, any results that we find are likely to hold in situations where communication is not anonymous. After exchange via chat, each participant declares individually how much she wants to withdraw from the recipient. This declaration is in private and cannot be observed by the other group member. The private nature of the withdrawal decision ensures that it is the individual responsibility of each participant to make the withdrawal decision and that participants cannot hide behind a group decision or delegate the deci-

sion to other group members.

The design of our group-decision treatments closely follows the experimental design of Kocher et al. (2017). In particular, Kocher et al. (2017) also use anonymous group chats (that are open for five minutes) in which group members can discuss the group decision. After the chat discussion, the group members also type in their decision individually and in private. In order to incentivize group members to arrive at a group decision, all group members also have to make the same decision and there is no payoff for any group member or the recipients in situations where decisions differ.

The Individual Decision. In treatments with individual decisions, each participant decides individually how much she wishes to withdraw from the recipient. That is, there is no interaction with other participants. To avoid confounding factors and ensure comparability with the group decisions, each individual is given 5 minutes to write a short reflection essay about their withdrawal decision. This avoids that potential differences between group and individual decisions are driven by the possibility that group members have more time to reflect the decision and, in the chat discussion, write down their thoughts about it. It further avoids that participants in the individual-decision treatments spend less time in the lab than participants in the treatments with group decisions (as a result, hourly payments are the same for participants in all treatments).

The Clear Norm. Our objective in treatments with a clear norm is to establish certainty among decision makers about the deservingness of the recipient. This certainty induces a clear injunctive norm that signals to participants that leaving money with the charity is ought to be done. We follow literature such as Krupka et al. (2017) and focus on injunctive social norms regarding what is ought to be done, rather than focusing on descriptive norms. Injunctive norms have the advantage over descriptive norms that they send an unambiguous signal about the appropriate behavior in a given situation. Descriptive norms are not as powerful in prescribing a certain behavior. For example, communicating to participants that the majority (say 70%) behave socially while a minority (30%) engages in socially harmful behavior may actually make the socially harmful behavior more legitimate among participants if they perceive the 30% of harmful behavior to be regrettably frequent (backfire of descriptive social norms; see for example Cialdini 2003 and Bicchieri and Dimant 2019.)¹³

The most important steps in inducing this strong injunctive norm are to choose an external recipient which most people clearly consider to be deserving, and to communicate

¹³Krupka et al. (2017) provide a detailed discussion of injunctive norms and descriptive norms. We use a concept of injunctive norms as defined and employed in their study (see footnote 6 above in the Introduction for their exact definition of injunctive norms). In their discussion of injunctive norms, Krupka et al. (2017) refer to Elster (1989) who describes injunctive norms as prescribing what one 'should do'.

to participants who the recipient is and what it stands for. The chosen recipient in our experiment is a regional non-profit association that supports children with diagnosed cancer and their families.¹⁴ We inform participants about the recipient and provide an information leaflet in which the goals and activities of the association are explained. Our design choice to induce the norm this way is partly inspired by a literature showing that giving behavior in dictator games increases when the recipient is a charity organization. For example, Eckel and Grossman (1996) show that dictators give more to the recipient when it is the Red Cross rather than another experimental participant.

In order to make the norm as clear as possible, we implement additional design features which aim at signaling to participants that leaving money for the recipient clearly is ought to be done. First, we apply an efficiency factor to the withdrawal decision: for every 1 EUR that participants take for themselves, the recipient loses 1.20 EUR. That is, if a participant wishes to take 5 EUR for herself, the money of the recipient is reduced by 6 EUR. Second, the dictator-game decision is framed as ‘withdrawing from the recipient’ rather than ‘giving to the recipient’. Third, by choosing an association that operates locally in the region where the experiment takes place, we minimize social distance towards the recipient.

The Unclear Norm. The objective of treatments with an unclear norm is to establish uncertainty among decision makers about the deservingness of the recipient and leave participants uncertain about the injunctive norm regarding what is ought to be done. This uncertainty is implemented by *not* informing participants who exactly the recipient is. Participants in these treatments are only informed that some unspecified association is the recipient. In Germany, there are many different associations – called *Verein* – that are devoted to many different scopes, objectives or topical interests. A *Verein* may either be a registered association with a special legal form or a loose group of individuals with a common interest. We simply used the term *Verein* in the experiment, without specifying whether we mean a registered association or a loose club of people.

The usual association with the term *Verein*, however, is the registered association with a special legal status.¹⁵ All natural and legal persons in Germany, including entities such as municipalities, counties and other entities under public law, can form registered associations or be members. The time and effort to found such an association is very low. There are more than 600,000 registered associations in Germany that are devoted to a very broad set of scopes, objectives and topical interests. The nature and types of

¹⁴The association is named *Foerderverein krebskranke Kinder e.V. Koeln*. Their website is here: <https://www.krebskrankekinder-koeln.de/>. The association operates in the city in which we run the laboratory experiments – Cologne.

¹⁵This legal form is called *Eingetragener Verein* and described in the English Wikipedia: [https://en.wikipedia.org/wiki/Registered_association_\(Germany\)](https://en.wikipedia.org/wiki/Registered_association_(Germany)).

these associations is very diverse and highly heterogeneous. Some common examples are associations devoted to sports, culture, guns and arms, different types of hobbies (such as pigeon breeding, collection of stamps, etc.), music, environmental protection or charity. In order to emphasize the heterogeneity of these associations, participants were provided an information leaflet with a description of types of such associations (the information are taken from Müller-Jentsch 2008). This design feature also contributes to comparability as also in the strong norm treatment participants were provided an information leaflet.

As a result of the highlighted diverse nature of German associations, simply communicating to participants that some *Verein* would be the recipient likely establishes uncertainty about the type and nature of the recipient. Participants are thus uncertain whether the recipient follows interests and objectives that match their individual preferences. The charity in the clear-norm treatment (association for children with cancer) also has the legal form of a *Verein*, and in fact any money that was left for the recipient in the unclear-norm treatments was eventually donated to this association as well.

Decisions, Outcomes of Interest, and Independent Observations. Throughout the experiment, participants in all treatments have to make two decisions. First, they have to decide how much money they wish to take away from the recipient. Depending on treatment status, this is either an individual decision or a group decision (as described above). We use the withdrawn amount as the outcome variable when we address our first research question – the effect of the strength of a norm on group behavior.

Second, once the withdrawing decision is made, each participant is provided the opportunity to also donate a share of their 4 EUR show-up fee to the recipient (depending on treatment status, the recipient was again specified or not). This donation decision was always an individual decision that was made in private without any interaction with other participants. We use this donation decision as the outcome variable when we address our second research question – the effect of group-decision processes on subsequent individual behavior.

The decisions of group members in the treatments with group-level decisions are not independent from each other. We therefore treat each group as one independent observation in our econometric analyzes. For the non-parametric tests, bar graphs and summary statistics, the decisions of the group members are collapsed, implying that we have one observation per group in the group treatments and one observation per individual in the treatments with individual decisions. The unit of observation in the regression analyzes is the individual participant, but standard errors are clustered on the group level. Our resulting data set has 187 independent observations (between 44 and 48 in each of the four treatment cells).¹⁶

¹⁶We naturally have twice as many individual participants in the group decision treatments than in

Organization. The experiment was conducted in the Cologne Laboratory for Economic Research (CLER), University of Cologne, Germany. All subjects in the laboratory’s subject pool of approximately 4,000 persons were invited via email – using the recruitment software *ORSEE* (Greiner 2004) – to participate in an experiment. Potential participants could sign up on a first-come-first-serve basis. A total of 282 individuals participated in our experiment (see below for summary statistics). Neither the content of the experiment nor the expected payoff were stated in the invitation email. The computerized experiment was programmed with *z-tree* (Fischbacher 2007).

We conducted 12 sessions in mid-December 2017. All participants who were in the same experimental session belonged to the same experimental group. The treatment group was not mentioned in the invitation email so that selection of certain individuals into certain sessions is ruled out.

Upon entering the lab, participants were randomly assigned to an individual computer booth. All instructions were displayed on screen and participants first had the opportunity to ask clarifying questions (which was only rarely required). The English translation of the instructions is displayed in the Appendix.¹⁷ Treatment variation is between participants and participants were not informed about the other treatment groups. In treatments with group decisions, the group memberships were randomly assigned by the computer software. A session took 20-30 minutes. All the money that was not withdrawn from the external recipient in the first decision as well as all the money that was donated in the second decision was donated to the charity that supports children with cancer.

Summary Statistics and Balance Across Experimental Groups. Table 1 presents summary statistics for participants’ characteristics, the two key outcome variables – withdrawn amount and donation – and the profit that participants made out of the experiment (all on the individual level of participants). Upon the end of the experiment, we surveyed a small set of characteristics (measurement in parentheses): Age (in years), gender (dummy for male), highest degree (dummies for no degree, Bachelor and Masters degree), and an indicator for whether a participant has previously taken a class in game theory (dummy for having taken game theory). As shown in Table 1, the average age of the participants was almost 24 and 42% of them were male. 62% of the participants have no degree (yet), 23% have a Bachelor degree and 15% have a Master degree or higher. 38% of the participants have taken a game-theory class.

the individual level treatments. We have the following number of independent observations in the four treatment cells (number of individual participants in parentheses): i) individual decision / unclear norm: 44 (44); ii) individual decision / clear norm: 48 (48); iii) group decision / unclear norm: 47 (94); iv) group decision / clear norm: 48 (96).

