# The role of personal involvement and responsibility in dictatorial allocations: a classroom experiment*

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**Abstract**

This paper explores the motivations behind giving. Specifically, it focuses on personal involvement and responsibility to explain why decision makers give positive amounts in dictatorial decisons. The experiment is designed to uncover these motivations. Subjects face the problem of a dictator's allocation of an indivisible pie $P$ to one of two players; indivisibility creates an extremely unequal outcome and the dictator is given a chance to correct this outcome at a cost. The willingness to pay to correct the outcome is examined under different scenarios so that we learn about several features concerning preferences.

**Keywords:** Fairness, Dictator game, Moral cost.
**JEL Class.:** C91, D63, D64.

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# 1 Motivation

Recent experimental literature has interpreted giving in dictator game (DG hereafter) in terms of fairness-based preferences (see Camerer, 2003, chap. 2). Nevertheless, experimental studies such as Hoffman *et al.* [12] & [13], Dana *et al.* [7] & [8], Lazear, Malmendier & Weber [14] have questioned this interpretation. According to these studies some dictators do not share their endowments just because their preferences are other-regarding. Giving in DG could be influenced by self-centered reasons. For instance, by social reputation, by the level of "transparency" of the mapping between dictators' decisions and outcomes, or as a result of feeling "guilt" or "shame" for not giving.

This paper aims to provide a better understanding of self-regarding motives behind giving in DG. Our hypothesis is that selfish allocations in DG may have a *moral cost* attached for decision makers. Under fairness concerns, this moral cost is to be understood as emerging from agents feeling uncomfortable with (too) unequal results. However, the moral cost attached to a dictator's selfish decision may be related not only to the nature of the result, but to the very action of making the decision. In other words, pangs of conscience do not only arise from the fact that dictators' selfish decisions bring about an unequal distribution of payoffs; they may be largely the result of dictators being *responsible for* and *beneficiaries of* unfair decisions.

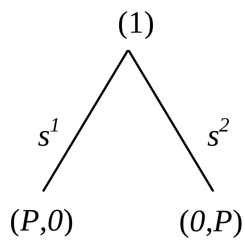
As Dana, Weber & Xi Kuang [8] point out, there might be a restriction of self-interest in dictatorial allocations that is context-driven rather than arising from a desire for a fair outcome. In this regard, our main hypothesis is the following:

*For a given unfair payoff distribution, giving decreases when the moral cost attached to decisions is reduced.*

To analyze this hypothesis, we have designed an experiment in which a decision maker faces the problem of allocating an indivisible pie $P$ to one of two players. Indivisibility creates an extremely unequal outcome. Then, taking this unequal outcome as a starting point, the agent is given the chance to correct the distribution at a cost. The willingness to incur this cost is examined under a series of scenarios differing in the moral costs attached to decision-making.

The benchmark allocation problem is an all–or–nothing dictator game (DG$^{an}$ hereafter). In a standard DG, the task of subject $i$ is to allocate a "pie", $P$, between a recipient $j$ and himself/herself; that is, he/she has to decide his/her payoff, $\pi_i$, and, thus, his/her recipient's, $\pi_j = P - \pi_i$. We modify this standard version of the dictator game by making $P$ indivisible (see a similar approach in Bolton, Katok & Zwick [2] and Brañas–Garza [4][1]). Thus, as Figure 1 shows, the subjects' Decision 1 in the DG$^{an}$ is reduced to just two possible allocations: $(\pi_i, \pi_j) = (P, 0)$ if $i$ chooses strategy $s^1$, and $(\pi_i, \pi_j) = (0, P)$ if he/she opts for $s^2$.

**Figure 1:** The All-or-Nothing Dictator Game (DG$^{an}$): Decision 1




Subjects are therefore confronted with the dilemma of either keeping the whole pie for themselves or adopting a purely altruistic behavior in which the recipient receives the entire pie.

Following the standard selfish behavior assumption, let us suppose that subjects choose strategy $s^1$, giving rise to an unequal payoff distribution in which they keep the whole pie for themselves. Dictators are then given the opportunity to amend the distribution resulting from their decision. In particular, using part of the pie they got in Decision 1 of this DG$^{an}$, they are given the chance to pay something in order to give a new, whole pie to their recipient. To elicit the willingness to pay of individual $i$ ($wtp_i$, where $i = 1, ..., n$, and $n$ is the number of individuals), a standard payment card is used.

If the average willingness to pay is positive, $\widehat{WTP} = \frac{1}{n}\sum_i wtp_i > 0$, this would mean that agents, on average, are ready to sacrifice part of their own payoff to improve recipients' welfare. Note in this regard that if subject $i$ reveals a positive willingness to pay ($wtp_i > 0$), then, $\pi_i < \pi_j$. The reason is that $i$ would be sacrificing part of $P$ to give a new, whole pie to $j$; that is, the

[1] In Bolton, Katok & Zwick [2], dictators always receive at least a fixed prize. In our design, as in Brañas-Garza [4], they have to decide whether they get the whole pie or nothing.

payoff distribution would become $(\pi_i, \pi_j) = (P - wtp_i, P)$ instead of $(\pi_i, \pi_j) = (P, 0)$. In other words, agents would have accepted a disadvantageous type of inequity to mitigate the extreme advantageous inequity that resulted from choosing $s^1$ in Decision 1.

