Journal of Behavioral and Experimental Economics 82 (2019) 101449

Contents lists available at ScienceDirect

Journal of Behavioral and Experimental Economics

journal homepage: www.elsevier.com/locate/jbee

The Heaven Dictator Game: Costless taking or giving

Aurora García-Gallego[a,*], Nikolaos Georgantzis[a,b], María J. Ruiz-Martos[c,d]

[a] LEE & Economics Department, Universitat Jaume I, Avda. Sos Baynat s/n, 12071 Castellón, Spain
[b] Burgundy School of Wine and Spirits Business, 29 Rue Sambin, 21000 Dijon, France
[c] Dept. de Teoría e Historia Económica, Universidad de Granada, Spain
[d] Facultad de Ciencias Económicas y Empresariales, Campus de la Cartuja s/n, 18011 Granada, Spain

ARTICLE INFO

Keywords:
Other-regarding preferences
Experiment
Dictator game
Behavior
Music

JEL classification:
C72
C91

ABSTRACT

We present experimental data from the Heaven-Dictator Game, a generalization of the Dictator Game that investigates the overstatement of inequality reduction in the motivation of social preferences. Two players start with equal endowments and the Heaven-Dictator player, without incurring any pecuniary cost or profit, chooses among increasing, decreasing or maintaining the earnings of the recipient player. Any choice except for the status quo generates unequal payoffs. The design avoids the experimenter demand effect of the standard "give only" version while simultaneously allowing participants to manifest antisocial preferences, inequity reduction or retaliation cannot be called for as motives. We find that the majority (75.4%) of subjects choose to increase their partners' earnings; there is a non-negligible 24.6% of subjects that either choose the status quo (11.9%) or to decrease (12.7%) others' earnings. Based on the psychological literature on music as a mood-inducing stimulus and on the effects of mood on helping behavior, we study the effect of exposure to different types of music on the Heaven-Dictator choices. Although at first sight observed distributional preferences are independent of the music condition, further analysis reveals that classical music seems to foster social welfare rather than inequality aversion.

1. Introduction

Experiments reveal that individuals have other-regarding preferences. Models of social preferences incorporate this fact by assuming diverse individuals' motivations based on either outcome-distribution of payoffs across players- or intentions (Cooper and Kagel, 2017). On one hand, distributional motivations include inequity aversion and social welfare. Inequity aversion models assume that individuals dislike unequal distributions. Social welfare models assume that individuals like to increase social surplus, particularly helping those worst off. On the other hand, intentions-based motivations focus on reciprocity. Reciprocity models assume that individuals mainly react to others' behavior towards them. In experimental games, however, social preferences' motivations are usually mingled. In general, inequality reduction has been overstated as motivation for Pareto-modifying behavior and, in particular, its conjunction with negative reciprocity -retaliation- for Pareto-damaging behavior (Charness & Rabin, 2002).[1] Moreover, reciprocity is claimed to be a stronger motivation than distributional preferences (Cooper & Kagel, 2017, p. 227).

We present a modified Dictator Game (DG), the Heaven Dictator Game (HDG), to study Pareto-modifying behavior that: first, is not driven by inequality reduction or retaliation; second, unlike the most commonly studied games, generates inequality; and third, does not interfere with self-interest. The HDG allows individuals to exhibit a complete range of distributional preferences.

In the two-player DG, the dictator splits an amount of money with the receiver, who has no say in the matter. Therefore, self-interest conflicts with distributional preferences, and reciprocity is expelled. In the HDG, players start with equal payoffs and the Heaven Dictator (HD) player chooses among maintaining, increasing or decreasing the recipient's payoff at no pecuniary own cost or benefit. Hence, self-interest and inequality reduction are barred as countervailing motives. Self-interest is excluded because the HD player's payoff is invariant throughout choices. Inequality reduction is dismissed because any choice of the HD player other than the status quo, generates inequality (*difference seeking* behavior) and modifies social surplus. The HDG tests

* Corresponding author.
E-mail address: mgarcia@uji.es (A. García-Gallego).

[1] In particular, inequality reducing Pareto-damaging behavior is, first, clearly driven by retaliation and, second, the only plausible Pareto-damaging behavior. Similarly, but not conversely, inequality reducing Pareto-improving behavior, first, appears when retaliation is not at stake and, second, is the only plausible Pareto-improving behavior (Charness & Rabin, 2002, p. 818).

https://doi.org/10.1016/j.socec.2019.101449
Received 15 July 2018; Received in revised form 6 July 2019; Accepted 10 July 2019
Available online 11 July 2019

for the presence of Pareto-damaging behavior that generates advantageous inequality and Pareto-improving behavior that generates disadvantageous inequality.

The HDG allows both social and antisocial preferences to emerge. Thus, it addresses the criticism that the commonly observed generosity in the DG might result from either being the only available action or a willingness to appear fair, i.e., a sort of experimenter demand effect[2] (Bardsley, 2008; Dana, Weber, & Kuang, 2007; Dana, Cain, & Dawes, 2006; List, 2007). The literature on taking games explores this possibility (see Section 2.1).

We present an experimental design that challenges the robustness of the distributional preferences elicited hereby to changes in emotional states. In many churches and other religious or social contexts in which charitable giving takes place, music is played live or from a record, presumably creating the appropriate atmosphere for the emergence of positive feelings. It is a common strategy by marketing practitioners to use music in supermarkets and other types of outlets as a means of promoting buying and spending behavior (North, Hargreaves, & McKendrick, 1999). Video games where antisocial behavior is played out have background music too. Distinct music styles accompany distinct individuals' behaviors. Given that the HDG analyses the prevailing shift in other-regarding preferences when individuals can exhibit both social and antisocial sides, the question arises on whether music may have an effect on it.

In order to challenge the robustness of our findings to differences in the mood states of HDs, we have exposed subjects to two alternative stimuli environments. In one of them, classical music is heard while in another, modern commercial pop music is played on the loudspeakers of the lab. Classical and modern music treatments are performed and compared to behavior under no music at all. Both the classical and modern music treatments were run using a specifically designed sequence of pieces, recorded in a professional studio for the purposes of this project.[3] Both sequences consist of music parts (not complete songs) which follow each other in a smooth, controlled and similar across treatments way. The classical music used here was selected from a library of much shorter pieces (longer versions were used for realism, to resemble real-life environments with music) which have been classified and are used in psychology research as stimuli causing pleasant or very pleasant feelings to the listener (see, e.g., Juslin & Västfjäll, 2008; Roda, Canazza, & De Poli, 2014; Västfjäll, 2002). The modern music material used was chosen among popular contemporaneous pop and rock songs; the purpose was to expose subjects to a more familiar environment than that provided by classical music, particularly given the experimental subject pool, and in line with commercial and leisure settings (North, Hargreaves, & McKendrick, 1999) where background modern music is used to induce good mood.

Lastly, following research suggesting that faster decisions increase contributions in public good games (Rand, Greene, & Nowak, 2012) and seem to underlie extreme altruistic acts (Rand & Epstein, 2014), we also explore how the time taken by the HDs to make their choices affects their distributional preferences.

