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Inherited Inequality and the Dilemma of Meritocracy

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Abstract

A defining feature of meritocratic societies is that resource distributions reflect individual effort levels. However, this introduces a dilemma in a world where parents care for their children. If one pair of parents works harder than a second pair of parents, the first pair has merited the option to bequest more resources for their child. However, none of the two children has merited to inherit more resources than the other. Hence, if the two children end up with different amounts of resources, this inherited inequality may be considered simultaneously fair and unfair from a meritocratic standpoint. We develop a theoretical framework and run a preregistered survey experiment with about 550 subjects representative of the US population to investigate how people resolve this dilemma. In the experiment, impartial spectators redistribute payments between pairs of individuals. We vary whether inequality in the initial distribution is based on luck or effort and whether spectators redistribute between individuals who have worked on a task themselves to earn money (Non-Inherited Inequality) or between individuals who differentially benefit from the work of real-life friends (Inherited Inequality). Spectators equalize a much larger fraction of initial inequality if it is based on luck instead of effort. Yet, they do not differentiate much between situations in which they redistribute between individuals who have worked themselves and situations in which they redistribute between individuals who have differentially profited from their friends' work. The results suggest that most people find inequality fair if it is grounded in differential effort at some stage. This may help explain why many oppose redistributive policies in the real world.

Keywords: Inequality, Fairness, Redistribution, Inheritance
JEL Classification: *Q12; C22; D81.*

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1 Introduction

This paper introduces the Dilemma of Meritocracy. The essence of this dilemma can be illustrated with the following stylized example: there are two men who are not related to each other. Both men start off their life in the same country under similar conditions. Their abilities and other attributes are identical, with one exception. One of the men is diligent, while the other one is lazy. Due to his effort, the diligent man becomes wealthy while his lazy counterpart stays poor. Each man has one daughter. Daughters are practically identical and are equally diligent. Both fathers die at an early age and inherit all their wealth to their daughters. Hence, the daughter of the diligent men gets rich while her mirror image, the daughter of the lazy men, stays poor. The dilemma arises when deciding on whether the inherited wealth should be redistributed between the daughters.

To see the dilemma put yourself in the shoes of a person with the frequently held meritocratic fairness ideal (Almås et al., 2020). Such a Meritocrat finds economic inequality fair as long as this inequality is the result of different effort levels. On the one hand, the inequality between the daughters is unfair because they worked equally hard yet ended up with very different levels of wealth. Hence, redistribution seems fair. On the other hand, inequality between the fathers was fair as it resulted from differences in effort levels. If the fathers rightfully owned their wealth, they should be able to spend it freely. Redistributing the wealth would effectively prevent the fathers from doing so. Hence, redistribution seems unfair. In sum, a Meritocrat finds redistribution fair and unfair at the same time; we label this situation the Dilemma of Meritocracy.

This paper analyzes how people behave when they face the Dilemma of Meritocracy. In the language of the example, we ask to what extent people "redistribute the money between the daughters". We also analyze how redistribution behavior depends on other contextual factors and whether people with a meritocratic fairness ideal react differently to the dilemma than subjects holding different fairness ideals.

To answer these research questions, we build on the literature on fairness preferences in behavioral economics. Consult Cappelen et al. (2020) for a recent survey. This literature has been initiated by the seminal work of Cappelen et al. (2007) and has provided valuable tools to study fairness preferences under economic inequality. In particular, the literature has developed a tractable theoretical framework and a simple but powerful "impartial spectator" experimental design in which third persons redistribute money between pairs of real people without consequences for themselves (Cappelen et al., 2013).

To the best of our knowledge, all previous studies in this literature have considered inequality between subjects that was generated by the luck or effort of those subjects. The Dilemma of Meritocracy cannot arise if inequality between people results from the actions of those people. We label such inequality Non-Inherited Inequality. The Dilemma of Meritocracy can only arise if inequality is inherited. Hence, we extend the theoretical framework and the experimental design to feature such Inherited Inequality. In the extended framework, active participants, "the fathers", receive an amount of a divisible good either through their luck or effort. Each active participant is altruistic toward a passive participant, "his daughter", to who he can endow part of his good. This results in Inherited Inequality between

the passive individuals. Impartial spectators can redistribute between the passive individuals. Because they are impartial, spectators redistribute such that they find the final allocation fair. We analyze the fairness preferences and resulting redistribution decisions of spectators with three different fairness ideals. Meritocrats are the only group for which the fair redistribution decision depends on whether Inequality is Inherited or Non-Inherited. Under Inherited Inequality, meritocrats also have to consider fairness toward passive participants. Because passive participants exert the same effort, this makes them redistribute more equally than under Non-Inherited Inequality.

To test these theoretical predictions, we develop an experimental design in which active participants generate money for a designated "passive" friend who does not make any decisions. We match active subjects into pairs and allocate the money to passive subjects according to the relative earnings of the active subjects. This results in Inherited Inequality between the passive participants. Impartial spectators then get the opportunity to redistribute the inherited money between the two passive participants. We exogenously vary how active participants generate the money. Some generate it through their luck while others by how much effort they exerted on a simple and annoying task. We also study situations of Non-Inherited Inequality in which there are no passive participants, active participants generate money for themselves, and spectators can redistribute the money between the active participants. In total, we vary how inequality is created (Luck vs. Effort) and whether Inequality is created by friends or by the subjects themselves (Non-Inherited vs. Inherited) in a 2x2 design.

We employ this design on a sample of about 550 subjects broadly representative of the US population. Our results show that the theoretical framework predicts behavior under Inherited Inequality well. Spectators redistribute significantly more in situations of Luck than in situations of Effort and more under Inherited Inequality than under Non-Inherited Inequality. Moreover, the latter effect is driven by spectators with a meritocratic fairness ideal. However, our most important finding concerns the magnitude of these effects. While redistribution is much higher in Luck situations than in Effort situations, the difference between redistribution under Non-Inherited and Inherited inequality is tiny. In particular, most spectators redistribute similarly when subjects worked for themselves compared to when friends worked for them and the extend of redistribution is very low in both conditions. Hence, most subjects don't redistribute "between the daughters". This result seems to be a general feature of the US population as it does not vary much by demographic variables like wealth or political ideology.

This finding might help to explain opposition to redistribution. Much economic inequality is inherited. Some inequality is inherited in the literal sense through heritages, while an additional share is inherited indirectly. People's stocks of human capital and social capital are greatly affected by the quality of schools they go to, the quality of the neighborhood they grow up in, or the quality of parenting they enjoy (Björklund et al., 2012; Bowles and Gintis, 2002; Chetty et al., 2016). As human and social capital affect their labor market success, inequalities in upbringing are another source of Inherited Inequality. At the same time, recent studies suggest that people's preferences toward redistribution are strongly related to whether they find inequality fair or unfair (Alesina and Angeletos, 2005; Alesina and Giuliano, 2011; Stantcheva, 2021). Combining these two facts suggests that whether people find Inherited

Inequality fair or unfair is important for whether they will approve or oppose redistribution in the real world. Our findings suggest that most people find Inherited Inequality fair provided that inequality was generated through effort. Hence, one explanation for opposition to redistribution is that many people believe that unequal starting positions in life ultimately result from heterogeneous effort levels within earlier generations. Under that interpretation, people find unequal opportunities unfair toward current generations but consider equalizing opportunities even more unfair toward past generations. Stuck between a rock and a hard place, many subjects might perceive unequal opportunities as the lesser evil.

The remainder of the paper is structured as follows: the next section introduces the theoretical framework to study fairness preferences under Inherited Inequality in general and the Dilemma of Meritocracy in particular. Section 3 presents the experimental, section 4 explains the empirical analysis design and 5 the empirical results. Finally, section 6 concludes.

2 Theoretical Framework

2.1 Setup

There are five players. Two are labelled active and two are labelled passive. The fifth player is labelled spectator. Their utilities are denoted by $u_1^a, u_2^a, u_1^p, u_2^p$ and u^s respectively. We are interested in how the spectator redistributes one unit of an arbitrarily dividable good between the two passive players. The spectator is "impartial" in the sense that he does not receive any of the good under any circumstances. However, he derives utility from his perceived fairness of the good's distributions. His utility function is given by

$$u^s(u_1^a, u_2^a, u_1^p, u_2^p) = -\frac{1}{2} \cdot \left(\frac{u_1^p}{u_1^p + u_2^p} - FI^p \right)^2 - \frac{\beta}{2} \cdot \left(\frac{u_1^a}{u_1^a + u_2^a} - FI^a \right)^2$$

FI^p is the relative utility that passive player 1 should get according to the fairness ideal of the spectator, FI^a is the relative utility that active player 1 should get according to the fairness ideal of the spectator. We will consider three fairness to be defined later. β is a weight that measures how important it is for the spectator to behave fairly toward the active players relative to behaving fairly toward the passive players. We follow Cappelen et al. (2013) by assuming a quadratic loss function.

Each active player is related to one passive player in the sense that he is perfectly altruistic for his passive counterpart. Formally

$$u_x^a = u_x^p$$

for $x \in \{1, 2\}$. The utility of the passive players depends on the amount of good they receive. Let θ be the share of the good that passive agent 1 finally receives. Preferences of the two passives are represented by the following utility functions:

$$u_1^p = \theta$$
$$u_2^p = 1 - \theta$$

We want to abstract from utilitarian considerations. Therefore we assume utility to be transferable between agents. As a result, total utility of the passive and active agents is fixed. Substitutions for u_1^p and u_2^p in the utility function of the spectator yields

$$u^s(\theta) = -\frac{1}{2} \cdot \left(\theta - FI^p\right)^2 - \frac{\beta}{2} \cdot \left(\theta - FI^a\right)^2 \tag{1}$$

The timing of the game is as follows: first, active participants receive some amount of good (π). The amount of good can be generated in two ways, either through luck or effort. ε_x^a indicates the amount of the good that active participant x got due to being lucky, and e_x^a refers to the amount of the good that he received due to his own work. Second, active individuals get the opportunity to give their own amount of good to their related passive individuals. In the basic model presented here, they will always give everything to their passive counterparts. Effort levels of passive participants always equal zero. Third and finally, the spectator, who are perfectly informed, redistributes the good freely and without cost between the two passive individuals based on his fairness ideal. Active players don't know that the spectator gets the opportunity to redistribute.

We follow the literature and consider the three fairness ideals of Libertarianism, Meritocratism, and Egalitarianism: Libertarians spectators (l) think that they do not have the right to intervene in the allocation process of the good and therefore prefer to not redistribute under any circumstances. Meritocrats (m) find inequality between individuals fair if it results from different effort levels of the same individuals and unfair if it results from other factors. Egalitarians (e) consider all inequality unfair. Formally:

$$FI_l^t = \frac{e_1^t + \varepsilon_1^t}{e_1^t + \varepsilon_1^t + e_2^t + \varepsilon_2^t}$$

$$FI_m^t = \frac{e_1^t}{e_1^t + e_2^t}$$

$$FI_e^t = \frac{1}{2}$$

for t $\in \{a, p\}$. In case $e_1^t + \varepsilon_1^t + e_2^t + \varepsilon_2^t = 0$ we normalize $\frac{e_1^t + \varepsilon_1^t}{e_1^t + \varepsilon_1^t + e_2^t + \varepsilon_2^t}$ to $\frac{1}{2}$. Similarly, we normalize $\frac{e_1^t}{e_1^t + e_2^t}$ to $\frac{1}{2}$ if $e_1^t + e_2^t = 0$. These three fairness ideals combined with whether income is generate via luck or effort leads to 6 cases.

