

Becker, Alice; Miller, Luis M.

Working Paper

Promoting justice by treating people unequally: an experimental study

Jena Economic Research Papers, No. 2009,008

Provided in Cooperation with:
Max Planck Institute of Economics

Suggested Citation: Becker, Alice; Miller, Luis M. (2009) : Promoting justice by treating people unequally: an experimental study, Jena Economic Research Papers, No. 2009,008, Friedrich Schiller University Jena and Max Planck Institute of Economics, Jena

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JENA ECONOMIC RESEARCH PAPERS



2009 – 008

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by

**Alice Becker
Luis M. Miller**

www.jenecon.de

ISSN 1864-7057

The JENA ECONOMIC RESEARCH PAPERS is a joint publication of the Friedrich Schiller University and the Max Planck Institute of Economics, Jena, Germany. For editorial correspondence please contact markus.pasche@uni-jena.de.

Impressum:

Friedrich Schiller University Jena
Carl-Zeiss-Str. 3
D-07743 Jena
www.uni-jena.de

Max Planck Institute of Economics
Kahlaische Str. 10
D-07745 Jena
www.econ.mpg.de

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Promoting Justice by Treating People Unequally: An Experimental Study

Alice Becker and Luis M. Miller*

January 27, 2009

Abstract

Which inequalities among individuals are considered unjust? This paper reports the results of an experiment designed to study distributive choices dealing with arbitrarily unequal initial endowments. In a three-person distribution problem where subjects either know or do not know their endowments, we find impartial behavior to be a stable pattern. Subjects either compensate for initial inequalities fully or not at all in both conditions, and they do so more often when they do not know their endowment than when they know it. Moreover, the type and the size of the good to be distributed also affect the frequency of impartial behavior.

Keywords: veil of ignorance, impartial behavior, distributive justice, procedural fairness

JEL classification: C72, C92

*Becker: Max Planck Institute of Economics, Kahlaische Straße 10, 07745 Jena, Germany (e-mail: becker@econ.mpg.de); Miller: Centre for Experimental Social Sciences, Nuffield College, University of Oxford, New Road OX1 1NF, Oxford, UK (e-mail: luis.miller@nuffield.ox.ac.uk). We are grateful to Fernando Aguiar, Raymond Duch, Werner Güth, Glenn Harrison, Oliver Kirchkamp, Vittoria Levati, and Birendra Kumar Rai for their comments on earlier versions of this paper.

1 Introduction

Which inequalities among individuals are considered unjust? This question has been addressed from a normative point of view by some of the most prominent moral philosophers. For instance, Rawls points out that ‘...undeserved inequalities call for redress; and since inequalities of birth and natural endowment are undeserved, these inequalities are to be somehow compensated for’ (Rawls, 1971 p. 100). On the contrary, other scholars like Nozick (1974) claim that just distributions ought to be merit-related or entitlement-based.

The positive analysis of justice theories in the last two decades (Konow 2003) has predominantly focused on merit and entitlement arguments, but has not paid much attention to the role played by arbitrariness in justice judgments. Questions related to whether *people actually compensate arbitrary inequalities when they have the opportunity to do so*, and, more specifically, *which principles they use to eliminate those inequalities*, have hardly been explored. This is so even when considering that principles of redress and compensation for undeserved inequalities are the foundation of important public intervention schemes such as affirmative action and positive discrimination policies. An illustrative example is the common practice in many university admission offices of implementing measures to ensure equal opportunities for all applicants or equal quotas for students with different backgrounds and needs. The effectiveness of these policies, as well as their public support, are indeed increasingly controversial issues (Crosby et al., 2003). Empirical studies may contribute to this debate by helping to understand the normative principles these policies rely on.

This paper reports the results of an experiment designed to study distributive choices dealing with arbitrarily unequal initial endowments. Previous experimental literature on distributive justice has found a fair amount of egalitarian behavior, especially when initial endowment is just *manna from heaven* (see Camerer, 2003 for an overview). Only recently have a number of experimental papers studied merit-based initial inequalities, finding that merit and entitlement arguments considerably reduce egalitarianism. When participants bargain over money that was earned in a preceding production phase, they are willing to accept unequal distributions (Rutström and Williams, 2000; Cherry et al., 2002). Some studies also combine this production phase with an arbitrary element, i.e., a random rate

of return (Cappelen et. al, 2007). Both types of studies find similar results: very little redistribution takes place. However, none of these studies attempts to isolate the effect of arbitrariness in initial inequalities.

