Fairness, Risk Aversion and the Welfare State.
An Experimental Investigation

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1. Introduction[1]

Modern developed societies differ substantially in their willingness to support the redistribution of wealth by the government[2]. Consequently, the size of the welfare state varies considerably, with a well-known difference between the USA and continental Europe (see e.g. [Alesina and Glaeser, 2004] and references therein). To the extent that transfers of wealth are costly (as they involve substantial efficiency loss, see e.g. Browning, 1993), it appears desirable to investigate the determinants of the support for redistribution: it may be possible to satisfy these needs in a more cost-effective way.

Several such determinants have been suggested in the literature (see for example [Alesina and Glaeser, 2004] for an overview). The most obvious factor is self interest—the "poor" or those who expect to be poor in the future have an incentive to tax the rich (see [Meltzer and Richards, 1981; Benabou and Ok, 2001]). Welfare state also serves as an insurance device—securing the lot of the unfortunate. It is thus to be expected that more risk-averse individuals will show greater support for redistribution. Further, transfers to the poor are often seen as a means to restore justice: overly large differences between the incomes of the rich and of the poor are considered unfair. Therefore sensitivity to injustice, or, as it is operationalized in the experimental literature, inequality aversion, may be an important dimension affecting sup-

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[2] Corneo and Grüner [2002] provide results of a survey in 12 countries. Fraction of respondents who "agreed" or "strongly agreed" that "It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes" varied from around 40% in the US and Australia, to 60–65% in West Germany and Norway, to over 80% in East Germany and Bulgaria.

port for redistribution. The perceived fairness of the division of wealth is likely to be affected by other factors. One of them, which enjoyed some interest of the scholars recently (e.g. [Alesina and Angeletos, 2005]) is the way in which the pre-tax distribution is generated—the equality of opportunity for upward-mobility that individuals face. This quite intuitive line of thinking posits that lack of equal opportunity (e.g. due to the predominant role of the place of birth, social status of the family etc. in shaping the individual's career prospects) undermines the legitimacy of the distribution of wealth. As a result, redistribution is more welcomed. This could potentially explain the rather strong support for transfers in Europe (where people tend to be disillusioned about the equality of opportunity), compared to the more optimistic US citizens[3].

One can consider two aspects of the inequality of opportunity: First, equality of opportunities requires social mobility. Perceived inequality may thus result from the fact that citizens face highly divergent probabilities of reaching high social strata. We thus hypothesize that if they do, they will opt for higher redistribution (for short, we will refer to this as "Divergent Chances Hypothesis"). Second, the feeling of unfairness might have to do with the determinants of success being seen as unjustified. For example, climbing up the social ladder may require behavior seen as immoral (such as bribery) or simply pure luck, rather than skills and hard work (cf. [Piketty, 1995; Fong, 2001; Alesina and LaFerrara, 2005]). The second part of the fairness-legitimacy hypothesis is thus that support for redistribution is greater when success or failure is determined by factors perceived as justified, such as skill and effort (we will call it the "Luck vs. Skill hypothesis"). The evidence from the field data seems to be relatively convincing for the second of these two hypotheses and rather mixed for the first one (see [Fong, 2001; Alesina and LaFerrara, 2005; Fong, 2005]). In any case, it is difficult to verify, using the field data, whether the belief in equality of opportunity is an independent reason to oppose redistribution or merely a useful way to legitimize what is otherwise materially beneficial [Alesina and Glaeser, 2004, chapter 7].

It seems thus desirable to investigate this "fairness-legitimacy" hypothesis experimentally. This would allow to verify the existence of the link between initial distribution of chances in the society and preference for redistribution in an environment free from cultural and institutional differences just mentioned, while controlling for monetary incentives. The same design allows to contribute to the answer to the more general question about the motives for supporting the redistribution.

