

Normative Perception of Power Abuse*

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Abstract

We study experimentally how the powerful perceive power abuse, and how negative experience related to it influences the appropriateness judgments of the powerless. We create an environment conducive to unfair exploitation in a repeated Public Goods game where one player (punisher) is given a further ability to costlessly subtract money from others (victims). Punishers who abuse their power rationalize their behavior by believing that free-riding, while forcing others to contribute, is not inappropriate. More importantly, victims of such abuse also start to believe that punishers' free-riding and punishment are justifiable. Our findings demonstrate the human capacity to exculpate abusive behavior.

JEL classifications: C91, C92, K42, H41, D73.

Keywords: power abuse, social norms, public goods, punishment, experiments.

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1 Introduction

Experimental economics has a long history of investigating prosocial behavior. The consensus is that, contrary to the predictions of models with selfish preferences, people largely act in a prosocial manner (Schroeder and Graziano, 2015), which is backed by a fairly uncontroversial norm proscribing selfishness (Cubitt *et al.*, 2011; Krupka and Weber, 2013). As Fehr and Schurtenberger (2018) discuss at length, adherence to social norms seem to permeate most social interactions. Nevertheless, unjust conditions and behavior are pervasive and hard to eradicate. Even developed countries with functioning legal and social systems witness high inequality and unfair distribution of power (Acemoglu *et al.*, 2015; Rose-Ackerman and Palifka, 2016). Indeed, much of the policy debate involves arguing that some part of society is disproportionately favored, thus failing to contribute to the community: they essentially “play a rigged game” (Acemoglu and Robinson, 2008; Dal Bó *et al.*, 2009). This is true despite the fact that most modern societies feature the institutions that encourage prosocial behavior.

The mismatch between individual prosociality and certain kinds of corruption among the powerful may originate from the differences in the normative perception of wrongful acts. On the one hand, the direct and forceful subjugation or mistreatment of others is considered extremely morally inappropriate, which results in few such problematic behaviors in modern societies. Even authoritarian states avoid clear moral violations and choose to veil subjugation of their subjects behind normative reasons (Beetham, 2013). On the societal level, only a small percentage of the population openly violate fundamental norms of fairness and respect for basic human rights in direct interactions with others. Those who steal or harm others are quickly ostracized and are often considered to be antisocial or dangerous.

However, on the other hand, institutions that promote public welfare regularly create unfair opportunities for their functionaries at the expense of the general population. The rich and the powerful are able to exploit their privileged position in questionable ways. Such behaviors often take the form of hypocritical enforcement of institutional rules that the enforcers do not adhere to themselves. Examples include politicians using their influence to attain atypical benefits, police officers using illegal violence, doctors using their connections for special treatment, and managers forcing their coworkers to invest in shared projects that they themselves skimp on. The ubiquity of this kind of practices and the ostensible perception that they are less deleterious than direct harm may be explained by their indirect consequences and the dilution of norms determining appropriate behavior in complex institutions. Moreover, it is easy to make excuses on the grounds that, even though an individual with power might use his position for personal benefit, he still provides an important social service. In support of these views of normative perception of power abuse, previous research has shown that in complex environments moral disagreement is pervasive (Reuben and Riedl, 2013); people are reluctant to harm others in a personal and direct way, while harming them as a side effect seems more permissible (Greene *et al.*,

2009); there is a tendency to justify one's questionable actions with self-serving beliefs about the behavior of others (Di Tella *et al.*, 2015). There is also substantial evidence that people victimized by an unfair treatment may be influenced by and become more accepting of it: experiencing unfair behavior makes the punishment of similar acts in the future less likely (Herz and Taubinsky, 2017); witnessing social norm violations leads to less trust (Banerjee, 2016); experimental subjects from countries with high corruption indices are more likely to lie (Gächter and Schulz, 2016). The reaction to observed norm violations can be "contagious": criminal behavior is often spatially correlated (Glaeser *et al.*, 1996; Zenou, 2003), which, according to the proponents of the "broken windows" hypothesis, is due to norm violations signaling a lack of commitment of a society to follow norms (Wilson and Kelling, 1982). Similarly, Fisman and Miguel (2007) observed that diplomats from corrupt countries committed more parking violations. On the institutional level, Tabellini (2008, 2010) shows that normative values in the regions that experienced the rule of despotic institutions in the past are less likely to be consistent with "generalized morality," or the norms of good conduct, than those in the countries that did not endure such rule.¹

In spite of all this evidence that shows how detrimental corruption can be, the relationship between abuse of institutional power and its associated normative perceptions remains unclear for the most part. Does everybody agree on the norms regarding indirect harm and abuse of power? Do the abusers simply use their advantageous position out of selfishness, or rationalize their behavior? Do victims of the abuse stay true to their moral convictions or assimilate bad norms after being exposed to corrupt institutions?

In this study we tackle these questions by experimentally investigating one specific instance of what we define as "power abuse" and its causal relationships with normative perceptions by various parties. We implement a Public Goods game that allows one powerful participant (punisher), who fulfills the role of a sanctioning authority, to dictate contribution norms, while being free to exempt himself from them (Hoeft and Mill, 2017). Unlike the established designs, where all players have the means to punish others (e.g., Fehr and Gächter, 2000), this game models the ambivalence of indirect abuse of power: not contributing while forcing others to do so is unfair, but enforcing high contribution norms is beneficial, even if the punisher does not himself comply. In this setting, we investigate the motives of "power abusers," the effect that experience of abuse has on the perceived appropriateness of punisher's actions, and the normative perceptions of outsiders who do not play the Public Goods game. Specifically, in order to understand how the powerful, the powerless, and uninvolved third parties perceive power abuse, or its absence, we elicit their beliefs about the prevalent norms of behavior *in their own reference group*. This allows us to see if there are differences in normative perceptions of the same situation generated by either being assigned to the position of power or experiencing

¹See also Becker *et al.* (2015). It should be mentioned that the opposite process has also been documented: Lowes *et al.* (2017) report the results of a field experiment showing that strong institutions in the past crowd out rule-following behavior today.

the effects of presence/absence of power abuse. In addition, we use the same method to elicit normative beliefs of these three types of subjects *in other reference groups*, which allows us to test whether they are aware of possible changes in these normative perceptions.²

We find that punishers who force others to contribute more than themselves (our definition of power abuse) and punishers who contribute more than others (absence of power abuse) differ in their perception of the social norms related to free-riding. Abusive punishers believe that it is more appropriate to contribute less than the amounts contributed by the powerless subjects. More importantly, players who have experienced abuse also believe that it is more appropriate for punishers to free-ride *and to punish others* than players whose punisher contributed more than them. In fact, the norms elicited from abusive punishers and the victims of their abuse are statistically indistinguishable, as are the norms in groups where no abuse took place. Thus, in both cases the normative perceptions of the powerless coincide with those of the powerful. We also find that punishers, regardless of their behavior, are of an opinion that outsiders, who did not experience the Public Goods game, share their normative beliefs, which is not true for the powerless players. This shows that *simply being in power* already changes the way people think about the appropriateness of their actions. However, we also find that both punishers and the powerless players think that the normative beliefs in the opposite group are different from those in their own group. Given that the norms of abusive punishers and their victims are the same in their own reference groups, as are the norms of non-abusive punishers and the subjects who played with them, this result demonstrates that punishers and other players *do not notice* that their own beliefs have been “corrected” by their experience in the Public Goods game.

Our main finding, namely that both powerful and powerless players adjust their beliefs in order to rationalize what they do or what is done to them, dovetails nicely with *the Belief in a Just World* theory (BJW) proposed by social psychologist Melvin J. Lerner and described in his book of the same title (Lerner, 1980). The main tenet of BJW, which is supported by recent evidence (Friesen *et al.*, 2018; Konow *et al.*, 2018), is that people have a strong tendency to believe that “there is a pattern to events which conveys not only a sense of orderliness or predictability, but also the compelling experience of appropriateness expressed in the typically implicit judgment, “Yes, that is the way it should be.” (Lerner, 1980, p. vii). In other words, this is a desire to maintain a coherent and orderly picture of reality in which good acts are praised and bad ones are always punished. In our experiment, where abusive punishers can impose a high contribution norm on others without suffering any consequences from breaking it themselves, such desire to maintain an orderly picture of the world translates into rationalization of abusive behavior by the punishers, and its exculpation by the powerless, who are unable to punish the abuser.

Our findings draw a rather grim picture in which the powerful abuse their position, believing that they have done nothing wrong, while the powerless suffer from the abuse, but consider their

²At least one other study uses a design reminiscent of ours and analyzes the effects of corruption on pro-social behavior (Cagala *et al.*, 2017).

situation normatively appropriate. If our results can be extrapolated to real economic environments, they can explain a relative stability of corrupt institutions, since no party involved feels that anyone is doing anything inappropriate. This idea finds support in a recent World Bank report (World Bank Group, 2017), which claims that top-down attempts at fighting corruption fail due to social norms that support it on all levels of social hierarchy.

2 Experimental Design

To study the abusive behavior and the normative perception of power, we conducted a two-part experiment. The first part is very similar to the design used in Hoefft and Mill (2017). In particular, a standard Public Goods game (the PGG) is implemented for 15 rounds with one subject assigned to the additional role of punisher throughout the game. The second part utilizes the design of Krupka and Weber (2013) to elicit subjects' normative perceptions of different actions in the game. More specifically, subjects in power, subjects not in power, and unrelated outsiders are asked to provide normative evaluations of several situations that could take place in the PGG.³

2.1 Public Goods Game

All participants are randomly assigned a fixed role, either punisher or non-punisher, and appointed to a group of four, in which they remain for the 15 rounds of the PGG (partner matching). Each round of the PGG consists of three stages.

Stage 1. Contribution to the Public Good. The first stage is a standard PGG. Each of the four participants is endowed with 20 tokens and is asked to allocate this endowment between private and group accounts (1 token = 20 Euro cents). Tokens allocated to the private account are the subject's to keep. Tokens allocated to the group account (c_i) have a marginal per-capita return (MPCR) of 0.5, so that each group member receives 0.5 times the total contribution. The payoff π_i of participant i is defined as

$$\pi_i = 20 - c_i + 0.5 \cdot \sum_{j \in \{A, \dots, D\}} c_j \quad (1)$$

Stage 2. Punishment. In the second stage, the punishment decisions are made. While the three non-punishing group members (participants A , B , and C) are just shown a blank screen asking them to wait for the decision of the punisher, the punisher (participant D) is shown the contributions and current payoffs of all group members. The punisher is then asked to indicate how many tokens he would like to deduct from the payoff of subject i (σ_i , $i \neq D$).⁴ To rule out

³Subjects only learned the nature of the task in the second part after the first part was concluded.

⁴To avoid framing and demand effects, we referred to the act as "reducing the payoff" and not as "punishment."

reputation effects from previous rounds, the information about non-punishing participants is presented to the punisher in random order in each round (Fehr and Gächter, 2000). The overall maximal possible deduction in every round is restricted to 30 tokens, which is enough to deter every participant from free-riding.⁵ The punishment is costless for D and unused punishment tokens are forfeited.^{6,7} Thus, the punisher could reduce the payoff of the non-punishers by 30 tokens at most, but his payoff would not be directly influenced by punishing (as punishment is costless) or not punishing (as unused tokens are forfeited). This is to ensure that the contributions of the punisher can be directly compared to the contributions of others.

The payoff π_i of a non-punisher $i \neq D$ is given by

$$\pi_i = 20 - c_i + 0.5 \cdot \sum_{j \in \{A, \dots, D\}} c_j - \sigma_i. \quad (2)$$

The payoff of the punisher is described by equation (1). In Appendix A we show that with selfish players the unique SPNE of this game is for the punisher to mete out maximum punishment of 10 tokens to each other player who does not contribute 20 tokens in any period, in which case all other players contribute optimally 20 tokens in each period and the punisher contributes zero in each period.

Stage 3. Feedback. The third stage provides feedback to the participants. More specifically, they are informed about their own contribution to the private and group accounts, their own punishment (reduction), and their resulting payoff. Further, they are also informed about the contributions of all other group members labeled as players A , B , C , and D throughout all rounds. Importantly, subjects are able to track the contribution behavior of the punisher. Non-punishers are not informed about the punishments meted out to others.

2.2 Norm Elicitation Task

To elicit normative perceptions, we utilize the norm elicitation task by Krupka and Weber (2013). More specifically, subjects have to indicate how socially appropriate they find a certain action (five actions are assessed) in a certain situation (three situations are assessed). In order to be paid, participants are asked to indicate the *modal* appropriateness estimation of a specific group

⁵Note that the highest individual benefit from free-riding when other two powerless players contribute 20 tokens, is 10 tokens. If a punisher was confronted with three free-riders and utilized all 30 punishment tokens, he could make every free-rider indifferent between free-riding and fully contributing by subtracting 10 tokens from each of them. As soon as one subject contributes more than zero, the punisher can already make contributing a preferential option. Hence, 30 tokens are sufficient to ensure punishment to be a deterrent.

⁶Making punishment costly would change the budget constraint of the punisher, thus making his contribution decisions incomparable to the contribution decision of the non-punishers.

⁷In the alternative case of not forfeiting punishment tokens, the punisher could contribute more in stage one, anticipating extra gains in the second stage, which again would make the contribution decisions of punishers and non-punishers incomparable.

of other participants. If their assessment of the social appropriateness of a specific action in a specific situation in a specific group was identical to the modal response of other participants in this group, they are paid €8, otherwise they are paid €0. The three situations, with the corresponding five actions to be normatively assessed, are as follows:

Question 20 Suppose the others (A , B , C) contributed 20 tokens each to the group account in the previous round. How socially appropriate are the following decisions by D ?