¹⁷The original German instructions are available upon request and shall be made available in an online appendix upon publication.

Regarding the summary statistics of the outcome variables, Table 1 shows that participants across all treatment groups on average withdrew 3.06 EUR from the recipient (where 5 was the maximal amount). Figure 1 presents the distribution of the withdrawn amount across all groups (accounting for dependencies of group decisions through collapsing the individual decisions of group members). The figure shows that the corner choices of zero withdrawal and the maximum withdrawal of 5 were quite frequent. A considerable share of decision makers (groups or individuals) also chose to withdraw amounts in the middle of the choice set (i.e., around 2 to 3).

As depicted in Table 1, the average donation across all groups was 0.43 EUR (the maximum possible value is 4 EUR which is the show-up fee). The resulting average profit (including show-up fee) was 6.58 EUR. The distribution of donation decisions is displayed in Figure 2 (again collapsed decisions of group members). The large majority of decision makers chose to donate zero to the recipient. The maximum donation of 4 was rarely chosen. The Summary-Statistics Table 1 further shows that participants took away a profit of 6.58 EUR from the experiment (the maximum possible value was 9 EUR: withdraw 5 EUR from recipient and keep the entire 4 EUR donation).

Results of randomization checks are presented in Table 2. For each covariate in our data (age, gender, degree and game theory), we conducted six t-tests which compare the four experimental groups against each other. Since the covariates are pre-determined and not affected by the experiment, the tests are executed on the individual level of participants. The resulting 24 p-values (two-sided tests) are depicted in the Table. None of the 24 tests is significant at the 5 percent level. This is reassuring and suggests that we do not have considerable differences between groups. We see only three p-values that indicate significance at the 10 percent level.

3 Theoretical Considerations

Why would norms affect groups differently than individuals? And why would the involvement in group-decision making affect subsequent individual behavior? This section considers some potential mechanisms behind our research questions.

We identify three channels that may explain why decision making could differ between groups and individuals in our context. First, groups might have more information because in the discussion within the group each member can put forward arguments and knowledge to inform the group decision. Groups could also be smarter on average, at least if the group members comply with the arguments of their smartest member. Second, groups have to arrive at a joint decision by exchanging and discussing ideas, information and opinions. This process potentially induces group members to reflect their decision more which may also affect the respective decisions. These first two channels do not seem

to matter in the context of our present experimental design (also see previous section). More information and smartness should not make a difference because we chose a task that neither requires a lot of information nor is intellectually demanding. More individual reflection should not make a difference either as we also give participants in the individual treatments five minutes to reflect on their decision.

The third channel that we identify is based on the fact that group decisions come with social interaction and thereby enable social control and social approval within the group. This third channel potentially matters in our context. In contrast to the first two channels, our design does not ‘shut’ this channel. As a result, it serves as the natural explanation for potential differences between groups and individuals. On the one hand, Haley and Fessler (2005) provide evidence that even the feeling of being observed increases donations in a dictator game. Feldhaus et al. (2019) make a similar observation in a voluntary payment field setting where people give more when they are observed by others. On the other hand, Luhan et al. (2009) and Kocher et al. (2017) show that groups seem strongly affected by their most selfish member, suggesting that the more altruistic players are willing to conform with their more selfish group members. Both mechanisms may be relevant in our context. First, social control may cause that group members feel guilt or shame to communicate, support or follow selfish controversial decisions. Second, group members could also encourage each other that maximizing one’s own payoff is acceptable and provide mutual approval for acting self-servingly.

We argue that the relative bite of these two mechanisms is related to the strength of the injunctive norm. First, it is plausible that social control has more bite in the presence of a clear norm that makes it difficult to find arguments for acting selfishly and convincing others of doing so. In cases where it is clear what is ought to be done, group members are hence likely to be more reluctant to deviate from complying with the norm. Second, mutual approval of selfishness seems particularly relevant in the presence of an unclear norm because uncertainty about what is ought to be done lowers the bar for initially arguing in favor of personal payoff maximization and following the corresponding suggestion.

Regarding our second research question – the effect of being involved in a group decision on subsequent individual behavior – , we identify two channels that may play a role. On the one hand, as shown by e.g. Luhan et al. (2009), the behavior of groups might be contagious in the sense that individuals in subsequent decisions might take the same decision that their group made previously because they learned that it is legitimate to do so. On the other hand, since group decisions require consensus and compromises, group members are not always able to enforce their preferred individual decision in the group process. As a result, group members may wish to correct the consensus-based group decision in subsequent individual behavior, and therefore act differently than the

group did previously. This latter channel might be interdependent with the type of norm. If the norm clearly suggests that donating is the choice in order, individuals might be more eager to make good for the group decision, relative to a situation in which it is not clear what is ought to be done and in which it is not so obvious that correcting the group decision is desirable.

4 Results

This section presents the results of the laboratory experiments. We organize the presentation of the results along our two research questions: First, the role of norms in group-decision making (section 4.1). The outcome variable of interest here is the withdrawal decision. Second, the impact of experienced group-decision making on subsequent individual decisions (section 4.2). The outcome variable of interest here is the donation of the show-up fee.

In each of these two subsections, we first discuss the effect of the exogenous shift in the norm on the respective outcome variable, we then go on and present differences between groups and individuals, and finally explore whether the strength of the norm affects groups and individuals differently. As mentioned previously, all analyzes account for the dependencies of individual decisions within a group. For the non-parametric analyzes, we collapse group decisions; the resulting data set has one observation per group and one observation per individual. The parametric regression analyzes are on the individual level with standard errors clustered on the group level.¹⁸ We use Tobit regressions that take into account that the withdrawal decision is bounded between zero and five and that the donation decision is bounded between zero and four.

We sometimes use the following abbreviations to describe the treatment groups:

- **GDUN**: Group-Decision making and Unclear Norm,
- **GDCN**: Group-Decision making and Clear Norm,
- **IDUN**: Individual-Decision making and Unclear Norm,
- **IDCN**: Individual-Decision making and Clear Norm.

4.1 The Withdrawal Decision

Effect of the Clear Norm. Figure 3 depicts the average withdrawn amount in treatments with clear and unclear norms. In treatments with the clear norm, the average

¹⁸Technically, the cluster variable is a unique number assigned to each respondent in treatments with individual decisions, and in treatments with group decisions two group members share the same value of the cluster variable.

withdrawal was 2.29, whereas the average withdrawal was 3.80 in treatments with the unclear norm. That is, average withdrawals were more than 65% higher in groups with an unclear norm, relative to the groups with a clear norm. This difference is highly significant (p-value ranksum test: 0.000; $N = 187$). Regression results, presented in Table 4, confirm the strong and significant effect of the clarity of the norm. The effect is robust to conditioning on covariates – see specifications (I) and (II) of Table 4.

These findings suggest that the exogenous manipulation of the strength of the norm worked well; specifying that the external recipient is a charity considerably increases the amount that decision makers (i.e., groups or individuals) leave for the recipient relative to the case where the identity of the recipient is unclear. A further finding is that the variance in choices is higher in the case of the clear norm (p-value Levene’s robust test for equality of variances: 0.0019; $N = 187$). See section 5 for a discussion of the implications of this finding.

Differences between Groups and Individuals. Average withdrawal amounts in treatments with individual decisions and treatments with group decisions are presented in Figure 4. The Figure shows that groups on average took slightly more from the recipient (3.12 vs 2.92), but the difference is not significantly different from zero (p-value ranksum test: 0.671; $N = 187$). The Tobit regressions in Table 4 confirm that there is no statistically significant difference between treatments with group and individual decisions with respect to the withdrawal decision. This result suggests that groups do not behave more selfishly in our dictator games than individuals, and hence relates to the ongoing debate in the literature about this question (see the discussion in our Introduction).

Differential Effects of the Norm on Groups vs Individuals. Figure 5 presents average withdrawal amounts across all four treatment groups. The corresponding regressions are depicted in Table 5. Average withdrawals are highest in the treatment with group decision and unclear norm (GDUN, 3.87), followed by the treatment with individual decisions and unclear norm (IDUN, 3.73). The difference between these two groups is not statistically significant (p-value ranksum test GDUN vs IDUN: 0.997; $N = 91$). The treatments with a clear norm overall have lower withdrawal amounts: 2.39 in the case of a group decision (GDCN) and 2.19 in case of individual decisions (IDCN). The difference between these two groups is not significant either (p-value ranksum test GDCN vs IDCN: 0.617; $N = 96$). The differences between treatments with strong norm and treatments with weak norm are always highly significant.¹⁹ Table 3 provides an overview of the means across all experimental groups.