The experimental design proposed here assumes a "thin" veil of ignorance, which admits a glimpse of one's future: Decision makers choose their preferred level of income tax (and resulting benefits) without knowing what

[3] According to the World Values Survey, less than 30% of US citizens think that "poor are trapped in poverty". In Europe the rate is about 60%.

their actual income would be but facing different prospects. For one, this approach allows focusing on the impact of ex-ante inequality (inequality of opportunity) on the support for welfare state. Besides, "grand" (or programmatic) redistribution is a long-run phenomenon (see [Dixit and Londregan, 1996]), it is thus natural to assume that voters have only more or less accurate predictions about the income of their families over the whole period during which a policy is effective. In line with above-mentioned results from the field studies, we confirm the Luck vs. Skill hypothesis (transfer choices are higher when pure luck rather than performance in a task determines the outcomes) and find no support for the Divergent Chances Hypothesis We conclude that perception of fairness of the process determining income is an independent source of support for redistribution, not merely an epiphenomenona. More generally, we find strong impact of own prospect of winning but also of risk aversion and inequality aversion on the transfer choices.

The design of the experiment is presented in Section 2, Section 3 reports the results, Section 4 contains a discussion of the results, in relation to some other experimental evidence.

2. Design, procedures, predictions

2.1. Design

In order to test the hypotheses described above, we endowed the subjects with a "Probability of Winning" (winning a fixed prize of 30 euro) kept constant throughout the experiment. Next, in each of six periods, subjects were rematched in groups of four, such that dispersion of Probabilities of Winning (PoW) differed across periods. In this way dispersion of chances was manipulated within-individual and the observed impact on behavior allowed us to verify the Divergent Chances Hypothesis. The Luck vs. Skill Hypothesis was verified by manipulating, between subject, the determinants of success, as described in Subsection 2.2.

In each period the groupmates' probabilities of winning were revealed to everyone. Participants were asked to indicate their favorable redistribution scheme—a transfer $t \in |0, 1|$ determining what part of the prize V each winner should share with the losers. These decisions were not revealed. After all the decisions were made, one period was picked to determine real payment. Prizes V were individually allocated, either randomly or based on performance in a task (see Subsection 2.2), in accordance with PoWs, but in such a way that each group had exactly two winners. Then, for each group one person's choice determined the transfer. The earnings were given by the formula:

$$earnings_i = \begin{cases} SF + V\left(1 - t_j\right) + \dfrac{(1-\lambda)Vt_j w}{4} & \text{for winners} \\ SF + \dfrac{(1-\lambda)Vt_j w}{4} & \text{for losers} \end{cases}$$

where SF equal to 5 euro denotes the show-up fee, V equal to 30 euro denotes the prize, t_j is the transfer rate chosen by the selected participant j, ($t_j \in |0, 1|$), λ is the efficiency loss parameter and $w = 2$ is the number of winners in the group, such that $\frac{(1-\lambda)Vt_j w}{4}$ is the transfer obtained by every group member.

The proposition that proportional taxes are charged and the proceeds divided evenly (as lump sum benefit) is a standard way of simplistic modeling of redistribution (cf. [Meltzer and Richards, 1981]).

Parameter λ represents losses inherent in the process of collecting and redistributing taxes as well as losses due to distortionary effect of taxes on income base. Each of the two values of lambda, $\lambda = 0$ and $\lambda = 0.3$; was used in a block of three consecutive periods. The first value is a natural benchmark, while the other is a very rough guesstimate of the rather elusive actual efficiency loss (see [Allgood and Snow, 1998]). It is sufficient to make (contrary to $\lambda = 0$) transfers unprofitable for players with intermediate Probabilities of Winning ($PoW = 0.4$ and $PoW = 0.5$).

Up to four levels of PoW were used in each session: these were either 0.2, 0.4, 0.6 and 0.8 or 0.1, 0.5, 0.5 and 0.9 (so in the latter case the two middle "classes" collapsed into one). These two varieties will be referred to as "distributions of PoWs".

