Fairness and Support for Welfare Policies *

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Abstract

How do fairness views shape people's support for welfare policies? Using large surveys in representative samples of US Americans, we study the roles of two determinants of fairness views: fairness preferences - revealed through transfer choices in a spectator game - and beliefs about the causes of inequality. We establish three novel findings: First, people with egalitarian, libertarian, and meritocratic fairness preferences differ strongly in their support for welfare policies. Second, beliefs about the causes of inequality have a strong effect on the policy support of meritocrats, but a much weaker effect on non-meritocrats. Third, leveraging individual-level panel data collected during the coronavirus pandemic, we show that shifts in support for welfare policies over time are rather caused by shocks to beliefs, than by shocks to fairness preferences. Our findings demonstrate that heterogeneous fairness preferences and beliefs interact in important ways in shaping people's support for welfare policies, which has theoretical implications for models in political economy. This paper also has practical implications because it documents a declining belief in a meritocratic US society, related to personal experiences during the pandemic, which may have long-term consequences for the US welfare state.

Keywords: Fairness, Welfare Policies, Societal Crises, Ideological Shocks
JEL Codes: P1, H5, D3

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1 Introduction

People disagree about the fairness of economic inequalities. Across the social sciences, scholars have argued that people's disagreements about fairness - and not just their economic self-interest - are central to understanding people's polarized views about welfare policies. However, two influential strands of literature in economics have provided competing theories why people disagree about the fairness of economic inequalities. One strand of literature explains disagreements about fairness with opposing beliefs about the causes of inequality (e.g. Fong 2001; Alesina and La Ferrara 2005; Alesina and Angeletos 2005), another strand of literature with egalitarian, libertarian, and meritocratic fairness preferences (e.g. Cappelen et al. 2007; Cappelen et al. 2013; Almås et al. 2020), that is with opposing normative views about what type of inequalities should be considered fair.

Understanding whether conflicts about welfare policies are based on polarized beliefs about the causes of inequality, or on polarized fairness preferences, seems to be of great societal relevance, in particular in times of rising economic inequality and strong political polarization. Yet, the existing evidence about this question is surprisingly limited. While the literature has repeatedly established a strong correlation between people's beliefs about merit and luck as causes of inequality and their support for redistributive policies (e.g. Fong 2001; Alesina and Giuliano 2011; Fong and Poutvaara 2019; Stantcheva 2021), no study has yet systematically disentangled the roles of fairness preferences and beliefs as determinants of people's policy preferences.

Fundamental questions about how fairness shapes people's policy preferences are therefore unresolved: Do people with egalitarian, libertarian, and meritocratic fairness preferences differ in their support for welfare policies? Are beliefs about the causes of inequality in society equally important to all people, or does the importance of beliefs vary depending on people's fairness preferences? And can we explain shifts in support for welfare policies over time with changes in people's fairness preferences or rather with changes in their beliefs about the causes of inequality?

In this paper, we study these questions using large surveys conducted with representative samples of US Americans (N=1975) in the context of the coronavirus pandemic. In our surveys, we collect detailed data about people's fairness preferences, their beliefs about the causes of inequality in society, and their support for welfare policies. Our empirical analysis is structured by a simple theoretical framework: People's preferences for taxes and transfers in society are explained by a trade-off between economic self-interest and fairness views. Fairness views, in turn, are determined by an interaction of heterogeneous fairness preferences with heterogeneous beliefs about the causes of inequality. In the first part of this paper, we test predictions from this theoretical framework. This empirical exercise shows how well fairness preferences and beliefs can descriptively ex-

plain why people are polarized in their support for welfare policies, that is, why some people strongly support welfare policies, while others strongly oppose welfare policies. In the second part of this paper, we then study if and how the exogenous shock of a major societal crisis changes people's views about the fairness of economic inequalities and their support for welfare policies. For that purpose, we use a subset of our data that consists of individual-level panel data (N=499), collected in two waves during the coronavirus pandemic (in Spring 2020 and Fall 2021), and a survey experiment (N=745), in which subjects write about personal experiences from the first wave of the coronavirus pandemic. This second empirical part allows us to move beyond the cross-sectional analysis of the first part and to study the stability and dynamics of fairness views and support for welfare policies over time.

There are at least three important benefits to understanding how fairness shapes people's support for welfare policies. First, these insights can help predict whether and under what conditions political agreements on central policy issues may be reached. If political conflicts are based on stable and opposing fairness preferences, any agreement seems hard to reach - even if all individuals in society share the same beliefs about reality. However, if political conflicts are based on malleable beliefs, changes in opinions and agreements appear more likely - especially in contexts in which transparent information about the causes of inequality is available. Second, it may allow us to better understand what type of policies the public perceives as fair. Analyzing the fairness views of the public could prove crucial for evaluating the political feasibility of any policy reform that causes or reduces economic inequalities. Welfare policies seem to be of first-order importance for economists due to their far-reaching impacts on labor markets, the macroeconomy, and the livelihoods of individuals affected by illnesses and unemployment. Third, these insights may eventually improve our understanding of why institutions of the welfare state change over time and vary across countries - one of the central puzzles discussed in the related theoretical literature (Piketty 1995; Alesina and Angeletos 2005; Benabou and Tirole 2006; Alesina et al. 2012).

Answering our research questions comes with one main empirical challenge: it requires a measure of fairness preferences types at the individual level. However, the existing literature has not yet established and validated an individual-level measure of fairness preferences types (see Cappelen et al. 2020; Fehr and Charness 2023, for excellent reviews).[1] To address this challenge, we use a simple within-subjects design in a spectator game to identify individual-level heterogeneity in fairness preferences. Based on their transfer choices in our spectator game, *individuals* can be classified into the distinct fairness

1. Instead, the literature has used spectator games with between-subject designs (see Cappelen et al. 2013; Almås et al. 2020; Cohn et al. 2023), which come with the advantage of a clean identification of average treatment effects, but only allow to estimate a distribution of fairness preference types at the population level.

preference types (egalitarians, libertarians, meritocrats). This is crucial for our analysis because only this individual-level type classification allows us to test whether fairness preference types differ in their support for welfare policies and whether they interact with beliefs about the causes of inequality as predicted by theory.

In our within-subjects design, each subject takes two transfer decisions between two anonymous workers, one in which an inequality in payments (4$ vs 0$) is caused by a lottery ("luck"), and one in which it is caused by differences in productivity in a real effort task ("merit"). *Egalitarians* equalize inequalities in both choice contexts (11.9% of our sample who transfer $2 in both contexts). *Libertarians* never equalize any inequality (5.3% of our sample who transfer $0 in both contexts). *Meritocrats* choose to fully redistribute inequalities caused by luck (t_{Luck} =$2), but are willing to accept inequalities caused by merit (t_{Merit} <$2) (49.7% of our sample). While the meritocratic type predominates in our US sample (in line with the previous literature), our within-subject design reveals that there is also a lot of heterogeneity among *Meritocrats*: *Meritocrats* can be classified into four subtypes (with *strong* to *weak meritocratic preferences*) according to the difference they make between transfers on inequalities due to luck and merit. The choice behavior of a third of subjects (33.1%) is not consistent with any of the narrowly defined fairness preference types ("*Other*"). Taken together, our within-subjects design reveals that there is substantial heterogeneity in fairness preferences at the individual level. To speak to the literature, we focus our main analysis on the egalitarian, libertarian, and meritocratic fairness preference types, and extend it to the meritocratic subtypes where it is insightful.

We use established survey questions to measure heterogeneity in beliefs about the causes of economic inequality in US society and policy support for a comprehensive set of welfare policies. The set of welfare policies comprises policies implemented by the US government to support people in economic need during the COVID crisis, such as the temporary expansion of unemployment benefits, as well as long-term policy reforms of the US welfare state, such as universal health care, and subjects' general support for redistribution in society.

As our first main result, we show that fairness preferences strongly and independently predict support for welfare policies in line with theoretical predictions. *Egalitarians*, on average, show the strongest support for welfare policies, *Libertarians* show the strongest opposition against welfare policies, and *Meritocrats* lie in-between these two extreme positions. The mean differences in support for welfare policies between all three fairness preference types are significant and remarkably large. *Egalitarians* on average have a 0.85 standard deviations higher support for welfare policies than *Libertarians*. Across our set of welfare policies, the predictive power of the fairness preference types for policy support proves to be stronger than that of major socio-demographics including income

and employment status. Fairness preferences remain strong predictors of policy preferences even when controlling for a variety of variables, such as socio-demographics, beliefs about the causes of inequality, left-right political ideology, altruism/selfishness and trust in government.

As our second main result, we find that fairness preferences and beliefs interact in line with theoretical predictions. The policy preferences of *Meritocrats* strongly depend on their beliefs about the causes of economic inequality in US society. The policy preferences of non-meritocrats, in contrast, depend to a significantly weaker degree on these beliefs. Moreover, beliefs have a significantly stronger influence on the policy preferences of *Meritocrat*s with *strong* meritocratic preferences compared to *Meritocrats* with *weak* meritocratic preferences. Hence, those subjects whose transfer choices in the spectator game are more sensitive to the causes of inequality, also put more weight on beliefs about the causes of inequality in US society when forming their policy preferences.

The sizes of the estimated coefficients indicate that heterogeneity in fairness preferences and heterogeneity in beliefs are of similar importance for explaining people's polarized views about welfare policies. *Meritocrats* who believe that economic inequalities in US society are mainly due to luck are as supportive of welfare policies as *Egalitarians*. *Meritocrats* who, in contrast, believe that economic inequalities are mainly due to merit are at least as opposed to welfare policies as *Libertarians*. In that way, differences in policy positions between individuals with opposing fairness preferences (*Egalitarians* versus *Libertarians*) are comparable in size to differences between *Meritocrats* with opposing beliefs (merit vs luck).

As our third main result, we find that shifts in support for welfare policies in times of societal crises are rather caused by shocks to beliefs about the causes of inequality, than by shocks to fairness preferences. In our panel data and in our experiment, we do not find significant changes in the distribution of fairness preference types. Moreover, changes in transfer choices at the individual level over time are not meaningfully related to changes in support for welfare policies. Beliefs about the causes of inequality in US society, in contrast, change considerably over time. Between the two waves of our panel data, between Spring 2020 and Fall 2021, beliefs in merit as the main cause of economic inequality in US society decreased by about 0.11 SD. This result is consistent with data from the General Social Survey, which reveals that over the pandemic (from 2018 to 2022) the belief in a meritocratic US society has declined substantially, and is now at its lowest value since the 2007/2008 financial crisis. Leveraging our individual-level panel data, we show that those subjects who reduce their belief in merit over time also increase their support for welfare policies.

Our data also provide evidence for one specific mechanism that can explain changes in beliefs about the causes of inequality in times of societal crises: personal experiences

in which people lose control over their own lives. These types of experiences were omnipresent in the pandemic and seem to shatter the belief in a meritocratic society. In our panel data, only those subjects who report a lower sense of control over their own lives in the second wave of data collection, on average, reduce their beliefs in a meritocratic society. With our experiment we provide causal evidence for the proposed mechanism: it shows that subjects who are asked to recall experiences of *low control* from the first months of the pandemic reduce their beliefs in merit as a cause of inequality compared to those who are asked to recall an experience of *high control*.

Our results contribute to a better understanding of how fairness preferences and beliefs about the causes of inequality interact in shaping people's fairness views and policy preferences. In that way, our paper bridges the two separated strands of literature on fairness in economics: the survey-based literature on beliefs (e.g. Fong 2001; Alesina and La Ferrara 2005; Alesina and Giuliano 2011; Fong and Poutvaara 2019), and the laboratory-based literature on fairness preferences (e.g. Konow 2000; Cappelen et al. 2007; Cappelen et al. 2013).[2]

Our paper in particular contributes to the rapidly growing literature on fairness preferences (e.g. Cappelen et al. 2018; Cappelen et al. 2019; Almås et al. 2020; Andre 2021; Cohn et al. 2023). While many recent papers advance our understanding of fairness preferences by experimentally introducing new features in the spectator game, our paper advances the literature by (i) providing evidence that heterogeneity in fairness preferences is important for understanding people's policy preferences and (ii) studying the stability of fairness preferences over time.

Closest to our paper regarding the external validity of fairness preferences are Almås et al. (2020) and Cohn et al. (2023). Almås et al. (2020) show that there is a simple correlation between the level of inequality implemented in the spectator game and the view that society should aim to equalize outcomes. Cohn et al. (2023) show that differences in inequality acceptance in the spectator game may explain differences in policy preferences between the top 5% and the bottom 95% of the US income distribution. Our approach differs from the existing literature in multiple ways. Our within-subjects design allows us to show for the first time that there are large and robust differences in policy preferences between individuals with egalitarian, libertarian and meritocratic fairness preferences. We thus base our analysis on the key theoretical distinction between different fairness preference types and not on general inequality acceptance. Further, we provide first evidence that these types meaningfully interact with beliefs in shaping policy preferences, and we control for a variety of potentially confounding variables in our descriptive analysis.[3]

2. A third strand of literature in economics studies fairness views directly and does not empirically distinguish between fairness preferences and beliefs (Stantcheva 2021; Hvidberg et al. 2021).

3. Our findings are also related to a broader literature which studies how other types of social prefer-

Our paper also contributes to the literature on the stability of social preferences and fairness views (e.g. Fehr et al. 2008; Almås et al. 2010; Fehr et al. 2013; Kosse et al. 2020), especially the strand of literature that is interested in how life-events in adulthood may shape fairness views (Barr et al. 2016; Roth and Wohlfart 2018; Cappelen et al. 2020; Hvidberg et al. 2021). In contrast to the findings by Barr et al. (2016) and Cappelen et al. (2021), our study provides evidence that changes in fairness views in times of personal and societal crises are rather driven by changes in beliefs than by changes in fairness preferences. Our data thereby also show that experience effects in belief formation (see Malmendier 2021) seem to have an important application in political economy, confirming Piketty (1995).

Taken together, our findings provide two important insights for theories in political economy. First, our data provide novel empirical evidence that shocks to beliefs about the causes of inequality can explain changes in policy preferences over time, which is a central mechanism in many prominent models in political economy (Piketty 1995; Alesina and Angeletos 2005; Benabou and Tirole 2006; Alesina et al. 2012).[4] Second, our findings imply that theories in political economy should not only focus on beliefs about the causes of inequality but should also incorporate heterogeneous fairness preferences. Our findings demonstrate that heterogeneity in fairness preferences matters for explaining people's policy preferences, even in a country like the US where people are predominantly meritocratic. In other countries with much more heterogeneity in fairness preferences, the integration of fairness preferences should prove even more important.