Our experiment, as discussed below, produces the result that the average willingness to pay in the $DG^{an}$ is positive. Among the different explanations economic theory provides for this result, three are particularly relevant.[2]

### 1st explanation: Inequity aversion (ia)

**Definition 1 (ia)** *Individuals are inequity averse when "they are willing to give up some material payoff to move in the direction of more equitable outcomes" (Fehr & Schmidt, 1999, p. 819).*

With this definition at hand, the observed $\widehat{WTP} > 0$ may be explained as the result of subjects' attempts to reduce the (advantageous) extreme inequity generated as a result of choosing $s^1$ in Decision 1.

Nevertheless, note that $wtp_i > 0$ also means that subject $i$ is ready to accept a disadvantageous inequity.

### 2nd explanation: Efficiency gains (eg)

**Definition 2 (eg)** *Subjects are efficiency seekers if they care about the sum of individual payoffs.*

In line with this definition, efficiency gains are a possible explanation for $\widehat{WTP} > 0$, because the correction of the initial decision in the $DG^{an}$ involves an increase in the sum of payoffs. That is, for subject $i^{th}$, $[(P - wtp_i) + P] > [P + 0]$.

### 3rd explanation: Social game attributes

Andreoni & Miller [1] emphasize the context of the game. In particular, they define a vector $\gamma$ of attributes of a game, which would include aspects such as social variables, the rules of the game or its framing.

[2] Besides these three explanations, theoretical models sometimes include reciprocity as an explanation for cooperative behavior (see Charness & Rabin [6]). For instance, in repeated games, the fear of punishment induce subjects to be kind. In the problem stated in Figure 1 there is clearly no room for reciprocity.

In terms of subject $i$'s utility function, this view implies that agent $i$ faces a utility function as follows:

$$u_i(x, \gamma),$$

where $x = (x_i, x_j)$ is a feasible allocation of resources (the sum of payoffs is equal to or lower than the total amount available, $x_i + x_j \leqslant X$) and $\gamma$ is a vector of attributes describing the relevant features of the process generating the allocation. That is, subjects may care not only about the final consequences of their decisions but also about other aspects such as the means of achieving the final outcome.

In this paper we consider two dimensions of $\gamma$. Both are related to the possibility of Decision 1 having some *moral cost* attached to it.

The first dimension of $\gamma$ we consider is $\gamma_1$, personal involvement in allocations.

**Definition 3** ($\gamma_1$) *A subject has personal involvement in an allocation,* $\gamma_1$*, when he/she obtains advantage directly and personally from the payoff distribution.*

Subjects may incur a $\gamma_1$-type moral cost when they have to decide on an allocation where all their earnings are recipients' losses. A standard example of this type of decision is DG, where each unit of the pie the dictator keeps for himself/herself is at the expense of the other player.

If individuals do not like to adopt Decision 1 shown in Figure 1 because they benefit directly from it at the expense of the recipient's payoff, then a positive $\widehat{WTP}$ could be explained in terms of the moral attribute of the game $\gamma_1$.

The second relevant dimension of $\gamma$ is subjects' personal responsibility for decisions, $\gamma_2$.

**Definition 4** ($\gamma_2$) *Subjects are responsible for a decision when they have control over the results of the decision.*

If subjects feel responsible for making a decision, they incur the cost (or have the benefit) attached to being directly responsible for the results of that decision. Note that the nature of the effect depends on whether it is a *pleasant* or *unpleasant* decision.

In the case of the DG$^{an}$, $\gamma_2$ may adopt the particular form of subjects feeling responsible for an extremely unequal outcome. As a result, when they are offered the opportunity to remedy this situation, they agree to pay to modify the distribution.

In the light of these definitions, our previous hypothesis can now be formulated as follows:

**Hypothesis** All–or–nothing dictatorial-type decisions are affected by the attributes of the game. In particular, for a given unfair distribution of payoffs, when the presence of $\gamma_1$and $\gamma_2$ is reduced or canceled, giving decreases.

Note that $\gamma_1$and $\gamma_2$ make reference to the "moral dimension" of decisions; that is, to their "right" or "wrong" nature. However, these two variables are not only related to the moral nature of the outcome but also to the characteristics of the very action of making decisions. Accordingly, this moral dimension refers not only to one's decisions being detrimental to others; i.e., it is not only other-regarding but also self-centered. This implies that, if the hypothesis above is correct, a decision which is equally detrimental to others may have attached to it a lower moral cost for the decision maker when he/she does not feel guilty for his/her role in the decision-making process. In our setup, there are guilt feelings when the decision maker benefits from the decision and/or feels responsible for the decision.

The following section describes the different treatments used to analyze this hypothesis and the conditions in which the experiments were conducted.

# 2 Experimental design and procedures

## 2.1 All or nothing decisions

We ran four treatments to explore this conjecture. Table 1 provides a summary of the first three Treatment 4 will be discussed in Section 5.

**All-or-Nothing Dictator Game ($T1$):** This all-or-nothing dictator game (DG$^{an}$ hereafter) is the control treatment. The decision task of decision makers in this treatment is to allocate an indivisible pie, $P$, of 10 experimental currency units (ECUs) as shown in Figure 1. Subjects act as dictators, and their recipients are students randomly chosen from the class list. Note that both strategies $s^1$ and $s^2$ in Decision 1 give rise to extreme distributions because the 10 ECU pie is not divisible; that is, agents can only generate an extremely unequal payoff distribution. After this inequity is created, they are given the opportunity without previous announcement to balance the payoff distribution by incurring a cost to give a new, whole pie to their recipient. To elicit subjects' willingness to pay, a standard payment card is used.

The payment card gives subjects the chance to pay part of their endowment to give a whole, new 10 ECU pie to the recipient. That is, if agents choose $s^1$ in Decision 1, as may be expected, this payment card gives them the opportunity to nearly balance the distribution of final payoffs (see Appendix 1 for the instructions concerning the payment cards in $T1$, $T2$ and $T3$).