To address this issue, we conduct a simple experiment where participants differ in their initial endowments and decide how to allocate an additional pie among a group of three individuals (including themselves). As we are interested in the governing principle of distributive justice that individuals follow in such an unequal situation, we make them decide behind a veil of ignorance (Rawls, 1971). Rawls refers to the veil of ignorance as the ‘original position’, i.e. a hypothetical situation in which individuals are unaware of their places in society, like social status, wealth, abilities, etc., and where ‘...a unanimous choice of a particular conception of justice’ is possible (Rawls, 1971 p.140). We implement this veil of ignorance via a random dictatorship mechanism, i.e. every member of the society states one allocation for all its members, where one of those allocations is chosen randomly and implemented. Only after that are identities revealed.

Moreover, we account for the fact that, besides the allocation itself, how this allocation is achieved may play a role for individuals. This issue becomes particularly crucial when, for instance, a good is indivisible, such as a house or a piece of art. If in this case, furthermore, no compensation is possible a fair outcome in distributional terms is necessarily ruled out (Young, 1994). Nevertheless, the outcome can be perceived as fair when it was achieved following a fair procedure. Compared to a fair allocation, which implies an *ex-post* equality of outcomes, a fair procedure refers to an *ex-ante* equality of opportunities, where everyone is equally likely to get the (indivisible) good *ex post*. Recent studies have shown that individuals are indeed sensitive to procedures. Bolton et al. (2005) find that the feasibility of a fair allocation and a fair procedure affect rejection behavior in simple bargaining problems in a similar way. Moreover, Karni et al. (2007) find that many subjects are willing to give up part of their own winning probability in order to achieve a fairer procedure overall. To be able to study the effect of fair procedures vs. fair allocations on justice judgments, we distinguish between the distribution of a divisible and an indivisible good.

The rest of the paper proceeds as follows. Section 2 describes the experimental design and procedure. Section 3 states our research hypotheses. Section 4 presents the main results of the experiment. Section 5 discusses the results and concludes.

2 Design

We study a three-person one-shot pure distribution problem. In the beginning of the experiment subjects are randomly matched in groups of three. Each group member i receives a different identity that corresponds to an initial endowment e_i where $i \in \{A, B, C\}$. These initial endowments differ, such that $(e_B - e_A) = (e_C - e_B)$.

Additionally, each group receives a pie P , and subjects decide how to allocate this additional pie among the three group members. Thus, every group member i states three shares, one for each group member. All shares stated by all group members are given by matrix $S = (s_{ij})_{i,j=A,B,C}$, where every row represents the decisions made by one group member.

$$\mathbf{S} = \begin{pmatrix} s_{AA} & \cdot & s_{AC} \\ \cdot & \cdot & \cdot \\ s_{CA} & \cdot & s_{CC} \end{pmatrix}$$

Furthermore, all allocations of the additional pie are efficient, i.e. $\forall i : \sum_{j=A,B,C} s_{ij} = P$. The actual distribution of the additional pie $\mathbf{s}_i = (s_{iA}, s_{iB}, s_{iC})$ is chosen via random dictatorship mechanism.

Following this basic structure, we manipulate two treatment variables. First, whereas the set of initial endowments is common knowledge in all treatments, in only one half of the treatments subjects learn their own initial endowment, i.e. their identity, before they decide on the allocation of the additional pie. In the other half of the treatments, subjects do not learn their initial endowment beforehand. Hence they make their decision behind a veil of ignorance. We refer to this first treatment variable as ‘Information about identity’. Note that in our implementation of the veil of ignorance the random dictator holds a personal stake in the allocation she states (see Frohlich et al., 1992). Other approaches make use of impartial spectators who are not stakeholders (Konow 2000). Konow argues that a decision made behind the veil of ignorance, where the dictator is a stakeholder, could be affected by the dictator’s risk attitude. On the other hand, one could argue about the incentive for a benevolent dictator to state a just allocation if she does not have to bear its consequences

herself. Implementing the veil of ignorance like we did renders it optimal to state one's truly preferred allocation.