2.2 Fair Redistribution

Lets focus on the optimization problem of the spectator. The objective function (equation 1) is strictly concave in the choice variable θ such that the first order condition is sufficient for a maximum. The first order condition reads as

$$\frac{\partial u^s}{\partial \theta} = -(\theta - FI^p) - \beta \cdot (\theta - FI^a) = 0$$

$$\theta \cdot (1 + \beta) = FI^p + \beta \cdot FI^a$$

$$\theta = \frac{1}{1+\beta} \cdot FI^p + \frac{\beta}{1+\beta} \cdot FI^a$$

The share of the good given to passive player 1, which maximizes the utility of the spectator, is a weighted average of two terms. The weights depend on β. The first term measures fairness toward the passive participants. The second term measures fairness toward the active participants. The larger β, the more important fairness is toward the active participants. If beta equals zero, the spectator only cares about fairness toward the passive players. In this case, the second term of the utility function of the spectator equals zero, and the utility function collapses to the form assumed by Cappelen et al. (2013). Then, it is optimal to only behave fair toward the passive players.[1]

Egalitarians set $\theta = \frac{1}{2}$ under any circumstances, thereby equalizing all inequality. In particular, they do not face any trade-offs and, therefore, no dilemma. Similarly, Libertarians never redistribute anything by definition. Hence, distinctions between different sources or kinds of inequality don't matter, and they don't face a dilemma.

Consider a spectator with a meritocratic fairness ideal. The Dilemma of Meritocracy also does not arise if luck determines the income of the active participants. In this case, Meritocrats find it fair to redistribute equally between the active participants because they both exerted zero effort. The same holds for the passive participants. Again, no trade-off occurs.

2.3 The Dilemma of Meritocracy

The dilemma of Meritocracy arises only for Meritocrats if active participants generate their earnings through effort. For Meritocrats the fair solution reads as

$$\begin{aligned}\theta &= \frac{1}{1+\beta} \cdot \frac{e_1^p}{e_1^p + e_2^p} + \frac{\beta}{1+\beta} \cdot \frac{e_1^a}{e_1^a + e_2^a} \\ &= \frac{1}{1+\beta} \cdot \frac{1}{2} + \frac{\beta}{1+\beta} \cdot \frac{e_1^a}{e_1^a + e_2^a}\end{aligned} \tag{2}$$

Like the Egalitarian, the Meritocrat finds it fair to distribute the good equally between the passive individuals because they exerted the same effort. The first term reflects this. But unlike the Egalitarian, the Meritocrat is influenced by a second, conflicting fairness ideal. This is reflected in the second term. The Meritocrat finds it fair that the utility of the active players is proportional to their effort. These effort levels will generically not be equal, implying that the Meritocrat finds it fair to grant one active player a higher utility than the other active player. But because active players only care about the utility of their passive counterparts, this requires giving one of the passive players a higher utility than the other passive players. This, in turn, conflicts with the first fairness motive of the Meritocrat. Hence, a Meritocratic fairness ideal does not propose a clear, fair allocation. Rather, it gives rise to two fairness considerations that cannot both be satisfied in general. This is the Meritocratic Dilemma. Meritocrats have to weigh the conflicting fairness considerations. Weights depend on β. A higher β indicates that the Meritocrat rather takes the perspective of the active participants and therefore is less likely to redistribute. For β approaching infinity, he behaves as if the passive had exerted the effort levels of their active counterparts

[1]The model is a generalization of the model presented in Cappelen et al. (2013) which focuses on Non-Inherited Inequality and where there are no passive individuals. In the model of this paper, if there are no passive individuals, the model collapses to the model presented there.

themselves. For $\beta = 0$, Meritocrats only take the perspective of the passive individuals and behave like Egalitarians. We summarise these results:

Theorem 2.1. *Egalitarian spectators always equalize all inequality.*

Theorem 2.2. *Libertarian spectators never redistribute.*

Theorem 2.3. *Meritocratic spectators equalize all inequality if active participants generate inequality due to luck.*

Theorem 2.4. *Meritocratic spectators allocate* $\theta = \frac{1}{1+\beta} \cdot \frac{1}{2} + \frac{\beta}{1+\beta} \cdot \frac{e_1^a}{e_1^a + e_2^a}$ *to passive participant 1 if active participants generate inequality due to effort.*

3 Experimental Design

Our experiment builds on the impartial spectator paradigm (Cappelen et al., 2013) and consists of two stages. In the earnings stage, \$10 is distributed between two stakeholders resulting in an initial allocation. In the redistribution stage, impartial spectators may redistribute earnings to determine the final allocation among these stakeholders. We are primarily interested in spectators' redistribution decisions; the earnings stage is used to incentivize these decisions.

3.1 The Earnings Stage

We implement four versions of the earnings stage in a between-subjects design. In all versions, subjects work on a real-effort task in which they have to reposition sliders into the middle position (Gill and Prowse, 2012). Each task has a fixed duration of 30 seconds and requires repositioning 5 sliders, which is easy to achieve. Hence, completing tasks is solely a matter of effort and time, but not ability. After workers have completed their participation, they are divided into pairs of two. Versions differ in two dimensions: the type of inequality and the source of inequality. The type of inequality varies whether the \$10 is distributed between a pair of workers themselves ("Non-Inherited Inequality") or whether each worker designates a real-life friend and the \$10 is distributed between the two friends of a pair of workers ("Inherited Inequality"). The source of inequality varies whether the initial allocation is determined by a random draw ("Luck") or reflects the relative number of completed tasks ("Effort"). The 2x2 variation in the earnings stage results in the following four conditions which are summarized in Table 1:

- **Non-Inherited Inequality & Luck:** Workers complete exactly 20 tasks. \$10 are distributed between the two workers of a pair. The initial distribution is determined by a random draw. Each distribution is equally likely.
- **Non-Inherited Inequality & Effort:** Workers choose to complete between 0 and 40 tasks. \$10 are distributed between the two workers of a pair. The initial distribution corresponds to the relative number of completed tasks.

Table 1: Conditions

Treatment	$10 distr. betw.	# Tasks completed	Initial allocation
Non-Inherited Ineq. & Luck	Workers	$e_1 = e_2 = 20$	$\pi_1 \sim U[0, 10],\ \pi_2 = 10 - \pi_1$
Non-Inherited Ineq. & Effort	Workers	$e_1, e_2 \in [0, 40]$	$\pi_1 = e_1/(e_1 + e_2),\ \pi_2 = 10 - \pi_1$
Inherited Ineq. & Luck	Workers' friends	$e_1 = e_2 = 20$	$\pi_1 \sim U[0, 10],\ \pi_2 = 10 - \pi_1$
Inherited Ineq. & Effort	Workers' friends	$e_1, e_2 \in [0, 40]$	$\pi_1 = e_1/(e_1 + e_2),\ \pi_2 = 10 - \pi_1$

- **Inherited Inequality & Luck:** Workers complete exactly 20 tasks. Each worker chooses a real-life friend, and $10 is distributed between the workers' friends. The initial distribution is determined by a random draw. Each distribution is equally likely.
- **Inherited Inequality & Effort:** Workers choose to complete between 0 and 40 tasks. Each worker chooses a real-life friend, and $10 is distributed between the workers' friends. The initial distribution corresponds to the relative number of completed tasks.

Before they start working, workers know whether they generate earnings for themselves or a real-life friend and how the initial allocation is determined. They also know that another person's decision may affect their (or their friend's) payoff, but not how and why. Workers (and their friends) never observe the initial allocation or spectators' decisions. Friends are entirely passive.

3.2 The Redistribution Stage

In the redistribution stage, unrelated subjects ("impartial spectators") can redistribute the $10 between pairs of workers or workers' friends. Based on the four conditions from the earnings stage, we implement a 2x2 within-subjects design in the redistribution stage. Before they make a redistribution decision, spectators learn whether $10 is distributed between workers or passive friends and whether the initial allocation was determined by a random draw or according to the relative number of completed tasks and the initial allocation. They make their decision by entering the relative shares of the two workers (friends) in a table that also contains condensed information about the situation. Figure 7 shows a screenshot of the decision screen in the Inherited Inequality - Effort condition. All decision screens had the same structure.

Similar to recent studies that use the impartial spectator design (Schaube and Strang, 2022), we employ a variant of the strategy method (Kube, 2011). For each spectator, we construct a set of six initial allocations that consists of one initial allocation from a randomly drawn situation that has occurred in the earnings stage and five hypothetical initial allocations that are constant across all spectators. These initial allocations yield a block of 6 situations within each of the four conditions – 24 situations in total – for which we ask spectators to make redistribution decisions.

Subjects make redistribution decisions for all situations within a block before they proceed to the next one. After each block, they are prompted to briefly describe the reasoning behind their decisions. We randomize the order of blocks as well as the order of situations within each block between subjects. Subjects know that some situations are hypothetical and that we randomly select one spectator for each

pair of workers (friends), whose decision for the relevant situation is implemented. Because spectators do not know whether a decision is potentially relevant or not, all decisions are probabilistically incentivized.

Finally, subjects answer a brief questionnaire on their general attitudes towards inequality, their assessment of various policies related to inequality and redistribution, and additional demographics.

3.3 Procedures

3.3.1 Workers and Friends

The earnings stage was conducted online in March 2022 and implemented using oTree (Chen et al., 2016). Workers were recruited from the BonnEconLab subject pool via Hroot (Bock et al., 2014). The invitation mail informed potential participants that some of them would be able to generate a payment for a real-life friend. In the confirmation email, workers in the Inherited Inequality conditions received a link that they had to pass on to a friend. Via that link, friends had to give us their bank details. On the next day, the corresponding workers received another email with a participation link only if a friend had given us his or her bank details before, such that we could ensure to be able to make all payments that were generated in the study. Workers in the Nonhereditary Inequality conditions were informed in the confirmation email that they were not among those participants that could generate a payment for a friend and received an email with a participation link on the next day as well. All workers could start immediately when they received the participation link and had time to conclude their participation until the end of the day.

In the earnings stage itself, workers had to enter their own bank details before they received condition-specific instructions and entered the work stage. Workers in the Effort conditions could choose how many tasks to complete, whereas workers in the Luck conditions had to complete exactly 20 tasks.[2] After the work stage, workers had to make their respective dictator decision to conclude their participation.

In total, 43 workers completed their participation in the earnings stage, 22 of them in the Inherited Inequality conditions. In the Nonhereditary Inequality conditions, each worker received a fixed payment of \$3, and \$10 was distributed between two workers each. In the Inherited Inequality conditions, each worker received a fixed payment of \$5, each friend received a fixed payment of \$3, and \$10 was distributed between two friends each. In addition, one among all workers' dictator decisions was randomly selected and implemented as announced during the study. Payoffs were presented in the form of experimental currency during the earnings stage, but payments were eventually made in Euro via bank transfer, calculated using the exchange rate at the time at which the earnings stage was conducted.