Methodologically, our paper contributes to the literature by showing that a simple within-subjects design - based on just two transfer choices - can recover meaningful heterogeneity in fairness preferences. Given its simplicity, this measure can well be implemented in large-scale surveys. An individual-level measure of fairness preferences seems important for studying where disagreements about fairness come from. It may also prove useful in many other settings, ranging from wage setting in firms to support for affirmative action, in which heterogeneity in fairness preferences may be relevant for understanding people's demand for fair institutions and fair policies.

The remainder of this paper proceeds as follows. Section 2 introduces our simple theoretical framework. Section 3 describes our survey design, and Section 4 our measurement of fairness views. Sections 5 and 6 present our main results. Section 7 concludes.

ences shape policy preferences and political ideology (Fisman et al. 2017; Kerschbamer and Müller 2020; Epper et al. 2022; Enke et al. 2023). This literature studies social preferences that are not sensitive to the causes of inequality and are therefore distinct from fairness preferences. Closest to our paper methodologically are Epper et al. (2022), who follow a type-based approach and find that inequality-averse and altruistic individuals in Switzerland are more likely to support plebiscites about redistributive policies than selfish individuals.

4. A seminal empirical paper in this literature has recently been retracted (Giuliano and Spilimbergo 2014).

2 Theory on Fairness Views: Preferences and Beliefs

In this section, we present a simple theoretical framework that guides our survey design, our measurement of fairness preferences and beliefs, and the subsequent empirical analyses. The theoretical framework incorporates heterogeneous fairness preferences and heterogeneous beliefs about the causes of inequality, building on Cappelen et al. (2007), into a simple political economy framework along the lines of the classical Meltzer and Richard (1981) model.

Individuals are motivated by own income and by fairness considerations. An individual's income before taxes, y, is exogenously determined on the market, but may depend on the size of a tax and transfer system implemented in society. A transfer system specifies the percent of the total income collected as a tax, $\tau \in [0,1]$, which is then distributed as a lump-sum transfer to all individuals in society, $T = \frac{1}{N}\sum_{i=1}^{N} \tau \cdot y_i = \tau \cdot \bar{y}$. For simplicity, individuals do not pay attention to the efficiency costs of redistribution.[5] Individuals maximize the following utility function when voting for their preferred tax rate τ in society:

$$U_i = (1-\tau) \cdot y_i + T - \gamma \cdot \Omega \tag{1}$$

The parameter $\gamma \geq 0$ determines the weight people attach to fairness considerations and Ω represents the disutility generated by unfair social outcomes, as in Alesina and Angeletos (2005). In contrast to Alesina and Angeletos (2005), but similar to Cappelen et al. (2007), we assume that this disutility takes the following form:

$$\Omega = \frac{(\tau - F_i(b_i))^2}{2} \tag{2}$$

An individual's fairness view, $F_i(b_i) \in [0,1]$, specifies what the individual perceives to be a fair tax rate in society. These fairness views are jointly shaped by fairness preferences, $F_i(\cdot)$, and beliefs about the causes of income inequality, $b_i \in [0,1]$. Specifically, $b_i = 0$ corresponds to the belief that inequality is entirely caused by merit and $b_i = 1$ to the belief that inequality is entirely caused by luck. Fairness preferences are characterized by a function that maps any level of beliefs into a fair tax rate. For individuals with meritocratic fairness preferences, the fair tax rate is belief-dependent: it increases with the belief in luck as the main cause of inequality in society, $F'_{Mer}(b_i) > 0$. Meritocrats do not accept inequalities due to luck, $F_{Mer}(Luck) = 1$, but accept inequalities due to merit (to some extent), $F_{Mer}(Merit) < 1$. For individuals with other fairness preferences, fairness views are independent of beliefs. Egalitarians, for example, always view equality in economic outcomes as fair: $F_{Ega}(b_i) = 1$ for all beliefs. Libertarians, on the other hand,

5. Stantcheva (2021) shows that, when it comes to the formation of people's policy preferences, efficiency concerns seem to play surprisingly little role. In a similar way, Almås et al. (2020) show experimentally that fairness concerns seem to be more important than efficiency concerns.

always view market outcomes as fair no matter how they were generated: $F_{Lib}(b_i) = 0$ for all beliefs. Therefore, fairness preferences determine whether and to what extent beliefs about the causes of inequality matter for fairness views.

Given an interior solution, the preferred tax rate, τ^*, then corresponds to:

$$\tau^* = \frac{1}{\gamma}(\bar{y} - y_i) + F_i(b_i) \tag{3}$$

As in the classical Meltzer-Richard model, the preferred tax rate depends on the difference between the income of a voter and the mean income in society: a lower relative income increases the preferred tax and transfer level. However, fairness concerns, γ, now reduce the influence of economic self-interest on policy preferences. Individuals also take their fairness views, $F_i(b_i)$, into account. In our paper, we aim to provide novel insights into the fundamental properties of people's fairness views $F_i(b_i)$. In contrast to the existing literature, we therefore directly measure people's fairness preferences, $F_i(\cdot)$, and their beliefs about the causes of inequality in society, b_i, in order to disentangle their effects on people's policy preferences.

3 Data Collection and Survey Design

3.1 Data Collection

We ran our surveys on Prolific, a large online survey platform focused on scientific research (https://www.prolific.com/).[6] Three key advantages of using Prolific for our data collection are, first, that it provides samples that are broadly representative of the US population (see 3.2), second, that it is known for high data quality (see 3.3), and third, that it allows to re-invite the same participants, which enabled us to collect our individual-level panel data.

We collected our data in two waves. Data for Wave 1 were collected between May 15th and May 17th 2020 (N=745). Data for Wave 2 were collected around 1 1/2 years later, between September 25th 2021, and January 3rd 2022. Wave 2 consisted of re-sampling around two-thirds of participants from Wave 1 (N=499)[7] and a new sample of participants (N=729). See Appendix Figure A1 for a timeline of the data collection.

6. In recent years online platforms like Prolific and Amazon MTurk have been increasingly used in economic research (for example in Kuziemko et al. (2015), Cappelen et al. (2018), and DellaVigna and Pope (2018)). Replications of classic experiments on online platforms show that results on online platforms are consistent with results in the laboratory (Snowberg and Yariv 2021).

7. Two observations in Wave 2 could not be matched to an observation in Wave 1 because they entered a wrong Prolific ID. This reduces the final sample from 501 to 499 observations in our panel.

3.2 Sample

Through Prolific we obtained representative samples of US Americans, stratified by age, gender and race. Participation was restricted to subjects who were 18 years or older. Table 1 shows that our sample matches the general population of the US well on a number of key characteristics such as age, sex, race, household income, employment status and geographic location. At the same time, Hispanics and people with very low education turn out to be underrepresented in our sample. Also, liberals tend to be overrepresented compared to the US population at large: 51.5% of subjects identify as liberal or very liberal on economic policy issues, 24.2% identify as moderate, and 24.3% as conservative or very conservative.[8] These types of imbalances are however typical in representative online samples that are not based on random sampling (Stantcheva 2023). Given that our sample covers such a diverse set of subgroups of the US population, it should provide sufficient heterogeneity in fairness views and policy preferences to answer the research question at hand. The imbalances compared to the US population should however be taken into account when generalizing from our study to the US population at large. As a robustness check, we reweight our sample to match the US population on key observable characteristics, which does not significantly change our results.

3.3 Data Quality

Prolific is known to have high data quality in comparison to other online platforms and even in comparison to standard student subject pools (Douglas et al. 2023).[9] In addition to the measures implemented by Prolific, we took several measures to ensure a high quality of our submissions: In Wave 1 and in the new sample in Wave 2, access to our survey was restricted to participants using a laptop or desktop computer.[10] To ensure that all subjects live within the United States, we used a screening protocol provided by Winter et al. (2019) that screens out users who try to hide their geographic location using VPNs. We also tracked response time, which provides us the opportunity to exclude the slowest and/or fastest 5% of subjects. We can also exclude the 5% of subjects with the highest share of rejected submissions on Prolific in the past. These robustness checks do not change our results meaningfully, thus, we use all of our observations in

8. As a comparison, in the American National Election Survey 2020, the share of people that self-identify as liberal is 30.1%, the share of moderates is 22.0% and the share of conservatives is 33.1% using a similar question. The ANES question (V201200) is measured on a 7-point Likert scale (Extremely Liberal/ Liberal/ Rather Liberal/ Moderate/ Rather Conservatives/ Conservative/ Extremely Conservatives) and does have an additional response category "haven't thought much about this" which is chosen by the remaining 14.5% of participants.

9. Confirming these findings, we ran two small pilot studies on Prolific and Amazon MTurk (via Cloud Research) prior to Wave 1 in which the effort and engagement of participants with our writing task proved to be much higher on Prolific.

10. In Wave 2 of our panel, we allowed the use of tablets to increase the retention rate. Just 4.0% of subjects (N=20) used a tablet.

Table 1: Sample characteristics

	Wave 1	Wave 2 - Panel	Wave 2 - New	Full Sample	US Population 2020
	(1)	(2)	(3)	(4)	(5)
Socio-demographics					
Female	0.52	0.54	0.52	0.51	0.51
Median Age	40	45	45	43	38
Race					
White	0.75	0.75	0.75	0.75	0.75
Black	0.13	0.14	0.12	0.13	0.14
Asian	0.07	0.06	0.06	0.06	0.07
Race Other	0.05	0.05	0.06	0.05	0.04
Ethnicity					
Hispanic	0.07	0.07	0.09	0.08	0.18
Education					
High School/GED or lower	0.34	0.33	0.26	0.31	0.58
College Degree	0.47	0.50	0.42	0.46	0.29
Graduate Degree	0.19	0.18	0.32	0.23	0.12
Economic Background					
Income					
Less than $49,999	0.42	0.43	0.32	0.38	0.39
$50,000 to $74,999	0.20	0.20	0.21	0.21	0.17
$75,000 to $99,999	0.14	0.14	0.16	0.15	0.13
$100,000 - $150,000	0.14	0.14	0.20	0.16	0.16
$150,000 or more	0.09	0.09	0.11	0.10	0.15
Employment Status					
Employed	66.3	71.1	65.3	67.1	72.9
Unemployed	12.3	8.4	10.2	10.5	5.0
Not in Labor Force	21.3	20.6	24.6	22.3	22.1
Census Regions					
Northeast	21.3	19.8	20.4	20.6	17.4
Midwest	18.3	18.2	20.4	19.0	20.8
South	45.1	48.3	38.7	43.5	38.1
West	15.3	13.8	20.4	16.8	23.7
Observations	N=745	N=501	N=729	N=1975	-

Notes: US population estimates are provided by the US Census Bureau (https://data.census.gov/) and are based on the 2020 US Census and the American Community Survey. US population estimates for education are based on the highest level of educational attainment of the population 25 years and over; the share of people not in the labor force is based on the population 20 years to 64 years. Income brackets in our sample were combined to match the US Census data.

our main analysis. For the main socio-demographics, we double-checked the self-reported data with administrative data provided by Prolific. For our panel study (N=499), we validated that participants entered consistent main socio-demographics in both waves. Both comparisons show that subjects enter this data with very high consistency.[11]

3.4 Survey Design

Procedures The surveys from all data collections are provided in the Online Appendix E. This paragraph gives an overview of the main procedures. Subjects first enter their socio-demographic characteristics. Then, some subjects are randomly exposed to one of our treatment manipulations (we discuss the experiment in detail in Section 6). Next, all subjects report their current psychological state. In the main part of the survey, we elicit the main variables of our analysis in the following order: (1) beliefs about the causes of inequality, (2) fairness preferences in a spectator game, (3) support for welfare policies. We also elicit a transfer choice with self-interest measured in a modified dictator game.[12] The survey concludes with questions about subjects' exposure to the pandemic in the health and financial domain. At the very end, subjects can provide feedback.

The experiment was implemented in the survey software Qualtrics. In Wave 1, participants received a flat payment of $1.40 plus a bonus payment between $0 and $1.20 depending on their choice with self-interest. In Wave 2, participants additionally received a surprise bonus payment of $1.00 and $0.50, respectively.[13] The median time to complete the study was 12.5 minutes in Wave 1 and 10.5 minutes in Wave 2.

Differences between Wave 1 and Wave 2 The surveys in both waves follow the procedures described above and differ only in minor aspects. In Wave 2, we implement the following main changes: We include a set of additional control variables at the end of the survey, including trust in government, liberal vs conservative ideology on economic policy issues, and voting choices in the 2016 and 2020 elections. We also adapt the health and financial exposure questions to measure personal experiences between the two waves. We further drop a third transfer choice in the spectator game that featured ambiguity about the inequality-generating process to keep the survey in Wave 2 as short as possible.[14]

11. In the entire sample, age matches the data provided by Prolific in 98.2% of cases (+/- 2 years as margin of error), gender in 99.0% of cases and race/ethnicity in 95.9% of cases. In our panel study, age is entered consistently across waves in 99.0% of cases (+/- 2 years as margin of error), gender in 99.8% of cases, and race/ethnicity in 98.0% of cases.

12. Participants are matched with one other participant. They are told that one of them will receive a bonus of $1.20. Who gets the bonus is determined by a lottery. Subjects are then asked how much they want to give to the other participant in case that they win the bonus.

13. The bonus was announced after the part that replicated Wave 1. The additional bonus was paid to nudge high attention and honest reporting in the exposure measures based on a "gift exchange" motive. The size of the bonus differs due to different amount of additional questions in the two surveys.

14. In Wave 1, we elicit the third choice at the end of the spectator game. The ambiguity rule is always displayed last (after the luck and merit rule), so omitting it in Wave 2 should not confound the

3.5 Measurement of Outcome and Control Variables

Support for Welfare Policies We measure subjects' support for a diverse set of policies. Subjects are first asked how much they approve of four specific policies contained in the pandemic support package of the US government (Economic Impact Payments, the increase and expansion of unemployment benefits, the expansion of Medicaid, and paid sick leave). We then also ask for their general approval of economic redistribution in society, to capture preferences for the overall level of taxes and transfers in society. We also measure approval of universal health care, which has arguably been one of the most controversial policy proposals to reform the US welfare state in the past decade. All policy preferences are elicited on a 5-point Likert scale (1 "strongly disapprove" to 5 "strongly approve").

