Giving in Dictator Games – Experimenter demand effect or preference over the rules of the game?

Nadine Chlaß[‡] Peter G. Moffatt[*]

This version: April 14th, 2021

Abstract

Which preference underlies giving in dictator games? To date, the experimental evidence has either been interpreted as a preference over the distribution of payoffs, or as an experimenter demand effect. We show that under strict dictator-dictator as well as strict dictator-recipient anonymity, giving in dictator games springs from a preference purely over the rules of the game which leave the recipient without any decision right, using an instrument for (Chlaß et al. 2019)'s purely procedural preferences. Ethical concerns which trigger experimenter demand (Andreoni and Bernheim 2009) are *negatively* correlated with dictator game giving. Our experiments cover a series of dictator game variants which have sparked the experimenter demand debate. Our results explain the lion's share of results from the literature: lower transfers when dictators earn the pie (Cherry et al. 2002), when 'take' options are available (List 2007; Bardsley 2008) or when anonymity is lifted (Hoffmann et al. 1994); generous dictators consistently preferring to avoid the game altogether, if given the option (Lazear et al. 2012), and findings that social norms and beliefs cause dictator transfers (Krupka and Weber 2013; Di Tella et al. 2015; Kimbrough and Vostroknutov 2015).

JEL Classification: C91, D63, D64

Key words: equality of decision rights, altruism, dictator games, moral judgement, experimenter demand effect, purely procedural preference

[3]Department of Economics, University of Jena, Germany, Carl-Zeiss-Str. 3, 07743 Jena. Email: nadine.chlass@uni-jena.de. Phone: 0049 (0)3641 930430. http://www.chlass.de.

[1]University of East Anglia, Norwich Research Park, Norwich, NR4 7TJ, UK, Email: P.Moffatt@uea.ac.uk

1 Introduction

Do people hold preferences over others' payoffs? In the early nineties of the last century, Forsythe et al. (1994) introduced the main framework in which economics has since studied this question: the 'dictator game', in which a 'dictator' splits a sum of money between herself and a recipient. The recipient has no veto, and if proposer and recipient are anonymous, whatever amount a proposer transfers, cannot be motivated by a strategic concern about her own payoff. Rather, it was assumed, the dictator must derive utility from increasing the recipient's payoff – a challenge for economics' assumption of rational self-interest. By the late nineties, the phenomenon had inspired new preference models such as Fehr and Schmidt's (1999) inequity aversion, or Bolton and Ockenfels's (2000) ERC theory which assume that individuals can dislike being materially better off than others.

Doubts about this interpretation of dictator game transfers came largely in two waves: by the mid-nineties, Hoffmann and McCabe (1994) showed how sensitively transfers can react to anonymity from the experimenter suggesting that transfers – rather than signalling a genuine preference over others' payoffs – might respond to the *social demand* of the experimenter[1]. A second wave (List 2007; Bardsley 2008; Smith 2010; Oechssler 2010; Zizzo 2010; Zizzo 2011) argued that the *artificiality* of the experimental situation may largely trigger the transfers observed:

"[...]You are recruited to the lab, awarded a costless right to some of the experimenter's money, and given an opportunity to transfer any part or none of it to a second anonymous person who has nothing to do except receive the money. [...] The Gods must be crazy! [...]" (Smith 2010, p. 9).

By then, Cherry et al. (2002) had shown that in a more realistic setting where the money to be distributed must be earned first[2], dictators transfer nothing and List (2007) and Bardsley (2008) had reported a similar decline once dictators faced a broader, more heterogeneous choice set which included options to take money from the recipient. It was argued that in order to interpret situations which may not have analogies in real life, individuals make particularly heavy use of contextual information to infer what they are expected to do, and which social norm applies. In the original dictator game where money is free and the choice set mainly consists of options to give, dictators infer they must be expected to give and that everybody will give. Dictators

[1]Later studies illustrate that giving in non-anonymous settings *increases* in the authority of the experimenter, or with the presence of an audience: Brañas-Garça (2007) finds that students give more if they see the experimenter is a professor. Franzen and Pointner (2012) report that giving *decreases* when transfers can be hidden from others through a stochastic intermediation device. List (2007) and Zizzo (2010) point out that these interventions to increase anonymity might trigger *reverse* demand effects by informing dictators they are expected *not* to give. The results in question would then document giving under different types of demand, rather than in the absence/presence of demand.

[2]Dictators answered a 45-minutes quiz yielding $40.

comply with this expectation and the resulting norm to maintain their social image, and make a nonzero transfer themselves (List 2007; Levitt and List 2007; Andreoni and Bernheim 2009).[3] If true, behaviour could likely react to any small change in the context of an experiment (Oechssler 2010) such as frames (Brañas-Garza 2006) or arbitrary pieces of information about the recipient (Burnham 2003) because such changes further define the relevant social norm, or others' actual expectations. Therefore, it came as a surprise that in a subsequent large sample study (Dreber et al. 2013), social frames and varying context (different labels for strategies, and different labels for the dictator game) did not affect transfers in any way – suggesting that dictators did not use this information to guide their actions, and that an oddly stable preference was at play. Perhaps therefore, the choice set was *the* critical piece of information dictators used to infer what they deemed right to do (the relevant social norm, and others' expectations).

In this paper, we present evidence that the preference over others' payoffs and the experimenter demand effect interpretations may both be *correct* and both *wrong* at the same time: our findings imply that dictators mean to compensate recipients for the fact that the *rules of the dictator game* leave the recipient no decision rights. Therefore, under the specific rules of a dictator game, a dictator's utility does indeed increase in the recipient's payoff. However, this new interpretation also implies that dictators cease to care about the recipient's payoffs once decision rights are distributed more equally[4]. In other words, dictator game transfers are indeed a side-effect of the

[3]To illustrate this mechanism formally, Andreoni and Bernheim (2009) fit much of the dictator game literature on demand effects by utility function $u((1-s),m)+\eta_i\nu(s-0.5)$ where u is a subutility function increasing in the amount $1-s$ which the dictator keeps, and in the dictator's social image m; η_i is the degree to which she cares to comply with a social norm, and ν is a subutility function with a maximum at the equal split $s=0.5$. By this model, dictators are assumed to give because they infer what is right from i) what maintains their social image, and from ii) a social norm that the equal split is the right course of action. The experimental test of this model always – other than in our paper – publicly identifies dictators, recipients, and outcomes such that ethical criteria i) and ii) can always stipulate nonzero transfers. List and Levitt (2007) suggest a utility function $M_i(a,\eta,n,s)+W_i(a,\eta)$ where the dictator's moral payoff M_i I) decreases in the amount a the dictator keeps, and more strongly so as the monetary stakes η grow, II) increases in the set n of social norms and/or legal rules, and III) depends on the extent to which an action is scrutinized (observed, or must be justified to another person). Wealth W_i increases in the amount of money kept a, and the stakes η. In this model, dictators are therefore assumed to give because they infer the right course of action from social norms, legal rules, and – since *scrutiny* introduces an audience's expectations and opinions – also from what maintains the dictator's social image.

[4]To clarify this preference formally, we do not argue here that dictators care for a fair lottery over the asymmetric payoffs which they expect the dictator game to induce. This would translate into a procedural preference over equal expected payoffs (Bolton et al. 2005). Since the roles of dictator and recipient are randomized, the dictator game satisfies this fairness criterion. Neither do we argue that dictators care about the kindness of the dictator game (Sebald 2010) – that is, the kindness of the distribution of outcomes which they expect the game to induce as judged by a decision-node specific social norm (Dufwenberg and Kirchsteiger 2004). Instead, we pursue the idea that dictators care about decision rights beyond their instrumental value and hold a corresponding ethical ideal that this value should be equally distributed (Chlaß et al. 2019). Since decision rights are a source of power (Weber 1921 I §16), this amounts to an ethical criterion that power should be equally distributed. We use formalizations from (Chlaß et al. 2019) as a tool to analyze the literature from this viewpoint.

experimental method (the dictator game) originally designed to study whether humans *generally* care for others' payoffs.

Our argument rests on four cornerstones. First, we show that in 'Give' and 'Take' games, both with earned income and windfall profits, dictators infer the *right* course of action from the same two ethical criteria. Experimentally, transfers *decrease* in the ethical criteria which underlie the experimenter demand debate, namely social image concerns, others' expectations (Andreoni and Bernheim 2009), social norms (Levitt and List 2007; List 2007; Andreoni and Bernheim 2009; Krupka and Weber 2013; Kimbrough and Vostroknutov 2015; Di Tella et al. 2015), or intentions (Bardsley 2008; Falk and Fischbacher 2006). This suggests that in our setting which introduces strict dictator-dictator and dictator-recipient anonymity, these criteria justify small or zero transfers. In contrast, transfers experimentally *increase* in the extent to which dictators care about universal ethical principles of conscience – the respect for human rights, the individual will, and human dignity. This stand-alone ethical criterion neither hinges upon context, nor upon the presence of an audience, nor upon that audience's appreciation or expectation. Recipients' hypothetical transfers increase in the extent to which they care for basic liberties and rights. Chlaß et al. (2019) and Chlaß and Riener (2015) show that these two ethical criteria explain individuals' preferences for procedures which distribute decision rights equally to have equal decision rights when no existing economic preference model does so; and that these criteria induce substantial amounts of altruism only when the opponent's decision rights are unprotected. Extensive information how individuals' preferences over these criteria correlate with other data is available. In light of this previous work, individuals' preferencs over these criteria instrument preferences for the equality of decision rights.

Second, we show how the shift in transfers between 'Give' and 'Take' games can be explained by a reinterpretation of both games. In List's (2007) set-up of the traditional 'Give' game, the most selfish action is to transfer Zero. In his 'Take-5' game, it is to take the entire \$5 of the recipient's endowment. A dictator who wishes to depart from this point of self-interest by exactly \$1, transfers \$1 in a 'Give' game, and \$-4 in a 'Take-5' game. Put differently, a 'Take' game moves the distribution of transfers to a new point of origin in the coordinate system which is \$-5. To test this, we design different sequences of (a) the traditional 'Give' dictator game sketched above, and (b) List's (2007) and Bardsley's (2008) 'Take' variant in which the dictator can give, but also take money from the recipient. Every dictator plays one sequence of four dictator games and never meets the same recipient twice. A sequence starts either out either with a 'Give', or with a 'Take' game. Altogether, we study 'Give' and 'Take' games between-subjects as in (List 2007; Bardsley 2008) and within-subjects to see how the same dictator transitions from a 'Give' to a 'Take' game. Within-subjects, we find a mixture of two transfer types: there are sufficiently many dictators for whom the point

of origin shifts as sketched above to predict the between-subjects decline in transfers between 'Give' and 'Take' games which we observe. Another type transfers absolutely stable amounts in 'Give' and 'Take' games. We repeat the analysis for a set-up in which participants first spend thirty minutes earning the money.

The third cornerstone is a finite-mixture model to estimate the frequency of these transfer types, and to see why they might exist. We find that the first type, who transfers the same amount in both games, is the more likely, the more a dictator applies universal ethical principles of conscience to derive the right course of action. The second type is the more likely, the more a dictator looks into social norms, others' expectations, social image, or intentions – the very ethical criteria underlying the experimenter demand debate. In our setup, dictators who infer the right transfer from this second class of criteria, give little or nothing, suggesting that being selfish is socially acceptable. If this socially acceptable selfish choice shifts downward in the 'Take' game, transfers derived from these criteria should shift along with it – which they do. The shift itself does hence not seem to spring from the same criterion as transfers in a 'Give' game, and does not seem to reveal information about the nature of dictator transfers after all[5]. Similar results hold for recipients.

The fourth cornerstone is a discussion how the main results about giving in dictator games – those put forth to strengthen the experimenter demand case, and those put forth to ascribe the phenomenon to other preferences – can be reconciled with the view that an ethical concern about the recipient's decision rights, respect for the recipient's will, and her dignity, are at play.

We elicit which ethical criteria dictators apply to conclude whether an action is right or wrong by means of a formal moral judgement test. In the twentieth century, Piaget (1948) and Kohlberg (e.g. 1984) conducted large-scale field studies to see which ethical criteria individuals consult to derive what they deem right to do. The test at hand (Lind 1978; Lind 2008) measures individuals' preferences over the criteria documented in this field work. It elicits how much individuals refer to punishment or reward, to the intention behind an action, to others' expectations and approval, to social norms and image, or to legal rules, when they derive the *right* course of action; how much to basic liberties and rights stipulated in a social contract, or to general ethical principles of conscience valid even *beyond* this contract – the two instruments for outcome-invariant preferences purely over the rules of the game.

Experimental data typically leave room for multiple interpretations as to which of the criteria above drive observed behaviour. Yet, for treatment design and to interpret behaviour, subjects are typically assumed to employ the same criterion or asked to self-report their motives. Within our specific setup, the test helps circumvent three main problems with these approaches: i) the danger of ascribing individuals' actions

[5]To date, its has been assumed that the same ethical criterion which causes transfers in 'Give' also causes their decrease in 'Take' games – because the criterion would stipulate a lower transfer in 'Take'.

to motives other than their actual ones, ii) the danger that individuals' statements about these motives might ex-post rationalize their actions, and iii) that self-reports may not be precise enough to identify which preference is at play.

Section two describes our experimental design, section three the taxonomy of ethical criteria we use. Section four analyzes which criteria underlie dictator transfers in 'Give' and 'Take' games, with and without earned income. Section five develops a finite mixture model to see whether the shifts in transfers from 'Give' to 'Take' games (List 2007; Bardsley 2008) can indeed be understood as a shift in the origin of the transfer coordinate system. Sections six and seven discuss how our results explain earlier findings about dictator game giving. Section eight discusses the instrumental value of our results, and section nine concludes in which field settings we can expect this new form of 'altruism' using criteria from List and Levitt (2007).

2 Experimental Design

2.1 General Experimental Procedures

The experiment was conducted in the experimental laboratory at the University of Jena, Germany. Subjects were German university students recruited via ORSEE, an opt-in web-based recruitment system (Greiner 2015). The participant pool in Jena counted about 3000 participants at the time of the experiment, out of which we invited a random draw from all fields of study. Subjects were only invited if they had not previously taken part in dictator games. Altogether, 215 dictators participated in the experiment. We conducted altogether twenty-four sessions[6]: six sessions with 18 participants for each of the four treatments amounting to 54 dictators per treatment. A session lasted on average 45 minutes and each treatment consists of three morning and three afternoon sessions, at the same time each day. The experimental software was developed using z-Tree (Fischbacher 2007).

The laboratory opened 30 minutes in advance – when no subject had arrived yet. As soon as a subject arrived, she drew a seat number and was randomly seated in a visually isolated computer cabin. Each subject was instructed to quietly wait in her cabin until the experiment started. There was no interaction of subjects before the experiment and subjects could not know the distribution of the other participants in their session. We proceeded this way to grant subjects as much anonymity as possible[7]. Students were told their decisions were anonymous and were asked not to leave any personal information on questionnaires or payment receipts which could be used to

[6]Two pilots – one for the treatment where money is provided for free, and one for the 'earnings' treatment were run to test the maturity of software and instructions. No changes to either were made such that our analysis includes these pilots.

[7]Subjects mostly arrived at distinct points in time but did occasionally, see each others' backs. Four times, two subjects arrived nearly simultaneously and had thus seen one other participant.

identify them.

At the time scheduled for a respective session, instructions were distributed and the z-Tree programme was started. The welcoming screen asked subjects to click on an OK-button once they had read the instructions. After all subjects had done so, they would automatically proceed to a set of control questions. After all subjects had successfully answered, the experiment started automatically. The same three experimenters, male and female with average student appearances, were sitting in a separate cabin. To avoid influencing subjects, instructions were not read aloud but clearly stated they were identical for all participants. At the end of each session, subjects received on-screen instructions to quietly wait in their cabins until their cabin number was called. Subjects left the laboratory one by one and were handed a sealed envelope which contained their payment in cash – a €2.50 show-up fee plus their earnings from the experiment.

2.2 Treatments

At the outset of each session, subjects were randomly divided into dictators and recipients. In a perfect stranger design, subjects played one sequence of List's (2007) and Bardsley's (2008) 'Give' and 'Take-5' dictator games. The 'Give' game is a standard dictator game: dictator and recipient each receive an endowment of 5 ECU, and the dictator receives an additional amount of 5 ECU to split amongst herself and the recipient (1 ECU $\hat{=}$ 0.40 Euros). A 'Take-5' dictator game proceeds the same way except that a dictator also has the possibility to take away up to the recipient's entire endowment of 5 ECU. Recipients were asked to imagine what they would choose if they were dictators. Instructions were formulated in a neutral manner (see appendix A.1; appendix A.2 shows decision screens for 'Give' and 'Take' games). Subjects did not receive any feedback before the end of the experiment.

Treatment 'GTGT'. Treatment 'GTGT' was designed to analyze a potential experimenter demand effect of the choice set *within-subjects* and started out with a 'Give' dictator game. Dictators and recipients each had an initial endowment of 5 ECU. Dictators received additional 5 ECU (5 ECU $\hat{=}$ 4 €) and were asked to decide how many ECU each party would receive. Afterwards, dictators were rematched with another anonymous recipient, and unexpectedly played a 'Take-5' dictator game in which they could also take away up to the entire recipient's endowment of 5 ECU. Altogether, in treatment 'GTGT' subjects play the following sequence of games: 'Give', 'Take-5', 'Give', 'Take-5'. In this sequence we see a) a standard 'Give' game, b) the shift in transfers from a 'Give' to a 'Take' game (List 2007; Bardsley 2008) *within subjects*, and c) one repetition of each game.

Treatment 'TGTG'. Treatment 'TGTG' started out with a 'Take-5' dictator game. Afterwards, dictators were rematched with another anonymous recipient and unexpect-

edly played a 'Give' dictator game. Altogether, subjects play the sequence: 'Take-5', 'Give', 'Take-5', 'Give'. In 'TGTG', we see a) List's (2007) original 'Take-5' game without the prior experience of a 'Give' game. By comparing it to the standard 'Give' game from the first round of the previous treatment 'GTGT', we reestablish List's (2007) and Bardsley's (2008) original *between-subjects* shift in transfers between 'Give' and 'Take' games for our sample. We see b) the shift in transfers from a 'Take' to a 'Give' game *within subjects* and c) one repetition of each game.

Treatments 'GTGT/TGTG Earned Income'. We repeat treatments 'GTGT' and 'TGTG' in a setting where subjects first work to earn the money provided in the experiment[8]. The task lasted approximately 30 minutes. First, all subjects had to carry out altogether 30 sums of four one digit and one two-digit numbers which lasted approximately 10 minutes. Second, subjects counted the number of Ones in sixty 5x5 matrices which lasted approximately 12 minutes. Finally, subjects were asked to set fifty sliders to the value of 50 which lasted further 7 to 8 minutes. We opted for this mixture of tasks to avoid boring subjects, but intentionally chose uninteresting tasks in order to induce a realistic work effort. After the earnings stage, subjects were randomly divided into dictators and recipients and depending on the session, either played the sequence 'GTGT', or 'TGTG', respectively.

Payment. It was common knowledge that subjects would be paid only for one out of the four rounds they played (one 'round' is equal to one game). At the very end of the experiment the computer drew with equal probability one out of four rounds (games) and subjects were informed about their respective payment on their computer screens. Average earnings from the experiment were €8.50 and ranged from €2.50 to €14.50 with €1 $\widehat{=}$ US $ 1.23 at the time.

2.3 The Moral Judgement test M-J-T

After all subjects had completed the respective dictator game sequence of their session – but before they had seen their payment – the software announced that a questionnaire would be distributed. One of the three experimenters quietly placed a copy of Georg Lind's (1978, 2008)[9] Moral-Judgment-test (M-J-T) into each cabin, see appendix B for an excerpt.

[8] As mentioned in the introduction, Cherry et al. (2002) observed a dramatic decline in dictator game giving when dictators work for the pie first. In his design, however, only dictators work – recipients do not. As we discuss in section 7, this feature evens out the asymmetry in decision rights between dictator and recipient. In our design therefore, both parties work – the dictator for her endowment and the pie, the recipient for her endowment. As List (2007), we avoid formulations which might suggest 'joint ownership' of the pie.

[9] The test was first developed in 1978, and continuously revised since this time. It is protected by international copyright. Contact the author at georg.lind@uni-konstanz.de for permission to use and access to the test under https://www.uni-konstanz.de/ag-moral/. Subjects' test copies contained a basic copyright information. The name of the test and all information pertaining to the purpose of the test, however, were deleted from subjects' copies prior to administering it.