Our results show that the majority of participants choose to maximize social surplus despite putting themselves behind, but there is a non-negligible 24.6% that either choose the status quo (11.9%), or to minimize social surplus putting themselves ahead (12.7%). Overall, it seems that observed distributional preferences are independent of the musical condition. However, strict Pareto-improving behavior seems more likely when classical music plays, when decisions are taken faster, and when subjects are males.

[2] This criticism applies also to burning games (see Abbink & Herrmann, 2011).

[3] The sequences are freely available for replication in a scientific context at the web site of the LEE (www.lee.uji.es). Use for commercial or other purposes is strictly forbidden.

The paper is organized as follows. Section 2 section summarizes the relevant literature. Section 3 discusses the utility function of the HD. The experimental design and procedures are described in Section 4. Section 5 highlights the main results. Section 6 concludes. Instructions to subjects are in the appendix.

2. Literature review

This section is divided in two parts, one dedicated to revise the experimental literature on the main DG and other versions of it; the other subsection briefly reviews the main references on music and behavior.

2.1. Dictator Game and modified versions

Kahneman, Knetsch, and Thaler (1986) initiate the DG experimental paradigm by removing incentives for strategic behavior from the ultimatum game. Forsythe, Horowitz, Savin, and Sefton (1994) further refine the game.[4] In the DG, two players are randomly matched and assigned the role of dictator versus recipient. In the DG, a dictator player receives a certain amount of money and chooses how to split that amount between herself and the recipient. The recipient (tacitly) accepts the dictator choice. Over 25 years of experimental research with the DG shows that the majority choice is not consistent with the payoff maximization hypothesis: dictators give, on average, 28.35% of the money (Engel, 2011, p. 588).

Standard explanations of dictator behavior advocate for some kind of other-regarding preferences, ranging from inequity aversion (Bolton, 1991; Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999), altruism (Andreoni & Miller, 2002), egocentrism (Cox, Friedman, & Gjerstad, 2007) to Rawlsian "social welfare" preferences (Charness & Rabin, 2002). However, Bardsley (2008) posits an alternative explanation and claims that generous dictator behavior is due to the experimental setting, primarily because giving is the only possible action in the dictator game. In fact, this last explanation is further explored by the literature on burning games (Abbink & Sadrieh, 2009; Abbink & Herrmann, 2011; Zizzo & Oswald, 2001; Zizzo, 2003) and on taking games (Bardsley, 2008; Korenok, Millner, & Razzolini, 2014; List, 2007). In burning game experiments, where players have the option to destroy their partners' earnings or keep the status quo, players do destroy others' earnings in consonance with basic ideas of fairness (inequity aversion) and self-protection.

To further explore inequity aversion as a source of dictator generosity, List (2007) and Bardsley (2008), contemporaneously and independently, initiate the taking-games literature by allowing the dictator to take money from the passive player. Both authors show that the enlarged choice domain not only significantly reduces the percentage of generous dictators and generosity itself, but also that taking money strongly emerges as a behavioral tendency, even when the passive player is in disadvantage (Bardsley, 2008) but tempered when earnings rather than endowments are at stake (List, 2007). Korenok, Millner, and Razzolini (2014) manipulate the endowments and corroborate these results.

However, despite previous findings in framing effects, Dreber et al. (2013) find that dictators' preferences are mostly invariant to framings of the game and strategies. Grossman and Eckel (2015) find that replacing the standard anonymous recipient by a charity erases differences between taking and giving options. Chowdhury, Jeon, and Saha (2017) study on gender differences in DG framing effects supports that the taking frame, with respect to the giving frame, reduces males' generosity, increases females', and increases the odds of females' egalitarianism and of males' selfishness; whereas both genders are equally generous in the giving frame.

[4] See the meta-analysis by Engel (2011) for details.

The HDG can also be understood as a DG with delegation and without punishment.[5] Participants may consider that the experimenter has delegated the decision to keep or vary the recipient's payoff to the HD.[6] In Hamman, Loewenstein, and Weber (2010), authors observe that delegation drastically reduces dictators' generosity. Bartling and Fischbacher (2012), with delegation and punishment, find that dictators either choose the fair allocation or delegate; delegates choose the unfair allocation – which favors both themselves and dictators – and get punished by recipients. Hence, if the HDG is perceived as a delegated choice, we should observe minimum generosity or, if *shifting the blame* is taken to the extreme by the HD, straightforward decrease-choices.

Decision 3 in study 2 of Charness and Grosskopf (2001) is actually the closest work to ours: Participants choose between one option involving equal payoffs and another option that allows them to set the recipient's payoff to any point between half and double the dictators' (including equal payoffs too). They find that 80% of their subjects choose the social welfare maximizing option. However, in their study all the participants make their choice before knowing their definitive role –dictator versus recipient- in the game. In the HDG experiment presented here, the role as a (heaven) dictator is set before the HD makes his choice, i.e., the HD has no uncertainty about his end of the stick, which may affect dictators' behavior (Iriberri and Rey-Biel, 2011). A further distinction, other experimental features aside, is that our HG explicitly defines equal endowments as the starting point and constitutes their unique distributive choice.

Other close studies fix the dictator payoff while he may either increase (e.g., Ponti and Rodríguez-Lara, 2015) or decrease (Bracht and Zylbersztejn, 2018) the recipient's. More concretely, Bracht and Zylbersztejn's (2018) dictator chooses the recipient's payoff between zero and equal payoffs (10 euros). However, in line with Charness and Grosskopf (2001), the starting point is not exactly set at equal endowments and each participant plays both roles. 20% of their subjects choose a recipient's payoff smaller than 10 euros.

In short, the HDG with an invariant payoff, starting with equal endowments and without role uncertainty, may exhibit a symmetric range of pro/anti-social preferences, independently of strict selfishness, and such that any choice other than the starting point generates inequality.

2.2. Music and social behavior

North, Tarrant, and Hargreaves (2004) summarize the psychological literature that investigates the effect of mood on prosocial behavior. They conclude that, on one hand, positive moods increase helping; on the other hand, negative moods only foster helping when there are high benefits and low costs, and reduce helping only when they have been externally induced or they are not caused by the person being helped. This research uses several mood induction techniques, among which music remains rather under-investigated. Our design relates to the laboratory study by Fried and Berkowitz (1979) who find that altruism is more positively related to soothing music than to aversive or no music.

Drawing on the findings above, North, Tarrant, and Hargreaves (2004) investigate further the role of music as mood inductor. They focus on altruism and whether the role of music is mediated by the characteristics of the helping task. In their field experiment, subjects in a university gym are exposed to two types of music (inducing either positive or negative mood), and subsequently faced with two distinct helping tasks (signing a petition or distributing leaflets). They find that although the music type is irrelevant in a time-costless task like signing a petition, it did affect the time-costly task. Negative-mood music significantly diminishes the willingness to distribute leaflets. Mood induction was controlled by two questionnaires after completing the task. Subjects in that study first answered a questionnaire about their perceptions of the music being played, and then a mood questionnaire.

In economics, evidence supports the effect of mood on probability assessment (Wright and Bower, 1992), or on individuals' decisions (Lerner, Small, & Loewenstein, 2004; Schwarz, 2000). Capra (2004, p. 368) mentions that merchants play music to induce their customers a buying mood and refers to North's research on mood-inducing music. As a matter of fact, Capra (2004) finds that induced[7] positive mood fosters prosocial behavior in the DG. A recent hypothetical DG study by Fukui and Toyoshima (2014) finds that dictators allocate more money to recipients after listening to music they liked than after listening to music they disliked.