Second, the initial endowments and the additional pie are given in experimental currency units (ECU) in only half of the treatments. In the other half they are given in lottery tickets. In the first case, the payoff for each subject amounts to $\pi_i = e_i + s_{ii}, \forall i \in \{A, B, C\}$. In the latter case, the number of lottery tickets held by each subject represents the probability of winning a prize. After distributing the pie in each group, one independent lottery is conducted in which one group member wins the prize. The prize is comprised of an amount of ECU equal to the sum of payoffs in the other condition. We call this second treatment variable 'Type of good'. The provision of endowments and the pie in monetary terms reflects the distribution of a good that is divisible. Given in probabilities they represent the decision over a procedure on how to distribute an indivisible good. It should be emphasized that the probability of winning the indivisible good is linearly increasing in the amount of lottery tickets a subject possesses.

The manipulation of our two treatment variables leads to a 2x2 factorial design, which was conducted in four sessions, one session for each treatment. The different treatments are denoted by T^{dk} , where $d = 1$ if the good is divisible, 0 otherwise, and $k = 1$ if the identity is known, 0 otherwise. The decisions made in each treatment will be denoted by the different matrices \mathbf{S}^{dk} . The set of initial endowments and the additional pie are given by $e_i \in \{20, 40, 60\}$ and $P = 60$. Thus, the lottery prize (the indivisible good) amounts to 180 ECU and each lottery ticket represents a 1/180 probability of winning. Our experimental design is summarized in Table 1.

Treatment	Initial endowments	Additional	Information	
		pie	about identity	Type of good
T^{00}	$e_i \in \{20, 40, 60\}$	P=60	no	indivisible
T^{10}				divisible
T^{01}			yes	indivisible
T^{11}				divisible

Table 1: Experimental design

The computerized experiment was conducted at the laboratory of the Max Planck Institute of Economics in Jena, using the z-Tree software (Fischbacher, 2007). The participants in the experiment were undergraduate students from different disciplines at the University of Jena who were recruited using ORSEE (Greiner, 2004). None of the participants was informed of the purpose of the experiment and subjects were allowed to participate only once. After being seated at separate computer terminals, the subjects received written instructions, which were also read aloud by the experimenter to ensure that they had understood the instructions.¹ The experiment started with a control questionnaire, which the subjects had to complete to assure the understanding of the instructions. Questions were answered privately. We ran four sessions, one session per treatment, with each session involving 30 participants and lasting on average 50 minutes. The subjects earned experimental currency units (ECU) during the sessions, which were afterwards transformed into euros at an exchange rate of $100 \text{ ECU} = 10 \text{ euros}$. The average earnings per subject were 9.57 euros and ranged from a minimum of 3.50 euros to a maximum of 21.00 euros, including the show-up fee of 2.50 euros.

3 Hypotheses

When identities are not known players obtain the different identities A , B and C each with a probability of one third. Each player's choice is implemented also with a probability of one third, i.e. each single element of matrix \mathbf{S} will be realized for player i with a probability of one ninth. As all allocations of the pie are efficient, the expected value of the pie share that is realized for group member i is constant, i.e. $\frac{P}{3}$. Therefore, when players do not know their identity and are assumed to be risk neutral, any choice they make is maximizing their expected payoff. If a certain pattern of behavior can be identified it therefore must be driven by further motives. A straightforward explanation would be risk. A slight preference for risk in one or the other direction leads to different predictions of behavior. A risk seeking subject would allocate the whole pie to one identity, moreover she would allocate it to C , the identity with the highest endowment already. A risk averse player would allocate the additional pie in such a way that she is equally satisfied, no matter which identity she will

¹The experimental instructions can be sent upon request.

obtain later. Another possible motive leading to the same behavioral pattern could be that subjects take into account initial inequalities and compensate for them, especially because those inequalities are arbitrary in our case (see Rawls 1971, p.100, for a normative account of the *principle of redress*).

Our first hypothesis is therefore given by,

Hypothesis 1: When identities are unknown, subjects that are assumed to be risk neutral, are indifferent between any distribution of the pie and no behavioral pattern can be identified. Behavioral patterns can be identified only under additional assumptions on subjects' preferences, i.e. a subject that is risk seeking allocates the whole pie to identity C, and a subject that is either risk averse or socially motivated distributes the additional pie, s.th. initial inequalities are compensated.