D contributes 0, 5, 10, 15, 20 tokens to the group account.

Question 10 Suppose the others (A , B , C) contributed 10 tokens each to the group account in the previous round. How socially appropriate are the following decisions by D ?

D contributes 0, 5, 10, 15, 20 tokens to the group account.

Punishment Question Suppose the others (A , B , C) contributed 10 tokens each to the group account in the previous round. How socially appropriate is it for D to reduce the payoff of A , B , or C , if he contributed the following amounts?

D contributes 0, 5, 10, 15, 20 tokens to the group account and reduces the payoff of A , B , or C .

In each of the three situations, subjects rate the social appropriateness of each action (contribution by D of 0, 5, 10, 15, 20). For each action, the appropriateness is chosen on a seven-point Likert scale: very socially inappropriate, socially inappropriate, somewhat socially inappropriate, neither appropriate nor inappropriate, somewhat socially appropriate, socially appropriate, very socially appropriate. We chose seven instead of five statements (as originally used by [Krupka and Weber \(2013\)](#)) to reduce a possible demand effect, i.e., choosing different appropriateness levels for each of the five actions. See Tables 3, 4, and 5 in Appendix B for further details.

In the first task, to assess the social appropriateness of these situations, punishers indicate what level of appropriateness they think the mode of other punishers in the current session would choose (punishers' own reference group). Similarly, players A , B , and C indicate the level of appropriateness that they think the mode of other such players in the current session would choose (ABCs' own reference group). Next, punishers/non-punishers are asked to evaluate the levels of appropriateness chosen by the mode of the non-punishers/punishers in the current session. After that, both punishers and non-punishers evaluate the levels of appropriateness expressed by the mode of a third group of people. This group consists of independent outsiders who did not participate in Part 1 of the experiment (the PGG), but were given the same instructions as punishers and non-punishers. These subjects simply had to indicate the appropriateness levels that they thought the mode of punishers, non-punishers, and other independent outsiders in their session have chosen.

Thus, subjects were randomly assigned to three groups: punishers, non-punishers, and independent outsiders, who did not take part in the PGG. All subjects in these groups first had to

evaluate social appropriateness ratings of subjects in the same role. Then, subjects in each group evaluated social appropriateness in the other two groups.

2.3 Payment

At the end of the experiment, subjects were paid for three tasks: the PGG, the appropriateness evaluation in their own reference group, and the guess of the appropriateness evaluation in the other two reference groups.

1. Subjects in the role of punishers and non-punishers were paid for one randomly chosen round of the PGG.
2. One random action from one random situation of Part 2 was drawn to determine the payment. In case a subject evaluated the payoff-relevant action in the payoff-relevant situation as the mode of other subjects *in the same role*, she obtained € 8, and zero otherwise.
3. To determine the payoff for the guess of the appropriateness evaluation in other reference groups, one random situation and one random action was drawn in one random reference group. If a subject evaluated the payoff-relevant action in the payoff-relevant situation as the mode of others *in the randomly determined payoff-relevant group* she obtained € 8 and zero otherwise.

Overall, the average payoff for punishers and non-punishers was € 16.50 (including a show-up fee of € 5). The average payoff for independent outsiders (who did not take part in the PGG) was € 9.30 (including the show-up fee).

2.4 Subjects

289 subjects (60% female) were recruited with the online registration software Hroot ([Bock et al., 2014](#)). The experiment was conducted at the Bonn DecisionLab and consisted of 9 sessions. The first session was run with 17 subjects who participated only in the second part and only in the appropriateness evaluation (not the guess of the appropriateness evaluation) to make further payments possible.⁸ 7 sessions were conducted with subjects in the roles of punishers and non-punishers (4 sessions with 32 subjects and 3 sessions with 28 subjects), and a further 2 sessions with 30 subjects each were conducted in the role of independent outsiders.

The subjects' age ranged from 17 to 73 years (median = 22). Most were bachelor students (semester median = 3). The average earnings were € 14.50 (including a € 5 show-up fee). The experiment lasted 1.5 hours (including seating, instructions, payoff, etc.). All measurements were computerized with the experimental software z-Tree ([Fischbacher, 2007](#)).

⁸To determine the payoff of punishers and non-punishers if their guess of the appropriateness evaluations of independent outsiders was deemed payoff-relevant, we needed the actual appropriateness evaluation of this group.

Subjects were randomly assigned to computer cubicles. They received written instructions separately and were given an opportunity to ask questions for each task in the experiment.⁹ After taking part in the PGG subjects were given on-screen instructions for the norm elicitation task and made their decisions in this task. After that, they filled in socio-demographic information and then were presented with their payoff information and received their payoff privately.

3 Hypotheses and Predictions

Let us call subjects who played in role *D* in the PGG *punishers*, subjects who played in roles *A*, *B*, and *C* *victims*, and subjects who did not participate in the PGG *outsiders*. Since the focus of this study is on understanding the motives behind abusive behavior of punishers and, more importantly, on its consequences for victims' normative perception we will call punishers who do not contribute at all or contribute the amounts smaller than other players *bad punishers*. In Section 4 below we show that punishers, whose average contribution is in the lower tercile of the distribution of average contributions of all punishers, can be classified as bad punishers. Similarly, we will call the punishers who contribute more than other players *good punishers*. The punishers with an average contribution in the upper tercile of the distribution of the average contributions of all punishers satisfy this criterion (see Section 4). Respectively, *bad victims* are subjects in a group with a bad punisher, and *good victims* are those in a group with a good punisher. We will refer to these groups as *good* and *bad groups*.

In the PGG punishers are free to choose any level of contribution and punishment in the sense that they are not influenced by punishment from other subjects. Victims, on the other hand, can be forced to contribute a certain amount under threat of punishment. Therefore, it is reasonable to assume that punishers, if they care about following norms, will base their choices in the PGG on what they perceive as socially appropriate. A particular experience during the game should not influence punishers' normative perceptions, since they are never coerced into choosing any specific action.¹⁰ Victims, however, can be forced to do the punisher's bidding, which can be inconsistent with what they would have done if they could choose freely. Thus, their experience can have an effect on the perception of norms.

Our null hypothesis is that subjects have robust and common beliefs about social appropriateness of actions in the PGG. Hence, good and bad punishers are expected to have the same social appropriateness evaluations (normative valences), while difference in their behavior comes from bad punishers' not caring about following norms in general (Kimbrough and Vostroknutov

⁹The instructions as well as an English version of the handout can be found in Appendix G.

¹⁰As Kimbrough and Vostroknutov (2016) we think of normative valences of actions in each period of the PGG as being *conditional* on the behavior observed in the previous period. In this sense, conditional cooperation, for example, is part of the norm-driven behavior. So, when we say that punishers' normative valences are not changed by their experience we imply that punishers have fixed normative beliefs that, nevertheless, may still depend on the choices of other players in the previous period.

tov, 2016). Similarly, good and bad victims are expected to have the same normative valences. Some victims experience power abuse while others do not, but they all agree on how socially appropriate the actions in the PGG are. The same should hold for outsiders: just understanding the rules of the game without playing it is sufficient to know how socially appropriate different actions are. Thus, the normative valences of punishers and victims in both good and bad groups as well as outsiders are expected to be identical.

Hypothesis H0 *All types of subjects have common beliefs about social appropriateness that are not modulated by experience.*

The alternative hypothesis is that the normative perception of power abuse (behaving like a bad punisher) is different for good and bad punishers and that the experience of abuse changes normative beliefs of victims. Specifically, bad punishers think that it is socially appropriate for them to contribute less than victims, while good punishers think that it is not. This difference in beliefs drives their behavior (though, see the discussion in Section 5). Victims' normative beliefs are changed by their experience. Here there are two possibilities. The first one is that victims who experienced abuse realize how bad it is and start to believe that it is *less* appropriate for punishers to contribute less than them as compared to good victims, who never experienced abuse. The second possibility is that bad victims rationalize their situation by starting to believe that power abuse is normatively acceptable, thus thinking that it is *more* appropriate for punishers to contribute less as compared to good victims. Given this intuition we formulate the set of alternative hypotheses.

Hypothesis V1 *Bad victims think that it is less appropriate for punishers to contribute less than them as compared to good victims.*

Hypothesis V2 *Bad victims think that it is more appropriate for punishers to contribute less than them as compared to good victims.*

Hypothesis P1 *Bad punishers consider it socially appropriate to contribute less than victims, while good punishers find it inappropriate.*

4 Results

4.1 Good and Bad Groups

In this section we present some summary statistics for the PGG. We divide groups into good and bad by the average contribution of their punishers. Specifically, we compute average contribution of each punisher and label her group as *bad*, if her average contribution is in the bottom tercile, and as *good*, if it is in the top tercile (see Figure 7 in Appendix F for the histogram).

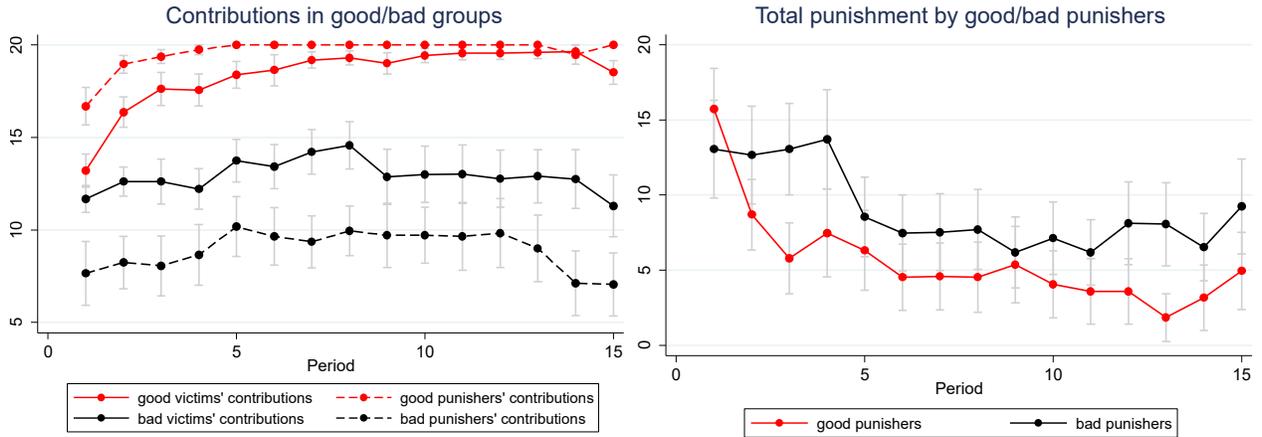


Figure 1: Contribution and punishment behavior of punishers

Left panel. Average contributions by punishers and victims in the top and bottom terciles of the distribution of punishers' average contributions. **Right panel.** Average total punishment in the same terciles. Red lines denote good groups while black lines denote bad groups. Solid lines represent the behavior of victims and dashed lines represent the behavior of punishers. The error bars stand for $\pm 1SE$.

We look at the dynamics of contributions in good and bad groups. Figure 1 (left panel) shows the average contributions of good and bad punishers and victims. In the first period, victims' contributions are identical in good and in bad groups, but gradually they diverge.¹¹ At the same time, good and bad punishers differ substantially in their contributions already in the first period. This difference becomes larger as the experiment unfolds. Good punishers act very cooperatively and contribute on average more than victims in their groups. In addition, they apply punishment to increase the contributions of victims to their level, which is evident from the fact that good victims' contributions increase with time. Bad punishers contribute little themselves, but try to push the contributions of victims above their own contribution level. These observations make our choice of classifying the punishers into good and bad groups consistent with the definitions in Section 3: good punishers do not abuse their power, since they contribute on average more than good victims, while bad punishers do abuse their power since they contribute less than their victims. The right panel of Figure 1 shows that more punishment is used by bad than by good punishers, though, taken period-by-period or together, the amounts subtracted are not significantly different. Overall, we can conclude that the victims in the bad groups continuously feel that the cooperative norm imposed on them by their punishers keeps being violated by punishers themselves, and victims cannot do anything about it as they face punishment when they contribute small amounts. Conversely, in the good groups, punishers, if anything, serve as role cooperative models. This suggests that the victims in bad and good groups have rather different

¹¹The contributions of good and bad victims are statistically identical in the first round of the PGG: they do not differ significantly in their mean, median, minimum, or maximum. The difference between average contributions of bad and good victims in the first round is very minor (about one token) and is within the margin of error. The test showing that there is no difference between bad and good victims in their initial behavior has a power of more than 0.5. Furthermore, nearly 70% of all punishers observe an almost identical contribution pattern in the first round. This demonstrates that it is not the behavior of the victims in the first period that makes punishers turn good or bad.

experiences and that it can have consequences for their perception of norms that we investigate in the next section.

4.2 Victims' Normative Perception

Before we get to our main result related to the normative perceptions of victims, notice that there are five elicited normative valences for each question expressed by the participants in our experiment. Specifically, in each question victims report their perceived normative valences for five levels of hypothetical contributions by a punisher (see Figure 8 in Appendix F). Therefore, in order to relate these evaluations to contributions and punishment levels in the PGG, we need to transform these into a single number. We do so by considering *average normative valences*. The average normative valence is just the average of the five normative valences expressed by a participant in a given question. For example, for the normative valences shown in Figure 8 the average for each subject and each question (e.g., Question 20) would be taken over five levels of hypothetical contributions: 0, 5, 10, 15, and 20. In Appendix C we provide argumentation for why this is a legitimate way to measure normative perceptions.