**Table 1:** Treatments and Decision 1

| | | recipient 1 | recipient 2 | Feasible Payoffs | | |
|---|---|---|---|---|---|---|
| $DG^{an}$ | $T1$ | dictator | classmate | $(10,0)$ | $(0,10)$ | |
| $AD^{an}$ | $T2$ | classmate | classmate | $(10,0)$ | $(0,10)$ | |
| $AD_{random}$ | $T3$ | classmate | classmate | $(10,0)$ | $(0,10)$ | *Random* |

**All-or-Nothing Allocation Decision ($T2$):** In this scenario, subjects have to assign a 10 ECU indivisible pie in Decision 1; but they do not directly benefit from this all-or-nothing allocation decision ($AD^{an}$ hereafter). That is, the task is to allocate the indivisible pie between two classmates.[3] Nevertheless, although individuals do not obtain advantage from their decision, they do earn a 10 ECU show–up fee. This show-up fee will be used to make subjects reveal their willingness to pay to give a new, whole 10 ECU pie to the recipient who got a zero payoff in Decision 1. Note that the only difference between $T1$ and $T2$ is the decision maker's personal involvement in the payoffs of an unequal allocation decision; that is, $\gamma_1$ influences subjects' decision making in $T1$, but it does not do so in $T2$.

[3] In a certain sense, this $AD^{an}$ is reminiscent of Solomon's dilemma (see Ponti [15] and Ponti *et al.* [16]).

**All-or-Nothing Allocation Decision with Random Lever ($T3$):** This all-or-nothing allocation decision with random lever ($AD_{random}$ hereafter) is identical to $T2$, except that subjects have three options in Decision 1: $s^1$, $s^2$ and what we call "Random Lever". Choosing the latter option implies that agents delegate their decision to a lever which selects strategies $s^1$ and $s^2$ randomly. Thus, those subjects who choose the random lever might feel they withdraw control over the payoff distribution. If this were the case, $\gamma_2$ would not influence their decision; that is, even if recipients are chosen randomly from the class list, the decision makers' feeling of responsibility for the resulting unequal distribution may be reduced.[4]

## 2.2 Procedures

Experimental sessions were conducted among Economics students taking Microeconomics 1 (four sections) at the University of Granada (Spain). This course is taught during the spring semester of the first year. The total sample comprises 112 subjects divided into four treatments (for the distribution of subjects by treatments see Tables 3 and 5).

Following an unrelated survey, subjects faced the allocation decisions described in Table 1, named *Decision 1.* Recipients were chosen randomly from the class list. There were four sessions (one for each section of the course), and all were conducted the same day in March 2005. In each of these four sessions at least two treatments were conducted, but each subject played only one treatment, i.e. each subject faced just one allocation decision. No subject had any information regarding the game other subjects were playing.

After facing Decision 1, subjects were asked how much they would pay to give a new, whole pie to the recipient who did not get anything. They did not know in advance they would face this second decision. To elicit the $wtp_i$ of agent $i$ we used a standard payment card[5] whose instructions are shown in Appendix 1.

The payoff rules adopted aimed at creating a very competitive context. In this sense, subjects were informed that the number of points obtained during the experimental session (jointly with the points in other four experimental

[4] For a different way of analyzing the consequences of diffused responsibility, see Dana, Weber & Xi Kuang [8].

[5] To induce subjects to reveal their true willingness to pay, they were informed that only one randomly chosen row would be effective.

sessions in which they would participate during the course[6]) would modify the final grade of the course in the following way. Each of the 4 sections of the course plays a different tournament. The winner in each class receives three points (out of ten) to be added to the final grade. Other subjects' grades depend on how close their performance is to the winner's.

Note that paying with grade points implies that there is no possibility of ex post exchange and provides strong enough incentives for students.

### 2.3 Subjects' opinion

After running the experiment, we asked subjects about their motivations. The aim was to compare subjects' opinions to our conjectures that their decisions would be driven by personal involvement and responsibility. We asked 21 subjects (a complete section of the course) out of the whole sample to fill a questionnaire. The questionnaire was given a week after the experiment was conducted; at that point, we had not yet provided any information to any of the participants about the objectives of the experiment or about preliminary results. The questionnaire consisted of three parts, as discussed below.

## 3 The role of $\gamma_1$ in dictatorial choices

Now we explore how inequity aversion ($ia$), efficiency gains ($eg$), personal involvement in allocations ($\gamma_1$) and responsibility for the decision ($\gamma_1$) affect individual decisions in treatments $T1$, $T2$ and $T3$. Table 2 summarizes the relevant features for each treatment.

**Table 2:** TREATMENT SUMMARY

| Treatments | | Variables | | | |
|---|---|---|---|---|---|
| $T1$ | $\mathrm{DG}^{an}$ | $ia$ | $eg$ | $\gamma_1$ | $\gamma_2$ |
| $T2$ | $\mathrm{AD}^{an}$ | $ia$ | $eg$ | | $\gamma_2$ |
| $T3$ | $\mathrm{AD}_{random}$* | $ia$ | $eg$ | | |

*Only for individuals who made use of the random lever.

[6] The sequence was as follows: a dictator game (March), GRE maths test (beginning of April), risk aversion tests (end of April), and travelers' dilemma (June).