To reduce the dimensionality of our analysis, we present graphical illustrations for "*Support for Welfare Policies*" which is the first principal component of all policy preferences (see Appendix A.8 for details). In our main regression analysis, we present results for the separate policy preferences. For that purpose, the four pandemic policies are aggregated to a "*Pandemic Support*" index by taking a simple average of the four subitems.[15]

Socio-Demographics As our standard socio-demographic characteristics we measure age in years, gender, race, Hispanic ethnicity, and level of education. We further measure subjects' income and current employment status. Income is measured as gross household income in the previous calendar year using seven income brackets [<\$20,000, \$20,000-\$34,999, \$35,000-\$49,999, \$50,000-\$74,999, \$75,000-\$99,999, \$100,000-\$149,999, >\$150,000]. We ask for more detailed income and employment data as part of measuring exposure to the pandemic. We also collect data on subjects' place of residence at the US state and US county level.

Political Ideology Political ideology is self-reported on a scale from 1 to 10, where 1 refers to left/liberal and 10 to right/conservative. In Wave 2, we additionally ask for a self-classification of political orientation on economic policy issues on a 5-point scale [Very Liberal/ Liberal/ Moderate/ Conservative/ Very Conservative], and for voting behavior in the 2016 and 2020 presidential elections.

comparison of fairness preferences between Waves 1 and 2 in our panel. In Wave 1, most subjects simply redistribute the average of their transfers on luck and merit in the ambiguity rule, which is why we dropped the choice to keep the survey in Wave 2 as short as possible.

15. Using the first principal component produces almost identical results, as it assigns similar weights to all four policy preferences.

4 Measuring Fairness Views: Preferences and Beliefs

In this section, we describe and graphically illustrate how we classify subjects into distinct fairness preference types based on their transfer choices in the spectator game (4.1) and how we measure beliefs about the causes of inequality (4.2). We then discuss the correlation between fairness preferences and beliefs in our data set (4.3).

4.1 Measuring Fairness Preferences

Spectator Game Fairness preferences are revealed through transfer choices in a spectator game, in which we implement a new within-subjects design.[16] In the spectator game, subjects can transfer earnings between two workers as an anonymous and impartial spectator. The workers were recruited in a different sample via Amazon MTurk prior to the data collection and participated in a tedious real effort task.[17] The workers earn a fixed show-up fee of $0.50 plus a variable compensation for working on the real effort task ($0 to $4), which depends on the transfer choices of the spectator.

Each of the spectators chooses a transfer for two different states of the world. In both states of the world, there is the same level of inequality: one worker is initially endowed with $4 and the other one with $0 as their variable compensation for the real effort task. The causes of inequality, however, differ between the two states. The causes of inequality are either:

- **Luck:** A lottery determines who receives 4$.
- **Merit:** The more productive worker receives 4$.

Spectators can decide to transfer between $0 to $4 (in steps of 10 cents) to the worker with $0.[18] In a classic between-subjects design, one group of subjects would choose a transfer on inequalities due to luck, and another group on inequalities due to merit. In our **within-subjects design**, each subject takes two transfer choices, one for each cause of inequality, in random order. Spectators are not aware of the second cause of inequality when they make their first transfer choice, they only know that a second choice is pending. We informed spectators that for every fourth spectator, one of their choices (chosen randomly) would be implemented and would determine the payoffs for a pair of

16. The instructions for subjects closely follow the wording used in Almås et al. (2020), except that we make the necessary changes to implement the within-subjects design.

17. The task consisted of counting the number 1 in a line of symbols. Their productivity was measured as the number of correctly solved lines. Spectators are, however, not aware of these details about the real-effort task.

18. Almås et al. (2020), instead, offer a choice between seven allocations [($0,$6), ($1,$5), ($2,$4), ($3,$3), ($4,$2), ($5,$1), ($6,$0)]. The motivation for our design is that we did not want to limit the heterogeneity in fairness preferences that could be observed by restricting the choice set, and also to potentially observe more precise variation in fairness preferences in our experiment and panel data.

workers. The decisions of spectators are hence probabilistically incentivized to limit costs of data collection (see Andre (2021) and Bartling et al. (2023) for a similar approach).[19]

Link to Theory In the spectator game, subjects can implement a transfer between the two workers as a social planner without any confounding effect of economic self-interest. Implementing a transfer between the workers is not associated with any costs or benefits for the spectator: $y_i'(\tau) = 0$, $T_i'(\tau) = 0$. The chosen "tax rate" in the spectator game (a transfer of \$2 would be equivalent to a tax rate of 100%) should therefore only be determined by what a subject thinks is fair given beliefs about the causes of inequality:

$$\tau_i^* = F_i(b_i) \tag{4}$$

Subjects make two transfer choices in the spectator game in which we exogenously fix beliefs, b_i, by providing information about the causes of inequality. This arguably allows us to identify the fairness preferences on inequalities due to luck, $F_i(b_i = Luck)$, and on inequalities due to merit, $F_i(b_i = Merit)$[20], for each individual in our sample.

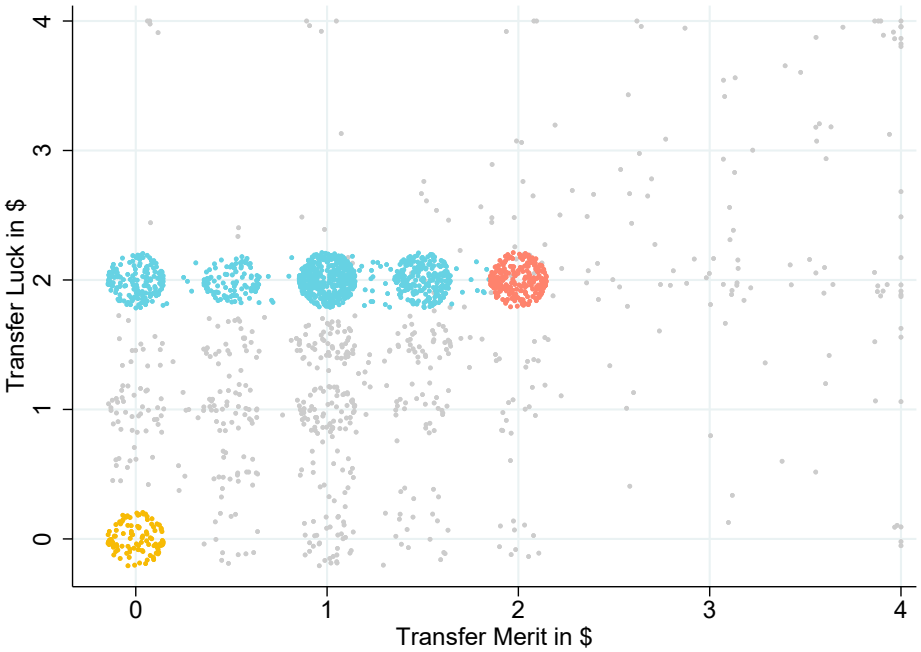
Classification of Fairness Preference Types The within-subjects design allows us to classify each individual in our sample into egalitarian, libertarian or meritocratic fairness preferences based on their two transfer choices in the spectator game (T_{Luck} and T_{Merit} hereafter). The classification is as follows: Egalitarians equalize all inequalities in both transfer choices: $T_{Luck} = T_{Merit} = \$2$. Libertarians, on the other hand, accept both types of inequality: $T_{Luck} = T_{Merit} = \$0$. Meritocrats equalize inequalities due to luck but accept inequality due to merit: $T_{Luck} = \$2 > T_{Merit}$. In a between-subjects design, these types can only be estimated at the population level under a number of assumptions about the consistency of choices across treatments.

Heterogeneity in Fairness Preference Types Figure 1 shows a jittered scatter plot of subjects' transfers from the rich worker (\$4) to the poor worker (\$0) when the inequality is caused by merit (x-axis) and when it is caused by luck (y-axis). Each dot represents one observation in our sample. Egalitarian fairness preferences (red dots) are implemented by 11.9% of our subjects (N=235), while Libertarian fairness preferences (yellow dots) are implemented by 5.3% of our subjects (N=104). Meritocratic fairness preferences (blue

19. In total we recruited N=988 workers via MTurk. Shortly after the data was collected, spectators were matched to worker pairs and the choices of spectators were implemented by paying out the earnings after transfers to the MTurk workers.

20. We are aware that the concept of merit is not clearly defined in this situation as the abilities needed to be productive in the task might themselves be a matter of luck rather than of effort. However, the debate on whether ability should be seen as a factor within or partly out of the control of the individual is a philosophical question that is beyond the scope of our paper and likely also not resolved in the minds of our respondents. The situation we present to our respondents thus reflects the uncertainties that surround productivity and merit in any real world situation, in line with the existing literature.

Figure 1: Transfer Choices and Fairness Preference Types



	Fairness Preference Type	Classification	N	Share
●	Egalitarians	$T_{Luck} = T_{Merit} = \$2$	235	11.9%
●	Libertarians	$T_{Luck} = T_{Merit} = \$0$	104	5.3%
●	Meritocrats	$T_{Luck} = \$2 > T_{Merit}$	982	49.7%
●	Other	-	654	33.1%

Notes: The figure shows the distribution of transfer choices on inequalities due to luck and merit in the spectator game. Each dot represents one observation in our sample (N=1975). The colors of the dot indicate to which fairness preference type an individual is assigned where red stands for the egalitarian, yellow for the libertarian, and blue for the meritocratic fairness preference type. Dots are jittered, so that clusters of individuals are visible.

dots) are implemented by 49.7% of our subjects (N=982). Around 33.1% of our sample cannot be classified into one of these three distinct fairness preference types. They are hence classified as "Other" (grey dots).

Are there more types? The case of strong and weak meritocrats The most apparent novel heterogeneity in fairness preferences revealed by our within-subjects design is heterogeneity among the meritocrats. While the meritocratic fairness ideal specifies that inequalities caused by luck are unfair, it does not specify how much inequality is fair when inequalities are caused by merit (Roemer and Trannoy 2015). Heterogeneity along this dimension among the meritocrats is illustrated in Figure 1 by the four clusters of meritocrats around (\$0,\$2), (\$0.5,\$2), (\$1,\$2) and (\$1.5,\$2) that all fully equalize inequalities due to luck but accept inequalities due to merit to varying degrees. Hence,

meritocrats differ in the strength of their meritocratic preferences, which we define as the difference between transfers on luck and merit: Meritocratic Preferences = T_{Luck} - T_{Merit}. The four clusters of meritocrats in Figure 1 can be classified as having (from left to right) very strong, rather strong, moderate, and weak meritocratic preferences (also see Figure A4).

What about heterogeneity among subjects classified as having "other" fairness preferences? Among the "other" type, subjects do not seem to strongly cluster around one point in Figure 1: the largest cluster is at ($1,$1) with around 3.2% of subjects in our sample. While some of the choices among the "other" type may reflect measurement error, most choices, for example of the clusters around ($1,$1) or ($1.5,$1.5), may very plausibly reflect subject's genuine fairness preferences in the spectator game.

In order to speak to the existing literature, we focus our main analysis on a comparison of the egalitarian, libertarian, and meritocratic fairness preference types. To strike a balance between parsimony and richness of the type classification, we extend the analysis to the meritocratic subtypes where it provides insightful contributions. Our analysis of different fairness preference types therefore focuses on those six clusters of subjects that contain 5% or more of subjects in our sample. All of these empirically relevant fairness preference types are consistent with one fairness ideal derived from influential theories of distributive justice, namely, egalitarianism, libertarianism, or meritocracy.

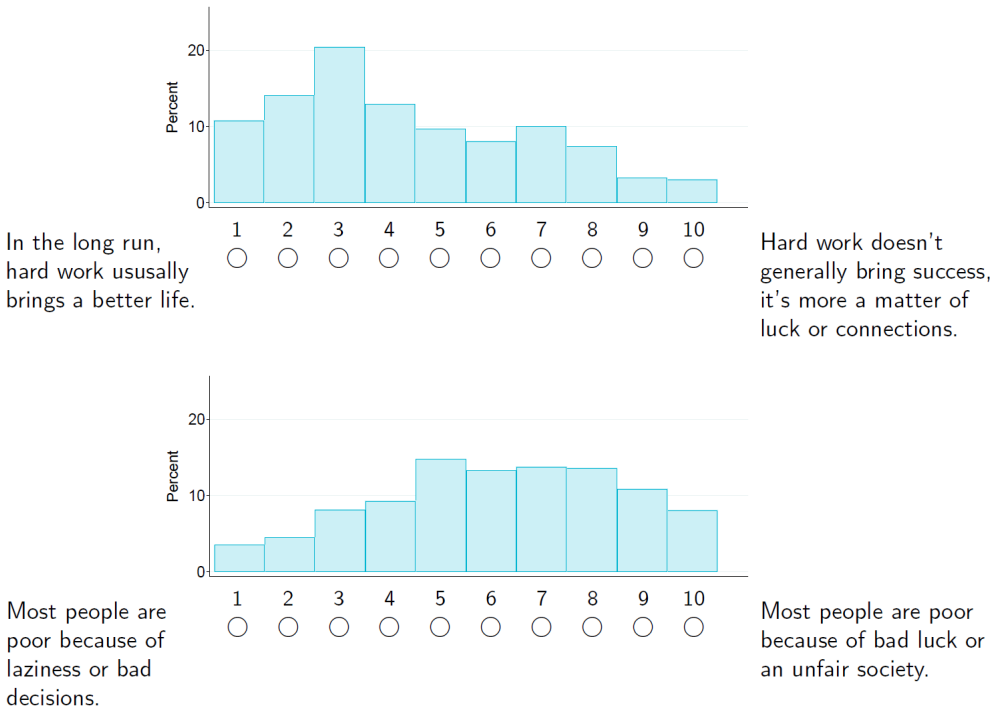
Validating the Type Classification To validate our new individual-level classification of fairness preference types, we present four pieces of evidence. First, we estimate the type distribution with the between-subject approach of Almås et al. (2020) using just the first transfer choice of each subject (see Appendix Table A1). The within and between type distributions do not differ by much, except that the shares of egalitarians and libertarians are slightly higher using the between-subjects approach (by 3-4pp). This is a "mechanical" effect if subjects violate the assumptions that are made about the consistency of their choices in the between-subjects approach. Second, while we observe some order effects in our data, they do not cause substantial changes in the type distributions, neither in the between- nor in the within-classification (see Appendix Table A1). Third, if we classify subjects who are close to ($0,$0) as libertarians and those close to ($2,$2) as egalitarians (diff< $0.25), the shares increase only marginally, by 1 and 15 observations respectively.[21] Last, the shares of egalitarians and meritocrats in our sample are very similar to the estimated shares in representative samples of the US in Almås et al. (2020) and Cohn et al. (2023), while the share of libertarians is lower (see Appendix A2 for a detailed comparison).

21. Given their small numbers, classifying these observations as libertarians or egalitarians does not meaningfully change any of our results.