To assess the impact of dispersion of chances on support for redistribution, each individual faced different combination of groupmates' PoWs in each round. The most equalized group type in the first distribution of PoWs included two participants with PoW equal to 40 percent and two with PoW equal to 60 percent (0.4, 0.4, 0.6, 0.6), the intermediate one was (0.2, 0.4, 0.6, 0.8) and the most unequal (0.2, 0.2, 0.8, 0.8). Note that each player could only participate in the intermediate group and one of the "extreme" groups (for instance, a player with PoW of 0.8 could not participate in the most equalized group) and indeed each participant played in each of the two feasible group types at least once for each value of λ[4]. We can thus check the impact of increased dispersion of chances by comparing choices made by each individual in the less equal group with the choices in the more equal group, for example comparing the choice made by an individual with a PoW of 0.6 in the intermediate group and the most equal group. Note that self-interest was not affected here in any way, as individual PoW and prospect for obtaining transfers from others remained unchanged. The same design was used and analogous inference can be made for the other distribution of PoWs.

2.2. Treatments

In order to verify the Luck vs. Skill Hypothesis two conditions were used. Under "Random" condition, after the 6 periods of redistribution choices, winning/losing was determined by a random draw, in accordance with sub-

[4] The exact rotation schedule is available from the author.

jects' probabilities of winning. Under "Task" condition, after the 6 periods, individuals had to complete a competitive task (a quiz of 10 general knowledge and IQ-type questions)[5]. The number of correct answers and the response time were combined in the final score. The low-PoW subjects generally had to score higher in the quiz than the high-PoW subjects in order to win the prize[6].

The sessions differed also on two other dimensions: first, the two different distributions of PoWs were used as described in the previous subsection and, second, the order of the three-period blocks with a fixed value of λ was manipulated.

The eight sessions were thus run in a $2 \times 2 \times 2$ (task/random × distribution of PoWs × order of λ-blocks[7]) full factorial design.

2.3. Procedures

The experiment was run in the CREED laboratory at the University of Amsterdam in March 2007. It was computerized using z-Tree [Fischbacher, 2007]. In total 184 subjects, mostly undergraduate students, participated in eight sessions, 20 or 24 subjects in each. Thirty-nine percent of the participants were women; 62 percent studied economics or business, while the others came from a variety of other disciplines. The mean age was 23 years.

The subjects, recruited via e-mail announcements and registered on the CREED website, were seated in the lab and given general written instructions, including tables[8] describing the decision task. Initially it was not revealed to subjects that periods four through six would involve a different efficiency loss than periods 1–3. The subjects were first asked to report their height, based on which PoW was assigned. This seemingly peculiar procedure was used in order to assign PoWs randomly but still make the differences between PoWs perceived as unjustified.

After three periods of transfer choices the experimenter distributed a new handout explaining that in the remaining periods only 70 percent of the Group Account would be redistributed (or, conversely, 100 percent would be distributed from now on, depending on the session). Directly before and right after having the risk resolved, the subjects answered several questions regarding their decisions and the evaluation of the procedures used in the experiment.

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[5] It was described to the subjects as one requiring "some skills, some effort and some good decisions".

[6] The actual procedure used, guaranteeing that i) the chance of success is equal to PoW, ii) higher scores are generally rewarded and iii) there are exactly two winners in each group is available from the author upon request. Data analysis revealed that the procedure indeed worked, that is, the actual success rates were very close to the PoW.

[7] Order of ls was found not to affect the choices significantly (at 5% level). This variable is thus disregarded in the analysis.

[8] All instructions and full list of items in the questionnaire used are available from the author upon request.

The experiment took about 60 minutes. Earnings, including a guaranteed show-up fee of 5 euro, ranged from 5 to 35 euro with an average equal to 18.45 euro.

2.4. Predictions

Simple analysis leads to the following predictions. Assuming *risk neutrality and selfishness*, we expect participants to opt for highest possible transfers for sufficiently low own PoW and for the lowest (i.e. zero) transfers otherwise. The threshold PoW value p depends on the deadweight loss parameter, This threshold will be higher for an *inequality-averse* individual (in the sense of [Fehr and Schmidt, 1999]), as they will be willing to sacrifice some material benefit to further equality. *Risk-averse* subjects will generally favor positive transfers also for (some) PoW values above the threshold (insurance motive). All these extensions of the standard model will not result in any sensitivity to the group composition. To model it, we may use the "procedural" version of the Fehr-Schmidt model [Trautmann, 2006], in which individuals display aversion to inequality *in expectation*. It is easy to see that in such a case, greater dispersion of PoWs within a group will make transfers more equality-restoring, thus more desirable. For example, an individual with $PoW = 0.5$ participating in groups with the following probabilities: (0.1; 0.5; 0.5; 0.9) and (0.5; 0.5; 0.5; 0.5) will tend to favor higher transfers in the former case. This is quite intuitive, as she may in this way increase the prospect of the unfortunate participant with $PoW = 0.1$. Thus the "procedural" Fehr-Schmidt model captures the Divergent Chances Hypothesis. The Luck vs. Skill hypothesis may be verified by comparing the Random Treatment vs. the Skill Treatment, with the obvious prediction that individuals support higher transfers in the former case.