Table 3 presents the relevant results for $T1$, $T2$ and $T3$. Recall that we use the $DG^{an}$ as a control treatment. Row 1 in Table 3 refers to subjects who play strategy $s^1$ in this treatment.[7] Specifically, it shows the mean and the frequency distribution of these subjects' willingness to pay to give a new 10 ECU pie to their respective recipients. On average, decision makers are willing to pay 2.69. In addition, 82% of individuals are willing to pay a positive amount of ECUs to modify the extremely unequal payoff distribution resulting from $s^1$.

**Result 1:** After facing Decision 1 in the $DG^{an}$, 82% of subjects show a positive willingness to pay to balance the distribution. In this treatment, $\widehat{WTP} > 0$ is the result of the joint effect of $ia$, $eg$, $\gamma_1$ and $\gamma_2$.

The relative importance of each of these four variables cannot be assessed in the $DG^{an}$. The $AD^{an}$ and the $AD_{random}$ are designed to uncover the effect of $\gamma_1$ and $\gamma_2$.

**Table 3:** Main Results in T1, T2 & T3

| | | | Frequency | | | | | |
|---|---|---|---|---|---|---|---|---|
| | $n$ | Mean | 0 | 1 | 2 | 3 | 4 | 5+ |
| $DG^{an}$ ($T1$) | 27 | 2.69 | 5(18%) | 2(7%) | 4(14%) | 5(18%) | 7(25%) | 4(14%) |
| $AD^{an}$ ($T2$) | 36 | 1.72 | 13(36%) | 4(11%) | 6(16%) | 6(16%) | 7(19%) | 0(0%) |
| $AD_{random}$ ($T3$) | 11 | 0.73 | 5(45%) | 5(45%) | 0(0%) | 1(9%) | 0(0%) | 0(0%) |
| $AD_{Nrandom}$ ($T3$) | 12 | 1.58 | 4(33%) | 2(17%) | 3(25%) | 1(8%) | 2(17%) | 0(0%) |

First, we compare $DG^{an}$ data with data from $AD^{an}$. The difference between the tasks in these two treatments is that decision makers do not benefit directly from their decisions in the latter and therefore $\gamma_1$ could not possibly influence them. In this regard, individuals' willingness to pay decreases to 1.72 on average when $\gamma_1$ is not present, i.e. when the decision maker is not involved in the payoff allocations.

Moreover, the percentage of subjects who are not ready to pay anything to reverse the results obtained from $s^1$ in the $AD^{an}$ doubles the percentage

[7] 2 subjects out of 29 chose $s^2$ in the $DG^{an}$.

observed in $DG^{an}$ (36% vs. 18%). That is, the percentage of people willing to pay a positive amount falls to 64%.

Another surprising result is that 14% of subjects in the $DG^{an}$ are ready to pay half of the pie, whereas none of the participants in the $AD^{an}$ reveals such a high willingness to pay. Using the Mann-Whitney test to compare the distributions of the two treatments ($Z = -1.92$; $p = 0.05$), the null is rejected; i.e., these distributions are not drawn from the same population.

Hence, comparing the results of the $DG^{an}$ and the $AD^{an}$ we have:

**Result 2:** When $\gamma_1$ is removed, $\widehat{WTP}$ decreases from 2.69 in the $DG^{an}$ to 1.72 in the $AD^{an}$.

Therefore, we can conclude:

**Result 3:** There is a positive causal relationship between $\gamma_1$ and subjects' *wtp*.

Now, we explore subjects' opinion regarding $\gamma_1$. We explained to the 21 participants in the questionnaire the basic features of a standard DG. In addition, we gave a brief introduction on how subjects' decisions in this type of game may conflict with the standard hypothesis of utility maximization. Then we described our experiment's benchmark –i.e. the $DG^{an}$– and reminded individuals how the payment card worked.

Finally, we told individuals that the average willingness to pay in the $DG^{an}$ they had participated in was positive; in particular that $\widehat{WTP} = 2.69$. We added that *a priory* this could be due to four different variables and asked subjects to order them according to their capability to explain this positive sign of $\widehat{WTP}$.

The four variables we proposed and the way we defined them in the questionnaire were as follows:[8]

1. Efficiency (*eg*): To make the sum of all players' payoffs as high as possible.

2. Inequity Aversion (*ia*): A large difference between those who get the highest payoff and those who get the lowest is annoying.

[8] The four variables are shown in the same order in which they appeared on the test sheet.

3. Conscience ($\gamma_1$): To gain something, someone else has to lose; that is, I benefit from someone else's loss.

4. Hard Decision ($hd$): Decisions to be made are of the all-or-nothing type; that is, I cannot choose intermediate distributions.

Note that the "conscience" variable corresponds to $\gamma_1$; i.e., whether decision makers modify their $wtp$ as a result of their personal involvement. The "hard decision" variable is just the main difference between standard DGs and our DG$^{an}$. The remaining two variables ("efficiency" and "inequity aversion") are as defined above (see section 1).

Table 4 shows the main results regarding subjects' ranking.

**Table 4:** Subjects' Ranking of Giving Motivations in DG$^{an}$

| Ranking $1^{st}$ | | Ranking $2^{nd}$ | | Ranking $3^{rd}$ | | Ranking $4^{th}$ | |
|---|---|---|---|---|---|---|---|
| | Frequency | | Frequency | | Frequency | | Frequency |
| $\gamma_1$ | 12(57%) | $ia$ | 10(48%) | $eg$ | 10(48%) | $hd$ | 7(33%) |
| $hd$ | 4(19%) | $hd$ | 5(24%) | $hd$ | 5(24%) | $eg$ | 6(29%) |
| $ia$ | 3(14%) | $\gamma_1$ | 3(14%) | $ia$ | 4(19%) | $\gamma_1$ | 4(19%) |
| $eg$ | 2(10%) | $eg$ | 3(14%) | $\gamma_1$ | 2(9%) | $ia$ | 4(19%) |

According to this Table, 12 subjects (i.e., 57% of the 21 participants in the questionnaire) considered "conscience" as the main motivation behind $\widehat{WTP} > 0$. Hence, subjects' ranking provides some support for Result 3: self-regarding moral costs –specifically, $\gamma_1$– play a role in dictatorial decisions.