4.2 Measuring Beliefs

We measure beliefs with two established questions from the World Values Survey about the relative importance of factors within individual control (e.g. merit) and factors outside individual control (e.g. luck) in causing economic success and poverty on 10-point Likert Scales (see Figure 2).[22] The first question measures beliefs about the causes of success in US society, namely, whether success is rather caused by hard work or by luck and connections. The second question measures beliefs about the causes of poverty in a similar way (which we slightly modified by including "bad luck" as a reason for poverty).

Figure 2: Beliefs about the Causes of Inequality



Notes: The figure shows the distributions of answers to our survey questions about the causes of inequality in US society. Subjects are asked whether they rather agree with the statement on the left or on the right and to place their views on the scale from 1 to 10 accordingly.

On average, we find that subjects believe strongly that hard work leads to economic success (58.3% state 4 or lower, mean=4.4, see Figure 2), in line with ample evidence from previous studies using the same or similar questions in the US (Alesina and Giuliano 2011). At the same time, most subjects believe that poverty is often due to factors outside individual control such as bad luck (only 22.0% state 4 or lower, mean=6.2, see Figure

22. Note that beliefs about the causes of inequality should be conceptually distinguished from beliefs about the degree of social mobility, studied for example in Alesina et al. (2018), which measure how much people move between societal strata. While these two beliefs may be related, beliefs about the causes of inequality measure why people move between societal strata, which arguably makes it a better measure of how meritocratic society is. For example, a society with a very high degree of social mobility may not be meritocratic if positions in society are determined randomly.

2). This shows that people do not seem to believe that economic success and poverty are caused to the same degree by factors within and outside individual control, which highlights the importance of measuring beliefs about both processes, in line with the recent findings by Fong and Poutvaara (2019).

To construct the variable "*Beliefs in Merit*", we reverse code the items and take a simple average of the answers to these two questions. Note that higher beliefs correspond to a higher belief in factors within individual control, that is, a belief that US society is more meritocratic.

4.3 Correlation between Preferences and Beliefs

Given that few papers have jointly measured fairness preferences and beliefs about the causes of inequality, we know very little about the empirical relationship between these two measures. A priori, it seems likely that these two measures are correlated, given that people may form their beliefs about the causes of inequality based on their normative ideas about the fairness of inequality, or vice versa.

When looking at the correlation in our sample, we find that egalitarians, libertarians, and meritocrats not only hold very different normative views about fairness but also on average have different beliefs about the causes of inequalities in US society: the average belief in a meritocratic society is highest among libertarians (6.4), followed by meritocrats (5.8) and lowest among egalitarians (4.7) (see Appendix Figure A3 for histograms of beliefs by type). While these mean differences are statistically significant ($p < 0.001$ for all pairwise comparisons), there is a lot of unexplained variation in beliefs among the types: only 3.8% percent of the variation in beliefs can be attributed to subjects holding different fairness preferences. Hence, the two elements determining fairness views in our theoretical framework - preferences and beliefs - seem to have sufficient independent variation.

5 How Fairness Shapes Support for Welfare Policies

This section studies whether fairness preferences and beliefs can explain why some people strongly support welfare policies, while others strongly oppose welfare policies. For this purpose, we test central predictions from our theoretical framework in a cross-sectional analysis. First, we test whether the fairness preference types - revealed through two simple transfer choices in our spectator game - differ in their support for welfare policies (5.1). Second, we test how beliefs about the causes of inequality shape the policy support of meritocrats (5.2). Third, we test whether beliefs about the causes of inequality have a larger effect on the policy support of meritocrats than on the other types (5.3).

5.1 Fairness Preferences Predict Policy Preferences

Based on our theoretical framework and the preferred transfer levels revealed in the spectator game, we derive the first theoretical prediction:

> **Prediction 1:** Egalitarians should have a higher support for welfare policies than libertarians. This follows from $F_{Ega} = 1 > F_{Lib} = 0$ for all beliefs.

To test this prediction, we present a set of simple OLS regressions which regress policy preferences on dummies for each fairness preference type while controlling for a number of observable characteristics. A "controlling for observables" strategy is the standard approach in the literature studying the relationship between experimental measures of distributive preferences and policy preferences (Kerschbamer and Müller 2020; Epper et al. 2022; Enke et al. 2023).[23] We include all N=1975 observations in our regression analysis to maximize the power and precision of estimates. Standard errors in all regressions are clustered at the individual level. Figure 3 depicts the estimated coefficients of the fairness preference type dummies from an OLS regression that just controls for socio-demographics and economic background characteristics. The outcome variable is support for welfare policies, which is the standardized first principal component of all our policy preferences. The reference category in this regression are subjects with "other" fairness preferences.

Figure 3 (a) reveals that egalitarians have the highest support for welfare policies, while libertarians have the strongest opposition against welfare policies. The policy preferences of meritocrats lie in between the attitudes of egalitarians and libertarians. Hence, the rank ordering of support for welfare policies of the fairness preference types is in line with the prediction. The sizes of the estimated coefficients are such that libertarians are on average 0.80 SD less in support of welfare policies compared to egalitarians ($p<0.001$). Meritocrats are on average 0.41 SD more in support of welfare policies than libertarians ($p<0.001$) and 0.39 SD less in support of welfare policies than egalitarians ($p<0.001$).

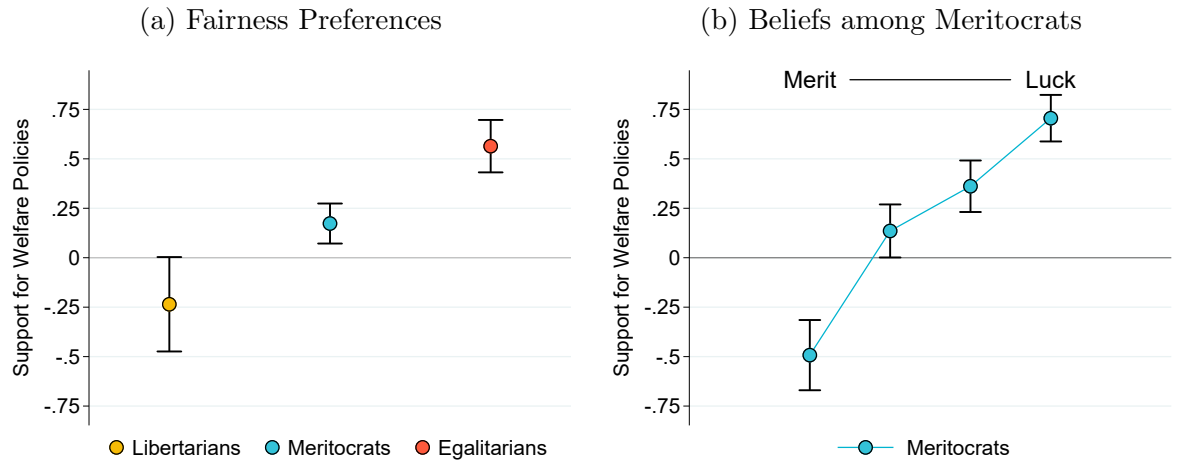
The estimated coefficients are not only statistically significant but also remarkably large compared to relevant benchmarks: for example, the mean difference in support for welfare policies between subjects in the lowest and the highest income bracket (<\$20,000 vs >\$150,000) is 0.46 SD, between the full-time employed and unemployed it is 0.35 SD (see Appendix B7 for a comparison).[24]

In Table 2 we show that differences in support for welfare policies between the fairness preference types remain large and significant even when we control for people's beliefs

23. This is also more generally the case for the literature on the external validity of experimental measures of economic preferences, such as risk or time preferences (e.g. Charness et al. 2020; Schneider and Sutter 2020).

24. The differences in support for redistributive policies between income brackets in our sample are remarkably similar to those in Epper et al. (2022).

Figure 3: Fairness Preference Types Predict Support for Welfare Policies



Notes: The figure shows estimated coefficients and 95% confidence intervals from OLS regressions explaining support for welfare policies (standardized first principal component of all policy preferences). Figure (a) shows coefficients of the egalitarian, libertarian, and meritocratic fairness preference type dummies (see Section 4 for details on the classification). In Figure (b) meritocrats are classified into four subtypes using quartiles of the belief distribution from high beliefs in merit (left coefficient) to high beliefs in luck (right coefficient) (see Appendix A.7 for details on the classification). Regressions control for socio-demographics (age, gender, race/ethnicity, education) and economic background characteristics (income bracket and employment status). Subjects classified as "other" serve as the reference category in both regressions, corresponding to the grey horizontal line at 0. Robust standard errors are clustered at the individual level.

about the causes of inequality as well as their left-right political ideology. Controlling for left-right political ideology is seen as a critical robustness check in Enke et al. (2023) and Epper et al. (2022). Note, however, that people's left-right political ideology could itself be shaped by people's fairness preferences, so that the coefficients of fairness preferences may be biased towards zero once we control for political ideology.[25]

Panel A in Table 2 presents six OLS regressions that explain support for welfare policies in our three different policy domains: redistribution, universal health care, and the pandemic support package. In columns (1), (3) and (5) we control for socio-demographics, economic background characteristics and beliefs about the causes of inequality, while in columns (2), (4) and (6) we additionally control for left-right political ideology. In all models, the egalitarian type serves as the reference category. All regressions confirm the pattern depicted in Figure 3. When political ideology is included in the regression, the estimated coefficients of fairness preference types decrease by about a third but remain large and jointly significant. When comparing the sizes of the *Libertarian* coefficient across

25. Research in political science has shown that left-right political ideology aggregates a wide variety of beliefs, preferences and behavioral motives that shape people's general political attitudes, especially their attitudes towards inequality (Jost et al. 2009). Controlling for political ideology arguably also allows to rule out that people's behavior in our experimental game is just the result of their political ideology. If this was the case, then we should observe no correlation between fairness preferences and policy preferences once we control for political ideology.

policy domains, we observe that it is larger for economic redistribution than in the other two domains, but statistically significant in all domains and specifications ($p < 0.015$). Based on these analyses, we derive our first result confirming Prediction 1:

> **Result 1:** Egalitarians have a higher support for welfare policies than libertarians, and meritocrats lie in between these two extreme types.

Robustness One may still be concerned about other potential confounders that are not captured by people's socio-demographics, economic background characteristics, beliefs about the causes of inequality, or their left-right political ideology. Epper et al. (2022), for example, show that selfish subjects (14.8% in their sample) are around 0.3 SD less in support of redistributive policies than altruistic and inequality-averse subjects. To identify selfish subjects in our sample, we can make use of our transfer choice with self-

Table 2: OLS: Fairness Preferences Predict Policy Preferences

	Redistribution		Univ. Health Care		Pandemic Support	
	(1)	(2)	(3)	(4)	(5)	(6)
Libertarian	-0.63***	-0.47***	-0.49***	-0.29**	-0.40***	-0.25*
	(0.11)	(0.10)	(0.12)	(0.10)	(0.11)	(0.10)
Meritocrat	-0.29***	-0.25***	-0.14*	-0.08	-0.20***	-0.15**
	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)
Other	-0.30***	-0.18**	-0.20**	-0.05	-0.33***	-0.22***
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
Beliefs in Merit	-0.19***	-0.11***	-0.17***	-0.08***	-0.15***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Left-Right Political Ideology		-0.15***		-0.18***		-0.14***
		(0.01)		(0.01)		(0.01)
p (Egalitarian = Libertarian)	< 0.001	< 0.001	< 0.001	0.005	< 0.001	0.015
p (Egalitarian = Meritocrat)	< 0.001	< 0.001	0.026	0.116	0.001	0.003
p (Meritocrat = Libertarian)	0.001	0.009	0.002	0.025	0.046	0.293
p (joint test)	< 0.001	< 0.001	< 0.001	0.017	< 0.001	0.004
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	Yes	Yes	Yes	Yes	Yes	Yes
Employment Status	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1975	1975	1975	1975	1975	1975
R^2	0.265	0.388	0.186	0.378	0.167	0.280

Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses. Dependent variables: policy preferences as standardized z-scores. Omitted category: "Egalitarians". Socio-Demographics include age, gender, race, ethnicity and education dummies. The "joint test" tests the hypothesis that there is no difference between any of the three fairness preference types (egalitarians, libertarians and meritocrats).
*** p<0.001, ** p<0.01, * p<0.05

interest measured in a slightly adapted version of the classical dictator game. In line with Epper et al. (2022), we find that selfish subjects (13.4% in our sample who do not give any money to another participant) are less in support of welfare policies (0.28 SD), but importantly, differences between the fairness preference types remain large and statistically significant once we control for selfishness (see Appendix Table B8).

In Appendix Table B8, we also show that Result 1 is robust if we additionally control for trust in government, for people's perceived closeness to other people in the US, for liberal-conservative political ideology on economic policy issues (measured on a 5-point Likert scale) and for voting behavior in the 2016 and 2020 presidential elections.

Last, we show that there are large and robust differences in support for welfare policies between meritocrats with strong and weak meritocratic preferences in line with theoretical predictions (see Appendix Figure B7 and Table B9).

5.2 Beliefs Predict Policy Preferences Among Meritocrats

Next, we turn to the role of beliefs about the causes of inequality in US society for the policy preferences of meritocrats:

> **Prediction 2:** Meritocrats who believe that inequalities in US society are caused by luck should be more in support of welfare policies than meritocrats who believe that inequalities are caused by merit. This prediction follows from $F'_{Mer}(b_i) > 0$ by definition of the meritocratic type.

Figure 3 (b) depicts coefficients from an OLS regression that is identical to the one for Figure 3 (a), except that meritocrats are split into four different subtypes according to quartiles of the belief distribution, ranging from strong beliefs in merit (left coefficient) to strong beliefs in luck (right coefficient). Only the coefficients of the meritocratic subtypes are depicted, again, relative to subjects with "other" fairness preferences. Figure 3 (b) shows that the higher the belief in merit as a cause of inequality, the lower the support for welfare policies among meritocrats ($p<0.006$ for all pairwise comparisons between meritocratic subtypes). The finding that beliefs about the causes of inequality predict support for redistributive policies is in line with an entire strand of literature (e.g. Fong 2001; Alesina and La Ferrara 2005; Alesina and Giuliano 2011) and therefore unsurprising. What is remarkable, however, when comparing Figures 3 (a) and (b), are the relative sizes of the coefficients of fairness preferences and beliefs:

Result 2: Meritocrats who believe that inequalities in US society are mainly caused by luck are, on average, as supportive of welfare policies as egalitarians, while meritocrats who believe that inequalities in US society are mainly caused by merit are, on average, at least as opposed to welfare policies as libertarians.