Now that we have defined our measure of normative perception, notice that the behavior of good and bad victims is indistinguishable in period 1 (see Section 4.1). Therefore, any difference in normative perceptions between good and bad victims should come from their experiences in the experiment. Specifically, from their experiencing good and bad punishers. This gives us an opportunity to see how the oppressive and abusive behavior of bad punishers and the cooperative behavior of good punishers changes the victims' perception of the appropriateness of the punishers' actions.

The left panel of Figure 2 shows the victims' average normative valences in their own reference group (Figure 8 in Appendix F shows the same normative valences as functions). Answers to Question 20 tell us what victims believe is the common attitude among the victims towards the *punishers'* free-riding. We see that bad victims consider it significantly *more* appropriate than good victims (permutation test, $p = 0.002$).¹² This result is in support of Hypothesis V2: bad victims justify the low contributions of punishers by believing that this is socially appropriate. The leftmost column in Table 8, Appendix F, demonstrates the same point with a regression and a rank correlation that use all data instead of only good and bad groups and treat punishers' average contribution as a continuous variable.

The left panel of Figure 2 shows that bad victims also consider it significantly more appropriate than good victims when punishers subtract money from them (permutation test, $p = 0.033$). This also holds for all data as reported in the rightmost column in Table 8, Appendix F. Importantly, unlike punishers, *the victims are not those who punish, but those who receive the punishment*.

¹²Here and below, all tests are two-tailed. We chose a permutation test over a rank-sum test, since the latter is not a test of difference in means, but of difference in distributions. Therefore, it can be significant even when the means are not statistically different. The permutation test that we use is a direct test of difference in means.

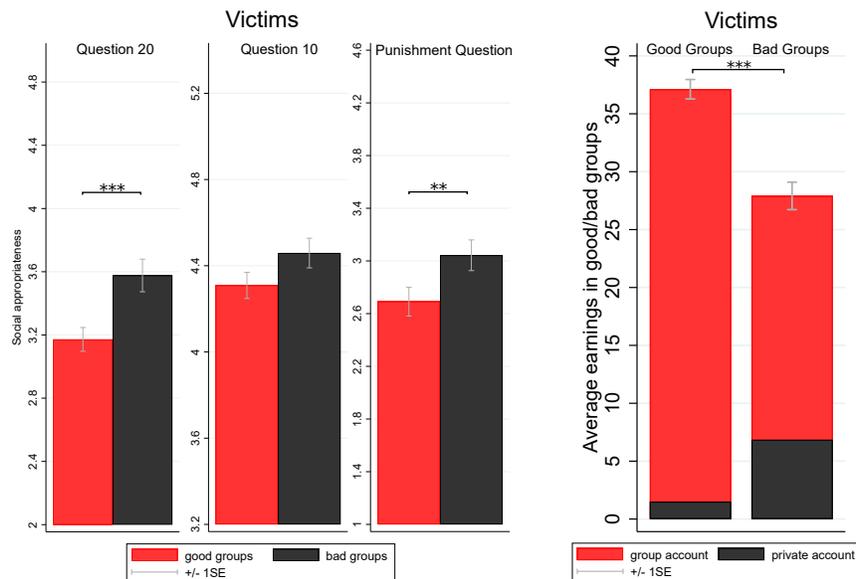


Figure 2: Victims' average normative valences in own reference group and average earnings. **Left panel.** Red bars represent good victims' average normative valences, and black bars – bad victims' average normative valences. For each question, y -axis ranges from the minimum to the maximum value of the corresponding average normative valences. **Right panel.** The average earnings of victims in good and bad groups. The number of observations in each bar is equal to the number of groups (17 bad groups and 19 good groups). The black bars show the part of the earnings from the private account (and the red parts from the group account). In both panels the error bars stand for $\pm 1SE$. Significance levels of the permutation test of means are reported. ** – $p < 0.05$; *** – $p < 0.01$.

Therefore, bad victims, instead of seeing the hypocritical punishment, which comes from a person who contributes less than them, as “unfair” and thus inappropriate, start to believe that it is actually justified (Hypothesis V2).¹³

Finally, the right panel of Figure 2 shows the average per period earnings of good and bad victims. We see that bad victims earn on average 30% less money than good victims (permutation test, $p < 0.001$), and that a much larger proportion of these earnings comes from private account (black bars). This provides a very strong evidence that victims justify the behavior of punishers in accordance with Hypothesis V2. If anything, earning small amounts should make bad victims realize that punishers are not doing something right. Nonetheless, we observe the opposite trend. This finding together with the difference in normative perceptions reported

¹³In order to eliminate all remaining doubts that these results are driven by the initial behavior of victims in period 1, consider the following auxiliary finding. All the results concerning victims and their significance remain the same if we restrict our sample to groups that behave identically in the initial period. Specifically, we focus on bad and good groups in which the pattern of initial contributions of victims is group-wise identical. For example: for some initial contribution profile of victims in a good group (say, 10, 10, and 5 tokens), we find a bad group with the same profile, or drop the group if analogous contribution profile does not exist. We find 10 groups (5 good and 5 bad) with identical group-wise contribution profiles of victims. Restricting our analysis to only these ten groups produces results that are significant and even slightly larger in magnitude than what is reported in this section.

above demonstrates an astounding effect that negative experiences can have on the perception of appropriateness.

Result 1. *The victims' normative perceptions are in line with Hypothesis V2. Bad victims see low contributions of the punishers and the punishment that they receive as more appropriate than good victims, even though they earn 30% less.*

4.3 Punishers' Normative Perception

Before we perform the analysis of normative valences of punishers, it is worth running some diagnostics to make sure that normative valences expressed by punishers actually reflect the contribution and punishment choices that they make. In Appendix D we demonstrate that punishers' average contributions and the total amount of punishment that they mete out to victims are correlated with their normative valences in hypothesized way. Notice that we can only perform such analysis for punishers because unlike victims they are not coerced into doing anything, since there is no one to punish them for their choices. The results in Appendix D assure that the elicited norms have explanatory power.

Now we get to the analysis of punishers' average normative valences. The left panel of Figure 3 shows punishers' average normative valences for the three questions in their own reference group (Figure 9 in Appendix F shows the same results as functions). We see that there is a significant difference in the average normative valences between good and bad groups for Question 20 (permutation test, $p = 0.025$). Bad punishers consider it more appropriate than good punishers to free-ride after others have contributed the full amount. A similar difference can be observed for Question 10 (permutation test, $p = 0.016$): bad punishers consider it more appropriate than good punishers to contribute small amounts after victims have contributed 10 tokens in the previous period. For the Punishment Question the difference is not significant (permutation test, $p = 0.132$). Table 9 in Appendix F reports same results as regressions for all punishers (not only good and bad ones) and with punishers' average contribution treated as continuous variable. These findings support Hypothesis P1. Specifically, bad punishers justify their behavior to themselves by believing that contributing little is not that bad from the moral perspective.

The right panel of Figure 3 shows the average earnings of good and bad punishers. Interestingly, they are not significantly different, even though a much larger proportion of earnings of bad punishers comes from the private account (black bars). Of course, bad punishers have such high earnings because they do not contribute much themselves, but force others to contribute. Nevertheless, the fact that the average earnings of good and bad punishers are the same means that being a bad punisher, who collects money from forcing others to contribute, is overall as

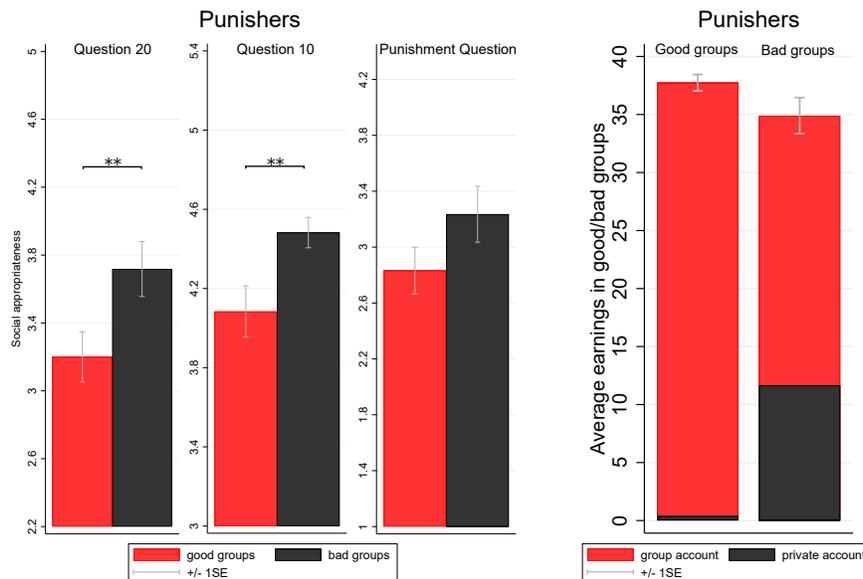


Figure 3: Punishers' average normative valences in own reference group and average earnings. **Left panel.** Red bars represent good punishers' average normative valences, and black bars – bad punishers' average normative valences. For each question, y -axis ranges from the minimum to the maximum value of the corresponding average normative valences. **Right panel.** The average earnings of victims in good and bad groups. The number of observations in each bar is equal to the number of groups (17 bad groups and 19 good groups). The black bars show the part of the earnings from the private account (and the red parts from the group account). In both panels the error bars stand for $\pm 1SE$. Significance levels of the permutation tests of means are reported. ** – $p < 0.05$.

profitable as being a good punisher. In other words, bad punishers do not have any material incentive to become good.

Result 2. *Punishers' normative valences are in line with Hypothesis P1. Bad punishers free-ride and believe that their behavior is socially appropriate. Good punishers contribute a lot and believe that doing otherwise is inappropriate. The earnings of good and bad punishers are the same, which removes the incentive for bad punishers to become good.*

4.4 Comparison of Victims' and Punishers' Normative Perceptions

We have seen that victims' normative valences are modulated by the experience in the PGG, and that the bad victims' normative valences are higher than the good victims', exactly same relationship that we found between punishers' normative valences in good and bad groups. The next logical step is to test if the normative valences of victims and punishers are similar in good and bad groups.

Table 1 shows victims' and punishers' average normative valences in their own respective reference groups. We see that the average normative valences, when considered separately in good and bad groups, are not significantly different from each other (except for one comparison with $p = 0.094$). For example, for Question 20, the good victims' average normative valence is 3.127 and the good punishers' average normative valence is 3.200, which are almost identical.

Groups:		Good	Bad	All
Question 20	Victims	3.172	3.576	3.302
	Punishers	3.200	3.717	3.385
Question 10	Victims	4.309	4.458	4.379
	Punishers	4.084 ^{†*}	4.482	4.325
Punishment Question	Victims	2.691	3.043	2.868
	Punishers	2.831	3.235	3.068

Table 1: Average normative valences of victims and punishers in own reference groups. No significant differences in permutation tests except good groups comparison for Question 10 ($p = 0.094$).

Similarly, bad victims’ and punishers’ normative valences are 3.576 and 3.717, respectively. This clearly demonstrates that the victims’ normative valences in good and bad groups are the same as those of good and bad punishers. The norms expressed by all victims and punishers (the rightmost column in Table 1) are also not significantly different from each other.

Result 3. *Victims’ normative perceptions in good and bad groups coincide with those of good and bad punishers respectively.*

This result also supports our idea that subjects rationalize their experiences in different environments by adjusting their normative beliefs (either due to their own or someone else’s behavior). The fact that victims’ and punishers’ normative perceptions in good and bad groups are the same strongly suggests that both types of subjects make their normative perceptions consistent with the behavior in their groups.

4.5 Normative Valences in Other Reference Groups

In this section we conduct additional analyses in order to see if subjects are able to correctly anticipate the match of average normative valences that we reported in the previous section. To do that we analyze the subjects’ normative valences in other reference groups. This, however, cannot be done by simply comparing average normative valences in the own and the other reference groups. The reason is that subjects, when they decide which appropriateness levels are prevalent in other groups, might be biased by the normative valences that they think are in place in their own reference group.¹⁴

Table 2 shows Spearman’s rank correlations of average normative valences between the own reference group and the two other reference groups. The correlations are indeed rather high for all questions and groups. Thus, it is true that subjects, when assessing what normative va-

¹⁴For example, Eijkelenboom *et al.* (2018) find that in a social responsibility experiment, where subjects make risky choices for others, those with extreme risk preferences think that the average risk attitude in the population is much closer to their own risk preference than it actually is. Their own risk preferences bias their estimates of the population average.

Group:	Punishers		Victims		Outsiders	
Reference group:	Victims	Outsiders	Punishers	Outsiders	Victims	Punishers
Question 20	0.776	0.821	0.610	0.706	0.672	0.460
Question 10	0.602	0.647	0.400	0.465	0.440	0.341
Punishment Question	0.561	0.620	0.453	0.590	0.816	0.615
<i>N</i> subjects	53	53	159	159	59	59

Table 2: Spearman’s rank correlations of average normative valences between own reference group and other two reference groups. All $p < 0.001$.

lences other reference groups may have, rely heavily on the individual normative perceptions in their own reference group. It does not necessarily mean that they do not understand that other subjects might have different ideas about what is socially appropriate. However, this does imply that subjects with extreme opinions about the prevailing normative valences will under- or overestimate how distant they are from the average opinions about social appropriateness.