Although we will return to this below, note also that subjects' ranking suggests that inequity aversion and efficiency gains do not seem to be as important as $\gamma_1$. The role of the "hard decision" variable in subjects' motivation is not as clear: 9 subjects ranked it first or second and 12 subjects ranked it third or fourth.

# 4 The role of $\gamma_2$ in dictatorial choices

As Table 3 shows, $\widehat{WTP}$ is positive in the AD$^{an}$: its value is 1.72. Hence, it can be stated that personal involvement, $\gamma_1$, is relevant, but it cannot entirely explain the level of $\widehat{WTP}$ in all-or-nothing allocation tasks.

Let us turn our attention to $\gamma_2$. To check whether feeling responsible for an unkind decision has any influence on $wtp$ we designed $T3$ such that subjects face the same decision as in the $\text{AD}^{an}$, but they have the chance to avoid the allocation decision through a random device. Opting for this device is like "tossing a coin" to solve King Solomon's dilemma and "the coin" is who decides how to allocate the pie. In $T3$, Decision 1 does not affect subjects' payoffs (i.e. $\gamma_1$ is absent) and our conjecture is that choosing the random option may help them mitigate their feeling of responsibility for the resulting allocation (i.e. for those subjects who choose the random lever, $\gamma_2$ has little or no influence).

In row 3 of Table 3, $\text{AD}_{random}$ refers to those subjects who had the random device available in $T3$ and chose it. Almost half of the subjects (11 out of 23) opted for it. However, the other side of the coin is that 12 out of 23 subjects did not use it ($\text{AD}_{Nrandom}$ in row 4, Table 3). There are two opposing explanations for this choice. First, individuals who did not choose the random option do not care about the role of responsibility in their decision. Second, they do not feel that their responsibility could be removed by choosing the random lever.

Interestingly, the $\widehat{WTP}$ in the $\text{AD}_{Nrandom}$ matches that obtained in the $\text{AD}^{an}$ (1.79 vs. 1.58). Furthermore, the Mann-Whitney test does not reject ($Z = -0.22$; $p = 0.82$) the hypothesis that data arising from the $\text{AD}^{an}$ and the $\text{AD}_{Nrandom}$ are drawn from the same population. These statistical results seem to suggest that subjects who did not choose the random option when it was available perceived the problem they faced in the same way as those in the $\text{AD}^{an}$ perceived theirs –where the allocation decision was the same, but the randomization device was absent. Therefore, these results provide some support for the second explanation above: decision makers in the $\text{AD}_{Nrandom}$ did not believe that choosing the randomization device would prevent them from feeling responsible for the unequal distribution.

By contrast, the Mann-Whitney test shows ($Z = -1.73$; $p = 0.08$) that data arising from the $\text{AD}^{an}$ and the $\text{AD}_{random}$ are not drawn from the same population. In addition, as Table 3 shows, the mean in the $\text{AD}_{random}$ is one point lower than in the $\text{AD}^{an}$. In particular, $\widehat{WTP}$ in the $\text{AD}_{random}$ decreases to 0.73. In sum:

**Result 4:**

($i$) When the random option was available, 11 subjects out of 23 made use of it. For those subjects who did not use the random option $\widehat{WTP} = 1.58$, close to $\widehat{WTP} = 1.79$ in the $\text{AD}^{an}$. However, for the subjects who did use the random lever, $\widehat{WTP} = 0.73$, statistically different from $\widehat{WTP} = 1.79$ in the $\text{AD}^{an}$.

($ii$) For half the decision makers in $T3$ the random device did not remove subjects' responsibility. Consequently, the presence of random levers does not affect their $wtp$. However, for those subjects who chose the random device, $\gamma_2$ does play a role in all-or-nothing dictatorial decisions.

We reach the following conclusion:

**Result 5:** There is a positive causal relation between $\gamma_2$ and subjects' $wtp$.

Concerning subjects' opinion about $\gamma_2$, the main features of treatment $T3$ were briefly explained to the participants in the questionnaire given after conducting the experiment. We underlined that this treatment was an all-or-nothing allocation decision and, for the sake of clarity, we compared the random option to the chance to solve King Solomon's dilemma by tossing a coin.

Next, we told the participants in the questionnaire that the average $WTP$ was lower in the $\text{AD}_{random}$ ($\widehat{WTP}_{AD_{random}} = 0.73$) than in the $\text{AD}_{Nrandom}$ and in the $\text{AD}^{an}$ ($\widehat{WTP}_{AD_{Nrandom}} = 1.58$ and $\widehat{WTP}_{AD^{an}} = 1.72$). Then we asked subjects their opinion about the motivations for the $\widehat{WTP}$ decrease when the random lever was chosen.

Nine subjects out of 21 (i.e. 43%) did not provide a clear conjecture for the decrease in $\widehat{WTP}$. Two of them pointed out that decision makers do not care about who receives the 10 ECU pie. One individual argued that choosing the random lever does not change the resulting payoff distribution: whether the random option is chosen or not, someone still loses.[9]

However, 12 subjects out of 21 (i.e. 57%) made explicit reference to the lower level or lack of responsibility in the resulting payoff distribution as the main cause for the reduction in $\widehat{WTP}$ when the random option was chosen. This result is in line with our conjecture that giving is affected by $\gamma_2$.

