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# The Importance of Peers for Compliance with Norms of Fair Sharing

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# The Importance of Peers for Compliance with Norms of Fair Sharing

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# ABSTRACT

# The Importance of Peers for Compliance with Norms of Fair Sharing[*]

A burgeoning literature in economics has started examining the role of social norms in explaining economic behavior. Surprisingly, the vast majority of this literature has studied social norms in asocial decision settings, where individuals are observed to act in isolation from each other. In this paper we use a large-scale dictator game experiment (N = 850) to show that the presence of "peers" in the decision setting faced by an individual can have a profound influence on the individual's perception of the decision situation and its underlying norms of sharing, as elicited in an incentive compatible way. However, we find limited evidence that this influence of peers in normative considerations translates into a corresponding effect in actual behavior. Partly, this is due to substantial heterogeneity in the extent to which dictators in our sample are willing to comply with norms of fair sharing.

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# 1. INTRODUCTION

In this paper we study the driving forces underlying one of the fundamental principles of human social behavior: fair sharing. While earlier explanations have focused on the role of other-regarding preferences, we investigate a more recent account of fair sharing that relies on the concept of *norm compliance*: many people have an intrinsic preference to conform to what is collectively perceived as "socially appropriate" and are willing to sacrifice material gain in order to comply with such norms. In fact, social norms are thought to drive behavior in a variety of social contexts (e.g., Elster, 1989; Bicchieri, 2006; López-Pérez, 2008; Krupka and Weber, 2013). A number of recent experimental studies use a norm compliance framework to explain behavior across several social settings, including dictator games (Krupka and Weber, 2013; Krupka et al., 2014; Kimbrough and Vostroknutov, 2015), gift-exchange games (Gächter et al., 2013), oligopoly games (Krupka et al., 2014), and public good, trust and ultimatum games (Kimbrough and Vostroknutov, 2015).[1]

However, nearly all of these studies of social norms focus on tightly controlled, but surprisingly *asocial* decision environments, where individuals face neutral and abstract decision situations, under full anonymity, and in complete isolation from other decision-makers. While the use of contextually sterile decision environments is one of the hallmarks of experimental control, we also notice that contextual variables – from the framing of the decision task to the presence of other decision-makers in the decision setting – play a crucial role in nearly every conceptual account of social norms. Minimal variations in the context can profoundly change individuals' perception of the nature of the decision situation and the underlying norms of conduct (Bicchieri, 2006). This highlights the importance of studying the interaction between contextual variables and norm compliance. In this paper we take a step in this direction by systematically studying the influence on norm compliance in fair sharing of one specific contextual variable: the presence of "peers", i.e. other decision-makers, in the decision setting faced by an individual.

We believe that understanding the influence of peers on individual decision-making is important for a number of reasons. First, information about peers' behavior is typically available

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[1] See also Burks and Krupka (2012), who study how norms of ethical conduct vary within the corporate hierarchy of a firm in the financial services industry.

in many natural social settings, where individuals do not act in social isolation. On the contrary, people often have the opportunity to interact with others and observe their choices before making a decision. Thus, studying the influence of peers on individual decision-making is inherently relevant for understanding the general dynamics of human social interactions.

Second, the study of peer influence is empirically relevant: several experiments have shown that the behavior of peers can systematically influence individual behavior, even in settings where there are no interdependencies between the decision-makers' material payoffs, and where knowledge spillovers and other forms of learning-based peer effects are not possible (see, e.g., Keizer et al., 2008; Bicchieri and Xiao, 2009; Krupka and Weber, 2009; Gächter et al., 2012; Thöni and Gächter, 2015).

The existence of such "peer effects" can be readily rationalized within a norm compliance framework: the behavior of peers may be used as a benchmark to understand what constitutes socially appropriate or inappropriate behavior, and this may in turn affect the decisions of norm-compliant individuals. Peers are an important determinant of norm-driven behavior in most theoretical accounts of norm compliance across the social sciences. For instance, in economics, Sugden (1998) argues that observing instances of norm-compliance or norm-breaking can reinforce or weaken the expectations that the norm ought to be followed. In social psychology, Cialdini et al. (1990) contend that the behavior of peers exerts normative influence on individual behavior by shaping what individuals perceive as typical or normal behavior in a given situation (the "descriptive norm"). In philosophy, Bicchieri (2006) proposes that whether or not a norm will be followed depends partly on "normative expectations" (whether the individual expects that sufficiently many others expect him or her to comply), and partly on "empirical expectations" (whether the individual expects that sufficiently many others will comply). Sociologists Lindenberg and Steg (2013) argue that the behavior of others can shift the weights that individuals place on the normative-goal (following social norms) relative to the more self-centered hedonic and gain goals (need satisfaction and resource accumulation).

Despite the large theoretical literature on the importance of peers for norm-driven behavior, the empirical evidence is scant. In many of the settings where peer effects have been documented (e.g., Keizer et al., 2008; Bicchieri and Xiao, 2009; Krupka and Weber, 2009; Gächter et al., 2012; Falk et al., 2013; Thöni and Gächter, 2015), other behavioral forces may explain the

correlations between individuals' and peers' actions observed in the experiments.[2] Crucially, in these studies it is difficult to tease apart the norm compliance explanation of peer effects from alternative behavioral explanations, because of a lack of direct data on the impact of peers' actions on normative considerations. This makes it hard to identify whether the observed impact of peers on behavior is mediated by corresponding shifts in the normative evaluation of actions.

In this paper we present a new set of dictator game experiments that measure the influence of peers on both actual sharing and norms of sharing using the incentive-compatible norm-elicitation task by Krupka and Weber (2013).[3] Our experiments set us apart from the existing literature on peer effects in that we are able to explicitly identify the linkages between peers' actions, normative views, and individual sharing behavior. In this aspect our paper is related to Gächter et al. (2013), who study peer effects in norms and behavior in a gift exchange game. They find that peer effects in norms do not explain the observed peer effects in actual gift exchange. While these results cast some doubt on the importance of norms for peer effects, it would be premature to base judgment on the importance of norm following solely on the study of one specific decision setting and one specific social norm. Moreover, their paper lacks a counterfactual where norms and behavior are observed in the absence of peers, which precludes identifying the causal impact of peers on norms and behavior. In this paper, we study settings where the decision-maker is exposed to the influence of a peer as well as settings where the decision-maker acts in isolation from peers. This allows us to examine the causal influence that the presence of peers has on normative considerations and behavior.

Specifically, in our PEER treatment subjects play a sequential three-person dictator game, where two dictators can transfer money to one recipient. The dictators move sequentially and thus the second dictator can observe the transfer made by the first dictator (the "peer") before making his or her own transfer decision. In contrast, our NATURE treatment is based on a two-person dictator game where the role of the peer is replaced with Nature: in this game, Nature moves first and randomly determines an endowment for the recipient; the dictator observes the endowment selected by Nature, and then transfers money to the recipient. The crucial difference

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[2] For example, in some settings peer effects can arise if individuals are motivated by a desire to equalize material earnings between themselves and their peers. See Thöni and Gächter (2015) for a discussion of the possible behavioral mechanisms underlying peer effects.

[3] As we explain more in detail in section 3, in the Krupka and Weber (2013) task, participants in an experiment read the description of a scenario and are asked to evaluate the social appropriateness of each action available to the decision-maker in the scenario.

between the two treatments is thus that, while in the PEER treatment the recipient's wealth (prior to the dictator's transfer) is determined by a voluntary decision of a peer, in the NATURE treatment it is determined by chance.

Furthermore, to systematically investigate the extent to which the influence of peers on normative considerations and behavior depends on the nature of the underlying norms, our study examines two payoff-equivalent, but differently framed, versions of the dictator game. In one version the dictator can give money to another player, while in the other version the dictator can also take money from the other player. Krupka and Weber (2013) have shown that these "give" and "take" versions of the dictator game produce stark differences in the amounts of money that dictators share with recipients. Moreover, they explain these differences by the fact that the norm that governs behavior in the "give" version of the game is substantially different from the norm that applies to the "take" game. Hence, we use give/take framing to study the extent to which the influence of peers depends on the nature of the norm (norm of giving vs. norm of taking).

To summarize, our study is based on four experimental conditions, using a 2x2 design where we vary the frame of the game (GIVE vs. TAKE) and whether a peer is present or absent. For each condition, we conduct two types of experiments: a *norm-elicitation* experiment, where we measure in an incentive compatible way the extent to which the peer's behavior affects the perception of what constitutes socially appropriate behavior; and a *behavioral* experiment, where we check how these variations in perceptions of social appropriateness translate into actual decisions. A total of 850 subjects participated in our experiments.

Our norm-elicitation experiments reveal that the behavior of peers has a systematic and strong influence on the perceptions of social appropriateness. In the PEER treatment, ungenerous monetary transfers to the recipient are viewed as relatively more appropriate when the peer is also ungenerous towards the recipient. However, when the *same* levels of recipient's wealth have been determined by chance (NATURE treatment), the relation between recipient's wealth and appropriateness is *reversed*: ungenerous transfers are viewed as relatively more appropriate when the recipient is wealthier (i.e. when the recipient has randomly received a larger endowment). Interestingly, we also find that the strength of these effects varies considerably across our two versions of the dictator game. The norm that governs behavior in the TAKE game is much more stable and resilient to peer influence than the norm in the GIVE game.

Based on the results of the norm-elicitation experiment, we should expect to observe systematic differences in the influence of peers' actions (and hence recipient's wealth) on dictator's actual behavior across our experimental conditions. In particular, we should expect a positive relation between dictator transfers and recipient wealth in the PEER treatment, while a negative relation should emerge in the NATURE treatment. Moreover, these treatment differences should be more pronounced in the GIVE than in the TAKE game. The results of our behavioral experiments are only partially in line with these expectations. While we observe that dictators in the NATURE treatment do significantly reduce their transfers when the recipient receives larger endowments, we observe no relation between dictator and peer transfers in the PEER treatment. Moreover, we do not detect any differences in the magnitude of these effects between the GIVE and TAKE conditions.

Overall, our results only partially support a norm compliance explanation of peer effects. While our experiments clearly identify that peers' behavior can have a systematic influence on what individuals perceive as socially appropriate or inappropriate in a given situation, the actual patterns of behavior identified in the behavioral experiments do not seem to respond to these variations in normative considerations. In part, as we will show in sections 4.2 and 4.3, this is due to the fact that there is substantial heterogeneity in our experiments in the extent to which participants seem to care about norm compliance. However, our results question the extent to which peer effects can be explained within a norm compliance framework.

## 2. THEORETICAL FRAMEWORK

To illustrate our empirical strategy to identify the importance of peers for norm compliance, we start by sketching a simple theoretical framework based on the social norms model introduced by Krupka and Weber (2013, hereafter KW). We assume that decision-makers are motivated by both material self-interest and a preference for conforming to norms. Thus, decision-maker $i$'s utility function is given by:

$$U_i(a_i, a_{-i}) = \pi_i(a_i, a_{-i}) + \gamma_i N(a_i | a_{-i})$$

where $a_i$ and $a_{-i}$ are the actions undertaken by the decision-maker and by others, respectively, and $\pi_i$ represents the decision-maker's material payoff. The second term of the utility function captures the preference for norm compliance. The parameter $\gamma_i$ measures the extent to which the

decision-maker cares about conforming to norms. The social norms function $N(a_i|a_{-i})$ describes the mapping between utility and social appropriateness of the actions available to the decision-maker. Decision-makers who care about norm compliance ($\gamma_i > 0$) enjoy a positive utility by selecting actions that are viewed as socially appropriate (i.e., actions whereby $N(.) > 0$), whereas they suffer a disutility from actions that are inappropriate ($N(.) < 0$). As in KW, and in most accounts of norms proposed in the literature, we assume that what constitutes appropriate behavior depends on, and can be systematically shaped by, social and contextual influences.

Crucially, we explicitly assume that social appropriateness of an action $a_i$ is influenced by $a_{-i}$, the actions of other decision-makers that $i$ can observe. This assumption captures the key insight from theoretical accounts of social norms proposed across the social sciences (Cialdini et al., 1990; Sugden, 1998; Bicchieri, 2006; Lindenberg and Steg, 2013), which, as discussed above, emphasize the importance of peers for norm compliance. As in these accounts, also in our framework changes in the actions of peers ($a_{-i}$) affect the individual's perceptions of appropriate behavior ($N(a_i|a_{-i})$), and hence his or her willingness to engage in that type of behavior.

Our main aim is to understand the relationship between peers' actions, perceptions of appropriateness of the actions available to the decision-makers, and their resulting willingness to take these actions. To identify the causal impact of peers, we systematically vary between treatments whether or not the decision-maker receives information about a peer's behavior before making his or her own decision. In our PEER treatment decision-makers can observe the actions of another decision-maker before making a choice. In our NATURE treatment the role of the peer is replaced with Nature, i.e. decision-makers observe a random choice made by Nature rather than the voluntary decision of a peer.

In both treatments, we deploy two types of experimental measurements, described in more detail in the next section. First, we use the norm-elicitation method introduced by KW to elicit experimentally the complete social norms function $N(a_i|a_{-i})$, by measuring, for each action $a_i$, the perceived social appropriateness of that action, and how this varies as a function of the peer's actions. By comparing $N(a_i|a_{-i})$ elicited in the PEER and NATURE treatments, we can examine how the content of the social norm varies in the presence or absence of a peer.

Moreover, we conduct standard behavioral experiments to examine how the changes in perceptions of appropriateness identified with the norm-elicitation method translate into actual decisions. Since our experiments ensure complete control over the decision-maker's material

payoff $\pi_i$, and deliver measurements on both decision-makers' choices and $N(a_i|a_{-i})$, our data will allow us to estimate the parameters of the simple utility function sketched above, and hence to examine the extent to which individuals may pursue self-interested gain over normative goals in their decision-making.