3. The utility function of the HD player

The HD player is given three behavioral options. One option is doing nothing, in line with strictly self-regarding preferences. The other two options are in line with some kind of other-regarding preferences: increasing – altruism – versus decreasing – nastiness – the partner's earnings, without any pecuniary consequences for himself. In the context of Charness and Rabin's (2002) model of social preferences, and taking into account that in the HDG both players start with equal endowment, we define the preferences of the HD player through the following utility function:

$$U_{\mathrm{HD}} = (1 - \sigma)\pi_{\mathrm{HD}} + \sigma\pi_{\mathrm{R}}$$

where U_{HD} and π_{HD} refer to, respectively, the utility and the payoff of the HD player, and π_{R} refers to the payoff of the recipient. Parameter σ captures how the recipient's payoff is taken into consideration by the HD player. Thus, $\sigma > 0$ for those HD players who choose to increase the partner's earnings; $\sigma < 0$ for those who choose to decrease the partner's earnings; and $\sigma = 0$ for those subjects who choose the status quo.

A positive σ would indicate an individual preference for maximizing social welfare and a negative σ indicates a preference for minimizing social welfare. A zero σ would show inequity aversion. Since players in the HDG have equal endowments and this is common knowledge, inequality reduction is dismissed: any choice of the HD player, except for the status quo, generates inequality (*difference seeking* behavior) and modifies social surplus. Hence, only the status quo is consistent with inequity aversion as unique motivation. The fact that the HD player's payoff is invariant throughout his choices excludes self-interest. However, equity aversion cannot be discarded. Increase-choices by the HD player might be due to equity aversion together with a preference for being behind. Conversely, decrease-choices by the HD player might respond to equity aversion with a preference for being ahead.

Furthermore, in the HDG such a linear utility function combined with a constant HD player's payoff renders relevant only the sign, but not the precise value of the parameter. A pure social welfare maximizing individual would choose the maximum allowed rise in the recipient's payoff. Similarly, a pure social welfare minimizing individual would choose the maximum allowed decrease in the recipient's payoff. Strictly positive and negative HD choices generate, on the one hand, inequality and, on the other hand, affect social welfare.[8] Thus, intermediate choices reveal some individual tension between these two conflicting distributional concerns.

Inequality concerns may be captured either by the model of

[5] We thank an anonymous referee for kindly suggesting this possibility.

[6] Even if this were the case, the delegated choice ranges from increasing to decreasing the recipient's payoff.

[7] Mood is induced by memory elicitation and experience of success/failure.

[8] More particularly, when the HD player chooses to increase the recipient payoff, social welfare increases at the expense of generating disadvantageous inequality for himself (HD goes behind). When the HD chooses to decrease the recipient payoff, social welfare decreases while generating advantageous inequality for himself (HD goes ahead).

Fehr and Schmidt (1999) or by the Bolton and Ockenfels' (2000). Social welfare concerns may be of the form of maximizing total payoffs – efficiency –, or maximizing the minimum payoff – maximin preferences. The HDG implies a tension between these two conflicting motivations regarding distributional preferences. If this is the case, one may assume some sort of single-peaked preferences utility function and the HDG may be understood as a social preferences' peak revealing game. That is, the HD choice reveals his social preferences' peak, i.e., the payoff difference (either disadvantageous when increasing, or advantageous when decreasing) that maximizes his utility, given his constant payoff. We may consider the following adaptation of Fehr and Schmidt (1999)'s social preference model,[9] where m captures the payoff difference that the HD player is willing to accept and, hence, determines his choice:

$$U_{\mathrm{HD}}(\mathrm{choice_{HD}}) = e + \alpha\pi_{\mathrm{R}} - \beta\max\{\pi_{\mathrm{R}} - e, m\}$$

where $\pi_R = e + \ choice_{HD}$ and $\beta > \alpha$

endowments $= (e_{HD}, e_R)$ such that $e_{HD} = e_R = e$ and $\pi_{HD} = e$

In the next section we present the experimental design and parameters of the HDG, which will allow us to further describe the discrete choice model we estimate in Section 5.2.

4. Experimental design

All sessions were run in the LEE (Laboratorio de Economía Experimental) at the Universitat Jaume I (Castellón, Spain). Altogether, 252 students took part in this experiment. Participants were students of different disciplines, and were recruited through the online recruitment system for economic experiments, ORSEE.

At the beginning of each experimental session, subjects were randomly paired receiving 10 euros each. The computer assigned a role to each player: player 1 or 2. Player 1 was the HD player and had to choose among three options: maintaining, increasing or decreasing the earnings of the passive partner player 2. The set of alternatives for player 1 was $\mathrm{choice_{HD}} = \{-4, -2, 0, 2, 4\}$. For example, choosing the alternative "-4" implies decreasing by four euros the passive player's earnings, while choosing "2" means increasing the passive player's earnings by two euros. Initial endowments in our HDG do not depend on players' choices. Therefore, earnings for the HD player are 10 euros, while the passive player earns 10 euros plus/minus the amount chosen by the partner.

The experiment was programmed in z-Tree (Fischbacher, 2007). At the beginning of each session, subjects' instructions were shown in the computer screen, and read aloud by the experimenter.[10] Each session lasted about one hour. On average, subjects earned 14 euros, including a 3 euros show-up fee.

In order to test for the robustness of our results with respect to variations in the subjects' emotional state, we implemented the experiment under three treatments, varying subjects' exposure to continuous musical stimuli. In the baseline, no music was played during the session. In the second treatment, a sequence of 'classical music' creations were played, chosen from a list of pieces which have been studied and calibrated to be effective as stimuli causing strong positive emotions (Juslin & Västfjäll, 2008; Västfjäll, 2002). For the third treatment, a similar list has been created and put together in a professional studio (SONO S.L.), to create a similar sequence of pieces falling under the heading 'contemporary Pop and Rock music'.

We denote our treatments *without music* (baseline), *classical music* and *modern music*. The classical music pieces were selected from music psychology indexation in terms of the emotional arousal and pleasantness they induce: Carmen (Bizet), Suite de Peer Gynt (Grieg), Moldavia (Smetana), Meditation (Massenet), Sonata n17 (Beethoven), Nutcracker (Tchaicovsky), Bridal Chorus (Warner), September (Strauss), Scherezade (Korsakoff). The modern music pieces were selected by a professional musician following the "good and commercial" criteria;[11] Billie Jean (Michael Jackson), Toxic (Britney Spears), Back to Black (Amy Winehouse), Rock the house (Chemical Brothers), Grace Kelly (Mika), Whiskey Bar (The Doors), What's up (4 Non Blondes), I Feel Good (James Brown), among others.

5. Results

5.1. General overview

As the HD players are the only subjects taking a decision in the HDG, there are 126 observations (40% men) in total: 36 without music and 90 observations under any music, from which 48 belong to the classical music treatment and 42 to the modern music one.

Table 1 summarizes the frequencies, mean and median choices by the HD player under each treatment, and the pooled data for the condition "any music".

First, considering the whole sample, the overwhelming majority of subjects, 95 of them (75.4%), do increase their partner's earnings in line with pro-social other-regarding preferences, or with equity aversion. That is, in terms of the simplified version of the Charness and Rabin (2002)'s social preferences model discussed in the introduction, our data show that $\sigma > 0$.