[9] Six subjects provided "unclassifiable" answers. They made reference to reasons such as risk aversion, increase in the probability of being wrong, distrust in random choices, or being in equilibrium.

The conclusion of the above discussion is that the social attributes of games are relevant in dictatorial decisions (see Results 3 and 5). Specifically, in extremely unequal situations there seems to be a positive link between agents' willingness to pay to reverse inequity and the self-regarding moral costs attached to being responsible for and benefitting from unfair decisions.

Indeed, after controlling for the effect of both $\gamma_1$ and $\gamma_2$ in all-or-nothing allocation decisions, the average willingness to pay to balance the outcome decreases. However, it still has a positive value in the $\text{AD}_{random}$ ($\widehat{WTP} = 0.73$). In accordance with the description of treatments in Table 2, this positive value could be due to the joint effect of inequity aversion ($ia$) and efficiency gains ($eg$).

Going back to the questionnaire given to the experimental subjects, as Table 4 shows, only 3 participants in the questionnaire (i.e. 14% of the 21 subjects) ranked the capability of inequity aversion in first place to explain $\widehat{WTP} = 2.69$ in the $\text{DG}^{an}$. However, 13 subjects (62%) ranked this variable first or second. It could be stated, therefore, that the subjects' opinion is not conclusive on the importance to be assigned to inequity aversion as regards decision makers' $wtp$ to balance the payoff distribution in this treatment.

Concerning the influence efficiency gains may exert over $\widehat{WTP}$ in $\text{DG}^{an}$, Table 4 shows that only 5 participants in the questionnaire (i.e. 24% of the 21 participants) ranked efficiency gains in first and second place when they were asked about the motivations for $\widehat{WTP} = 2.69$ in $\text{DG}^{an}$. This suggests that efficiency gains do not play a major role in subjects' $wtp$.[10]

To extend the analysis of how guilt feelings may influence decisions in the next section we explore a scenario where, after making Decision 1, subjects may avoid the resulting uneasiness by exiting the game.

# 5 Further evidence: Please, let me out!

This section presents the results of treatment $T4$. In this treatment, we elicit subjects' willingness to pay to avoid the discomfort of having to make Decision 1. Here, in contrast to treatments $T1$, $T2$ and $T3$ where subjects

[10]Note that $\widehat{WTP} = 2.69$ in the $\text{DG}^{an}$ is very similar to the results of other standard DGs where there are no efficiency gains. For instance, it is quite close to the 2.5 average giving of dictators in the standard single-room DG in Frohlich, Oppenheimer & Moore [11].

could correct the unequal *outcome*, it is *Decision 1* itself that can be removed at a cost for the decision maker.[11]

**All-or-Nothing Dictator Game with Exit Option ($T4$):** Decision 1 is the same in this all-or-nothing dictator game with exit option ($DG_{exit}$ hereafter) and in the $DG^{an}$. The difference between the two treatments is that in the $DG_{exit}$, after making Decision 1 and without previous announcement, subjects are offered the possibility of exiting the game.[12] Leaving the game renders Decision 1 invalid. Whether this exit option is free or not depends on agents' preferences. A payment card (see Appendix 2) is used to elicit their willingness to pay to cancel Decision 1 and exit the game.

Thus, the $DG_{exit}$ analyzes how much agents are ready to pay in exchange for exiting the game and canceling their previous decision.

Table 5 shows $\widehat{WTP}$ in $T1$, $T2$, $T3$ and $T4$,[13] and whether or not the inequity aversion ($ia$), efficiency gains ($eg$), involvement in payments ($\gamma_1$) and responsibility for decisions ($\gamma_2$) variables are present in these four treatments. Subjects accept 8.91 on average to cancel Decision 1 and exit the game. In other words, the average amount of ECUs they are ready to give up to exit the game is $10 - 8.91 = 1.09$.

**Table 5:** TREATMENTS

| | | | | | $n$ | Mean |
|---|---|---|---|---|---|---|
| $DG^{an}$ ($T1$) | $ia$ | $eg$ | $\gamma_1$ | $\gamma_2$ | 27 | 2.69 |
| $AD^{an}$ ($T2$) | $ia$ | $eg$ | | $\gamma_2$ | 36 | 1.72 |
| $AD_{random}$ ($T3$) | $ia$ | $eg$ | | | 11 | 0.73 |
| $DG_{exit}$ ($T4$) | $ia$ | | $\gamma_1$ | $\gamma_2$ | 22 | 1.09 |

As Table 5 shows, the variables which may influence the outcome in the $DG_{exit}$ are inequity aversion ($ia$), dictators' personal involvement in payments ($\gamma_1$) and their responsibility for unkind decisions ($\gamma_2$). Note that there are no

[11] $T4$ was conducted under the procedures described in Section 2.2 and in the same sessions as $T1$, $T2$ and $T3$.

[12] For this type of approach, see Dana, Cain & Dawes [7], and Lazear, Ulrike & Weber [14].

[13] As in the $DG^{an}$, arguments focus on individuals who chose $s^1$ in Decision 1. Only 2 out of 24 subjects did not choose this strategy in the $DG_{exit}$.

efficiency gains ($eg$) in this treatment. As a matter of fact, when $wtp_i > 0$ in the DG$_{exit}$, the payoff distribution becomes $(\pi_i, \pi_j) = (P - wtp_i, 0)$ instead of $(\pi_i, \pi_j) = (P, 0)$; that is, agent $i$ suffers an individual loss for exiting the game which also involves an efficiency loss.