Finally, in our experiments we elicit $N(a_i|a_{-i})$ and related behavioral choices for two distinct decision settings that are economically equivalent (i.e. in both settings the same actions produce the same material payoffs), but differ in their context. In one setting, the actions required to implement a given material payoff allocation involve "giving" to others. In the other setting, the same payoff allocations can be implemented through "taking" from others. Previous experiments by KW have shown that there are substantial differences in norms between these two contexts. We will exploit this variation in normative perceptions to assess the robustness of our results, and examine the extent to which the influence of peers on norms and behavior may depend on the nature of the underlying norms.

## 3. EXPERIMENTAL DESIGN AND PROCEDURES

Our experiments are based on four dictator game treatments, differing in whether dictators receive information about the behavior of peers before making a decision, and in the way the games are framed. The PEER treatment is based on a three-person sequential dictator game where two dictators ($D_1$ and $D_2$) are matched with one recipient (R). Dictators move sequentially: $D_1$ moves first and chooses a monetary transfer for the recipient; $D_2$ observes the transfer chosen by $D_1$ and then chooses a transfer. In the GIVE version of the game, $D_1$ and $D_2$ receive an initial endowment of £12 each, while the recipient is endowed with £0. Each dictator can then transfer an amount $g_{i \in \{D1, D2\}} \in \{£0, £1, £2, £3, £4\}$ from her endowment to the recipient. Monetary payoffs are computed as $\pi_i = £12 - g_i$ for a dictator, and $\pi_R = £0 + g_{D1} + g_{D2}$ for the recipient.

We study how $D_2$'s behavior is affected by information about their peer's ($D_1$) behavior, by comparing choices made in the PEER treatment with choices made in the NATURE treatment, where the role of $D_1$ is replaced with Nature. Thus, the NATURE treatment is based on a two-person dictator game, where one dictator is matched with one recipient. In the GIVE version of the game, the dictator receives an endowment of £12 while the recipient's endowment, E, is randomly determined by Nature. Nature selects with equal probability an endowment E = {£0, £1, £2, £3, £4} for the recipient. After observing the value of the recipient's endowment, the

dictator transfers an amount g ∈ {£0, £1, £2, £3, £4} to the recipient. Payoffs are computed as $\pi_D$ = £12 – g for the dictator, and $\pi_R$ = E + g for the recipient.

Note that in both treatments we observe decisions by dictators facing the same five possible situations, each corresponding to a different level of initial wealth of the recipient (£0, £1, £2, £3, or £4). The difference between the two treatments is that in the PEER treatment the recipient's wealth (prior to the dictator's transfer) is determined by the voluntary donation of another dictator, whereas in NATURE the recipient's wealth is determined at random.

The corresponding TAKE versions of the games are analogously defined, except that the initial distributions of endowments differ relative to the GIVE version. In the TAKE version of the PEER game, $D_1$ and $D_2$ are endowed with £9 each, while the recipient is endowed with £6. Each dictator can give/take an amount $t_{i \in \{D1, D2\}}$ ∈ {-£3, -£2, -£1, £0, £1} to/from the recipient. Payoffs are computed as $\pi_i$ = £9 – $t_i$ for a dictator, and $\pi_R$ = £6 + $t_{D1}$ + $t_{D2}$ for the recipient. Analogously, in the TAKE version of the NATURE game the dictator is endowed with £9, while Nature selects the recipient's endowment from the set E = {£3, £4, £5, £6, £7}. The dictator transfers to the recipient an amount t ∈ {-£3, -£2, -£1, £0, £1}, and payoffs are computed as $\pi_D$ = £9 – t for the dictator, and $\pi_R$ = E + t for the recipient. Thus, in both the GIVE and TAKE version of the games, dictators can implement exactly the same final payoff allocations between themselves and recipients. However, the GIVE and TAKE games differ in whether these allocations can be obtained through "giving to" or "taking from" the recipient.

For each treatment and each version of the game, we conducted two types of experiments: a norm-elicitation experiment and a behavioral experiment. The *norm-elicitation* experiment is based on the task introduced by KW. Subjects were given a description of the five possible situations faced by either $D_2$ in the PEER treatment or the dictator in the NATURE treatment. We conducted separate sessions for the GIVE and TAKE versions of the games.[4] In each case, subjects had to evaluate, for each situation, the appropriateness of each action available to the dictator. Subjects were asked to judge whether each action was "socially appropriate" and "consistent with what most people expect [a dictator] ought to do", or "socially inappropriate" and

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[4] For example, in the PEER treatment/GIVE game sessions, subjects read a description of the situation where $D_2$ observes that $D_1$ has given £0 to the recipient, and were asked to rate the appropriateness of the five actions available to $D_2$ in that situation. The other four situations described the contingencies where $D_1$ has given £1, £2, £3, or £4 to the recipient. Instructions for the norm-elicitation experiments are available in Appendix A.

"inconsistent with what most people expect [a dictator] ought to do". Subjects used a six-point scale to rate the appropriateness of actions.[5]

Subjects received a monetary reward if their appropriateness judgments matched the judgments provided by other subjects in their session: subjects were told that one of five possible situations, and one of the actions available to the dictator in that situation, would be selected at random at the end of the session. Subjects were paid £7 (in addition to a £5 show-up fee) if their appropriateness rating for the selected action matched the rating of one other randomly selected subject in the session. Thus, as in KW, subjects were given incentives to reveal what they perceived to be the collectively-shared judgment of appropriateness of the actions they evaluated, and not their own personal judgment.[6]

We conducted the *behavioral* experiments with subjects who had not participated in the norm-elicitation task. Subjects were randomly assigned to either the PEER or NATURE treatment. In each treatment, half of the subjects participated in the GIVE game, and the other half in the TAKE game. In all cases, we paid subjects a £2 show-up fee in addition to any earnings made in the experiment. At the beginning of the experiment we matched subjects randomly into groups and assigned a role. In the PEER treatment subjects were matched in three-person groups and assigned the role of $D_1$, $D_2$, or Recipient.[7] In the NATURE treatment, subjects were matched in two-person groups and assigned either the role of dictator or recipient. Subjects then played a one-shot version of the dictator game, either in the GIVE or TAKE frame. We elicited subjects' choices using the strategy method (Selten, 1967). That is, dictators in the role of $D_2$ in the PEER treatment and dictators in the NATURE treatment were asked to make one decision for each of the five possible sub-games of the game, corresponding to situations where $D_1$ or Nature had endowed the recipient with £0, £1, £2, £3, or £4 (£3, £4, £5, £6, or £7 in the TAKE game).

In total, we conducted 44 sessions with 850 subjects, recruited using ORSEE (Greiner, 2015). All sessions were conducted at the University of Nottingham using z-Tree (Fischbacher,

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[5] This approach follows Krupka et al. (2014). The six possible levels of appropriateness were "very socially inappropriate", "socially inappropriate", "somewhat socially inappropriate", "somewhat socially appropriate", "socially appropriate" or "very socially appropriate".

[6] The material incentives used in the norm-elicitation task generate a coordination game with multiple equilibria. KW argue that collectively-shared norms create focal points in this game, which subjects may exploit to successfully coordinate. A similar approach has been applied to the classification of natural language messages by Xiao and Houser (2005) and Houser and Xiao (2011).

[7] In the instructions we did not refer to players as "dictator" or "recipient", but we used a neutral framing. See Appendix A for a copy of the instructions.

2007). Table 1 summarizes the design of the experiment and reports the number of subjects who participated in each treatment and version of the game.

**Table 1 – Treatment overview and number of subjects per treatment/game**

|  | PEER treatment | NATURE treatment |
|---|---|---|
| GIVE game | Norm-elicitation exp.: 36<br>Behavioral exp.: 216 (72 per role) | Norm-elicitation exp.: 30<br>Behavioral exp.: 142 (71 per role) |
| TAKE game | Norm-elicitation exp.: 36<br>Behavioral exp.: 216 (72 per role) | Norm-elicitation exp.: 32<br>Behavioral exp.: 142 (71 per role) |

## 4. RESULTS

We start by presenting the data from the norm-elicitation experiments, to examine whether the presence of peers influences the norms of giving and taking in our setting. We then turn to the behavioral data, and examine whether any differences in norms across conditions translates into differences in behavior.

### 4.1. The influence of peers on social norms

Figure 1 shows the results of the norms-elicitation experiments.[8] The average social appropriateness ratings of dictator transfers in the PEER treatment are shown in the top-left (GIVE game) and bottom-left (TAKE game) panels of the figure. The ratings of the NATURE treatment are shown in the right panels of the figure (top-right for the GIVE game; bottom-right for the TAKE game). In each panel, we show ratings for each of the five possible situations faced by a dictator, corresponding to the five possible levels of wealth of the recipient determined by $D_1$'s (PEER treatment) or Nature's (NATURE treatment) monetary transfers.[9]

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[8] We report the full distributions of appropriateness ratings in Appendix B.

[9] For example, the dashed red line in the top-left panel of Figure 1 shows the average appropriateness ratings of $D_2$'s transfers in the situation where $D_1$ has given £4 to the recipient. The dashed red line in the top-right panel of the figure shows instead the appropriateness of the dictator's transfers in the situation where Nature has selected an endowment of £4 for the recipient. The interpretation of the bottom panels is similar, except that the games use a take frame.

**Figure 1: Elicited norms (social appropriateness) across treatments**
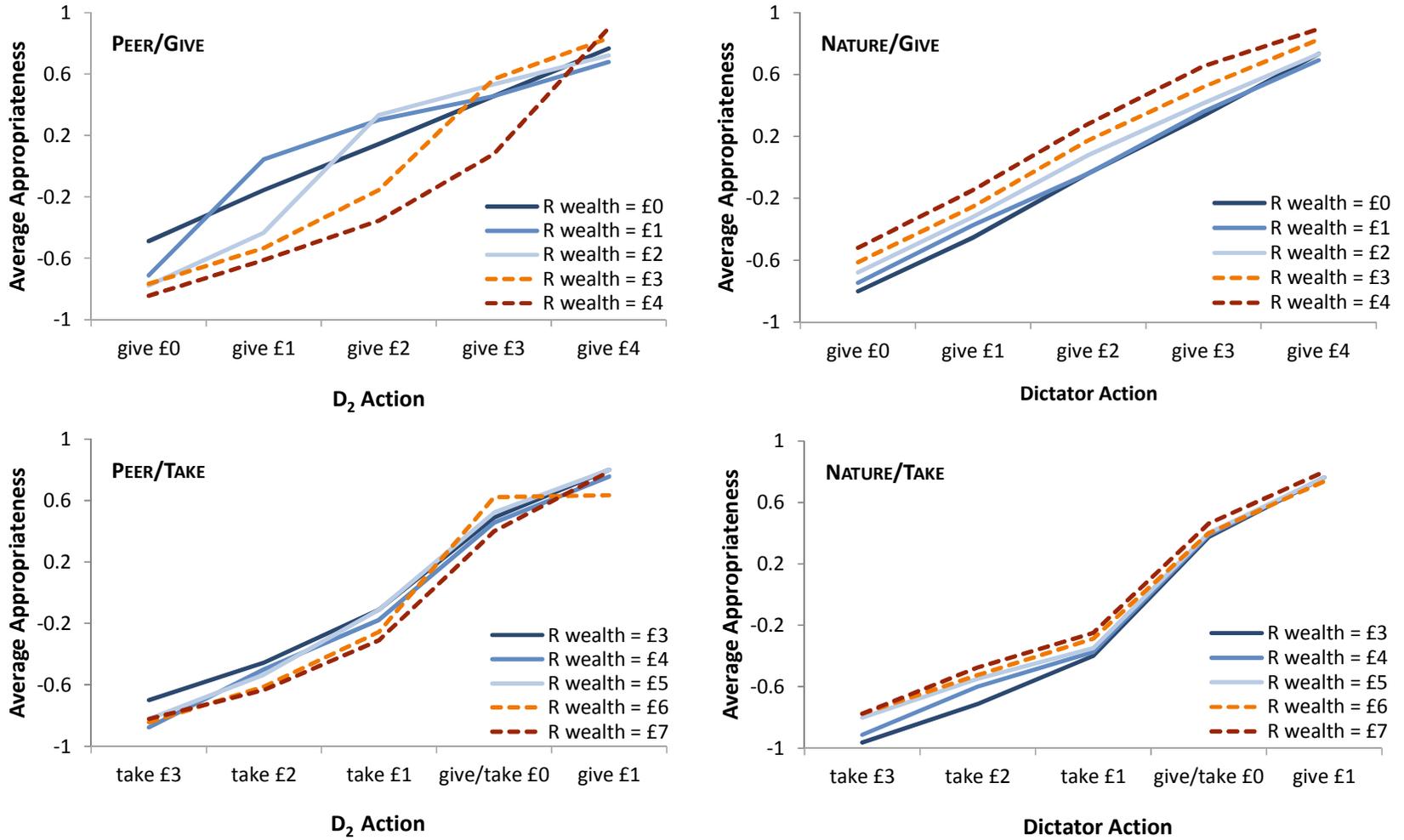


Notes: We transformed subjects' appropriateness ratings into numerical scores using the following scale: very socially inappropriate = -1; inappropriate = -0.6; somewhat socially inappropriate = -0.2; somewhat socially appropriate = 0.2; socially appropriate = 0.6; very socially appropriate = 1.

Several interesting patterns can be observed in the figure. First, in all five situations and in all treatments and versions of the game, the appropriateness of transfers increases in their generosity: choosing the most generous transfer available ("give £4" in GIVE; "give £1" in TAKE) is always considered the most socially appropriate option. Similarly, in all cases, the least appropriate choice is the transfer that maximizes the dictator's own payoff ("give £0" in GIVE; "take £3" in TAKE).[10]

Second, the level of the recipient's wealth generally influences the perception of what constitutes socially appropriate behavior. These differences in appropriateness are, however, much more marked in the GIVE than TAKE game. Thus, the norms in the GIVE game seem much more malleable than the corresponding norms in the TAKE game.