When a subject knows her identity, only three out of the nine elements of matrix \mathbf{S} are relevant for her payoff, each of which will be realized with a probability of one third due to the random dictator mechanism. As only one of those three relevant elements can be influenced by the subject herself, a selfish player would allocate the whole pie to herself. A subject that is socially motivated, would take into account initial inequalities and compensate for them. Note, that risk preferences do not affect choices when subjects know their identity.

Hence, our second hypothesis is as follows:

Hypothesis 2: When identities are known a selfish subject allocates the whole pie to herself. A socially motivated subject distributes the pie such that initial inequalities are compensated.

As pointed out in Section 2, we introduce the distinction between the divisible and the indivisible good via an additional lottery after the pie is distributed. This lottery transforms the lottery tickets gained at that point into a prize, which is equal to the amount that subjects win in the divisible good condition and that one of the group members wins.

The method we use is the so-called lottery-points method, introduced by Roth and Malouf (1979)(see also Berg et.al, 1986; Cox et. al, 1985). Under the assumption that EUT applies, this procedure will induce risk neutrality concerning that additional lottery.

We therefore derive our last hypotheses as follows.

Hypothesis 3: Subjects' behavior is not affected by the type of good, i.e.,

$$\begin{aligned} (1) \quad & s_{i\cdot}^{00} = s_{i\cdot}^{10} \\ (2) \quad & s_{i\cdot}^{01} = s_{i\cdot}^{11}, \\ & \forall i \in \{A, B, C\}. \end{aligned}$$

4 Results

In this section, we first draw a general picture of the data from the four original treatments (Section 4.1). This data shows that participants' allocation choices mainly concentrate on several well-defined allocation rules. We then present results regarding several robustness checks of these results when the size of the additional pie is tripled and when initial inequalities are asymmetric (Section 4.2). Next, we study the probability of rule choice across all our manipulations (Section 4.3). Finally, the main results of the experiment are summarized (Section 4.4).

4.1 Different allocation rules and their frequency

After an analysis of our first four treatments we can conclude the following preliminary results. In contrast to what we predicted in the first part of hypothesis 1 we find well-defined behavioral patterns when subjects do not know their identities. Those patterns include behavior that is compensating for initial inequalities, as predicted in the second part of hypothesis 1, but moreover also patterns that are not predicted. In line with hypotheses 2 we find that most of the subjects knowing their identity act partially, but also some subjects that compensate for initial differences. Furthermore, also unpredicted behavioral patterns occur. Finally, contradicting hypothesis 3, we do find behavioral differences regarding the

type of good. Those preliminary results will be presented in more detail in the following. In doing so we will distinguish between two main categories of allocation rules. The first category, the impartial rules, expresses subjects preferences over payoff distributions when being selfish is not possible, i.e. when identities are unknown. The partial rules, as a second category, include all those rules that are mainly driven by self-interest, i.e. can only be chosen when subjects know their identities.

Starting with treatments where subjects do not have information about identities, we find that the vast majority of the subjects (85%, pooling data from treatments T^{00} and T^{10}) choose an allocation vector coinciding with one of the following three impartial allocation rules. Under *Full redress* (FR) subjects divide the pie such that initial inequalities are fully compensated for and each member of the group ends up having the same final payoff, resp. the same amount of lottery tickets, i.e. $\pi_i = (60, 60, 60)$. Under *No redress* (NR), subjects divide the pie equally, such that the initial inequalities among the subjects are maintained in the final payoff structure, i.e. $\pi_i = (40, 60, 80)$. Under *Half redress* (HR) subjects divide the pie such that unequal initial endowments are only partially compensated for and the initial inequalities among the three subjects are reduced by half. The final payoffs, resp. the amount of lottery tickets, therefore differ by ten units, i.e. $\pi_i = (50, 60, 70)$ (see Table 2 for an overview of the frequency of the allocation rules chosen).

When looking at these two treatments separately, we find that for the divisible good, i.e. treatment T^{10} , 10 out of 30 subjects proposed an allocation coinciding with FR , 8 subjects proposed an allocation coinciding with NR , and 7 subjects an allocation coinciding with HR . Distributing an indivisible good, in treatment T^{00} , triggers the same impartial rules, although their frequency is different. Sixteen subjects chose an allocation coinciding with FR , one subjects an allocation coinciding with NR , and nine subjects an allocation coinciding with HR .