We administered the test *after* – rather than, say, a week *before* – the experiment: first, to avoid letting subjects form strong upfront beliefs about the upcoming experimental task and to avoid having them read moral content into the dictator game in the light of these upfront beliefs[10]. Second, because the danger of ex-post rationalization is very low in our set-up. To see this, suppose a subject sees a connection between a dictator game and the moral judgement test. To produce the results in section 5.1 she needs to answer the test as follows: two test scores which are unknown to her, each computed with a) four of her twenty-six answers, and with b) the average and standard deviation of these same four answers across all other participants – must correlate the exact same way with *each* of her *four*[11] transfers, and correlate the exact same way with *each* shift in her transfers when she transitions from a 'Give' to a 'Take' game or vice versa. How do attempts at manipulating the test then affect the scores? If subjects do not necessarily give their real opinions in the test, the test is constructed such that the distribution of a score is not biased. Rather than shifting her true scores into the direction she intends, say, in order to produce a correlation with her dictator game transfers, a subject adds noise to her scores (Wasel 1994).

The M-J-T introduces two short stories. These stories are ethical dilemmas in that each protagonist must do something controversial – either steal or kill – in order to do something good – either to prove a crime, or to ease pain. The first story portrays two workers who break into their managers' offices to steal evidence that their managers were listening in on them; the second story portrays a doctor who helps a woman with a terminal illness commit suicide upon her request. After each story, subjects first submit their opinion whether or not they deem the protagonist's action right or wrong on a seven point Likert scale. After each story, the test then lists twelve different arguments. Each argument refers to one specific ethical criterion which we describe in the next section. These ethical criteria include all those upon which economics has built preference models to date. Subjects then submit by how much they would agree to employ each argument to conclude the protagonist's action was either right or wrong. Out of twenty-six test items – two opinions and twenty-four arguments –, four arguments are taken to identify an individual's use of a given ethical criterion. We use the *complete set of individual preferences over these criteria* to model dictator transfers

[10]In other studies, subjects may be invited to the laboratory twice, first, to complete questionnaires and tests and second, for the actual experiment, or they are required to submit information online some time before the actual experiment with the help of an identification code. Payment is given upon completing *both* parts. Subjects may likely assume that both parts are connected in some way and interpret the experiment in the light of the questionnaires. Moreover, curiosity may tempt subjects into browsing information about the tests completed before the actual experiment. This demand effect seems as relevant in the context of dictator games as ex-post rationalization, but is currently less discussed in experimental economics.

[11]There are only 22 out of 215 dictators who make the same transfer in every round and would hence need to rationalize only one decision. Yet, even those 22 dictators cannot know how to answer the test such that their decisions correlate with the same two unknown test scores as in 5.1.

in section 5.1. Next, we describe the specific ethical criteria to which the arguments presented in the test refer. The test version used in this paper has been standardized and validated on the German population.

3 Moral Judgement in Dictator Games

A dictator who responds to social demand aims, for instance, at winning the experimenter's or the recipient's approval through a nonzero transfer (List 2007; Zizzo 2010). Such a dictator infers from the explicit or implicit approval she anticipates that a nonzero transfer must be the *right* course of action.

There are in principle many such criteria an individual could use to judge which of the actions before her are ethically *right*. In the 20th century, Jean Piaget (1948) and Lawrence Kohlberg (1984) conducted extensive field research to study which types of criteria individuals actually employ to judge about right and wrong. These criteria may be viewed as ethical criteria which an individual has 'internalized' and deems an actual part of her motivation function: upon violating such a criterion, she experiences negative moral emotions such as *guilt*[12] (Tangney et al. 2007) and may need to invest costly effort in an ex-post reconciliation of her deeds with these ethical criteria. Kohlberg observed individuals who concluded an action was right if it entailed no punishment, or else if it yielded a reward, if it matched the expectations of their peer group(s), or won them approval, or improved their social image, or was in line with a social norm. Others invoked the status quo and concluded that whatever had been the custom would be the right course of action. Finally, there were individuals who judged an action as right if it did not violate any of the basic rights and liberties a democratic social contract would grant; yet others referred to rights *beyond* the social contract – human rights, respect for the individual will, and the freedom to choose – or other general ethical principles.

Table 1 reviews the original classification of these empirical findings and provides examples how a dictator can derive from each class of criteria that a nonzero transfer is the right course of action in a dictator game. Moving from class one to six, the ethical criteria in question refer less and less to the outcomes of an action, starting with its *actual outcomes* (classes 1 & 2), via its *intended* outcomes and the outcomes *expected* by some external reference such as society or a peer group (classes 3 & 4), until the criteria no longer refer to *outcomes* at all (classes 5 & 6). These outcome-invariant ethical criteria explained Chlaß et al.'s (2019) and Chlaß and Riener's (2015) *purely procedural preferences* for the equality of an opponent's decision rights when no existing preference model or demographic variable could. We therefore use Kohlberg

[12]The psychological notion of *guilt* is thus broader than the notion of guilt and guilt aversion in economics which explicitly refers to disappointing others' expectations (Battigalli and Dufwenberg 2007) or violating a social norm (López-Pérez 2008; Miettinen 2013).

Motivation for fair behaviour	It is good to give as a dictator because...
Class 1. Orientation to punishment and obedience, physical and material power. Rules are obeyed to avoid punishment.	...the experimenter will perhaps not invite me again if I do not...
Class 2. Naïve hedonistic orientation. The individual conforms to obtain rewards.	...I'll get a reward if I do – be invited again;
Class 3. "Good boy/girl" orientation to win approval and maintain expectations of one's immediate group. The individual conforms with behavioral norms to avoid disapproval. One earns approval by being "nice".	...recipient or experimenter expect me to; ...will think I am a nice person; ...all others will do so and be happy about it; ...I want to thank the experimenter for letting money fall from heaven;
Class 4. Orientation to authority, law, and duty, to maintain a fixed order. Right behavior consists of doing one's duty and abiding by the social order.	...it is my duty as a social democrat/ as a Christian to share; ...the experimenter is my professor and suggested/expects I should do so
Class 5. Social contract orientation. Duties are defined in terms of the social contract and the respect of others' rights. Emphasis is upon equality and mutual obligation within a democratic order.	...the experiment puts the recipient entirely at my mercy and violates the equality rights that a democratic procedure should grant her – she has no right to participate and must be compensated for this;
Class 6. The morality of individual principles of conscience, such as the respect for the individual will, freedom of choice etc. Rightness of acts is determined by conscience in accord with comprehensive, universal and consistent ethical principles.	...the experiment infringes the recipient's dignity, her human right to state her own will, and denies her any freedom of choice; this infringement must be compensated.

Table 1: Kohlberg's six ways of moral argumentation (by Ishida 2006).

classes 5 and 6 to instrument dictators' concerns for the recipient's decision rights in the original dictator game and its prominent variants. Sections 6 and 8 discuss the validity of the instrument in detail.

Each of the twenty-four arguments from the moral judgement test in section 2.3 refers to exactly one of these six classes. Subjects rank altogether four arguments invoking the same class, and the average rank over these four arguments measures how strongly a subject prefers to use the ethical criteria of this respective class to derive the ethically right course of action. In Kohlberg's view, individuals exclusively invoke the ethical criteria they prefer *most*. We do not rely on Kohlberg's theoretical work, only on his empirical findings and therefore allow the complete set of ethical criteria from table 1 to impact behaviour, in varying degrees.

Why should individuals internalize ethical criteria over the course of their life, or put differently, hold preferences over using ethical criteria at all to guide their behaviour? Whereas the origins of these preferences must be beyond the scope of this paper, there are models of why individuals care about ethical criteria: because ethical criteria forge some of the individual's identity (Akerlof and Kranton 2000; Dal Bó and Terviö 2013), reduce the courses of action to a feasible number and simplify reality, or because of evolutionary forces when individuals who are endowed with ethical preferences and interact in an assortative matching process, are selected according to their fitness (Alger and Weibull 2013).

Understanding which ethical criteria – if any – underlie dictators' transfers can help identify the preference type which underlies giving in dictator games and the external validity of the phenomenon: is it a demand effect in that dictators wish to please an

audience (class 3)? Is it a preference over others' payoffs triggered by an outcome (payoff)-based ethical criterion (classes 3 & 4)? Or are transfers linked to the way how the rules of the dictator game distribute civic or human rights across parties (classes 5 & 6)? In this case, transfers would reflect an intrinsic valuation for the rules of a dictator game and neither imply that dictators care for others' payoffs, nor that they respond to the demand of an audience.

4 Research Questions

As regards dictators, our main interest is to understand which type of preference might be at play in standard 'Give' games where money falls like 'manna from heaven' as opposed to the other variants of the dictator game. To that end, we regress dictator transfers from all treatments on dictators' six-dimensional set of preferences over the ethical criteria elicited in the moral judgement test from section 2.3. More specifically, our research questions are:

(D-1) Do dictator transfers in List's (2007) and Bardsley's (2008) 'Give' and 'Take' games link to any ethical criterion at all, and can these criteria be reconciled with a preference over others' payoffs?

(D-2) Do dictator transfers link to the same ethical criteria when money is provided for free, and when it must be earned?

(D-3) Can the shift in transfers between 'Give' and 'Take' games be reconciled with a cardinally stable preference, and if yes, how?

Turning to responders who make hypothetical and non-incentivized transfer decisions, our research questions are:

(R-1) Do recipients refer to the same ethical criteria in 'Give' and 'Take' games as dictators or do recipients' hypothetical transfers signal a different preference?

(R-2) Is there an analogous shift in recipients' hypothetical transfers between 'Give' and 'Take' games?

(R-3) If so, are the determinants of this shift the same as on the dictator side?

In the next section, we elicit List's (2007) and Bardsley's (2008) shift in transfers, and focus on research questions (D-1) and (R-1).

5 Results

5.1 The same preference type is at play in 'Give' and 'Take' games

List (2007) and Bardsley (2008) measure the shift in dictator transfers between 'Give' and 'Take' games *between subjects*: one group of individuals plays a 'Give' game, an-

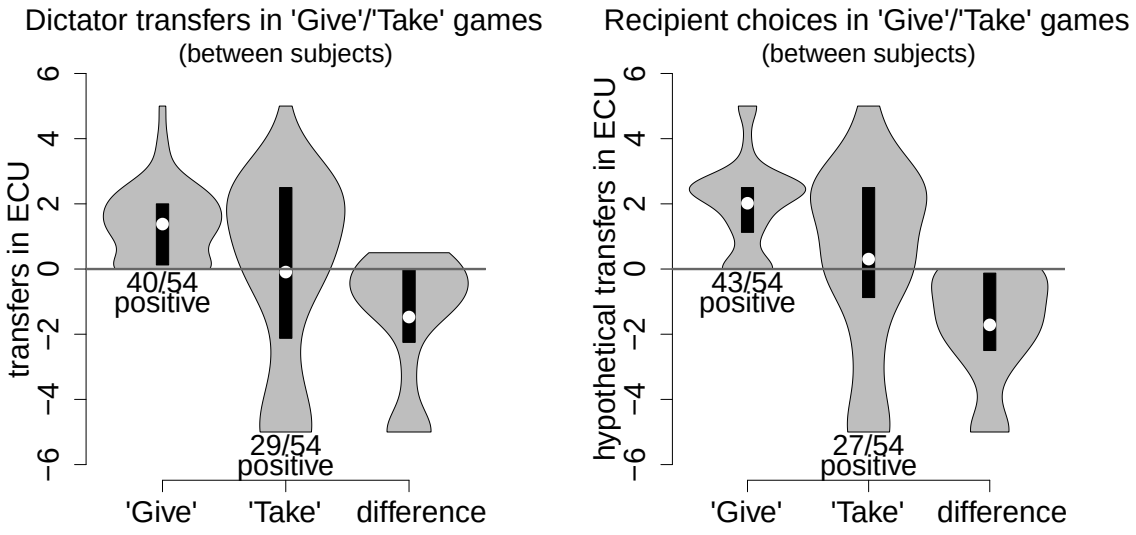


Figure 1: Transfers decrease in Take-5 games as compared to Give games for dictators (left: Fig. 1a) and recipients (right: Fig. 1b).

Note: Violin plots (Hintze et al. 1998) show the distribution of transfers (grey, the broader the grey area for a given value, the more transfers equal to this value are observed), their interquartile range (thick black vertical line) and the average transfer (white dot).

other group a 'Take' game. Fig. 1a shows this shift for our data. The first violin in Fig. 1a describes the distribution of transfers in the first round of treatment 'GTGT' [average transfer: 1.38 ECU], the second violin in the first round of treatment 'TGTG' [average transfer: -0.09 ECU][13]. The third violin shows the difference between the two distributions[14]. Fig. 1b shows a similar shift for recipients who submit hypothetical transfers which they would have chosen had they been dictators.

Does the shift in dictator transfers between 'Give' and 'Take' imply that an experimenter demand effect is at play in 'Give', but not in 'Take' games? To answer this question, we regress dictator transfers on dictators' preferences over all ethical criteria described in section 3 to see from which criterion – if any – dictators derive their transfers in each game. We start out including dictators' preferences over all six classes from table 1 as well as their demographics, and for efficiency, reduce the

[13]The average transfer in 'Give' games in List (2007) was 1.33 \$, the average for 'Take-5' games −2.48 \$. We observe a similar average transfer for 'Give': 1.38 ECU ≙ 1.10 €, but a higher average transfer in 'Take-5': −0.09 ECU ≙ −0.07 €. This difference could be due to several factors: most likely to cultural differences between the U.S. and Germany in their *Kohlberg class three* and *six* scores which determine the transition from 'Give' to 'Take' in section 5.5 and are available from www.chlass.de/Research.html; to the aspect that in List's (2007) experiment the distribution of other dictators is known whereas in this paper, it is not – a condition in which *Kohlberg class 3* implies a different ideal transfer –, or to the absence of a reverse demand effect – see footnote 1 – since we seat dictators and recipients in the same rather than in two separate rooms as in (List 2007) – while maintaining strict dictator-dictator and dictator-recipient anonymity as described in section 2.

[14]To obtain this difference *between subjects*, we order transfers in each game from least to greatest, and compute the rowwise differences between these two ordered lists. This procedure requires equally many observations for each game. The third violin reports the frequency of these differences.

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$.

2a. GIVING IN THE FIRST 'GIVE'-GAME. *variable*	*effect*	*se*
Intercept	1.54^a	0.17
Kohlberg class 3	-0.41^a	0.15
Kohlberg class 6	0.44^a	0.14
sequence TGTG	-0.34^c	0.20
Earnings (EI)	-0.31	0.20
Kohlberg class 3 · EI	0.44^c	0.24
[Kohlberg class 1	[0.03	[0.17
Kohlberg class 2	0.03	0.19
Kohlberg class 4	0.23	0.21
Kohlberg class 5]	-0.21]	0.18]

control variables: [age 0.09^b, gender -0.16, fields *of study* Education -0.50^c, IT -0.19, Law -0.34 Medicine -0.28, Business/Economics -0.42].

2b. GIVING IN THE FIRST 'TAKE' GAME *variable*	*effect*	*se*
Intercept	-1.65^a	0.44
Kohlberg class 3	-0.93^b	0.38
Kohlberg class 6	0.89^a	0.34
sequence TGTG	1.16^b	0.50
Earnings (EI)	0.45	0.50
Kohlberg class 3 · EI	1.01^c	0.58
[Kohlberg class 1	[0.55	[0.43
Kohlberg class 2	-0.03	0.47
Kohlberg class 4	0.18	0.51
Kohlberg class 5]	-0.69]	0.45]

control variables: [age 0.16^c, gender -0.07, fields *of study*: Education -1.41^b, Law -1.62, IT 0.05 , Medicine -0.50, Business/Economics -1.18].

Table 2: KOHLBERG CLASS SIX – ETHICAL CRITERIA ABOUT HUMAN RIGHTS, FREEDOM OF CHOICE, AND DIGNITY – INCREASE DICTATOR TRANSFERS.

size of the model step-by-step deleting insignificant variables which do not improve the goodness-of-fit. Transfers in each game are interval-censored since in 'Give' games, dictators submit transfers from 0 to 5 ECU in steps of 0.5 ECU and in 'Take' games, from -5 to $+5$ ECU in steps of 0.5 ECU, respectively.[15] We test the reduced model again, against two *blocks of control variables*: the full set of *Kohlberg classes* from table 1, and a set of variables which could invalidate the instrumentation of a concern for others' decision rights by *Kohlberg class six*, see sections 6 and 8.

Table 2a. shows the (interval) regression results for dictators' first 'Give' game. Only dictators' preference to invoke *Kohlberg class six*[14] *increases* transfers, that is, the extent to which dictators derive the right course of action from general ethical principles such as the respect for human rights, for individuals' freedom of choice, their will, and dignity. If this preference gains one unit in strength, transfers increase by 0.44 ECU, *p-value*= 0.002. Interestingly, another ethical criterion is also active. The more dictators prefer to consult others' expectations, social norms, or their social image – *Kohlberg class three*[16] – the *less* they transfer. If dictators' preference to infer the right course of action from this class of ethical criteria gains one unit in strength, transfers reduce by 0.41 ECU, *p-value* = 0.008. *Kohlberg class three* interacts positively

[15]If a dictator transfers, say, 2.5 ECU, she did not wish to transfer *less* than 2.5 ECU; she also did *not* wish to transfer as much as 3 ECU – the next highest transfer she could have made. The interval for a transfer of 2.5 ECU is therefore $[2.5, 2.99]$ ECU. The smallest transfer in each game – the point of origin – is assumed to be left-censored, the highest transfer assumed to be right-censored.

[14]The corresponding variable *Kohlberg class 6* (for *Kohlberg class three*: *Kohlberg class 3*) is a subject's average rank over all four arguments referring to *Kohlberg class six (Kohlberg class three)* on a nine-point Likert scale, adjusted by the maximal span over all 24 nine-point Likert scales a subject ever exploits in the test. All scores are standardized with respect to sample mean and standard deviation to ensure comparability across coefficients.

with treatment Dummy *Earnings (EI)*, reducing the effect of *Kohlberg class three* to Zero for this treatment, see appendix A.6. The effects of Kohlberg class three and six remain significant in presence of all other four Kohlberg classes; they are therefore not due to latent correlations with other ethical criteria.

Table 2b. shows very similar results for dictators' first 'Take-5' game where the smallest transfer is -5 ECU. If the degree by which dictators refer to *Kohlberg class six*[16] increases by one unit, transfers increase by 0.89 ECU, *p-value*$= 0.009$. If dictators care one unit more for *Kohlberg class three*, transfers *reduce* by 0.93, *p-value* $= 0.015$. Again, this criterion is not active in the Earnings treatment. We conclude:

(D-1) Result 1: Dictators resort to the same ethical criteria in 'Give', and 'Take' games. Therefore, transfers in both games seem to reflect the same preference type.

(D-1) Result 2: The ethical criteria at play are inconsistent with a preference over the recipient's payoff. They are also inconsistent with the idea that transfers result from a classic experimenter demand effect.

Appendix A.3 shows postestimations for the models in tables 2: *Kohlberg class six* reduces the estimated likelihood of zero and low transfers in 'Give' games significantly, and monotoneously increases transfers beyond 1 ECU; in 'Take' games, the criterion significantly decreases the estimated likelihood of all negative transfers, and increases that of nonnegative ones.

Recipient transfers increase in a different ethical criterion than dictators' transfers. Tables A1a. and A1b. show that they resort to the idea of a democratic social contract stipulating equal civic rights and liberties – *Kohlberg class five* from table 1, the second of two instruments for a preference for equality rights (Chlaß et al. 2019; Chlaß and Riener 2015). Social image concerns, norms or others' expectations – *Kohlberg class three* – cannot be confirmed to be active. These results are robust to repetition and both blocks of control variables, see tables A7a. and A7b.

(R-1): Recipients resort to different ethical criteria than dictators, but still to an instrument for the equality of decision rights.

5.2 The same preference type is at play when money is earned and when it is provided for free

List (2007) argues that in view of the newly available options to take, the cost of giving in 'Take' games increases as compared to the original 'Give' dictator game – hence the observed shift seen in Fig. 1. If this is the case, transfers should also decrease in a 'Give' game once dictators must earn their money since similarly to adding 'Take' options, work effort increases the cost of giving.