Third, and most importantly, the levels of the recipient's wealth influence ratings of appropriateness differently depending on whether these levels have been determined by the transfers of another dictator (PEER treatment) or by a random event (NATURE treatment). In the PEER treatment giving little to the recipient is generally viewed as less appropriate when the recipient's wealth is large (i.e., when the peer has been generous) than when a recipient's wealth is small (i.e., when the peer has also given little).[11] However, in the NATURE treatment the relation between appropriateness and recipient's wealth is reversed: giving little to the recipient is viewed as *more* appropriate when recipient's wealth is large (i.e. when Nature selects a large endowment) than when it is small.[12]

We examine these patterns more formally using OLS regressions, reported in Table 2. In Model I we use data from the PEER treatment only, whereas in Model II we use data from the NATURE treatment only. In both regressions, the dependent variable measures the appropriateness of the dictator's transfers in the five different situations. We regress this on the amount that the dictator transfers to the recipient ("Amount transferred by Dictator"), the amount that the peer (PEER treatment) or Nature (NATURE treatment) transfers to the recipient ("Amount transferred by Peer/Nature"), and an interaction between these two variables. Moreover, to gauge

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[10] Moreover, as in KW, we observe consistent differences between the appropriateness ratings of transfers that involve giving relative to transfers that involve taking, with the latter being generally evaluated as less appropriate than the former. See Appendix B for further details.

[11] For example, in the GIVE game (top-left panel of Figure 1), giving £2 to the recipient is viewed as socially inappropriate (an average rating of -0.36) when the peer gives £4 to the recipient (dashed red line), but as socially appropriate (an average rating of 0.14) when the peer gives £0 to the recipient (solid blue line).

[12] For example, in the GIVE game (top-right panel of Figure 1), giving £2 to the recipient is viewed as socially appropriate (an average rating of 0.28) when the recipient receives an endowment of £4 (dashed red line), but as socially inappropriate (an average rating of -0.04) when recipient receives an endowment of £0 (solid blue line).

the extent to which the influence of peers varies across the GIVE and TAKE games, we also include a dummy variable taking value 1 for observations in the TAKE game, and an interaction between the TAKE dummy and the "Amount transferred by Peer/Nature" variable.

**Table 2: The influence of peers' behavior on social appropriateness**

| | Model I<br>PEER<br>treatment | Model II<br>NATURE<br>treatment |
|---|---|---|
| Amount transferred by Dictator | $0.359^{***}$<br>*(0.022)* | $0.411^{***}$<br>*(0.015)* |
| Amount transferred by Peer/Nature | $-0.117^{***}$<br>*(0.019)* | $0.088^{***}$<br>*(0.013)* |
| Amount transf. by Peer/Nature * Amount transf. by Dictator | $0.019^{***}$<br>*(0.006)* | $-0.009^{*}$<br>*(0.005)* |
| TAKE | $-0.204^{***}$<br>*(0.056)* | $-0.110^{*}$<br>*(0.058)* |
| Amount transf. by Peer/Nature * TAKE | $0.052^{**}$<br>*(0.020)* | $-0.037^{***}$<br>*(0.013)* |
| Constant | $-0.521^{***}$<br>*(0.063)* | $-0.895^{***}$<br>*(0.050)* |
| *N.* | *1800* | *1550* |
| $R^2$ | *0.66* | *0.71* |

Notes: OLS regressions. Dependent variable is the appropriateness of dictator's transfers. Standard errors in parentheses, adjusted for intragroup correlation (subjects are used as independent clustering units). Significance levels: $^{***}$ $p < 0.01$; $^{**}$ $p < 0.05$; $^{*}$ $p < 0.1$.

The regressions reveal that in both the PEER and the NATURE treatments more generous transfers by the dictator are viewed as more appropriate than ungenerous transfers. The effect of increasing the dictator's transfer on its evaluation of appropriateness is 0.359 + 0.019 * "Amount transferred by Peer" in the PEER treatment and 0.411 - 0.009 * "Amount transferred by Nature" in the NATURE treatment. In both cases, the effect is positive for any possible amount transferred by the peer or Nature.

To gauge how changes in the recipient's wealth affect the judgments of appropriateness of the dictator's transfers, we need to inspect the coefficients of the variable "Amount transferred by Peer/Nature" and the interaction term "Amount transferred by Dictator * Amount transferred by Peer/Nature" (as well as the interaction with the TAKE dummy, for the TAKE game). In the

PEER treatment, the peer's generosity negatively influences the judgments of appropriateness of the dictator's transfers. This effect is particularly marked for ungenerous dictator's transfers, while the influence of peers wanes for more generous dictator's transfers, as indicated by the positive and significant coefficient of the interaction term between the "Amount transferred by Dictator" and "Amount transferred by Peer/Nature" variables. In contrast, in the NATURE treatment the judgments of appropriateness of the dictator's transfers become more lenient the higher is the endowment that Nature transfers to the recipient. Again, this effect is particularly marked for ungenerous dictator transfers and it diminishes as dictators transfer more money to the recipient, as indicated by the negative and significant coefficient of the interaction term.

Finally, in both treatments, the impact of the peer's generosity on the appropriateness of the dictator's transfers is significantly weaker in the TAKE than in the GIVE game. This can be seen by noticing that, in both the PEER and the NATURE treatments, the coefficient of the interaction term "Amount transferred by Peer/Nature * TAKE" takes an opposite sign relative to the "Amount transferred by Peer/Nature" variable. In both cases the effect is significant at least at the 5% level.

Taken together, these results show that the behavior of peers can have a strong, systematic influence on the perception of what constitutes appropriate behavior in a given situation. What are the behavioral implications of these results? Assume that, as in the model sketched in section 2, individuals trade off monetary payoff and norm-compliance utility, whereby individuals gain utility from choosing actions that are viewed as socially appropriate and suffer a disutility from choosing socially inappropriate actions. Within this framework, one would expect a negative effect of the recipient's endowment on giving in the NATURE treatment: norm-compliant dictators should be more generous when the recipient receives a small endowment because then ungenerous transfers are more inappropriate (and hence result in stronger disutility) than when the recipient has a large endowment. In contrast, one would expect a positive relation between the peer's and the dictator's transfers in the PEER treatment. In this case, ungenerous transfers are more appropriate when the recipient is poorer than when the recipient receives a larger transfer from the peer. Moreover, we would expect these effects to be stronger in the GIVE than in the TAKE version of the game. In the next sub-section we present the data from our behavioral experiments to examine the extent to which the observed variations in social appropriateness of transfers translate in differences in behavior.

*4.2. The influence of peers on dictators' behavior*

Figure 2 shows the average monetary transfers made by dictators in the PEER (left panel) and NATURE (right panel) treatments across the five possible sub-games of the game. In each panel the figure reports the average transfers made in the GIVE (dark bars) and TAKE (light bars) versions of the games. In the TAKE game, transfers have been rescaled to give a score between £0 and £4, to ease comparability with the GIVE game.[13]

**Figure 2: Dictator's transfers across treatments**
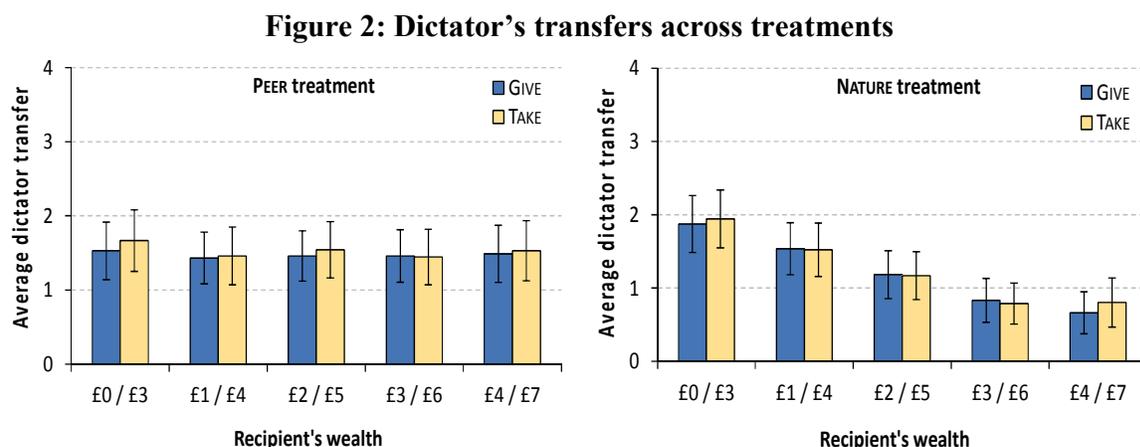


Notes: Bars indicate 95% confidence intervals.

The figure shows that there is on average no clear relation between dictator's transfers and recipient's wealth in the PEER treatment, both in the GIVE and TAKE versions of the games. Thus, whether or not the peer is generous with the recipient does not seem to affect dictator's generosity. In contrast, a negative relation between dictator's transfers and recipient's wealth seems to emerge in the NATURE treatment, in both versions of the game. Thus, dictators seem to behave less generously towards recipients that have randomly received larger endowments.[14]

Table 3 reports OLS regressions of dictator's transfers on a variable measuring the amount that the peer (PEER treatment) or Nature (NATURE treatment) transfers to the recipient, a dummy variable taking value 1 for observations in the TAKE game, and an interaction between the two

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[13] Since a transfer of -£3 (i.e., taking £3 from the recipient) in the TAKE game has the same consequences for final wealth as a transfer of £0 in the GIVE game, the transfer of -£3 has been rescaled to £0. Similarly, transfers of -£2, -£1, £0 and £1 in the TAKE game have been rescaled to £1, £2, £3 and £4, respectively.

[14] We also observe some differences in dictator's behavior between the GIVE and TAKE games, albeit only in some subgames of the PEER treatment. This is not consistent with KW, who show that differences in the frame of the game produce significant differences in behavior in analogous dictator games. See Appendix C for further details.

variables. Similar to Table 2, we run separate regressions for the PEER treatment (Model I) and the NATURE treatment (Model II).

**Table 3: The influence of peers' behavior on dictators' transfers**

| | Model I<br>PEER treatment | Model II<br>NATURE treatment |
|---|---|---|
| Amount transferred by Peer/Nature | -0.006<br>*(0.052)* | -0.313***<br>*(0.040)* |
| TAKE | 0.103<br>*(0.283)* | 0.006<br>*(0.281)* |
| Amount transferred by Peer/Nature * TAKE | -0.024<br>*(0.067)* | 0.011<br>*(0.063)* |
| Constant | 1.483***<br>*(0.195)* | 1.842***<br>*(0.197)* |
| *N.* | *720* | *710* |
| $R^2$ | *0.001* | *0.086* |

Notes: OLS regressions. Dependent variable is dictator's transfers. Standard errors in parentheses, adjusted for intragroup correlation (subjects are used as independent clustering units). Significance levels: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Model I confirms that there is on average no evidence of peer effects in the GIVE version of the PEER treatment: the amount transferred by the peer has no significant influence on the amount transferred by the dictator ($p = 0.914$). This similarly holds in the TAKE version, as indicated by the insignificant coefficient of the interaction term "Amount transferred by Peer/Nature * TAKE" ($p = 0.727$).

In contrast, the recipient's wealth is negatively related to the dictator's transfers in the GIVE version of the NATURE treatment. Model II shows that increasing the recipient's wealth by £1 reduces dictator's giving by about £0.30, and the effect is significant at the 1% level. This negative relation between recipient's wealth and giving is not different across the GIVE and TAKE versions of the game, as indicated by the insignificant coefficient of the interaction term ($p = 0.858$).

These results are only partially in line with the results of the norm-elicitation experiment. The negative relation between recipient's wealth and dictator's transfers in the NATURE treatment is consistent with the patterns of social appropriateness examined in the previous sub-section. Given that ungenerous transfers are deemed less inappropriate when the recipient is

wealthier, a norm-compliant dictator should reduce her transfers when the recipient receives a larger endowment. This is exactly what we observe in the behavioral data.

However, the results of the norm-elicitation experiment also suggest that we should observe a positive relation between recipient's wealth and dictator's transfers in the PEER treatment. Our data do not support this conjecture. Moreover, the norm-elicitation experiment suggests that the norm of giving may be more malleable than the norm of taking in our setting. Hence, we would have expected that the influence of the recipient's wealth on dictator's transfers would be stronger in the GIVE than TAKE game. However, we do not observe any difference between GIVE and TAKE games in the extent to which recipient's wealth affects dictator's transfers.

To gain a better understanding of the discrepancies between the norm-elicitation and behavioral experiments, we take a closer look at our behavioral data. One striking aspect of the data is that we observe substantial heterogeneity at the individual level in the extent to which dictators are influenced by the level of wealth of recipients. Some dictators are not affected by recipient's wealth and opt for the same monetary transfer across all five sub-games. Other dictators reduce their transfer as the recipient's wealth increases, whereas some others respond positively to increases in the recipient's wealth. Interestingly, the relative proportion of dictators displaying different responses to changes in the recipient's wealth varies across treatments.

We look at these patterns in detail by classifying dictators into five different "giving types" depending on their responses to changes in the recipient's wealth. Dictators who always choose the payoff-maximizing option regardless of the recipient's wealth are classified as "Self-interested". Dictators who choose transfers that are not payoff-maximizing, but do not respond to changes in the recipient's wealth are classified as "Unconditional" givers. Dictators who reduce their transfers as the recipient gets wealthier are classified as "Decreasing" givers. Dictators who increase their transfers as the recipient gets wealthier are classified as "Increasing" givers.[15] Finally, dictators who do not fall into any of the above categories are classified as "Other". Figure 3 reports the distribution of dictators classified in each category, disaggregated by treatment and version of the game.

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[15] More precisely, we classify as "Decreasing" ("Increasing") those dictators who either display a monotonic pattern with at least one decrease (increase), or have a negative (positive) Spearman rank correlation that is significant at the 10% level.