Therefore, differences in support for welfare policies between individuals with opposing fairness preferences (libertarians and egalitarians) are comparable in size to differences between meritocrats with opposing beliefs (merit vs luck). In terms of their estimated coefficient sizes, fairness preferences and beliefs about the causes of inequality hence prove to be similarly important for explaining disagreements about welfare policies at the individual level.

5.3 Fairness Preferences and Beliefs Interact

Last, we test the central theoretical prediction that fairness preferences determine to what extent beliefs about the causes of inequality matter for fairness views - and thus for people's policy preferences. This is clearly the most demanding test of our theoretical framework and of our individual-level classification of fairness preference types.

Prediction 3: The policy preferences of meritocrats should depend more strongly on their beliefs about the causes of inequality than the policy preferences of egalitarians, libertarians and others. This prediction follows from: $F'_{Mer}(b_i) > 0$ by definition of the meritocratic type, $F'_{Ega}(b_i) = F'_{Lib}(b_i) = 0$ by definition of the egalitarian and libertarian type, and the observation that the mean $F'_{Oth}(b_i) \approx 0$ among "Others"[26].

Table 3 establishes that there are, in fact, meaningful interaction effects between fairness preferences and beliefs. In Table 3 we present OLS estimates that are identical to Table 2, except that we now interact the variable "Beliefs in Merit" with dummies for each fairness preference type (meritocrats serve as the omitted category). The "Beliefs in Merit" coefficient in the first row indicates the association between beliefs and policy preferences among meritocrats: this association is strong and significant across policies, confirming the result presented in Figure 3 (b).

The interaction terms in Table 3 show that the estimated effect of beliefs on policy preferences is substantially weaker for egalitarians and individuals with "other" fairness preferences than for meritocrats. The interaction effect is statistically significant across columns (1) to (6) for egalitarians ($p< 0.006$) and for individuals with "other" fairness preferences ($p< 0.024$). In column (2), for example, a one-point increase in beliefs in merit

26. On average, subjects with "Other" fairness preferences transfer \$1.33 when inequalities are caused by luck and \$1.39 when caused by merit. Thus, the mean difference between T_{Luck} and T_{Merit} among "Others" (\$0.06) is much smaller than among meritocrats (\$1.10).

Table 3: OLS: Interaction between Fairness Preferences and Beliefs

	Redistribution		Univ. Health Care		Pandemic Support	
	(1)	(2)	(3)	(4)	(5)	(6)
Beliefs in Merit	-0.24***	-0.15***	-0.22***	-0.11***	-0.19***	-0.11***
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Egalitarian	-0.25*	-0.18	-0.45***	-0.37***	-0.22	-0.15
	(0.12)	(0.11)	(0.11)	(0.10)	(0.12)	(0.11)
Egalitarian ×	0.10***	0.08***	0.12***	0.09***	0.08**	0.06**
Beliefs in Merit	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Libertarian	0.10	0.10	0.09	0.08	0.28	0.28
	(0.25)	(0.22)	(0.26)	(0.23)	(0.26)	(0.24)
Libertarian ×	-0.06	-0.05	-0.06	-0.04	-0.07	-0.06
Beliefs in Merit	(0.04)	(0.03)	(0.05)	(0.04)	(0.04)	(0.04)
Other	-0.74***	-0.44***	-0.70***	-0.32**	-0.66***	-0.37**
	(0.13)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)
Other ×	0.12***	0.09***	0.11***	0.06**	0.09***	0.05*
Beliefs in Merit	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	Yes	Yes	Yes	Yes	Yes	Yes
Employment Status	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1975	1975	1975	1975	1975	1975
R^2	0.282	0.396	0.202	0.384	0.179	0.285

Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses. Dependent variables: policy preferences as standardized z-scores. Omitted category: "Meritocrats". Socio-Demographics include age, gender, race, ethnicity and education dummies.
*** p<0.001, ** p<0.01, * p<0.05

is associated with a 0.15 SD decrease in support for redistribution among meritocrats (p<0.001), but only with half of that effect among egalitarians (0.07 SD, p=0.002) and "others" (0.07 SD, p<0.001). In most specifications, the estimated effects of beliefs on the policy preferences of egalitarians and individuals with "other" fairness preferences are not zero but instead tend to be negative and significant at conventional levels, though much smaller in size than for meritocrats. At the same time, the estimated interaction effects for libertarians are not consistent with our prediction: the estimated effect of beliefs is not significantly weaker for libertarians than for meritocrats in any specification.[27]

While our results are in line with Prediction 3 in 94.7% of our sample, the absence of an interaction effect for libertarians still warrants conducting additional empirical tests for an interaction effect between fairness preferences and beliefs. First, we confirm that beliefs

27. This finding may however be due to a lack of power because we have the lowest number of observations for libertarians (just 5.3% of our sample, N=104) so the coefficient of beliefs is estimated less precisely for libertarians compared to the other fairness preference types.

have a stronger effect on the policy preferences of meritocrats than of non-meritocrats if we pool all three other types (see Appendix Table B10). Second, we show that there is also a meaningful interaction between beliefs and the strength of meritocratic preferences among meritocrats (see Appendix Table B11). In line with what theory would predict, the negative relationship between beliefs and policy preferences proves to be much stronger for meritocrats with strong meritocratic preferences compared to meritocrats with weak meritocratic preferences - across policy domains and specifications. Taken together, our data therefore largely confirm Predictions 3:

> **Result 3:** Fairness preferences and beliefs interact. The policy preferences of *Meritocrats* depend more strongly on beliefs about the causes of inequality than those of *Egalitarians* or *Others*.

Robustness The interaction effect of preferences and beliefs among meritocrats also holds once we drop the type-based approach and use a continuous measure of meritocratic preferences (T_{Luck} - T_{Merit}) to test for the interaction (see Appendix Table B12 Panel A). Similarly, if we drop the type-based approach in our entire sample and just interact a continuous measure of meritocratic preferences (T_{Luck} - T_{Merit}) with beliefs, the interaction is also statistically significant (see Appendix Table B12 Panel B). Hence, those subjects whose transfer choices in the spectator game are more sensitive to the causes of inequality, also seem to put more weight on beliefs about the causes of inequality when forming their policy preferences.

6 The Stability of Fairness Views in Times of Crises

This section studies the stability of fairness preferences, beliefs about the causes of inequality, and support for welfare policies over time. We thus advance beyond the cross-sectional analysis of the previous section and investigate whether shock to fairness views in times of societal crises can explain shifts in support for welfare policies over time. First, we discuss theoretical mechanisms, our data, and our empirical strategy. We then present our evidence on the stability of fairness preferences (6.1) and on the stability of beliefs about the causes of inequality (6.2). In the last step, we investigate whether shocks to fairness views can explain shifts in support for welfare policies over time (6.3).

Theoretical Mechanisms: Preference Shocks versus Belief Shocks How can societal crises shock people's fairness views? And through which mechanism: through shocks to fairness preferences or through shocks to beliefs about the causes of inequality?

In societal crises, people often experience economic shocks that cause job losses and business closures, or natural catastrophes that threaten people's property and health.

These exogenous shocks typically generate new economic inequalities within society that are caused by factors outside individual control. Societal crises also cause personal experiences in which people are not in control of their life outcomes. Such personal experiences have, for example, been omnipresent during the coronavirus pandemic: people were hit by job losses, faced the risk of catching a potentially deadly virus, and their economic freedom and civil liberties were restricted by mandatory business closures and governmental lockdowns.

Witnessing exogenous shocks and learning about new inequalities in society may make people more pessimistic about the idea that merit determines economic outcomes, and thus lead to an update in their beliefs about the causes of inequality. People may also update their beliefs in response to personal experiences that they make in a crisis, such as experiencing uncontrollable changes in life circumstances in both the private and professional domain.[28] However, societal crises could also make people reflect on how much and what type of economic inequalities should be considered fair, and thus change their fairness preferences. Throughout the coronavirus pandemic, people have witnessed lively public debates about inequality and social justice. In these debates, Sandel (2020), for example, has prominently criticized the normative basis of the meritocratic fairness ideal. Even without extensive philosophical reflections, people might implement different fairness preferences once their personal circumstances or the societal context changes (see Barr et al. 2016; Cappelen et al. 2021).[29] Therefore in times of a major societal crisis like the coronavirus pandemic, both belief shocks and preference shocks seem plausible.

Panel and Experimental Data We study the stability of fairness preferences, beliefs about the causes of inequality, and support for welfare policies during the pandemic using (i) individual-level panel data collected over a time span of 1.5 years from May 2020 to Fall 2021, and (ii) an experiment within our first wave of data collection, in which subjects write about personal experiences from the first months of the pandemic.[30]

Our panel data spans a period of time in which Americans experienced the unprecedented impacts of the pandemic on US society including more than 750,000 deaths related to COVID-19 (see Appendix Figure A1).[31] At the same time, the study period also con-

28. In a seminal model, Piketty (1995) has formulated the dynamics between personal experiences, beliefs about the economic system, and redistributive policies.

29. In a panel study, Barr et al. (2016) show that individuals who become unemployed are less accepting of inequalities due to merit. Cappelen et al. (2021) find in a priming experiment during the first weeks of the pandemic that US Americans become more tolerant of inequalities due to luck (in a survey question) when experimentally reminded of the pandemic, but their beliefs about the causes of inequality do not change.

30. We pre-registered our experiment in the AEA RCT Registry (AEARCTR-0005856) (https://doi.org/10.1257/rct.5856-1.0)

31. Note that our study period does not cover the first months of the pandemic (February to April 2020), which saw the strongest negative impacts on the US labor market. Instead, it covers the economic recovery from a historic unemployment rate of more than 13.2% in May 2020 to less than 5% in Fall 2021.

tains many other disruptive societal events besides the pandemic, for example, the Black Lives Matter protests following the death of George Floyd in May 2020, or the January 6th Capitol Hill riots following the 2020 presidential elections. Our panel data therefore provides evidence from a unique time period in which Americans experienced multiple societal crises and historic events that could potentially change their views about economic inequality and their support for policy interventions.

Our experiment complements the panel data because it studies the effect of a specific type of personal experience: a perceived loss of control over one's life outcomes. Such personal experiences were omnipresent during the pandemic, but are also more generally characteristic of many societal and personal crises. In our experiment in Wave 1, each subject (N=745) is randomly assigned to one of three conditions: In our two treatment conditions, *High Control* and *Low Control*, subjects are asked to write about a personal experience from the first months of the pandemic in which they experienced *a lot of control* (*High Control*) or *no control* (*Low Control*) over their lives. In our *Baseline* condition, participants are asked to write about a personal experience that is not related to the pandemic. Participants in both treatment conditions are first also provided with information about the severe impacts of the pandemic on US society (the latest COVID-19 case and death counts, and the latest unemployment data). We thereby hold constant the information that subjects have about the impacts of the pandemic on society and then randomize the recall of different types of past personal experiences.

Participants clearly engaged with the writing task and put in considerable effort.[32] A manipulation check shows that the *Low Control* treatment has the desired effect compared to *High Control* measured through self-reported psychological states: subjects have a lower perceived sense of control over their lives and report emotions like negative affect, fear and stress (see Appendix D.2).

Regarding the mechanism of changes in fairness views, we are mainly interested in the effect of experiencing a loss of control over one's life outcomes, which may be caused by a broad set of experiences in times of crisis. We pre-registered to test this mechanism in our AEA registry prior to the first wave of data collection. In our individual-level panel data, we also test exploratively whether a number of specific personal experiences are related to changes in fairness views: income loss, job loss, spells of unemployment or cases of COVID using a Diff-in-Diff approach (see Appendix D.7 for details).[33]

32. They wrote on average 330 characters in *Low Control*, 365 in *High Control*, and 225 in *Baseline*. A research assistant read and coded all texts that were written as part of our manipulation. All but one text (which was copied from the internet) show that people complied with the task and put in considerable effort.

33. Of our 499 subjects, 78 report that they or someone emotionally close to them had a severe case of COVID between Wave 1 and Wave 2, and 204 subjects experienced a mild infection with COVID. Besides these widespread health impacts of the pandemic, many individuals experienced substantial changes in their economic circumstances: 89 individuals report to have experienced a sustained loss of household income compared to before the pandemic, and 78 individuals lost a job or main source of income in our study period.

Attrition and Balance of Covariates In our panel, we find that panel attrition is not related to fairness views, policy support or political ideology in Wave 1 (see Appendix D14). Among the socio-demographics, we only find that young subjects are slightly less likely to participate in Wave 2 (see Appendix D13). Just 4 subjects that started the survey in Wave 2 did not complete it, hence there was no meaningful attrition within the survey.

In our experiment in Wave 1, there was also no differential attrition (just 6 subjects left the survey after being assigned a treatment status, 2 per treatment condition) and randomization led to a balance of covariates (see Appendix D13). In Wave 2, in the sample of newly recruited subjects (N=729), we also included an experimental manipulation very similar to Wave 1, in which we unfortunately observed strong differential attrition across treatment conditions.[34] The differential attrition seems to warrant excluding the results from the main part of our paper because we cannot rule out that the results are strongly biased due to an unobserved difference between subjects across treatment conditions. For transparency, the results are presented in Appendix D.8.

6.1 Fairness Preferences are Stable at the Population Level

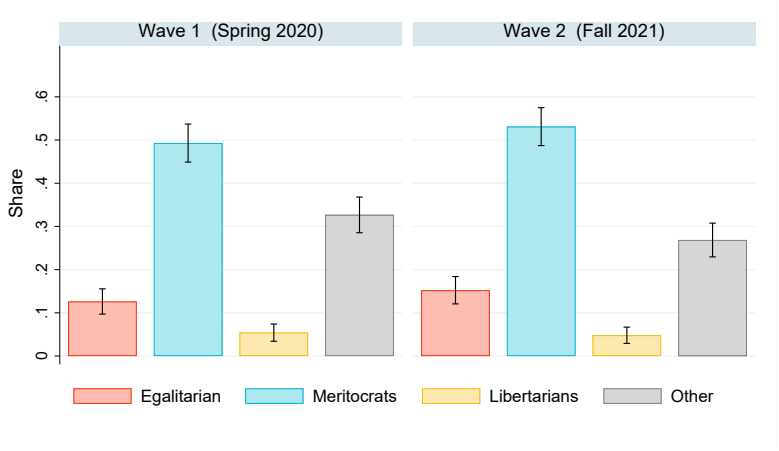
Panel Data - Population Level Figure 4 depicts the distribution of fairness preferences of the same individuals (N=499) in Spring 2020 (Wave 1) and in Autumn 2021 (Wave 2). We observe that the distribution of fairness preferences in our sample does not change significantly over time (Chi^2, p=0.177).[35] We find no evidence that the share of subjects with meritocratic fairness preferences in the spectator game decreases over time (49.3% vs 53.1%, p=0.229), and we also do not observe a strong egalitarian (12.6% vs 15.2%, p=0.235) or libertarian shock (5.4% vs 4.8%, p=0.666) due to the crises. There is only a slight tendency for less subjects with "*Other*" fairness preferences in Wave 2 (32.6% vs 26.9%, p=0.045). When we compare the means and distributions of transfer choices in Wave 1 and Wave 2, we also see that they do not differ significantly (see Appendix D.3.1). Hence, we conclude:

Result 5: Fairness preferences are stable at the population level over time.