However, we also observe some status quo choices as well as a reduction in the recipient's earnings. Specifically, 15 (11.9%) HD players choose the status quo and are consistent with inequity aversion models. Moreover, 16 out of 126 (12.7%) HD subjects choose to reduce their partner's endowment being consistent with antisocial preferences or equity aversion. In the next subsection we describe and report the discrete choice that approximates the HDG adaptation of Fehr and Schmidt (1999).

Although we observe a larger tendency to reduce the recipient's earnings in the treatments with music, the difference is not significant ($\mathcal{X}^2_{(8)}$=13.06, $p = 0.110$). Hence, at first sight, music does not affect significantly the decision making of HD subjects. The histograms depicted in Fig. 1 and the box plots in Fig. 2 offer an overall view of these results.

However, examining in more depth the 'without music' versus the 'classical music' treatments, where the major discrepancy is clearly shown in Fig. 1 below, there is a relationship significant only at 10% between HD choices and classical music ($\mathcal{X}^2_{(4)}$=7.8, $p = 0.099$).

Given the discrete nature of our data, the appropriate test is the Epps-Singleton[12] which compares the empirical characteristic functions (Moffat, 2016). The Epps-Singleton test ($W_2 = 8.846$, $p = 0.065$) rejects that both distributions are identical. It seems, therefore, that listening to classical music instead of none may have an influence on the HD players' choices.

5.2. Estimation of a discrete choice model

We follow an analogous approach to Engelmann and Strobel (2004) and Ponti and Rodríguez-Lara (2015) and use a discrete choice model in order to estimate the parameters of the HDG adaptation of Fehr and Schmidt (1999)'s social preferences model presented in Section 3.

Each choice made by the HD player from the set $choice_{HD} = \{-4, -2, 0, 2, 4\}$, determines a final allocation (π_{HD}, π_R). Let (10, 6) be the pure antisocial (PAS) allocation; (10, 8) the relative antisocial (RAS) allocation; (10, 10) the inequity averse (IA) allocation; (10, 12) the relative social welfare (RSW) allocation; and (10, 14) the

[9] One could also define it with respect to total payoffs instead of just the recipient's payoff.

[10] See the instructions in the Appendix.

[11] This material is available upon request.

[12] Similar to the Kolmogorov–Smirnov test with continuous data.

Table 1
Descriptive statistics of the HDG experimental data.

Treatment (Obs.)	Choice frequencies (%)					Mean	Median
	−4	−2	0	2	4		
Without music (36)	2 (5.5)	0-	7 (19.4)	12 (33.3)	15 (41.6)	2.1	2
Any music (90)	7 (7.7)	7 (7.7)	8 (8.8)	20 (22.2)	48 (53.3)	2.1	4
Classical music (48)	5 (10.4)	2 (4.2)	4 (8.3)	8 (16.6)	29 (60.4)	2.25	4
Modern music (42)	2 (4.7)	5 (11.9)	4 (9.5)	12 (28.5)	19 (45.2)	1.95	2
Total (126)	9 (7.1)	7 (5.5)	15 (11.9)	32 (25.4)	63 (50)	2.11	3

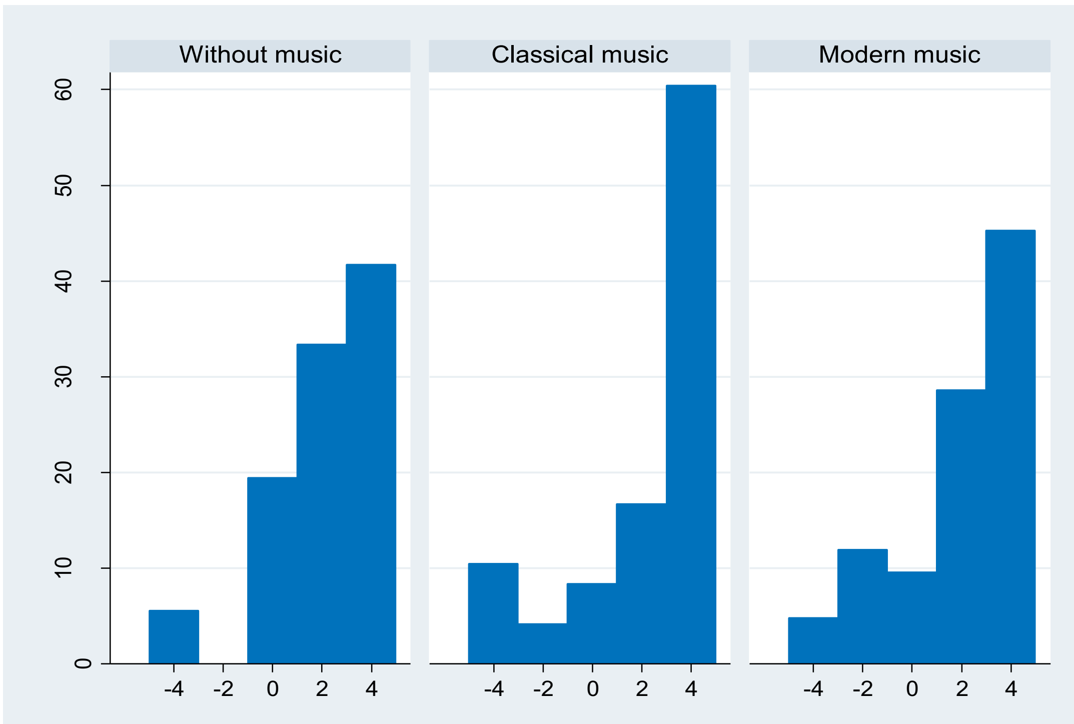


Fig. 1. Histograms of the HD choices, per treatment.

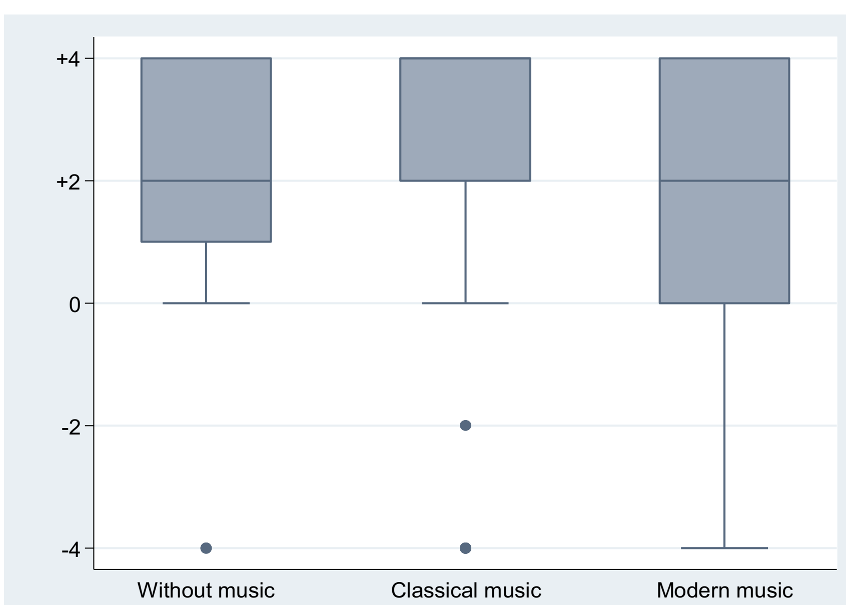


Fig. 2. Box plots of each treatment distribution.

pure social welfare (PSW) allocation. In the context of the HDG adaptation of Fehr and Schmidt (1999)'s utility function, m measures each individual's preferences peak or his social preferences type, within the PAS versus PSW spectrum housed by the game. One would assume that individuals with $m \geq 4$ would choose to increase by *four* the recipient's payoff; individuals choosing *two* have a nearby social preferences' peak, suggesting an interplay between maximizing social welfare and minimizing disadvantageous inequality; individuals who maximize utility with equal payoffs would choose the status quo. Likewise, individuals wanting to be ahead would choose to decrease the recipient's payoff and, here again there is maximum advantage that they are willing to take. That is, each individual's peak m depends on the subjective interplay between social welfare and inequality aversion.