**Figure 3: Dictator's giving types across treatments**
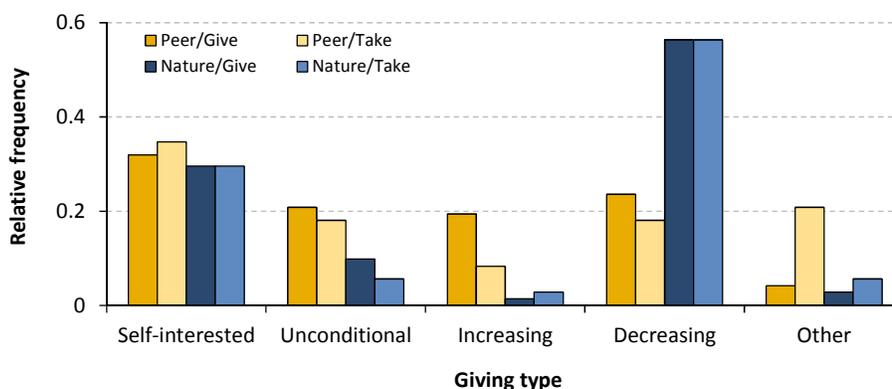


In all treatments, and in both versions of the game, about one-third of dictators always choose the payoff-maximizing option, regardless of the level of wealth of the recipient. The remaining two-thirds of dictators behave generously towards the recipient in at least some of the sub-games. In the NATURE treatment, the large majority (56%) of dictators respond negatively to increases in the recipient's wealth. This is the case for both the GIVE and TAKE games. A minority of dictators (10% in GIVE, 6% in TAKE) do not respond to variations in the recipient's wealth. Only very few dictators (1 in GIVE, 2 in TAKE) respond positively to increases in the recipient's wealth.

The distribution of dictator's types looks substantially different in the PEER treatment. Here, the fraction of dictators who respond negatively to increases in the recipient's wealth is reduced by more than half, both in the GIVE (24%) and TAKE game (18%).  In contrast, 19% of dictators in GIVE and 8% of dictators in TAKE display an increasing pattern in the PEER treatment. The fraction of dictators who do not respond to variations in the recipient's wealth is also higher (21% in GIVE, 18% in TAKE). Using $\chi^2$-tests, we reject the null hypothesis that dictator's types are distributed similarly across the NATURE and PEER treatments, both in the GIVE (p = 0.000) and TAKE game (p = 0.000).

These differences in dictators' responses to variations in the recipient's wealth across treatments are broadly in line with the norm-elicitation results. The norms elicited in our experiment suggest that the effects of increasing the recipient's wealth are negative in the NATURE treatment and positive in the PEER treatment. In line with this, the share of dictators responding negatively to increases in the recipient's wealth decrease between the NATURE and PEER treatments, while the share of dictators who display an increasing pattern increases between

the two treatments. However, there is also considerable variation in dictators' responses in both treatments, suggesting that there may be substantial heterogeneity in the extent to which dictators are willing to comply with norms of appropriate behavior. In the next sub-section we use an econometric approach to investigate whether dictators are guided by social norm concerns, accounting for the heterogeneity in preferences for norm compliance in the population.

*4.3. Econometric analysis*

To formally investigate the explanatory power of norm compliance for the behavior observed in the NATURE and PEER treatments, we use a mixed logit model (see, e.g., Train, 2003). Following the theoretical framework introduced in section 2, we assume that the utility that dictator $i$ derives from choosing a monetary transfer $k$ in situation $s$ depends on the material payoff implied by the transfer and the social appropriateness of the transfer. We also assume that dictators are heterogeneous in their concerns for norm compliance. Thus, dictator $i$'s utility takes the form:

$$U_{iks} = \theta\pi_{iks} + \gamma_i N_{ks} + \varepsilon_{iks}$$

where $\pi_{iks}$ is dictator $i$'s material payoff associated with transfer $k$ in situation $s$, and $N_{ks}$ is the average appropriateness rating of the transfer, as measured in the norm-elicitation experiment. The parameter $\theta$ measures the weight that dictators place on monetary payoffs, while $\gamma_i$ is an individual-specific parameter measuring the extent to which the dictator cares about norm compliance. Note that we are assuming homogenous preferences for money across subjects, but we allow for heterogeneous preferences for norm compliance. The term $\varepsilon_{iks}$ is a random error term, assumed to be i.i.d. extreme value distributed.

Conditional on $\gamma_i$, the probability that dictator $i$ chooses monetary transfer $k$ in situation $s$ depends on the utility associated with that choice, $U_{iks}$, relative to the utility associated with the other alternatives:

$$L_{iks}(\gamma_i) = \frac{\exp\{U_{iks})\}}{\sum_{j=1,\dots,5} \exp\{U_{ijs}\}}, k = 1, \dots, 5.$$

Also conditional on $\gamma_i$, the probability of observing a given sequence of monetary transfers by dictator $i$ across the five possible situations (i.e. the five sub-games of the game) is given by:

$$P_i(\gamma_i) = \prod_{s=1,\dots,5} L_{ik(i,s)s}(\gamma_i)$$

19

where $k(i, s)$ denotes the choice of dictator $i$ in subgame $s$. The unconditional distribution of a sequence of monetary transfers involves integrating the conditional probability over the distribution of $\gamma$:

$$P_i = \int P_i(\gamma_i) f(\gamma|\omega) d\gamma$$

where $f(\gamma|\omega)$ is the density of $\gamma$ and $\omega$ are the parameters of the distribution. We assume that $\gamma$ follows a normal distribution with mean $g$ and standard deviation $h$, $\gamma \sim N(g, h)$, and we estimate the parameters of the distribution using maximum simulated likelihood (Hole, 2007).

Table 4 presents the results of the estimation. We estimate four different models, one for each treatment/game combination. In all models, the coefficient on own payoff is positive and highly significant, indicating that dictators are more likely to choose transfers that yield higher own payoffs.

**Table 4: Mixed logit models**

|  | Model I<br>PEER / GIVE | Model II<br>PEER / TAKE | Model III<br>NATURE / GIVE | Model IV<br>NATURE / TAKE |
|---|---|---|---|---|
| Own payoff | 0.781***<br>*(0.199)* | 0.654**<br>*(0.268)* | 3.186***<br>*(0.988)* | 0.890***<br>*(0.300)* |
| Norm rating (mean) | 0.182<br>*(1.033)* | -1.257<br>*(1.166)* | 6.089**<br>*(2.747)* | -0.462<br>*(1.119)* |
| Norm rating (st. dev.) | 7.132***<br>*(1.216)* | 7.288***<br>*(1.278)* | 4.832***<br>*(0.715)* | 3.986***<br>*(0.665)* |
| *N.* | *1800* | *1800* | *1775* | *1775* |
| *Log-likelihood* | *-395.212* | *-370.768* | *-381.325* | *-398.907* |

Notes: Mixed logit regressions. The dependent variable takes value 1 for the monetary transfer that was chosen by a dictator in a given sub-game, and value 0 for the other transfers that were not chosen. Standard errors in parentheses. Significance levels: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Turning to norm compliance, Table 4 reports the mean and standard deviation of the norm rating coefficients. Looking first at the estimates of the mean, the regressions confirm the limited success of the norms compliance model in explaining the behavioral data. In the PEER treatment (Models I and II) the average effect of norm ratings on the choice of monetary transfers is not significantly different from zero: on average, dictators do not choose transfers that are deemed more socially appropriate more often. In the NATURE treatment (Models III and IV) the effect is

positive and significant in the GIVE game, indicating that the average dictator is more likely to choose transfers that are more socially appropriate. The effect is, however, not significantly different from zero in the TAKE game.

Lastly, note that in all models the standard deviations of the norm coefficients are positive and highly significant, confirming that there is substantial heterogeneity in preferences for norm compliance in our sample. We can use the estimated means and standard deviations of the coefficients to make inferences on the share of dictators that place a positive weight on norm compliance.[16] In the PEER treatment and in the TAKE game of the NATURE treatment, between 51% and 57% of dictators place a positive weight on the norms rating, i.e. display a preference for norm compliance. Thus, only about half of our subjects seem to care about the appropriateness of actions when they make their choices. The fraction of norm-compliant individuals is comparably higher in the GIVE game of the NATURE treatment: here the share of norm-compliant dictators is about 90%. Indeed, as discussed in the previous sections, the GIVE game of the NATURE treatment is the one experimental condition where the observed behavioral patterns are most consistent with the elicited norms.

## 5. DISCUSSION AND CONCLUSIONS

Our study shows that the behavior of others can have important effects on the way individuals perceive what constitute socially appropriate behavior in a given situation. Whether or not a given action is viewed as socially appropriate partly depends on the extent to which other decision-makers (the "peers") are willing to take that action. In our dictator game experiments, in the absence of information about the behavior of peers, the judgments of appropriateness of the dictator's transfers towards the recipient seem to be informed by a sort of Rawlsian norm of fairness, whereby ungenerosity is viewed as most unacceptable when it is directed towards the least wealthy, but becomes more acceptable when it is directed towards wealthier recipients. However, when the same levels of recipient's wealth are produced by a voluntary donation of a peer, rather than by chance, the judgments of appropriateness are drastically different and seem rather to respond to a simple principle of "social proof" (Cialdini, 2001): being stingy is more acceptable when others are also stingy.

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[16] The share of dictators placing a positive weight on norm compliance is given by $\Phi(\hat{g}/\hat{h})$, where $\Phi$ is the cumulative normal distribution, and $\hat{g}$ and $\hat{h}$ are the mean and standard deviation of the norm ratings coefficients. See Hole (2007) for further explanations.

Our experiments also reveal that the influence of peers on normative considerations is not uniform across contexts and norms. Some norms are more malleable than others. When our dictator game experiments use a "give" frame, whereby the actions available to dictators only involve positive monetary transfers from the dictator to the recipient, variations in the recipient's wealth (caused either by the peer's actions or by chance) produce strong differences in the perceived appropriateness of actions. However, when the games use a "take" frame, whereby actions also involve negative monetary transfers and dictators can take money from the recipient, judgments of appropriateness are much less sensitive to variations in the recipient's wealth. This suggests that the norm that proscribes taking from others is a much more stable and resilient behavioral rule than the norm that prescribes giving to others.

These strong effects of peer behavior on norms do not translate, however, into corresponding effects in actual behavior in the aggregate. While we do observe a negative relation between recipient's wealth and dictator's generosity when the wealth of the recipient is determined by chance, we do not observe a positive correlation between the dictator's and peer's generosity in the treatment where dictators receive information about peer behavior. Thus, generous peers do not breed more generosity, despite the strong impact of peer behavior on the social acceptability of generous and ungenerous behavior. Moreover, the behavioral patterns observed in the experiment do not vary across "give" and "take" frames, despite the observed differences in strength of norms across the two settings.

What can explain these discrepancies between normative considerations and actual behavior? One possibility is that behavior in dictator games is simply not responsive to normative considerations. Thus, even if we observe a systematic influence of the peer's behavior on norms, these do not produce any variation in actual behavior, which may instead be largely determined by idiosyncratic preferences for giving (e.g., altruism).

We do not think that this explanation is very likely. Several studies have shown that behavior and outcomes in dictator game experiments are very sensitive to minimal variations in the choice environment.[17] Krupka and Weber (2013) have shown that these contextual variations

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[17] List (2007) and Bardsley (2008), for example, compare a standard dictator game with a game where the dictator's choice set includes the option to take money from the recipient, and find that the presence of the taking option substantially reduces giving. In Lazear et al. (2012) subjects can either play a $10 dictator game or opt out of the game, in which case the dictator earns $10 and leaves the recipient with $0, but also without knowledge that a dictator game has been played. They find that the presence of the opt-out option has a strong impact on giving.

produce systematic differences in the appropriateness of actions available to dictators across the different variants of the game, and that these differences in appropriateness can explain the patterns of dictator giving observed across the behavioral experiments. Similarly, Kimbrough and Vostroknutov (2015) have shown that an individual propensity to rule following predicts behavior in a dictator game. Overall, these results suggest that behavior in dictator games is strongly responsive to pressures to comply with norms of socially appropriate behavior.

Part of the reason why we do not observe a tighter correspondence between norms and aggregate behavior in our setting may be due to the presence of substantial heterogeneity in norm compliance in our experiment. Dictators' responses to variations in the wealth of the recipient are extremely mixed: some dictators transfer more money to wealthier recipients, others actually transfer more to less wealthy recipients, while still others transfer constant amount of money to recipients regardless of the level of wealth.

This heterogeneity may be due to different reasons. On the one hand, there may be truly idiosyncratic differences in the extent to which different individuals care about norm compliance. In fact, our econometric analysis suggests that only a fraction of subjects in our samples do place a positive weight on norm following. However, another source of heterogeneity in behavior may be due to the existence of conflicting norms of conduct in our experiments. As we mentioned earlier, in the absence of peers, individuals seem to apply a Rawlsian norm of fairness in our setting, whereby the appropriateness of giving depends in part on the level of need of the recipient. When the peer is present, a different type of normative considerations is introduced as individuals recognize that the appropriateness of giving also depends on the peer's behavior. On average, our norm experiments show that the principle of social proof seems to override the Rawlsian norm of fairness. Nevertheless, it is conceivable that both norms remain active in our setting, exerting divergent influences on behavior. Indeed, in the treatment with peers we observe behavioral patterns that are consistent with either norm: about 20% of dictators adapt their giving to the level of need of the recipient, giving more to recipients who are more in need, while another 15% change their giving based on what the peer has given. This suggests that normative conflict could partly explain why we fail to observe a peer effect on behavior in our experiments.

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Krupka and Weber (2013) study "give" and "take" variants of the dictator game similar to those employed in our experiment, and find significant differences in dictators' giving across treatments.

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## APPENDIX A - Experiment Instructions

Below we report the full set of instructions for the norm-elicitation and behavioral experiments used in the PEER/GIVE sessions (Appendix A.1 and A.2) and NATURE/GIVE sessions (Appendix A.3 and A.4). Instructions used in the TAKE sessions are available upon request.

## A.1 Norm-elicitation experiment (PEER/GIVE sessions) - instructions

### Experiment Instructions

This is a study in decision making.  For your participation, you will be paid a participation fee of £5. You may receive some additional money based on your choices and the choice of others during the experiment.
If you have any questions during the study, please raise your hand and wait for an experimenter to come to you. Please do not talk or try to communicate with other participants during the experiment.  Participants intentionally violating the rules may be asked to leave the experiment and may not be paid.

In a few minutes you will read the descriptions of a series of situations. These descriptions correspond to situations in which one person, "Individual Y", must make a decision.  For each situation, you will be given a description of the decision faced by Individual Y. The description will include several possible choices available to Individual Y.