Yet, average transfers in 'Give' with earnings (1.27 ECU) and without (1.38 ECU,

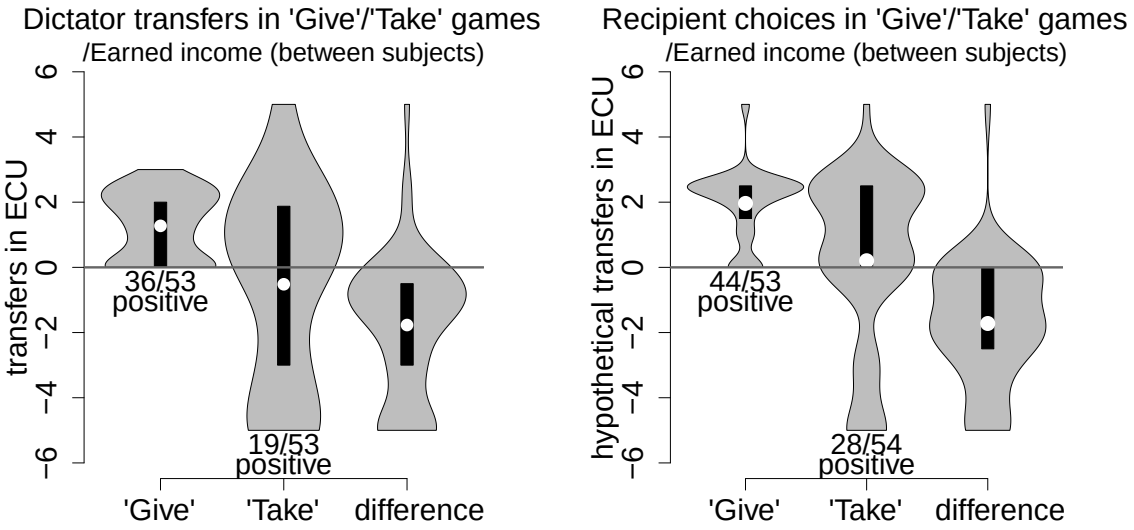


Figure 2: Transfers decrease in 'Take' games with Earned Income for dictators (left: Fig. 2a) and recipients (right: Fig. 2b).

see section 5.1) hardly differ. Also the distribution of transfers with earnings shown by the first violin of Fig. 1a closely resembles the distribution without earnings shown by the first violin of Fig. 2a. The shares of nonzero transfers are also strikingly similar ('Give': 40/54, 'Give' with earnings: 37/53). This finding is at odds with Cherry et al. (2002) who observe only 3% nonzero transfers once dictators (not recipients) work for the pie. Contrary to their study, recipients in our paper's design also work, an aspect which recovers the original feature of a dictator game that dictators and recipients value each monetary unit similarly[14]. At the same time, we maintain Cherry et al.'s (2002) feature that dictators earn the money they distribute in order to avoid that they might spend windfall money in an unrealistically carefree way.

The costliness of giving increases further in 'Take' games with earned income. Here, the average transfer drops from −0.09 ECU in 'Take' to −0.52 ECU in 'Take' with earned income and positive transfers decrease by 18%. Since work effort appears to only affect 'Take' games, the shift from 'Give' to 'Take' is more pronounced with earned income than without, see Figs. 1a and 2a. The first violin shows the first round of treatment 'GTGT: Earned Income' [average transfer: 1.27 ECU], the second violin the first round of 'TGTG: Earned Income' [average transfer: -0.52 ECU]. The difference between 'Take' and 'Take' with earned income could signal a change in the underlying preference type and/or a demand effect. We therefore study which ethical criteria are at play in these treatments. Treatment Dummy *Earnings (EI)* did not

[14]Instructions inform participants that the dictator works for the endowment, and the pie, and the recipient for her endowment to avoid any impression that the pie might be co-owned. If only dictators work as in Cherry et al. (2002), dictators' utility from each monetary unit reduces by the disutility from the work effort spent to earn this monetary unit. The recipient incurs no work effort. In section 7, we discuss how this feature evens out dictators' and recipients' *freedom of choice* and equalizes the distribution of decision rights which takes away dictators' original reason to give.

show a significant effect on the overall data set of transfers in table 2b. For earnings data exclusively, only *Kohlberg class six* is active amongst all ethical criteria. Per one-unit increase in dictators' preference for this ethical criterion, transfers in 'Give' games with earned income increase by 0.51 ECU, *p-value* = 0.003, and by 1.11 ECU in 'Take' games, *p-value* = 0.003, see tables A3. Dictators do not consult *Kohlberg class 3*.

(D-2): The same ethical criterion increases transfers with, and without earnings. Therefore, transfers seem to reflect the same type of preference in each case.

Turning to recipients, transfers with and without earnings increase in *Kohlberg class 5*, the equality of civic rights backed by the social contract. Tables A1 show that treatment Dummy Earnings *(EI)* does not change this result for 'Give' or 'Take' games. Turning to the shift in transfers between 'Give' and 'Take' games, Figs. 2 illustrate that with earnings, dictators take substantially more than recipients would hypothetically do. The 25% quantile – the lower end of the fat black vertical line in violin 2 of Fig. 2a – is −3 ECU for dictators but 0 ECU for recipients in violin 2 of Fig. 2b. Section 5.5 will show that one main determinant of the shift on the dictator side is inactive for recipients.

(R-2): Recipients' hypothetical transfers also decrease in 'Take' games. For earned income, recipient transfers decrease noteably less than dictators' transfers.

5.3 Repetition and potential carry-over effects do not change the preference type underlying dictator game transfers

In this section, we test in how far beliefs about the experimenter's research question and moral cleansing *change* the ethical criteria underlying dictator game giving (and hence, the preference type at play). In our design, dictators have no prior knowledge about the transfers options in each round. Upon seeing a 'Give' game first as in treatment 'Give'-'Take-'Give'-'Take', they might form a belief that the experiment is about giving and that they are expected to give. Specifically dictators who derive the right course of action from others' expectations or social norms and *"...wish to be good subjects [...]"* (Bardsley 2008, p. 129, Zizzo 2010, p. 77), might condition their transfers on the belief that giving is expected. In contrast, dictators in treatment 'Take'-'Give'-'Take'-'Give' first experience a 'Take-5' game which offers equally many positive and negative transfers (List 2007) before seeing their first 'Give' game in round two. This second group of dictators might hold a less definite belief that giving is expected. If such beliefs matter, the distribution of transfers will differ across the first round of treatment 'GTGT' and the second round of 'TGTG'. Similarly, beliefs from the first 'Give' game in 'GTGT' should update in the first 'Take' game of the treatment, and as a result, transfers in the second 'Give' game of 'GTGT' should link to other ethical

criteria than in the first.

A further demand effect may arise from *moral cleansing* as in (Brañas-Garza et al. 2013). Dictators who deem that by their own ethical criteria they transferred too little in round one, may feel guilt and may wish to rectify their self-image by showing particular generosity in round two. In this case, dictators with small transfers in round one, for instance, would make high transfers in round two and so forth, which would break up the statistical link between giving and dictators' ethical criteria from section 5.1 as a sequence of games proceeds. The same would happen, if dictators substantially changed their transfers simply to avoid boredom. Fig. 3 shows, however, that transfers in dictators' first 'Give' game are highly similar whether or not this first 'Give' game lies prior to, or after a 'Take' game – the average difference is 0.25 ECU [avg. transfer 'prior to Take': 1.33 ECU, 'after': 1.08 ECU]. Interval regressions confirm that sequence Dummy 'TGTG' does not significantly affect transfers in the first 'Give' game with windfall profits in table 2a), despite there being ten more zero transfers in 'Give' after 'Take' as compared to 'Give' before 'Take'.

Figure 3: Dictator transfers prior to, and after the 1st Take game.

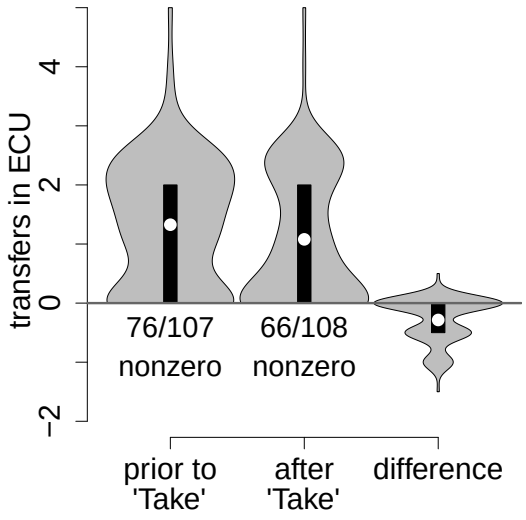


Table 3: Kohlberg class six explains transfers in the 2nd Give game.

DICTATOR TRANSFERS: 2ND 'GIVE'-GAME. *variable*	*effect*	*se*
Intercept	1.12^a	0.21
Kohlberg class 3	-0.46^b	0.18
Kohlberg class 6	0.43^b	0.17
sequence TGTG	-0.23	0.34
Earnings	-0.30	0.24
Kohlberg 3 · EI	0.37	0.29
[Kohlberg class 1	[0.00	[0.21
Kohlberg class 2	0.09	0.23
Kohlberg class 4	0.02	0.25
Kohlberg class 5]	−0.06]	0.22]

control variables: [age: 0.09^b, gender −0.01, fields *of study:* Education -0.56^c, IT 0.21, Law −0.72 Medicine 0.24, Business/Economics −0.39].

On earnings data exclusively, Dummy 'TGTG' has a significant negative effect of −0.31 ECU (*p-value*< 0.04, see table A3). The sequence effect does, however, not signal any change in the underlying preference type: table 3 next to Fig. 3 shows that transfers in the second 'Give' game link to the exact same criteria as in the first. *Kohlberg class 3* still decreases transfers (by −0.46, *p-value*= 0.012), *Kohlberg class 6* still *increases* transfers (by 0.43, *p-value*= 0.011). Belief shifts and moral cleansing are therefore not prevalent enough to change the preference type at play.

5.4 Is the shift in transfers between 'Give' and 'Take' at odds with a cardinally stable preference for the recipient's rights?

In section 5.1, we assumed that in a 'Take-5' game, the most selfish dictator action is to take the recipient's entire endowment of 5 ECU, and that increasing departures from this action essentially represent higher transfers. Under this assumption, the same ethical criteria and hence, the same preference type, were found to be at play in both games. The assumption implies that dictators could deem making the *same* transfer in 'Give' and 'Take', even if they give in the former, and take in the latter. A dictator who transfers 2 ECU in 'Give' departs by 2 ECU from the most selfish action in her choice set. If she takes 3 ECU in a 'Take' game, she departs by the same amount from rational self-interest.[15] Yet, seen from the positive quadrant, her transfer seems to decrease from 'Give' to 'Take' games. Table 4 counts how many dictators make *exactly* the same positive transfer in 'Give' and 'Take', and how many depart by *exactly* the same absolute or relative amount from rational self-interest in both games.

	'manna from heaven'		*'Earned Income'*	
	GTGT(#54)	TGTG (#54)	GTGT (#53)	TGTG(#54)
same positive transfer	4 (7%)	19 (35%)	19 (36%)	19 (35%)
same absolute departure from rational self-interest	13 (24%)	9 (17%)	11 (21%)	11 (20%)
same relative departure[16]	1 (0.02%)	1 (0.02%)	3 (0.06%)	2 (0.04%)

Table 4: How many dictators give a stable amount across their first 'Give' and 'Take' games per treatment?

Only 7% of dictators make the *same positive* transfer in 'Give' and 'Take' when money is free and when they see the original 'Give' dictator game *before* their first 'Take' game ('manna from heaven: GTGT'). These are significantly less *same positive* transfers than in all other treatments (one-sided Fisher's exact tests, all *p-values* < 0.01). In contrast, similarly many dictators depart by the same absolute or relative amount from the most selfish option in all treatments. In the next section, we will see that the sequence mainly affects the reaction time: in 'GTGT', dictators take roughly *half* of the time to make a decision than in 'TGTG' for *all* games of the sequence.

Turning to the transfers of these groups, only 15 of 61 *same positive transfers* are selfish[17] as compared with 40 out of 44 *same absolute departures* ('Give': 0 ECU.

[15] Dictators could also depart by the *same relative amount* from the most selfish choice: 2 ECU in 'Give' and -1 ECU in 'Take' both transfer 40% of the amount the dictator controls.

[16] This only counts dictators whose transfers do not depart by the 'same absolute' amount from rational self-interest.

[17] The most selfish choice – the strict minimum – conditional on that the same positive (nonnegative) transfer must be made in 'Give' and in 'Take', is a transfer of 0 ECU in both games.

'Take': −5 ECU). The remaining 46 non-selfish *same positive transfers* are, on average, 2.25 ECU in 'GTGT manna', 2.32 ECU in 'TGTG manna', 2.08 ECU in 'GTGT Income' and 2.29 ECU in 'TGTG Income'. *Same relative departures* typically consist of 'equal splits' ('Give': 2.5 ECU, 'Take': 0).

Summing up, by straightforward inspection of raw data, 51 (46%) of all 112 cardinally stable transfers depart by the same absolute or relative amount from rational self-interest in 'Give' and 'Take' games. These *same absolute* and *same relative departures* are of particular interest since they do not only satisfy a stability criterion but can, at the same time, produce the well-known shift in 'Take' games seen in FIGS. 1 and 2. This shift need then not imply a cardinal instability in dictators' preferences. Transfers from classic 'Give' games are least often cardinally stable under a subsequent 'Take' frame; they are rash choices and contain, as we see in the next section, decisively more mistakes.[18] This could imply that dictators do not evaluate their ethical criteria as carefully in 'Give' as in 'Take' and thus see more need to revise the transfer decision from 'Give' later on. The next section models the transition from 'Give' to 'Take' econometrically, assuming some noise in dictators' transfer decisions.

5.5 Shifts between 'Give' and 'Take' games: a finite mixture model

Let $y_{G,i} \quad (0 \leq y_{G,i} \leq 5)$ be the amount dictator i, $i \in \{1, ..., n\}$, transfers in her first 'Give' game, and $y_{T,i} \quad (-5 \leq y_{T,i} \leq 5)$ the amount she transfers in her first 'Take' game. We define two types, dictators who in statistical expectation, transfer the *same positive* amount in both games (Type 1), and dictators who in statistical expectation, depart by the same absolute amount from rational self-interest in both games (Type 2). Formally:

$$\begin{array}{lll} \text{(Type 1)} & \text{same positive transfer:} & y_{T,i} - y_{G,i} = \epsilon \\ \text{(Type 2)} & \text{same absolute departure from self-interest:} & y_{T,i} - y_{G,i} + 5 = \epsilon \end{array} \tag{1}$$

For each type, the error term ϵ is assumed to be normally distributed, i.e. $\epsilon \sim N(0, \sigma^2)$. In this basic form of the model, there are two parameters to estimate: σ and p. Parameter p denotes the mixing proportion of dictators in the population who are of Type 2 as defined in (1). Consequently, $1 - p$ denotes the mixing proportion of dictators who are of Type 1. Parameter σ represents the dispersion of actual transfers around the statistically expected transfers for Type 1 and Type 2.[19] The sample log-likelihood is:

[18] Dictators' decision time for making a transfer in the first 'Take' game is 1.87 times as high (*p-value*= 0.00) as the average of their two decision times from the first 'Give' and 'Take' game (random effects model of standardized decision times with individual intercepts and a Dummy for the 'Take' game as explanatory variables; standard errors clustered at the individual level). The result also holds for the full set of four games.

[19] Our specification search included a model with a third type: *same relative departure* as defined in section 5.4. This type had a small mixing proportion and removing it did not have a major impact on

$$LogL = \sum_{i=1}^{n} ln \left[(1-p)\frac{1}{\sigma}\phi\left(\frac{y_{T,i} - y_{G,i}}{\sigma}\right) + p\frac{1}{\sigma}\phi\left(\frac{y_{T,i} - y_{G,i} + 5}{\sigma}\right)\right] \qquad (2)$$

where ϕ is the standard normal density function. The maximum likelihood estimate for p is $\hat{p} = 0.345$ which indicates that around 35% of all dictators *depart by the same absolute amount from rational self-interest* in 'Give' and 'Take' and consequently are of Type 2, whereas 65% make the *same positive transfer* in each game and consequently are of Type 1.

Next, we study which factors determine p, the probability to be of Type 2. To this end, we generalize (2) such that p depends on a set of characteristics pertaining to dictator i which are contained in a vector X_i. More precisely, we replace p in (2) by $p_i = \Phi(\beta' X_i)$ where Φ denotes the normal cumulative density, and β' a vector which contains one coefficient for each characteristic in X_i. Which characteristics could influence p, the likelihood of departing by the same absolute amount from rational self-interest? The evidence in tables 2 showed that dictators depart *less* from the most selfish option in their first 'Give' and 'Take' games, *the more* they infer the ethically right course of action from social norms, others' expectations, or their social image as in *Kohlberg class three*. Hence, these ethical criteria appear to provide no reason to depart from rational self-interest in our design. Since the rational self-interested transfer itself shifts from 0 ECU in 'Give' to -5 ECU in 'Take' games, dictators who resort to *Kohlberg class three* should shift along with it and transfer less in 'Take' than in 'Give'. The probability to be of Type 2 – of a *same absolute departure* from rational self-interest – should therefore increase in dictators' preference for *Kohlberg class three*.

In contrast, ethical criteria of *Kohlberg class six* – universal ethical principles such as the respect for human rights, dignity, and a free will – have by definition stand-alone value and are context-free: *"I wanted to compensate the recipient for her lack of decision rights by giving her two ECU in addition to her endowment. It is immaterial for this ethical problem whether or not I am also given the opportunity to take her endowment."* The more a dictator prefers to derive the right course of action from ethical criteria of *Kohlberg class six*, the more likely she is of Type 1 and makes the same positive transfer in 'Give' and 'Take'.

Finally, we anticipate that decision times are crucial: descriptively, *same positive* transfers were particularly rare in sequence *Give-Take-Give-Take* whereas decision times were only half of decision times in *Take-Give-Take-Give*. We pointed out that this might be because dictators who start out with 'Give' evaluate their ethical criteria less carefully in this first game than those starting out with a 'Take' game. If so, dictators who start out with a 'Give' game will see more need to revise their transfer decision in round two – the 'Take' game. As a consequence, decision time may affect transfer stability. In absence of a clear prior about the mechanism at play, or about

the remaining estimates.

a causal direction (if any) of this link, we use decision times merely as controls – as proxies for information which would bias the model estimates if omitted. With this in mind, we measure two decision times: the time between starting to read the on screen instructions of a game and submitting the final transfer decision (decision time 1), and the time – if any – spent revising the first selection until a final transfer decision is made (decision time 2)[20].

Tables 5 show maximum likelihood estimates and asymptotic standard errors for all elements of β'. The initial specification of the corresponding vector X_i contains dictator i's preferences over the ethical criteria of all six Kohlbergian classes from table 1, a TGTG treatment dummy, and logarithms of the decision times described in the previous paragraph summed over the two games between which the transition takes place[21]. We study two transitions: from round one to round two in table 5a., and from round two to round three in table 5b.

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$

5a. 1ST TRANSITION 'GIVE'/'TAKE'.		
variable X'_{ik}	*coeff.*	*asym. se*
Intercept	-0.89	1.05
Kohlberg class 3	0.22^b	0.12
Kohlberg class 6	-0.25^b	0.12
sequence TGTG	-0.33	0.21
decision time 1	2.51^b	1.20
decision time 2	-2.40^b	1.14

5b. 2ND TRANSITION 'GIVE'/'TAKE'.		
variable X'_{ik}	*coeff.*	*asym. se*
Intercept	-1.50	1.08
Kohlberg class 3	0.17^c	0.13
Kohlberg class 6	-0.23^b	0.14
sequence TGTG	-0.36^c	-1.74
decision time 1	2.35^c	1.25
decision time 2	-2.05^c	1.16

Table 5: Determinants of the likelihood to be of type 2 (of departing by the same absolute amount from rational self-interest in 'Give' and 'Take' games).

We obtain the following results. From table 5a, the more strongly a dictator resorts to others' expectations, social norms, and her social image as in *Kohlberg class three* to derive the right course of action, the more likely she is of Type 2 (p-*value* < 0.04). The more a dictator refers to general ethical principles such as human rights, dignity, and the respect for the individual will as in *Kohlberg class six*, the less likely she is of Type 2, and the more likely she consequently is of Type 1 (p-*value* < 0.02). Sequence treatment Dummy 'TGTG' loses significance once decision times are controlled for. The more time dictators spend on each game until submitting their transfers as measured by decision time 1, the more likely they are of Type 2 (p-*value* < 0.04). This is consistent with our intuition above. The longer, however, dictators spend considering

[20]Many dictators select only their final transfer and submit this transfer immediately. There are yet also many dictators who select and think about some option, then select some other option and so forth, before submitting their transfer. The number of selected options does not affect p.