When the veil of ignorance is lifted, i.e., subjects have information about their identities, the majority act partially (73, $\bar{3}$ %, pooling data from treatments T^{01} and T^{11}). Across these treatments we identify two partial rules. *Pure selfishness* (PS) captures choices where the subject allocates the whole pie to herself. *Charity* (CH) describes allocation vectors where the subject claims at least two thirds of the pie for herself and divide the rest among the other two subjects.

As regard to the type of good, we find that when a divisible good is distributed and identity is known (treatment T^{11}), 9 subjects behave in a purely selfish manner and 9 subjects according to CH . Under the indivisible good condition (treatment T^{01}), 14 allocation vectors coincide with PS and 12 with CH .

Besides these results, we find another remarkable result. A non-negligible proportion of subjects (19%, pooling data from treatments T^{01} and T^{11}) uses one of the three above defined impartial rules even when they know their identities. Specifically, in the divisible good condition, i.e. in treatment T^{11} , 9 subjects apply an impartial rule. In the indivisible good condition, i.e. in treatment T^{01} , only 3 subjects do so.

Finally, when identities are known one could expect behavioral differences to be dependent on the identity $i \in \{A, B, C\}$ of the group members. However, we do not find significant differences concerning the use of impartial rules that would confirm such an intuition.

Treatment	FR	NR	HR	PS	CH	Others
T^{00}	16	9	1	-	-	4
T^{10}	10	8	7	-	-	5
T^{01}	2	1	0	14	12	1
T^{11}	4	2	3	9	9	3

Table 2: Frequency of allocation rules

4.2 Robustness checks

In order to check the robustness of the results found in the first four treatments, we ran six extra sessions with different variations. First, we increased the size of the additional pie to $P = 180$. Second, we changed the initial inequalities between the identities, that were symmetric before, such that $(e_B - e_A) = 4(e_C - e_B)$ (denoted by ‘asymm. 1’), and $(e_B - e_A) = \frac{(e_C - e_B)}{4}$ (denoted by ‘asymm. 2’). Whereas the first variation was run for all four original treatments, we conducted the second variation only for treatment T^{10} and a pie size of $P = 180$. We ran these six additional sessions under the same conditions as the previous four, with the only difference being that we changed the exchange rate to 100

ECU = 6 euros, in order to keep the monetary incentives constant. An overview of our two robustness checks is provided in Table 3.

Treatment	Initial endowments	Additional Information		
		pie	about identity	Type of good
$T^{00}(P = 180)$	$e_i \in \{20, 40, 60\}$	P=180	no	indivisible
$T^{10}(P = 180)$				divisible
$T^{01}(P = 180)$			yes	indivisible
$T^{11}(P = 180)$				divisible
$T^{10}(P = 180, \text{asymm. 1})$	$e_i \in \{16, 48, 56\}$	P=180	no	divisible
$T^{10}(P = 180, \text{asymm. 2})$	$e_i \in \{24, 32, 64\}$	P=180	no	divisible

Table 3: Variations for the robustness checks

Overall, the results we obtained in the robustness checks are very similar to those obtained in our original treatments. See table 4 for an overview of the results.

In treatments $T^{00}(P = 180)$ and $T^{10}(P = 180)$ we find that the majority of subjects (78.3%) applies one of the three impartial rules that we identified in the earlier treatments. When the veil of ignorance is lifted a certain proportion of subjects (26.6% pooling data from treatments $T^{01}(P = 180)$ and $T^{11}(P = 180)$) still apply an impartial rule. Looking at the two treatments separately shows that in $T^{01}(P = 180)$ 2 subjects act impartially and in $T^{11}(P = 180)$ 13 subjects do so, i.e. subjects act impartially more often when they distribute a divisible good. These results confirm and reinforce our previous results from treatments T^{01} and T^{11} . Furthermore, an increase in pie size leads to a dramatic decrease in partial behavior. Whereas in treatments T^{01} and T^{11} 66.6% of the subjects acted partially, only 25 % did so in treatments $T^{01}(P = 180)$ and $T^{11}(P = 180)$.