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

Based on your responses you will be able to earn money today.  Specifically, we are going to ask you to consider each situation, look at the possible actions, and give evaluations of the actions while MATCHING your responses to those of another person here in the room today.  We want you to try and give us the same response as a typical other person here today because we are going to randomly select one situation and one of the possible choices that Individual Y could make.  For the choice selected we will match you randomly with another person here today. Your earning depends on the similarity between your appropriateness rating and that of the other randomly selected person to which you are matched.

In each of your responses we would like you to answer as truthfully as possible, based on your opinions of what most people here in the room believe constitutes socially appropriate or socially inappropriate behaviour.

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 page you will see an example situation.

**Example Situation**

Individual Y is at a local coffee shop near campus. While there, Individual Y notices that someone has left a wallet at one of the tables. Individual Y must decide what to do. Individual Y 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 shop manager. Individual Y can choose only one of these four options.

The table below presents a list of the possible choices available to Individual Y.  For each of the choices, you will be asked to indicate whether you believe choosing that option is very socially inappropriate, socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, socially appropriate, or very socially appropriate. You will rate each action on social appropriateness. To rate an action, you would "click" on the radial for that action.

| | Y chooses to: | | | |
| --- | --- | --- | --- | --- |
| | take the wallet | ask others nearby if the wallet belongs to them | leave the wallet where it is | give the wallet to the shop manager |
| Very socially inappropriate | ○ | ○ | ○ | ○ |
| Socially inappropriate | ○ | ○ | ○ | ○ |
| Somewhat socially inappropriate | ○ | ○ | ○ | ○ |
| Somewhat socially appropriate | ○ | ○ | ○ | ○ |
| Socially appropriate | ○ | ○ | ○ | ○ |
| Very socially appropriate | ○ | ○ | ○ | ○ |

If this were one of the situations for this study, you would consider each of the possible choices above and, for that choice, indicate the extent to which you believe taking that action would be "*socially appropriate*" and "*consistent with what most people expect Individual Y ought to do*" or "*socially inappropriate*" and "*inconsistent with what most people expect that individual Y ought to do*."

For example, suppose you believe that most people think that taking the wallet is "*very socially inappropriate*", asking others nearby if the wallet belongs to them is "*somewhat socially appropriate*", leaving the wallet is "*somewhat socially inappropriate*" and giving the wallet to the shop manager is "*very socially appropriate*". Then you would have rated the actions in the following way:

| | Y chooses to: | | | |
| --- | --- | --- | --- | --- |
| | take the wallet | ask others nearby if the wallet belongs to them | leave the wallet where it is | give the wallet to the shop manager |
| Very socially inappropriate | ● | ○ | ○ | ○ |
| Socially inappropriate | ○ | ○ | ○ | ○ |
| Somewhat socially inappropriate | ○ | ○ | ● | ○ |
| Somewhat socially appropriate | ○ | ● | ○ | ○ |
| Socially appropriate | ○ | ○ | ○ | ○ |
| Very socially appropriate | ○ | ○ | ○ | ● |

## Your Task in Today's Experiment

In a few minutes you will read descriptions of five situations, all dealing with decisions that "Individual Y", a participant in an experiment, might have to make. For each situation, you will read a description of the situation and indicate whether each possible choice available to Individual Y is socially appropriate or socially inappropriate. For each situation, you will indicate your responses using a table similar to the one shown above for the example situation.

## How Your Cash Earnings Are Determined

At the end of the experiment today, one situation will be randomly selected. For this situation, we will also randomly select one of the possible choices that Individual Y could have made. Thus, we will select both a situation and one possible action choice at random. For the choice selected we will match you randomly with another person here today. Your earning depends on the similarity between your appropriateness rating and that of the other randomly selected person to which you are matched. To be specific:

If your choice **matches** the choice of who is matched with you, you will **earn £7**. For example, if you choose "Socially appropriate" and the other person also chooses "Socially appropriate", you will get £7. This amount will be paid to you, in cash, at the conclusion of the experiment.

If your choice **does not match** the choice of who is matched with you, you will **earn £0**. For example, if you choose "Socially appropriate" and the other person chooses "Somewhat socially appropriate", you will get £0.

*Before we continue with the experiment we want to check that each participant understands how their earnings will be calculated. To do this we ask you to answer the questions below. In a couple of minutes the experimenter will check your answers. When each participant has answered all questions correctly we will continue with the experiment.*

*If you have a question at any time, raise your hand and the experimenter will come to your desk to answer it.*

### Questions

1. For the action selected for payment, if your rating is "*Very socially appropriate*" and the rating of the person who is randomly matched with you is "*Very socially appropriate*", your earning is: _____

2. For the action selected for payment, if your rating is "*Very socially appropriate*" and the rating of the person who is randomly matched with you is "*Socially inappropriate*", your earning is: _____

**General Description of the Decision Task faced by Individual Y**

You will shortly see on your screen a description of five situations, all dealing with decisions that "Individual Y", a participant in an experiment, might have to make. For each situation, you will read a description of the situation and indicate whether each possible choice available to Individual Y is socially appropriate or socially inappropriate. For each situation, you will indicate your responses using a table similar to the one shown before for the example situation.

All the five situations you will be asked to evaluate deal with decisions that Individual Y might have to make in the decision task described below.

At the beginning of the task, three participants (Individual Y, Individual X and Individual Z) are randomly matched together to form a group of three persons. The matching is anonymous, meaning that neither participant will ever know the identity of the other participants with whom he or she is matched.

**X and Y are each given an endowment of £12, while Z is given an endowment of £0.**

X must choose an action. Y will observe the action chosen by X and will then also choose an action. The actions that X and Y choose will determine the earnings for X, Y and Z.

X must decide whether to **give £0, give £1, give £2, give £3, or give £4** to Z. After observing X's choice, Y must also decide whether to **give £0, give £1, give £2, give £3, or give £4** to Z.

Earnings are determined as follows:
Individual X's earnings: £12 – (amount X gives to Z)
Individual Y's earnings: £12 – (amount Y gives to Z)
Individual Z's earnings: £0 + (amount X gives to Z) + (amount Y gives to Z)

---

**HYPOTHETICAL EXAMPLE FOR DEMONSTRATION PURPOSES**

SUPPOSE THAT INDIVIDUAL X GIVES £2 TO INDIVIDUAL Z.
INDIVIDUAL Y OBSERVES THE CHOICE MADE BY INDIVIDUAL X, AND THEN GIVES £4 TO INDIVIDUAL Z.

THIS SITUATION RESULTS IN THE FOLLOWING EARNINGS:

**INDIVIDUAL X EARNINGS**: INDIVIDUAL X HAS CHOSEN TO GIVE £2 TO INDIVIDUAL Z. THEREFORE HIS/HER EARNINGS ARE: £12 - £2 = **£10**.

**INDIVIDUAL Y EARNINGS**: INDIVIDUAL Y HAS CHOSEN TO GIVE £4 TO INDIVIDUAL Z. THEREFORE HIS/HER EARNINGS ARE: £12 - £4 = **£8**.

**INDIVIDUAL Z EARNINGS**: INDIVIDUAL Z RECEIVES £2 FROM INDIVIDUAL X AND £4 FROM INDIVIDUAL Y. THEREFORE HIS/HER EARNINGS ARE: £0 + £2 + £4 = **£6**.

---

After everyone has made a decision, all three participants are informed of the choices made and are paid accordingly in private and in cash.

*Before we continue with the experiment we want to check that each participant understands how X, Y and Z earnings in the decision task are calculated. To do this we ask you to answer the questions below. In a couple of minutes the experimenter will check your answers. When each participant has answered all questions correctly we will continue with the experiment.*

*If you have a question at any time, raise your hand and the experimenter will come to your desk to answer it.*

**Questions**

3. Suppose that both X and Y give £0 to Z.
   X's earnings are: _____
   Y's earnings are: _____
   Z's earnings are: _____

4. Suppose that X gives £1 to Z and Y gives £4 to Z.
   X's earnings are: _____
   Y's earnings are: _____
   Z's earnings are: _____

5. Suppose that X gives £3 to Z and Y gives £0 to Z.
   X's earnings are: _____
   Y's earnings are: _____
   Z's earnings are: _____

6. Suppose that both X and Y give £4 to Z.
   X's earnings are: _____
   Y's earnings are: _____
   Z's earnings are: _____

**Beginning the experiment**

The five situations you are asked to evaluate deal with actions that **Individual Y** has to take after each of the five possible actions taken by **Individual X**. More specifically:
- in Situation 1 you will be asked to evaluate Y's actions after Y observes X giving £0 to Z.
- in Situation 2 you will be asked to evaluate Y's actions after Y observes X giving £1 to Z.
- in Situation 3 you will be asked to evaluate Y's actions after Y observes X giving £2 to Z.
- in Situation 4 you will be asked to evaluate Y's actions after Y observes X giving £3 to Z.
- in Situation 5 you will be asked to evaluate Y's actions after Y observes X giving £4 to Z.

On your screen you will now see a description of each of these five situations, as well as a table where you will indicate your responses. At the end of the experiment, we will select both a situation and one possible action by Individual Y at random. If your response matches the response of who is matched with you, you will earn £7. Otherwise, you will earn £0. Please raise your hand if you have any questions.

We are now ready to begin the decision-making part of the experiment. Please look at your computer screen and begin indicating your responses.

## A.2 Behavioral experiment (PEER/GIVE sessions) - instructions

### Experiment Instructions

This is a study in decision-making. For your participation, you will be paid a participation fee of £2. You may receive some additional money based on your choices and the choices of others during the experiment.

If you have any questions during the study, please raise your hand and wait for an experimenter to come to you. Please do not talk or try to communicate with other participants during the experiment. Participants intentionally violating the rules may be asked to leave the experiment and may not be paid.

At the beginning of the experiment you will be matched with two other people, randomly selected from the participants in this room, to form a group of three. You will not learn the identity of the other participants in your group, neither during nor after today's session.

Each person in the group will be randomly assigned a role: 'Individual X' 'Individual Y', or 'Individual Z'. **Individual X and Individual Y will be each given an endowment of £12, while Individual Z will be given an endowment of £0.**

The structure of the decision-making within each group is as follows: X must choose an action. Y will observe the action chosen by X and will then also choose an action. The actions that X and Y choose will determine the earnings for X, Y and Z.

X must decide whether to **give £0, give £1, give £2, give £3, or give £4** to Z. After observing X's choice, Y must also decide whether to **give £0, give £1, give £2, give £3, or give £4** to Z.

Earnings are determined as follows:

Individual X's earnings: £12 – (amount X gives to Z)

Individual Y's earnings: £12 – (amount Y gives to Z)

Individual Z's earnings: £0 + (amount X gives to Z) + (amount Y gives to Z)

---

**HYPOTHETICAL EXAMPLE FOR DEMONSTRATION PURPOSES**

SUPPOSE THAT INDIVIDUAL X GIVES £2 TO INDIVIDUAL Z.

INDIVIDUAL Y OBSERVES THE CHOICE MADE BY INDIVIDUAL X, AND THEN GIVES £4 TO INDIVIDUAL Z.

THIS SITUATION RESULTS IN THE FOLLOWING EARNINGS:

**INDIVIDUAL X EARNINGS**: INDIVIDUAL X HAS CHOSEN TO GIVE £2 TO INDIVIDUAL Z. THEREFORE HIS/HER EARNINGS ARE: £12 - £2 = **£10**.

**INDIVIDUAL Y EARNINGS**: INDIVIDUAL Y HAS CHOSEN TO GIVE £4 TO INDIVIDUAL Z. THEREFORE HIS/HER EARNINGS ARE: £12 - £4 = **£8**.

**INDIVIDUAL Z EARNINGS**: INDIVIDUAL Z RECEIVES £2 FROM INDIVIDUAL X AND £4 FROM INDIVIDUAL Y. THEREFORE HIS/HER EARNINGS ARE: £0 + £2 + £4 = **£6**.

---

After X and Y have made a decision, X, Y and Z will be informed of the choices made and will be paid accordingly in private and in cash.

*Before we continue with the experiment we want to check that each participant understands how their earnings in the decision task are calculated. To do this we ask you to answer the questions below. In a couple of minutes the experimenter will check your answers. When each participant has answered all questions correctly we will continue with the experiment.*

*If you have a question at any time, raise your hand and the experimenter will come to your desk to answer it.*

**Questions**

7. Suppose that both X and Y give £0 to Z.
   X's earnings are: _____
   Y's earnings are: _____
   Z's earnings are: _____

8. Suppose that X gives £1 to Z and Y gives £4 to Z.
   X's earnings are: _____
   Y's earnings are: _____
   Z's earnings are: _____

9. Suppose that X gives £3 to Z and Y gives £0 to Z.
   X's earnings are: _____
   Y's earnings are: _____
   Z's earnings are: _____

10. Suppose that both X and Y give £4 to Z.
    X's earnings are: _____
    Y's earnings are: _____
    Z's earnings are: _____

**How You Make Decisions**

You will make decisions on the computer by completing a screen.

- **If you are Individual X**, you make your decision by completing a screen like the one below. You choose whether to give £0, give £1, give £2, give £3, or give £4 to Individual Z.



Depending on what X chooses one of five possible situations may arise:

- the situation where X gives £0 to Z
- the situation where X gives £1 to Z
- the situation where X gives £2 to Z
- the situation where X gives £3 to Z
- the situation where X gives £4 to Z

- **If you are Individual Y**, you will be in one of these five situations. However, before knowing which of these situations you are actually facing, you will indicate what you would do (give £0, give £1, give £2, give £3, or give £4) for each of the five possible situations you may be in. That is, we want to know:

  - What will you do if X gives £0 to Z
  - What will you do if X gives £1 to Z
  - … and so on.

Which decision is actually relevant depends on the actual decision made by X. Your screen will look like the one below:



- **If you are Individual Z**, you will not have to make a decision in the experiment. However, while you are waiting for X and Y to make their decisions, you will be asked to answer some questions. Please note that your answers to the questions will NOT have any influence on the decisions made by the other participants, nor will they have any consequences for the computation of earnings.