[21]The specification is then reduced to significant determinants only. We, do, however, display some insignificant determinants of interest.

their options as measured by decision time 2, the less likely they are of Type 2 (p-$value < 0.04$). The analysis of the second transition yields similar results except that *Kohlberg class three* and both decision times are one level less significant in table 5b.

(D-3): 35% of all dictators are estimated to be of Type 2 (of departing by the same amount from rational self-interest in 'Give' and 'Take').

Finally, we consider the posterior probabilities of each subject being of type 2. Posterior type probabilities are obtained using Bayes' rules, after estimation of the mixture model as in (Moffatt 2015, chapter 8). Next, we illustrate the posterior distribution of transfer types assuming that a subject is of the type for which her posterior type probability is higher. FIGS. A.8.12 and A.9.14 plot actual transfers in 'Take' games ($y_{T,i}$) against actual transfers in 'Give' games ($y_{G,i}$) where circle size represents the number of subjects who chooses transfers equal to the coordinates of the circle center. As in expectation, subjects of Type 1 are distributed around the 45° line, while subjects of Type 2 are distributed around a 45° line that has been shifted downward by 5 units. Our model predicts the exact average transfers for 'Give' and 'Take' games in treatment 'TGTG'; in treatment 'GTGT', it underestimates both average transfers by 0.54 ECU.

Tables A4 show the respective results for recipients. Here, *Kohlberg class six* is again important, with a negative effect on the probability to be of Type 2 (p-$value < 0.01$). However, *Kohlberg class three* does not appear to be important for recipients. This could explain why recipients' transfers shifted less into the negative domain than dictators', see FIGS. 1B and 2B in section 5.1. FIGS. A.8.13 plot recipients' hypothetical transfers in 'Take' against those in 'Give', along with their frequencies and posterior transfer types.

(R-3): The main ethical determinant of the shift in dictator transfers between 'Give' and 'Take' – *Kohlberg class 3* – appears to be inactive on the recipient side.

6 Equality of Rights

In this section, we describe the asymmetry in the dictator's and the recipient's freedom of choice more formally to obtain a tool for looking at previous work. In a first step, we ask how the courses of action available to a party define that party's freedom of choice, that is, how much each available course of action assists an individual in the pursuit of her own will and ends (Sugden 1998, p. 318).[22] Suppose that X denotes the set of all options we might offer to the individual. Suppose that $Q := \{R_1, ..., R_n\}$ denotes

[22]The challenge here lies in the fact that each choice may increase the individual's autonomy by a different degree ('diversity' of options), and that a pair of choices may expand the individual's autonomy whereas each choice of that pair taken by itself may not ('complementarity' of options).

which option the individual would prefer in each of $j = 1, ..., n$ possible circumstances. Then, we recursively construct her 'opportunity set' S by adding only options x which expand the individual's freedom of choice by the following rule:

> Addition of Eligible Options. For all opportunity sets S, and for all options $x \notin S$: if there exists some $R_j \in Q$ such that $x \succ s$ for all $s \in S$, then $S \cup \{x\} \succ S$.

Therein, an option x is eligible to S if at least one potential preference relation in Q says the individual strictly prefers this option in circumstance j to all options she already has, that is, to every element of S_{-x}.

Each transfer option added to the dictator's choice set expands the dictator's freedom of choice by the extent to which the new transfer is preferred over all previously available transfers. Since we do not know the dictator's set of potential preferences Q for our experiment, we express the distribution of decision rights for the simplest case – the preferences of a selfish dictator. If we introduce new transfer options one by one to this dictator's choice set such that each newly available transfer allows her to keep exactly one more monetary unit of the same pie than her most preferred option so far, then each new option expands the dictator's freedom of choice by the same degree. The recipient, however, has only one option – to always accept. A selfish recipient cannot prefer the option 'always accept' to an empty set, i.e. to not doing anything. Hence, an only choice and no choice at all both give her zero freedom to choose. If the selfish dictator holds no other ethical ideal than that everybody enjoy the same rights to pursue their own self-interest – the same rights to pursue their own ends – we can express the dictator's preference by:

$$u_D(x_D) - \beta_D \max\{\#S_D - \#S_R, 0\} - \alpha_D \max\{\#S_R - \#S_D, 0\}$$

as in (Chlaß et al. 2019) where x_D denotes the monetary payoff from option x, $\#S_D$ and $\#S_R = 0$ are the cardinalities of dictator D's and recipient R's opportunity sets, β_D is the degree to which the dictator dislikes having more rights, and α_D the degree to which she dislikes having lesser rights than the recipient. α and β hence express the strength of the ethical ideal that decision rights should be equally distributed.[23] In this paper, we have seen that a baseline for β_D could be dictators' tendency to invoke Kohlberg class six ethical criteria. A transfer in a dictator game would then correspond to $\beta_D \max\{\#S_D - \#S_R, 0\} = \beta_D \max\{\#S_D, 0\}$ since $\#S_R = 0$. Chlaß et al. (2019) assess individuals' willingness to pay for procedures with different distributions

[23] In section 5.1, we found that the recipient resorts to a different set of ethical criteria – *Kohlberg class five* – than the dictator who resorts to *Kohlberg class six*. Hence, α could also measure an individual's preference for the ethical criterion she applies when in a position with lesser rights, and β her preference for the ethical criterion she applies when in a position with more rights than an opponent.

of decision rights when these procedures are expected to induce identical distributions of outcomes. Subjects' choices between these procedures link to *Kohlberg class five*. Chlaß and Riener (2015) design three outcome-invariant pairs of procedures. In each pair, subjects choose either whether their opponent has equal information, or whether she has equal decision rights. Only pairs of procedures in which subjects choose the opponent's decision rights induce any willingness to forego payoff. This (substantial) altruism links to *Kohlberg class five* and *Kohlberg class six*.

7 Previous evidence from the viewpoint of a concern for the recipient's decision rights

To date, many experimental interventions have been devised to gain insight into why we observe positive transfers in dictator games. Yet, none of these studies discusses their results from the viewpoint of a *purely procedural preference*. In this section, we show how these previous findings can be reconciled with and explained by our results. In particular studies which design interventions under which giving in dictator games disappears, uncontrolledly also even out the asymmetric distribution of decision rights and thus – according to our findings – eliminate the reason for why dictators transfer money in dictator games.

beliefs & social norms. Di Tella et al. (2015) report that dictators *give less* when they can justify their greed by *choosing* to believe that recipients accept bribes to reduce the pie. The authors conclude that beliefs about others' altruism *cause* dictator transfers in the original game. A key element in Di Tella et al.'s (2015) design is that recipients are commonly known to choose the size of the pie at the same time as dictators decide how much to transfer. Since the recipient now defines the dictator's freedom of choice, the distribution of decision rights symmetrizes and there is no longer a need to compensate the recipient for her unprotected rights. Indeed, Chlaß and Riener (2015) show directly that *Kohlberg class six* concerns disappear once a dictator knows that a previously passive recipient can simultaneously reduce the pie – *Kohlberg classes one to four* come into play and *actual beliefs* about how much the recipient reduces the pie. In sum, the manipulations in Di Tella et al. (2015) deactivate ethical concerns about the recipient's lack of decision rights and the authors' findings do not contradict our results.

Other studies (Krupka and Weber 2013; Kimbrough and Vostroknutov 2015) pursue the idea that dictator transfers reflect *social norms*. Krupka and Weber (2013) ask one group of dictators which transfers *should ideally be made to behave in a socially optimal way* and predict quite accurately what a second group of dictators does – both in 'Give' and 'Take' frames. Suppose now that within a society, many individuals nurture the ethical ideal that every human being has inalienable rights such as a right to

state her own will, and that all individuals – but also *collective action* – must ensure and defend these rights. If we draw two samples from this society, the first sample will report an ideal distribution of compensations for violating such a right which will accurately predict the compensations chosen by the second. Consistent with this idea, dictators who choose a specific transfer (out of three possible ones) in (Iriberri and Rey-Biel 2013) also believe that all other dictators make very similar choices. Kimbrough and Vostroknutov (2015) elicit to what extent dictators follow an announced rule to stop at red traffic lights on a virtual city map when obeying this rule is costly. The authors find a weakly significant positive correlation at the 10% level between the time dictators spend waiting and their transfers. They conclude that social norms which unconsciously carry over to the laboratory cause dictator game giving. – The authors do yet also document that dictators' impulse to follow the announced rule intermingles with their own idiosyncratic reasons for stopping at red lights. Since stopping at red traffic lights correlates considerably with one's ethical criteria[24], dictators' waiting time in the stopping task and their transfers should weakly correlate. Panizza et. al (2019) measure by what extent dictators follow an announced rule to put a ball into a blue urn when obeying the rule is costly to predict whether dictators opt for a selfish (advantageous) or a nonselfish (disadvantageous) split in two-transfer mini games. The authors document that a norm-based specification is misspecified; they have to allow dictators to only choose the unselfish (disadvantageous) split if this is not too costly too large a payoff. The anonymity conditions are not described; the general distribution of participants in a session therefore, will, as usual, be known and *Kohlberg class 3* be an ethical criterion which *motivates* positive transfers (see below). The rule-following task sorts participants in terms of *Kohlberg class 3*, and dictators signal their generosity/kindess if this is not too costly, as in (Falk and Fischbacher 2006).

Earnings. In (Cherry et al. 2002), dictators work some 45 minutes for the pie while recipients do not work. Dictators can transfer the pie in whole dollars and hardly transfer anything; a significant decrease also occurred in (Hoffmann et al. 1994). To exemplify how the distribution of decision rights changes in this setting, take a purely selfish dictator and ask how much she would prefer an additional option which allows her to keep exactly one more Dollar over her previously preferred option. This is one Dollar minus the cost c she has incurred to earn that Dollar. Therefore, the new option expands the dictator's freedom to choose only by $1\$ - c\$$. Indeed, as soon

[24]Individuals who stop at red lights give very similar arguments for why they stop as listed in table 1, for instance, ...because otherwise, i) they might get fined (*Kohlberg class one*), ii) ...because other people expect them to wait and make unpleasant remarks if they do not or because it feels awkward to be the only person crossing the street when everyone waits (all *Kohlberg class three*), but also ...because iii) especially children or people with impaired ability could imitate this behaviour in other traffic situations and come to considerable harm (*Kohlberg class six*). Note that these reasons can intuitively and unconsciously carry over to the laboratory just as Kimbrough and Vostroknutov (2015)s' argumentation assumes that social norms do.

as the perceived cost equals One, dictators and recipients both have zero freedom of choice. If the perceived cost exceeds One, dictators have even lesser freedom to choose than the recipient. Therefore, if the selfish dictator believes that everybody should have equal decision rights – equal rights to pursue their own self-interest – she would transfer a nonzero amount when money is free but less, or nothing, if she alone must work for the pie. It is therefore consistent with a preference for an equal distribution of decision rights that Cherry et al. (2002) observe hardly any transfer while earnings in this paper do not have such an effect since both dictators and recipients work[25]. Vice versa, if only recipients worked, their freedom of choice would decrease beyond the original game with windfall profits (being forced to work rather than just not being able to do anything). Dictators who care for equal decision rights will transfer most if only recipients work, less if dictators and recipients work, and least if only dictators work as is indeed the case (Ruffle 1998; Oxoby and Spraggon 2008).

Options to quietly exit the dictator game. Many dictators (and in particular generous ones) pay for quietly exiting the dictator game if given the option (Lazear et al. 2012; Broberg et al. 2007) – a finding which shed doubts on whether dictators derive utility from the recipient's payoff[26]. If, instead, dictator game giving reflects an ethical concern that the game violates the recipient's rights, we would expect that dictators who derive much disutility from this violation (and who are therefore generous if forced into the game) prevent the game from happening if possible. Those who opt in would resort to *Kohlberg class three*, would not be ethically concerned about the game, and behave selfishly. Both groups would deem to choose in line with their ethical criteria (Andreoni and Rao 2011).

information about the recipient/losses of anonymity. Several studies document that dictator game transfers vary along with information about the recipient such as her wealth, name, or face (Brañas-Garza 2006; Charness and Gneezy 2008; Burnham 2003). In contrast to our setup, access to recipient and dictator characteristics reverses the implication of *Kohlberg class three* because these help identify peer beliefs, define social norms, and provide opportunities to manage dictators' social image. The more dictators resorted to such ethical criteria in section 5.1, the less they gave. Our setup aimed at making low transfers ethically right by these criteria (*"I don't know who else is in the laboratory and hence, I don't know what they might expect me to do/nobody*

[25]Our instructions state that both parties work, the recipient for her endowment; the dictator for her endowment and the pie to avoid the impression that dictators and recipients co-own the pie.

[26]Dana et al. (2006) study exit options in a setup where all parties share the same room without visual isolation. As described further down, the implication of *Kohlberg class three* reverses as anonymity thus lifts: dictators who (also) care about others' expectations obtain access to those and start seeing ethical reasons to give. Upon opting in, they will be as generous as those dictators who give because of *Kohlberg class six* when forced into the game but who now prefer to exit the game. In addition, once *Kohlberg class three* encourages giving, more dictators should opt in when this signals their generosity as compared to when it does not (when the choice of the game is private) – which is exactly what the authors report.

will know it was me, I can't be told *or* seen *to be a nice person – it is ethically right to be selfish."*). Yet, *Kohlberg class three* leads to the opposite conclusion, once dictators can actually identify their peer group (other dictators or recipients) and thereby its expectations, beliefs, and norms, once dictators can give and receive feedback (Ellingsen and Johannesson 2008; Houser and Xiao 2009). Similarly, if dictators know for sure they will be publicly identified as in (Andreoni and Bernheim 2009), social image concerns *become* motivations for non-selfish transfers but only insofar as a selfish transfer would damage this image. Selfish transfers are still ethically right in such a setting once they can be disguised as nature's random move (or hidden behind some socially acceptable excuse (Andreoni and Rao 2011)). Note that introducing general social frames without lifting anonymity in turn *does not* provide dictators with access to the expectations or norms of their relevant *peer* group. Such general frames do consequently not reverse the implication of *Kohlberg class three* and should hence not affect dictator game transfers as was indeed not the case in (Dreber et al. 2013).[27]

In sum, two types of ethical criteria are at play in this paper's setup – *Kohlberg class six* implying that rational self-interest is ethically wrong by the equality of rights, and *Kohlberg class three*, concluding that selfishness is not ethically wrong by others' expectations, dictators' social image, and their peer group's norms because these cannot be accessed. In other setups, recipient and dictator characteristics are known, provide access to peer beliefs, define social norms, and provide opportunities to manage dictators' social image. By *Kohlberg class three*, it then becomes ethically right to transfer *more*. Our results do therefore not contradict this literature.

8 Kohlberg class five and six instrument concerns for decision rights

To interpret the link between dictators' Kohlberg class six scores and their transfers (or recipients' Kohlberg class five scores and their transfers) as concern for the recipient's decision rights, we must see whether other, omitted variables intercept this link. Dictators' responses to the moral judgement test could, for instance, vary along with demographic information. At www.chlass.de/research.html, we provide results from a decade of research (Chlaß 2010; Chlaß et al. 2015; Chlaß and Riener 2015; Chlaß et al. 2019) on whether *Kohlberg class three, five, and six* scores depend on students'

[27]Kogut and Ritov (2007) show that recipient characteristics only affect dictator transfers if the recipient belongs to the dictator's own (peer) group which is exactly in line with the idea that such losses in anonymity activate *Kohlberg class three*. The authors also cite neurological studies which report more activity in emotion-related areas when personal information about the recipient is provided than when it is not. This is in line with the idea that additional ethical criteria apply when anonymity is lost. If additional ethical criteria are at stake which dictators deem binding, dictators experience stronger moral emotions such as guilt or shame (Tangney et al. 2007).

age, field of study, personality, risk preferences, religion, religiosity, nationality, socio-economic status, and so forth, mainly for data from the same experimental student subject pool we use, at around the time our data was collected. The results in tables 2 and 3 exist in presence of all variables which have been documented to correlate with *Kohlberg class six* in at least one of the samples mentioned above: i) students' gender (effect: 0.20, *p-value*= 0.017 for German data from Chlaß and Riener (2015) does not affect transfers and indeed, does not correlate with *Kohlberg class six* in this paper, ii) students' fields of study: Law (effect: -0.53, *p-value*= 0.0344 for German data from Chlaß and Riener 2015), Education (effect: -1.80 *p-value*= 0.0029 for Australian data from Chlaß et al. 2015), and Information Technology (effect: -2.53, *p-value*= 0.0005 for Australian data from Chlaß et al. 2015). These include the variables which have been found to correlate significantly with *Kohlberg class five* – the ethical variable which links to *recipients'* hypothetical transfers – i) gender (effect: 0.25, *p-value*= 0.0163 in this paper's sample, 0.19, *p-value*= 0.0214 for data from Chlaß and Riener 2015), and ii) field of study: Law (effect: -0.47, *p-value*= 0.0497 for data from Chlaß and Riener (2015)). In this paper's sample, all students are of German nationality. Since *Kohlberg class six* remains significant in presence of all other Kohlberg classes, it is also impossible that one of the other Kohlberg classes ultimately produces the link between Kohlberg class six and dictator transfers in tables 2 and 3. We have therefore not found any variable which could invalidate *Kohlberg class five* and *Kohlberg class six* as instruments for preferences over the distribution of decision rights (Chlaß et al. 2019; Chlaß and Riener 2015) – see section 6.

9 Conclusion

This paper provides evidence that under strict dictator-dictator and dictator-recipient anonymity, giving in anonymous dictator games springs from none of the ethical criteria suggested in the literature so far.[28] We cannot confirm that the degree by which dictators resort to social norms (for instance, about payoff equality as in inequity aversion) increases giving, nor the extent to which dictators resort to others' expectations, nor social image concerns (as assumed in the experimenter demand debate, or in guilt aversion and moral cleansing). Surprisingly, this paper finds that these ethical criteria are *negatively* linked to giving in dictator games – a result which holds for 'Give' and 'Take' frames, for dictator game giving of earned income, and for dictator game giving of windfall gains.

The only ethical criterion which does increase transfers in all settings under study,

[28]In our analysis, every dictator can care for all ethical criteria suggested so far (or none), and can resort to several criteria at the same time to guide her actions. Dictators are not 'classified' by the ethical criterion they prefer most and dictators' transfers therefore regressed on their complete set of preferences over all ethical criteria discussed.

is an outcome-invariant ethical criterion about the human rights of the recipient; about her freedom of choice, her will, and her dignity. This suggests first, that dictators deem the rules of the dictator game unfair and seek to compensate this unfairness through a monetary transfer. It suggests second, that dictator game giving signals a different preference than assumed in the literature so far. Thereby, our findings do not contradict previous experimental results (just their interpretation) and can organize the lion's share of the literature on dictator game giving.

At the same time, our study retrieves several aspects of the experimenter demand debate. First, decision times and a stability analysis of transfers for the same dictator suggest that decisions in classic 'Give' dictator games with windfall money are carefree, fast, and spontaneous. They seldom survive changes to the frame, or repetition. Second, dictators who care about their social image, others' expectations, and social norms do indeed trigger the shift between 'Give' and 'Take' games (List 2007; Bardsley 2008). In each game, they tend to choose the most selfish option – a zero transfer in 'Give' games and taking the recipient's entire endowment in 'Take' games – and thereby produce the well-known average decline of giving in the latter. The more, however, dictators care about universal ethical principles such as human rights, the individual's will and freedom to choose, the more likely they are to opt for the same context-free transfer in all games.

What implications do our findings have? If we endorse the view that so far, the preference underlying anonymous dictator game giving has indeed been misunderstood, applying List and Levitt's (2007) criteria for assessing the external validity of social preference experiments from the laboratory leads to different conclusions when applied to dictator game giving. In our setting which ensured the non-identifiability of the experimenter (researcher) and strict between-subjects anonymity, ethical criteria which might trigger experimenter demand did not encourage giving. If so, the scrutiny of the laboratory, or the lack of double-blindness in an experimental setup (List and Levitt's (2007) criteria 1 & 2) would not endanger the external validity of dictator game giving (apart from making it a conservative estimate for altruism in the field where social image concerns, expectations, and norms are additional motives for altruistic behavior). Stakes (criterion 3) – the financial externality imposed on the recipient – should also be a minor concern (beyond ensuring a careful evaluation of dictators' ethical criteria) since the distribution of rights, and not of outcomes underlies transfers. If universal ethical principles are at play, dictator game giving would not vary along with mere changes in the context of a situation (criterion 4). Finally, a selection of particularly pro-social students who seek social approval into laboratory dictator games (criterion 5) would not reduce the external validity of dictator game giving if pro-sociality, social image concerns, and others' approval do in the end, not cause the phenomenon. Also the selection effect observed in (Lazear et al. 2012) – that particularly generous dictators quietly opt out of laboratory dictator games if given

the opportunity – does not imply that generous individuals simply avoid sharing situations in the field: dictators who are generous must care particularly strongly about the recipient's rights and will certainly not wish to bring this violation about by opting into the game. Only by List and Levitt's (2007) criterion 6 – the artificality of the restriction on the choice set imposed – would giving in dictator games indeed spring from a demand effect. If the field does not distribute parties' rights as unequally as the laboratory dictator game, no altruism should occur. Into which areas of real life should the phenomenon then generalize? Not into competitive market forms where all agents enjoy similar rights to pursue their own self-interest. Rather, altruism should occur where also the field distributes rights of participation unequally (for instance, where monopolies restrain other economic actors' freedom of choice, where suppliers hold price-setting power etc.).