3. Results

We first analyze individual transfer choices. Figure 1 presents frequencies and summary statistics of transfer choices made in the four conditions in the Random and Task treatments and under high or low efficiency loss and Figure 2 shows choices made in particular probability classes.

It is immediately clear from Figure 2 that participants respond to the monetary incentives by choosing high transfers if their probability of winning is low and low transfers if their probability of winning is high. There is also a great deal of heterogeneity, with only low-PoWs predominantly choosing very high transfers However, individual transfer choices display internal consistency—in the cases where two choices were made in the same circumstances (same group type and same value of l), the second choice was identical with the first 63 percent of the time and differed by at most 5 euro 85 percent of the time.

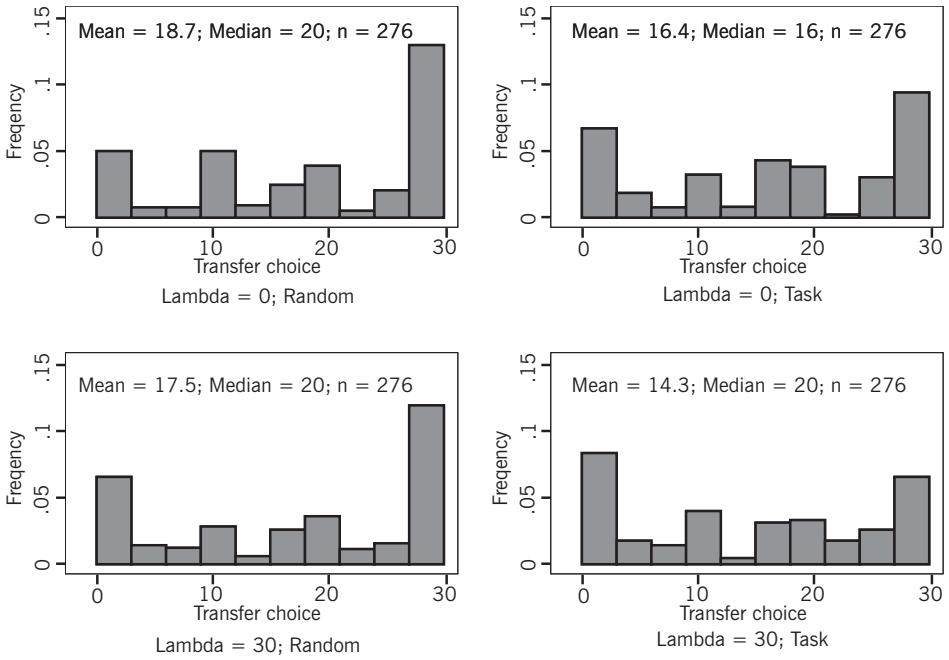

Figure 1.