We have argued in this paper that what may sometimes appear as inequity aversion is in fact moral discomfort for having been involved in making a decision with unequal consequences or for having benefitted from it. The DG$_{exit}$ provides additional support for this result. Assume that moral costs have no influence; then, $\widehat{WTP} = 1.09$ in the DG$_{exit}$ would imply that the parameter which measures the utility loss from advantageous inequity in Fehr & Schmidt's [10] utility function is larger than 1 for some individuals. That is, if subject $i$'s $wtp_i$ is positive, then, $\beta_i > 1$.[14] Fehr and Schmidt [10] rejects this possibility: if $\beta_i = 1$,

> ... *then player i is prepared to throw away one dollar in order to reduce his advantage relative to player j which seems very implausible. This is why we do not consider the case* $\beta_i \geqslant 1$ (Fehr & Schmidt, 1999, p. 824).

Indeed, stating that our experimental subjects were ready to throw grade points away to reduce their advantageous position in the experiment's results does not seem to make too much sense. Given that $\beta_i > 1$ seems an implausible parameter value in terms of inequity aversion preferences, this variable by itself is not able to rationalize subjects' behavior in DG$_{exit}$.

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[14] Fehr & Schmidt's [10] utility function of inequity aversion is the following:

$$u_i(x) = x_i - \alpha_i \frac{1}{n-1} \sum_{j \neq i} \max\{x_j - x_i, 0\} - \beta_i \frac{1}{n-1} \sum_{j \neq i} \max\{x_i - x_j, 0\},$$

where $u_i(x)$ is the utility function of player $i$; $x = x_1, ..., x_n$ is the vector of monetary payoffs; $n$ is the number of players; $\alpha_i$ is the sensitivity of individual $i'$s utility to disadvantageous inequity; and $\beta_i$ is the sensitivity of individual $i$'s utility to advantageous inequity. Since $\widehat{WTP} = 1.09$, some subjects have a positive willingness to pay. Assume $i$ is one of them, then, he/she prefers a payoff distribution where $(\pi_i, \pi_j) = (P - wtp_i, 0)$ than a distribution where $(\pi_i, \pi_j) = (P, 0) = (10, 0)$. In terms of Fehr & Schmidt's utility function, this means that:

$$(P - wtp_i) - \alpha_i 0 - \beta_i \max\{(P - wtp_i) - 0, 0\} > 10 - \alpha_i 0 - \beta_i \max\{10 - 0\}.$$

That is, $\beta_i > 1$.

Thus:

**Result 6:** In $DG_{exit}$, subjects are willing to give a positive payoff (1.09 on average) to avoid the moral costs ($\gamma_1$ and $\gamma_2$) attached to an allocation decision. Inequity aversion by itself cannot explain this behavior.

An interesting outcome of the $DG_{exit}$ is that subjects are willing to give up some payoffs just to avoid being unkind.[15] This behavior could respond to what can be called the *ostrich's strategy*. When subjects face an unpleasant decision they may prefer "to hide their head in the sand" by canceling that decision even at a cost. Indeed, as Table 6 shows, 86% of the subjects chose to do so. More surprisingly, about half of them (54%) were ready to sacrifice part of their payoff to prevent their previous decision from being put into practice.[16]

**Table 6:** Main Results in T4

| | | | Amount accepted to exit | | | | |
|---|---|---|---|---|---|---|---|
| | $n$ | Mean | Not exit | 10 | 9 | 8 | 7 |
| $DG_{exit}$ | 22 | 8.91 | 3(14%) | 7(32%) | 4(18%) | 4(18%) | 4(18%) |

We also asked the 21 participants in the questionnaire about the exit option. In particular, we focused on the following salient result. In the $DG_{exit}$, 3 out of 22 decision makers revealed their preference for not exiting the game; i.e. 14% of the subjects wanted their Decision 1 to be put into practice, admitting the payoff distribution: $(\pi_i, \pi_j) = (P, 0)$. Another 7 individuals (i.e. 32%) preferred to exit the game and cancel their previous decision, but they were not ready to pay anything for exercising this option.

[15] This result is closely related to Lazear, Malmendier & Weber's [14] statement that a significant part of players choose to exit a dictator game even when playing the game presents potential allocations that strictly Pareto-dominate the exit option. Notwithstanding this relation, our results in the $DG_{exit}$ have to be interpreted in different terms than those of Lazear, Malmendier & Weber's [14]. The reason is that the chance of quitting the game in our $DG_{exit}$ implies cancelling a decision which results in an extremely unequal payoff distribution, rather than avoiding an environment which permits sharing.

[16] In Dana, Cain & Dawes [7], about 30% of the decision makers chose to exit a $10 dictator game in exchange for $9.

As far as the decision maker's payoff is concerned there is no difference between these two decisions: in both of them, he/she gets the whole pie. In addition, neither of them implies loss of efficiency. Furthermore, inequity is the same in practice: recipients get zero in both cases. However, there might be a difference: when subjects pay nothing for exiting but choose this option, they might be avoiding $\gamma_2$, i.e., their responsibility for the result. In other words, it could be a clear case of looking the other way.[17]

To check this, we asked the participants in the questionnaire to answer which of the following games they prefer:

- *Game 1: You get 10, your recipient gets 0.*
- *Game 2: You get 10.*

Five out of 21 participants in the questionnaire (i.e., 24%) preferred Game 1. These five participants justified their decision on selfish terms. The clearest argument in this sense is provided by a subject who stated that his/her reason for choosing Game 1 is that others being worse is good for him/her, because points for the final grade are assigned taking as a reference point the subject who gets the highest payoff.