Indeed, pharmaceutical companies with patents on chemotherapeutics in European countries give away medicine for free to complete patients' treatments – if public health insurance does not cover the respective medical expenses and patients cannot afford the expense themselves[29]. Many taxi drivers bring visitors who – due to their poor knowledge of local public transport – do not have the same freedom to choose an alternate mode of transportation as locals – to their destination rather than having them step out of the taxi, once they learn the visitor cannot afford to pay the entire way (Grosskopf and Pearce 2015).

[29]This does not pay off in terms of reputation since it is commonly known that these same pharmaceutical companies could reduce their prices such that also poorer national health services could cover the respective products – in which case treatment would become available to all insured patients. Yet, companies prefer not to exploit their margins for charitable purposes in countries with poor national health services, since reducing the price in one country reduces the price companies can achieve with richer health services of other European countries. Therefore, companies prefer to complete treatments on a case-to case basis.

References

Akerlof, G. A. and Kranton, R. E. (2000) Economics and Identity, Quarterly Journal of Economics, 115(3), pp. 715-753.

Alger, I. and Weibull, J. W. (2013) Homo Moralis – Preference Evolution Under Incomplete Information and Assortative Matching, Econometrica, 81(6), pp. 2269-2302.

Andreoni, J., and Bernheim, B. D. (2009) Social Image and the 50-50 norm: A theoretical and Empirical Analysis of Audience Effects, Econometrica, 77, pp. 1607-1636.

Andreoni, J., and Rao. J.M. (2011) The power of the ask: how communication affects selfishness, empathy, and altruism, Journal of Public Economics, 95, pp. 513-520.

Bardsley, N., Dictator Game Giving: Altruism or Artefact, Experimental Economics, 11(2), pp. 122-133.

Battigalli, P. and M. Dufwenberg (2007), Guilt in Games, American Economic Review, Papers and Proceedings, 97, pp. 170-176.

Bolton, G., Brandts, J., Ockenfels A. (2005), Fair Procedures: Evidence From Games Involving Lotteries, Economic Journal, 115, pp. 1054-1076.

Bolton, G., Ockenfels A. (2000), ERC - A Theory of Equity, Reciprocity and Competition, American Economic Review, 90(1), pp. 166-193.

Bolton, G., Brandts, J., Ockenfels A. (2005), Fair Procedures: Evidence From Games Involving Lotteries, Economic Journal, 115, pp. 1054-1076.

Brañas-Garza, P. (2006) Poverty in Dictator Games: Awakening Solidarity, Journal of Economic Behaviour and Organization, 60, pp. 206-320.

Brañas-Garza, P. (2007) Promoting Helping Behaviour with Framing in Dictator Games, Journal of Economic Psychology, 28, pp. 477-486.

Brañas-Garza, P., Bucheli, M., Paz Espinosa, M., García-Muñoz, T. (2013) Moral Cleansing and Moral Licenses: Experimental Evidence, Economics and Philosophy, 29, pp. 199-212.

Broberg, T., Ellingsen, T., Johannesson, M. (2007) Is generosity involuntary?, Economics Letters, 94(1), pp. 32-37.

Burnham, T.C. (2003) Engeneering Altruism: A Theoretical and Experimental Investigation Of Anonymity and Gift Giving, Journal of Economic Behaviour and Organization, 50, pp. 133-144.

Charness, G., Gneezy, U. (2008) What's in a Name? Anonymity and Social Distance in Dictator and Ultimatum Games, Journal of Economic Behavior and Organization, 68, pp. 29-35.

Cherry, T.L., Frykblom, P., Shogren, J.F. (2002), Hardnose the Dictator, The American Economic Review, 92(4), pp. 1218-1221.

Chlaß, N. (2010), The Impact of Procedural Asymmetry in Games of Imperfect Information, Papers of the German Economic Association Annual Meeting 2010, http://hdl.handle.net/10419/37253.

Chlaß, N., Gangadharan, L., Jones, K. (2015), Charitable Giving and Intermediation, Monash Working Paper #18-2015.

Chlaß, N., Güth, W., Miettinen, T. (2019), Purely procedural preferences - Beyond procedural equity and reciprocity, European Journal of Political Economy, 59, pp. 108-128.

Chlaß, N., Riener, G. (2015), Lying, Spying, Sabotaging – Procedures and Consequences, University of Mannheim Working Paper, # ECON 15-17.

Dal Bó, P. and Terviö, M. (2013), Self-Esteem, Moral Capital, and Wrongdoing, Journal of the European Economic Association, 11(3), pp. 599-633.

Dana, J., Cain, D., Dawes, R. (2006), What you don't know won't hurt me: Costly (but quiet) exit in dictator games, Organizational Behavior and Human Decision Processes, 100(2), pp. 193-201.

DiTella, R., Perez-Truglia, R., Babino, A., and Sigman, M. (2015) Conveniently Upset: Avoiding Altruism by Distorting Beliefs about Others' Altruism, American Economic Review, 105 (11), pp. 3416-3442.

Dreber, A., Ellingsen, T., Johannesson, M., Rand, D. G. (2013), Do people care about social context? Framing effects in dictator games, Experimental Economics, 16(3), pp. 1386-4157.

Dufwenberg, M., Kirchsteiger, G. (2004), A Theory of Sequential Reciprocity Games and Economic Behavior, 47, pp. 268-98.

Ellingsen, T., Johannesson, M. (2008), Anticipated Verbal Feedback Induces Altruistic Behavior. Evolution and Human Behavior, 29, pp. 100-105.

Falk, A., Fischbacher, U. (2006), A Theory of Reciprocity, Games and Economic Behavior, 54, pp. 293-315.

Fehr, E., Schmidt, G. (1999), A Theory of Fairness, Competition and Cooperation, Quarterly Journal of Economics, 114, pp. 817-868.

Fischbacher, U. (2007), z-Tree: Zurich Toolbox for Ready-made Economic Experiments, Experimental Economics, 10, pp. 171-178.

Forsythe, R., Horowitz, J.L., Savin, N.E., Sefton, M. (1994) Fairness in Simple Bargaining Games, Games and Economic Behaviour, 6, pp. 347- 369.

Franzen, A., Pointner, S., (2012) Anonymity in the Dictator Game Revisited, Journal of Economic Behaviour and Organization, 81, pp. 74-81.

Greiner, B. (2015), Subject Pool Recruitment Procedures: Organizing Experiments with ORSEE, Journal of the Economic Science Association, 1, pp. 114-125.

Grosskopf, B., and Pearce, G. (2015), Do you mind me paying less? Measuring Other-Regarding Preferences in the Market for Taxis, University of Exeter Working Paper.

Hintze, Jerry L., and Nelson, R.D. (1998), Violin Plots: A Box Plot-Density Trace Synergism, The American Statistician, 52(2), pp. 181-184.

Hoffmann, E., McCabe, K., Shachat, K., Smith, V. (1994), Preferences, Property Rights, and Anonymity in Bargaining Games, Games and Economic Behaviour,7, pp. 346-380.

Houser, D., Xiao, E. (2009), Avoiding the Sharp Tongue: Anticipated Written Messages Promote Fair Economic Exchange, Journal of Economic Psychology, 30, 393-404.

Iriberri, N., and Rey-Biel, P. (2013), Elicited beliefs and social information in modified dictator games: What do dictators believe other dictators do? Quantitative Economics, 4 (2013), pp. 515-547.

Ishida, C. (2006), How do Scores of the DIT and the MJT differ? A Critical Assessment of the Use of Alternative Moral Development Scales in Studies of Business Ethics, Journal of Business Ethics, 67, pp. 63-74
Economics 2, pp. 47–65.

Kogut, T., Ritov, I. (2007) 'One of us': Outstanding Willingness to Help Save A Single Identified Compatriot, Organizational Behavior and Human Decision Processes, 104 (2007), pp. 150-157.

Kimbrough, E. O. and Vostroknutov, A. (2015), Norms Make Preferences Social, Journal of the European Economic Association, DOI : 10.1111/$jeea$.12152

Kohlberg, L. (1984), The Psychology of Moral Development. San Francisco: Harper & Row.

Krupka, E. L., and Weber, R. A.(2013), Identifying Social Norms Using Coordination Games: Why does Dictator Game Sharing Vary?, Journal of the European Economic Association, 11, pp. 495-524.

Lazear, E. P., Malmendier, U., Weber, R. A.(2012), Sorting in Experiments with Application to Social Preferences, American Economic Journal: Applied Economics, 12,4(1), pp. 136-163.

Levitt, S. D. (2007), What Do Laboratory Experiments Measuring Social Preferences Reveal About the Real World, The Journal of Economic Perspectives, 21(2), pp. 153-174.

Lind, G. (1978), Wie misst man moralisches Urteil? Probleme und alternative Möglichkeiten der Messung eines komplexen Konstrukts, Portele, G. (ed.), Sozialisation und Moral, 171-201, Weinheim: Beltz, pp. 1215-1259.

Lind, G. (2008), The Meaning and Measurement of Moral Judgment Competence Revisited - A Dual-Aspect Model, in: Fasko, D., W. Willis (eds.), Contemporary Philosophical and Psychological Perspectives on Moral Development and Education. Cresskill. NJ: Hampton Press, pp. 185 - 220.

List, J. A. (2007), On the Interpretation of Giving in Dictator Games, Journal of Political Economy, 115(3), pp. 482-493.

López-Pérez, R. (2008) Aversion to norm-breaking: A model, Games and Economic Behavior, Elsevier, 64(1), pp. 237-267.

Miettinen, T. (2013), Promises and Conventions: An Approach to Pre-play Agreements, Games and Economic Behavior, 80, pp. 63-84.

Moffatt, P. G. (2015), Experimetrics: Econometrics for Experimental Economics, Palgrave Macmillan.

List, J. A., Searching Beyond the Lamppost: Letś focus on Economically Relevant Questions, Journal of Economic Behavior and Organization, 73, pp. 65-67.

Oxoby, R. J., Spraggon, J. (2008), Mine and Yours: Property Rights in Dictator games, Journal of Economic Behavior & Organization, 65 (2008), pp. 703-713.

Ruffle, B.J. (1998), More Is Better, But Fair Is Fair: Tipping in Dictator and Ultimatum Games, Games and Economic Behavior (23), pp. 247-265.

Piaget, J. (1948), The Moral Judgement of the Child, Glencoe, Illinois: Free Press.

Sebald, A. (2010), Attribution and Reciprocity, Games and Economic Behavior, 68, pp. 339-352.

Smith, V. L. (2010) Theory and Experiment: What Are the Questions?, Journal of Economic Behavior and Organization, 73, pp. 3-15.

Sugden, R. (1998), The Metric of Opportunity, Economics and Philosophy, 14, pp. 307-337.

Tangney, J.P., Stuewig, J., Mashek, D. J. (2007), Moral Emotions and Moral Behavior, Annual Review of Psychology, 58, 345–372.

Wasel W. (1994), Simulation moralischer Urteilsfähigkeit. Moralentwicklung: eine kognitiv-strukturelle Veränderung oder ein affektives Phänomen?, Universität Konstanz, Diplomarbeit im Fachbereich Psychologie, http://www.uni-konstanz.de/ag-moral/mut/mjt-references.htm#wasel_1994.

Weber, M. (1921), Wirtschaft und Gesellschaft: Grundriß der verstehenden Soziologie, J.C.B. Mohr (Paul Siebeck), Tübingen 1921; Roth, G. Wittich, C. (Eds., Transl.) (1968), Economy and Society, New York: Bedminster Press.

Zizzo, J.D. (2010) Experimenter Demand Effects in Economic Experiments, Experimental Economics, 13, pp. 75-98.

Zizzo, J.D. (2011) Do Dictator Games Measure Altruism?, Bruni, L., Zamagni, S. (Eds.) Handbook on the Economics of Philanthropy, Reciprocity, and Social Enterprise, Edward Elgar (forthcoming).

A Appendices[30]

A.1 Instructions[31]

Instructions

Welcome and thank you for participating in this experiment. For showing up on time you receive €2.50. Please read the instructions carefully. Instructions are identical for all participants. If you have any questions, please raise your hand - we are going to answer them individually at your seat.

Please stay quiet, switch off your mobile phone and do not talk to other participants. In the experiment all amounts of money will be stated in ECU (Experimental Currency Units).

Description of the Experiment

In this experiment you interact with other participants whom you do not know. Participants take on different roles A or B. You are randomly assigned a role for the entire experiment. [At first, all participants solve a number of tasks. All participants solve the same type of tasks. Please work on these tasks without delay since the experiment only proceeds once all participants have solved them.] The [remaining] experiment consists of several rounds. In every round you are matched with a different participant such that you never encounter the same participant twice. Every round proceeds as follows:

At the beginning of each round participants A and B receive an endowment [for solving the tasks]. Additionally, participant A (not participant B) receives a certain amount of ECU [for solving the tasks]. Then, participant A decides between different alternatives how many ECUs she receives, and how many ECUs participant B receives in that round. At the beginning of each round, you are informed about the different alternatives A can decide between. At the end of a round, you do not receive any information about the alternative A has opted for.

During the experiment, we will also ask you to answer some questions.

Your payoff

At the end of the experiment, the computer randomly chooses with equal probability one out of all rounds. You see which decision A made in that round. A's decision on

[30] The appendix is available online at www.chlass.de/Research.

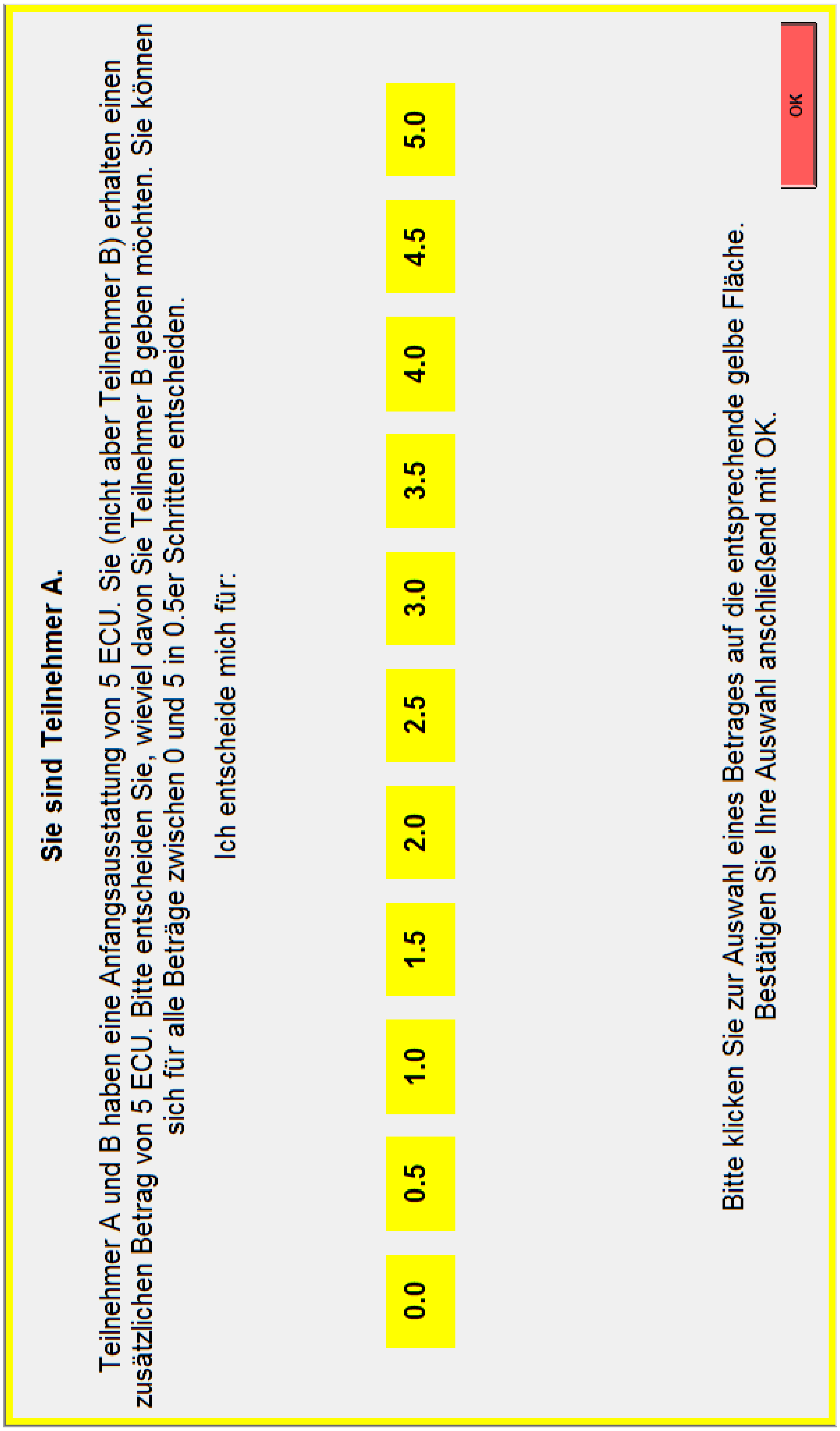
[31] Instructions of the experiment were written in German. This appendix reproduces a translation into English. Text in square brackets shows additional information for the earnings treatment. Emphases are taken from the original text. Further documentation is available from the authors upon request.

how many ECUs she was to receive and on how many ECUs B was to receive in that round determines your overall payoff from the experiment. During the experiment, your payoff will not be stated in Euros but in ECU (Experimental Currency Units). The exchange rate of ECU to Euros is in every round:

1 ECU=0.8 Euros

Please be patient until all participants have read the instructions.

A.2 Decision screens



[**You are participant A.**

Participants A and B each have an endowment of 5 ECU. You (not participant B) receive an additional amount of 5 ECU. Please decide how much of these additional 5 ECU you want to give to participant B. You can opt for all amounts between 0 and 5 in steps of 0.5.

I opt for:

To select an amount, please click on the corresponding yellow area. Then, confirm your selection with OK.]

Figure A.2.1: Dictator decision screen for the original 'Give' dictator game [translation into English in square brackets below the screen].