Frequencies of particular transfers, by λ for Task and random

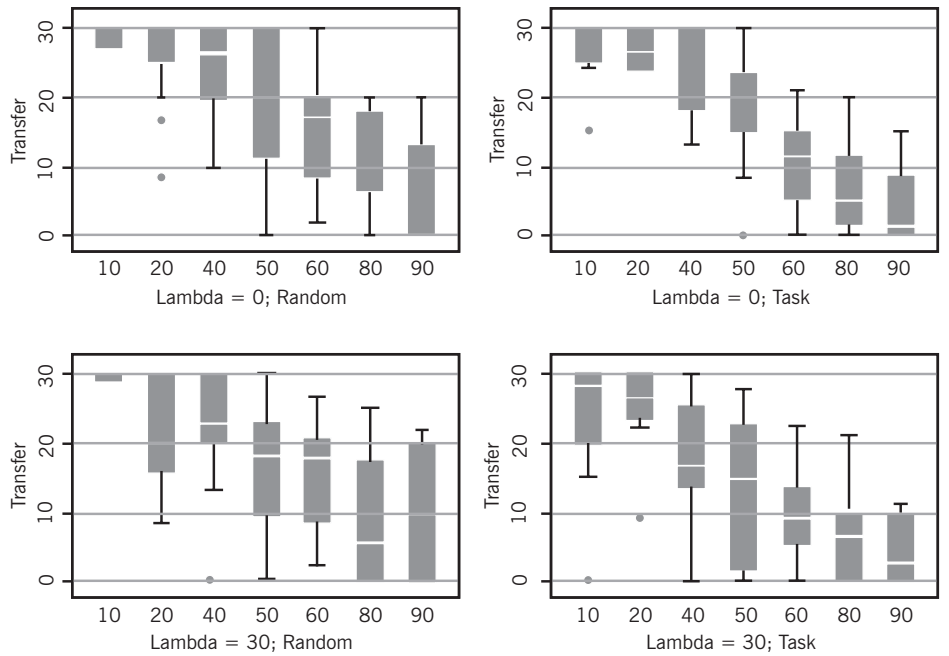

Figure 2.

Box plots of mean transfers, by λ Task and Random

Averaging over the three decisions made by each subject under fixed efficiency loss and comparing matched pairs, we find that transfer choices were significantly lower for positive deadweight loss (p <.01, one-sided sign test). Interestingly, looking across probability classes, we find that only participants with PoW of 40 or 50 percent, so those whose expected-value maximizing choice was altered by the introduction of the efficiency loss, actually reacted to it. It suggests that efficiency concern was not a strong motivator in this task. Looking at the average value of the Group Account (net of efficiency losses) resulting from proposed transfer levels, we observe a substantial decrease from 35.0 to 22.3 euro, most of which, however, results directly from the application of the efficiency loss. These findings are consistent with theoretical predictions that an increase in deadweight loss leads to a smaller government (see [Becker and Mulligan, 2003 and Crutzen and Sahuget, 2007]).

Task vs. random. Entries in Figure 1 show that transfers are generally lower in the task condition. A formal test confirms this conjecture at p = .065 (MWW; whereas p = .028 in a t-test). Similar results are obtained if means for high and low λ are computed separately, the difference between transfers under "Task" and "Random" being somewhat more pronounced under positive deadweight loss (p = .05 for high λ, n.s. for the low λ; whereas p = .019, p = .065, for the high λ and low λ respectively when t-test is used instead). The treatment effect is particularly driven by female participants, who redistribute much more than males, but only in the Random condition (21.8 vs. 15.5 euro).

Looking across probability groups, we see that the transfers in the Task treatment are always lower, although generally, due to smaller sample sizes, not significantly so.

These results could to some extent be driven by overconfidence (wrong belief in own superior ability in the task). However, the fact that own reported likelihood of succeeding did not differ substantially from the assigned PoW (and actually did not predict the score) suggest that this effect was not large.

It is therefore very probable that at least part of the difference was due to increased perceived fairness and thus legitimacy of the pre-transfer distribution of income in the Task treatment. This interpretation finds also some support in the questionnaire data.

Effect of dispersion of chances. As mentioned before, dispersion of probabilities of winning took two levels within each 3-period block with specific value of λ. We can thus, separately for λ equal to 0 and λ equal to 30 percent, compare for each participant the mean transfer selected under high dispersion with mean transfer selected under low dispersion (there is always one entry for one of these two categories and two entries for the other). Running a sign test we find no significant difference: under λ equal to 0 transfer choices are slightly higher when dispersion is high (p = .33), whereas they are not different at all under l equal to 30 percent (p = .58). This negative result is

very robust: in particular it applies to every probability class, to any of the treatments (Task and Random) and when only choices in the first round are considered (under the assumption that participants simply tried to be "consistent" later on).