¹⁹The p-values for the group-wise ranksum tests are as follows: GDCN vs GDUN: 0.000, $N = 95$); GDUN vs IDCN: 0.000, $N = 95$; GDCN vs IDUN: 0.000, $N = 92$.

Our primary interest is whether the clear norm affected group decisions differently than individual decisions. In a first step towards the answer to this question, we compare the difference between group decisions with clear and unclear norm to the same difference in case of individual decisions. Among all treatments with group decisions, those groups confronted with an unclear norm withdrew 1.48 EUR more than those with a clear norm ($GDUN - GDCN = 3.87 - 2.39$). Among all treatments with individual decisions, those without a clear norm withdrew 1.54 EUR more than those with a clear norm ($IDUN - IDCN = 3.73 - 2.19$). The resulting ‘difference in difference’ is at 0.06 ($= 1.54 - 1.48$). Given the overall withdrawal average of 3.06, this ‘difference in difference’ seems very low.

To test the statistical significance, we run regressions in which we include a dummy indicating group decisions and a dummy indicating the clear norm, as well as the interaction between the group-dummy and the clear-norm dummy. The coefficient of the interaction term then displays the ‘difference in difference’, i.e., the differential effect of clear norms on group vs individual decision. The corresponding regressions are shown in Table 6. The interaction coefficient is not statistically significant – which is what we expected in light of the small average difference of 0.06. This result suggests that, in our context, social norms do not affect groups differently than individuals.

4.2 The Donation Decision

Effect of the Clear Norm. The exogenous manipulation of the clarity of the norm also affected behavior in the context of the subsequent individual-level donation decision. Figure 6 shows that donations are considerably higher among individuals who were in one of the treatments with a clear norm, relative to individuals in treatments with the unclear norm. The average donation was 0.60 EUR in the presence of a clear norm, and 0.19 EUR in the presence of an unclear norm. This difference is highly significant (p-value ranksum test: 0.001, $N = 187$). The Tobit regressions, presented in Table 8 confirm that donations are significantly higher in presence of a strong norm. The donation decision is likely to be affected by the previous decision of how much to leave for the recipient. Some of the regression specifications therefore include the previous withdrawal decision as a control variable (see specifications (II) and (IV)). As the table shows, the coefficients for the effect of the strong norm are somewhat smaller when conditioning on the withdrawal amount but the sign and statistical significance are not affected.

As with the withdrawal decision, we again observe the additional finding that the variance in choices is higher in the case of the clear norm (p-value Levene’s robust test for equality of variances: $p = 0.0000$; $N = 187$).

Differences between Groups and Individuals. Figure 7 shows average (individual-level) donations among participants who previously were part of a group-decision process and participants who previously made individual decisions. Average donations are about 63% higher for participants who were in the group-decision treatments, relative to those who were in the treatments with individual decisions: 0.49 EUR vs 0.30 EUR. This difference is highly significant (p-value ranksum test: 0.000, $N = 187$). The regression results in Table 8 yield the same result: donations are significantly higher among those who were part of a group decision. Controlling for the previous withdrawal decision (specifications (II) and (IV)) does not change the sign or size of the group-dummy coefficient, but makes the coefficient somewhat more precise (since the previous decision regarding the withdrawal could potentially be affected by whether a participant was part of a group or made an individual decision, specifications that control for withdrawal might be more meaningful).

The take-away result here emerges in all specifications and test types: donations are considerably higher among individuals who were previously part of a group decision, compared to individuals who previously made an individual decision. Potential explanations for this finding were discussed in section 3 and are further elaborated below in section 5.

Differential Effects of the Norm on Groups and Individuals. Figure 8 shows average donation amounts across the four experimental treatments. We see the expected pattern that participants in the two treatments with clear norm donate more on average than participants confronted with unclear norms. Among the two treatments with clear norms, average donations were higher among those who experienced a group decision than those who previously made individual decisions (GDCN: 0.77; IDCN: 0.44). The difference between these two groups is highly significant (p-value ranksum tests: 0.000, $N = 96$). The two treatment groups with unclear norms have similar levels of average donations, which are not significantly different from each other (GDUN: 0.22, IDUN: 0.16; p-value ranksum: 0.25, $N = 91$). The differences between treatments with clear norms and treatments with unclear norms are mostly significant.²⁰ The corresponding regressions are in Table 9. Relative to the IDUN group, the effect of GDCN is statistically significant throughout all specifications. Conditioning on the previous withdrawal decision (in specifications (II) and (IV)) makes the coefficient a little smaller, but leaves significance unchanged. Table 7 provides an overview of the means across all experimental groups.

We now examine if the social norm affected the donations of participants who were part of a group decision differently than the donations of those who previously made

²⁰The p-values for the group-wise ranksum tests are as follows: GDCN vs GDUN: 0.000, $N = 95$; GDUN vs IDCN: 0.580, $N = 95$; GDCN vs IDUN: 0.000, $N = 92$.

individual decisions. We again consider the ‘difference in difference’ for this purpose. Among all treatments with group decisions, those with a clear norm donated 0.55 EUR more than those with an unclear norm ($GDCN - GDUN = 0.77 - 0.22$). Among all treatments with individual decisions, those with a strong norm donated 0.28 EUR more than those with weak norm ($IDCN - IDUN = 0.44 - 0.16$). The resulting ‘difference in difference’ then stands at 0.27 EUR ($= 0.55 - 0.28$). Considering that the average overall donation was 0.43 EUR, this ‘difference in difference’ is quite considerable. We test statistical significance in a regression model that includes an interaction between a group-decision dummy and a clear-norm dummy. The results are displayed in Table 10. The interaction of interest is significant on the 10% level once we condition on the previous withdrawal amount (specification (II)), and if we include control variables (with or without conditioning on withdrawal – specification (III) and (IV)). Although basically identical in the size of the coefficient, specification (I) without any additional controls is slightly outside conventional levels of significance (p-value: 0.128). Specifications that control for withdrawal, however, are our preferred choices (for the reason discussed before). The results thus provide some evidence that norms affect subsequent individual behavior differently depending on whether the individual had previously made individual or group decisions.

5 Discussion of Results and Conclusion

This paper studies two questions in the context of group-decision making. First, what is the role of social norms in group-decision making? Second, does the involvement in a group-decision process affect subsequent individual behavior? We use a lab experimental design that combines design components from papers in the literature strands of group-decision making, social norms, charitable giving and lying behavior to study these questions. In particular, we implement a take-frame dictator game with an external recipient, and treatment variations along the dimensions of i) individual decision making vs group decision making and ii) a clear norm vs an unclear norm.

We find the following main results in the context of our first research question. We observe that contributions towards the recipient were significantly higher in treatments with the clear norm relative to treatments with the unclear norm. Groups and individuals are not different with respect to their dictator-game decisions and no evidence is observed that groups respond differently to the strength of the norms than individuals.

Our theoretical idea is that group-decision making differs from individual decision making through social control and social approval, and that the relative importance of these factors is related to the clarity of the injunctive norm (see Section 3). We argue that social control is particularly relevant in the presence of a clear norm and that

mutual approval for self-serving behavior is more relevant in case of an unclear norm. However, our findings show that there is no difference between groups and individuals in our experiment, neither when they are confronted with a clear nor with an unclear norm.

Two of our design features might be related to this result. First, groups in our experiment consist of two anonymous members. This anonymity may undermine effect of social control. For example, Cason and Mui (1997) find more dictator-game giving in groups, relative to individuals, in a setting where the other group member is identifiable ex-post, whereas Luhan et al. (2009) find that groups are more selfish in an anonymous setting. Second, actual group decisions are usually made in situations where the individual members have to discuss their ideas with others to arrive at a joint decision – this discussion induces group members to reflect the decision problem more. In our experiment, we let individuals write a short essay to reflect on the reasons for their decision. If matters of decision reflection cause differences between groups and individuals, our design would not be able to detect it as we hold this factor constant.

It would in principle be possible to run experimental sessions with non-anonymous groups and/or less reflection possibilities for individuals. However, it was our deliberate design choice to ‘shut’ these two potential channels and to investigate a situation where differences between groups and individuals are not driven by differences in the lack of anonymity in group decisions or in problem reflection. This design choice was motivated by the desire to isolate a possible ‘pure’ social-interaction effect. We thus intended to avoid a situation where we are not able to disentangle whether potential differences are driven by anonymity, reflection issues or the ‘pure’ aspect of social interactions. Overall, our results indicate that the clarity of the norm is not relevant for the difference between groups and individuals in situations where anonymous group members interact and where individual decision makers reflect their decision in same depth as group decision makers.

With respect to our second research question, we find the following main results. First, participants who were previously part of a group-decision-making process are more generous in a subsequent individual decision than participants who previously made individual decisions. Second, this difference is larger in the presence of a clear norm. Choices between prior group members and individual decision makers differ in case of the clear norm, while no significant difference between prior group members and individual decision makers is observed in case of the unclear norm.

This finding complements the literature in that it shows a novel kind of spillover from group-decision making to subsequent individual decisions. We interpret this observation as individuals wishing to make good for the group decision and therefore exhibiting a different donation behavior than those who could freely and individually decide already in the first decision. This interpretation is supported by the effect being more pronounced in case of a strong norm, which seems to indicate that a more controversial group deci-

sion results in more individual adjustment (and we indeed see that decisions are more controversial in case of the clear norm: the variance in individual choices is significantly larger in treatments with clear norms).