Like Engelmann and Strobel (2004), we consider three main motivations: selfishness (SELF), social welfare motives, and inequality aversion concerns. The social welfare motivation may take two alternative forms, efficiency (EFF) or maximin preferences (MM). Inequality aversion concerns may be of the Fehr and Schmidt (1999)'s types: advantageous inequality (FSA), disadvantageous inequality (FSD), or strict inequality (FSS); or of the Bolton and Ockenfels (2000)'s efficiency, reciprocity and competition (ERC) type. In our HDG, these motivations are measured as:

$$SELF = 10$$

$$EFF = 10 + \pi_R$$

$$MM = min\{10, \pi_R\}$$

$$FSD = -max\{\pi_R - 10, \ 0\}$$

$$FSA = -max\{10 - \pi_R, 0\}$$

$$FSS = FSA + FSD$$

$$ERC = -100\left|\frac{1}{2} - \frac{10}{EFF}\right|$$

Table 2 shows how the differentiated motivations characterize each HD choice (allocation), from which we can infer which allocation is predicted by each motivation.

Because the HD's payoff is invariant, self-motivation is accordingly so. Efficiency predicts that the HD will choose the PSW allocation. MM preferences cannot discriminate between the IA, RSW and PSW allocations. FSD is not able to discriminate among the PAS, RAS and IA allocations. Moreover, FSA is not able to discriminate among the IA, RSW and PSW allocation, exactly as MM preferences. To correct the collinearity problem between FSD and FSA, similarly to Engelmann and Strobel (2004, p. 865), we define an aggregate measure of inequality assuming equal weights to FSA and FSD. We name this measure 'Fehr and Schmidt Strict' (FSS). Finally, ERC predicts the IA allocation as FSS (another collinearity problem between ERC and FSS); however, ERC allows for differences between being ahead and being behind. In short, EFF and ERC are the only motivations that clearly distinguish among the HDG allocations.

Given the structure of the HDG, motivations of the same type –social welfare vs inequality aversion– are quite correlated as Table 2 suggests, which deter us from including all of them together (in fact, none of them is significant). Since the HD's choice results from the tension between the two conflicting motives of social welfare and inequality aversion, we estimate a model with one social welfare motivation (EFF or MM) and with one inequality aversion motivation (FSS or ERC). Table 3 summarizes the discrete choice models of each particular choice/allocation j depending on the precise distributional concerns.

Table 2
HDG motivations per HD's choice allocation.

HD choice allocation = (π_{HD}, π_R)	Self	Social welfare EFF	MM	Inequality aversion FSD	FSA	FSS	ERC
PAS = (10, 6)	10	16	6	0	−4	−4	−12.5
RAS = (10, 8)	10	18	8	0	−2	−2	−5.55
IA = (10, 10)	10	20	10	0	0	0	0
RSW = (10, 12)	10	22	10	−2	0	−2	−4.55
PSW = (10, 14)	10	24	10	−4	0	−4	−8.33

Table 3
Discrete choice models.

Social welfare	Inequality aversion FSS	ERC
Efficiency	Model 1: $U_{HD_j} = \alpha_1 EFF_j + \beta_1 FSS_j$	Model 2: $U_{HD_j} = \alpha_2 EFF_j + \beta_2 ERC_j$
Maximin	Model 3: $U_{HD_j} = \alpha_3 MM_j + \beta_3 FSS_j$	Model 4: $U_{HD_j} = \alpha_4 MM_j + \beta_4 ERC_j$

Like Engelmann and Strobel (2004), we estimate McFadden's (1980) choice model, i.e. a conditional logit model (e.g., see Moffat, 2016). More concretely, we consider the two distributional preferences conflicting motivations, social welfare and inequality aversion as alternative (allocation) specific variables. Since each HD subject makes only one choice, no individual parameters can be estimated, but just the parameters of an *average subject*. Individual heterogeneity will be captured by the error term. With the conditional logit model, the probability that the HD player chooses allocation j is given by:

$$p_j = \frac{\exp(U_{HD_j})}{\sum_{g\in\{PAS,\ RAS,IA,RSW,PSW\}} \exp\left(U_{HD_g}\right)}$$

Table 4 shows the results both for aggregated data (pooling observations) and differentiating by treatment. As expected, an increase in social welfare increases HD's utility whereas further inequality aversion reduces it. However, inequality concerns are not significant if the social welfare concerns are captured by efficiency, i.e., it seems that efficiency captures most of the variability of our discrete data. With maximin preferences as social welfare concern, both types of inequality aversion concerns have a significantly negative effect on the HD's utility. More concretely, in model 3 (column 4), an increase in MM rises the probability of choosing larger choices by 71.3% $[(1.713 - 1) \times 100]$, whereas an increase in FSS inequality reduces that probability by 31.2% $[(0.688 - 1) \times 100]$.[13]

In Table 5 we present an enriched model in which we add subject-specific variables, namely gender (*male*), choice-time (measured by z-Tree and named *time* for short) and the categorical variable *music*. As before, inequality concerns are not significant when efficiency is taken as social welfare concern. However, when social welfare concerns are measured by maximin preferences, both conflicting motivations have a significant, and in the expected direction, impact on utility: social welfare has a positive effect, and inequality aversion has a negative effect. For instance, in model 4 (last column of Table 5), an increase in efficiency rises the probability of choosing higher choices by 183.4% $[(2.834 - 1) \times 100]$; whereas an increase in ERC inequality reduces this probability by 20.6% $[(0.794 - 1) \times 100]$.

Interestingly, with respect to the PAS allocation and independently of the model: (a) the IA and the RSW allocations have worse odds of being chosen when classical music is being played (10% significant), as captured by Fig. 1; (b) the PSW allocation has better odds of being chosen by males (significant at 10%) and the shorter the time taken to make the choice (1% significant).

[13] The most noticeable difference between pooled and per treatment results is that in model 3, MM versus FSS, the inequality aversion concern is only 10% significant in the 'without music' treatment.

Table 4
Structural model with a allocation specific variables only.