In order to estimate the “true” normative valences that subjects think are prevalent in other groups, we propose a method of de-biasing the expressed normative valences. Suppose that subject i of type τ (a punisher, victim, or outsider) expresses an average normative valence x_i in her own reference group. Assume also that there is a true average normative valence g_τ that all subjects of type τ try to express when guessing the normative valence in some other group. However, subject i is biased, in that instead of expressing g_τ she expresses some convex combination $y_i = \alpha_\tau x_i + (1 - \alpha_\tau)g_\tau$, which we observe. The problem now is to find estimates of g_τ and α_τ from known pairs (y_i, x_i) . Let us regress y_i on x_i and obtain the parameters of the linear fit: $y_i = c + bx_i$, where b and c are the coefficients from a linear regression. Then, g_τ and α_τ are easily expressed in terms of b and c as $\alpha_\tau = b$ and $g_\tau = c/(1 - b)$. Thus, all we need to do is to run linear regressions of average normative valences expressed by subjects in other groups on the average normative valences from their own group and calculate α_τ and g_τ for each case.

Table 10 in Appendix F shows the regressions of average normative valences in victims’/punishers’ reference groups on the average normative valence in the own reference group for punishers/victims. Each regression estimates a single parameter $b = \alpha_\tau$ (coefficient on the variable average normative valence) and different intercepts c . The coefficients on the variable average normative valence, the estimates of α_τ for each question, are rather high. However, we are interested in the estimates of g_τ and how they compare to the average normative valences that punishers and victims express in their own groups.

Figure 4 shows the values of g_τ minus the average normative valence in the own reference group for punishers and victims.¹⁵ We see that both victims and punishers think that the normative valences in the other group are different from their own. Specifically, victims think that punishers consider free-riding and punishing more appropriate than other victims. This sug-

¹⁵We do not consider bad and good groups separately, since the estimates are roughly the same for both. See Figure 10 in Appendix F.

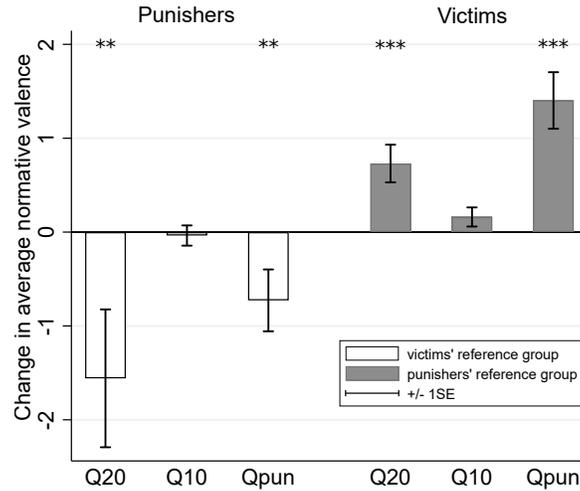


Figure 4: Estimates of g_τ minus the average normative valences in own reference group for punishers and victims.

Grey bars denotes punishers' reference group while white bars denote victims' reference group. Above/below zero values mean that punishers/victims think that victims/punishers consider actions in a given question more/less socially appropriate than they themselves do in their own reference group. The error bars stand for $\pm 1SE$. *** and ** denote the statistical significance of difference from zero at the 1 and 5 percent level (the p -values of the non-linear transformation of the respective coefficients from the regressions).

gests that victims realize that punishers may abuse their power because they consider it socially appropriate. Punishers think the opposite about the normative valences of victims. They seem to realize that victims might consider punishers' free-riding and punishment less appropriate than other punishers. Nevertheless, the most important observation about these results is that the normative valences in other reference groups are *inconsistent* with the fact that victims' and punishers' normative valences are in fact the same, as we have shown in the previous section. This demonstrates that both punishers and victims *do not notice* that their choices and experience in the PGG have had influence on their own and others' normative perception and that their normative beliefs coincide.

To provide more evidence of this effect we look at the normative valences of outsiders, who did not choose in the PGG (Table 13 in Appendix F shows the regressions of outsiders' normative valences in punishers' and victims' groups on their own normative valences). Figure 5 shows the differences between the estimates of g_τ 's and respective average normative valences in outsiders' own reference group. We see that outsiders think that victims consider it less appropriate to free-ride and punish than themselves and the (roughly) opposite for punishers. The important fact though is that outsiders think that victims' and punishers' beliefs diverge from their own in different directions, which is again inconsistent with the finding that victims' and punisher's normative valences are the same. Thus, outsiders are also oblivious to the influence that experience in the PGG has on normative beliefs.

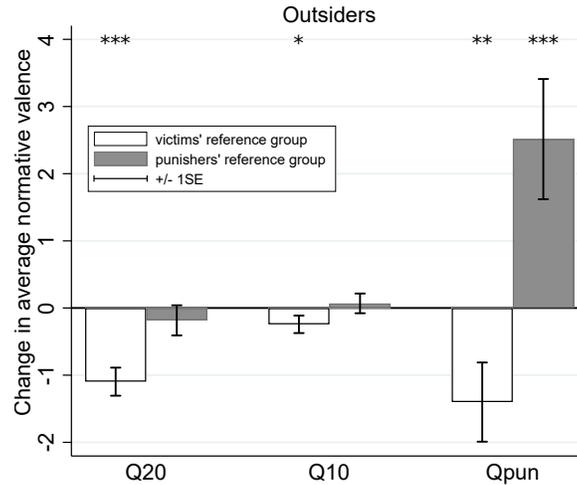


Figure 5: Estimates of g_{τ} minus the average normative valences in own reference group for outsiders.

Grey bars denotes punishers' reference group while white bars denote victims' reference group. Above/below zero values mean that outsiders think that victims/punishers consider actions in a given question more/less socially appropriate than they themselves do in their own reference group. The error bars stand for $\pm 1SE$. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent level.

Result 4. *Punishers and victims do not realize that their choices and experience in the PGG have an effect on their normative valences. The same is true for outsiders' opinion about victims' and punishers' normative valences.*

It may seem strange that the normative perception of power abuse is identical between punishers and victims but they are not aware of this fact. This is an important finding, but we leave its discussion for Section 5 and continue with the last piece of evidence regarding punishers' and victims' beliefs about outsiders' normative valences. Notice that in this case both punishers and victims are asked exactly the same question. Thus, the differences that we might observe should come from the assigned roles.

We see from Figure 6 that punishers do not show any significant deviations from the normative valences in their own reference group when asked about the normative valences among outsiders.¹⁶ For example, for Question 20 the coefficient on the variable average normative valence is 0.977 and intercept is insignificant (the leftmost column of Table 11 in Appendix F). Thus, most punishers are just repeating the normative valences that they expressed in their own reference group. As a result, the estimate of g_{τ} is very large, negative, and not significant (≈ -10 , not shown on the graph). Similarly, for Question 10 and the Punishment Question we do not detect any significant difference between the punishers' estimates in the own reference group and in the outsiders' group. Victims, however, think that outsiders consider free-riding less appropriate than themselves, and punishing more appropriate. This is very different from punishers' opinion on outsiders and makes us conclude that being assigned the role of a punisher has an impact

¹⁶The same graph for bad and good groups separately is shown in Figure 11 in Appendix F.

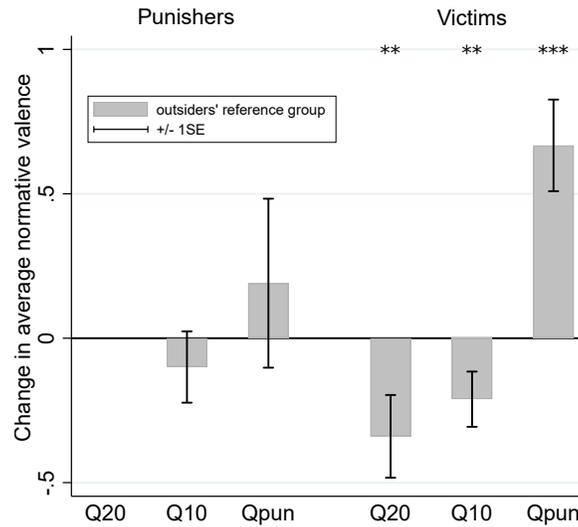


Figure 6: Estimates of g_{τ} in outsiders' reference group minus the average normative valences in own reference group for punishers and victims.

Grey bars denotes outsiders reference group. Above/below zero values mean that victims/punishers think that outsiders consider actions in a given question more/less socially appropriate than they themselves do in their own reference group. The error bars stand for $\pm 1SE$. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent level.

on normative beliefs. In particular, punishers start to believe that uninvolved outsiders share their normative convictions, which serves as an additional self-rationalization of their behavior.

Result 5. *Punishers believe that outsiders have the same normative valences as themselves, which is an additional way to rationalize their behavior.*

5 Discussion

Summary of the Results. The five results above provide a coherent picture of how the possibility to abuse power influences punishers, victims, and their beliefs about the appropriateness of abusive behavior. The power over others has a significant influence on the normative beliefs of punishers. Those who actually choose to abuse their power convince themselves that they are not violating any norms by doing so, while punishers who contribute more than others believe that abusing power is inappropriate (Result 2). The victims' beliefs about the appropriateness of free-riding and punishment are changed by their experience in the PGG (Result 1) and coincide with those of their punishers, good or bad (Result 3). This match can be seen as a defensive mechanism that restores a meaningful world view when unfair circumstances cannot be changed (Lerner, 1980).¹⁷ This presents the main finding of this paper: experiencing abuse that cannot be prevented or punished results in its acceptance.

¹⁷Importantly, Lerner (1980) also demonstrates that when victims of unfair treatment or outside observers *do have the means* to punish wrongdoing, their beliefs *do not* adjust in the direction of justifying such behavior.

When we analyze the beliefs about normative valences in other reference groups, we find that punishers hold an opinion that victims consider free-riding and punishment less appropriate, while victims think that punishers consider them more appropriate (Result 4). However, we know that the punishers' and the victims' beliefs in their own reference groups are identical (Result 3). Therefore, it seems that both victims and punishers are *not aware* that belief adjustment takes place, which results in all of them having *wrong* beliefs about the other reference group. This being said, we still think that there might be circumstances in which these beliefs, albeit incorrect, can nevertheless reveal themselves through actions with tangible consequences.

Finally, we find a significant difference in how punishers and victims express their beliefs about the normative valences of the outsiders. The punishers think that the outsiders' normative valences are the same as their own, which suggests that *just being assigned to a position of power* convinces them that what they do, abusing the power or not, is "right" in the eyes of outside observers (Result 5). Such self-deception can lie at the core of the mechanism that sustains power abuse. At the same time, the victims are sensitive to the fact that the outsiders, who did not directly experience the actions of the powerful, might have a different opinion about the appropriateness of the punishers' choices. This further strengthens the conclusion that the powerful use any means to justify their behavior to themselves.

Rule-Following and the Belief in a Just World. From many studies (e.g., [Kimbrough and Vostroknutov, 2016](#); [Gürdal et al., 2018](#)), we know that the tendency to follow rules correlates with pro-social behavior. This means that rule-followers exhibit cooperative tendencies supported by the corresponding norms, while rule-breakers act selfishly. Theoretically, a selfish agent, who maximizes her own payoff in the role of punisher in our PGG, should contribute nothing and push others to contribute full amounts. This is very close to the behavior of bad punishers that we observe. Thus, there are two explanations for the bad punishers' behavior. The first is that bad punishers are rule-breakers, no matter what their beliefs are; and the second is the one that we proposed, namely that bad punishers think that free-riding is not inappropriate, no matter what their rule-following is.

Our design does not allow us to cleanly distinguish which of the two factors, rule-following or beliefs, drives the behavior of the bad punishers. However, the result on the normative valences elicited in the Dictator game and presented in Figure 4 of [Kimbrough and Vostroknutov \(2018\)](#), suggests that there is a connection between being a rule-breaker and believing that behaving selfishly is appropriate. In particular, rule-breakers tend to think that selfishness is more appropriate than rule-followers do. If the same is true in our setting, then bad punishers should be mostly rule-breakers, or selfish individuals, who think that free-riding is appropriate. Thus, the two explanations for abusive behavior might not be mutually exclusive, but actually constitute one explanation: inherently selfish individuals, who are nevertheless not exempt from the influence of the Belief in a Just World, rationalize their selfishness by believing that acting anti-

socially is appropriate, while norm-abiding individuals reinforce their pro-social behavior by believing that it is inappropriate to do otherwise. Additional experiments are needed to confirm or disconfirm this hypothesis.

Comparison to the Broken Windows Theory (BWT). The broken windows theory, which has found certain experimental support (e.g., [Funk and Kugler, 2003](#); [Corman and Mocan, 2005](#); [Engel et al., 2014](#)), states that when people see the results of others not following norms (broken windows that stay unfixed), they also stop following norms *in other domains*, thus hurting the community. This may sound similar to our results; however, there is a conceptual difference. BWT focuses on the idea that the appearance of run-down communities that are not properly maintained sends a signal that bad behavior stays unpunished, thus granting an exemption from following norms. This does not mean that individuals who break norms in these circumstances start considering such behavior appropriate. Indeed, it may well be that, when they move to an appropriately maintained neighborhood, they start to behave accordingly. Thus, BWT does not make any claims with regard to the *change in normative perception* that we emphasize in this paper.