34. In our experiment in Wave 2, 3 subjects did not complete the survey in *Baseline*, 12 subjects in an *Information* condition, and 42 in *Low Control* (Chi^2-test: p<0.001). We can only speculate about the reason for the strong attrition of 16.5% of subjects in *Low Control*. One plausible explanation is that subjects at this later point in time did not want to be reminded of negative personal experiences that they had during the pandemic and hence left the experiment.

35. This also holds true if we include the meritocratic subtypes in the distribution (Chi^2, p=0.393) (see Appendix Table (D16).

Figure 4: Stability of Fairness Preference Types Over Time



Notes: The figure shows histograms of fairness preferences in Wave 1 and Wave 2 of our panel.

Panel Data - Individual Level The stability of fairness preferences at the population level does however not imply preference stability at the individual level. As a first test that confirms some type stability at the individual level over time, we show that an individual's type in Wave 1 is predictive of its type in Wave 2 for all fairness preference types (including "*Others*") (see Appendix Table D17). At the same time, there is a substantial number of transitions between types (see Appendix Table D18 for a transition matrix). While almost no transitions take place between the two extreme types (N=3), only half of individuals (47.7%) are classified as the same type in Wave 1 and in Wave 2. A number of empirical tests support the view that these type transitions do not reflect meaningful changes in people's fairness preferences: First, types in Wave 1 are almost as predictive of policy preferences in Wave 2 as types in Wave 2 - even when controlling for types in Wave 2 (see Appendix Table D19). We would not expect to find this pattern if most type transitions were caused by meaningful changes in fairness preferences. Second, changes in transfer choices are not related to personal experiences such as income shocks, job loss, or COVID cases (see Appendix Table D30). Third, type transitions are not meaningfully related to changes in policy preferences over time (see Appendix Table D20). These analyses suggest that most transitions between types reflect measurement error rather than meaningful changes in fairness preferences. At the same time, it may also be the case that fairness preference types are not as discrete as previously thought, which seems to be an interesting avenue for future research.

If type transitions reflect measurement error, then we should be able to leverage the repeated elicitation of fairness preference types to explain policy preferences. In fact, the predictive power of fairness preferences for policy preferences increases substantially once both type classifications are taken into account (in terms of R^2 by about 50 to 70% to then 9% of the total variance, see Appendix Table D19), even strengthening the results

presented in Section 5.[36]

At the same time, there is no way to empirically rule out the existence of any meaningful changes in people's fairness preferences in our panel data. Still, given that we do not observe any changes in fairness preferences at the population level, we conclude that changes in fairness preferences can not explain any aggregate changes in people's support for welfare policies over our study period.

Experimental data In short, consistent with our findings from the panel data, we find that neither the distribution of fairness preference types nor the means or distributions of transfer choices change significantly in response to the recall of personal experiences of *High Control* versus *Low Control* from the first wave of the pandemic (see Appendix D.4). Hence, the treatments and the associated emotional reactions do not cause meaningful changes in subjects' fairness preferences.[37]

6.2 Beliefs Change in Times of Crises

Panel Data - Population Level Figure 5b depicts the mean difference in beliefs in merit between Wave 1 and Wave 2 of our panel data with a 95% confidence interval, estimated using a simple random effects panel data model that controls for treatment assignment in Wave 1 (-0.213, $p = 0.042$). Estimates from individual fixed effects models are almost identical in size. Once we additionally control for socio-demographics (including age) and economic background characteristics, the estimated effect increases slightly (-0.239, $p = 0.025$). See Appendix D.5 for a detailed comparison of the panel data models that we have estimated. Taken together, these panel data models provide evidence for an average decline in beliefs in merit of around 0.1 SD over our study period.

The significance level of the estimated effect cautions against drawing strong conclusions based on our data alone. Therefore, we analyze the most recent wave of the General Social Survey (GSS) from 2022, which also indicates that the belief in a meritocratic society has decreased among US Americans in comparison to the pre-pandemic years.[38] While in 2018, 72.3% of US Americans believed that hard work is most important for

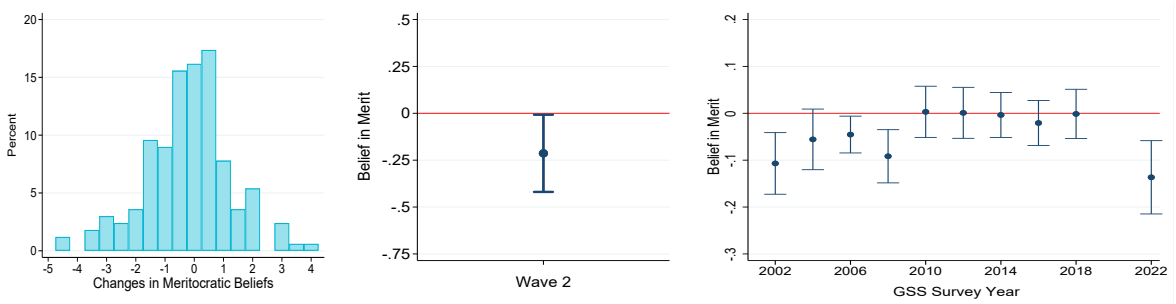
36. The total variance in policy preferences that can be explained by heterogeneity in fairness preferences increases to R^2=12% once we also include the meritocratic subtypes. As a benchmark, economic background characteristics (income bracket and employment status) alone can only explain up to 6.5% of the variance, even if we also include measures from both waves.

37. In our experiment, we were powered to detect an effect of 0.25 SD (80% power, α=0.05) and can therefore only rule out large effects.

38. Due to the pandemic, the GSS had to change their survey methodology in 2020/2021 from in-person interviews to online, which required changes in the question-wording. These changes make the 2020/2021 data incomparable to the 2018 data. In 2022, the GSS again conducted in-person interviews using the same question wording as before the pandemic. We use the 2022 in-person sample for our comparison with the 2018 data, reweighted using the standard "wtssnrps" weights.

Figure 5: Stability of Beliefs over Time

(a) Panel: Indiv. Changes (b) Panel: Avg. Change (c) GSS Panel



Notes: Figure (a) shows a histogram of the individual level changes in beliefs between wave 1 and wave 2. Figure (b) shows the estimated average change in beliefs over time. Figure (c) shows the mean belief in merit in the General Social Survey over the past 20 years. The question ("getahead"): "Some people say that people get ahead by their own hard work; others say that lucky breaks or help from other people are more important. Which do you think is most important?". Answers are coded on a three point scale: luck most important, hard work most important, both equally important. For 2022 we only use the in-person sample, which uses the same methodology as in the pre-pandemic years (see also Footnote 38).

getting ahead in life (instead of luck), this share reduced to 63.0% in 2022.[39] This corresponds to a decrease of 0.13 SD between 2018 and 2022 (t-test: p<0.005). The effect is illustrated in Figure 5c compared to the long-term trend over the last two decades. Figure 5c reveals that the belief in merit as a cause of inequality in the US is now at its lowest level since the 2007/2008 financial crisis.

Panel Data - Individual Level Figure 5a depicts the individual level changes in beliefs between Wave 1 and Wave 2. The differences between Wave 1 and 2 tend to be substantial in size: the absolute difference is larger or equal to 1 point for 50.9% of subjects. Also, there is a considerable share of subjects that also increased their belief in merit as a cause of inequality over our study period by 1 or more points (21.6%). In that way, the graphic reveals that there is a lot of variation in beliefs at the individual level in addition to the average decline observed in our entire sample.

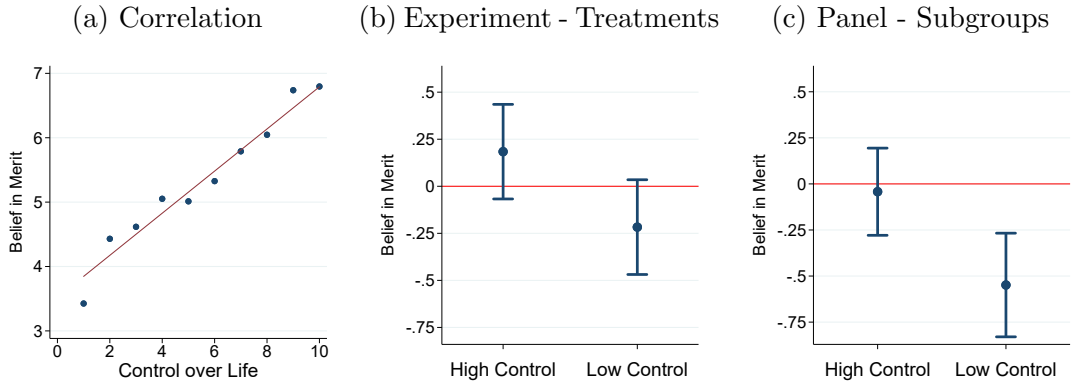
Understanding the Mechanism of Belief Change Our panel data collection and our experiment were designed to test how personal experiences of high or low control over one's life outcomes impact fairness views. As a first indication for a relationship between personal experiences (e_i) and beliefs about the causes of inequality (b_i), Figure 6a shows a binscatter plot indicating a very strong correlation ($\rho = 0.31$, p<0.001) between subjects' own perceived control over their life and their beliefs in a meritocratic society. A lower perceived control over one's own life is associated with the belief that luck rather than

39. Moreover in 2018, 15.3% believed that luck and hard work are equally important (2022: 25%), and 12.4% believed that luck is most important (2022: 12%).

merit causes inequalities in society.

Can our experimental manipulation provide credible causal evidence for the hypothesis that lower perceived control over one's own life leads to a higher belief that luck rather than merit causes inequalities in society? Figure 6b shows the estimated treatment effects of the *High Control* and *Low Control* treatment in our experiment (N=745). The estimated difference in beliefs between *High Control* and *Low Control* is 0.40 points on the 10-point Likert scale (p=0.027). Moreover, we can see that the treatment effects relative to the Baseline treatment are symmetric, that is, roughly of equal size. In combination with the manipulation check, which shows that subjects on average reported a significantly lower perceived control over their life in the *Low Control* treatment compared to the *High Control* treatment (diff=-0.47 on a 10-point Likert scale, t-test, p=0.014), our experiment provides causal evidence that a personal experience of loss of control - even when just recalled - can reduce beliefs in merit as a cause of inequality in society. The observed treatment effects are however just transitory, which should also be expected given that the manipulation builds on recall and salience of past experiences. In Wave 2 of our panel data, the beliefs of subjects do not differ according to their treatment status in Wave 1.[40]

Figure 6: Mechanism: Beliefs and Personal Experiences of Low Control



Notes: Figure (a) shows a binscatter plot for subjects own sense of control over their lives and their beliefs for the whole sample. Figure (b) shows the treatment effects or our experimental manipulation of recalling personal experiences from the pandemic of "High Control" or "Low Control" relative to the baseline condition. Figure (c) shows changes in beliefs over time for two subgroups: people who report the same or a higher control over their lives in wave 2 compared to wave 1 ("High Control") and those who report a lower control ("Low Control").

To test whether the observed changes in our panel data can also be plausibly explained by personal experiences of low control, we split our sample into two subgroups: those who report a lower sense of control over their lives in Wave 2 compared to Wave 1 ("Low Control", 30.0% of subjects) and those who report the same or a higher sense of control

40. In Wave 2, the mean belief of subjects that had been in Baseline is 5.68, which is indistinguishable from the beliefs of subjects who had been in High Control (mean 5.65, t-test p=0.926) or Low Control (mean 5.62, t-test p=0.808). See Appendix Figure D13 for a graphical overview.

in Wave 2 ("High Control", 70.0% of subjects). Figure 6c shows changes in beliefs over time for these two subgroups. The corresponding fixed effects panel data model, which controls for treatment status in Wave 1, reveals that subjects who reported a lower sense of control reduce their beliefs in meritocracy on average by half a point (-0.55, p=0.001), while all other subjects on average do not change their beliefs (+0.04, p=0.595).[41] Thus, consistent with our experimental result, personal experiences of loss of control also seem to reduce beliefs in merit as the main cause of economic inequality in our panel data.

> **Result 6:** Beliefs in merit as a cause of inequality can decline in times of crises when people make personal experiences in which they lose control over their life outcomes.

6.3 Explaining Changes in Support for Welfare Policies

Can the observed changes in beliefs about the causes of inequality explain changes in policy preferences? First, we can test whether our experimental manipulation of loss of control, which changed beliefs about the causes of inequality, also caused a change in support for welfare policies. When we test for treatment effects using OLS regressions that once control for treatment dummies and once for treatment dummies and control variables in our experimental sample (N=745), we do not find any significant treatment effects on people's support for welfare policies (see Appendix Table D25). Our findings in this regard are therefore in line with many papers in the literature that use similar experimental manipulations, such as the provision of information, which often find a first-stage effect on beliefs (see e.g. Kuziemko et al. 2015; Alesina et al. 2018), but no significant effects on people's policy preferences.[42]

However, our individual-level panel data allows us to investigate the association between changes in beliefs and changes in policy preferences at the individual level over time. Table 4 shows that changes in beliefs in merit over time are indeed associated with changes in support for welfare policies. In columns (1), (3) and (5) we present estimates from two-way fixed effects models (wave and individual fixed effects). The fixed effects models establish that there is a significant association between changes in beliefs about the causes of inequality and changes in support for welfare policies at the individual level:

41. Almost identical estimates are derived when we restrict the analysis to subjects that were assigned to the baseline condition in Wave 1: a reduction in beliefs of -0.56 point (p=0.020) for those who lost control, compared to no change among all other subjects (-0.04, p=0.777). Thus, this subgroup effect cannot be explained by the treatments in Wave 1.

42. In our experiment, the absence of treatment effects on policy preferences could plausibly be due to an unobserved confounding mechanism that offsets the effect on beliefs: for example, it seems plausible that recalling *Low Control* experiences from the first wave of the pandemic also reduces trust in the US government, because the government did not manage to protect its citizens from the impacts of the pandemic or because the government was responsible for the lockdown policies. Unfortunately, we did not measure trust in government in our experimental sample in Wave 1 to be able to shed light on this mechanism.

subjects who increase their belief in luck as a cause of inequality in US society between Wave 1 and Wave 2 are also significantly more in support of welfare policies in Wave 2. This pattern holds across policy preferences towards redistribution, universal health care, and the pandemic support package.