[2] Workers could at most work on 60 tasks until the work stage was automatically concluded. One worker in the Luck conditions did not manage to complete 20 tasks with 60 attempts and did not generate a payment, as was announced beforehand.

3.3.2 Spectators

The spectator survey, too, was programmed in oTree. Subjects were sampled via the survey provider Prolific. Only adult US citizens were eligible for participation. The study consisted of two waves. The first wave contained 75 participants, and the second wave contained 478 spectators. The median completion time in the first wave was 21 minutes, and subjects earned £8.25 on average. The median completion time in the second wave was slightly longer at 25min, and participants earned £6 on average. For the second wave, Prolific recruited a sample representative of the US population regarding the joint distribution of age, sex, and ethnicity. This was impossible for the first wave due to the low number of participants. The study was preregistered at the AER RCT Registry (RCT ID: AEARCTR-0009186), and the pre-analysis plan and complete instructions for the spectator session can be accessed here: https://doi.org/10.1257/rct.9186.

3.4 Ensuring High Quality Responses

In addition to incentivizing spectators' redistribution decisions, we include several features to ensure high-quality responses. We tell participants on the consent page that the survey includes two attention checks and that we will not pay participants who fail both of them. Subjects know that those who complete the survey too quickly are also not paid due to a Prolific policy. We also attempt to make them feel involved and socially responsible by emphasizing that we are non-partisan researchers seeking to better understand fairness preferences. Finally, we highlight that it is "vital" for the success of our research that you answer honestly and understand the instructions.

Attention checks are placed strategically. One is right before the first bloc of redistribution decisions. The other one appears after all redistribution decisions are made within a bloc of policy questions and resemble these policy questions at first glance. Before subjects make the decisions for each type of situation, they receive instructions for the following type of situations in the form of a slideshow. Subjects saw a series of image-text combinations which they could click back and forth. This combination of visual and text information might make it easier to digest the information. After the instructions of a type of situation, subjects had to answer two control questions in which they were asked about crucial features of the type of situation they would now make decisions about. Spectators were then confronted with six decisions in the corresponding situations. Thereafter, we gave them the opportunity to express their considerations about their choice behavior in the type of situation in the form of an open-ended text.

Redistribution decisions are made early in the survey to make sure subjects are not exhausted. Each decision screen reminds subjects about the features of the type of situation. Questions are designed to prevent careless answers as much as possible: for instance, percentages are constrained to add up to 100. The redistribution decisions are followed by a survey on policy questions. Toward the end of the survey, we asked respondents whether they thought that the instructions were comprehensible and whether our survey was biased towards either left-wing or right-wing opinions.

We recruited 551 spectators from Prolific, a leading survey provider that has been shown to generate

higher data quality than comparable companies (Palan and Schitter, 2018; Peer et al., 2021). Spectators participated in the survey online. The survey was programmed using o-tree (Chen et al., 2016). We recruited a sample that is broadly representative of the US population regarding the joint distribution of age, sex, and race.

Appendix A checks the quality of the data provided by the spectators. It shows that 1) nearly all spectators pass both attention checks, 2) nearly all spectators state that the instructions are comprehensible, 3) few spectators perceive the survey to have been biased in either political direction and most of those who do perceive a small bias and 4) nearly all subjects write long and thoughtful open-ended responses at least one time in the survey. These results suggest that spectator data has high quality.

4 Empirical Analysis

4.1 Main Variables

We analyze the effects of whether inequality is generated through luck of effort and whether inequality is generated by people themselves or by their friends on the extend of redistribution. The independent variables correspond to our four treatment conditions. In most cases, the dependent variable is The Extend of Redistribution. It is defined as

$$\text{Extend of Redistribution} = \frac{\text{Final allocation to x} - \text{Initial allocation to x}}{5 - \text{Initial allocation to x}} \tag{3}$$

where x is the individual that has received less money in the initial allocation. In words, the variable describes the fraction of inequality in the initial allocation equalized. The higher the value, the higher the final allocation to the individual with the lower initial allocation. A value of one indicates that the spectator assigned equal monetary amounts. A value of zero indicates that the spectator did not redistribute at all. Negative values mean that the spectator took money away from the subject that had less initially and gave it to the subject that had more initially. Values above one indicate that the spectator redistributed such that the formerly poorer individual ended up richer.

There are 20 values for the Extend of Redistribution for each spectator, corresponding to the 20 decisions with hypothetical allocations that he made. We use the Average Extend of Redistribution as a summary measure for the general behavior of a spectator in one of the four treatment arms (Non-Inherited Inequality and Luck, Non-Inherited Inequality and Merit, Inherited Inequality and Luck, Inherited Inequality and Merit). The Average Extend of Redistribution for a spectator and any of these treatments is defined as the simple average over the Extend of Redistribution values for this spectator over the 5 hypothetical situations.

4.2 Exclusion Criteria and Restricted Sample

To ensure high data quality for our analysis, we remove some observations from our data as preregistered. First, we do not analyze data from subjects who fail both attention checks. We call the resulting dataset the unrestricted dataset. We further restrict the unrestricted dataset to obtain the

restricted dataset. To this end, we remove observations that indicate a redistribution behavior that is inconsistent with the three fairness ideals considered by this paper and the previous literature. All of them advocate for an Extend of Redistribution weakly between zero and one. The restricted sample only contains observations where the Extend of Redistribution is weakly between zero and one. When calculating the Average Extend of Redistribution, we remove all values for the Average Extend of Redistribution outside zero one and take averages using the remaining values. This reduces the size of the sample for individual decisions from 10236 to 8399 and the size of the sample for spectators from 543 to 437. Our hypotheses below are preregistered on these restricted samples of spectators and their decisions. However, results do not differ notably when using the unrestricted samples.

4.3 Classification into Fairness Types

Spectators make redistribution decisions in several situations. This allows us to categorize spectators into different fairness types. As preregistered, we categorize spectators based on their Average Extend of Redistribution in situations with Non-Inherited Inequality. We define a spectator as Libertarian if his Average Extend of Redistribution is less than 0.5 in Luck and Effort situations under Non-Inherited Inequality. We define a spectator as an Egalitarian if his Average Extend of Redistribution is larger than 0.5 in Luck and Effort situations. We define a spectator as Meritocrat if his Average Extend of Redistribution is larger than 0.5 in Luck and less than 0.5 in Effort situations. Lastly, we describe all spectators as "Not classified" who equalize less than half of the inequality in luck situations and more than half of inequality in Effort situations. The reason is that this behavior is not predicted by any of the three main fairness ideals that have been studied in the literature. Figure 1 illustrates this classification in a 2D Redistribution in Luck x Redistribution in Effort space and the distribution of spectators.

4.4 Preregistered Hypotheses

The first set of hypotheses regards the effects of the type of inequality (Non-Inherited vs. Inherited) and the source of inequality (Effort vs. Luck) on spectators' redistribution decisions. The final hypothesis regards the fairness type we expect to drive differences between redistribution decisions in situations with Non-Inherited versus inherited inequality:

1. In situations of Inherited and Non-Inherited inequality, subjects redistribute less if inequality is based on Effort instead of Luck.
2. There is more redistribution in situations of Inherited Inequality than in situations of Non-Inherited Inequality.
3. The greater extent of redistribution situations of Inherited Inequality is driven by situations in which inequality is based on Merit.
4. The greater extent of redistribution in situations of Inherited Inequality is driven by spectators who endorse a meritocratic fairness view toward Non-Inherited Inequality.

5 Results

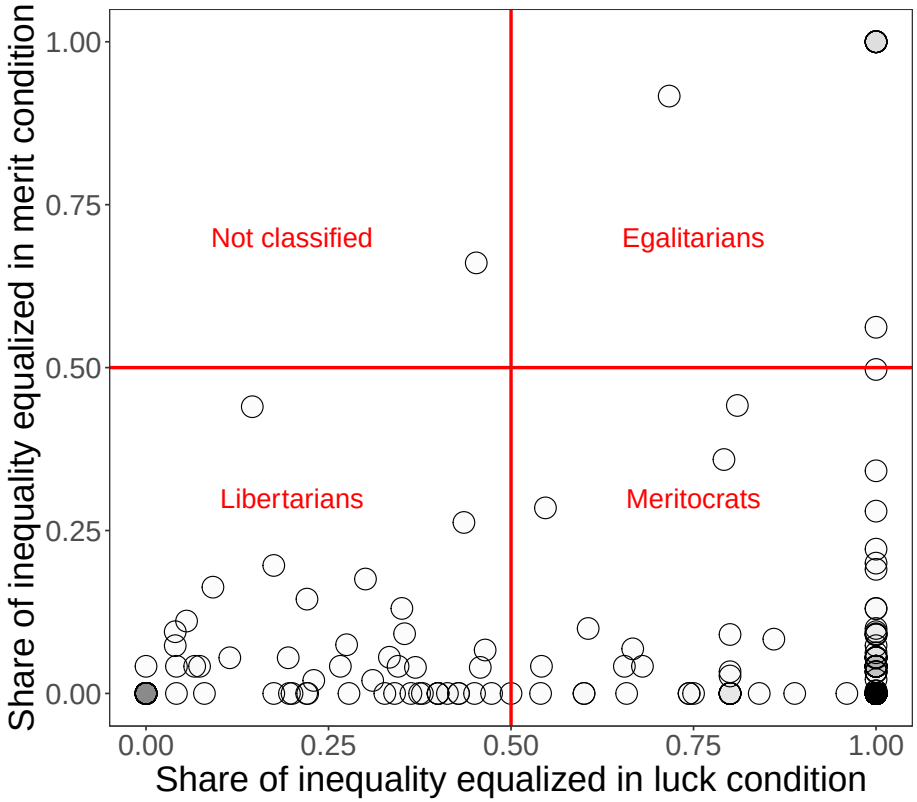
5.1 Fairness Types

Figure 1 shows the distribution of redistribution decisions in the restricted part of the 2D equalization space. Any point visualizes the Average Extend of Redistribution for a spectator. The horizontal axis shows his Average Extend of Redistribution in the Luck condition under Non-Inherited Inequality, while the vertical axis shows his Average Extend of Redistribution in the Effort condition under Non-Inherited Inequality. The darker a point, the more observations are at that value. Many observations cluster together at the two lower corners and the upper right corner of the graph. The point in the lower-left corner corresponds to no redistribution under any situation, hence to a pure Libertarian. The point in the lower right corner corresponds to subjects who equalize all inequality due to luck and do not equalize any inequality due to effort. Such subjects, therefore, behave purely meritocratic. Finally, subjects in the upper right corner equalize all inequality and therefore behave purely egalitarian. The share of subjects that hold a pure fairness ideal is high. About 10% are pure Libertarians, 59% are pure Meritocrats, while only about 3% are pure Egalitarians. Most of those without a pure fairness ideal are located between a pure Libertarian and a pure Meritocrat. Few subjects are classified as Egalitarian, and only one subject is not classified into one of the three fairness ideals.