What we find is, in a sense, more serious than the effect of BWT. This can be illustrated by the example of bad victims who, after experiencing free-riding on the part of bad punishers and their unfair punishment, start to believe that *the mode of other victims think* that such acts are normatively justifiable. Notice that these are the subjects who actually suffer from the abuse of power. Nevertheless, they start to share the viewpoint of bad punishers on such behavior. This suggests that corruption can breed more corruption even among those who never exercised it, but instead experienced it. Undoubtedly, with our results we cannot support this statement, nor make any claims about how deep and lasting the effect of the bad victims' negative experience is. However, we hope that our study can be the first step on the path to understanding these issues better.

6 Conclusion

We study normative perceptions of power abuse in an experiment where only one player in a repeated Public Goods game (punisher) has the power to punish others, conditional on their contributions. After the Public Goods game, we measure normative beliefs of all subjects about the appropriateness of the punisher's actions by means of a norm elicitation task ([Krupka and Weber, 2013](#)). We hypothesize that the beliefs of punishers and their victims are influenced by the experience of power abuse. We find that punishers who abuse their power by contributing little and forcing others to contribute a lot hold beliefs that this behavior is appropriate, while punishers who contribute more than others believe that abusing power is inappropriate. More importantly, other players, who experience the actions of the powerful, i.e. their abuse, start to

believe that these actions are justified no matter how abusive they are. Interestingly, we find that neither punishers nor other players notice that their beliefs about the norms are getting influenced in this way. Our results unveil a mechanism that might be responsible for many failed attempts to fight corruption on an international level, and point toward a reason why inefficient institutions endure.

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Appendix (for online publication)

A Equilibrium of the Public Goods Game

In this section we describe a unique Subgame Perfect Nash equilibrium of the repeated Public Goods game with one punisher. To make things more tractable assume that before the game the punisher publicly announces the punishment strategy of the form: in period t if any player other than myself contributes less than $r_t \in [0, 20]$ then I will punish this player by 10 tokens. Here r_t can be potentially dependent on previous history in any way. Suppose in period t a non-punisher i contributes c_{it} . Then, if $c_{it} \geq r_t$ this player gets $20 - 0.5c_{it} + C_t$, where C_t is the contributions of all other players times 0.5. If $c_{it} < r_t$, the player gets $10 - 0.5c_{it} + C_t$. Without punishment the best payoff that i can get is $20 - 0.5r_t + C_t$. With punishment the best payoff that i can get is $10 + C_t$. The fact that $r_t \leq 20$ implies that $20 - 0.5r_t \geq 10$. Thus, player i strictly prefers to contribute r_t if $r_t < 20$ and is indifferent between full contribution and contribution of zero when $r_t = 20$.

It is clear that in any equilibrium punisher will choose to contribute zero, since otherwise he can always profitably deviate by contributing less. It is also clear that punisher's payoffs increase in r_t , given the best responses of the non-punishers described above. Thus, punisher will announce the highest r_t possible for all t . This is $r_t = 20$ for all t and all histories. So, one SPNE is to set $r_t = 20$ for all t . Punisher contributes zero tokens in all periods after any history, and all non-punishers contribute 20 tokens in all periods after any history.

Since in case $r_t = 20$ for all t the non-punishers are indifferent between contributing 20 or 0, it needs to be checked that in this case zero contributions by non-punishers in all periods is not an equilibrium. Indeed, there is a profitable deviation by the punisher who can announce before the game that $r_t = 20 - \varepsilon$ for small $\varepsilon > 0$. In this case the non-punishers optimally choose to contribute $r_t - \varepsilon$, which gives the punisher higher payoff than when they contribute zero tokens.

Therefore, the only SPNE of this game is for the punisher to announce $r_t = 20$ for all t , non-punishers contribute 20 tokens each, and the punisher contributes zero in all periods.

B Details of the Design

Suppose the others (A, B, C) contributed **20** tokens each into the group account in the previous decision.
How socially appropriate are the following decisions by D ?

	Very socially inappropriate	Socially inappropriate	Somewhat socially inappropriate	Neither appropriate nor inappropriate	Somewhat socially appropriate	Socially appropriate	Very socially appropriate
D contributes 0 tokens to the Group account	✓						
D contributes 5 tokens to the Group account		✓					
D contributes 10 tokens to the Group account		✓					
D contributes 15 tokens to the Group account		✓					
D contributes 20 tokens to the Group account						✓	

Table 3: Example of norm elicitation, Question 20.

Suppose the others (A, B, C) contributed **10** tokens each into the group account in the previous decision.
How socially appropriate are the following decisions by D ?

	Very socially inappropriate	Socially inappropriate	Somewhat socially inappropriate	Neither appropriate nor inappropriate	Somewhat socially appropriate	Socially appropriate	Very socially appropriate
D contributes 0 tokens to the Group account	✓						
D contributes 5 tokens to the Group account		✓					
D contributes 10 tokens to the Group account						✓	
D contributes 15 tokens to the Group account							✓
D contributes 20 tokens to the Group account							✓

Table 4: Example of norm elicitation, Question 10.

Suppose the others (A, B, C) contributed **10** tokens each into the group account in the previous decision.
How socially appropriate is it for D **to reduce the payoff of $A, B,$ or C** if he contributed the following amounts?

	Very socially inappropriate	Socially inappropriate	Somewhat socially inappropriate	Neither appropriate nor inappropriate	Somewhat socially appropriate	Socially appropriate	Very socially appropriate
D contributes 0 tokens to the Group account and reduces the payoff of $A, B,$ or $C.$	✓						
D contributes 5 tokens to the Group account and reduces the payoff of $A, B,$ or $C.$		✓					
D contributes 10 tokens to the Group account and reduces the payoff of $A, B,$ or $C.$				✓			
D contributes 15 tokens to the Group account and reduces the payoff of $A, B,$ or $C.$					✓		
D contributes 20 tokens to the Group account and reduces the payoff of $A, B,$ or $C.$						✓	

Table 5: Example of norm elicitation, Punishment Question.

C Average Normative Valences and Comparison of Endpoints

In our analysis we compare normative valences within and between subjects. In particular, for each subject, each question, and each reference group we compute the *average normative valence* with average taken over five levels of potential contributions of a punisher. Suppose we choose to compare the normative valences between two groups of subjects. For Question 20, *if the normative valences in these two groups are the same at the endpoints* (hypothetical punisher's contributions of 0 and 20), then the average normative valence becomes a measure of convexity of the normative valence function, or, in other words, the measure of steepness of the derivative in the vicinity of full contribution. For example, in the left panel of Figure 9, the average normative valence in the good group is smaller than the average normative valence in the bad group. With the assumption that the endpoints are the same, this implies that a lower average normative valence is equivalent to having steeper derivative close to full contribution. This means that, if a player is trading-off between maximizing normative valence and personal payoff, she will choose the contribution closer to full (20 tokens) when her average normative valence is lower. A similar argument holds for Question 10. For the Punishment Question the logic is slightly different: punishers do not incur costs when they choose how much to punish, so in this case a lower average normative valence should automatically imply less punishment.

In order to meaningfully compare average normative valences in this way, we need to show that for Questions 20 and 10 it is indeed the case that the normative valences at the endpoints are the same for all groups of subjects that we consider. This Appendix provides the details of the statistical comparison of endpoints for the groups of subjects that we are interested in: good/bad punishers, good/bad victims, and outsiders. With few exceptions, which do not undermine our arguments, we show that there are no reasons to suspect that the endpoints in our groups of interest are different. Therefore, it is legitimate to conduct all analyses using average normative valences.

We test the hypotheses that for Questions 20 and 10 the normative valences elicited for the punisher's contributions 0 and 20, the endpoints, are the same across all types of subjects and across all reference groups. Since in the analysis reported in the main text our arguments rely on the comparisons of average normative valences (average taken over all potential contributions of the punisher), we need to show that the normative valences are not different at the endpoints. Otherwise, the comparison of average normative valences might be invalid.

We use Kruskal-Wallis tests to show that the normative valences for punisher's contributions 0 and 20 are not statistically different. For both Question 20 and Question 10 we run two sets of tests, one for the punisher's contribution 0 and another for the punisher's contribution 20. Since the Kruskal-Wallis test assumes independence of the compared groups, we can only compare normative valences in one reference group for each group of subjects. Thus, we consider the answers in own reference group across good/bad groups and outsiders.

For Question 20 we compare normative valences in own reference group for punisher's contribution 0 in five groups: good punishers, bad punishers, good victims, bad victims, and outsiders. The Kruskal-Wallis test gives a p -value of 0.27. Thus, we cannot reject the null hypothesis of equality of distributions of normative valences for the punisher's contribution 0 in own reference group. Similarly, for the punisher's contribution 20, the Kruskal-Wallis test gives a p -value of 0.61. So, for Question 20 and the own reference group we can assume that the normative valences at the endpoints are equal, which validates our average normative valence comparison reported in the main text. The same tests, run for Question 10, give insignificant p -values of 0.58 and 0.43, respectively.

We also perform similar tests for the different reference groups. We take the answers in the own reference group for the punisher's and victim's answers in the punisher's reference group.¹ Thus, the Kruskal-Wallis tests are run on four groups: good punishers, bad punishers, good victims, and bad victims. Similarly, we compare the punisher's answers in the victims' reference group and the victims' an-

¹We do not include the answers of the outsiders here, since in the main text we do not test the differences between the outsiders' answers in the victim's/punisher's reference groups with those of victims and punishers.

swers in the own reference group. Eight tests of this kind for both endpoints are insignificant ($p > 0.23$) except one: the test for Question 20, for the punisher's contribution 0 when comparing the punishers' own reference group and the victims' answer in the punishers' reference group gives a p -value of 0.0228. Performing pair-wise comparisons with ranksum tests, we find that the only group that is significantly different here is that of the bad victims, for which the average answer is 1.37 as compared to the outsiders' group with averages around 1.1. However, this difference does not invalidate our method of comparing average normative valences, since it makes the derivative of the normative valence function of bad victims smaller, not larger.

To compare endpoints within each group of subjects, we cannot use Kruskal-Wallis tests, since the answers to the questions related to the three reference groups are not independent. Instead we use a Friedman test, designed to make such comparisons. We perform 12 Friedman tests, 4 for each group of subjects (punishers, victims, outsiders), of which 2 are for the two endpoints of Question 20, and 2 for the two endpoints of Question 10. Only two tests out of 12 allow us to reject the null hypothesis that the endpoints are the same: one for Question 10 among punishers for endpoint 20 ($p = 0.0053$) and one for Question 10 among outsiders for endpoint 20 ($p = 0.0223$). This, however, does not invalidate our results in the main text, since we do not report significant differences between any groups of subjects for Question 10.

Therefore, overall, we cannot reject the hypotheses that the normative valences at the endpoints in Questions 20 and 10 are different for any relevant comparisons and, thus, our method of comparing average norms is valid.

D Behavior of Punishers and Elicited Norms

We start with punishers’ attitudes towards free-riding, which are elicited by means of Question 20 in their own reference group. We expect that punishers’ average contributions should be correlated with how socially appropriate they find different levels of contributions after victims have contributed all 20 tokens in the previous period.² The Spearman’s rank correlation between the average contributions and the average normative valences is $\rho = -0.32$ ($p = 0.020$), which means that the lower the average normative valence, the higher is the average contribution. The linear regression in Table 6 (the leftmost column) shows that the average normative valence predicts average contribution (the descriptions of all variables used in the regressions can be found in Appendix E). The smallest average normative valence among punishers is 2.2 and the highest is 5. Thus, the regression predicts contributions in the interval [9.7, 18], which means that the normative valences have a strong link to contributions. For Question 10 we find similar results. The Spearman’s correlation between punishers’ average normative valences and average contributions is $\rho = -0.33$ ($p = 0.015$). The middle column in Table 6 shows the effect close in size to Question 20.

Dependent variable:	punishers’ average contribution	punishers’ average contribution	punishers’ total punishment
pp-q20	-2.693** (1.162)		
pp-q10		-2.098* (1.189)	
pp-qpun			2.328** (1.154)
constant	24.591*** (3.781)	24.547*** (5.087)	-0.821 (3.552)
<i>N</i> punishers	53	53	53

Table 6: OLS regressions of punishers’ average contributions and total punishment on the punishers’ average normative valences in own reference group. Errors are robust. Standard errors in parentheses. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.

pp-q20 denotes the average normative valence in Question 20 expressed by punishers in a reference group of punishers. Accordingly, pp-q10 and pp-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by punishers in a reference group of punishers.

For the normative valences expressed by punishers in the answers to Punishment Question, we find that they are positively correlated with the amount of total punishment (Spearman’s $\rho = 0.29$, $p = 0.037$), which means that the more appropriate the punishment, the more of it is being used. The regression in Table 6 (the rightmost column) also supports this finding. For the range of average punishment normative valences [1, 4.4], the regression predicts total punishment in the interval [1.5, 9.4], which again is non-negligible.

These results not only support the validity of our measurement of normative valences but also provide the first evidence for Hypothesis P1: punishers who think that it is appropriate to free-ride and punish do so to a larger extent than those who consider these behaviors inappropriate. This suggests that the difference in punishers’ behavior comes from the difference in their normative beliefs.

²This directly follows from the tests performed in previous studies (e.g., [Thomsson and Vostroknutov, 2017](#)).