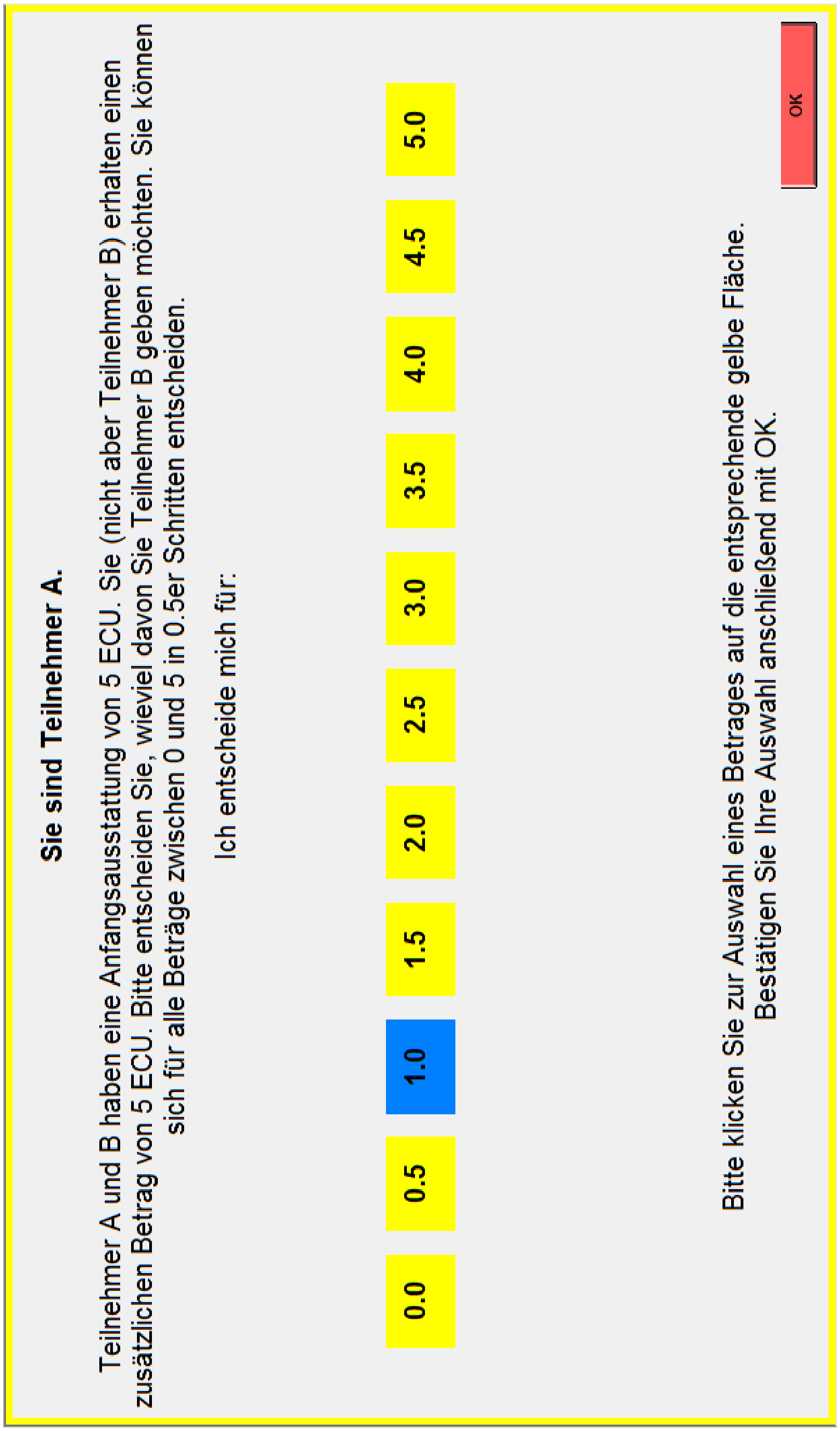
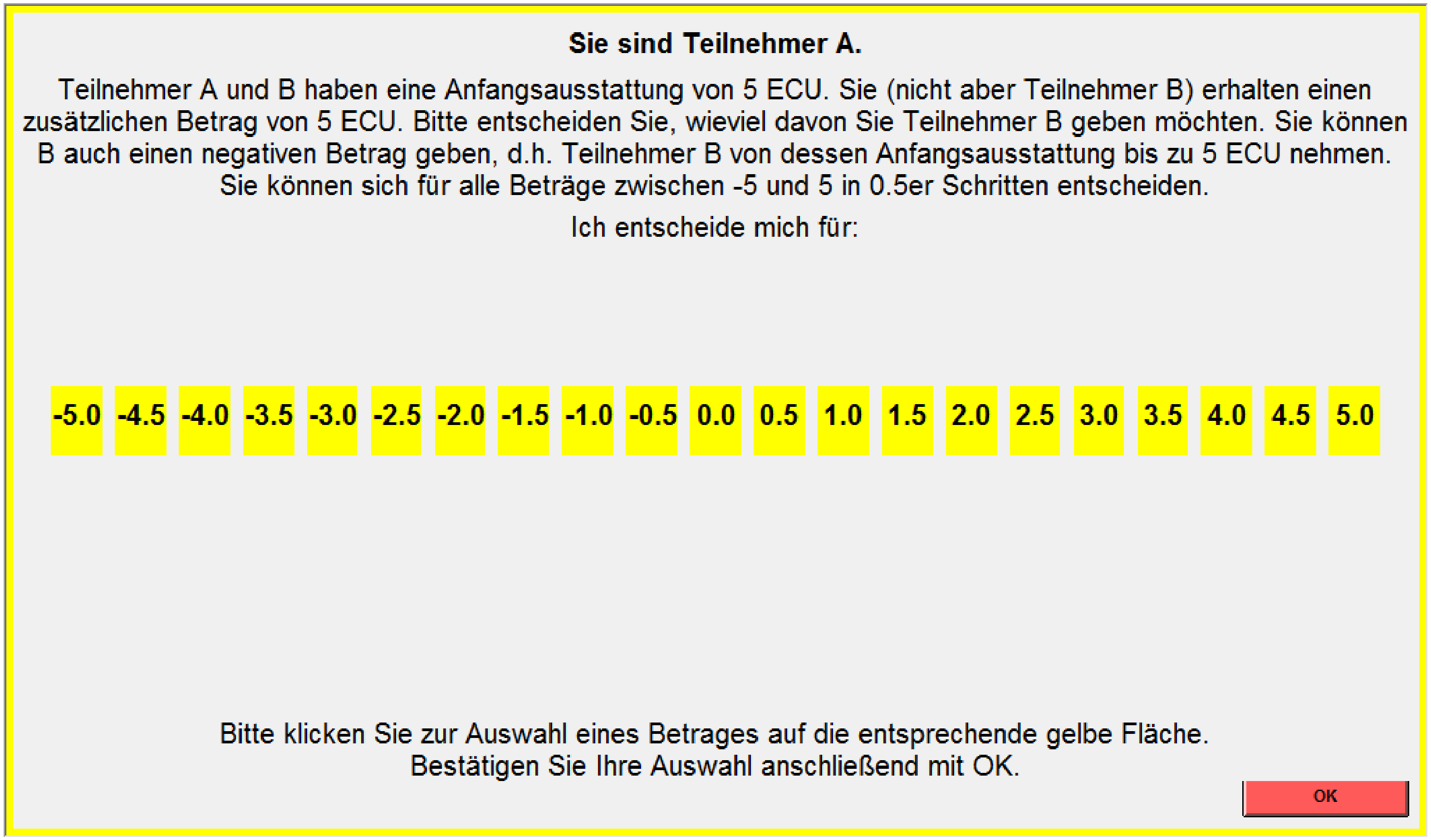


Figure A.2.2: Dictator decision screen for the original 'Give' dictator game after the dictator has selected a transfer of 1 ECU – which she can still revise –, and before submitting her choice.



[You are participant A.

Participants A and B each have an endowment of 5 ECU. You (not participant B) receive an additional amount of 5 ECU. Please decide how much of these additional 5 ECU you want to give to participant B. You can also give a negative amount to B, that is, you can take up to 5 ECU from participant B's endowment. You can opt for all amounts between -5 and +5 in steps of 0.5.

I opt for:

To select an amount, please click on the corresponding yellow area. Then, confirm your selection with OK.]

Figure A.2.3: Dictator decision screen for List's (2007) and Bardsley's (2008) 'Take-5' dictator game.

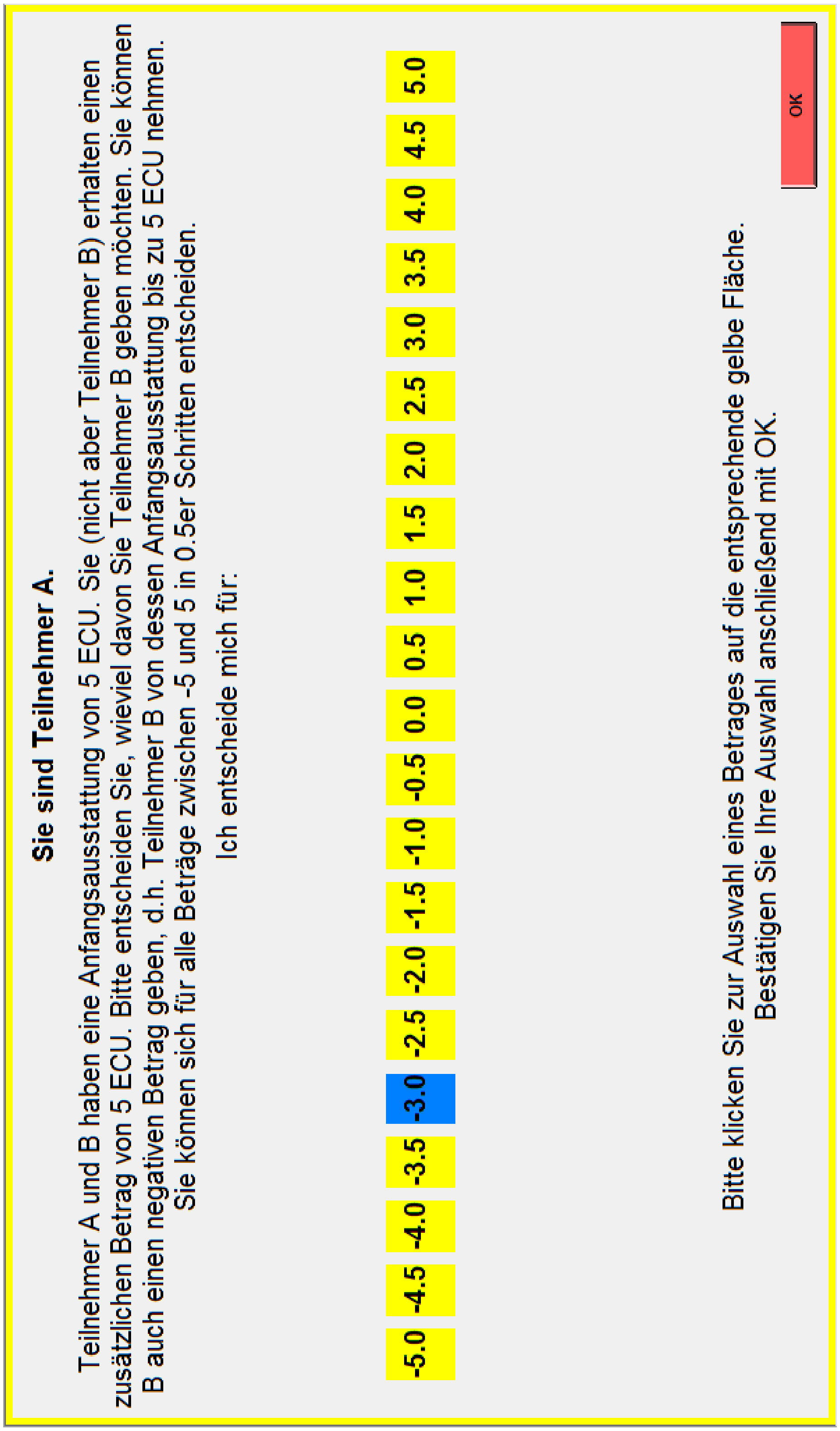
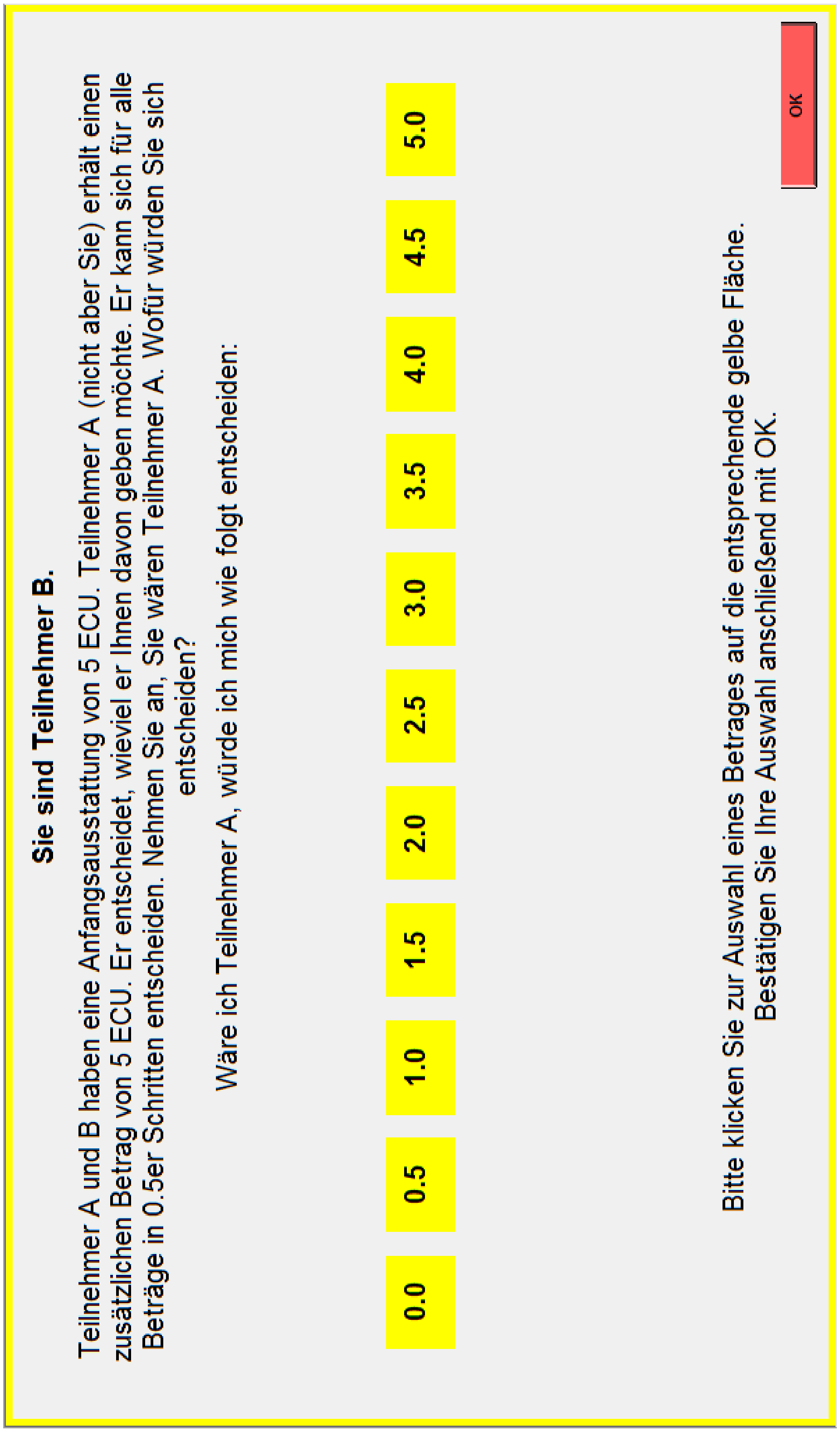


Figure A.2.4: Dictator decision screen for List's (2007) 'Take-5' dictator game after the dictator has selected a transfer of -3 ECU – which she can still revise –, and before submitting her choice.



[**You are participant B.**

Participants A and B each have an endowment of 5 ECU. Participant A (not you) receives an additional amount of 5 ECU. He decides how much of these additional 5 ECU he wants to give you. He can opt for all amounts between 0 and 5 in steps of 0.5. Assume you were participant A. How would you decide?

If I were A, I would opt for:

To select an amount, please click on the corresponding yellow area. Then, confirm your selection with OK.]

Figure A.2.5: Recipient decision screen for the original 'Give' dictator game [translation into English in square brackets below the screen].

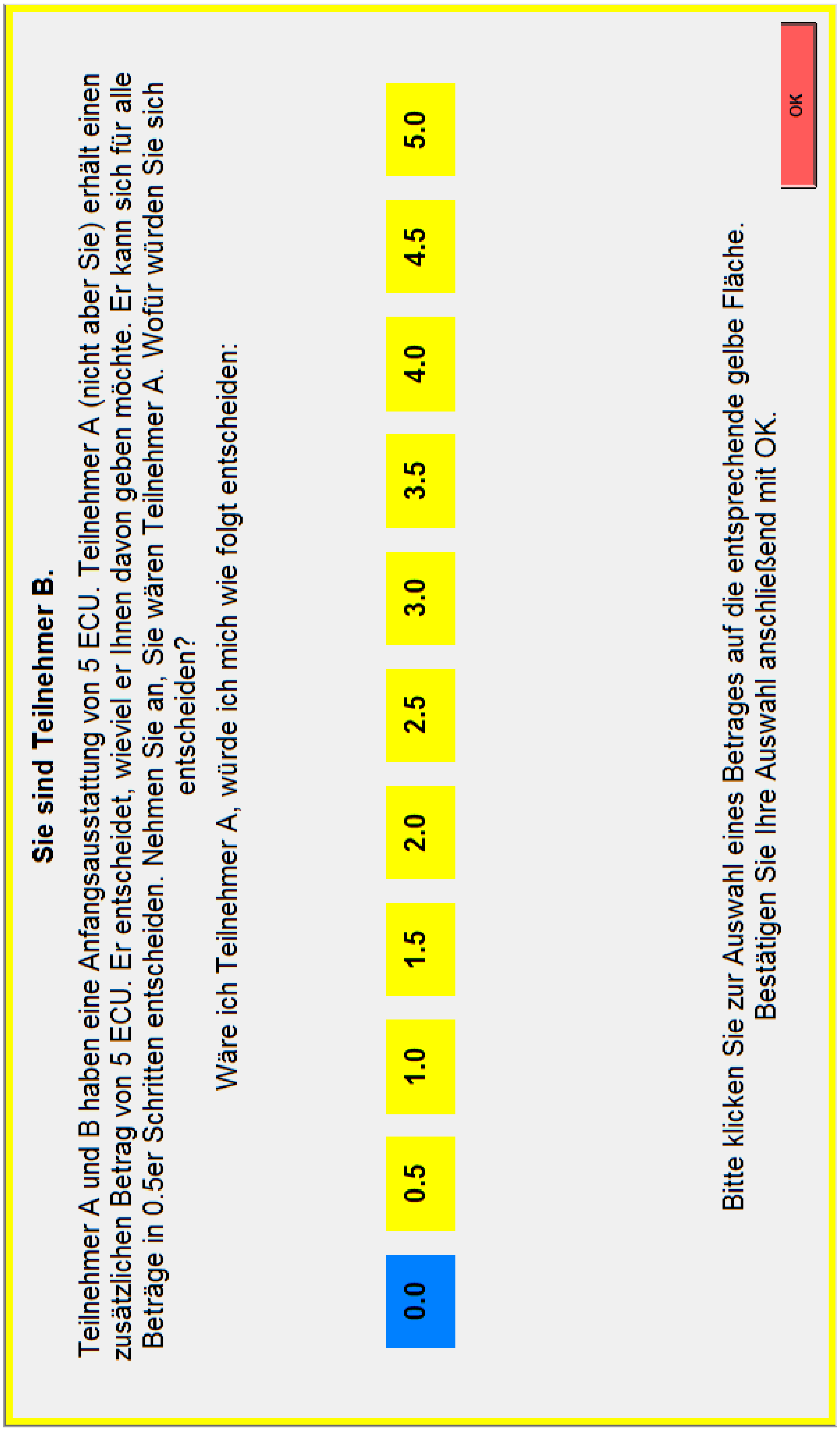
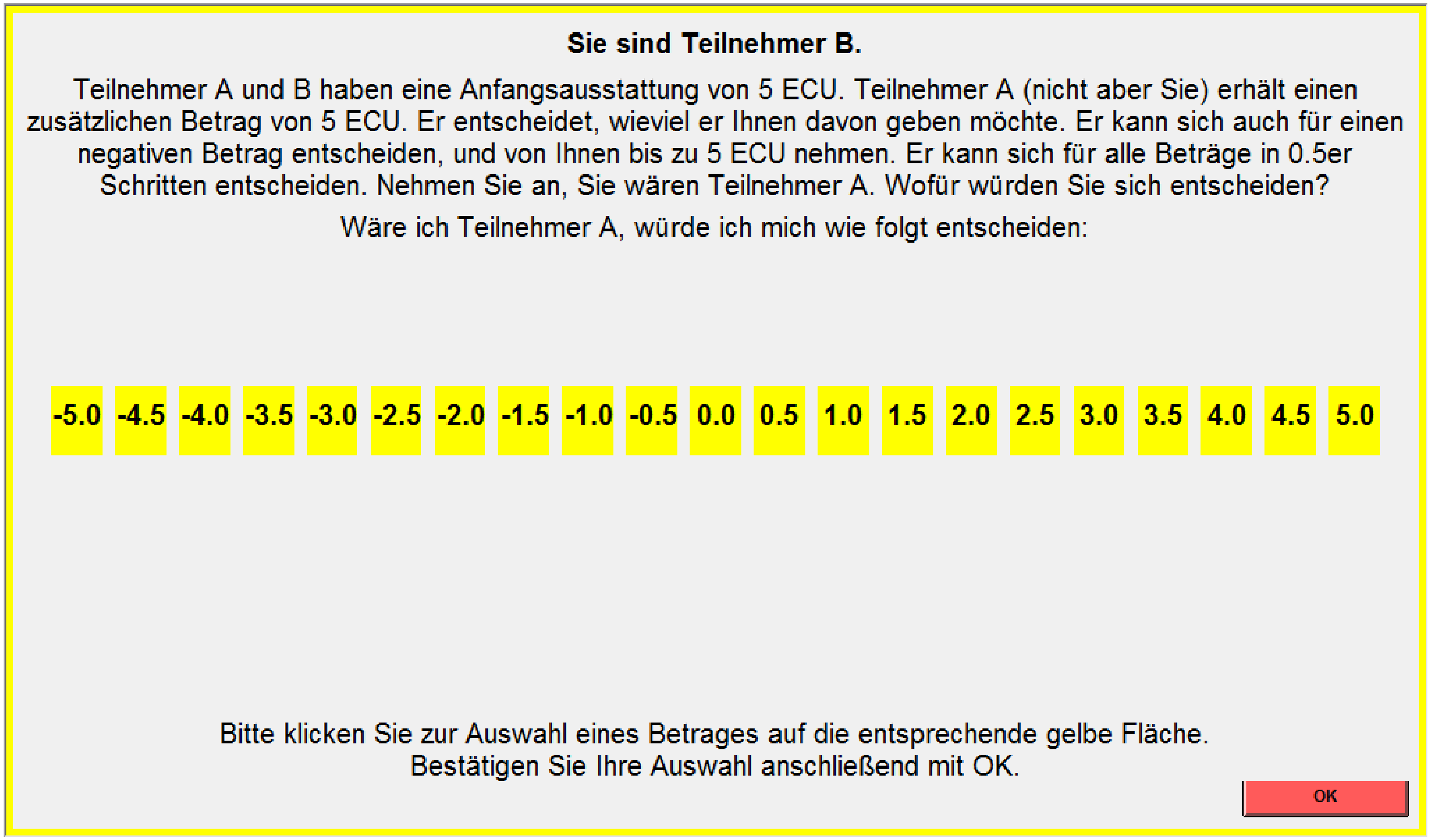


Figure A.2.6: Recipient decision screen for the original 'Give' dictator game after the recipient has selected a hypothetical transfer of 0 ECU – which she can still revise –, and before submitting her choice.