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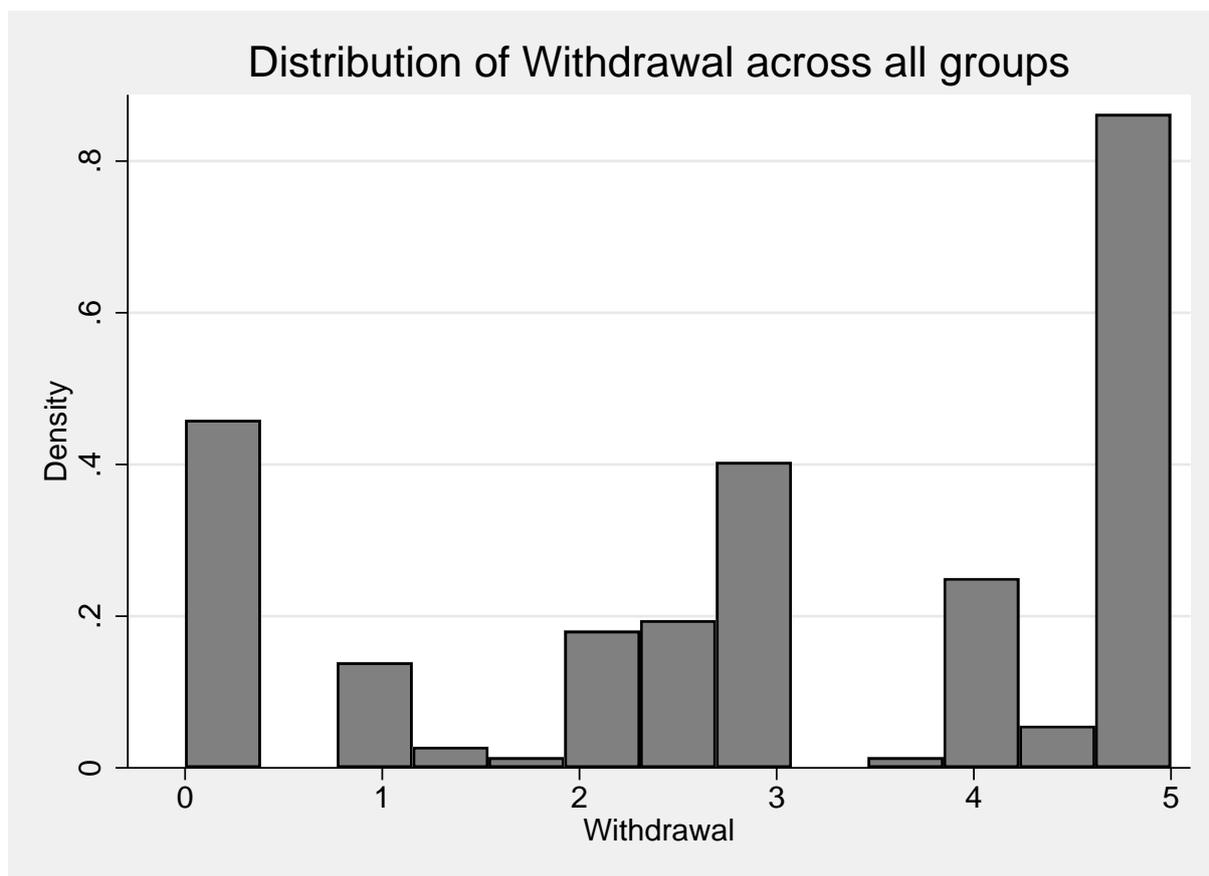
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Figures and Tables