In treatments $T^{10}(P = 180, \text{asymm.1})$ and $T^{10}(P = 180, \text{asymm.2})$, with asymmetric initial inequalities between identities, more than half of the subjects apply an impartial allocation rule. However, in contrast to the corresponding original treatments where subjects did not know their identity, here no subject chose an allocation vector exactly coinciding with HR . Therefore, we rule out HR as a stable pattern of behavior in the type of distri-

bution problem at hand. Furthermore, we do not find statistical differences between the two asymmetric treatments.²

Treatment	FR	NR	HR	PS	CH	Others
$T^{00}(P = 180)$	14	8	2	-	-	6
$T^{10}(P = 180)$	17	2	4	-	-	7
$T^{01}(P = 180)$	2	0	0	6	9	13
$T^{11}(P = 180)$	13	0	0	2	7	7
$T^{10}(P = 180), asymm.1)$	8	8	0	-	-	15
$T^{10}(P = 180), asymm.2)$	7	9	0	-	-	13

Table 4: Frequency of allocation rules in the robustness checks

4.3 Dependence of rule frequency pooling all data

We now concentrate on the impact of our different manipulations, including the robustness checks, on the frequency of both, partial and impartial rules. We use a multinomial logit model, pooling the data from all treatments. Our dependent variable has three categories: choices coinciding with an impartial rule ($n = 153$), choices coinciding with a partial rule ($n = 68$) and unclassified choices ($n = 79$). We use this latter category as the base outcome for comparison. We estimate the impact on the probability of choosing one of these three categories of our different treatment manipulations including the robustness checks. Specifically, we include five dummy variables in the model. *VOI* takes the value 1 when participants act behind a veil of ignorance, i.e. do not know their identity, and 0 when they know. *DIV* takes the value 1 when the good is divisible, 0 when it is indivisible. *SP* takes the value 1 when the pie is small ($P = 60$), 0 when it is large ($P = 180$). *SYM* takes the value 1 when initial differences are symmetric, i.e. $(e_B - e_A) = (e_C - e_B)$, 0 otherwise. Finally, *VOIXDIV* controls for the interaction effect between *VOI* and *DIV*.

²There is one aspect concerning rule choices in the asymmetric conditions that needs to be commented on. Eleven participants proposed distributions that coincide with the distributions *FR* and *HR* would suggest for the symmetric conditions. If we assumed these cases to be impartial behavior, impartial rules would amount to 71,6% in the asymmetric cases. We decide not to do so because we cannot unambiguously assign those cases to impartial behavior. We therefore decide not to make a strong claim regarding the effect of symmetry in the next section.

It takes the value 1 when participants do not know their identity and the good is divisible, 0 otherwise.

As shown in Table 5, the probability of choosing an impartial rule increases with both, the uncertainty about identities and the divisibility of the good. Moreover, we find a crowding-out effect between the divisibility of the good and the information about the identity. Although both variables have a positive impact on impartiality, their interaction effect is negative. Thus, the combined effect is less than the sum of the independent effects. The symmetry of initial inequalities also increases the probability of choosing an impartial rule.³ On the other hand, the only variable that affects the probability of choosing a partial rule is the size of the pie. When subjects distribute a small pie ($P = 60$), the probability of choosing a partial rule is significantly higher.

	Partial rules		Impartial rules	
	Coef.	Std. Err.	Coef.	Std. Err.
<i>VOI</i>	-39.217	1.43e+08	2.857	0.664***
<i>DIV</i>	-0.479	0.478	1.601	0.664**
<i>SP</i>	1.676	0.447***	0.364	0.377
<i>SYM</i>	-0.124	0.351	1.080	0.447**
<i>VOIxDIV</i>	0.321	1.76e+08	-1.826	0.816**
	log likelihood	-201.67968	Prob > χ_2	0.0000
	observations	300	Pseudo R_2	0.3481

*** $p < 0.01$ ** $p < 0.05$

Table 5: Treatment effects on probability of rule category choice

Finally, we use the Mann-Whitney two-sample rank-sum test to try to replicate our results using a non-parametric test. Here, instead of using a three-categories variable, we use two dummies corresponding to ‘choosing an impartial rule’ and ‘choosing a partial rule’. We find strongly significant relations between *VOI* and impartiality ($p < 0.001$) and between *SP* and choosing partially ($p = 0.004$). We also find a weekly significant relation between

³*SYM* would not have a significant effect on impartiality any more in case we had labeled the sort of ‘imperfect’ impartial rules we referred to in footnote 2 as impartial behavior. The rest of the results would remain unchanged.