E Variables Used in the Regressions

Variable	Range	Definition
punishers' average contribution	[0, 20]	Average contribution of a punisher in 15 rounds of the PGG
punishers' total punishment	[0, 30]	Sum of punishments of three victims averaged over 15 rounds of the PGG
victims' average contribution	[0, 20]	Average contribution of a victim in 15 rounds of the PGG
xy -q20	[1, 7]	Average normative valence in Question 20 expressed by a subject from group $x \in \{p, v, o\}$ (punishers, victims, outsiders) in a reference group $y \in \{p, v, o\}$ (punishers, victims, outsiders)
xy -q10	[1, 7]	Average normative valence in Question 10 expressed by a subject from group $x \in \{p, v, o\}$ (punishers, victims, outsiders) in a reference group $y \in \{p, v, o\}$ (punishers', victims', outsiders')
xy -qpun	[1, 7]	Average normative valence in Punishment Question expressed by a subject from group $x \in \{p, v, o\}$ (punishers, victims, outsiders) in a reference group $y \in \{p, v, o\}$ (punishers', victims', outsiders')
average normative valence (own ref. group)	[1, 7]	Refers to xx -qz, where $x \in \{p, v, o\}$ and $z \in \{20, 10, \text{pun}\}$, depending on the dependent variable
bad	0/1	Is 1 if a subject comes from a bad group, and 0 if she comes from a good group
punishers	0/1	Is 1 for the punishers' reference group and 0 for the victims' reference group

Table 7: Variables used in the regressions.

F Additional Analyses

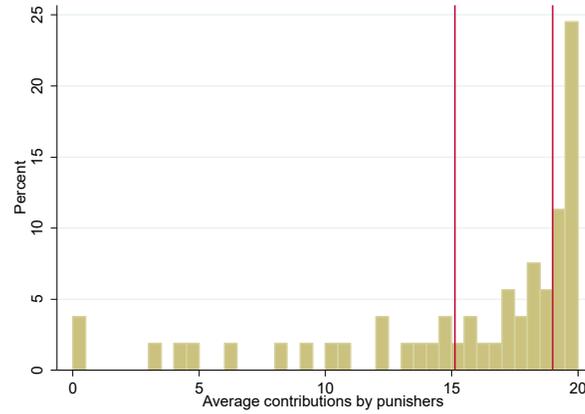


Figure 7: Histogram of average contributions by punishers divided into terciles (red vertical lines).

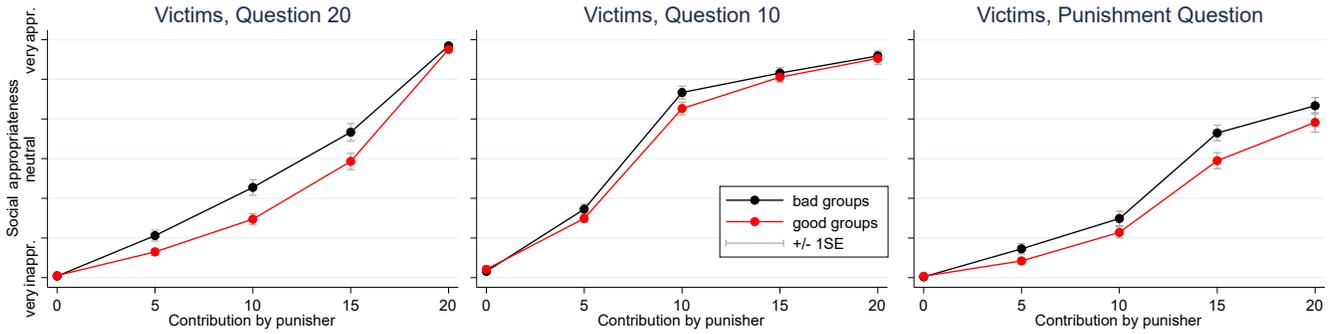


Figure 8: Normative valences expressed by good and bad victims in their own reference group. Red lines denote good groups while black lines denote bad groups. The error bars stand for $\pm 1SE$.

Dependent variable:	vv-q20	vv-q10	vv-qpun
punisher's average contribution	-0.033*** (0.011)	-0.004 (0.008)	-0.032*** (0.011)
constant	3.817*** (0.202)	4.441*** (0.138)	3.367*** (0.164)
Spearman's rank correlation	-0.227***	-0.099	-0.197**
<i>N</i> victims	159	159	159
<i>N</i> groups	53	53	53

Table 8: Random effects regressions and rank correlations of the average normative valences expressed by victims on the average punisher's contribution. Errors are robust and clustered by group. Standard errors in parentheses. * - $p < 0.1$; ** - $p < 0.05$; *** - $p < 0.01$.

vv-q20 denotes the average normative valence in Question 20 expressed by victims in a reference group of victims. Accordingly, vv-q10 and vv-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by victims in a reference group of victims.

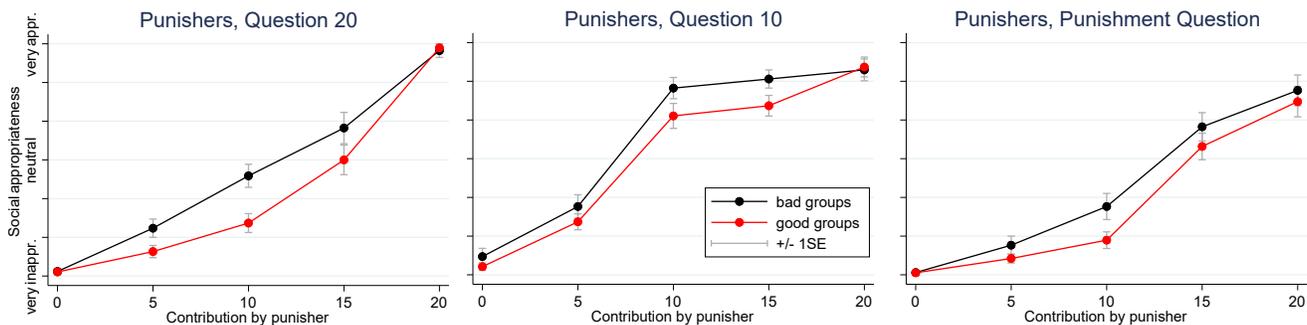


Figure 9: Normative valences expressed by good and bad punishers in their own reference group. Red lines denote good groups while black lines denote bad groups. The error bars stand for $\pm 1SE$.

Dependent variable:	pp-q20	pp-q10	pp-qpun
punisher's average contribution	-0.038** (0.016)	-0.020 (0.013)	-0.029 (0.023)
constant	3.976*** (0.270)	4.628*** (0.196)	3.513*** (0.381)
Spearman's rank correlation	-0.319**	-0.332**	-0.257*
N punishers	53	53	53

Table 9: OLS regressions and rank correlations of the normative valences expressed by punishers on the average punisher's contribution. Errors are robust. Standard errors in parentheses. * - $p < 0.1$; ** - $p < 0.05$; *** - $p < 0.01$.

pp-q20 denotes the average normative valence in Question 20 expressed by punishers in a reference group of punishers. Accordingly, pp-q10 and pp-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by punishers in a reference group of punishers.

Dependent variable:	Punishers			Victims		
	pv-q20	pv-q10	pv-qpun	vp-q20	vp-q10	vp-qpun
average norm. val. (own ref. group)	0.852*** (0.075)	0.490*** (0.096)	0.679*** (0.177)	0.700*** (0.074)	0.546*** (0.096)	0.594*** (0.099)
constant	0.270 (0.236)	2.187*** (0.406)	0.752 (0.480)	1.209*** (0.266)	2.061*** (0.420)	1.735*** (0.320)
<i>N</i> observations/subjects	53	53	53	159	159	159
<i>N</i> groups				53	53	53

Table 10: **Punishers.** OLS regressions of average normative valences in victims' group. Errors are robust. **Victims.** Random effects regressions of average normative valences in punishers' group. Errors are robust and are clustered by group. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$. pv-q20 denotes the average normative valence in Question 20 expressed by punishers in a reference group of victims. Accordingly, pv-q10 and pv-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by punishers in a reference group of victims. Similarly, vp-q20, vp-q10, and vp-qpun denote the average normative valence in Question 20, Question 10, and in the Punishment Question expressed by victims in a reference group of punishers.

Dependent variable:	Punishers			Victims		
	po-q20	po-q10	po-qpun	vo-q20	vo-q10	vo-qpun
average norm. val. (own ref. group)	0.977*** (0.078)	0.546*** (0.106)	0.683*** (0.127)	0.722*** (0.060)	0.512*** (0.088)	0.682*** (0.069)
constant	-0.159 (0.245)	1.917*** (0.465)	1.033** (0.389)	0.823*** (0.198)	2.035*** (0.402)	1.126*** (0.218)
<i>N</i> observations/subjects	53	53	53	159	159	159
<i>N</i> groups				53	53	53

Table 11: **Punishers.** OLS regressions of average normative valences in outsiders' group. Errors are robust. **Victims.** Random effects regressions of average normative valences in outsiders' group. Errors are robust and are clustered by group. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$. po-p20 denotes the average normative valence in Question 20 expressed by punishers in a reference group of outsiders. Accordingly, po-q10 and po-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by punishers in a reference group of victims. Similarly, vo-q20, vo-q10, and vo-qpun denote the average normative valence in Question 20, Question 10 and in the Punishment Question expressed by victims in a reference group of outsiders.

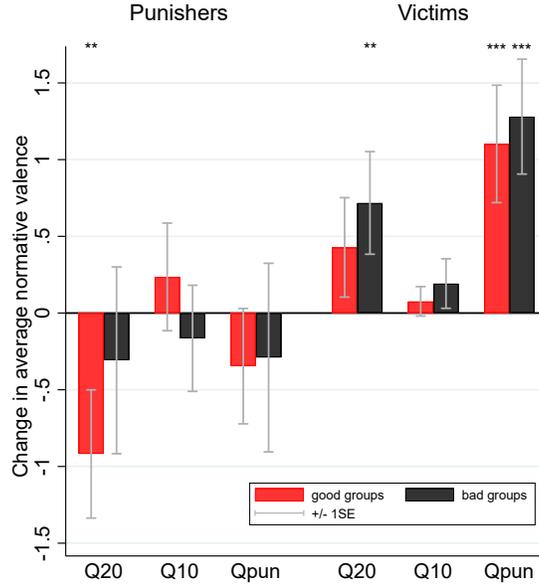


Figure 10: Estimates of g_τ minus the average normative valences in own reference group for punishers and victims. The error bars stand for $\pm 1SE$. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$. Red bars denote good groups, and black bars denote bad groups. Above zero values mean that punishers/victims think that victims/punishers consider actions in a given question more socially appropriate than they themselves do in their own reference group. The significance levels reported are those of the non-linear transformations of the coefficients from the regressions in Table 12 minus average norm in own reference group.

Dependent variable:	Punishers			Victims		
	pv-q20	pv-q10	pv-qpun	vp-q20	vp-q10	vp-qpun
bad	0.259 (0.182)	-0.001 (0.192)	0.168 (0.257)	0.182* (0.109)	0.146 (0.097)	0.216 (0.158)
average norm. val. (own ref. group)	0.771*** (0.105)	0.643*** (0.190)	0.635*** (0.220)	0.738*** (0.076)	0.450*** (0.108)	0.593*** (0.123)
constant	0.523 (0.310)	1.544** (0.720)	0.907 (0.615)	0.944*** (0.255)	2.414*** (0.472)	1.545*** (0.387)
<i>N</i> observations/subjects	36	36	36	108	108	108
<i>N</i> groups				36	36	36

Table 12: **Punishers.** OLS regressions of average normative valences in victims' group. Errors are robust. **Victims.** Random effects regressions of average normative valences in punishers' group. Errors are clustered by group (of four subjects who play PGG) and robust. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.

pv-q20 denotes the average normative valence in Question 20 expressed by punishers in a reference group of victims. Accordingly, pv-q10 and pv-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by punishers in a reference group of victims. Similarly, vp-q20, vp-q10, and vp-qpun denote the average normative valence in Question 20, Question 10, and in the Punishment Question expressed by victims in a reference group of punishers. bad denotes a dummy with value 1 if the subject comes from a bad group, and 0 if she comes from a good group.

Dependent variable:	ov-q20/ op-q20	ov-q10/ op-q10	ov-qpun/ op-qpun
punishers	0.420*** (0.119)	0.169* (0.098)	0.739*** (0.107)
average norm. val. (own ref. group)	0.539*** (0.087)	0.456*** (0.144)	0.811*** (0.072)
constant	1.183*** (0.303)	2.331*** (0.663)	0.271 (0.206)
<i>N</i> observations	118	118	118
<i>N</i> subjects	59	59	59

Table 13: **Outsiders.** OLS regressions of average normative valences in victims' and punishers' groups. Errors are robust. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.

ov-q20 denotes the average normative valence in Question 20 expressed by outsiders in a reference group of victims. Accordingly, ov-q10 and ov-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by outsiders in a reference group of victims. Similarly, op-q20, op-q10, and op-qpun denote the average normative valence in Question 20, Question 10 and in the Punishment Question expressed by outsiders in a reference group of punishers. punishers denotes a dummy with value 1 for punishers' reference group and 0 for victims' reference group.