> **Result 7:** Changes in beliefs about the causes of inequality over time are associated with changes in support for welfare policies at the individual level.

The estimates in columns (1), (3), and (5) may not be cleanly causally identified, because another time-varying confounder may have caused both, the changes in beliefs and the changes in support for welfare policies. In columns (2), (4), and (6), we control for economic background characteristics (income bracket and employment status) to account for the potentially confounding influence of changes in economic self-interest. Controlling for changes in economic self-interest does not move the estimates by much. In sum, these individual-level panel data results therefore provide more convincing evidence for a causal effect of beliefs about the causes of inequality on policy preferences than a simple correlation shown in most of the existing literature.

Table 4: Panel Data: Explaining Changes in Policy Preferences with Changes in Beliefs

	Redistribution		Univ. Health Care		Pandemic Support	
	(1)	(2)	(3)	(4)	(5)	(6)
Beliefs in Merit	-0.07**	-0.07**	-0.04*	-0.04*	-0.09**	-0.09**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	No	Yes	No	Yes	No	Yes
Employment Status	No	Yes	No	Yes	No	Yes
p (Belief)	0.007	0.008	0.017	0.017	0.004	0.003
Observations	998	998	998	998	998	998
Clusters	499	499	499	499	499	499

Notes: Coefficients from two-way fixed effects panel data models. Robust standard errors clustered at the individual level in parentheses. Dependent variables: policy preferences as standardized z-scores.
* p<0.05, ** p<0.01, *** p<0.001

7 Conclusion

Large strands of literature in political economy have focused on beliefs as the main source of heterogeneity in people's fairness views. In this paper, we show how taking also heterogeneity in fairness preferences into account can systematically advance our understanding of people's policy preferences. In our sample, there are large and robust differences in support for welfare policies between individuals with egalitarian, libertarian and meritocratic fairness preferences. Moreover, fairness preferences predict how much policy preferences depend on beliefs about the causes of inequality. These insights about the fundamental properties of fairness views seem relevant in a wide variety of economic settings, ranging from wage setting in firms to support for affirmative action, in which people may demand fair institutions and fair policies.

At the same time, our data also highlight that fairness preferences are rather stable over time, so that changes in policy preferences over time are rather caused by changes in beliefs about the causes of inequality or by economic self-interest. Our results suggest that one relevant mechanism through which beliefs about the causes of inequality change is through personal experiences. Personal experiences in societal crises thus may be an important driver in the formation of people's policy preferences and political ideologies.

A key question for future research is whether the declining belief in a meritocratic society over the course of the pandemic, observed in our panel data and the GSS data, generalizes beyond the US context, and to study whether it has long-term consequences for the public support for welfare policies. If indeed citizens will support, and demand, more expansive welfare policies, we might witness changes in the institutional design of the US welfare state. One important aspect, which we have neglected in this paper, is that - in theory - declining beliefs in merit should also have consequences for labor supply and for investments in human capital. In that way, a decrease in meritocratic beliefs over the course of the pandemic could be related to the "*Great Resignation*" in the US labour market following the pandemic.

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Appendix

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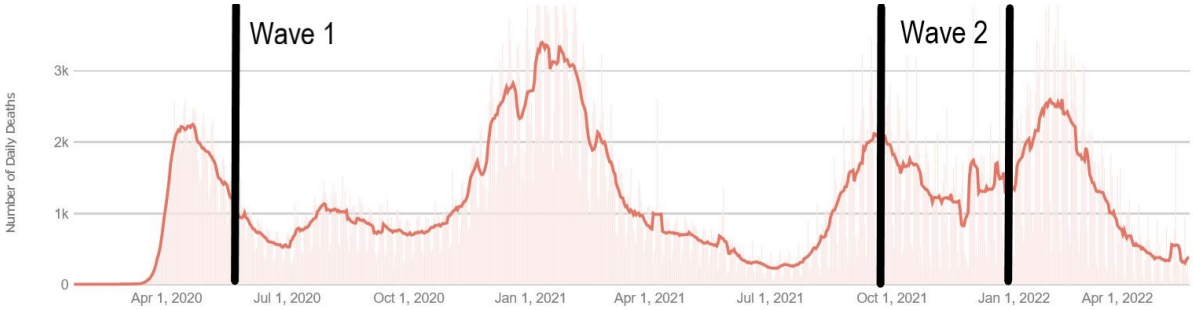
A Descriptives

A.1 Timeline of Data Collection

Figure A1: Timeline of Data Collection

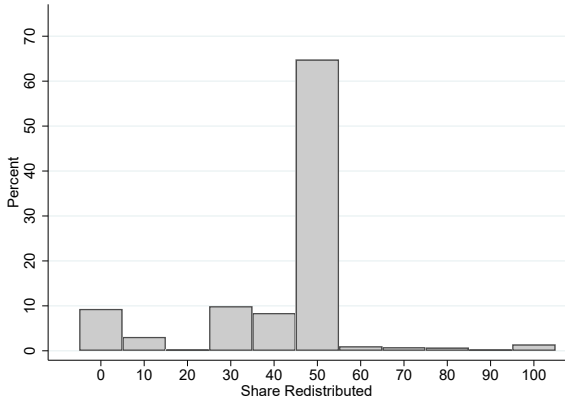


Notes: The figure shows a timeline of our data collection relative to the number of deaths related to COVID-19 in the US.

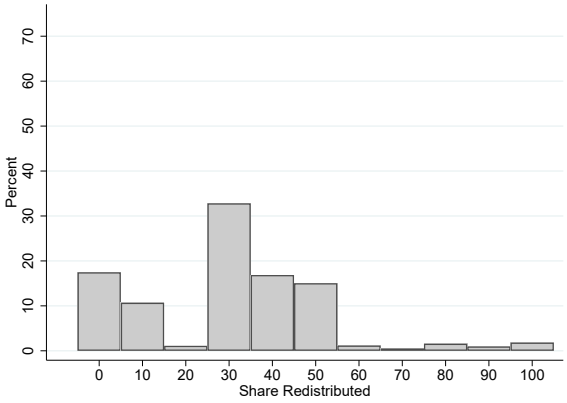
A.2 Histograms of Transfer Choices

Figure A2: Histograms - Transfer Choices

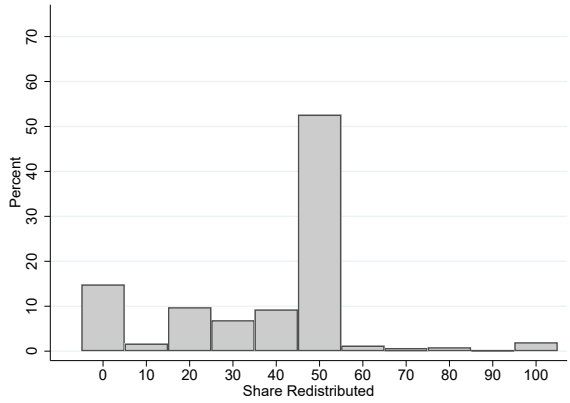
(a) Transfer Luck



(b) Transfer Effort



(c) Transfer Luck with Self-Interest



Notes: The figure shows histograms of transfer choices in the spectator game on inequalities due to luck (a), in the spectator game on inequalities due to merit (b) and in the transfer decision on inequalities due to luck with self-interest (c).

A.3 Type Classifications - Order Effects

Table A1: Type Classifications - Order Effects

	Between		Within	
Fairness Preference Type	1st Choice (1)	2nd Choice (2)	1st Choice Merit (3)	1st Choice Luck (4)
Egalitarians	15.7%	12.6%	11.4%	12.4%
Libertarians	8.4%	9.9%	6.3%	4.3%
Meritocrats	46.7%	49.3%	50.6%	48.8%
Other	29.1%	28.2%	31.7%	34.5%
N	1975	1975	989	986

Notes: The table shows order effects on the distribution of fairness preference types for between- and within-subjects type classifications. All classifications use the same strict definition for meritocrats used in the between subjects classification. Column (1) shows a between-subject type classification using just the first choice of subjects. Column (2) shows a between-subjects type classification using just the second choice of subjects. Column (3) shows the within-subjects type classification for those subjects who were first randomly assigned the merit condition. Column (4) shows the within-subjects type classification for those subjects who were first randomly assigned the luck condition.

A.4 Type Classifications - Comparison to Literature

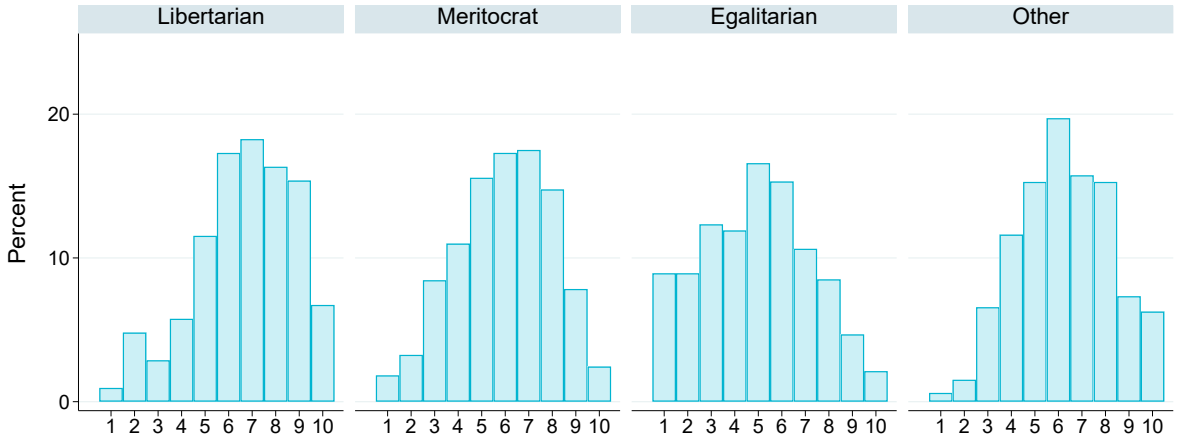
Table A2: Comparison to Related Literature - Fairness Preference Types in the US

	Almås et al. (2020)	Cohn et al. (2023)	Our study	Our study
Classification:	Between	Between	Within	Between 1st Choice
Types				
Egalitarians	15.3%	17.8%	11.9%	15.7%
Libertarians	29.4%	12.1%	5.3%	8.4%
Meritocrats	37.5%	60.5%	49.7%	46.7%
Other	17.8%	9.6%	33.1%	29.1%
N	1000	417	1975	1975
Size of Choice Set	7	7	40x40	40
Survey Company	Research Now (Dynata)	YouGov	Prolific	Prolific

Notes: The table shows type distributions in representative US samples in the existing literature.

A.5 Are Fairness Preferences and Beliefs Correlated?

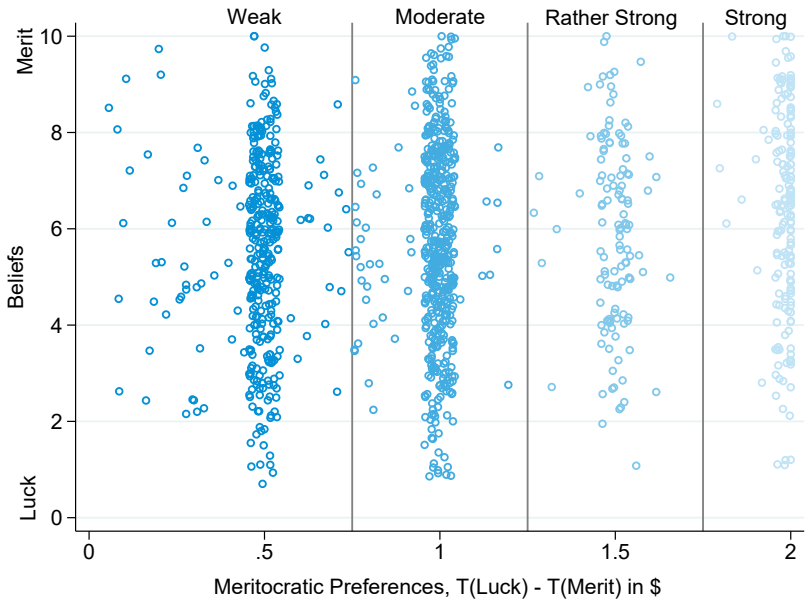
Figure A3: Beliefs in Merit by Fairness Preference Type



Notes: The figure shows histograms of beliefs in merit by fairness preference type.

A.6 Subtypes among Meritocrats - Preferences

Figure A4: Classification of Subtypes among Meritocrats - Preferences



Notes: The figure shows classification of meritocratcs into four subtypes according to their meritocratic preferences using the classification described in Table A3.

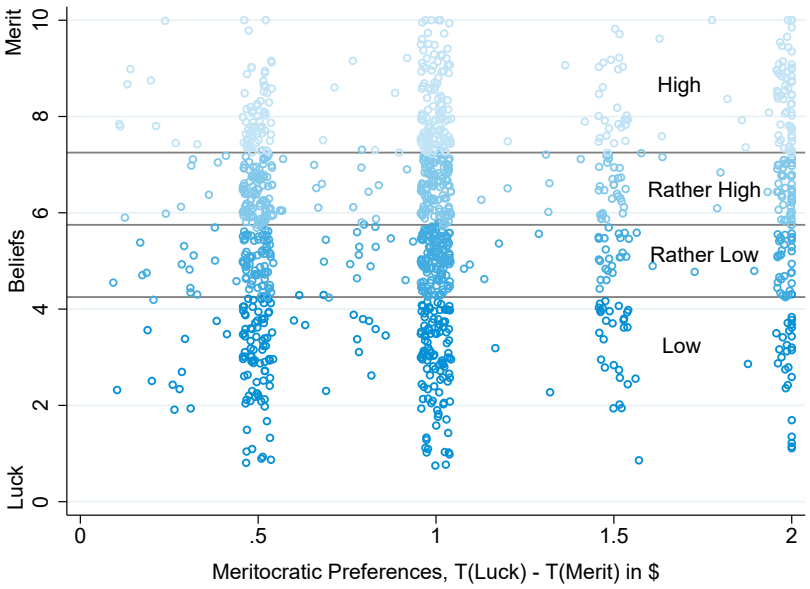
Table A3: Classification of Subtypes among Meritocrats - Preferences

Subtype	Classification	N	Share
Preferences			
Weak	$\$0.00 \leq T_{Luck} - T_{Merit} < \$0.75$	249	25.4%
Moderate	$\$0.75 \leq T_{Luck} - T_{Merit} < \$1.25$	446	45.4%
Rather Strong	$\$1.25 \leq T_{Luck} - T_{Merit} < \$1.75$	107	10.9%
Strong	$\$1.75 \leq T_{Luck} - T_{Merit} \leq \$2.00$	180	18.3%
Total		982	100%

Notes: The table reports the classification of meritocratcs into four subtypes according to their meritocratic preferenes.