These results are based on redistribution decisions under Non-Inherited Inequality and are largely consistent with previous research, although we find a smaller share of Meritocrats than in previous studies (Almås et al., 2020). A similar classification can be done with the Luck and Effort situations under Inherited Inequality. Again, we define a subject as an Egalitarian if he equalizes more than half of the inequality on average in luck and effort situations, respectively. We define a subject as Libertarian if he equalizes less than half of the inequality on average in luck and effort situations, respectively. How Meritocrats behave in these situations depends on β. It follows from formula 2 that for $\beta = 0$ they completely take the perspective of the passive individuals and behave like an Egalitarian. For $\beta \to \infty$ they completely take the perspective of the active participants and behave like a Meritocrat in situations of Non-Inherited Inequality. For $\beta = 1$ a Meritocrat equalizes half of the inequality in the Inherited Inequality Effort situation. Moreover, a Meritocrat will always equalize inequality in any Luck condition. Hence, Egalitarians and Libertarians should locate in the Equalization space regarding Inherited Inequality as in the Equalization space regarding Non-Inherited Inequality. In contrast, Meritocrats might locate in either of the right quadrants depending on their β.

Figure 2 shows how subjects are located in the Equalization space regarding Inherited Inequality. It closely resembles the figure for Non-Inherited Inequality. Again, Most subjects cluster at one of the corner solutions corresponding to one of the pure fairness ideals. About 57% of subjects do not equalize at all under the Effort condition and equalize all inequality under the Luck condition. This corresponds to a Meritocratic fairness ideal in combination with a β approaching infinity. About 7% do not redistribute anything in either condition and can therefore be classified as Libertarians. 4% equalize all inequality in either situation on average and can be classified as either Egalitarian or as Meritocratic with a β of

Figure 1: Classification into Fairness Types - Non-Inherited Inequality



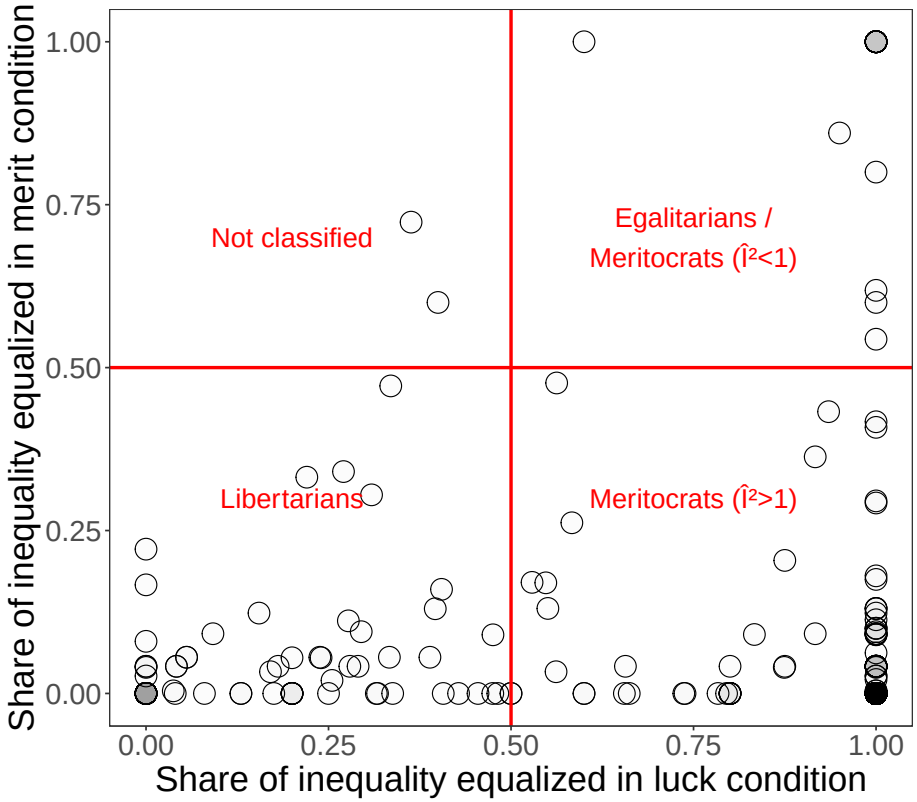
Note: Circles correspond to subjects in the spectator role of the experiment. The horizontal axis measures the share of inequality that the individual equalized on average in the Non-Inherited Inequality Luck condition. The vertical axis measures the share of inequality that the individual equalized on average in the Non-Inherited Inequality Effort condition. The darker the dot, the more subjects implemented the choice combination. The red cross divides the space into four quadrants. Subjects were classified according to the red names in the quadrants.

zero. These numbers are similar to their counterparts in the case of Non-Inherited Inequality. Moreover, as in the situations of Non-Inherited Inequality, most subjects who do not locate at a pure fairness ideal locate between a pure Libertarian and a pure Meritocrat with a β approaching infinity. Overall, in aggregate, redistribution decisions under Inherited Inequality are very similar to redistribution decisions Non-Inherited Inequality. This suggests that most Meritocrats have a high β and therefore mostly take the perspective of the active participants.

5.2 Relationship between Fairness Types under Non-Inherited and Inherited Inequality

How do fairness types under Non-Inherited and Inherited Inequality relate to one another? To answer this question, figure 3 presents a moving matrix. The vertical axis shows the four classes relating to the four quadrants (including non-classified spectators) based on Non-Inherited Inequality. The horizontal axis shows the four classes relating to the four quadrants based on Inherited Inequality. This results in a 4x4 matrix. A field (x,y) answers the following question: what percentage of subjects was classified

Figure 2: Classification into Fairness Types - Inherited Inequality



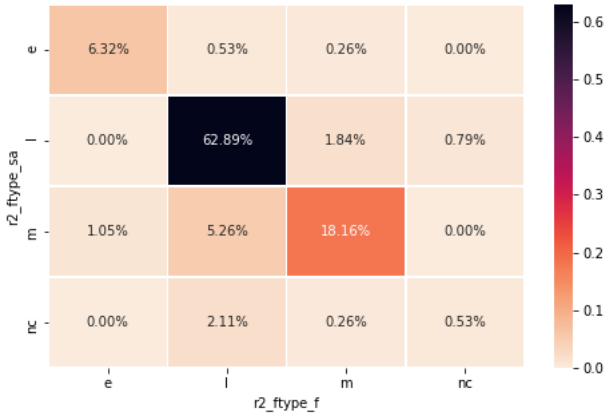
Note: Circles correspond to subjects in the spectator role of the experiment. The horizontal axis measures the share of inequality that the individual equalized on average in the Inherited Inequality Luck condition. The vertical axis measures the share of inequality that the individual equalized on average in the Inherited Inequality Effort condition. The darker the dot, the more subjects implemented the choice combination. The red cross divides the space into four quadrants. Subjects were classified according to the red names in the quadrants.

under Non-Inherited Inequality as type x and as type y under Inherited Inequality? For instance, the field in the upper left corner shows that about 6.3% of subjects were classified as Egalitarian under Inherited and Non-Inherited Inequality. Diagonal elements are much larger than off-diagonal elements. Hence, most subjects adhere to the same fairness ideal under Inherited and Non-Inherited Inequality.

5.3 Testing the Hypotheses

Evidence regarding the first three Hypotheses can be seen in figure 4. It depicts the average shares of inequality that were equalized for each of the four treatment arms alongside 95% confidence intervals. Reassuringly, subjects redistribute much more in the Luck than in the Effort condition of Non-Inherited Inequality, which is consistent with previous research. This is also true for Inherited Inequality. Overall, these results are consistent with Hypothesis 1. Second, the Extend of Redistribution is higher under Inherited Inequality than under Non-Inherited Inequality, consistent with hypothesis 2. Third, this difference between Inherited and Non-Inherited Inequality is driven by Effort situations. The Extend of

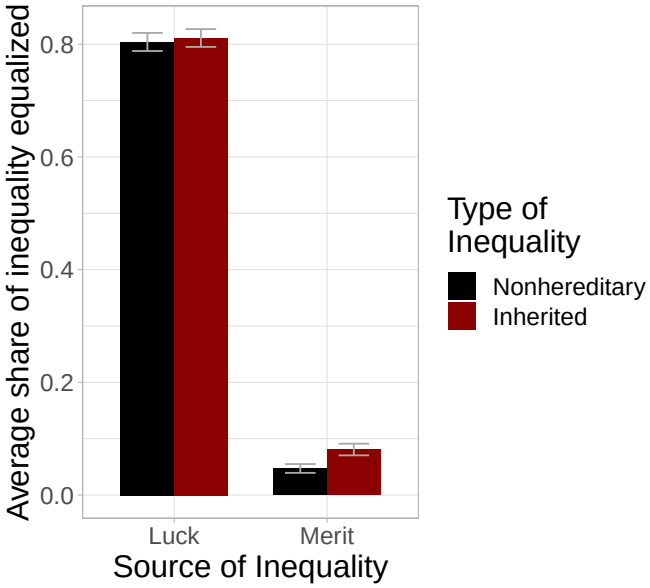
Figure 3: Moving Matrix



Note: Estimates types based on Non-Inherited Inequality are shown on the vertical axis while the horizontal axis shows types based on decisions under Inherited Inequality. Data is based on the restricted sample.

Redistribution in the two Luck situations does not differ notably. In contrast, there is more redistribution in the Effort situation under Inherited Inequality than in the Luck situation under Inherited Inequality. This is consistent with hypothesis 3.

Figure 4: Average Equalization by Treatment Arm



Note: The vertical axis measures the Extend of Redistribution, averaged over all decisions in the restricted sample. We depict 95% confidence intervals around the averages. Standard errors are clustered on the spectator level.

However, the most striking result is that the Extend of Redistribution under Non-Inherited and Inherited Inequality is very similar in absolute values. While subjects redistribute more in Effort situations

under Inherited Inequality than in Effort situations under Non-Inherited Inequality this difference only amounts to about 3 percentage points. This is tiny compared to the effect of Luck vs. Effort, which equals 73 and 75 percentage points under Inherited and Non-Inherited Inequality, respectively. Hence, subjects seem to treat situations of Inherited Inequality and situations under Non-Inherited Inequality similarly. In particular, most spectators perceive it as an Effort situation when subjects get money from friends that the friends worked for. This is consistent with very low values for β. In other words, most subjects seem to find Inherited Inequality fair when it is based on effort. In the following we will employ a regression framework to test the hypotheses more formally as preregistered.

5.3.1 Hypothesis 1

To test Hypothesis 1 formally, we estimate the following regression by OLS separately for situations with Non-Inherited and inherited inequality:

$$\text{Extend of Redistribution}_{i,\sigma} = \alpha + \alpha_E \cdot \mathbb{1}[\text{Effort}]_\sigma + \delta \cdot \sigma + \varepsilon_{i,\sigma},$$

where i indicates spectators and σ indicates initial allocations. Standard errors are clustered at the level of spectators. Table 2 shows the results. Effort conditions are estimated to strongly reduce redistribution under Non-Inherited Inequality (column 1.1) and Inherited Inequality (column 1.2). Effects are highly significant and economically meaningful. Taken literally, the coefficients indicate that subjects equalize 73 to 76 percentage points less in Effort than in Luck situations. Given that the range of the dependent variable is one, this effect is substantial. The magnitude of the difference is also visible in figure 4. Under Luck, subjects equalize about 80% of inequality on average, while they only equalize 5 to 8% in Effort situations. Hence, we view this evidence as consistent with Hypothesis 1.