[You are participant B.

Participants A and B each have an endowment of 5 ECU. You (not participant B) receive an additional amount of 5 ECU. Please decide how much of these additional 5 ECU you want to give to participant B. You can also give a negative amount to B, that is, you can take up to 5 ECU from participant B's endowment. You can opt for all amounts between -5 and +5 in steps of 0.5.

I opt for:

To select an amount, please click on the corresponding yellow area. Then, confirm your selection with OK.]

Figure A.2.7: RECIPIENT DECISION SCREEN FOR LIST'S (2007) 'TAKE-5' DICTATOR GAME.

A.3 Predicted probability for each transfer and its relation to Kohlberg class six from the model in table 2a).

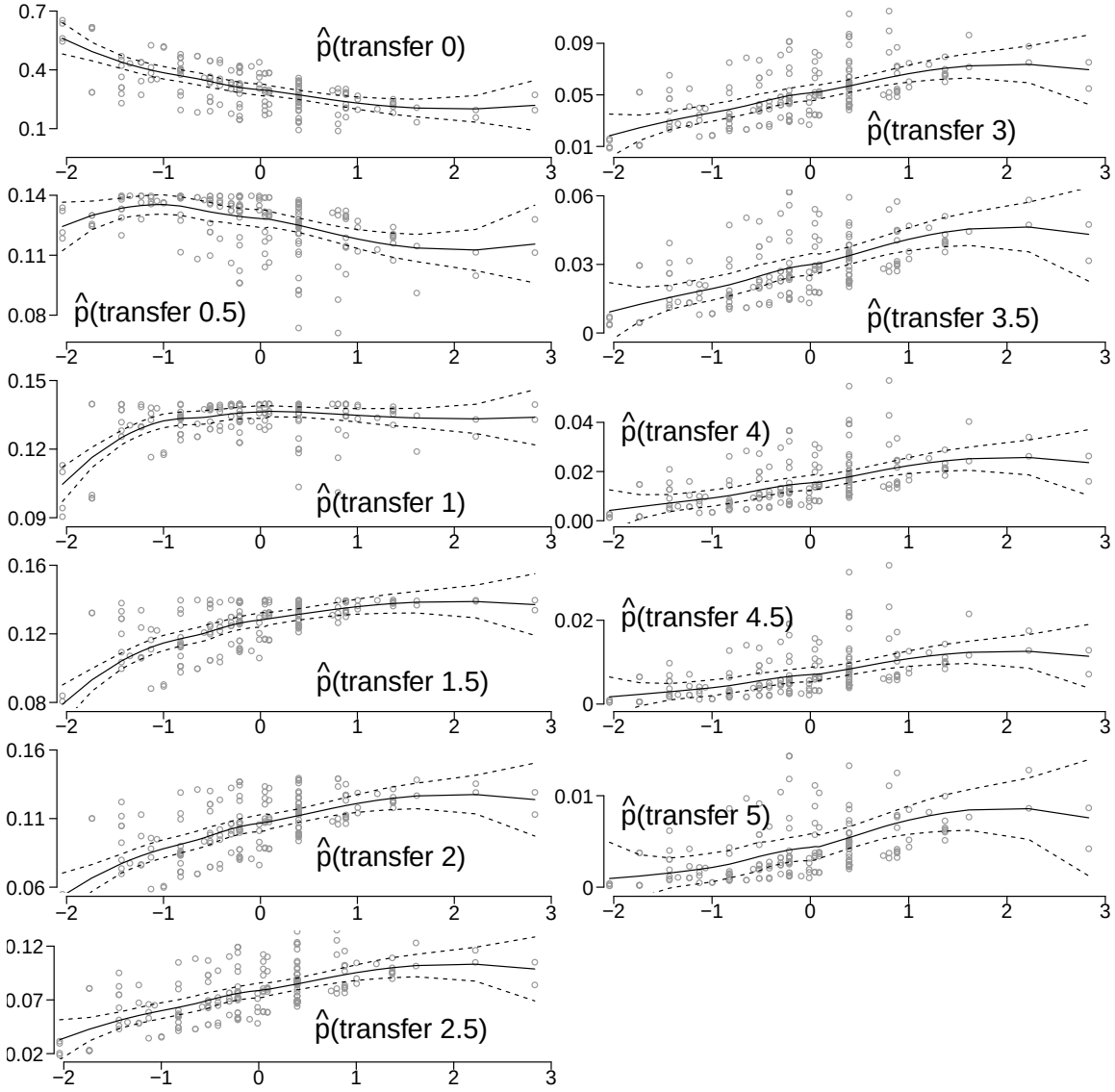


Figure A.3.8: How does the predicted probability of making a given transfer from the model in table 2a change with increasing Kohlberg class six scores? Local polynomial estimates [solid line] with 99% confidence intervals [dotted lines].

A.4 Predicted probability for each transfer and its relation to Kohlberg class six from the model in table 2b).

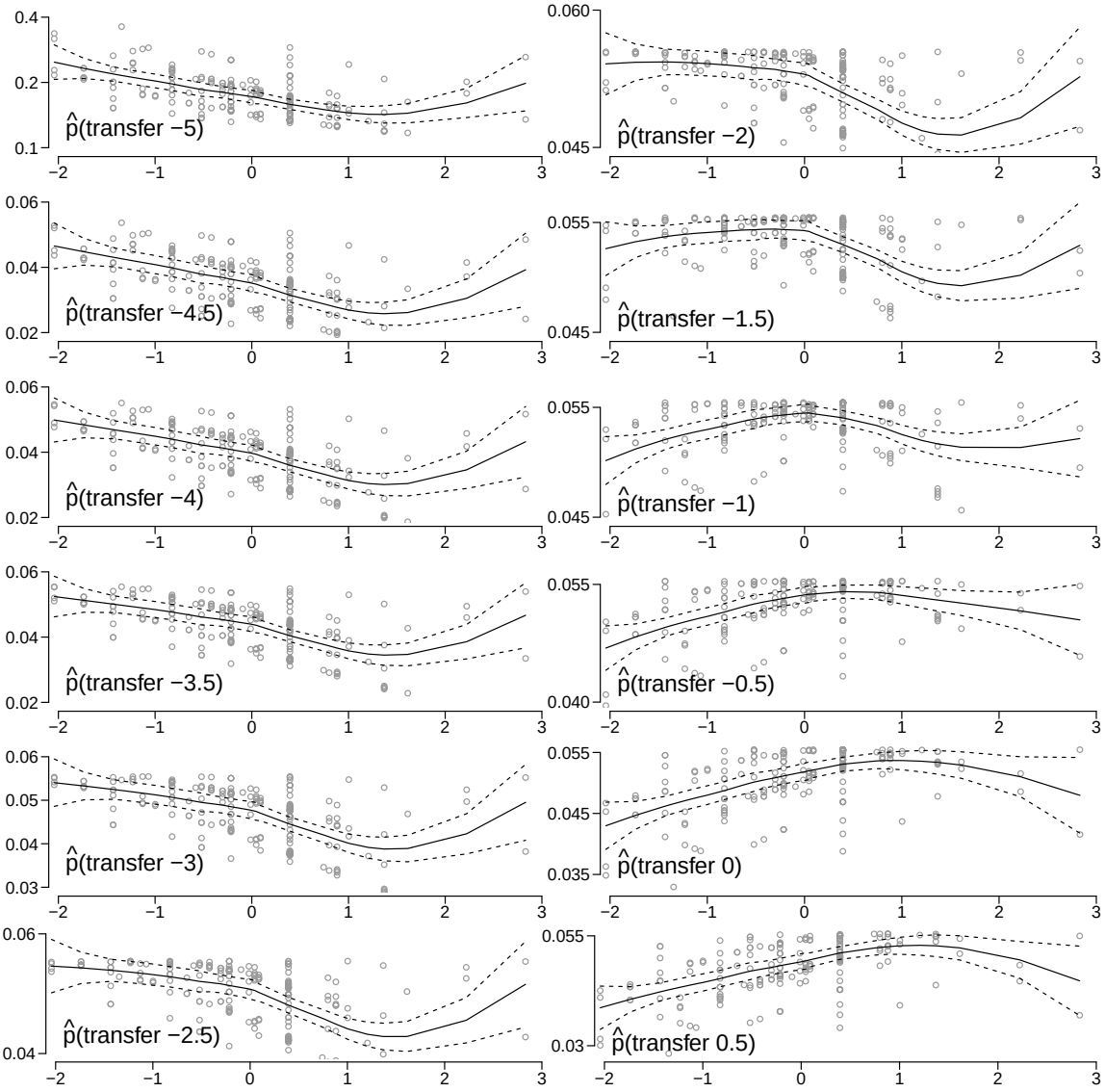


Figure A.4.9: How does the predicted probability of making transfers within [-5,0.5] from the model in table 2b change with increasing Kohlberg class six scores? Local polynomial estimates [solid line] with 99% confidence intervals [dotted lines].

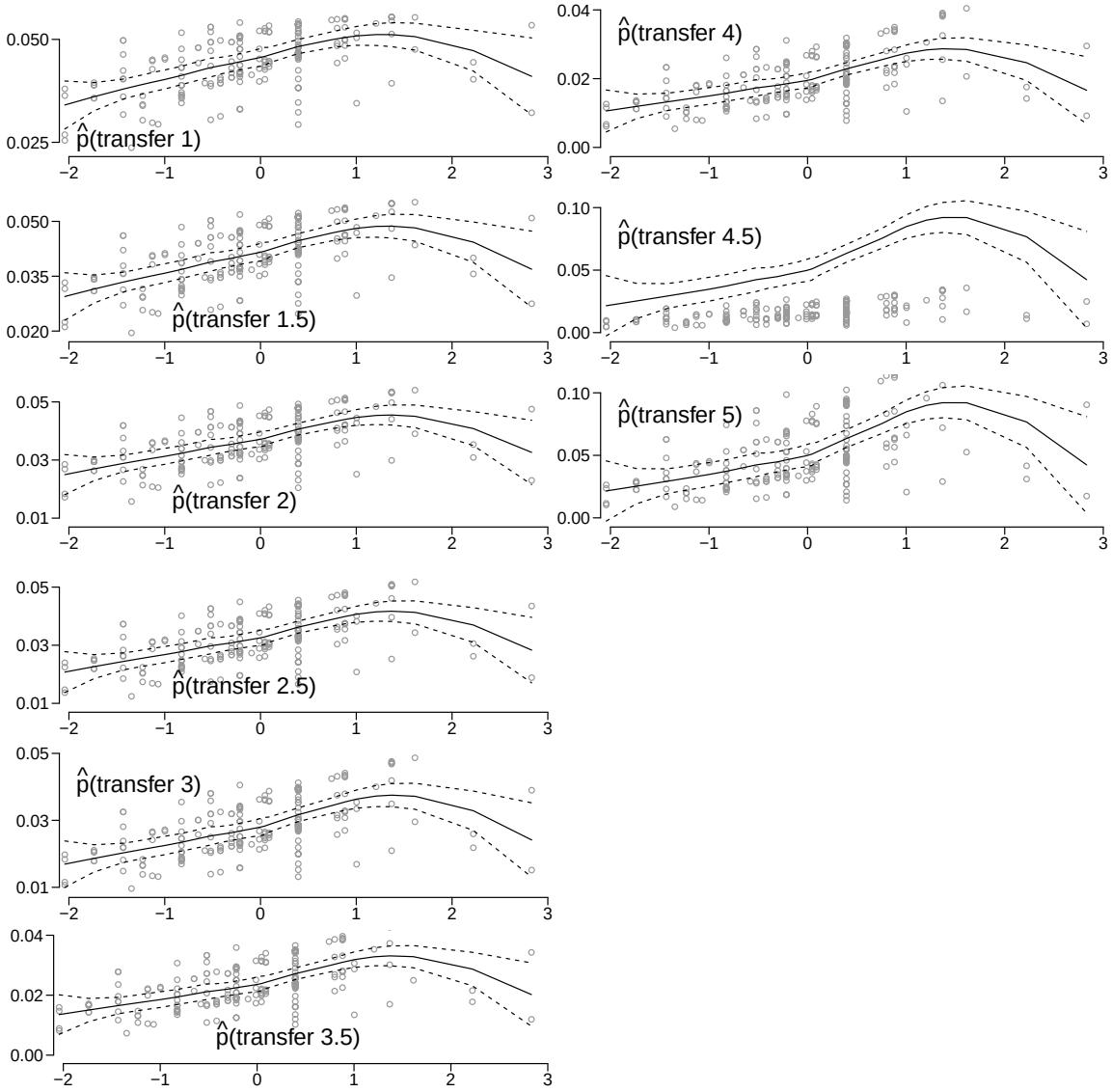


Figure A.4.10: How does the predicted probability of making transfers within [1,5] from the model in table 2b change with increasing Kohlberg class six scores? Local polynomial estimates [solid line] with 99% confidence intervals [dotted lines].

A.5 Recipients' hypothetical transfers

A.5.1 Distribution of hypothetical transfers before and after a 'Take' game

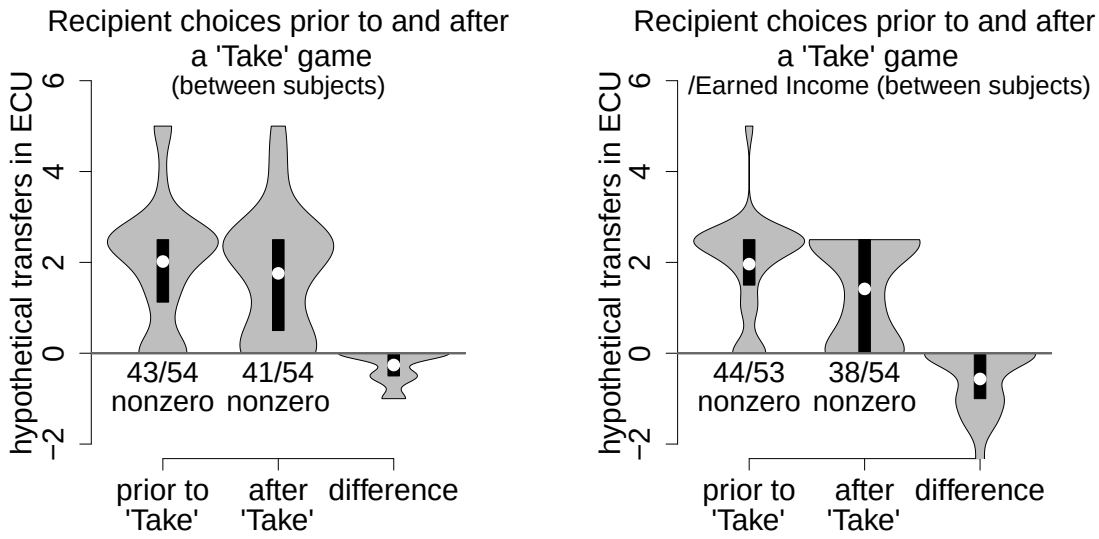


Figure A.5.11: Do recipients' hypothetical choices differ in the first 'Give' game prior to and after a 'Take' game? Treatments 'Manna from Heaven' (left: Fig. A.5.11a) and 'Earned Income' (right: Fig. A.5.11b).

A.5.2 Determinants of recipients' hypothetical transfers[32]

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$.

A1a. RECIPIENTS' FIRST 'GIVE'-GAME.		
variable	*effect*	*se*
Intercept	2.32^a	0.26
Kohlberg class 3	−0.10	0.13
Kohlberg class 5	0.26^b	0.13
sequence TGTG	-0.47^b	0.22
Earnings (EI)	−0.34	0.22
[Kohlberg class 1	[−0.03	0.15
Kohlberg class 2	0.06	0.18
Kohlberg class 4	−0.09	0.19
Kohlberg class 6]	−0.10]	0.16]
control variables: [age 0.02, gender −0.15, *fields of study:* Education −0.27, IT −2.00, Law −0.18 Medicine 0.05, Business/Economics −0.14].		

A1b. RECIPIENTS' FIRST 'TAKE' GAME.		
variable	*effect*	*se*
Intercept	−1.20	1.86
Kohlberg class 3	−0.04	0.26
Kohlberg class 5	0.61^b	0.27
sequence TGTG	−0.13	0.45
Earnings (EI)	0.07	0.45
[Kohlberg class 1	[0.07	[0.31
Kohlberg class 2	−0.09	0.38
Kohlberg class 4	0.01	0.39
Kohlberg class 6]	0.55^c]	0.32]
control variables: age 0.09, gender −0.22, *fields of study:* Education −0.08, IT -5.52^b, Law −0.33 Medicine 0.26, Business/Economics -1.88^a.		

Table A1: Kohlberg class five – ethical ideals about equal civic rights as stipulated by a democratic social contract – increase recipients' hypothetical transfers in the first 'Give', and the first 'Take' game.

[32]Unlike for dictator transfers, we repeatedly observe demographic control variables which are significant at the 5% level for recipient transfers. Where this happens, we report the results from the larger specifications which comprise the block of demographic data.

A.5.3 Do recipients' ethical motivations crowd out with repetition?

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$.

A7a. RECIPIENTS' SECOND 'GIVE'-GAME.		
variable	*effect*	*se*
Intercept	2.07^b	0.90
Kohlberg class 3	-0.04	0.13
Kohlberg class 5	0.27^b	0.13
sequence TGTG	−0.20	0.22
Earnings	−0.26	0.22
[Kohlberg class 1	[−0.12	[0.15
Kohlberg class 2	−0.09	0.19
Kohlberg class 4	−0.08	0.19
Kohlberg class 6]	0.04]	0.16]
control variables: age 0.03, gender -0.50^b, *fields of study*: Education −0.15, IT -2.47^b, Law 0.26 Medicine −0.04, Business/Economics −0.02.		

A7b. RECIPIENTS' SECOND 'TAKE' GAME		
variable	*effect*	*se*
Intercept	−0.03	1.89
Kohlberg class 3	−0.41	0.26
Kohlberg class 5	0.71^a	0.27
sequence TGTG	−0.49	0.45
Earnings	0.29	0.46
[Kohlberg class 1	[0.48	[0.31
Kohlberg class 2	0.05	0.38
Kohlberg class 4	−0.32	0.39
Kohlberg class 6]	0.36]	0.33]
control variables: age 0.04, gender −0.03, *fields of study:* Education −0.17, IT -5.24^b, Law −0.33 Medicine 0.54, Business/Economics -1.52^b.		