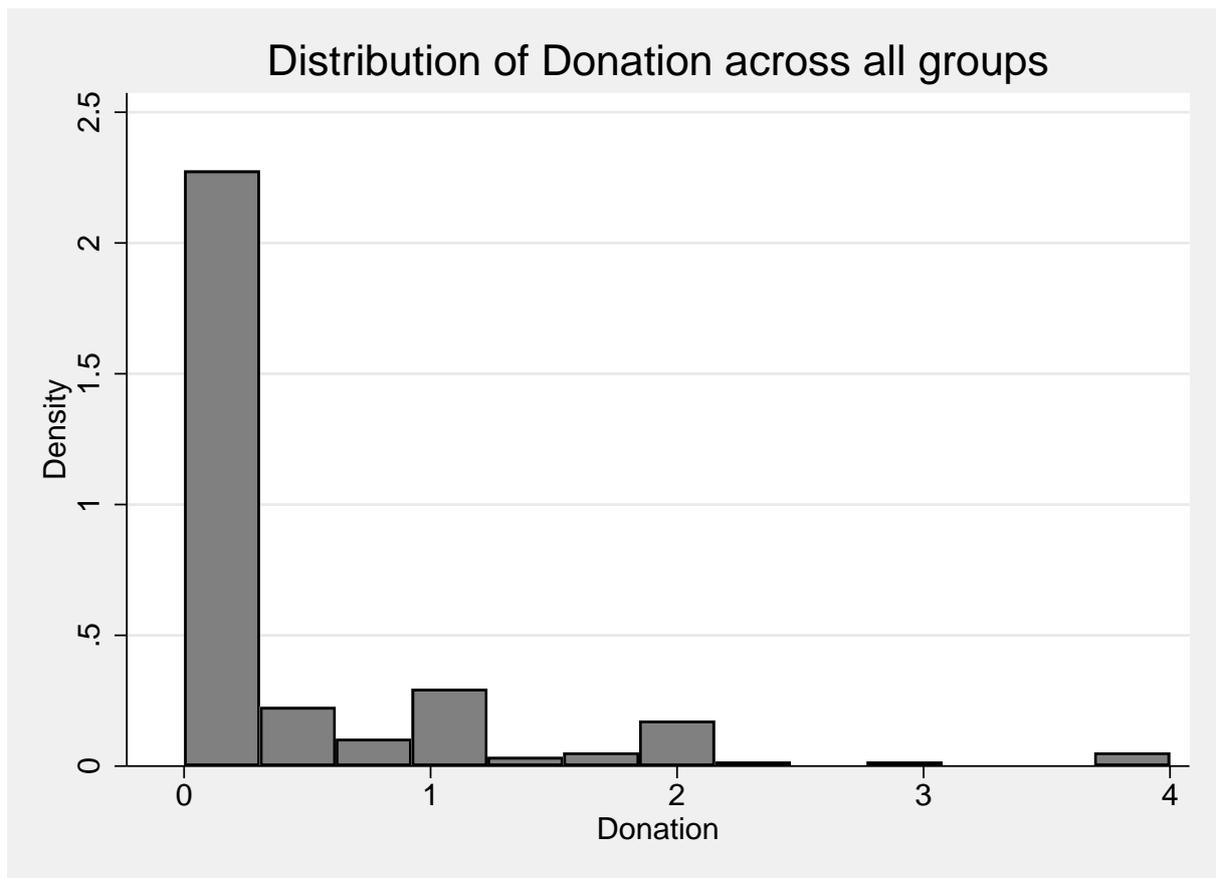
Figures

Figure 1: Distribution of Withdrawal Decisions



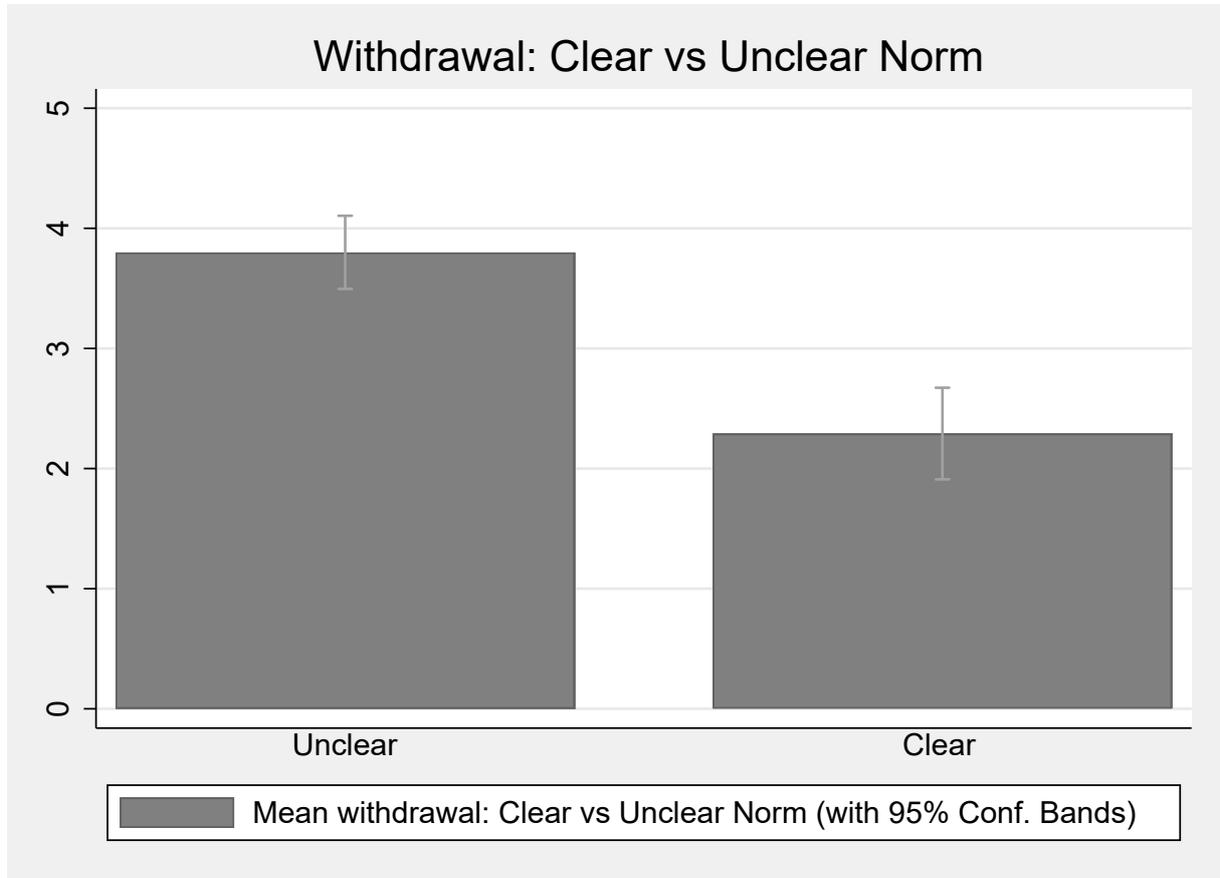
Notes: Histogram of Withdrawal Decisions. Figure includes decisions across all treatment groups. Individual decisions of group members are collapsed to ensure that the dependencies of group decisions are accounted for and that group decisions are not over represented; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. $N = 187$.

Figure 2: Distribution of Donation Decisions



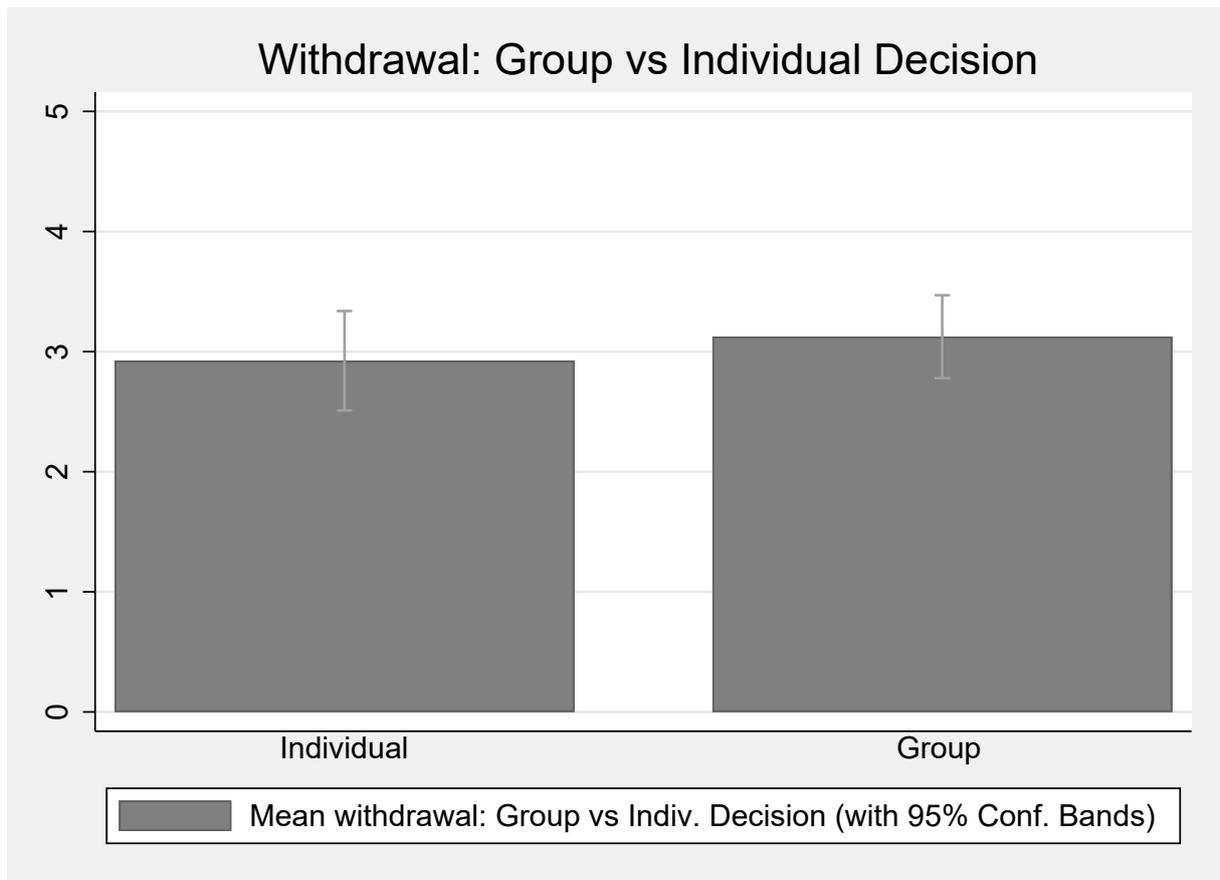
Notes: Histogram of Donation Decisions. Figure includes decisions across all treatments. Individual decisions of group members are collapsed to ensure that the dependencies of group decisions are accounted for and that group decisions are not over represented; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. $N = 187$.

Figure 3: Withdrawal Decision: Clear vs Unclear Norms



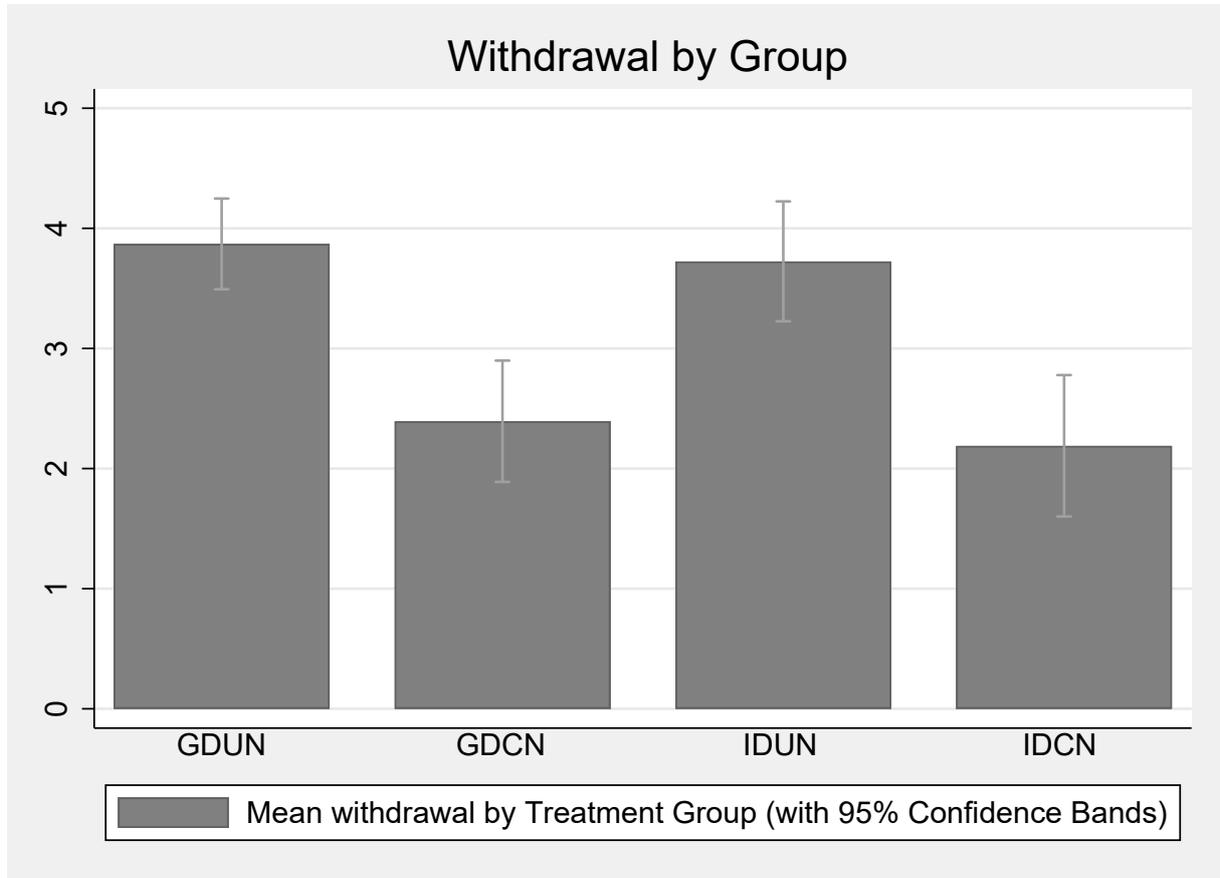
Notes: The Figure shows average Withdrawal amounts for groups with clear and unclear norms, along with 95% confidence bands. Individual decisions of group members are collapsed on the group level to account for dependencies of group decisions; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. $N = 187$.