3.1. Risk, fairness, confusion

Taking a broader perspective, we may ask ourselves what factors and considerations determined transfer choices in the experiment. As proposed in Subsection 2.4, participants are likely to take into account their own expected value, corrected for risk aversion and aversion to inequality. For λ = .3 efficiency considerations might also play a role and under Task-equity (belief that winners deserve higher earnings). The participants may also make mistakes.

We have three sources of information regarding subjects' motivations. First, we may analyze the response time. For instance, if some categories of subjects chose very quickly, it may be assumed that they did not face a serious trade-off. We may also check whether or not changes in the decision situation affected response time. For example, if introducing a non-zero l increased the response time in one group more than another, it might indicate that efficiency loss was of larger concern in the former. Second, we may try to directly identify the impact of changes in the decision situation on the choice of transfer. Third, we may summarize the rich dataset of responses to the questions asked after the decisions on transfers have been made and analyze impact of scoring highly on particular items on the observed behavior.

3.1.1. Response time

A random effect panel regression[9] of the log response time on individual characteristics and features of the choice situation in particular period permits following observations. First, decision appears to be very easy for the lowest probability group (i.e. $PoW = 10\%$). No difference between the other groups was observed. Second, non-zero efficiency loss increases difficulty of the choice. Further analyses showed that this effect was slightly differentiated between probability classes: reaction time of participants with high PoW (80 or 90 percent) increased less than in the other groups. Thirdly and interestingly, while, as shown in previous subsections, varying equality of opportunity did not alter subjects' choices, higher dispersion of PoWs (as in Bermuda and Europe) did make them think longer about the situation.

3.1.2. Identifying motivations from behavior

There is overwhelming evidence from the questionnaire that risk aversion was an important motivation of transfer choices (see Subsection 3.2.1).

[9] Available from the author.

As we mentioned before, it appears that efficiency concern was not. Below, we try to identify other factors affecting the observed behavior.

The case for confusion. The decision problem at hand appears to be very easy for the participants with lowest probabilities of winning (10 or 20 percent). At least for λ equal to 0 (no efficiency concern) and random resolution (no equity concern) all considerations mentioned above, i.e. own expected value maximization, risk aversion and inequality aversion, should make them support maximal transfer. As shown before, indeed participants with lowest PoW (10 percent) made by far fastest decisions. To the extent that they do not choose maximal transfer, their choices are likely to be driven by some sort of confusion or irrationality.

Looking at the periods with λ equal to 0 we find that only 17 out of 23 low-probability participants (74 percent) in the Random treatment consistently chose maximal transfers, while others. average choices were spread roughly equally over the whole range, corroborating the confusion interpretation.

The case for inequality aversion. To check whether inequality aversion played a role in the experiment, we compared the transfer choices of individuals with probabilities of 10 and 20 percent with those of subjects with probabilities 80 and 90 percent, in the periods in which the deadweight loss parameter l equaled 0 (such that efficiency considerations are absent). We propose that choices by participants with probability of winning 80 or 90 percent are virtually unaffected by risk aversion. Indeed, assuming for instance utility function given by the form $U(x) = x^{1-a}$, the risk aversion parameter a would have to take the exorbitant value of 0.72 for an individual with probability of winning equal to 80 percent to choose any positive transfer. Similarly, if we allow for non-linear weighting of probabilities or even loss aversion and assume non-zero reference level, it is very difficult to explain positive transfers on part of high-probability participants. Those that we do observe must therefore be driven by inequality aversion or simple confusion. The latter, we propose, should not be more common than in the group with very low probability of winning, namely 10 or 20 percent. If we thus observe that high-PoW participants deviate more (and more often) from their expected-value maximizing strategy than the low-PoW participants, it may be interpreted as evidence of inequality aversion. Indeed, we find that that the proportion of "deviants" and average deviation are larger ($p < .01$ in test of proportions and Mann-Whitney-Wilcoxon test respectively).

Re-running both tests for the two treatments (task and random) separately reveals an interesting difference. Both the test of proportions and the MWW test statistics are highly significant for the random condition of risk and not significant for the task condition, corroborating the conclusion that differences in earnings were more legitimate in the latter case.