Of the 16 subjects who opted for Game 2, three (14% of the total) inexplicably argue as if their payoffs were uncertain in Game 1. In the remaining group of thirteen individuals,[18] five subjects (24% over 21) stated that their main concern was their own payoff and added that they did not care about "the other player's payoff". They interpreted Game 2 as if there were a fictitious player and his/her earnings were an unknown quantity. On the other hand, seven subjects (33%) explicitly stated that choosing Game 2 implies the possibility that the unknown payoff of this second fictitious player may be positive; that is, they revealed the following preference over payoff distribution: $(10, x) \succ (10, 0)$, where $x > 0$.

In short, more than half the participants in the questionnaire opted for Game 2 as a result of assuming that in this game there is a second player whose payoff is an unknown quantity.

This result may provide some support for our discussion concerning $\gamma_2$ and $\gamma_2$: agents prefer not to assume responsibility for mean decisions which

[17] This type of behavior has been called *strategic ignorance* in the literature (see Dana, Weber & Xi Kuang [8]): deciding to remain ignorant of the consequences of one's actions.

[18] One subject in this group just stated that he/she prefers Game 2 because the decision maker's payoff is the same in both games; that is, $\pi_i^{G_1} = \pi_i^{G_2}$.

they dislike (for instance, giving a zero payoff to his/her recipient for sure) and this fact is affecting their *wtp*.

# 6 Conclusion

We have shown that the social features of the game, such as responsibility in decision making and personal involvement in the decisions' outcomes are relevant in explaining the motivation behind giving in all-or-nothing allocation decisions.

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# 7 Appendix 1: Instructions concerning the payment card in $T1$, $T2$ and $T3$.

At this stage, you have the opportunity to modify your previous decision.[19] Unfortunately, this option is not free. If you want to use it, it will cost you something. This cost will be substracted from your final payoff (if you wish, you can check the decision you made before). Let us focus on Decision 1.

Pay attention to the following table. How should you read this table? 1 point means that YOU give up 1 point so that 10 points are given to the student who got 0 points in your Decision 1; 2 points means that YOU give up 2 points so that 10 points are given to the student who got 0 points in your Decision 1, and so on.

Only one of the rows of the table will be put into practice. This row will be chosen randomly, i.e. by drawing lots. Thus, if in row ten you choose to pay 10 so that the other student gets 10 points and this row is randomly selected, we will reduce your final payoff by 10 points and will give 10 points to the student who got 0 POINTS in your Decision 1.

In each scenario (row), you must mark what you want with a cross. YOU MUST NOT MARK “YES” AND “NO” IN THE SAME ROW (otherwise, you will lose everything).

| **If you give up:** | **We give to the student who got 0 in your Decision 1:** | | |
|---|---|---|---|
| 1 point | 10 points | Yes ☐ | No ☐ |
| 2 points | 10 points | Yes ☐ | No ☐ |
| 3 points | 10 points | Yes ☐ | No ☐ |
| 4 points | 10 points | Yes ☐ | No ☐ |
| 5 points | 10 points | Yes ☐ | No ☐ |
| 6 points | 10 points | Yes ☐ | No ☐ |
| 7 points | 10 points | Yes ☐ | No ☐ |
| 8 points | 10 points | Yes ☐ | No ☐ |
| 9 points | 10 points | Yes ☐ | No ☐ |
| 10 points | 10 points | Yes ☐ | No ☐ |

[19] This “previous decision” is Decision 1 in Figure 1. Specifically, it is an *all-or-nothing* dictator game in $T1$; and an *all-or-nothing* allocation decision in $T2$ and $T3$.

# 8 Appendix 2: Instructions concerning the payment card in $T4$.

At this stage, we give you the opportunity TO EXIT THE EXPERIMENT and thus PREVENT DECISION 1 FROM BEING PUT INTO PRACTICE. In other words, you can get points without facing an allocation decision.

To put it differently, we offer you points for not implementing your previous decision (if you wish, you can check the decision you made before).

To learn how we provide you with this opportunity to exit the experiment, pay attention to the following table. How should you read this table? If you choose "YES" at the level where we offer you 1 point, YOU get 1 point and your previous decision is not put into practice; if you choose "YES" at the level where we offer you 2 points, YOU get 2 points and your previous decision is not put into practice, and so on. Remember that if you choose "NO" at all levels, your Decision 1 is executed.

Only one of the rows of the table will be put into practice. This row will be chosen randomly, i.e. by drawing lots. Thus, if you choose "YES" in a certain row and that row is randomly selected, we will give you the amount of points corresponding to that row. If you choose "NO" in the randomly selected row, what you decided in Decision 1 is put into practice.

In each scenario (row), you must mark what you want with a cross. YOU MUST NOT MARK "YES" AND "NO" IN THE SAME ROW (otherwise, you will lose everything).

| **If we offer you:** | **You agree to exit:** | |
|---|---|---|
| 1 point | Yes ☐ | No ☐ |
| 2 points | Yes ☐ | No ☐ |
| 3 points | Yes ☐ | No ☐ |
| 4 points | Yes ☐ | No ☐ |
| 5 points | Yes ☐ | No ☐ |
| 6 points | Yes ☐ | No ☐ |
| 7 points | Yes ☐ | No ☐ |
| 8 points | Yes ☐ | No ☐ |
| 9 points | Yes ☐ | No ☐ |
| 10 points | Yes ☐ | No ☐ |