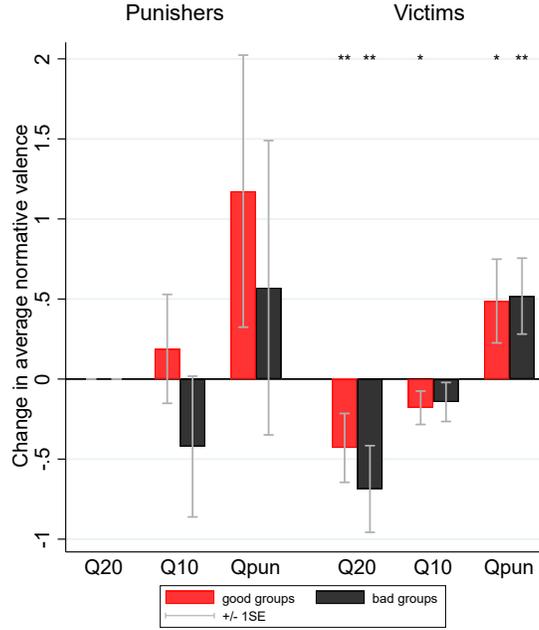


Figure 11: Estimates of g_τ in the outsiders' reference group minus the average normative valences in the own reference group for punishers and victims. The error bars stand for $\pm 1SE$. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.

Red bars denote good groups while black bars denote bad groups. Above zero values mean that punishers/victims think that outsiders consider actions in a given question more socially appropriate than they themselves do in their own reference group. The significance levels are those of the non-linear transformations of the coefficients from the regressions in Table 14 minus average norm in own reference group.

Dependent variable:	Punishers			Victims		
	po-q20	po-q10	po-qpun	vo-q20	vo-q10	vo-qpun
bad	0.038 (0.162)	-0.059 (0.148)	-0.041 (0.194)	0.034 (0.085)	0.102 (0.080)	0.113 (0.099)
average norm. val. (own ref. group)	0.996*** (0.093)	0.721*** (0.152)	0.794*** (0.134)	0.772*** (0.061)	0.452*** (0.096)	0.705*** (0.080)
constant	-0.178 (0.296)	1.192* (0.643)	0.826* (0.450)	0.626*** (0.177)	2.262*** (0.434)	0.938*** (0.240)
<i>N</i> observations/subjects	36	36	36	108	108	108
<i>N</i> groups				36	36	36

Table 14: **Punishers.** OLS regressions of average normative valences in others' reference group. Errors are robust. **Victims.** Random effects regressions of average normative valences in others' reference group. Errors are clustered by group (of four subjects who play PGG) and robust. * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.

po-p20 denotes the average normative valence in Question 20 expressed by punishers in a reference group of outsiders. Accordingly, po-q10 and po-qpun denote the average normative valence in Question 10 and in the Punishment Question expressed by punishers in a reference group of victims. Similarly, vo-q20, vo-q10, and vo-qpun denote the average normative valence in Question 20, Question 10, and in the Punishment Question expressed by victims in a reference group of outsiders. bad denotes a dummy with value 1 if the subject comes from a bad group, and 0 if she comes from a good group.

G Instructions

G.1 Public Goods Game Instructions

General information

You are about to participate in a decision-making experiment. If you follow the instructions carefully, you can earn a considerable amount of money depending on your decisions and the decisions of the other participants. Your earnings will be paid to you in cash at the end of the experiment.

This set of instructions is for your private use only. During the experiment, you are not allowed to communicate with anybody. In case of questions, please raise your hand. Then we will come to your seat and answer your questions. Any violation of this rule excludes you immediately from the experiment and all payments. The funds for conducting this experiment have been provided by Max Planck Institute for Research on Collective Goods.

Throughout the experiment, you will make decisions about amounts of tokens. At the end of the experiment, all tokens you have will be converted into Euros at the exchange rate 0.20 Euro per token and paid you in cash in addition to the show-up fee of 5 Euros.

During the experiment, all your decisions will be treated confidentially. This means that none of the other participants will be able to associate your decisions with your personal identity.

PART I

Part I of the experiment will consist of 15 decision-making periods. At the beginning of the experiment, you will be matched with 3 other people in this room. Therefore, there are 4 people, including yourself, participating in your group. You will be matched with the same people during the entire Part I of the experiment. For the purpose of the experiment, you and the other group members will be randomly assigned labels A, B, C, and D, which will identify you and the others throughout Part I of the experiment. None of the participants knows your personal identity in the group.

First Stage of a Period

Before each period, you and each other person in your group, will be given the endowment of 20 tokens. At the first stage of each period, you will be asked to allocate your endowment between a private account and a group account. The other members of your group will be asked to do the same. The tokens that you place in the private account have a return of 1. This means that at the end of the first stage of each period your private account will contain exactly the amount of tokens you put into the private account at the beginning of the period. Nobody except yourself benefits from your private account. The tokens that you place to the group account are added to the tokens that the other three members of your group have placed to the group account. The tokens in the group account have a return of 2. Every member of the group benefits equally from the group account. Specifically, the total amount of tokens placed to the group account by all group members is multiplied by 2 and then is equally divided among the four group members. Hence, your share of the group account is

$$2 * (\text{sum of tokens in the group account}) / 4$$

Thus, at the end of the first stage of each period, the number of tokens that you have is equal to the number of tokens you place in your private account plus your share of the group account.

$$\text{Payoff} = 20 - \text{tokens you put into the group account} + 2 * (\text{sum of tokens in the group account}) / 4$$

Here are three examples to make this clear:

1. Suppose you place 0 tokens to the group account and 20 tokens in the private account, and the other members of your group place a total of 45 tokens to the group account. The sum of tokens in the group account is 45. Your share of the group account would be $2 * 45 / 4 = 22.5$ tokens. Each other member of the group would also receive a share of the group account equal to 22.5 tokens. The amount of tokens that you have at the end of the first stage is, thus, equal to $20 + 22.5 = 42.5$ tokens. Each other member of your group receives on average 27.5 tokens.
2. Suppose you place 15 tokens to the group account and 5 tokens in the private account, and the other members of your group place a total of 45 tokens to the group account. The sum of tokens in the group account is 60. Your share of the group account would be $2 * 60 / 4 = 30$ tokens. Each other member of the group would also receive a share of the group account equal to 30 tokens. The amount of tokens that you have at the end of

the first stage is, thus, equal to $5 + 30 = 35$ tokens. Each other member of your group receives on average 35 tokens.

3. Suppose you place 15 tokens to the group account and 5 tokens in the private account, and the other members of your group place a total of 10 tokens to the group account. The sum of tokens in the group's account is 25. Your share of the group account would be $2 * 25 / 4 = 12.5$ tokens. Each other member of the group would also receive a share of the group account equal to 12.5 tokens. The amount of tokens that you have at the end of the first stage is, thus, equal to $5 + 12.5 = 17.5$ tokens. Each other member of your group receives on average 29.1 tokens.

Second Stage of a Period

In the second stage of each period, only the member of your group who was labeled D is active. The group members who received labels A, B, and C do not make any decisions in the second stage of each period.

If your label in the group is D, you will be asked to react to the decisions made by group members A, B, and C during the first stage of each period. At this point, you will already know the decisions taken by each group member at the first stage and the number of tokens they have after the first stage. You will decide whether you want to subtract tokens from any other group member or not. The group members that you decide to subtract tokens from will lose the amount of tokens you choose. The decisions you make at this stage will not change the amount of tokens that you have after the first stage.

You may subtract different amounts of tokens from different group members. The total amount of tokens that you choose to subtract from the group members A, B, and C may not exceed 30 tokens. Any group member can only lose maximum the amount of tokens he or she has. For example, if at the end of the first stage group members A, B, and C have 10, 15, and 20 tokens, respectively, and you choose to subtract 15, 10, and 0 tokens from them, then group members A, B, and C will be left with 0, 5, and 20 tokens.

Information about the Choices and Tokens in the End of a Period

At the end of each period, each member of the group will be informed about:

- His/her contribution to the group account;
- The amount of tokens contributed by all group members individually to the group account;
- His/her share of the group account (remember, it is the same for all group members);
- If you are member A, B, or C: how many tokens were subtracted from you by member D;
- If you are member A, B, or C: the number of tokens at the end of the period, which is equal to the number of tokens in the private account plus the share of tokens from the group account minus the number of tokens subtracted by D;
- If you are member D: the number of tokens at the end of the period, which is equal to the number of tokens in the private account plus the share of tokens from the group account.

Structure of Part I of the Experiment

The structure of the experiment in all 15 periods is identical. In the first stage of each period, each group member A, B, C, and D chooses how to split 20 tokens between private and group accounts. Then all group members receive the returns from both accounts. In the second stage of the period, group member D can subtract tokens from group members A, B, and C. At the end of the period, all members are informed about the decisions of others in the group, and the number of tokens they have.

Money Earned in Part I of the Experiment

In the end of the experiment, the computer will randomly choose one period for which you and other members of your group will be paid. Your income at the end of Part I of the experiment is equal to the amount of tokens at the end of this randomly chosen period times the exchange rate of 0.20 Euro for 1 token.

This is the end of the instructions for Part I. If you have any questions, please raise your hand and an experimenter will come by to answer them.

G.2 Norm Elicitation Instructions for the PGG subjects

PART II

Description of the Task (Screen 1)

On the following screens, you will read the descriptions of a series of hypothetical situations that could have taken place in Part I of the experiment. These descriptions correspond to situations in which a person, acting in the role of member D (who will be called Individual D), makes decisions about the amounts of tokens to be placed to the group account and decisions to subtract tokens from members A, B, and C. For each situation, you will be given a description of the decision faced by Individual D. This description will include several possible choices available to this Individual.

After you have read the description of the decision, you will be asked to evaluate the different possible actions available and to decide, for each of the actions, whether taking that action would be "socially appropriate" and "consistent with moral or proper social behavior" or "socially inappropriate" and "inconsistent with moral or proper social behavior." By socially appropriate, we mean behavior that most people agree is the "correct" or "ethical" thing to do. Another way to think about what we mean is that if Individual D were to select a socially inappropriate choice, then someone else might be angry at Individual D for doing so.

In each of your responses, we would like you to answer as truthfully as possible, based on your opinion of what constitutes socially appropriate or socially inappropriate behavior.

To give you an idea of how the experiment will proceed, we will go through an example and show you how you will indicate your responses. On the next screen you will see an example of a situation. Click OK when you are ready to go on.

Example Situation (Screen 2)

Bob is at a café. While there, Bob notices that someone has left a wallet at one of the tables. Bob must decide what to do. He has four possible choices: take the wallet, ask others nearby if the wallet belongs to them, leave the wallet where it is, or give the wallet to the bartender. Bob can choose only one of these four options. The table on the right of the screen presents a list of the possible actions available to Bob. For each of the actions, please indicate on the scale from 1 to 7 how socially appropriate you believe choosing that option is. To indicate your response, please click on the corresponding cell. Please make sure you make an assessment for each possible choice in each row of the table.

Screen 3

In what follows, you will be asked to assess the appropriateness of the actions in three situations that could have arisen in Part I of the experiment. For each action in each situation please indicate the extent to which you believe taking that action would be "socially appropriate" and "consistent with moral or proper social behavior" or "socially inappropriate" and "inconsistent with moral or proper social behavior." By socially appropriate we mean behavior that most people agree is the "correct" or "ethical" thing to do.

Payment

For each situation that follows, you will read its description. You will then indicate your appropriateness rating by placing a check mark in the corresponding cell.

At the end of Part II of the experiment, in order to determine your payment, we will randomly select one of the situations. For this situation, we will also randomly select one of the possible choices that Individual D could make. Thus, we will select both a scenario and one possible choice at random. This means that when you make your choices you should make each of them as if it is the one for which you will be paid.

Your payment in this part of the experiment will depend on whether your response to the choice thus selected is the same as the response made by the most people with the same role as you in Part I of the experiment (who are in this room). In particular, if in Part I of the experiment you were member A, B, or C, then your response to a selected choice will be compared to the responses of all people in this room who were members A, B, and C in Part I. If you were member D, then your response to a selected choice will be compared to the responses of all people in this room who were members D. If you give the same response as that most frequently given by other members with the same role, then you will receive €8. This amount will be paid to you, in cash, at the conclusion of the experiment.

For instance, there are overall $N/4$ participants who were members D in the previous part of the experiment and $3N/4$ participants who were members A, B, or C (including you). Suppose we were to select the example situation from the last screen and the possible choice "Leave the wallet where it is," and your response had been 3, "somewhat socially inappropriate." Then, if you are member D, you would receive €8 if this was the response selected by most of other $N/4 - 1$ members D in today's session. If you were member A, B, or C, you would receive

€8 if this was the response selected by most of other $3N/4 - 1$ members A, B, and C in today's session. If your response is not the same as that of the majority of others with the same role as you, you will receive nothing in this part of the experiment.

Please click OK when you are ready to go on. If you have any questions, please raise your hand and wait for the experimenter to come.

Screen 4

Imagine that members A, B, C have each placed 10 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by other $\langle \text{NUMBER} \rangle$ members $\langle \text{ROLE} \rangle$ in this room.

Screen 5

Imagine that members A, B, C have each placed 20 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by other $\langle \text{NUMBER} \rangle$ members $\langle \text{ROLE} \rangle$ in this room.

Screen 6

Imagine that members A, B, C, and D have made their choices in the first stage of a period. Namely, members A, B, and C placed 10 tokens each to the group account and individual D placed the amount of tokens equal to one of the five options listed on the right part of the screen. For each of the amounts that individual D could have placed to the group account, please indicate how socially appropriate you believe subtracting tokens from individuals A, B, and C is, given the amount that members A, B, C, and D contributed to the group account.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by other $\langle \text{NUMBER} \rangle$ members $\langle \text{ROLE} \rangle$ in this room.