**How Your Cash Earnings Are Determined**

Individual X's choice determines the situation actually faced by Individual Y. X's and Y's choices in this relevant situation determine the earnings for X, Y and Z in today's experiment. You will be paid in private and in cash at the end of the experiment.

**Beginning the Experiment**

Note: the decision task in this experiment will be performed only ONCE. If you are Individual X or Y, you will be prompted to confirm your decisions after you submit them. At this point, if you want to you will be able to change your decisions. Once you confirm your decisions you cannot change them, and these will be used for determining earnings.

If you have a question at any time please raise your hand and the experimenter will come to your desk to answer it.

We are now ready to begin the decision-making part of the experiment. Please look at your computer screen and begin indicating your responses.

## A.3 Norm-elicitation experiment (NATURE/GIVE sessions) – instructions

### Experiment Instructions

This is a study in decision making. For your participation, you will be paid a participation fee of £5. You may receive some additional money based on your choices and the choice of others during the experiment.
If you have any questions during the study, please raise your hand and wait for an experimenter to come to you. Please do not talk or try to communicate with other participants during the experiment. Participants intentionally violating the rules may be asked to leave the experiment and may not be paid.

In a few minutes you will read the descriptions of a situation. This description corresponds to a situation in which one person, "Individual X", must make a decision. You will be given a description of the decision faced by Individual X. The description will include several possible choices available to Individual X.

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

Based on your responses you will be able to earn money today. Specifically, we are going to ask you to look at the possible actions and give evaluations of the actions while MATCHING your responses to those of another person here in the room today. We want you to try and give us the same response as a typical other person here today because we are going to randomly select one of the possible choices that Individual X could make. For the choice selected we will match you randomly with another person here today. Your earning depends on the similarity between your appropriateness rating and that of the other randomly selected person to which you are matched.

In each of your responses we would like you to answer as truthfully as possible, based on your opinions of what most people here in the room believe constitutes socially appropriate or socially inappropriate behaviour.

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 page you will see an example situation.

## Example Situation

Individual X is at a local coffee shop near campus. While there, Individual X notices that someone has left a wallet at one of the tables. Individual X must decide what to do. Individual X 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 shop manager. Individual X can choose only one of these four options.

The table below presents a list of the possible choices available to Individual X. For each of the choices, you will be asked to indicate whether you believe choosing that option is very socially inappropriate, socially inappropriate, somewhat socially inappropriate, somewhat socially appropriate, socially appropriate, or very socially appropriate. You will rate each action on social appropriateness. To rate an action, you would "click" on the radial for that action.

| | X chooses to: | | | |
| --- | --- | --- | --- | --- |
| | take the wallet | ask others nearby if the wallet belongs to them | leave the wallet where it is | give the wallet to the shop manager |
| Very socially inappropriate<br>Socially inappropriate<br>Somewhat socially inappropriate<br>Somewhat socially appropriate<br>Socially appropriate<br>Very socially appropriate | ○<br>○<br>○<br>○<br>○<br>○ | ○<br>○<br>○<br>○<br>○<br>○ | ○<br>○<br>○<br>○<br>○<br>○ | ○<br>○<br>○<br>○<br>○<br>○ |

If this were the situation for this study, you would consider each of the possible choices above and, for that choice, indicate the extent to which you believe taking that action would be "*socially appropriate*" and "*consistent with what most people expect Individual X ought to do*" or "*socially inappropriate*" and "*inconsistent with what most people expect that Individual X ought to do.*"

For example, suppose you believe that most people think that taking the wallet is "*very socially inappropriate*", asking others nearby if the wallet belongs to them is "*somewhat socially appropriate*", leaving the wallet is "*somewhat socially inappropriate*" and giving the wallet to the shop manager is "*very socially appropriate*". Then you would have rated the actions in the following way:

| | X chooses to: | | | |
| --- | --- | --- | --- | --- |
| | take the wallet | ask others nearby if the wallet belongs to them | leave the wallet where it is | give the wallet to the shop manager |
| Very socially inappropriate<br>Socially inappropriate<br>Somewhat socially inappropriate<br>Somewhat socially appropriate<br>Socially appropriate<br>Very socially appropriate | ◉<br>○<br>○<br>○<br>○<br>○ | ○<br>○<br>○<br>◉<br>○<br>○ | ○<br>○<br>◉<br>○<br>○<br>○ | ○<br>○<br>○<br>○<br>○<br>◉ |

## Your Task in Today's Experiment

In a few minutes you will read a description of a situation dealing with decisions that "Individual X", a participant in an experiment, might have to make. You will read a description of the situation and indicate whether each possible choice available to Individual X is socially appropriate or socially inappropriate. You will indicate your responses using a table similar to the one shown above for the example situation.

## How Your Cash Earnings Are Determined

At the end of the experiment today, we will randomly select one of the possible choices that Individual X could have made in the decision situation. For the choice selected we will match you randomly with another person here today. Your earning depends on the similarity between your appropriateness rating and that of the other randomly selected person to which you are matched. To be specific:

If your choice **matches** the choice of who is matched with you, you will **earn £7**. For example, if you choose "Socially appropriate" and the other person also chooses "Socially appropriate", you will get £7. This amount will be paid to you, in cash, at the conclusion of the experiment.

If your choice **does not match** the choice of who is matched with you, you will **earn £0**. For example, if you choose "Socially appropriate" and the other person chooses "Somewhat socially appropriate", you will get £0.

*Before we continue with the experiment we want to check that each participant understands how their earnings will be calculated. To do this we ask you to answer the questions below. In a couple of minutes the experimenter will check your answers. When each participant has answered all questions correctly we will continue with the experiment.*

*If you have a question at any time, raise your hand and the experimenter will come to your desk to answer it.*

### Questions

1. For the action selected for payment, if your rating is "*Very socially appropriate*" and the rating of the person who is randomly matched with you is "*Very socially appropriate*", your earning is: _____

2. For the action selected for payment, if your rating is "*Very socially appropriate*" and the rating of the person who is randomly matched with you is "*Socially inappropriate*", your earning is: _____

**General Description of the Decision Task faced by Individual X**

You will shortly see on your screen a description of five situations, all dealing with decisions that "Individual X", a participant in an experiment, might have to make. For each situation, you will read a description of the situation and indicate whether each possible choice available to Individual X is socially appropriate or socially inappropriate. For each situation, you will indicate your responses using a table similar to the one shown before for the example situation.

All the five situations you will be asked to evaluate deal with decisions that Individual X might have to make in the decision task described below.

At the beginning of the task, two participants (Individual X and Individual Z) are randomly matched together to form a group of two persons. The matching is anonymous, meaning that neither participant will ever know the identity of the other participant with whom he or she is matched.

**X is given an endowment of £12, while Z's endowment E is randomly selected by the computer. In particular, E may be equal to £0, £1, £2, £3 or £4.**

X will be informed of the level of Z's endowment selected by the computer, and will then choose an action. The action that X chooses will determine the earnings for X and Z.

X must decide whether to **give £0, give £1, give £2, give £3, or give £4** to Z.

Earnings are determined as follows:
Individual X's earnings: £12 – (amount X gives to Z)
Individual Z's earnings: E + (amount X gives to Z)

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**HYPOTHETICAL EXAMPLE FOR DEMONSTRATION PURPOSES**

SUPPOSE THAT E = £4 AND INDIVIDUAL X GIVES £2 TO INDIVIDUAL Z.

THIS SITUATION RESULTS IN THE FOLLOWING EARNINGS:

**INDIVIDUAL X EARNINGS**: INDIVIDUAL X HAS CHOSEN TO GIVE £2 TO INDIVIDUAL Z. THEREFORE HIS/HER EARNINGS ARE: £12 - £2 = **£10**.

**INDIVIDUAL Z EARNINGS**: INDIVIDUAL Z HAS AN ENDOWMENT OF E = £4 AND RECEIVES £2 FROM INDIVIDUAL X. THEREFORE HIS/HER EARNINGS ARE:  £4 + £2  = **£6**.

---

After X has made a decision, both participants are informed of the choices made and are paid accordingly in private and in cash.

*Before we continue with the experiment we want to check that each participant understands how X and Z earnings in the decision task are calculated. To do this we ask you to answer the questions below. In a couple of minutes the experimenter will check your answers. When each participant has answered all questions correctly we will continue with the experiment.*

*If you have a question at any time, raise your hand and the experimenter will come to your desk to answer it.*

**Questions**

11. Suppose that E = £0 and X gives £0 to Z.
    X's earnings are: _____
    Z's earnings are: _____

12. Suppose that E = £4 and X gives £1 to Z
    X's earnings are: _____
    Z's earnings are: _____

13. Suppose that E = £0 and X gives £3 to Z
    X's earnings are: _____
    Z's earnings are: _____

14. Suppose that E = £4 and X gives £4 to Z
    X's earnings are: _____
    Z's earnings are: _____

**Beginning the experiment**

The five situations you are asked to evaluate deal with actions that **Individual X** has to take for each of the five possible levels of E randomly selected by the computer. More specifically:
-    in Situation 1 you will be asked to evaluate X's actions when E = £0
-    in Situation 2 you will be asked to evaluate X's actions when E = £1
-    in Situation 3 you will be asked to evaluate X's actions when E = £2
-    in Situation 4 you will be asked to evaluate X's actions when E = £3
-    in Situation 5 you will be asked to evaluate X's actions when E = £4

On your screen you will now see a description of each of these five situations, as well as a table where you will indicate your responses. At the end of the experiment, we will select both a situation and one possible action by Individual X at random. If your response matches the response of who is matched with you, you will earn £7. Otherwise, you will earn £0. Please raise your hand if you have any questions.

We are now ready to begin the decision-making part of the experiment. Please look at your computer screen and begin indicating your responses.

## A.4 Behavioral experiment (NATURE/GIVE sessions) - instructions

### Experiment Instructions

This is a study in decision-making. For your participation, you will be paid a participation fee of £2. You may receive some additional money based on your choices and the choices of others during the experiment.

If you have any questions during the study, please raise your hand and wait for an experimenter to come to you. Please do not talk or try to communicate with other participants during the experiment. Participants intentionally violating the rules may be asked to leave the experiment and may not be paid.

At the beginning of the experiment you will be matched with another person, randomly selected from the participants in this room, to form a group of two. You will not learn the identity of the other participant in your group, neither during nor after today's session.

Each person in the group will be randomly assigned a role: 'Individual X' or 'Individual Z'. **Individual X will be given an endowment of £12, while Individual Z's endowment E will be randomly selected by the computer. In particular, E may be equal to £0, £1, £2, £3 or £4.**

The structure of the decision-making within each group is as follows: X will be informed of the level of Z's endowment selected by the computer, and will then choose an action. The action that X chooses will determine the earnings for X and Z.

X must decide whether to **give £0, give £1, give £2, give £3, or give £4** to Z.

Earnings are determined as follows:
Individual X's earnings: £12 – (amount X gives to Z)
Individual Z's earnings: E + (amount X gives to Z)

---

**HYPOTHETICAL EXAMPLE FOR DEMONSTRATION PURPOSES**

SUPPOSE THAT E = £4 AND INDIVIDUAL X GIVES £2 TO INDIVIDUAL Z.

THIS SITUATION RESULTS IN THE FOLLOWING EARNINGS:

**INDIVIDUAL X EARNINGS**: INDIVIDUAL X HAS CHOSEN TO GIVE £2 TO INDIVIDUAL Z. THEREFORE HIS/HER EARNINGS ARE: £12 - £2 = **£10**.

**INDIVIDUAL Z EARNINGS**: INDIVIDUAL Z HAS AN ENDOWMENT OF E = £4 AND RECEIVES £2 FROM INDIVIDUAL X. THEREFORE HIS/HER EARNINGS ARE: £4 + £2 = **£6**.

---

After X has made a decision, X and Z will be informed of the choice made and will be paid accordingly in private and in cash.

*Before we continue with the experiment we want to check that each participant understands how their earnings in the decision task are calculated. To do this we ask you to answer the questions below. In a couple of minutes the experimenter will check your answers. When each participant has answered all questions correctly we will continue with the experiment.*

*If you have a question at any time, raise your hand and the experimenter will come to your desk to answer it.*

**Questions**

15. Suppose that E = £0 and X gives £0 to Z.
    X's earnings are: _____
    Z's earnings are: _____

16. Suppose that E = £4 and X gives £1 to Z
    X's earnings are: _____
    Z's earnings are: _____

17. Suppose that E = £0 and X gives £3 to Z
    X's earnings are: _____
    Z's earnings are: _____

18. Suppose that E = £4 and X gives £4 to Z
    X's earnings are: _____
    Z's earnings are: _____

**How You Make Decisions**

You will make decisions on the computer by completing a screen.

Depending on the level of E randomly selected by the computer, one of five possible situations may arise:
-    the situation where E = £0
-    the situation where E = £1
-    the situation where E = £2
-    the situation where E = £3
-    the situation where E = £4

- **If you are Individual X**, you will be in one of these five situations. However, before knowing which of these situations you are actually facing, you will indicate what you would do (give £0, give £1, give £2, give £3, or give £4) for each of the five possible situations you may be in. That is, we want to know:
    -    What will you do if E = £0
    -    What will you do if E = £1
    -    … and so on.

40

Which decision is actually relevant depends on the actual level of E randomly selected by the computer. Your screen will look like the one below:



You are **Individual X** .
You are paired with another participant, Z.

You are given an endowment of £12, while Z is randomly given an endowment E that could be equal to £0, £1, £2, £3 or £4. You must choose whether to give £0, give £1, give £2, give £3 or give £4 to Z.