Conditional logit model estimates	Odds ratio (*p*-value) EFF vs FSS	EFF vs ERC	MM vs FSS	MM vs ERC
Pooling observations				
Social welfare	1.31*** (0.000)	1.335*** (0.000)	1.713*** (0.000)	2.035*** (0.000)
Inequality aversion	0.901 (0.161)	0.957 (0.137)	0.688*** (0.000)	0.833*** (0.000)
Wald chi2(2)	68.57 (0.000)	68.84(0.000)	68.57(0.000)	68.36(0.000)
Without music treatment				
Social welfare	1.44***(0.001)	1.399***(0.000)	2.093***(0.001)	2.035***(0.000)
Inequality aversion	1.166(0.312)	1.054(0.379)	0.806*(0.050)	0.895***(0.040)
Wald chi2(2)	14.52(0.001)	14.86(0.001)	14.52(0.001)	15.09(0.001)
Classical music treatment				
Social welfare	1.27***(0.000)	1.353***(0.000)	1.608***(0.000)	2.113***(0.000)
Inequality aversion	0.709(0.010)	0.873(0.009)	0.560***(0.000)	0.755***(0.000)
Wald chi2(2)	36.22(0.000)	35.79(0.000)	36.22(0.000)	35.17(0.000)
Modern music treatment				
Social welfare	1.288***(0.000)	1.305***(0.000)	1.659***(0.000)	1.913***(0.000)
Inequality aversion	0.932(0.572)	0.973(0.581)	0.724***(0.003)	0.857***(0.004)
Wald chi2(2)	19.32(0.000)	19.25(0.000)	19.32(0.000)	18.98(0.000)

Table 5
Structural model with individual specific variables.

Conditional logit model estimates	Odds ratio (*p*-value)	EFF vs FSS	EFF vs ERC	MM vs FSS	MM vs ERC
Allocation (alternative) specific variables					
Social welfare		1.515*** (0.001)	1.522*** (0.000)	2.295*** (0.001)	2.834*** (0.000)
Inequality aversion		0.954 (0.793)	0.973 (0.702)	0.630*** (0.002)	0.794*** (0.002)
Individual (case) specific variables: PAS base allocation					
RAS	*Male*	2.072 (0.506)	2.102 (0.497)	2.072 (0.506)	2.174 (0.478)
	Time	0.960(0.612)	0.960(0.619)	0.960(0.612)	0.965(0.669)
	Classical	0.203(0.181)	0.218(0.205)	0.203(0.181)	0.244(0.237)
	Modern	1.372(0.781)	1.482(0.733)	1.372(0.781)	1.672(0.652)
IA	*Male*	1.687(0.605)	1.743(0.582)	1.687(0.605)	1.772(0.571)
	Time	1.028(0.625)	1.031(0.597)	1.028(0.625)	1.032(0.581)
	Classical	0.116*(0.075)	0.127*(0.088)	0.116*(0.075)	0.131*(0.091)
	Modern	0.340(0.410)	0.378(0.458)	0.340(0.410)	0.394(0.474)
RSW	*Male*	1.180(0.861)	1.196(0.847)	1.177(0.861)	1.177(0.861)
	Time	1.000(0.999)	1.001(0.982)	1.000(0.999)	0.999(0.997)
	Classical	0.139*(0.073)	0.150*(0.081)	0.138*(0.073)	0.147*(0.077)
	Modern	0.531(0.598)	0.577(0.642)	0.531(0.598)	0.565(0.629)
PSW	*Male*	4.458*(0.098)	4.515*(0.094)	4.458*(0.098)	4.526*(0.093)
	Time	0.742***(0.000)	0.742***(0.000)	0.742***(0.000)	0.743***(0.000)
	Classical	0.531(0.556)	0.568(0.596)	0.531(0.556)	0.583(0.609)
	Modern	1.072(0.954)	1.152(0.907)	1.072(0.954)	1.182(0.889)
Wald chi2(10)		84.28(0.000)	84.57(0.000)	84.28(0.000)	84.65(0.000)

5.3. Music condition

In this section, we further explore the impact of classical music on the HD choices. First, this effect is more significant when pooling decreasing-choices (i.e., −4 and −2) ($\mathcal{X}^2_{(3)}$=7.28, $p = 0.060$). Then, we estimate the effect of classical music on the HD choices by an ordered logit model. The model estimates HD choices as a function of the categorical variable *music* and *time*; the variable *male* is also included but, given the number observations, is no longer significant.

We have considered all HD choices and also restricted the analysis to non-decreasing choices (i.e., when the HD maintains or increases the recipient's payoff). Table 6 shows the estimation results and confirms that, when the analysis is restricted to non-decreasing choices, there is a 1% significant positive effect of classical music on the ordered-logit odds of choosing the PSW allocation in comparison with the joint categories of RSW and IA.

Penultimate row 5 shows that the possibility of choosing to increase the recipient payoff by 4 with respect to the combined choices of increasing by 2 or maintaining the recipient payoff, i.e., of choosing the PSW allocation rather than the combined RSW and IA allocations, rises by 287.2%, [(3.872 − 1) × 100], when classical music is being played, and reduces by 11.4%, [(0.886 − 1) × 100], when choice-time increases by one second. In the last row, with *male* as a regressor, the possibility of increasing the recipient payoff by 4 rises by 252.8%

Table 6
Ordered logit model odds ratio (*p*-value) with *music* as categorical variable.

HD choices	Classical music	Modern music	Time	Male	LR chi2 test (*p*-value)
	1.592 (0.264)	1.003 (0.994)	–	–	1.71(0.426)
All	1.884(0.153)	1.017(0.969)	0.891***(0.001)	–	17.27(0.001)
	1.711(0.216)	1.108(0.810)	0.886***(0.001)	1.912*(0.081)	20.39(0.000)
	2.994**(0.020)	1.593(0.308)	–	–	5.64(0.060)
$\text{choice}_{HD} \geq 0$	3.872***(0.006)	1.755(0.233)	0.886***(0.001)	–	20.80(0.000)
	3.528**(0.012)	1.845(0.198)	0.885***(0.002)	1.790(0.171)	22.72(0.000)

[(3.528 − 1) × 100] when classical music is being played and decreases by 11.5% [(0.885 − 1) × 100] when choice-time increases by one second.

Thus, the social welfare concern is more likely to prevail over the inequality aversion concern, hence boosting the PSW allocation, with a classical music background.

6. Conclusions

We have used a modified dictator game, the Heaven Dictator Game (HDG) to study distributional preferences –pure social vs anti-social preferences– removing demand effect, inequality reduction and reciprocity as motivations. We find that, in a context where individuals are given the option to exhibit whatever type of distributional preferences they have, subjects mainly exhibit altruistic preferences, that is, their utility increases with the other payoff (Cox, 2007). Hence, in the context of Charness and Rabin's (2002) model, our average Heaven Dictator (HD) subject assigns a positive value to the recipient's payoff.

However, not all HD subjects of our sample choose the maximum allowed increase in the recipients' payoff. This reveals some tension between two conflicting distributional concerns, social welfare and inequity aversion. Hence, a HDG adaptation of Fehr and Schmidt (1999) model seems better suited and we have approximated it by estimating a discrete choice model in quite a similar fashion to Engelmann and Strobel (2004). We consider two types of social welfare concerns, efficiency (total payoffs) and maximin preferences; and two types of inequity aversion concerns, Fehr and Schmidt (1999) strict inequity aversion (Engelmann & Strobel, 2004) and Bolton and Ockenfels (2000) efficiency, reciprocity and competition model. First, we find that efficiency as social welfare concern, and Bolton and Ockenfels (2000) efficiency, reciprocity and competition model as inequality aversion concern, clearly differentiate the HDG allocations. Secondly, both distributional concerns have a significant, and in the predicted sense, impact on the HD utility when the social welfare concern is of the maximin preferences type. Moreover, the social welfare concern seems to dominate the shorter the time taken to make the choice, which may suggest an emotion-laden choice, and with male HDs.