5.3.2 Hypothesis 2

To test hypothesis 2 formally we estimate the following regressions by OLS:

$$\text{Extend of Redistribution}_{i,\sigma} = \beta + \beta_{II} \cdot \mathbb{1}[\text{Inherited Inequality}]_\sigma + \delta \cdot \sigma + \varepsilon_{i,\sigma},$$

Standard errors are clustered at the level of spectators. We are interested in the estimate for β_{II}, which tells us how the Extend of Redistribution differs between situations of Non-Inherited and Inherited Inequality. As can be seen in column 2 of table 2 redistribution is indeed significantly higher under Inherited Inequality than under Non-Inherited Inequality. This is consistent with Hypothesis 2. However, while statistically significant, the effect is not economically significant. Taken literally, the estimate for β_{II} tells us that the Extend of Redistribution under Inherited Inequality is just two percentage points higher than under Non-Inherited Inequality. This is two percent of the range of the dependent variable and very low compared to the effect of Effort versus Luck which is more than 35 times as large.

Table 2: Testing Hypotheses 1-4

	Dependent variable: Extend of Redistribution				
	H1		H2	H3	H4
	(1.1)	(1.2)	(2)	(3)	(4)
𝟙[Effort]	−0.757***	−0.730***		−0.757***	−0.025
	(0.019)	(0.019)		(0.019)	(0.036)
𝟙[Inherited Inequality]			0.022**	0.007	−0.018
			(0.009)	(0.014)	(0.031)
𝟙[Effort] · 𝟙[Inherited Inequality]				0.027	−0.144
				(0.016)	(0.103)
𝟙[Effort] · 𝟙[Inherited Inequality] · 𝟙[Libertarian]					−0.088
					(0.112)
𝟙[Effort] · 𝟙[Inherited Inequality] · 𝟙[Meritocrat]					0.243**
					(0.104)
𝟙[Effort] · 𝟙[Inherited Inequality] · 𝟙[NC]					0.296***
					(0.103)
Observations	4,203	4,196	8,399	8,399	8,399
R^2	0.620	0.575	0.001	0.598	0.817
Note:					*p<0.1; **p<0.05; ***p<0.01

5.3.3 Hypothesis 3

To test Hypothesis 3 formally we estimate the following regression by OLS:

$$\text{Extend of Redistribution}_{i,\sigma} = \alpha + \alpha_E \cdot \mathbb{1}[\text{Effort}]_\sigma + \beta_{II} \cdot \mathbb{1}[\text{Inherited Inequality}]_\sigma + \beta_{E,II} \cdot \text{I}[\text{Effort}]_\sigma \cdot \mathbb{1}[\text{Inherited Inequality}]_\sigma + \delta \cdot \sigma + \varepsilon_{i,\sigma}$$

Again, we cluster standard errors at the spectator level. $\beta_{E,II}$ estimates a difference-in-difference effect. It tells us whether Redistribution differs more or less in Effort and Luck situations depending on whether inequality is Inherited or Non-Inherited. A positive coefficient indicates that differences between Inherited and Non-Inherited Inequality regarding the Extend of Redistribution are larger in Effort situations than in Luck situations. Hypothesis 3 asserts that $\beta_{E,II}$ is positive and statistically significant.

Table 2 only shows the estimates for α_M, β_{II} and $\beta_{E,II}$ in column 3 for readability. The estimate for $\beta_{E,II}$ is indeed positive. However, it is not significant, which is inconsistent with Hypothesis 3. Moreover, the effect in the restricted sample, taken literally, amounts to only about 2.7 percentage points. Again, this is tiny to the effect of Effort versus Luck.

5.3.4 Hypothesis 4

To test hypothesis 4 formally we estimate the following regression by OLS:

$$\begin{aligned}\text{Extend of Redistribution}_{i,\sigma} = \quad & \alpha && + \alpha^{L} L_i && + \alpha^{E} E_i && + \alpha^{NC} NC_i \\ & + \alpha_E E_\sigma && + \alpha_E^{L} E_\sigma L_i && + \alpha_E^{E} E_\sigma E_i && + \alpha_E^{NC} E_\sigma NC_i \\ & + \beta II_\sigma && + \beta^{L} II_\sigma L_i && + \beta^{E} II_\sigma E_i && + \beta^{NC} II_\sigma NC_i \\ & + \beta_E E_\sigma II_\sigma && + \beta_E^{L} E_\sigma II_\sigma L_i && + \beta_E^{E} E_\sigma II_\sigma E_i && + \beta_E^{NC} E_\sigma II_\sigma NC_i \\ & && && && + \delta \Delta_\sigma + \varepsilon_{i,\sigma}\end{aligned}$$

where E denotes $\mathbb{1}$[Effort] and II denotes $\mathbb{1}$[Inherited Inequality] for brevity. Hypothesis 4 can be tested by looking at the three three-way interactions between the Inherited Inequality dummy, the Effort dummy, and the type dummies and the interaction between the Inherited Inequality dummy and the Effort dummy. The three three-way interactions include as types Libertarians, Meritocrats, and the Non-classified. Therefore, Egalitarians are the reference category. Hence, the coefficient on the interaction between the Inherited Inequality dummy and the Effort dummy has the following interpretation: how much higher is the Extend of Redistribution of Egalitarians in situations of Effort compared to situations of Luck when inequality is inherited compared to when inequality is non-inherited. The coefficients on the three-way interactions show how this difference-in-difference effect of the respective type differs from the difference-in-difference effect of Egalitarians. Hypothesis 4 asserts that the coefficient on the three-way interaction, which includes the Meritocrat dummy, is positive and statistically significant. Moreover, it should be larger than the coefficient on the three-way interaction that includes the Libertarian dummy.

Table 2 shows estimates from this regression for the coefficients on the three-way interactions. The three-way interaction that includes the Meritocrat dummy is positive and significant, while it is insignificant for Libertarians. This shows that in contrast to Libertarians, for Meritocrats, the difference-in-difference effect is stronger than for Egalitarians. Moreover, a Wald-test rejects that $\beta^E + \beta_E^E = 0$ (p=1.562e-12). This means that Meritocrats redistribute more under Inherited Inequality than under Non-Inherited Inequality in Effort than in Luck situations. Taken together, these results mean that Meritocrats drive the larger Extend of Redistribution under Inherited Inequality in Effort situations. This is consistent with Hypothesis 4.

5.4 Analysis of Open-Ended Responses

Most spectators use the opportunity to write open-ended explanations after each decision block. For all open-ended explanation fields, more than 98% of respondents responded. Figure 11 in the appendix summarises responses in four word clouds, one for each treatment. To generate these word clouds, we remove all numbers from the open-ended responses, transform all words to lowercase and remove punctuation and stop words. Finally, we reduce all words to their base word (stem). The size of words in figure 11 indicates the frequency with which that word was used. The term "work" was among the most often used terms in all conditions, consistent with the large share of Meritocrats. In

the Luck conditions, the term "equal" was also used very frequently, while it was nearly absent in the Effort conditions. Similarly, the term "friend" belongs to the most commonly used terms in the Inherited Inequality conditions but is rarely used in the Non-Inherited treatments. This suggests that subjects understood the conditions and were giving thoughtful explanations. This can also be seen by looking at individual responses. For instance, after the Inherited Inequality & Effort bloc, participant 108 wrote:

> I left the distributions the same. Although it may not be fair to the friends who did not decide on how much work was done, it did seem more fair that the participant who worked harder on the tasks was able to get the proper amount to their friend.

Participant 108 is aware of the Dilemma of Meritocracy and decided to resolve it in favor of the active individuals, like most other subjects. Reassuringly we classified her as a Meritocrat under Non-Inherited and Inherited Inequality. Consistent with redistribution decisions, many spectators explicitly state that they distributed based on relative effort. Moreover, many note that they did not redistribute differently under Inherited and Non-Inherited Inequality. For instance, after the Inherited Inequality & Effort bloc, spectator 191 wrote:

> The participants were n effect working for their friends. Once again I rewarded the money based on the amount of work each participant did. It did not matter that the money was going to the friend and not the patciant himself

Most spectators either do not state explicit reasons for why they resolved the Dilemma of Meritocracy in one way or the other and many seem to find a distribution based on relative effort in the Inherited Inequality & Effort situation obviously fair. A few spectators go into more detail to explain why they find a particular distribution under the Dilemma of Meritocracy fair. Spectators who split the $10 equally often referenced that the friends completed the same amount of tasks. Spectators who did not redistribute made three arguments. First, some argued that friends belong to the same "team" and one should not distinguish between team members. For instance, spectator 62 wrote:

> Even though friends did not work, he is a part of the team regardless and should be paid equally

A second argument spectators raised was the "freedom" of workers to spend their money as they wished. For instance, spectator 28 wrote:

> I went with the default choices on this one. The workers knew their labors would generate money for their friends. I felt it was fair to give them the freedom to give as much of their time/labor to a friend as they chose to. Who am I to make that decision for them?

Lastly, many spectators mentioned that workers and friends had been aware of the experimental procedure and had agreed to participate. For instance, spectator 162 wrote

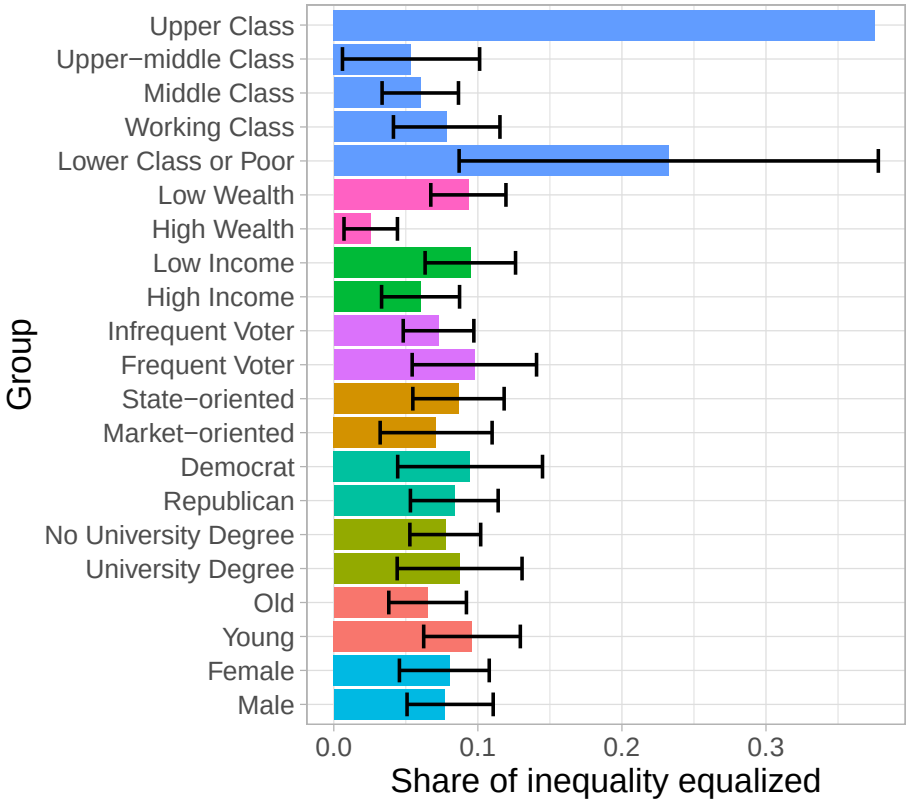
> I felt that it was fair to distribute the final payment sin a way that reflected closely the amount of work that each worker had contributed. Some people might see it as unfair for the friends

since they had nothing to do with how much or little their worker friends contributed, but the rules were clear from the start, and since the friends did not do any work themselves, I don't see why they should complain about not getting paid anyway

5.5 Heterogeneity in Treatment Effects

The previous analysis has shown that most people do not redistribute in the Inherited Inequality - Effort treatment. Does this result mask heterogeneity between socioeconomic groups? To answer this question, we take the simple average over the Average Extend of Redistribution for various sociodemographic subgroups. Figure 5 shows the resulting averages. We consider the following sociodemographic characteristics: economic ideology, education, income, the party the spectator identifies with, sex, perceived social class, how often the respondent votes, and his wealth. We depict 95% confidence intervals around the mean values.