Figure 4: Withdrawal Decision: Group vs Individual Decisions



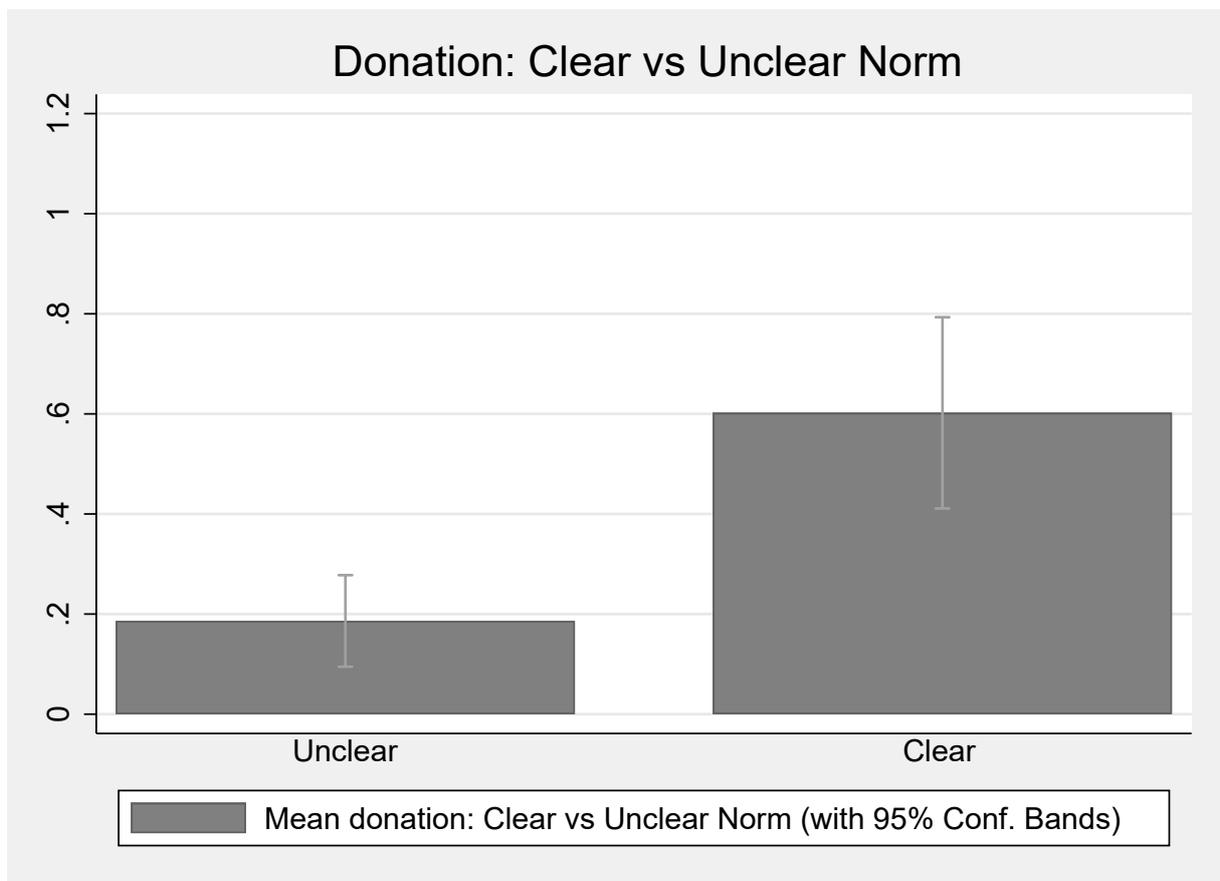
Notes: The Figure shows average Withdrawal amounts for groups with individual decision making and group decision making, along with 95% confidence bands. Individual decisions of group members are collapsed on the group level to account for dependencies of group decisions; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. $N = 187$.

Figure 5: Withdrawal Decision Across Treatment Groups



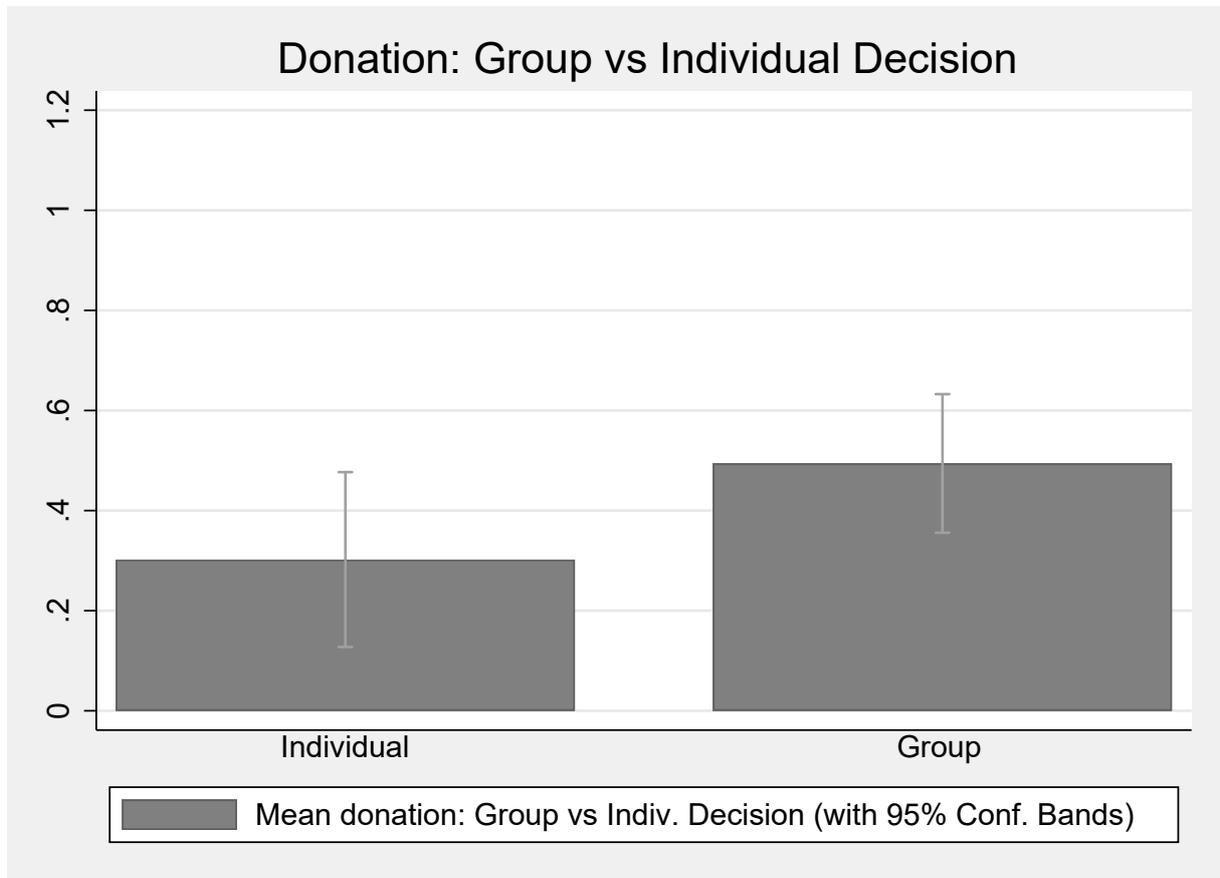
Notes: The Figure shows average Withdrawal amounts for all four experimental groups, along with 95% confidence bands. Individual decisions of group members are collapsed on the group level to account for dependencies of group decisions; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. Abbreviations of the four groups: IDCN: individual-decision / clear norm; IDUN: individual-decision / unclear norm; GDCN: group-decision / clear norm; GDUN: group-decision / unclear norm. $N = 187$.