PART III

Description of the Task (Screen 1)

In this final part of the experiment we ask you to evaluate the social appropriateness of actions in the same three situations as before. The only difference is that now you will be paid if your evaluation is the same as the evaluation of the majority of two groups of participants who have already made their evaluation decisions. The first group is the participants who had other role than you (members $\langle \text{OTHER ROLE} \rangle$ in this room) who have just made their evaluations in Part II. The second group is a separate group of other participants who took part in the experiment before and who evaluated the same situations as in the previous part but without actually making real choices as in Part I. In particular, these other participants were given the same instructions of Part I as you did and then evaluated social appropriateness in exactly same way that you just did, with the only difference that for the payment they were matched with everyone in their respective sessions.

Payment (Screen 2)

As before, for your payment we will choose one random situation and one random action that you evaluate. This means that when you make your choices you should make each of them as if it is the one for which you will be paid. Your payment in this part of the experiment will depend on whether your response to the selected choice is the same as the response made by the most people in a group who have already chosen. For example, if you are matched with members $\langle \text{OTHER ROLE} \rangle$, then your payment depends on how members $\langle \text{OTHER ROLE} \rangle$ chose in the previous part of the experiment. Remember, the members $\langle \text{OTHER ROLE} \rangle$ when choosing in Part II were paid if they chose the same answer as the majority of other members $\langle \text{OTHER ROLE} \rangle$. The same holds for the separate group of other participants. If you are matched with them, then your payment depends on how they chose in a separate experiment. Remember, these participants were paid if they chose the same answer as the majority of other participants in their session.

If you give the same response as that most frequently given by other members in one of the two groups, then you will receive €8. This amount will be paid to you, in cash, at the conclusion of the experiment. Please click OK

when you are ready to go on. If you have any questions, please raise your hand and wait for the experimenter to come.

Screen 4

Put yourself in the shoes of MEMBERS ⟨OTHER ROLE⟩ in this room who have just provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority in their own group of members ⟨OTHER ROLE⟩. Imagine that members A, B, C have each placed 10 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by MEMBERS ⟨OTHER ROLE⟩ in this room in the previous part of the experiment.

Screen 5

Put yourself in the shoes of MEMBERS ⟨OTHER ROLE⟩ in this room who have just provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority in their own group of members ⟨OTHER ROLE⟩.

Imagine that members A, B, C have each placed 20 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by MEMBERS ⟨OTHER ROLE⟩ in this room in the previous part of the experiment.

Screen 6

Put yourself in the shoes of MEMBERS ⟨OTHER ROLE⟩ in this room who have just provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority in their own group of members ⟨OTHER ROLE⟩.

Imagine that members A, B, C, and D made their choices in the first stage of a period. Namely, members A, B, and C placed 10 tokens each to the group account and individual D placed the amount of tokens equal to one of the five options listed on the right part of the screen. For each of the amounts that individual D could have placed to the group account, please indicate how socially appropriate you believe subtracting tokens from individuals A, B, and C is, given the amount that they contributed to the group account.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by MEMBERS ⟨OTHER ROLE⟩ in this room in the previous part of the experiment.

Screen 7

Put yourself in the shoes of OTHER PARTICIPANTS who gave evaluations in the previous experiment who have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority in their own group.

Imagine that members A, B, C have each placed 10 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by OTHER PARTICIPANTS in a separate the experiment.

Screen 8

Put yourself in the shoes of OTHER PARTICIPANTS who gave evaluations in the previous experiment who have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority in their own group.

Imagine that members A, B, C have each placed 20 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by OTHER PARTICIPANTS in a separate the experiment.

Screen 9

Put yourself in the shoes of OTHER PARTICIPANTS who gave evaluations in the previous experiment who have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority in their own group.

Imagine that members A, B, C, and D made their choices in the first stage of a period. Namely, members A, B, and C placed 10 tokens each to the group account and individual D placed the amount of tokens equal to one of the five options listed on the right part of the screen. For each of the amounts that individual D could have placed to the group account, please indicate how socially appropriate you believe subtracting tokens from individuals A, B, and C is, given the amount that they contributed to the group account.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by OTHER PARTICIPANTS in a separate the experiment.

G.3 Instructions for Outsiders

PART I

Description of the Experiment (Screen 1)

On the following screens, you will read the descriptions of a series of hypothetical situations. These descriptions correspond to situations in which one person, Individual D, must make a decision. For each situation, you will be given a description of the decision faced by Individual D. This description will include several possible choices available to this Individual.

After you read the description of the decision, you will be asked to evaluate the actions available to Individual D and to decide, for each of the actions, whether taking that action would be "socially appropriate" and "consistent with moral or proper social behavior" or "socially inappropriate" and "inconsistent with moral or proper social behavior." By socially appropriate, we mean behavior that most people agree is the "correct" or "ethical" thing to do. Another way to think about what we mean is that if Individual D were to select a socially inappropriate option, then someone else might be angry at Individual D for doing so.

In each of your responses, we would like you to answer as truthfully as possible, based on your opinions of what constitutes socially appropriate or socially inappropriate behavior.

To give you an idea of how the experiment will proceed, we will go through an example and show you how you will indicate your responses. On the next screen you will see an example of a situation. Click OK when you are ready to go on.

Example Situation (Screen 2)

Bob is at a café. While there, Bob notices that someone has left a wallet at one of the tables. Bob must decide what to do. He has four possible choices: take the wallet, ask others nearby if the wallet belongs to them, leave the wallet where it is, or give the wallet to the bartender. Bob can choose only one of these four options. The table on the right of the screen presents a list of the possible actions available to Bob (in rows). For each of the actions, please indicate on the scale from 1 to 7 how socially appropriate you believe choosing that option is. To indicate your response, please click on the corresponding cell.

Please make sure you make an assessment for each possible choice in each row of the table.

Screen 3

In what follows, you will be asked to assess the appropriateness of the actions in three situations similar to the one you have just seen. For each action in each situation please indicate the extent to which you believe taking that action would be "socially appropriate" and "consistent with moral or proper social behavior" or "socially

inappropriate" and "inconsistent with moral or proper social behavior." By socially appropriate we mean behavior that most people agree is the "correct" or "ethical" thing to do.

Payment

For each situation that follows, you will read its description. You will then indicate your appropriateness rating by placing a check mark in the corresponding cell.

At the end of the experiment, in order to determine your payment, we will randomly select one of the situations. For this situation, we will also randomly select one of the possible choices that Individual D could make. Thus, we will select both a scenario and one possible choice at random. This means that when you make your choices you should make each of them as if it is the one for which you will be paid.

Your payment in this part of the experiment will depend on whether your response to the choice thus selected is the same as the response made by the most people in this room.

If you give the same response as that most frequently given by other participants, then you will receive €8. This amount will be paid to you, in cash, at the conclusion of the experiment.

For instance, if we were to select the example situation from the last screen and the possible choice "Leave the wallet where it is," and if your response had been 3, "somewhat socially inappropriate," then you would receive €8, in addition to the €5 participation fee, if this was the response selected by most other people in today's session. Otherwise you would receive only the €5 participation fee.

Please click OK when you are ready to go on. If you have any questions, please raise your hand and wait for the experimenter to come.

Description of the Situation (Screen 4 and print-out)

Individual D has been invited to an experiment and placed in a group with three other anonymous people labeled A, B, and C so that no individual will ever know the identity of the other individuals with whom he/she is grouped. In fact, suppose that individuals A, B, C, and D are part of a larger group of people participating in this experiment, exactly as you are now. Individuals A, B, C, and D are given experimental instructions exactly as those you can find on your desk.

In order to understand what decisions Individual D has to make, please read these instructions carefully.

On the following screens you will be asked to evaluate social appropriateness of the actions of Individual D. Each screen will show the description of choices made by individuals A, B, and C and you will be asked to guess how socially appropriate several actions of individual D are.

Please click OK when you have read the instructions and are ready to go on.

Screen 5

Imagine that individuals A, B, C have each placed 10 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a situation and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by other participants in this room.

Screen 6

Imagine that individuals A, B, C have each placed 20 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a situation and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by other participants in this room.

Screen 7

Imagine that individuals A, B, C, and D made their choices in the first stage of a period. Namely, individuals A, B, and C placed 10 tokens each to the group account and individual D placed the amount of tokens equal to one of the five options listed on the right part of the screen. For each of the amounts that individual D could have placed to the group account, please indicate how socially appropriate you believe subtracting tokens from individuals A, B, and C is, given the amount that Individuals A, B, C, and D contributed to the group account.

Remember: when we select a situation and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by other participants in this room.

PART II

Description of the Task (Screen 1)

In this part of the experiment we ask you to evaluate the social appropriateness of actions in the same three situations as before. The only difference is that now you will be paid if your evaluation is the same as the evaluation of the majority of two distinct groups of participants who have already made their evaluation decisions in a previous experiment.

In the previous sessions that we ran in this lab we had participants who have actually made choices in the experiment described in the instructions on your desk. After that these participants evaluated the appropriateness of the same situations that you have just seen and were paid if their guesses were the same as those given by the majority of participants in the same role. To understand how exactly this was happening, imagine that you are individual D who has just made choices in the experiment described in the instructions on your desk (which has actually happened in previous sessions). After that you are asked to evaluate the appropriateness of the same situations that you have seen in the previous part of the experiment, but you are told that you will be paid only if your evaluation of a randomly chosen action in one of the three situations is the same as the evaluation of the majority of other participants in the role of individual D in the session. Or similarly, imagine that you are individual A, B, or C and you have just made choice in the experiment. Then you are asked to provide evaluations of appropriateness of actions of individual D and you are paid if the majority of other participants in the role of individuals A, B, and C in the session gave the same answers.

To summarize, in what follows you will be asked to evaluate social appropriateness of the same actions in the same situations you have already seen, but your payment will depend on the answers of participants in two distinct groups: 1) participants who actually chose in the experiment as individuals D and were later matched with other individuals D for appropriateness evaluations and 2) participants who actually chose in the experiment as individuals A, B, and C and were later matched with other individuals A, B, and C for appropriateness evaluations.

Payment (Screen 2)

As before, for your payment we will choose one random situation and one random action that you evaluate. This means that when you make your choices you should make each of them as if it is the one for which you will be paid. Your payment in this part of the experiment will depend on whether your response to the selected choice is the same as the response made by the most people in one of the two groups as described on the previous screen. For example, if you are matched with individuals D from previous experiment, then your payment depends on how these individuals evaluated the appropriateness of the same actions when matched with other individuals D in their session. The same holds when you are matched with individuals A, B, and C.

If you give the same response as that most frequently given by other members in one of the two groups, then you will receive €8. This amount will be paid to you, in cash, at the conclusion of the experiment.

Please click OK when you are ready to go on. If you have any questions, please raise your hand and wait for the experimenter to come.

Screen 3

Put yourself in the shoes of INDIVIDUALS D who took part in a previous experiment and have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority of other individuals D in their own group.

Imagine that members A, B, C have each placed 10 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by INDIVIDUALS D in a separate the experiment.

Screen 4

Put yourself in the shoes of INDIVIDUALS D who took part in a previous experiment and have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority of other individuals D in their own group.

Imagine that members A, B, C have each placed 20 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by INDIVIDUALS D in a separate the experiment.

Screen 5

Put yourself in the shoes of INDIVIDUALS D who took part in a previous experiment and have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority of other individuals D in their own group.

Imagine that members A, B, C, and D made their choices in the first stage of a period. Namely, members A, B, and C placed 10 tokens each to the group account and individual D placed the amount of tokens equal to one of the five options listed on the right part of the screen. For each of the amounts that individual D could have placed to the group account, please indicate how socially appropriate you believe subtracting tokens from individuals A, B, and C is, given the amount that they contributed to the group account.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by INDIVIDUALS D in a separate the experiment.

Screen 6

Put yourself in the shoes of INDIVIDUALS A, B, and C who took part in a previous experiment and have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority of other individuals A, B, and C in their own group.

Imagine that members A, B, C have each placed 10 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by INDIVIDUALS A, B, and C in a separate the experiment.

Screen 7

Put yourself in the shoes of INDIVIDUALS A, B, and C who took part in a previous experiment and have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority of other individuals A, B, and C in their own group.

Imagine that members A, B, C have each placed 20 tokens (out of 20) to the group account in the previous period. Look at the table on the right-hand side of the screen and consider five possible amounts that Individual D could place to the group account (presented in rows). Please indicate on the scale from 1 to 7 how socially appropriate you believe choosing each of these amounts to be, given the amounts that others contributed to the group account in the previous period.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by INDIVIDUALS A, B, and C in a separate the experiment.

Screen 8

Put yourself in the shoes of INDIVIDUALS A, B, and C who took part in a previous experiment and have provided their evaluations of social appropriateness of the actions of Individual D in the following situation that you have also seen. Remember, that they were paid if they guessed as the majority of other individuals A, B, and C in their own group.

Imagine that members A, B, C, and D made their choices in the first stage of a period. Namely, members A, B, and C placed 10 tokens each to the group account and individual D placed the amount of tokens equal to one of the five options listed on the right part of the screen. For each of the amounts that individual D could have placed to the group account, please indicate how socially appropriate you believe subtracting tokens from individuals A, B, and C is, given the amount that they contributed to the group account.

Remember: when we select a scenario and an action for payment, you will only receive €8 if your response is the same as the most frequent response made by INDIVIDUALS A, B, and C in a separate the experiment.

References

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