3.2. Determinants of choice transfers

Right after the end of the sixth period the participants were asked to describe the way in which they made their decisions. Not surprisingly, vast majority of participants declared that the most important factor was their own probability of winning and that they chose high (low) transfers because their PoW was low (high), typically in comparison to the others. However, many of the participants displayed what may be termed "soft maximization". One example of it is following[10]: "I looked at my chance of winning, which was 0,9, and then I decided that it was so high that I could choose quite a low transfer because I would probably win. So to maximize my winnings, I chose transfers between 5 and 12."

Twenty percent explicitly mentioned risk as an important factor. Some 11.7 percent participants mentioned norms of fairness or equality ("I think that everyone in the group must earn about the same, regardless of the chance of winning"). It is noteworthy that these two concerns were highly correlated ($r = .36$; $p < .001$). More than that, several entries signaled risk aversion inherently intertwined with social concern ("there should be some for each, including myself, should I lose"; "However, I also took into account that even if I had a high probability of winning, there is still possibility of losing and tried to make the payouts fair to both winners and losers").

Interestingly, 17 participants (9.4 percent) reported taking the actual distribution, dispersion or differences between others' probabilities of winning into account. Only three of them can however be confidently classified as followers of the intuition that high inequality of opportunity should be compensated with increased transfers ("[…] Further, I was more willing to share when the differences between the chances of winning of particular group members were large"). For most of the others the groupmates' probabilities seemed to somehow affect perceived own chances (while, of course, the actual chances remained unchanged).

3.2.1. Closed end questions

On top of the open-end question, the participants rated several factors on a 1 to 9 scale, depending on how important they were for their decisions regarding the transfers. The highest mean entries are found for the questions whether own probability was an important factor ($\mu = 7.84$), maximization of own expected outcome ($\mu = 6.75$) and risk aversion ($\mu = 6.13$). Interestingly the question about willingness to compensate others' low PoW by choosing higher transfers, aimed at capturing the preference for equality of opportunity, had overall lowest entries.

The impact of particular motives on the transfer decisions was estimated by means of a regression. Unfortunately, particular items were highly inter

[10] The participants were allowed to answer this question in Dutch, so some of the entries had to be translated.

correlated, which makes reliable assessment of individual effects difficult[11]. To overcome the problem, we run a factor analysis identifying the main dimensions.

Table 1.

Determinants of transfer decisions—Tobit regression

Random-effects tobit regression					Number of obs	= 1104
Group variable (*i*): subject					Number of groups	= 184
Random effects *u_i* _Gaussian					Obs per group: min	= 6
					avg	= 6.0
					max	= 6
					Wald chi2(13)	= 300.82
Log likelihood= –2558.6635					Prob > chi2	= 0.0000
transfer	Coef.	Std. Err.	z	P >|z|	[95% Conf.	Interval]
prob	–.3534974	.0364513	–9.70	0.000	–.4249406	–.2820542
above_thres	–3.344476	1.732161	–1.93	0.054	–6.739449	.0504969
aboveXmale	–3.429494	1.864448	–1.84	0.066	–7.083745	.2247567
aboveXf_own	–1.376064	.6815133	–2.02	0.043	–2.711806	–.0403226
task	–6.018198	1.584263	–3.80	0.000	–9.123295	–2.9131
lambda_	14.202921	1.488699	2.82	0.005	1.285124	7.120719
lambda_q_lam	–.968495	.2420882	–4.00	0.000	–1.442979	–.4940109
f_risk_ineq	5.638218	1.032441	5.46	0.000	3.614672	7.661765
q_politic	–1.677139	.436392	–3.84	0.000	–2.532451	–.8218263
q_male	.7338774	2.140284	0.34	0.732	–3.461003	4.928758
age	.4242703	.1997329	2.12	0.034	.0328009	.8157396
eco_business	2.986223	1.473328	2.03	0.043	.0985527	5.873893
noexperime_s	.0297651	.0430985	0.69	0.490	–.0547065	.1142367
_cons	41.70732	7.134424	5.85	0.000	27.72411	55.69054
-/sigma_u	12.50309	1.10407	11.32	0.000	10.33916	14.66703
/sigma_e	9.135385	.307093	29.75	0.000	8.533494	9.737276
-rho	.6519545	.0423799			.5658782	.7308268
Observation summary:		584 uncensored observations				
		206 left-censored observations				
		314 right-censored observations				