We have checked the robustness of our results with respect to variations in the subjects' emotional state varying subjects' exposure to continuous musical stimuli: no music played during the session, a sequence of classical music causing strong positive emotions, and a sequence of contemporary pop and rock music more in line with that in commercial and leisure settings (North, Hargreaves, & McKendrick, 1999) to induce moods/feelings. In a similar way to North, Tarrant, and Hargreaves's (2004) results on the time-costless task, we do not observe an overall effect of music on HD choices. Overall, it seems that their distributional preferences, as defined in our experiment, are independent of background music. However, if we pool the observations attending to whether HDs choose to maintain or increase versus decrease their partners' earnings, we observe that weakly prosocial behavior is significantly more frequent under the 'classical music' condition than under the 'without music' condition. Additional non-parametric and parametric analyses reveal that classical music may tilt the distributional preferences balance in favor of social welfare concerns with respect to inequality aversion concerns.

Further research may extent the choice range of the HD player in order to estimate a sort of maximum payoff difference or social preferences' peak, on both sides of the distributional spectrum, and aside of selfish concerns and exchange rates. The HDG captures a distributional preferences balance between the conflicting motivations of social welfare and inequality aversion. Hence, research may continue to explore what factors may tilt the balance towards one of the motivations.

Acknowledgments

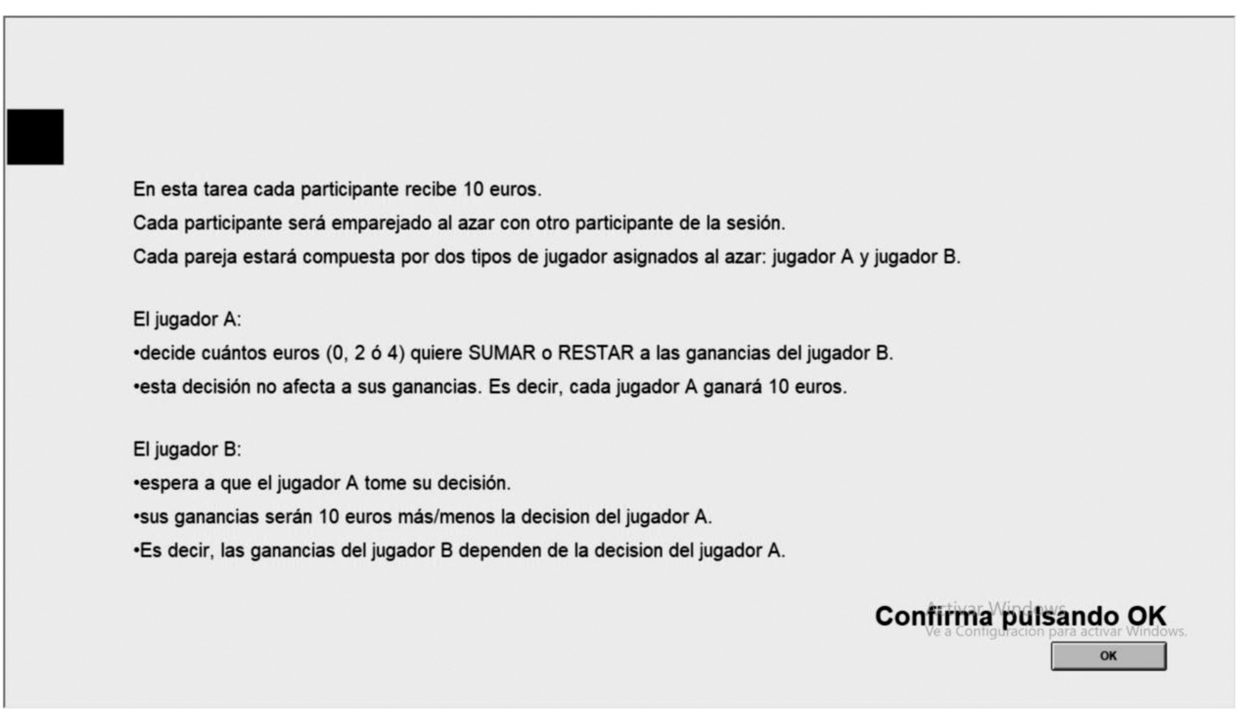
Financial support by the Spanish Ministerio de Economía y Competitividad (grant ECO2015-68469-R) and the Universitat Jaume I (grant UJI-B2018-76) is gratefully acknowledged.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.socec.2019.101449.

Appendix: Instructions to subjects

This is the screenshot that shows the original instructions in Spanish received by each subject when the experiment starts. A translation to English follows.



"In this task each participant receives 10 euros.

Each participant will be randomly matched with another participant in this session.

Each pair of subjects comprises two randomly assigned types of player: Player A and Player B.

Player A:

- Chooses how many euros to add/subtract from player B's earnings.
- This decision does not affect his own payment. That is, each player A will earn 10 euros.

Player B:

- Waits until Player A decides.
- Has a payoff equal to 10 euros plus/minus player A's choice.
- That is, player B's earnings depend on player A's choice.
- Please confirm by clicking OK."