Please make a choice for each of the five possible situations that may arise depending on Z's endowment:

| If Z's endowment is **£0** , you choose: | If Z's endowment is **£1** , you choose: | If Z's endowment is **£2** , you choose: | If Z's endowment is **£3** , you choose: | If Z's endowment is **£4** , you choose: |
|---|---|---|---|---|
| ○ give £0 | ○ give £0 | ○ give £0 | ○ give £0 | ○ give £0 |
| ○ give £1 | ○ give £1 | ○ give £1 | ○ give £1 | ○ give £1 |
| ○ give £2 | ○ give £2 | ○ give £2 | ○ give £2 | ○ give £2 |
| ○ give £3 | ○ give £3 | ○ give £3 | ○ give £3 | ○ give £3 |
| ○ give £4 | ○ give £4 | ○ give £4 | ○ give £4 | ○ give £4 |

- **If you are Individual Z**, you will not have to make a decision in the experiment. However, while you are waiting for X to make his/her decision, you will be asked to answer some questions. Please note that your answers to the questions will NOT have any influence on the decisions made by the other participants, nor will they have any consequences for the computation of earnings.

**How Your Cash Earnings Are Determined**

The computer randomly selects the level of Individual Z's endowment E, and thus the situation actually faced by Individual X. Individual X's choice in this relevant situation determines the earnings for X and Z in today's experiment. You will be paid in private and in cash at the end of the experiment.

**Beginning the Experiment**

Note: the decision task in this experiment will be performed only ONCE. If you are Individual X, you will be prompted to confirm your decisions after you submit them. At this point, if you want to you will be able to change your decisions. Once you confirm your decisions you cannot change them, and these will be used for determining earnings.

If you have a question at any time please raise your hand and the experimenter will come to your desk to answer it.

We are now ready to begin the decision-making part of the experiment. Please look at your computer screen and begin indicating your responses.

## APPENDIX B - Distributions of appropriateness ratings across treatments

The tables below report the full distributions of appropriateness ratings collected in the experiment. The tables also report the average social appropriateness ratings that were reported in Figure 1 in the main text.[1] The stars reported in the leftmost column refer to p-values of Mann-Whitney tests comparing the ratings of each action between the GIVE and TAKE versions of the game, *ceteris paribus* (*** = 1%; ** = 5%; * = 10%).

### Table B.1 – Appropriateness ratings when Recipient's wealth = £0 / £3

| PEER treatment Action | GIVE game Mean | - | -- | - | + | ++ | +++ | TAKE game Mean | --- | -- | - | + | ++ | +++ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Give £0 / Take £3 | **-0.49**** | 39% | 17% | 33% | 3% | 6% | 3% | **-0.70** | 64% | 19% | 3% | 6% | 8% | 0% |
| Give £1 / Take £2 | **-0.16**** | 8% | 31% | 22% | 25% | 8% | 6% | **-0.46** | 8% | 67% | 11% | 8% | 6% | 0% |
| Give £2 / Take £1 | **0.14**** | 3% | 3% | 25% | 50% | 14% | 6% | **-0.11** | 0% | 17% | 58% | 14% | 8% | 3% |
| Give £3 / Give £0 | **0.46** | 3% | 0% | 6% | 19% | 67% | 5% | **0.49** | 0% | 0% | 6% | 31% | 50% | 14% |
| Give £4 / Give £1 | **0.77** | 3% | 6% | 0% | 3% | 17% | 72% | **0.80** | 0% | 0% | 3% | 8% | 25% | 64% |

| NATURE treatment Action | GIVE game Mean | - | -- | - | + | ++ | +++ | TAKE game Mean | --- | -- | - | + | ++ | +++ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Give £0 / Take £3 | **-0.8**** | 63% | 23% | 13% | 0% | 0% | 0% | **-0.96** | 91% | 9% | 0% | 0% | 0% | 0% |
| Give £1 / Take £2 | **-0.45**** | 7% | 60% | 23% | 10% | 0% | 0% | **-0.71** | 28% | 72% | 0% | 0% | 0% | 0% |
| Give £2 / Take £1 | **-0.04**** | 3% | 10% | 37% | 43% | 7% | 0% | **-0.40** | 12% | 28% | 56% | 3% | 0% | 0% |
| Give £3 / Give £0 | **0.33** | 0% | 10% | 3% | 33% | 50% | 3% | **0.37** | 3% | 0% | 9% | 31% | 50% | 6% |
| Give £4 / Give £1 | **0.73** | 0% | 3% | 7% | 3% | 27% | 60% | **0.76** | 0% | 0% | 0% | 16% | 28% | 56% |

*Note*: responses are "very socially inappropriate" (---),"socially inappropriate" (--), "somewhat socially inappropriate" (-), "somewhat socially appropriate" (+),"socially appropriate" (++), "very socially appropriate" (++). Modal responses are shaded. Significance levels of Mann-Whitney tests comparing ratings across the GIVE and TAKE versions of the game: *** = 1%; ** = 5%; * = 10%

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[1] The average ratings were computed transforming responses into numerical scores using the following scale: very socially inappropriate = -1; inappropriate = -0.6; somewhat socially inappropriate = -0.2; somewhat socially appropriate = 0.2; socially appropriate = 0.6; very socially appropriate = 1.

## Table B.2 – Appropriateness ratings when Recipient's wealth = £1 / £4

| PEER treatment Action | Mean | GIVE game --- | -- | - | + | ++ | +++ | Mean | TAKE game --- | -- | - | + | ++ | +++ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Give £0 / Take £3 | **-0.71**** | 47% | 39% | 11% | 0% | 3% | 0% | **-0.88** | 75% | 19% | 6% | 0% | 0% | 0% |
| Give £1 / Take £2 | **-0.04***** | 0% | 22% | 19% | 39% | 14% | 5% | **-0.50** | 11% | 67% | 11% | 8% | 3% | 0% |
| Give £2 / Take £1 | **0.30***** | 0% | 0% | 14% | 56% | 22% | 8% | **-0.18** | 0% | 19% | 61% | 14% | 6% | 0% |
| Give £3 / Give £0 | **0.46** | 0% | 3% | 8% | 22% | 56% | 11% | **0.46** | 0% | 0% | 6% | 42% | 36% | 17% |
| Give £4 / Give £1 | **0.68** | 3% | 6% | 0% | 14% | 17% | 61% | **0.76** | 3% | 0% | 0% | 8% | 31% | 58% |

| NATURE treatment Action | Mean | GIVE game --- | -- | - | + | ++ | +++ | Mean | TAKE game --- | -- | - | + | ++ | +++ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Give £0 / Take £3 | **-0.75**** | 53% | 30% | 17% | 0% | 0% | 0% | **-0.91** | 81% | 16% | 3% | 0% | 0% | 0% |
| Give £1 / Take £2 | **-0.37***** | 7% | 43% | 37% | 13% | 0% | 0% | **-0.60** | 19% | 62% | 19% | 0% | 0% | 0% |
| Give £2 / Take £1 | **-0.04***** | 3% | 13% | 30% | 47% | 7% | 0% | **-0.37** | 12% | 25% | 56% | 6% | 0% | 0% |
| Give £3 / Give £0 | **0.36** | 0% | 7% | 7% | 33% | 47% | 7% | **0.39** | 3% | 0% | 3% | 41% | 47% | 7% |
| Give £4 / Give £1 | **0.69** | 0% | 3% | 7% | 7% | 30% | 53% | **0.76** | 0% | 0% | 0% | 12% | 34% | 53% |

*Note*: responses are "very socially inappropriate" (---),"socially inappropriate" (--), "somewhat socially inappropriate" (-), "somewhat socially appropriate" (+),"socially appropriate" (++), "very socially appropriate" (++). Modal responses are shaded. Significance levels of Mann-Whitney tests comparing ratings across the GIVE and TAKE versions of the game: *** = 1%; ** = 5%; * = 10%

**Table B.3 – Appropriateness ratings when Recipient's wealth = £2 / £5**

| PEER treatment | | GIVE game | | | | | | | TAKE game | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Action | Mean | --- | -- | - | + | ++ | +++ | Mean | --- | -- | - | + | ++ | +++ |
| Give £0 / Take £3 | **-0.78** | 64% | 22% | 11% | 0% | 3% | 0% | **-0.82** | 72% | 22% | 0% | 0% | 6% | 0% |
| Give £1 / Take £2 | **-0.43** | 17% | 44% | 25% | 8% | 6% | 0% | **-0.53** | 19% | 56% | 19% | 0% | 6% | 0% |
| Give £2 / Take £1 | **0.33***** | 0% | 3% | 11% | 47% | 28% | 11% | **-0.22** | 0% | 17% | 61% | 11% | 6% | 6% |
| Give £3 / Give £0 | **0.53** | 0% | 0% | 3% | 22% | 64% | 11% | **0.52** | 0% | 0% | 0% | 31% | 58% | 11% |
| Give £4 / Give £1 | **0.72** | 3% | 0% | 6% | 11% | 17% | 64% | **0.80** | 0% | 3% | 3% | 6% | 19% | 69% |

| NATURE treatment | | GIVE game | | | | | | | TAKE game | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Action | Mean | --- | -- | - | + | ++ | +++ | Mean | --- | -- | - | + | ++ | +++ |
| Give £0 / Take £3 | **-0.68** | 53% | 20% | 20% | 7% | 0% | 0% | **-0.80** | 56% | 41% | 0% | 3% | 0% | 0% |
| Give £1 / Take £2 | **-0.32**** | 3% | 47% | 33% | 10% | 7% | 0% | **-0.55** | 19% | 53% | 25% | 3% | 0% | 0% |
| Give £2 / Take £1 | **-0.08***** | 3% | 7% | 27% | 43% | 20% | 0% | **-0.35** | 12% | 25% | 50% | 12% | 0% | 0% |
| Give £3 / Give £0 | **0.41** | 0% | 7% | 3% | 27% | 57% | 7% | **0.40** | 3% | 0% | 3% | 37% | 50% | 6% |
| Give £4 / Give £1 | **0.73** | 0% | 0% | 10% | 3% | 30% | 57% | **0.76** | 0% | 0% | 0% | 19% | 22% | 59% |

*Note*: responses are "very socially inappropriate" (---),"socially inappropriate" (--), "somewhat socially inappropriate" (-), "somewhat socially appropriate" (+),"socially appropriate" (++), "very socially appropriate" (++). Modal responses are shaded. Significance levels of Mann-Whitney tests comparing ratings across the GIVE and TAKE versions of the game: *** = 1%; ** = 5%; * = 10%

**Table B.4 – Appropriateness ratings when Recipient's wealth = £3 / £6**

| PEER treatment | GIVE game | | | | | | | TAKE game | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Action | Mean | --- | -- | - | + | ++ | +++ | Mean | --- | -- | - | + | ++ | +++ |
| Give £0 / Take £3 | **-0.77** | 64% | 22% | 8% | 3% | 3% | 0% | **-0.84** | 78% | 17% | 0% | 3% | 0% | 3% |
| Give £1 / Take £2 | **-0.53** | 25% | 47% | 17% | 8% | 3% | 0% | **-0.61** | 28% | 58% | 8% | 3% | 0% | 3% |
| Give £2 / Take £1 | **-0.16** | 6% | 22% | 33% | 33% | 6% | 0% | **-0.26** | 6% | 28% | 53% | 6% | 6% | 3% |
| Give £3 / Give £0 | **0.57** | 0% | 0% | 0% | 22% | 64% | 14% | **0.62** | 0% | 0% | 3% | 19% | 47% | 31% |
| Give £4 / Give £1 | **0.83\*\*** | 0% | 0% | 0% | 11% | 19% | 69% | **0.63** | 0% | 6% | 6% | 11% | 31% | 47% |

| NATURE treatment | GIVE game | | | | | | | TAKE game | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Action | Mean | --- | -- | - | + | ++ | +++ | Mean | --- | -- | - | + | ++ | +++ |
| Give £0 / Take £3 | **-0.61** | 50% | 23% | 13% | 7% | 7% | 0% | **-0.77** | 56% | 31% | 12% | 0% | 0% | 0% |
| Give £1 / Take £2 | **-0.25\*\*** | 7% | 40% | 27% | 17% | 7% | 3% | **-0.52** | 19% | 50% | 25% | 6% | 0% | 0% |
| Give £2 / Take £1 | **0.17\*\*\*** | 3% | 7% | 23% | 30% | 33% | 3% | **-0.29** | 9% | 22% | 53% | 12% | 3% | 0% |
| Give £3 / Give £0 | **0.52** | 0% | 0% | 7% | 23% | 53% | 17% | **0.40** | 3% | 0% | 3% | 41% | 44% | 9% |
| Give £4 / Give £1 | **0.83** | 0% | 0% | 3% | 10% | 13% | 73% | **0.74** | 0% | 0% | 0% | 16% | 34% | 50% |

*Note*: responses are "very socially inappropriate" (---),"socially inappropriate" (--), "somewhat socially inappropriate" (-), "somewhat socially appropriate" (+),"socially appropriate" (++), "very socially appropriate" (++). Modal responses are shaded. Significance levels of Mann-Whitney tests comparing ratings across the GIVE and TAKE versions of the game: *** = 1%; ** = 5%; * = 10%

**Table B.5 – Appropriateness ratings when Recipient's wealth = £4 / £7**

| PEER treatment / Action | GIVE game Mean | --- | -- | - | + | ++ | +++ | TAKE game Mean | --- | -- | - | + | ++ | +++ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Give £0 / Take £3 | **-0.84** | 81% | 8% | 6% | 3% | 3% | 0% | **-0.82** | 78% | 17% | 0% | 3% | 0% | 3% |
| Give £1 / Take £2 | **-0.61** | 36% | 44% | 8% | 8% | 3% | 0% | **-0.63** | 28% | 58% | 8% | 3% | 0% | 3% |
| Give £2 / Take £1 | **-0.36** | 17% | 28% | 36% | 17% | 3% | 0% | **-0.31** | 6% | 28% | 53% | 6% | 6% | 3% |
| Give £3 / Give £0 | **0.08***** | 3% | 11% | 28% | 31% | 28% | 0% | **0.40** | 0% | 0% | 3% | 19% | 47% | 31% |
| Give £4 / Give £1 | **0.90** | 0% | 0% | 0% | 3% | 19% | 78% | **0.79** | 0% | 6% | 6% | 11% | 31% | 47% |

| NATURE treatment / Action | GIVE game Mean | --- | -- | - | + | ++ | +++ | TAKE game Mean | --- | -- | - | + | ++ | +++ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Give £0 / Take £3 | **-0.52**** | 40% | 23% | 20% | 10% | 7% | 0% | **-0.77** | 59% | 28% | 9% | 3% | 0% | 0% |
| Give £1 / Take £2 | **-0.15***** | 3% | 30% | 33% | 17% | 17% | 0% | **-0.47** | 16% | 47% | 28% | 9% | 0% | 0% |
| Give £2 / Take £1 | **0.28***** | 0% | 7% | 13% | 47% | 20% | 13% | **-0.25** | 9% | 22% | 47% | 16% | 6% | 0% |
| Give £3 / Give £0 | **0.65**** | 0% | 0% | 3% | 7% | 63% | 27% | **0.46** | 3% | 0% | 3% | 31% | 47% | 16% |
| Give £4 / Give £1 | **0.89** | 0% | 0% | 0% | 7% | 13% | 80% | **0.80** | 0% | 0% | 0% | 16% | 19% | 66% |

*Note*: responses are "very socially inappropriate" (---),"socially inappropriate" (--), "somewhat socially inappropriate" (-), "somewhat socially appropriate" (+),"socially appropriate" (++), "very socially appropriate" (++). Modal responses are shaded. Significance levels of Mann-Whitney tests comparing ratings across the GIVE and TAKE versions of the game: *** = 1%; ** = 5%; * = 10%

# APPENDIX C – Dictators' behavior in the GIVE and TAKE games

The figures below show, for each treatment, the distribution of dictator's actions in the GIVE and TAKE versions of the game. Following Krupka and Weber (2013), in the tables below each figure we report regression analysis of the differences in dictator's actions between the GIVE and TAKE games. We present three models: 1) an ordered logit model of the amount transferred by a dictator; 2) a logit model of the probability that dictators transfer £3 (£0) or £4 (£1); and 3) a logit model of the probability that dictators transfer £0 (-£3), conditional on having transferred less than £3 (£0). In all models we regress the dependent variable on a dummy taking value 1 for observations collected in the TAKE sessions. See Krupka and Weber (2013) for further details.