Figure 6: Donation Decision: Clear vs Unclear Norms



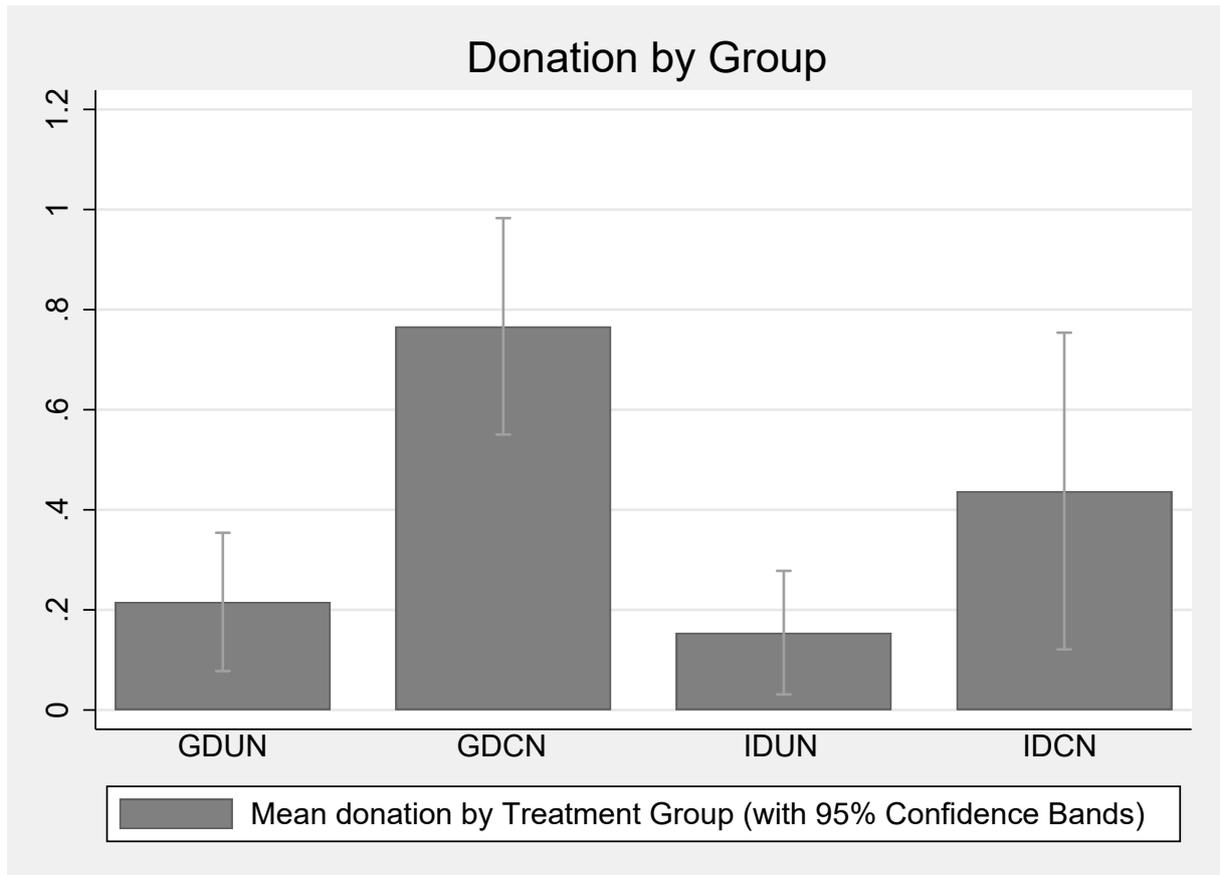
Notes: The Figure shows average Donations for groups with clear and unclear norms, along with 95% confidence bands. Individual decisions of group members are collapsed on the group level to account for dependencies of group decisions; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. $N = 187$.

Figure 7: Donation Decision: Group vs Individual Decisions



Notes: The Figure shows average Donations for groups with individual decision making and group decision making, along with 95% confidence bands. Individual decisions of group members are collapsed on the group level to account for dependencies of group decisions; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. $N = 187$.

Figure 8: Donation Decision Across Treatment Groups



Notes: The Figure shows average Donation amounts for all four experimental groups, along with 95% confidence bands. Individual decisions of group members are collapsed on the group level to account for dependencies of group decisions; that is, there is one observation per individual in the treatments with individual decisions and one observation per group in the treatments with group decisions. Abbreviations of the four groups: IDCN: individual-decision / clear norm; IDUN: individual-decision / unclear norm; GDCN: group-decision / clear norm; GDUN: group-decision / unclear norm. $N = 187$.

Tables

Table 1: Summary Statistics

Variable	N	mean	sd	min	max	p50
age	282	23.85	4.20	18.00	59.00	23.00
gender (male)	282	0.42	0.49	0.00	1.00	0.00
no third degree	282	0.62	0.49	0.00	1.00	1.00
Bachelor	282	0.23	0.42	0.00	1.00	0.00
Master (or higher)	282	0.15	0.35	0.00	1.00	0.00
game theory	282	0.38	0.49	0.00	1.00	0.00
withdrawn	282	3.06	1.81	0.00	5.00	3.00
donation	282	0.43	0.96	0.00	4.00	0.00
profit	282	6.58	2.29	0.00	9.00	7.00

Notes: Summary Statistics for all variables. Variables as described in Section 2. Individual-level statistics.

Table 2: Randomization Checks

Variable	p-values of group-wise t-tests (two-sided)					
	1 vs 2	1 vs 3	1 vs 4	2 vs 3	2 vs 4	3 vs 4
age	0.4716	0.5197	0.6929	0.9972	0.8011	0.7924
gender	0.2251	0.0972	0.2173	0.4943	0.8141	0.6933
degree	0.6903	0.1432	0.7526	0.0651	0.5083	0.3122
game theory	0.2922	0.3805	0.6495	0.0886	0.1900	0.6999
N	190	138	142	140	144	92

Notes: Tests for balance in covariates across groups. The table presents p-values of two-sided t-tests which test for differences across the respective experimental groups. Number of observations in the group-wise comparisons in line N . Variables defined as in Section 2. Tests executed on the individual level (since covariates are not affected by group decisions). Treatment Groups: Group 1: group-decision / unclear norm (GDUN), Group 2: group-decision / clear norm (GDCN), Group 3: individual-decision / unclear norm (IDUN), Group 4: individual-decision / clear norm (IDCN).

Table 3: Overview of Average Withdrawal Amounts Across Treatments

Exp. Condition	N	mean
Individual Decision	92	2.92
Group Decision	95	3.12
Unclear Norm	91	3.80
Clear Norm	96	2.29
GDUN	47	3.87
GDCN	48	2.39
IDUN	44	3.73
IDCN	48	2.19

Notes: Overview of mean withdrawal amounts across experimental treatments. All variables are defined as described in section 2. Group decisions are collapsed to account for the mutual dependence of the decisions of group members. Abbreviations: IDCN: individual-decision / clear norm; IDUN: individual-decision / unclear norm; GDCN: group-decision / clear norm; GDUN: group-decision / unclear norm.

Table 4: Effect of Norms and Group Decision on Withdrawal

	(I)	(II)
<i>Reference Group: Unclear Norm</i>		
Clear Norm	-2.693***	-2.717***
	(0.511)	(0.495)
<i>Reference Group: Individual Decision</i>		
Group Decision	0.339	0.354
	(0.484)	(0.467)
constant	4.629***	0.518
	(0.458)	(1.383)
Controls	No	Yes
N	282	282

Notes: Tobit regressions. Outcome variable: Withdrawal from the recipient. Dummy variable *Clear Norm* indicates experimental treatments groups with exposure to a clear norm. Dummy variable *Group Decision* indicates experimental treatments with group-decision making. Controls include covariates age, gender, degree and game theory. All variables as described in Section 2. Robust standard errors clustered on group level to account for dependency across group decisions. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5: Effect of Treatments on Withdrawal

	(I)	(II)
<i>Reference Group: IDUN</i>		
IDCN	-2.917*** (0.757)	-2.999*** (0.742)
GDUN	0.162 (0.671)	0.129 (0.647)
GDCN	-2.425*** (0.699)	-2.454*** (0.663)
constant	4.750*** (0.537)	0.615 (1.400)
Controls	No	Yes
N	282	282

Notes: Tobit regressions. Outcome variable: Withdrawal from the recipient. Independent dummy variables: IDCN: individual-decision / clear norm; IDUN: individual-decision / unclear norm; GDCN: group-decision / clear norm; GDUN: group-decision / unclear norm.. Controls include covariates age, gender, degree and game theory. All variables as described in Section 2. Robust standard errors clustered on group level to account for dependency across group decisions. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6: Withdrawal: Interaction of Group and Norm

	(I)	(II)
Group \times Clear	0.329 (0.958)	0.416 (0.931)
<i>Reference Group: Unclear Norm</i>		
Clear	-2.917*** (0.757)	-2.999*** (0.742)
<i>Reference Group: Individual Decision</i>		
Group	0.162 (0.671)	0.129 (0.647)
constant	4.750*** (0.537)	0.615 (1.400)
Controls	No	Yes
N	282	282

Notes: Tobit regressions. Outcome variable: Withdrawal from the recipient. Dummy variable *Clear Norm* indicates exposure to a clear norm. Dummy variable *Group Decision* indicates experimental groups with group-decision making. *Group \times Clear* denotes an interaction between dummy *Group Decision* and dummy *Clear Norm*. Controls include covariates age, gender, degree and game theory. All variables as described in Section 2. Robust standard errors clustered on group level to account for dependency across group decisions. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7: Overview of Average Donation Amounts Across Treatments

Exp. Condition	N	mean
Individual Decision	92	0.302
Group Decision	95	0.494
Unclear Norm	91	0.186
Clear Norm	96	0.602
GDUN	47	0.216
GDCN	48	0.767
IDUN	44	0.155
IDCN	48	0.438

Notes: Overview of mean donation amounts across experimental treatments. All variables are defined as described in section 2. Group decisions are collapsed to account for the mutual dependence of the decisions of group members. Abbreviations: IDCN: individual-decision / clear norm; IDUN: individual-decision / unclear norm; GDCN: group-decision / clear norm; GDUN: group-decision / unclear norm.