References

Abbink, K., Sadrieh, A., 2009. The pleasure of being nasty. Economics Letters 105 (3), 306–308.
Abbink, K., Herrmann, B., 2011. The moral costs of nastiness. Economic Inquiry 49 (2), 631–633.
Andreoni, J., Miller, J., 2002. Giving according to GARP: An experimental test of the consistency of preferences for altruism. Econometrica 70, 737–753.
Barsdley, N., 2008. Dictator game giving: Altruism or artifact? Experimental Economics 11 (2), 122–133.
Bartling, B., Fischbacher, U., 2012. Shifting the blame: On delegation and responsibility. The Review of Economic Studies 79 (1), 67–87.
Bolton, G.E., 1991. A comparative model of bargaining: Theory and evidence. American Economic Review 81, 1096–1136.
Bolton, G.E., Ockenfels, A., 2000. ERC: A theory of equity, reciprocity, and competition. American Economic Review 90 (1), 166–193.
Bracht, Juergen, Zylbersztejn, Adam, 2018. Moral judgments, gender, and antisocial preferences: An experimental study. Theory and Decision 85 (3–4), 389–406.
Capra, M., 2004. Mood-driven behavior in strategic interactions. American Economic Review 94 (2), 367–372.
Charness, G., Grosskopf, B, 2001. Relative payoffs and happiness: An experimental study. Journal of Economic Behavior and Organization 45 (3), 301–328.
Charness, G., Rabin, M., 2002. Understanding social preferences with simple tests. Quarterly Journal of Economics 117, 817–869.
Chowdhury, S.M., Jeon, J.Y., Saha, B., 2017. Gender differences in the giving and taking variants of the Dictator Game. Southern Economic Journal 84 (2), 474–483.
Cooper, D., Kagel, J.H., 2017. Other-regarding preferences: A selective survey of experimental results. In: Kagel, J.H., Roth, A.E. (Eds.), The Handbook of Experimental Economics 2. Princeton University Press, pp. 217–276.
Cox, J.C., Friedman, D., Gjerstad, S., 2007. A tractable model of reciprocity and fairness. Games and Economic Behavior 59, 17–45.
Cox, J.C., 2007. Trust, fear, reciprocity, and altruism: Theory and experiment. In: Oda, S.H. (Ed.), Developments on experimental economics. Lecture notes in economics and mathematical systems 590 Springer, Berlin, Heidelberg.
Dana, J., Weber, R.A, Kuang, J.X., 2007. Exploiting moral wiggle room: Experiments demonstrating an illusory preference for fairness. Economic Theory 33 (1), 67–80.
Dana, J., Cain, D.M, Dawes, R.M., 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), 193–201.
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), 349–371.
Engel, Christoph, 2011. Dictator games: A meta-study. Experimental Economics 14, 583–610.
Engelmann, D., Strobel, M., 2004. Inequality aversion, efficiency, and maximin preferences in simple distribution experiments. American Economic Review 94 (4), 857–869.
Fehr, E., Schmidt, K.M., 1999. A theory of fairness, competition, and cooperation. Quarterly Journal of Economics 114 (3), 817–868.
Fischbacher, U., 2007. z-Tree: Zurich toolbox for ready-made economic experiments. Experimental Economics 10, 171–178.
Forsythe, R., Horowitz, J.L., Savin, N.E., Sefton, M., 1994. Fairness in simple bargaining experiments. Games and Economic Behavior 6, 347–369.
Fried, R., Berkowitz, L., 1979. Music hath charms… and can influence helpfulness. Journal of Applied Social Psychology 9 (3), 199–208.
Fukui, H., Toyoshima, K., 2014. Chill-inducing music enhances altruism in humans. Frontiers in Psychology 5, 1215. https://doi.org/10.3389/fpsyg.2014.01215.
Grossman, P.J., Eckel, C.C., 2015. Giving versus taking for a cause. Economics Letters 132, 28–30.
Hamman, J.R., Loewenstein, G., Weber, R.A., 2010. Self-interest through delegation: An additional rationale for the principal-agent relationship. American Economic Review 100 (4), 1826–1846.
Iriberri, N., Rey-Biel, P., 2011. The role of uncertainty in modified dictator games. Experimental Economics 14, 160–180.
Juslin, P.N., Västfjäll, D., 2008. Emotional responses to music: The need to consider the underlying mechanisms. Behavioral Brain Sciences 31 (5), 575–621.
Kahneman, D., Knetsch, J.L, Thaler, R.H., 1986. Fairness and the assumptions of economics. The Journal of Business 59 (4), S285–S300.
Korenok, O., Millner, E.L, Razzolini, L., 2014. Taking, giving, and impure altruism in dictator games. Experimental Economics 17 (3), 488–500.
Lerner, J.S., Small, D.A., Loewenstein, G.F., 2004. Heart strings and purse strings: Carryover effects of emotions on economic decisions. Psychological Science 15 (5), 337–341.
List, J.A., 2007. On the interpretation of giving in dictator games. Journal of Political Economy 115 (3), 482–493.
McFadden, D., 1980. Econometric models for probabilistic choice among products. The Journal of Business 53 (3), S13–S29.
Moffat, P.G., 2016. Experimetrics: Econometrics for experimental economics. Palgrave Macmillan Education.
North, A.C., Hargreaves, D.J., McKendrick, J., 1999. The influence of in-store music on wine selections. Journal of Applied Psychology 84 (2), 271–276.
North, A.C., Tarrant, M., Hargreaves, D.J., 2004. The effect of music on helping behavior: A field study. Environment and Behavior 36 (2), 266–275.
Ponti, G., Rodríguez-Lara, I., 2015. Social preferences and cognitive reflection: Evidence from a dictator game experiment. Frontiers in Behavioral Neuroscience 9, 146. https://doi.org/10.3389/fnbeh.2015.00146.
Rand, D.G., Epstein, Z.G., 2014. Risking your life without a second thought: Intuitive decision-making and extreme altruism. PLoS ONE 9 (10), e109687. https://doi.org/10.1371/journal.pone.0109687.
Rand, D.G., Greene Joahua, D., Nowak, M.A., 2012. Spontaneous giving and calculated greed. Nature 489, 427–430.
Roda, A., Canazza, S., De Poli, G., 2014. Clustering affective qualities of classical music: Beyond the valence-arousal plane. IEEE Transactions on Affective Computing 5 (4), 364–376.
Schwarz, N., 2000. Emotion, cognition, and decision making. Cognition and Emotion 14 (4), 433–440.
Västfjäll, D., 2002. Emotion induction through music: A review of the musical mood induction procedure. Musicae Scientiae 5 (1), 173–211.
Wright, W.F., Bower, G.H., 1992. Mood effects on subjective probability assessment. Organizational Behavior and Human Decision Processes 52 (2), 276–291.
Zizzo, D.J., Oswald, A.J., 2001. Are people willing to pay to reduce others' incomes? Annales d'Economie et de Statistique 63/64, 39–65.
Zizzo, D.J., 2003. Money burning and rank egalitarianism with random dictators. Economics Letters 81 (2), 263–266.

Aurora García-Gallego is professor of Economic Theory at the Universitat Jaume I, Castellón (Spain). She holds a PhD in Economics from the EUI (Florence, Italy). She has been a visiting professor in Crete, Cyprus, Colombia and UK. Her main research interests include the areas of microeconomics, experimental, behavioral economics and industrial organization. She has published, among others, in *PLoS ONE, Journal of Economic Psychology, Frontiers in Psychology, Frontiers in Behavioral Neuroscience, Organizational Behavior and Human Decision Processes, JEBO, IJIO, JEMS, Economics Letters, Ecological Economics, Environmental and Resource Economics or Regional Science and Urban Economics*. She is co-director of her University's Experimental Lab (LEE).

Nikolaos Georgantzis is professor of Behavioural Economics at the Burgundy School of Wine and Spirits Business (Dijon, France) and of the Economics Department of Universitat Jaume I (Castellón, Spain). Also visiting professor in the School of Agriculture Policy and Development at the University of Reading, UK. He holds a PhD from the European University Institute (Florence, Italy). Research interests include Economic Psychology, Microeconomics, Industrial Organization, Behavioral Economics, Labor, Environmental and International Economics. He has been the main supervisor to 21 doctoral theses. He has published over 60 articles in journals like *Organizational Behavior* and *Human Decision Processes, JEBO, Journal of Economic Psychology, IJIO, Regional Science and Urban Economics, JEMS, Ecological Economics*, and *Environmental and Resource Economics*.

María J. Ruiz-Martos holds Ph.D. in Experimental Economics at the University of Nottingham (UK, 2008), primarily research interests comprise individual decision making under risk, social preferences and coordination games- Furthermore, she investigates on life satisfaction and economic progress measurement. She has published in international journals like *Theory and Decision* and *Journal of Happiness Studies* and has work under review in *Experimental Economics*. She has been a postdoctoral research fellow at the University of Warwick (UK) and at the Universitat Jaume I (Castellón, Spain). She works as a lecturer in the University of Granada, Spain.