Two factors are retained. Each of them represents a much greater part of overall variance of the underlying items than any of the remaining five. Given the factor loadings, the first factor can be said to represent both risk aversion

[11] One robust finding that holds for different specifications of the model is the strong impact of the question about importance of risk aversion.

and inequity aversion. The second captures selfishness (or focus on own probability of winning). It can thus be expected that the first factor will generally lower the transfer, while the second will push the choices toward the own-income maximizing choice. We therefore interacted the second factor with a dummy variable (above_thres) indicating whether 30 or 0 was the optimal choice, given own PoW and the efficiency loss in particular period (aboveXf_own variable). Given evidence that females behave less selfishly in some experiments (see [Andreoni and Vesterlund, 2001]), we also interacted above_thres with gender (aboveXmale). Table 1 shows the result of a censored regression (tobit) with random effects for subjects.

Not surprisingly, we observe a strong negative effect of PoW. Additionally, transfers decrease if maximization of own payoff requires zero transfers. While choices of male participants were not significantly different from those of females for low probabilities of winning, males were less "generous" when transfers opposed their self-interest (coefficient on variable aboveXmale is negative and marginally significant). Similarly, participants focused on own probability additionally decrease transfers when it is in their material interest (aboveXf_own). Transfers are lower in the Task treatment and for positive efficiency loss, but only for the participants who declare paying a lot of attention to the λ parameter (lambda_q_lam, note that the average value of the question about importance of m was 4.8, such that the impact of this variable more than overweights the negative coefficient of the dummy variable lambda_01). The "risk and inequality aversion" factor (f_risk_ineq) increases transfers and right-wing political preferences (q_politic) decrease transfers. Older participants and, somewhat surprisingly, students of economics or business chose slightly higher transfers.

4. Discussion

In recent years the issue of support for redistribution appears to attract some attention of experimentalists. Two studies which are perhaps most closely related to ours are by Hoerisch [2007] and Durante and Putterman [2007]. The former elegantly confirms the intuitive notion that choice from behind the veil of ignorance is driven by social concerns, not only risk aversion (but mostly so for the female participants). The latter, more comprehensive study, also finds that redistribution choices are governed by inequality and risk aversion and additionally illustrates that people are affected by the way in which outcomes are determined (transfers being higher when allocation of (pre-tax) income is random or based on the income of the place of origin, rather on performance in a task (a game of Tetris or a SAT-like quiz)). This effect can be ascribed to greater legitimacy of earnings in the latter case. Both studies also find that female participants tend to redistribute more.

The current study corroborates the finding that risk aversion and social concerns affect support for redistribution. Further, it illustrates that simple

confusion plays a significant role. This study is the first one which experimentally tests the impact of differentiated opportunities on preference for redistribution. It finds that determination of incomes through a skill-dependent task lowers support for redistribution through increased legitimization of pre-tax income even when chances to succeed are not identical. However, the notion that greater dispersion of chances leads to increased support for welfare state finds no support in the collected data[12].

These results suggest that furthering equality of opportunity may have a positive side effect in terms of diminished demand for the costly redistribution of income. More specifically, the feeling that the professional and financial success is primarily based on merit is instrumental in this respect, while social mobility may be, per se, less important.

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[12] This negative result could possibly to some extent be driven by the fact that, strange as it might be, some participants perceived their own chance as greater (and thus did not want to share) when the dispersion of chances increased. Another potential reason is that participants failed to notice the changes in groupmates' probabilities of winning or were not able to take this bit of information into account in a relatively difficult decision making task. However, the distribution of PoWs was actually the only thing that changed between the rounds, its variation thus being made salient. Further, the increased response time in the cases of greater dispersion of chances suggests that subjects did notice a difference and made some cognitive effort to choose the best response. Finally, the result could be driven by the fact that chances to decide were distributed equally, thus making the un-equal distribution of chances to win less important. However, participants very clearly reacted to their own Probability of Winning; further, in responses to the open-end question, consideration of what other might do if they have a choice was basically never mentioned.

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