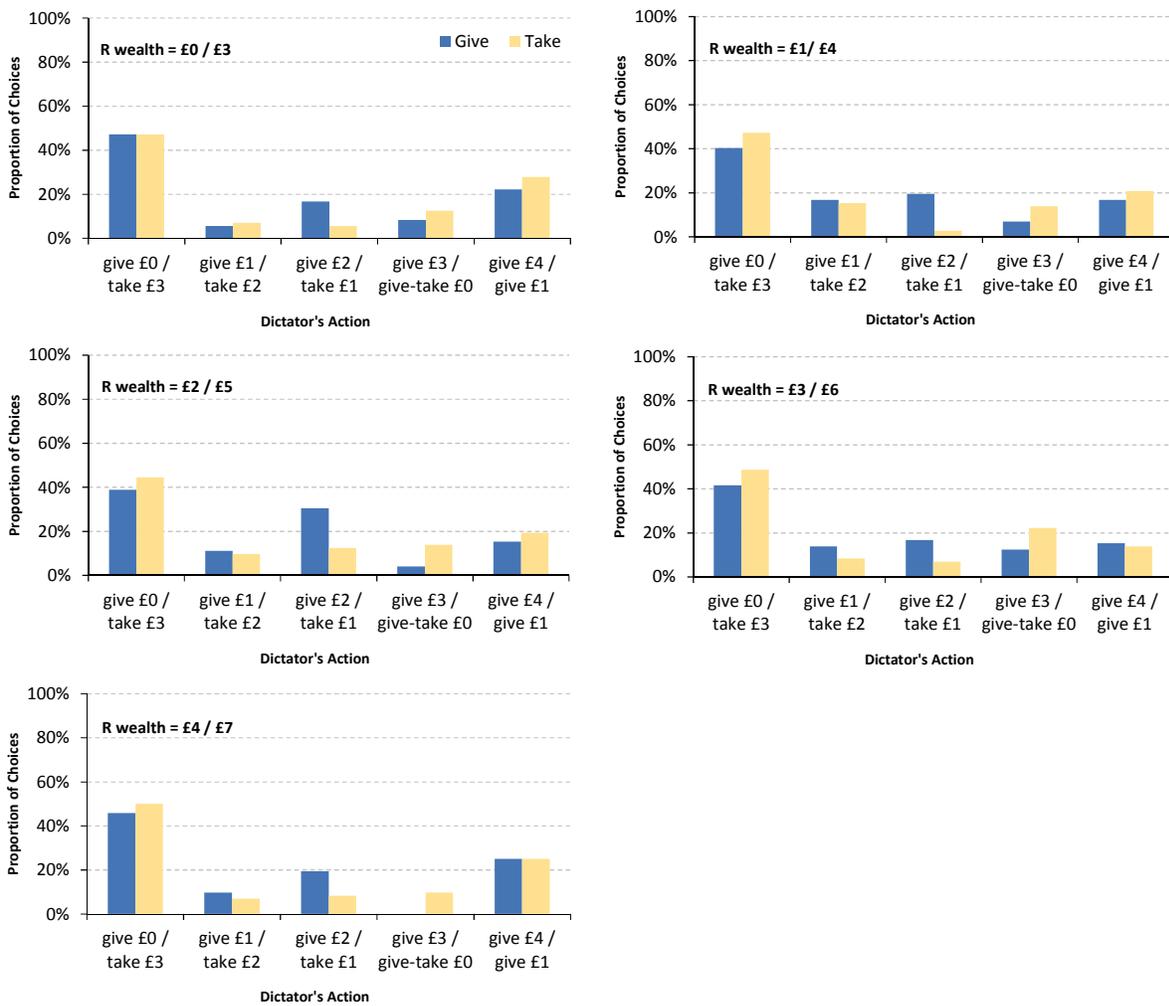## Figure C.1 – Behavior in the PEER treatment

**Table C.1 – Behavior in the PEER treatment when Recipient's wealth = £0 / £3**

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | 0.131 *(0.293)* | 0.427 *(0.315)* | 0.575 *(0.492)* |
| Constant | - | -0.821*** *(0.176)* | 0.754** *(0.291)* |
| N. | 144 | 144 | 93 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** p < 0.01; ** p < 0.05; * p < 0.1.

**Table C.2 – Behavior in the PEER treatment when Recipient's wealth = £1 / £4**

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | -0.068 *(0.303)* | 0.543 *(0.341)* | 0.852** *(0.357)* |
| Constant | - | -1.174*** *(0.125)* | 0.109 *(0.212)* |
| N. | 144 | 144 | 102 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** p < 0.01; ** p < 0.05; * p < 0.1.

**Table C.3 – Behavior in the PEER treatment when Recipient's wealth = £2 / £5**

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | 0.037 *(0.283)* | 0.728** *(0.335)* | 0.762** *(0.373)* |
| Constant | - | -1.421*** *(0.183)* | -0.069 *(0.178)* |
| N. | 144 | 144 | 106 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** p < 0.01; ** p < 0.05; * p < 0.1.

**Table C.4 – Behavior in the PEER treatment when Recipient's wealth = £3 / £6**

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | -0.075 *(0.312)* | 0.385 *(0.369)* | 0.847[*] *(0.481)* |
| Constant | - | -0.955[***] *(0.226)* | 0.310 *(0.276)* |
| N. | *144* | *144* | *98* |
| Sample | *All data* | *All data* | *Subjects who allocated less than £3(£0)* |
| Model | *Ordered Logit* | *Logit* | *Logit* |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). [***] p < 0.01; [**] p < 0.05; [*] p < 0.1.

**Table C.5 – Behavior in the PEER treatment when Recipient's wealth = £4 / £7**

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | -0.029 *(0.323)* | 0.467 *(0.388)* | 0.734 *(0.552)* |
| Constant | - | -1.099[***] *(0.258)* | 0.452[*] *(0.230)* |
| N. | *144* | *144* | *101* |
| Sample | *All data* | *All data* | *Subjects who allocated less than £3(£0)* |
| Model | *Ordered Logit* | *Logit* | *Logit* |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). [***] p < 0.01; [**] p < 0.05; [*] p < 0.1.

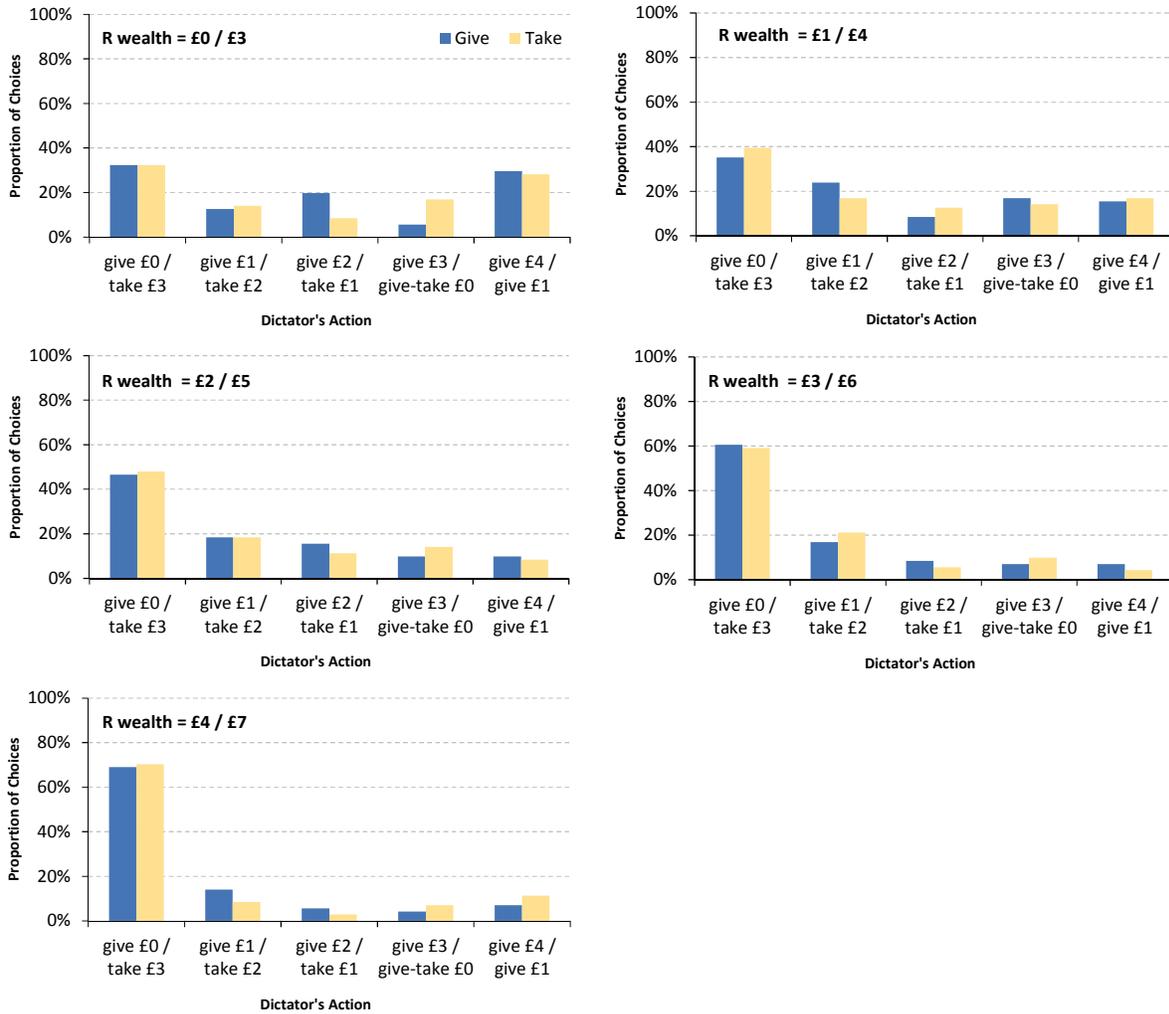## Figure C.2 – Behavior in the NATURE treatment



## Table C.6 – Behavior in the NATURE treatment when Recipient's wealth = £0 / £3

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | 0.050 *(0.197)* | 0.412 *(0.284)* | 0.363 *(0.363)* |
| Constant | - | -0.610*** *(0.212)* | -0.000 *(0.222)* |
| N. | 142 | 142 | 85 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** p < 0.01; ** p < 0.05; * p < 0.1.

**Table C.7 – Behavior in the NATURE treatment when Recipient's wealth = £1 / £4**

| Dep. Variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | -0.048 (0.181) | -0.065 (0.273) | 0.204 (0.236) |
| Constant | - | -0.736*** (0.170) | 0.083 (0.219) |
| N. | 142 | 142 | 97 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** p < 0.01; ** p < 0.05; * p < 0.1.


**Table C.8 – Behavior in the NATURE treatment when Recipient's wealth = £2 / £5**

| Dep. Variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | -0.032 (0.223) | 0.169 (0.402) | 0.163 (0.361) |
| Constant | - | -1.404*** (0.306) | 0.318 (0.317) |
| N. | 142 | 142 | 112 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** p < 0.01; ** p < 0.05; * p < 0.1.


**Table C.9 – Behavior in the NATURE treatment when Recipient's wealth = £3 / £6**

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | -0.001 (0.247) | -0.000 (0.571) | -0.078 (0.221) |
| Constant | - | -1.808*** (0.499) | 0.871*** (0.187) |
| N. | 142 | 142 | 122 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** p < 0.01; ** p < 0.05; * p < 0.1.

**Table C.10 – Behavior in the NATURE treatment when Recipient's wealth = £4 / £7**

| Dep. variable | Amount allocated to recipient | Binary: 1 if allocates £3(£0) £4(£1) | Binary: 1 if allocates £0(-£3) |
|---|---|---|---|
| TAKE | 0.038 *(0.334)* | 0.568 *(0.503)* | 0.580 *(0.380)* |
| Constant | - | -2.064*** *(0.390)* | -1.253*** *(0.249)* |
| N. | 142 | 142 | 121 |
| Sample | All data | All data | Subjects who allocated less than £3(£0) |
| Model | Ordered Logit | Logit | Logit |

Notes: Standard errors in parentheses, adjusted for intragroup correlation (sessions are used as independent clustering units). *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.