Figure 5: Average Equalization in Condition Inherited & Effort



Note: Shares of inequality equalized for a group are calculated by taking simple averages over the Average Extend of Redistribution values for all spectators in the restricted sample who belong to the group. We show 95% confidence intervals around the averages. We do not depict the confidence interval for "Upper Class" because it is very large. Standard errors are clustered on the spectator level.

Differences between subgroups are intuitive. For instance, those with lower wealth and income and those who are economically more left-leaning are more likely to redistribute. Most notable is

the heterogeneity regarding self-assessed social class. There appears to be a monotonic relationship between the lowest class up to the upper-middle class, where higher classes tend to redistribute less. The lower class or the poor are much more likely to equalize earnings than the other three classes. However, spectators who identify as upper class are even more likely to redistribute, creating a U-shaped relationship between social class and the Average Extend of Redistribution. However, the estimate for the upper class relies on very few observations, which is why we do not depict the large confidence interval.

However, overall heterogeneity is not very pronounced. Most subgroups do not differ notably from one another. In particular, Democrats and Republicans decide similarly on the Inherited Inequality - Effort treatment. Moreover, the Share of inequality that spectators equalize is lower than 0.4 in all subgroups and lower than 0.25 in all subgroups other than the upper class.

To test formally whether there is heterogeneity in the treatment effects across any of the binary splits, we run the following OLS regression:

$$\begin{aligned}\text{Extend of Redistribution}_{i,\sigma} = \alpha + \alpha^D D_i + \alpha_E E_\sigma + \alpha_E^D E_\sigma D_i + \beta II_\sigma + \beta^D II_\sigma D_i \\ + \beta_E E_\sigma II_\sigma + \beta_E^D E_\sigma II_\sigma D_i + \delta \Delta_\sigma + \epsilon_{i,\sigma}\end{aligned} \tag{4}$$

where D_i is an indicator for spectator i being female (or having a college degree, ...; excluding social class), clustering standard errors on the spectator level. Figure 10 in the appendix shows estimates for β^D and β_E^D for by demographic variable. Few effects are significant before controlling for multiple hypothesis testing. After applying the Benjamini-Hochberg procedure, none of the coefficients is significantly different from zero. Hence, acceptance of inequality in the Inherited Inequality & Effort condition seems to be a trait that is common across sociodemographic groups.

To explore whether the distribution of fairness types differs by socioeconomic characteristics, we calculate the distribution over the following two-dimensional fairness types $(\tau_{NI}, \tau_{II}) \in \{$(Egalitarian, Egalitarian), (Libertarian, Libertarian), (Meritocrat, Meritocrat), (Meritocrat, Egalitarian)$\}$ and a "residual "type which encompasses all remaining spectators for each demographic subgroup. Using Fisher's exact test, we fail to find any significant difference in the distribution between any two subgroups of the same demographic variable (excluding social class).

5.6 Validation of Survey Items

It is sometimes not feasible to implement experimental measures in a survey. Therefore, it is important to know whether simple survey items can be used as a substitute for experimental measures. Hence, we asked each spectator the following two questions:

> If one person receives more than another due to **having better luck**, I find that ...

> If one person receives more than another due to **exerting higher effort**, I find that ...

Answers were elicited on five-point scales ranging from "clearly unfair" to "clearly fair". The former question might be used as a survey measure for redistribution preferences under Luck and Non-Inherited or Inherited Inequality. The latter item refers to the effort of the person that receives more and might

therefore be used as a survey measure for redistribution preferences under Non-Inherited Inequality and Effort and less as a survey measure for redistribution preferences under Inherited Inequality and Effort.

To assess associations between these survey items and the experimental measures, we run OLS regressions with one of the survey measures as the dependent variable and the experimental measures as the independent variables. To make effect sizes easier to interpret, we scale responses to survey items such that they have a standard deviation of 1.

Table 3: Validating Survey Measures for Redistribution Behavior

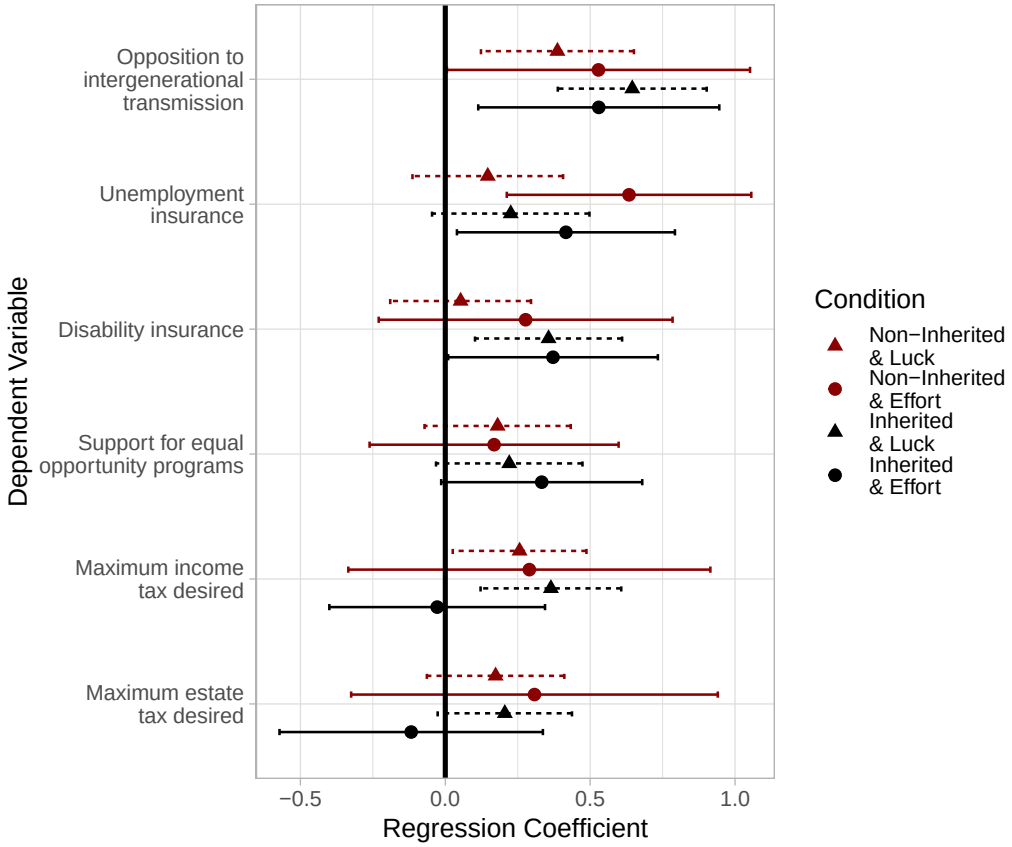
	Dependent variable: Survey Measure for					
	Non-Inherited & Effort			Non-Inherited & Luck		
	(1)	(2)	(3)	(4)	(5)	(6)
Average Extend of Redistribution Non-Inherited	1.800***		1.535***			
	(0.341)		(0.385)			
Average Extend of Redistribution Inherited		1.035***	0.338			
		(0.254)	(0.215)			
Average Extend of Redistribution Non-Inherited				1.089***		0.576***
				(0.107)		(0.144)
Average Extend of Redistribution Inherited					1.184***	0.807***
					(0.111)	(0.150)
Test for Equality of Coefficients Pr(>F)					0.003531**	0.3848
Observations	437	437	437	437	437	437
R^2	0.147	0.084	0.172	0.197	0.152	0.225
Note:						*p<0.1; **p<0.05; ***p<0.01

Table 3 shows the results. In columns 1 and 2, we run binary regressions. We regress the survey measure for the Non-Inherited Effort condition on the Average Extend of Redistribution under Non-Inherited Inequality in column 1 and on the Average Extend of Redistribution under Inherited Inequality in column 2. Both coefficients are substantial and highly significant. Moreover, the R^2 is high for both regressions. The R^2 in column 1 indicates that the Average Extend of Redistribution under Non-Inherited Inequality alone explains about 15% of the variation in the survey measure for acceptance of inequality under Non-Inherited Inequality and Effort. This R^2 is nearly twice as high as the R^2 in column 2. Similarly, the coefficient on the Average Extend of Redistribution under Non-Inherited Inequality is nearly twice as high as the coefficient on redistribution under Inherited Inequality. This suggests that the survey measure correlates more strongly with experimental measures constructed for the same situation. To test this more formally, we regress the survey measure for situations of Non-Inherited Inequality and Effort on both Extends of Redistribution concerning Effort in column 3. The coefficient on the Extend of Redistribution under Non-Inherited Inequality continues to be highly significant and large, while the coefficient on the Extend of Redistribution under Inherited Inequality becomes much

smaller and statistically insignificant. We perform a similar exercise in columns 4 and 5 with the Luck conditions. In binary regressions, both experimental measures for redistribution under Luck correlate highly and significantly with the survey measure for acceptance of inequality due to luck. In column 6, we regress the survey measure on both experimental measures simultaneously. Both coefficients remain significant and large. Taken together, these results show that simple survey items correlate highly with incentivized experimental measures of redistribution preferences. Moreover, survey measures can be used to differentiate preferences regarding different types of inequality.

5.7 External Validity

Figure 6: External Validity of the Experimental Redistribution Measures



Note: This figure reports coefficients from OLS regressions. The dependent variables are depicted on the vertical axis. They correspond to survey items and are scaled so that they range from 0 to 100 and that higher values indicate an attitude that is more left-wing economically. Each regression includes a constant and one independent variable. The independent variables are the four treatment condition indicators and are visualized by a unique color-shape pair. Dots and triangles depict coefficients on these condition variables. They are surrounded by 95% confidence intervals based on robust standard errors.

We asked subjects 6 questions about policies related to inequality. To test whether our 4 experimental measures are externally valid, we run 24 binary regressions with one policy item as the dependent variable and one experimental measure as the independent variable. One observation refers to one spectator. To

make effect sizes easier to interpret, we standardize the standard deviation of each policy item to 1. Moreover, we scale all policy items such that higher values indicate a greater taste for equality. Figure 6 depicts coefficients and 95% confidence intervals based on robust standard errors.