DIV and choosing impartially ($p = 0.094$).

4.4 Summary of the results

In a three-person pure distribution problem with arbitrarily unequal initial endowments where subjects either know or do not know their endowment, our findings, which are rather encouraging, are as follows:

Result 1: When identities are unknown the majority of the subjects (72%) choose among three impartial rules: *FR*, *NR*, *HR*.

Result 2: When identities are known a non-negligible proportion of subjects (19%) still choose one of the three impartial rules.

Result 3: Subjects' overall impartial behavior is weakly affected by the type of good. When distributing probabilities to get an indivisible good, impartial rules are used less frequently.

Result 4: When the size of the additional pie to be distributed is tripled, partial behavior decreases dramatically.

5 Discussion

Much of the recent economic experimental literature on distributive justice has focused on how merit and entitlements discourage egalitarian behavior in simple distribution and bargaining games. In contrast, we have studied the extent to which the arbitrary origin of initial inequalities produces egalitarian responses under certain conditions.

Our first treatment manipulation, uncertainty about identities, creates a condition for

impartiality. This argument is consistent with several theories of justice, such as those by Rawls (1971), Harsanyi (1975), and Gauthier (1986). We claim that decisions made behind the veil of ignorance reflect first, impartial preferences and second, given the arbitrary nature of endowments, that those impartial preferences are mostly inspired by the ‘principle of redress’ (suggested by Rawls 1971, p.100). However, these claims are subject to two restrictions. On the one hand, it is not completely true that the redressing behavior we find is genuinely impartial behavior as it could be explained by risk aversion as well. Due to our experimental design we are not able to distinguish between those two explanations. On the other hand, we find some behavioral patterns that are not in line with the principle of redress, but still must be inspired by a social motivation besides the principle of redress rather than expected utility maximization (see hyp. 2).

An analysis of subjects behavior in front of the veil of ignorance, however, enables us to qualify those restrictions to some extent. When subjects know their identity their behavior is similar to the behavior found in treatments behind the veil of ignorance. In other words, the same behavioral rules apply for both cases. When identities are known, in contrast to when they are unknown, risk aversion does not hold as an explanation, and part of the results contradicts the selfishness assumption. Definitely, there is a connection between behavior behind and in front of the veil of ignorance. Thus, although we cannot unequivocally say that the rules we elicited are genuinely impartial, we are firm to say that impartiality is a possible behavioral motive behind the systematic deviations from the economically anticipated self-interest that is found in many experiments. To some extent our findings complement models that already try to capture the so-called other-regarding behavior (e.g. Fehr and Schmidt, 1999 or Bolton and Ockenfels, 2000).

Another finding that we consider worth mentioning here is related to our type-of-good manipulation. A higher number of subjects distribute according to an impartial rule for a divisible good than for an indivisible good. In other words, the mere fact that subjects can influence a procedure, via distributing lottery tickets, rather than a pure outcome, reduces impartial behavior and triggers partial behavior (see for recent studies on ‘procedural fairness’ e.g. Bolton et al., 2005 and Karni et al., 2007). We were able to replicate this result when the additional pie is much larger relative to the initial inequalities. A purely risk-based explanation for this finding can be ruled out due to the lottery-points method,

that is inducing risk-neutrality.⁴ In addition, we find that when the pie is large, selfish behavior is significantly reduced. We consider these findings to be very surprising and therefore deserving of further empirical investigation.

We firmly believe that the study of impartial preferences in experimental distribution and bargaining situations is a promising line of research that can shed much light upon important behavioral patterns we observe in many experimental studies as well as in daily life. Given that principles of redress and compensation underlie important public interventions, e.g. affirmative action and positive discrimination policies, we ought to gain a better understanding of how these principles work and of the institutional features that foster them.

⁴An alternative explanation of why distributing probabilities reduces impartial behavior relates to the higher cognitive load that subjects are facing in the indivisible good condition. This approach suggests that when subjects have to compute expectations, the cognitive part of their brains is more challenged than the affective part, which is in turn mainly responsible for pro-social behavior. Loewenstein and O'Donoghue (2005) give an account of social preferences in terms of cognitive load.

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