Table A2: Kohlberg class five – ethical ideals about equal civic rights as stipulated by a democratic social contract – still increase recipients' hypothetical transfers in the second 'Give', and the second 'Take' game.

A.6 Determinants of dictator transfers for earnings data exclusively

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$

A3a. FIRST 'GIVE'-GAME – EARNINGS.		
variable	*effect*	*se*
Intercept	1.34^a	0.21
Kohlberg class 3	−0.00	0.17
Kohlberg class 6	0.51^a	0.17
sequence TGTG	-0.64^b	0.30
[Kohlberg class 1	[−0.08	[0.17
Kohlberg class 2	−0.06	0.23
Kohlberg class 4	0.15	0.24
Kohlberg class 5]	−0.28]	0.21]
control variables: [age −0.02, gender −0.32, *fields of study:* Education −0.16, IT −1.09, Law 0.72 Medicine −0.82, Business/Economics −0.35].		

A3b. FIRST 'TAKE' GAME – EARNINGS		
variable	*effect*	*se*
Intercept	−0.68	0.47
Kohlberg class 3	0.00	0.37
Kohlberg class 6	1.11^a	0.37
sequence TGTG	0.06	0.67
[Kohlberg class 1	[−0.08	[0.17
Kohlberg class 2	−0.06	0.23
Kohlberg class 4	0.15	0.24
Kohlberg class 5]	−0.28]	0.21]
control variables: [age 0.03, gender −0.20, *fields of study*: Education −0.87, IT −1.17, Law −0.51 Medicine −2.22, Business/Economics −0.77].		

Table A3: Kohlberg class six – ethical ideals about Human rights, Freedom of choice, and Dignity – increase dictator transfers when money is earned. Kohlberg class three is not active.

A.7 A finite mixture model for recipient transfers. Determinants of transferring the same hypothetical absolute difference to the most selfish option

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$

A4a. 1ST TRANSITION 'GIVE'/'TAKE'.			A4b. 2ND TRANSITION 'GIVE'/'TAKE'.		
variable X'_{ik}	*coeff.*	*asym. se*	*variable* X'_{ik}	*coeff.*	*asym. se*
Intercept	-0.69	1.08	*Intercept*	-1.31	1.05
Kohlberg class 3	0.11	0.13	*Kohlberg class 3*	0.10	0.12
Kohlberg class 6	-0.40^a	0.12	*Kohlberg class 6*	-0.37^a	0.12
sequence TGTG	-0.19	0.22	*sequence TGTG*	-0.05	0.22
reaction time 1	0.50	1.11	*reaction time 1*	0.21	1.15
reaction time 2	-0.51	1.08	*reaction time 2*	-0.03	1.11

Table A4: Determinants of departing by the same absolute difference from rational self-interest in 'Give' and 'Take' games for recipients' hypothetical transfers.[33]

[33]The more recipients care about general ethical principles such as the individual's human rights, her freedom of choice, and dignity (*Kohlberg class six*), the *less* likely they transfer the same absolute difference to the most selfish choice and the more likely they consequently transfer the same hypothetical positive amount in 'Give' and 'Take' games. *Kohlberg class three* is not active on the recipient side.

A.8 Predicted transfer types and actual choices in 'Give' and 'Take' games.

A.8.1 Dictators

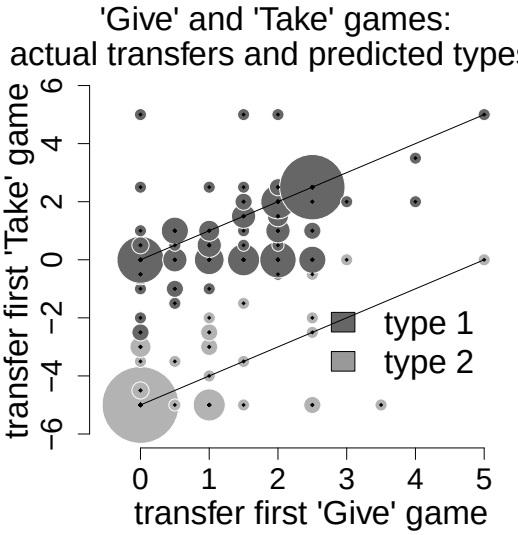


Fig. A.8.12a. 'First transition'

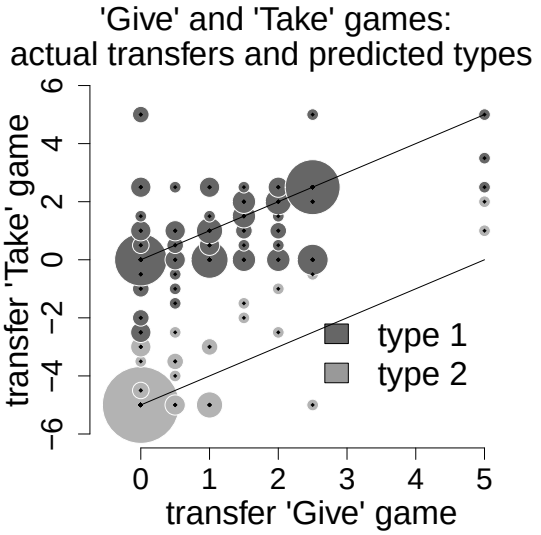


Fig. A.8.12b. 'Second transition'

Figure A.8.12: Dictators' predicted transfer type 2 (of departing by the same absolute amount from rational self-interest, light shaded bubbles), and type 1 (of transferring the same positive amount, dark shaded bubbles) along with transfers in each game (black diamond). 1st transition (left: Fig. A.8.12a), and 2nd transition (right: Fig. A.8.12b) from a 'Give' to a 'Take' game for all dictators and all treatments.

A.8.2 Recipients

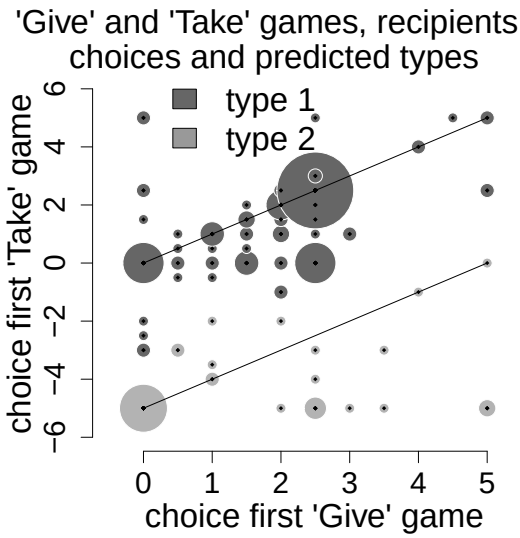


Fig. A.8.13a. 'First transition'

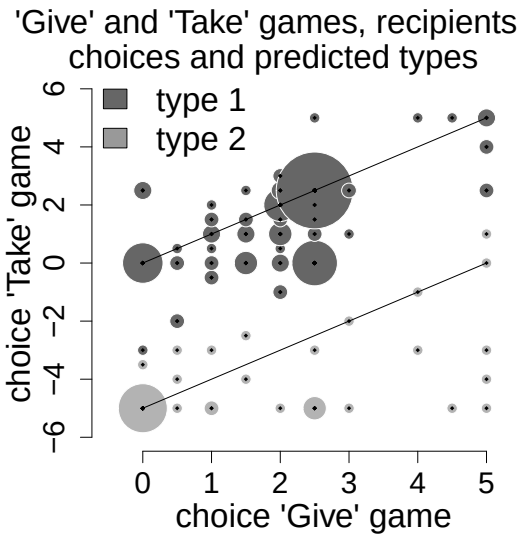


Fig. A.8.13b. 'Second transition'

Figure A.8.13: Recipients' predicted transfer type 2 (of departing by the same absolute amount from rational self-interest, light shaded bubbles), and type 1 (of transferring the same positive amount, dark shaded bubbles) along with hypothetical transfers in each game. 1st transition (left: Fig. A.8.13a) and 2nd transition (right: Fig. A.8.13b) from a 'Give' to a 'Take' game for all recipients, and all treatments.

A.9 Dictators' predicted transfer types and actual choices: 'TGTG' versus 'GTGT'

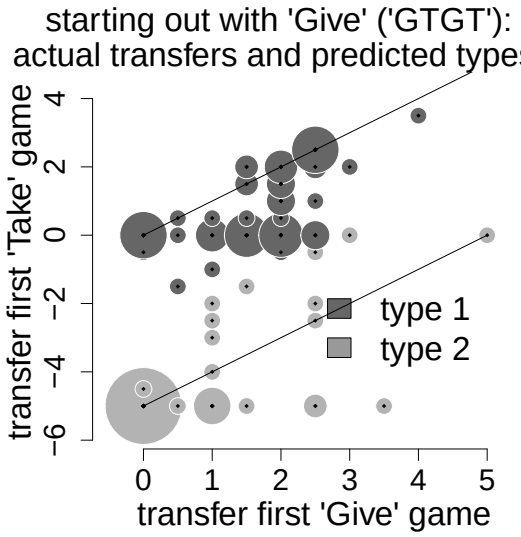


Fig. A.9.14a. 'Give-Take-Give-Take'

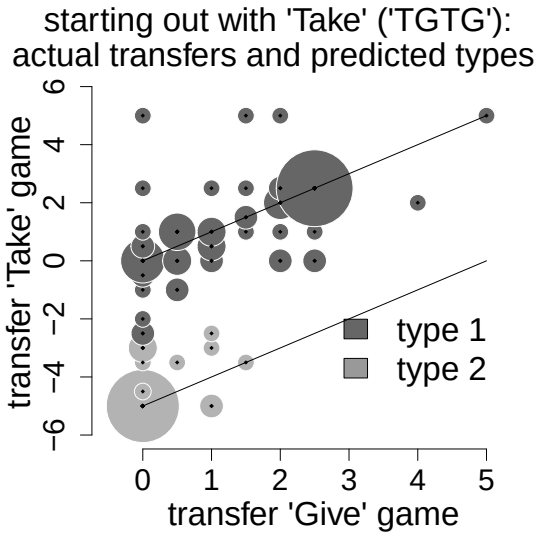


Fig. A.9.14b. 'Take-Give-Take-Give'

Figure A.9.14: Dictators' predicted transfer type 2 (of departing by the same absolute difference from rational self-interest, light shaded bubbles) and type 1 (of transferring the same positive amount, dark shaded bubbles) separate for treatments 'GTGT' (left: Fig. A.9a) and 'TGTG' (right: Fig. A.9b). 1st transition from 'Give' to 'Take' only.

B An Excerpt of the Moral Judgement Test by Georg Lind (1978, 2008)

Doctor

A woman had cancer and she had no hope of being saved. She was in terrible pain and so weak that a large dose of a pain killer such as morphine would have caused her death. During a temporary period of improvement, she begged the doctor to give her enough morphine to kill her. She said she could no longer stand the pain and would be dead in a few weeks anyway. The doctor decided to give her a overdose of morphine.

Do you agree or disagree with the doctor's action ...

I strongly disagree — I strongly agree

-3	-2	-1	0	1	2	3

How acceptable do you find the following arguments *in favor* of the doctor's actions?
Suppose someone argued he acted *rightly*...

...because the doctor had to act according to his conscience. The woman's condition justified an exception to the moral obligation to preserve life

I strongly reject — I strongly accept

-4	-3	-2	-1	0	1	2	3	4

. . .

...because the doctor was the only one who could fulfill the woman's wish; respect for her wish made him act as he did.

I strongly reject — I strongly accept

-4	-3	-2	-1	0	1	2	3	4

How acceptable do you find the following arguments *against* the doctor's actions?
Suppose someone argued he acted *wrongly*

. . .

...because he acted contrary to his colleagues' convictions. If they are against mercy-killing the doctor shouldn't do it.

I strongly reject — I strongly accept

-4	-3	-2	-1	0	1	2	3	4

. . .

...because one should be able to have complete faith in a doctor's devotion to preserving life even if someone with great pain would rather die

I strongly reject — I strongly accept

-4	-3	-2	-1	0	1	2	3	4

NOTE: This excerpt of the moral judgement test MJT is reprinted with kind permission by Georg Lind (the dots represent items – arguments representing specific Kohlbergian classes – which we cannot reproduce due to copyright protection.). Moreover, the excerpt does not faithfully reproduce the formatting of the original test. For ease of readability, the original test numbers each item, and the alignment slightly differs from this excerpt. The full test cannot be published due to copyright protection.

C Kohlberg class six as instrument for concerns about the recipient's decision rights

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$.

A7a. DICTATORS' FIRST 'GIVE'-GAME. *specification →*	(1)	(2)	(3)	(4)
Intercept	1.544^a (0.173)	1.535^a (0.173)	-0.096 (0.921)	-0.262 (0.918)
Kohlberg class 3	-0.410^a (0.154)	-0.433^b (0.196)	-0.382^b (0.154)	-0.464^b (0.194)
Kohlberg class 6	0.444^a (0.141)	0.407^b (0.170)	0.436^a (0.139)	0.362^b (0.167)
sequence TGTG	-0.337^c (0.204)	-0.375^c (0.205)	-0.356^c (0.204)	-0.402^b (0.205)
Earnings (EI)	-0.313 (0.201)	-0.256 (0.207)	-0.321 (0.199)	-0.245 (0.203)
Kohlberg class 3·EI	0.441^c (0.244)	0.484^c (0.253)	0.408^c (0.244)	0.495^b (0.253)
Kohlberg class 1	(–)	0.026 (0.173)	(–)	0.075 (0.171)
Kohlberg class 2	(–)	0.029 (0.193)	(–)	0.029 (0.188)
Kohlberg class 4	(–)	0.230 (0.206)	(–)	0.293 (0.203)
Kohlberg class 5	(–)	-0.209 (0.184)	(–)	-0.224 (0.183)
age	(–)	(–)	0.085^b (0.037)	0.092^b (0.037)
gender	(–)	(–)	-0.163 (0.220)	-0.156 (0.221)
field of study: Law	(–)	(–)	-0.344 (0.459)	-0.397 (0.466)
field of study: IT	(–)	(–)	-0.185 (0.843)	-0.539 (0.859)
field of study: Education	(–)	(–)	0.495^c (0.256)	-0.503^b (0.255)
field of study: Medicine	(–)	(–)	-0.283 (0.528)	-0.496 (0.537)
field of study: Business/Economics	(–)	(–)	-0.417 (0.296)	-0.417 (0.296)

Table A5: Kohlberg class six continues to explain dictator transfers in the first 'Give' game after controlling for all (insignificant) variables which may intercept the link between Kohlberg class six and dictators' preferences for the recipient's decision rights.

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$.

A7a. DICTATORS' FIRST 'TAKE'-GAME. *specification* →	(1)	(2)	(3)	(4)
Intercept	-1.652^{a} (0.438)	-1.645^{a} (0.437)	-4.674^{b} (2.304)	-4.957^{b} (2.292)
Kohlberg class 3	-0.925^{b} (0.381)	-0.917^{c} (0.482)	-0.840^{b} (0.383)	-0.893^{c} (0.480)
Kohlberg class 6	0.894^{a} (0.341)	0.842^{b} (0.408)	0.835^{a} (0.338)	0.727^{c} (0.404)
sequence TGTG	1.157^{c} (0.501)	1.131^{b} (0.502)	1.099^{b} (0.506)	1.069^{b} (0.506)
Earnings (EI)	0.453 (0.496)	0.470 (0.507)	0.485 (0.493)	0.528 (0.501)
Kohlberg 3·EI	1.012^{c} (0.583)	1.244^{b} (0.601)	0.823^{c} (0.590)	1.104^{c} (0.607)
Kohlberg class 1	(−)	0.551 (0.428)	(−)	0.692 (0.426)
Kohlberg class 2	(−)	−0.030 (0.475)	(−)	−0.036 (0.467)
Kohlberg class 4	(−)	0.178 (0.510)	(−)	0.229 (0.507)
Kohlberg class 5	(−)	−0.692 (0.448)	(−)	-0.773^{c} (0.448)
age	(−)	(−)	0.158^{c} (0.093)	0.171^{c} (0.093)
gender	(−)	(−)	−0.073 (0.544)	−0.039 (0.547)
field of study: Law	(−)	(−)	−1.618 (1.100)	−2.062 (1.115)
field of study: IT	(−)	(−)	0.051 (2.040)	-0.496^{c} (2.064)
field of study: Education	(−)	(−)	-1.411^{c} (0.639)	-1.380^{b} (0.634)
field of study: Medicine	(−)	(−)	−0.502 (1.323)	−0.965 (1.331)
field of study: Business/Economics	(−)	(−)	−1.178 (0.741)	-1.271^{c} (0.739)

Table A6: Kohlberg class six continues to explain dictator transfers in the first 'TAKE' game after controlling for all (insignificant) variables which may intercept the link between Kohlberg class six and dictators' preferences for the recipient's decision rights.

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$.

A7a. DICTATORS' SECOND 'GIVE'-GAME. *specification* →	(1)	(2)	(3)	(4)
Intercept	1.123^{a} (0.208)	1.119^{a} (0.209)	-0.803 (1.102)	-0.840 (2.292)
Kohlberg class 3	-0.461^{b} (0.183)	-0.479^{b} (0.234)	-0.415^{b} (0.182)	-0.449^{c} (0.480)
Kohlberg class 6	0.428^{b} (0.168)	0.404^{b} (0.204)	0.403^{b} (0.165)	0.369^{c} (0.404)
sequence TGTG	-0.230^{c} (0.244)	-0.243 (0.246)	-0.222 (0.244)	-0.232^{b} (0.506)
Earnings (EI)	-0.300 (0.241)	-0.280 (0.249)	-0.250 (0.239)	-0.227 (0.501)
Kohlberg 3·EI	0.370 (0.208)	0.383 (0.302)	0.277 (0.290)	0.305 (0.607)
Kohlberg class 1	(−)	0.004 (0.208)	(−)	0.027 (0.207)
Kohlberg class 2	(−)	0.089 (0.234)	(−)	0.092 (0.229)
Kohlberg class 4	(−)	0.020 (0.247)	(−)	0.022 (0.245)
Kohlberg class 5	(−)	-0.061 (0.220)	(−)	-0.066 (0.220)
age	(−)	(−)	0.091^{b} (0.093)	0.093^{b} (0.045)
gender	(−)	(−)	-0.014 (0.544)	-0.012 (0.266)
field of study: Law	(−)	(−)	-0.718 (1.100)	-0.735 (0.583)
field of study: IT	(−)	(−)	0.211 (2.040)	0.098^{c} (1.010)
field of study: Education	(−)	(−)	-0.562^{c} (0.639)	-0.569^{c} (0.308)
field of study: Medicine	(−)	(−)	0.239 (1.323)	0.190 (0.644)
field of study: Business/Economics	(−)	(−)	-0.386 (0.741)	-0.379 (0.357)

Table A7: Kohlberg class six continues to explain dictator transfers in the second 'GIVE' game after controlling for all (insignificant) variables which may intercept the link between Kohlberg class six and dictators' preferences for the recipient's decision rights.

C.1 Kohlberg class six correlate with hardly any known potential confound in this paper's sample.

Note: Significance levels of the z-tests are indicated by $a : p < .01$, $b : p < .05$, $c : p < .10$.

	Estimate	Std. Error	t value	Pr(>|z|)
(Intercept)	-0.2967	0.3926	-0.7558	0.4502
age	0.0052	0.0158	0.3283	0.7429
sex	0.2726	0.1004	2.7149	0.0069
as.factor(field)Philosophy	0.2029	0.2941	0.6901	0.4905
as.factor(field)IT	0.8037	0.6513	1.2340	0.2179
as.factor(field)Languages	0.1740	0.1602	1.0860	0.2781
as.factor(field)Education	-0.0654	0.1281	-0.5103	0.6101
as.factor(field)Medicine	-0.4902	0.2653	-1.8481	0.0653
as.factor(field)Sciences	0.1960	0.1419	1.3806	0.1681
as.factor(field)Business and Economics	0.0813	0.2020	0.4025	0.6875
as.factor(field)Engeneering	-0.2882	0.2296	-1.2553	0.2101
as.factor(field)Theology[a]	-0.3044	0.1215	-2.5062	0.0126
as.factor(field)Law	-0.4603	0.1957	-2.3516	0.0192
as.factor(field)University of Applied Sciences	-0.0995	0.2761	-0.3605	0.7187

Table A8: Correlation of Kohlberg class six with all demographics available for our sample

[a]There is only one observation for this field of study and the coefficient therefore measures an individual effect. We therefore do not control for field of study: Theology in our main regressions.