22 of the 24 coefficients are estimated to be positive. The two negative coefficients are not significantly different from zero and estimated to be small. 10 coefficients are estimated to be positive and significantly different from zero at the 5% level. Most estimated coefficients are between 0.2 and 0.5. For instance, the coefficient on the Extend of Redistribution under Non-Inherited Inequality and Effort when Opposition to inter-generational transmission is the dependent variable has the following interpretation: an increase in the Extend of Redistribution from 0 to 1 is associated with an increase in opposition to inter-generational transmission by half a standard deviation. Estimated associations are weakest for the two tax items in which subjects were asked to enter their preferred maximum income and estate taxes. This might be because tax preferences are strongly influenced by factors other than inequality preferences, like their view of how efficiently the government spends the money (Stantcheva, 2021). Differences between coefficients relating to the 4 conditions are rather small and not systematic. In sum, the experimental measures correlate positively with policy preferences for economic equality, suggesting that they are externally valid.

6 Conclusion

Much of the economic inequality that emerges within and between modern societies is inherited. At the same time, fairness preferences are important determinants of whether inequality is rejected, accepted, or favored. This paper studies fairness views under Inherited Inequality theoretically and empirically. Our theoretical framework suggests that in situations of inherited inequality, subjects with a Meritocratic fairness ideal face a dilemma. Either they behave, in their own view, unfairly toward those who inherited the wealth, or they behave unfairly toward those who generated it. To find out how real subjects resolve this conflict, we design and implement an experiment. Our results show that most spectators in general, and Meritocrats in particular, resolve the dilemma in favor of those who generated the wealth. Most subjects consider Inherited Inequality fair as long as those who bequested their wealth worked for it. This can help to explain why some people accept high levels of inequality and unequal starting positions within and across societies. It is not that they don't find it unfair that some people have better opportunities than others. It is that people weigh this concern against another, in their view, stronger fairness argument. Creating equal opportunities between everyone requires preventing parents and friends from channeling extra resources to their own children, even if they themselves earned them fairly. When they have to decide whether to accept unequal opportunities or prevent families or friends from endowing their loved ones with extra endowments, subjects choose the former.

References

Alesina, Alberto and George-Marios Angeletos, "Fairness and Redistribution," *American Economic Review*, 2005, *95* (4), 960–980.

__ **and Paola Giuliano**, *Preferences for Redistribution*, Vol. 1, Elsevier B.V., 2011.

Almås, Ingvild, Alexander W. Cappelen, and Bertil Tungodden, "Cutthroat Capitalism versus Cuddly Socialism: Are Americans more Meritocratic and Efficiency-Seeking than Scandinavians?," *Journal of Political Economy*, 2020, *128* (5), 1753–1788.

Björklund, Anders, Jesper Roine, and Daniel Waldenström, "Intergenerational top income mobility in Sweden: Capitalist dynasties in the land of equal opportunity?," *Journal of Public Economics*, 2012, *96* (5-6), 474–484.

Bock, Olaf, Ingmar Baetge, and Andreas Nicklisch, "hroot: Hamburg registration and organization online tool," *European Economic Review*, 2014, *71*, 117–120.

Bowles, Samuel and Herbert Gintis, "The Inheritance of Inequality," *Journal of Economic Perspectives*, 2002, *16* (3), 3–30.

Cappelen, Alexander W., Ranveig Falch, and Bertil Tungodden, "Fair and Unfair Income Inequality," *Handbook of Labor, Human Resources and Population Economics*, 2020, pp. 1–25.

Cappelen, By Alexander W, Astri Drange Hole, and Erik Sorensen, "The Pluralism of Fairness Ideals: An Experimental Approach," *The American Economic Review*, 2007, *97* (3), 818–827.

__ **, James Konow, Erik Srensen, and Bertil Tungodden**, "Just Luck: An Experimental Study of Risk-Taking and Fairness," *The American Economic Review*, 2013, *103* (4), 1398–1413.

Chen, Daniel L, Martin Schonger, and Chris Wickens, "oTreeAn open-source platform for laboratory, online, and field experiments," *Journal of Behavioral and Experimental Finance*, 2016, *9*, 88–97.

Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz, "The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment," *American Economic Review*, 2016, *106* (4), 855–902.

Gill, By David and Victoria Prowse, "A Structural Analysis of Disappointment Aversion in a Real Effort Competition," *American Economic Review*, 2012, *102* (1), 469–503.

Kube, Sebastian, "The Interaction of Legal and Social Norm Enforcement," *Journal of Public Economic Theory*, 2011, *13* (5), 639–660.

Palan, Stefan and Christian Schitter, "Prolific.ac - A Subject Pool for Online Experiments," *Journal of Behavioral and Experimental Finance*, 2018, *17*, 22–27.

Peer, Eyal, David Rothschild, Zak Evernden, Andrew Gordon, and Ekaterina Damer, "Data Quality of Platforms and Panels for Online Behavioral Research Data Quality of Platforms and Panels for Online Behavioral Research," *Behavior Research Methods*, 2021, (August), 1–46.

Schaube, Sebastian; and Louis Strang, "(Not) Everyone can be a Winner The Role of Payoff Interdependence for Redistribution," 2022.

Stantcheva, Stefanie, "Understanding Tax Policy: How do People Reason?," *Quarterly Journal of Economics*, 2021, *136* (4), 2309–2369.

A Checking Data Quality

Of the 437 spectators in the restricted sample only one failed the first attention check. The second attention check was passed by 426 and failed by 11 spectators. Similarly, out of the 543 spectators in the main sample 2 failed the first attention check while 528 passed the second attention check and 15 failed it.

We asked spectators during the end of the survey how comprehensible they found the instructions. Subjects could choose from 7 options which ranged from "not comprehensive at all" to "perfectly comprehensive". None of the subjects chose the two options indicating the lowest comprehensiveness. Figure 8 shows how spectators in the restricted sample are distributed among the remaining five options. About 58% of subjects indicated that the instructions were "perfectly comprehensible" and about 31% indicated that they were comprehensible. Less than one percent of spectators indicated that the instructions were "not very comprehensible". The figure for all spectators in the main sample looks very similar.

To find out whether spectators perceived a political bias in the survey we asked them the following question:

> Do you think this survey was biased towards a certain political stance?

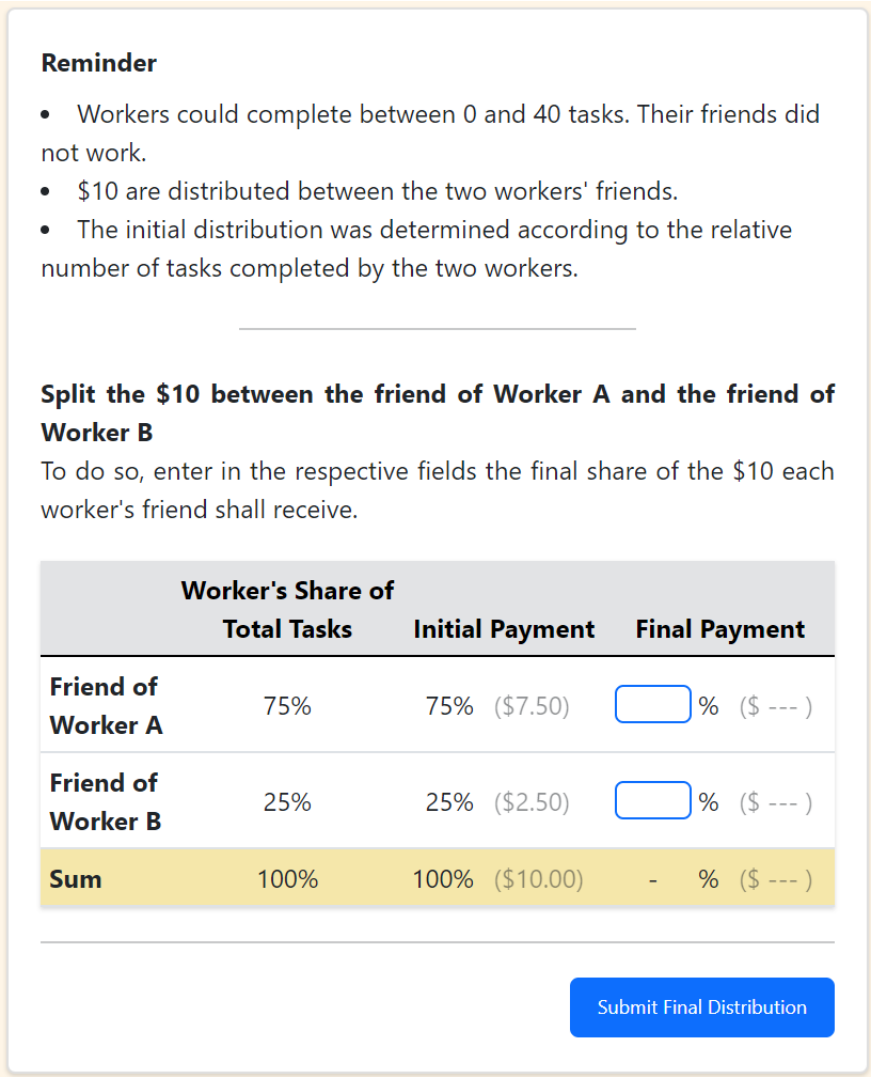
Possible answers included seven options from "Strong left bias" to "Strong right bias". Figure 9 shows how spectators in the restricted sample responded in form of a histogram. More than 70% respond with "No or almost nos bias". Of those who perceive a bias most perceive a slight bias. Less then 5% perceive a strong bias in either direction. About 23% perceive a left-wing bias of any strength and about 6% perceive a right-wing bias of any strength. Again, the figure for all spectators in the main sample looks very similar.

Only one spectator in the restricted sample and four spectators in the main sample don't write any open ended responses during the study. Most open ended responses are long and thoughtful which makes it unlikely that there are bots among the spectators and further shows that spectators put much effort into the study. Overall, these results suggest that the data provided by the spectators is of high quality.

Finally, figure 12 shows a word-cloud of final comments spectators could make at the end of the survey. To generate these word-clouds we remove all numbers from the open ended, responses, transform all words to lowercase and remove punctuation and stop words. Finally, we stem all words. Most comments were positive. Many spectators mentioned that the study was interesting, well designed and understandable.