Table 8: Effect of Norms and Group Decision on Donation

	(I)	(II)	(III)	(IV)
<i>Reference Group: Unclear Norm</i>				
Clear Norm	2.081*** (0.552)	1.289** (0.520)	2.068*** (0.532)	1.372*** (0.496)
<i>Reference Group: Individual Decision</i>				
Group Decision	1.038* (0.562)	1.170** (0.547)	0.964* (0.536)	1.079** (0.520)
withdrawal		-0.521*** (0.168)		-0.485*** (0.169)
constant	-3.978*** (0.812)	-2.035** (0.808)	-0.437 (2.088)	0.540 (2.018)
Controls	No	No	Yes	Yes
N	282	282	282	282

Tobit regressions. Outcome variable: Donation of show-up fee. Dummy variable *Clear Norm* indicates experimental treatments with exposure to a clear norm. Dummy variable *Group Decision* indicates experimental treatments with group-decision making. Some specifications condition on the previous *withdrawal* decision. Controls include the following covariates: age, gender, degree and game theory. All variables as described in Section 2. Robust standard errors clustered on group level to account for dependency across group decisions. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 9: Effect of Treatments on Donation

	(I)	(II)	(III)	(IV)
<i>Reference Group: IDUN</i>				
IDCN	0.925 (0.950)	0.071 (0.902)	0.809 (0.911)	0.089 (0.865)
GDUN	0.069 (0.784)	0.160 (0.754)	-0.091 (0.756)	0.008 (0.739)
GDCN	2.614*** (0.778)	1.918*** (0.727)	2.479*** (0.753)	1.876*** (0.707)
withdrawal		-0.528*** (0.168)		-0.490*** (0.169)
constant	-3.293*** (0.852)	-1.293 (0.817)	0.217 (2.134)	1.196 (2.057)
Controls	No	No	Yes	Yes
N	282	282	282	282

Notes: Tobit regressions. Outcome variable: Donation of show-up fee. Independent dummy variables: IDCN: individual-decision / clear norm; IDUN: individual-decision / unclear norm; GDCN: group-decision / clear norm; GDUN: group-decision / unclear norm. Some specifications condition on the previous *withdrawal* decision. Controls include covariates age, gender, degree and game theory. All variables as described in Section 2. Robust standard errors clustered on group level to account for dependency across group decisions. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 10: Donation: Interaction of Group-Decision and Clear Norm

	(I)	(II)	(III)	(IV)
Group \times Clear	1.620 (1.061)	1.688* (1.016)	1.761* (1.014)	1.778* (0.977)
<i>Reference Group: Unclear Norm</i>				
Clear	0.925 (0.950)	0.071 (0.902)	0.809 (0.911)	0.089 (0.865)
<i>Reference Group: Individual Decision</i>				
Group	0.069 (0.784)	0.160 (0.754)	-0.091 (0.756)	0.008 (0.739)
withdrawal		-0.528*** (0.168)		-0.490*** (0.169)
constant	-3.293*** (0.852)	-1.293 (0.817)	0.217 (2.134)	1.196 (2.057)
Controls	No	No	Yes	Yes
N	282	282	282	282

Notes: Tobit regressions. Outcome variable: Donation of show-up fee. Dummy variable *Clear Norm* indicates exposure to a clear norm. Dummy variable *Group Decision* indicates experimental groups with group-decision making. *Group \times Clear* denotes an interaction between dummy *Group Decision* and dummy *Clear Norm*. Some specifications condition on the previous *withdrawal* decision. Controls include covariates age, gender, degree and game theory. All variables as described in Section 2. Robust standard errors clustered on group level to account for dependency across group decisions. * significant at 10%; ** significant at 5%; *** significant at 1%.

Appendix

Experimental Instructions

This appendix displays the English translation of the experimental instructions. The original German instructions are available upon request from the authors and can be made available in an online appendix in the case of publication.

[All Groups]

Welcome to this experiment and thank you for participating.

You receive a lump-sum payment of 4.00 EUR for showing up to this experiment. In addition, you can earn money in this experiment. Please stop talking to other participants as of now. The instructions for this experiment will be displayed on your computer screen. Please raise your hand if you have a question. An experimenter will then come to your seat and answer your question.

[Group: Group-Decision making and clear norm (GDCN)]

In this experiment, you decide, together with a randomly chosen other person in this room, if you want to take away money from Förderverein krebskrake Kinder e.v. Köln. You and the other person get to keep the money amount that is taken away for yourself. You find a short description of the association (Verein) at your seat.

The association receives a payment of 6.00 EUR from us for each participant of the experiment; that is, the association receives 6.00 EUR for you and 6.00 EUR for the other person together with whom you make the decision. The maximum amount that you can keep for yourself is 5.00 EUR, because the following applies: The association loses 1.20 EUR, respectively, for each EUR that each of you decide to keep for yourself (for example, if you keep 3.00 EUR for yourself, the association loses 3.60 EUR). Your choice can be any amount between 0.00 EUR and 5.00 EUR in steps of 10 Cents.

In order to make a joint decision on the amount that you take away from Förderverein krebskrake Kinder e.v. Köln, you and the other person can communicate for up to five minutes through a private chat which is on the next screen. In the screen that follows the chat, you and the other person have to enter the joint decision independently from each other. The two individually entered amounts that you and the other person choose will have to be identical. In the case that the two entered amounts are different from each other, then neither you, nor the other person, nor the Förderverein krebskrake Kinder e.v. Köln receives a payoff.

After the end of the experiment, we will, in random order, call all participants to the

front in order to receive the payoff, and the Förderverein krebskrake Kinder e.v. Köln is granted its payment as well.

[Group: Group-Decision making and unclear norm (GDUN)]

In this experiment, you decide, together with a randomly chosen other person in this room, if you want to take away money from an association (Verein) that is not specified in further detail. You and the other person get to keep the money amount that is taken away for yourself. You find a short description of the types of associations that exist at your seat.

The association receives a payment of 6.00 EUR from us for each participant of the experiment; that is, the association also receives 6.00 EUR for you and 6.00 EUR for the other person together with whom you make the decision. The maximum amount that you can keep for yourself is 5.00 EUR, because the following applies: The association loses 1.20 EUR, respectively, for each EUR that each of you decide to keep for yourself (for example, if you keep 3.00 EUR for yourself, the association loses 3.60 EUR). Your choice can be any amount between 0.00 EUR and 5.00 EUR in steps of 10 Cents.

In order to make a joint decision on the amount that you take away from the association, you and the other person can communicate for up to five minutes through a private chat which is on the next screen. In the screen that follows the chat, you and the other person have to enter the joint decision independently from each other. The two individually entered amounts that you and the other person choose will have to be identical. In the case that the two entered amounts are different from each other, then neither you, nor the other person, nor the Förderverein krebskrake Kinder e.v. Köln receives a payoff.

After the end of the experiment, we will, in random order, call all participants to the front in order to receive the payoff, and the association is granted its payment as well.

[Group: Individual-Decision making and clear norm (IDCN)]

In this experiment, you decide if you want to take away money from Förderverein krebskrake Kinder e.v. Köln. You get to keep the money amount that is taken away for yourself. You find a short description of the association (Verein) at your seat.

The association receives a payment of 6.00 EUR from us for each participant of the experiment; that is, the association also receives 6.00 EUR for you. The maximum amount that you can keep for yourself is 5.00 EUR, because the following applies: The association loses 1.20 EUR for each EUR that you decide to keep for yourself (for example, if you keep 3.00 EUR for yourself, the association loses 3.60 EUR). Your choice can be any amount between 0.00 EUR and 5.00 EUR in steps of 10 Cents.

On the next screen, you are given up to five minutes time to justify in writing your decision of how much you take away from the association. In the screen that follows afterwards, you have to enter your decision.

After the end of the experiment, we will, in random order, call all participants to the front in order to receive the payoff, and the Förderverein krebskrake Kinder e.v. Köln is granted its payment as well.

[Group: Individual-Decision making and unclear norm (IDUN)]

In this experiment, you decide if you want to take away money an association (Verein) that is not specified in further detail. You get to keep the money amount that is taken away for yourself. You find a short description of the types of associations that exist at your seat.

The association receives a payment of 6.00 EUR from us for each participant of the experiment; that is, the association also receives 6.00 EUR for you. The maximum amount that you can keep for yourself is 5.00 EUR, because the following applies: The association loses 1.20 EUR for each EUR that you decide to keep for yourself (for example, if you keep 3.00 EUR for yourself, the association loses 3.60 EUR). Your choice can be any amount between 0.00 EUR and 5.00 EUR in steps of 10 Cents.

On the next screen, you are given up to five minutes time to justify in writing your decision of how much you take away from the association. In the screen that follows afterwards, you have to enter your decision.

After the end of the experiment, we will, in random order, call all participants to the front in order to receive the payoff, and the association is granted its payment as well.