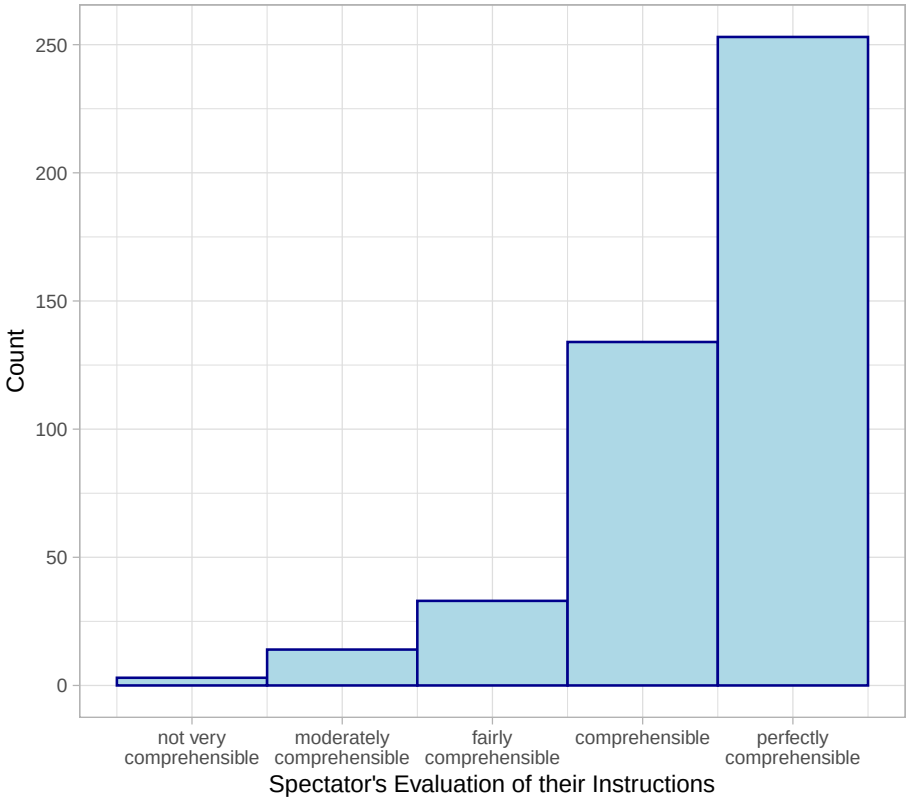
B Figures

Figure 7: Screenshot of the Decision Screen for the Spectators



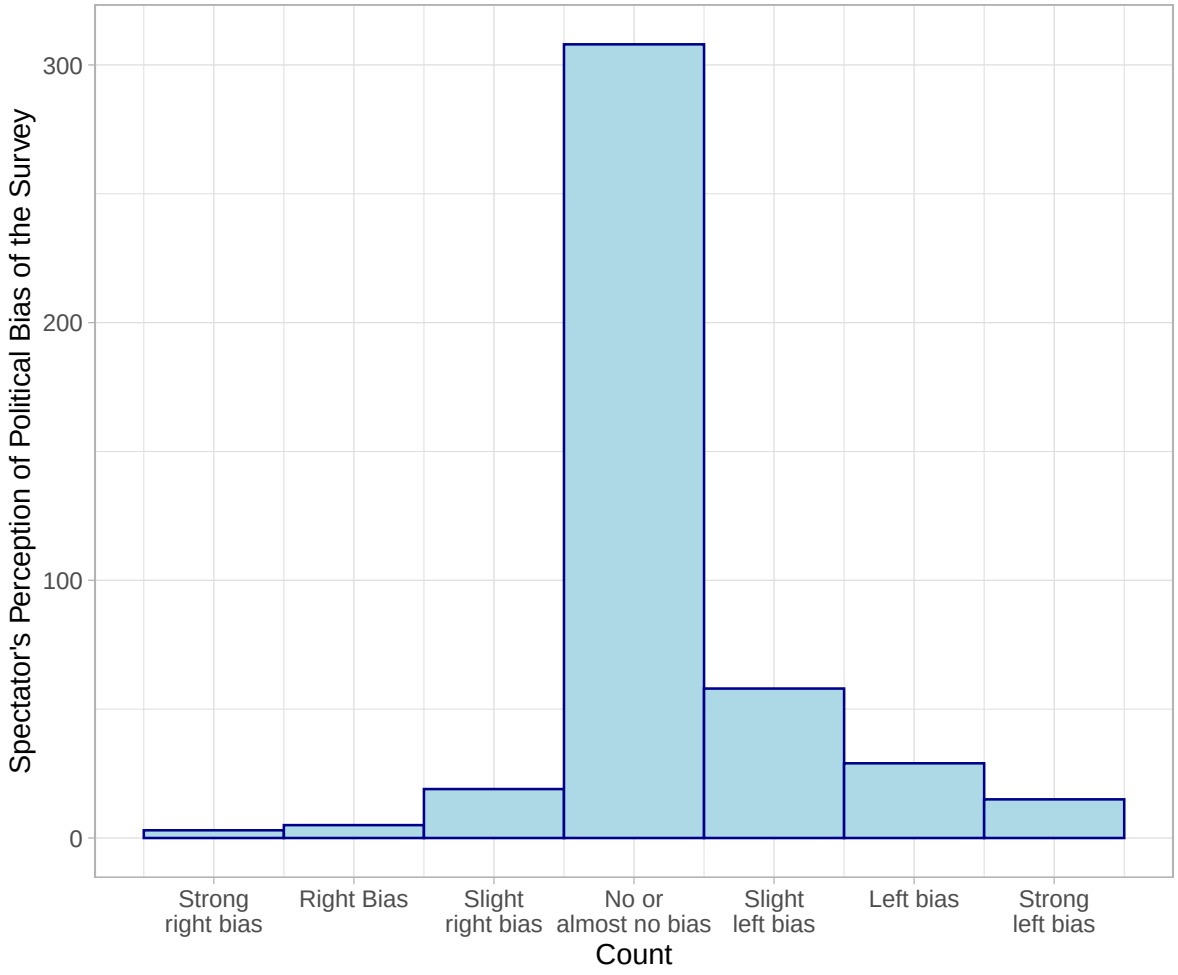
Note: This decisions screen relates to the condition Inherited Inequality - Merit. Decision screen for the other conditions had the same structure.

Figure 8: Histogram of Spectator's Evaluation of their Instructions



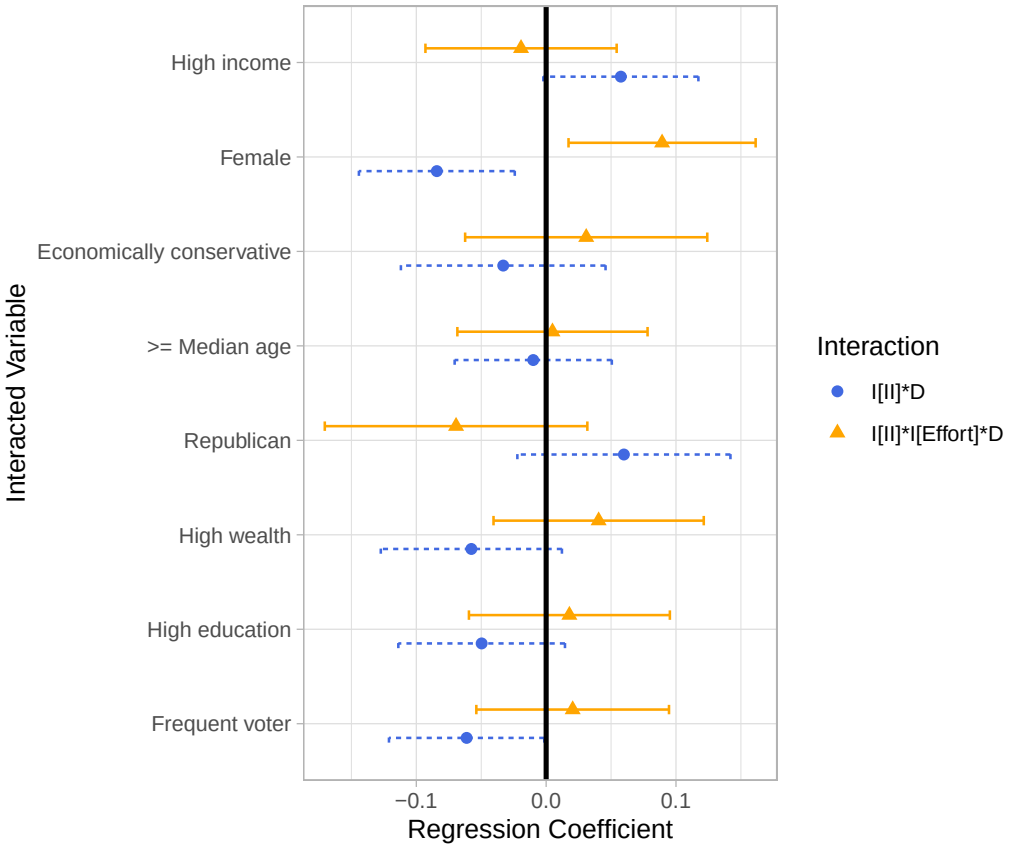
Note: Spectators were asked "Overall, I found the instructions ..." Five of the seven answer options are depicted on the horizontal axis. The remaining two options are "not comprehensible" and "not comprehensible at all". No spectator chose one of these options. The height of the bars shows the absolute frequency of the other five options.

Figure 9: Histogram of Spectator's Perception of the Survey's Political Bias

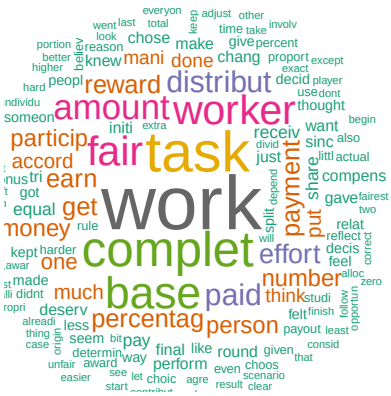


Note: Spectators were asked: "Do you think this survey was biased towards a certain political stance?" Answer options are depicted on the horizontal axis. The height of the bars shows the absolute frequency of the other five options.

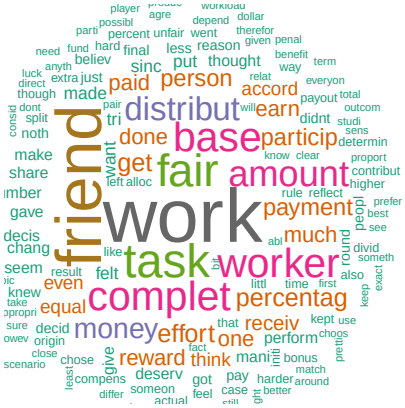
Figure 10: Heterogeneity in treatment effects between demographic groups



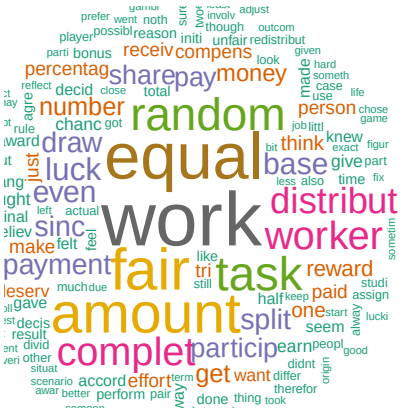
Note: This figure shows coefficients and 95% confidence intervals. The vertical axis shows demographic variables. These variables were interacted with two other terms in regression 4. The blue points show the coefficient on the interaction term of each demographic variable (D) with I[II], an indicator for the Inherited Inequality conditions. The orange points visualize the interaction of D with I[II] and an indicator for Effort conditions.



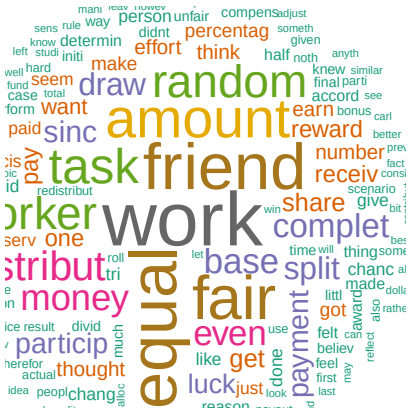
(a) Non-Inherited & Effort



(b) Inherited & Effort



(c) Non-Inherited & Luck



(d) Inherited & Luck

Figure 11: Word clouds of terms subjects used to explain their considerations when making redistribution decisions by treatment condition.

Figure 12: Word cloud

Note: A word cloud relating to final comments spectators could make at the end of the survey.