A.7 Subtypes among Meritocrats - Beliefs

Figure A5: Classification of Subtypes among Meritocrats - Beliefs



Notes: The figure shows classification of meritocrats into four subtypes according to their beliefs about the causes of inequalities using the classification described in Table A4.

Table A4: Classification of Subtypes among Meritocrats - Beliefs

Subtype	Classification	N	Share
Beliefs			
Low	$1.0 \leq$ Beliefs ≤ 4.0	241	24.5%
Rather Low	$4.5 \leq$ Beliefs ≤ 5.5	239	24.3%
Rather High	$6.0 \leq$ Beliefs ≤ 7.0	256	26.1%
High	$7.5 \leq$ Beliefs ≤ 10	246	25.1%
Total		982	100%

Notes: Table reports the classification of meritocratcs into four subtypes according to their beliefs about the causes of inequalities.

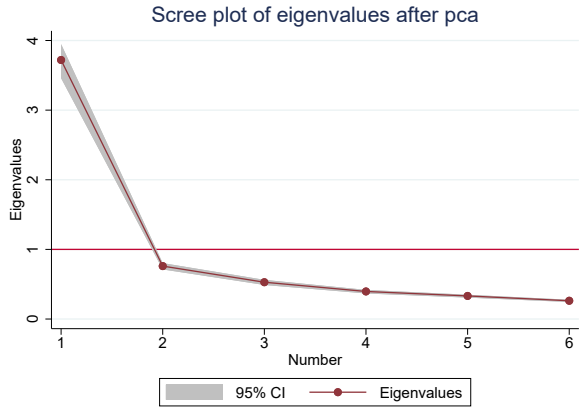
A.8 Support for Welfare Policies - Principal Components

Table A5 shows that the first principal component can explain 62% of the total variance in policy preferences. Moreover, the first principal component is the only component with an eigenvalue large than one, as shown in A6. Based on the standard criterion to only use components with eigenvalues larger than 1, subjects support for welfare policies can thus be well described by the first principal component alone. Table A6 shows that the six policies are assigned almost equal weights to construct the first principal component.

Table A5: Eigenvalues of Components and Proportion of Variance Explained

	Eigenvalue	Proportion
1st Component	3.72	62.0
2nd Component	0.76	12.7
3rd Component	0.53	0.09
4th Component	0.40	0.07
5th Component	0.33	0.05
6th Component	0.26	0.04

Figure A6: Eigenvalues after Principal Component Analysis



Notes: The figure shows the eigenvalues of the first six principal components with 95% confidence intervals.

Table A6: Principal Components

	1st Comp	2nd Comp	3rd Comp	4th Comp	5th Comp	6th Comp
Redistribution	0.3912	0.5379	-0.2475	0.5209	-0.4132	-0.2332
Univ. Health Care	0.3839	0.6057	0.2914	-0.2571	0.4437	0.3712
E.I. Payments	0.4077	-0.3380	-0.5079	0.2857	0.6163	-0.0103
UE Benefits	0.4318	-0.2393	-0.3194	-0.3894	-0.4909	0.5115
Medicaid	0.4478	-0.1083	0.1502	-0.4904	-0.0166	-0.7242
Paid Sick Leave	0.3825	-0.4008	0.6865	0.4345	-0.1061	0.1472

B How Fairness Views Shape Policy Preferences

B.1 Benchmarking: Fairness Preferences and Income

Table B7: OLS: Benchmarking Fairness Preference Types and Income

	Dep Var: Support for Welfare Policies			
	(1)	(2)	(3)	(4)
Libertarian	-0.88***			-0.80***
	(0.13)			(0.13)
Meritocrat	-0.44***			-0.39***
	(0.06)			(0.06)
Other	-0.59***			-0.56***
	(0.07)			(0.07)
Income (20-35k)		-0.11		-0.12
		(0.09)		(0.09)
Income (35-50k)		-0.19*		-0.20*
		(0.09)		(0.09)
Income (50-75k)		-0.22*		-0.23*
		(0.09)		(0.09)
Income (75-100k)		-0.29**		-0.29**
		(0.10)		(0.10)
Income (100-150k)		-0.47***		-0.43***
		(0.10)		(0.10)
Income (>150k)		-0.42***		-0.41***
		(0.11)		(0.11)
Unemployed		0.19**		0.14*
		(0.06)		(0.07)
Not in Labor Force		-0.06		-0.00
		(0.07)		(0.06)
Age (in decades)			-0.06***	-0.06***
			(0.02)	(0.02)
Female			0.18***	0.12*
			(0.05)	(0.05)
College Degree			-0.03	0.04
			(0.06)	(0.06)
Masters Degree			0.02	0.16*
			(0.07)	(0.07)
Black			0.42***	0.39***
			(0.06)	(0.06)
Asian			0.21*	0.26**
			(0.09)	(0.09)
Race Other			0.19	0.13
			(0.13)	(0.12)
Hispanic			0.18	0.19
			(0.10)	(0.10)
Constant	0.46***	0.24**	0.08	0.72***
	(0.05)	(0.07)	(0.09)	(0.12)
Observations	1975	1975	1975	1975
R^2	0.041	0.028	0.042	0.101

Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses. Dependent variables: support for welfare policies (standardized first principal component of all policy preferences). Omitted category: "Egalitarians".
*** p<0.001, ** p<0.01, * p<0.05

B.2 Robustness: Fairness Preferences Predict Policy Preferences

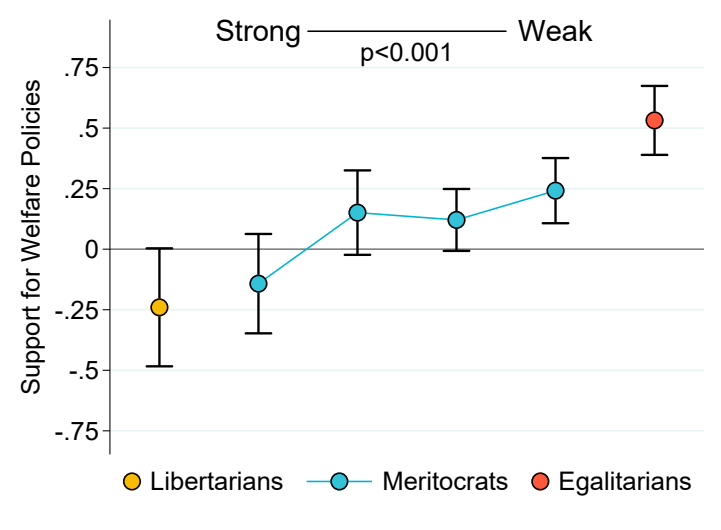
Table B8: Robustness: Fairness Preferences Predict Policy Preferences (Wave 2 Controls)

	Dep Var: Support for Welfare Policies					
	(1)	(2)	(3)	(4)	(5)	(6)
Libertarian	-0.60***	-0.45**	-0.49***	-0.48***	-0.33**	-0.32**
	(0.15)	(0.15)	(0.14)	(0.14)	(0.12)	(0.12)
Meritocrat	-0.29***	-0.29***	-0.28***	-0.29***	-0.23***	-0.20***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)
Other	-0.41***	-0.40***	-0.48***	-0.47***	-0.33***	-0.33***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)
Beliefs in Merit	-0.21***	-0.21***	-0.21***	-0.21***	-0.13***	-0.10***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Selfish Type		-0.28**	-0.18*	-0.19*	-0.15	-0.11
		(0.09)	(0.09)	(0.09)	(0.08)	(0.08)
Trust in Government			0.38***	0.39***	0.28***	0.19***
			(0.05)	(0.05)	(0.04)	(0.04)
National Group Aff.				-0.02	0.04	0.07*
				(0.03)	(0.03)	(0.03)
Political Ideology					-0.17***	-0.00
					(0.01)	(0.02)
Liberal						-0.30***
						(0.06)
Moderate						-0.59***
						(0.10)
Conservative						-0.81***
						(0.15)
Very Conservative						-1.31***
						(0.21)
No Vote/Other						-0.24***
						(0.07)
Voted Trump 2020						-0.73***
						(0.10)
No Vote/Other						0.05
						(0.06)
Voted Trump 2016						-0.11
						(0.09)
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	Yes	Yes	Yes	Yes	Yes	Yes
Employment Status	Yes	Yes	Yes	Yes	Yes	Yes
p (Egalitarian = Libertarian)	< 0.001	0.002	< 0.001	0.001	0.009	0.009
p (Egalitarian = Meritocrat)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
p (Meritocrat = Libertarian)	0.025	0.236	0.111	0.131	0.422	0.308
p (joint test)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Observations	1230	1230	1230	1230	1230	1230
R^2	0.267	0.274	0.320	0.320	0.462	0.526

Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses. Dependent variables: support for welfare policies (standardized first principal component of all policy preferences). Omitted category: "Egalitarians". Socio-Demographics include age, gender, race, ethnicity and education dummies. The "joint test" tests the hypothesis that there is no difference between any of the three fairness preference types (egalitarians, libertarians and meritocrats).
*** p<0.001, ** p<0.01, * p<0.05

B.3 Robustness: Meritocratic Preference Subtypes

Figure B7: Meritocratic Preference Subtypes Predict Support for Welfare Policies



Notes: The figure shows estimated coefficients and 95% confidence intervals from OLS regressions explaining support for welfare policies (first principal component of all policy preferences). The figure shows coefficients for the egalitarian, libertarian and meritocratic subtype dummies. Regressions control for socio-demographics (age, gender, race/ethnicity, education) and economic background characteristics (income bracket and employment status). Subjects classified as "other" serve as the reference group in both regressions. For details on the type classification see Table A3. Robust standard errors are clustered at the individual level.

Table B9: Robustness: Meritocratic Preference Subtypes Predict Policy Preferences

	Dep Var: Support for Welfare Policies	
	(1)	(2)
Egalitarian	0.35***	0.21***
	(0.06)	(0.05)
Weak	0.28***	0.12*
	(0.07)	(0.06)
Moderate	0.10	0.03
	(0.06)	(0.05)
Rather Strong	0.17*	0.09
	(0.08)	(0.07)
Strong	-0.07	-0.11
	(0.09)	(0.08)
Libertarian	-0.18	-0.14
	(0.10)	(0.09)
p (Weak = Strong)	0.000	0.006
p (joint test)	0.002	0.041
Political Ideology	No	Yes
Belief - Causes of Inequality	Yes	Yes
Socio-Demographics	Yes	Yes
Income Bracket	Yes	Yes
Employment Status	Yes	Yes
Observations	1975	1975
R^2	0.237	0.394

Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses. Dependent variables: support for welfare policies (standardized first principal component of all policy preferences). Omitted category: "Other" type. Socio-Demographics include age, gender, race, ethnicity and education dummies. The "joint test" tests the hypothesis that there is no difference between any of the meritocratic subtypes. For details on the type classification see Table A3.
*** p<0.001, ** p<0.01, * p<0.05

B.4 Robustness: Interaction Effects

Table B10: Robustness #1: Interaction between Fairness Preferences and Beliefs

	Redistribution		Univ. Health Care		Pandemic Support	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Meritocrats vs Non-Meritocrats						
Beliefs in Merit	-0.24***	-0.15***	-0.22***	-0.11***	-0.19***	-0.10***
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Non-Meritocrat × Beliefs in Merit	0.10***	0.07***	0.09***	0.06**	0.07***	0.04*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Type FE	Yes	Yes	Yes	Yes	Yes	Yes
p (Non-Meritocrat x B)	<0.001	<0.001	<0.001	0.002	0.001	0.028
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	Yes	Yes	Yes	Yes	Yes	Yes
Employment Status	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1975	1975	1975	1975	1975	1975
R^2	0.275	0.392	0.196	0.381	0.174	0.282

Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses and p-values in square brackets. Dependent variables: policy preferences as standardized z-scores. Omitted category: "Meritocrats".
*** p<0.001, ** p<0.01, * p<0.05

Table B11: Robustness #2: Interaction between Fairness Preferences and Beliefs

	Redistribution		Univ. Health Care		Pandemic Support	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Preferences (Subtypes) Interact w. Beliefs among Meritocrats						
Beliefs in Merit	-0.30***	-0.18***	-0.30***	-0.16***	-0.28***	-0.17***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
Rather Strong	-0.57	-0.50	-0.45	-0.37	-0.82**	-0.76*
	(0.30)	(0.28)	(0.27)	(0.24)	(0.31)	(0.29)
Rather Strong ×	0.15**	0.13**	0.10	0.08	0.16**	0.14**
Beliefs in Merit	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Moderate	-0.34	-0.23	-0.48*	-0.35	-0.55*	-0.44*
	(0.21)	(0.19)	(0.22)	(0.20)	(0.23)	(0.22)
Moderate ×	0.08*	0.06	0.08*	0.06	0.11**	0.09*
Beliefs in Merit	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
Weak	-0.21	-0.13	-0.70**	-0.60**	-0.60*	-0.53*
	(0.21)	(0.19)	(0.22)	(0.20)	(0.25)	(0.23)
Weak ×	0.10*	0.07*	0.16***	0.13***	0.13**	0.11*
Beliefs in Merit	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
p (Rather Strong X B)	0.007	0.009	0.057	0.062	0.004	0.005
p (Moderate X B)	0.042	0.075	0.043	0.099	0.009	0.024
p (Weak X B)	0.007	0.009	0.057	0.062	0.004	0.005
p (joint test)	0.024	0.050	0.001	0.005	0.008	0.026
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	Yes	Yes	Yes	Yes	Yes	Yes
Employment Status	Yes	Yes	Yes	Yes	Yes	Yes
Observations	982	982	982	982	982	982
R^2	0.323	0.454	0.244	0.430	0.197	0.311

Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses and p-values in square brackets. Dependent variables: policy preferences as standardized z-scores. Omitted category: "Strong Meritocrats". The "joint test" tests the hypothesis that all interaction terms are equal to zero.
*** p<0.001, ** p<0.01, * p<0.05

Table B12: Robustness #3: Interaction between Fairness Preferences and Beliefs

	Redistribution		Univ. Health Care		Pandemic Support	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Meritocratic Preferences (Continuous) Interact w. Beliefs among Meritocrats						
Meritocratic Preferences	0.17	0.14	0.42**	0.40**	0.39**	0.36*
	(0.13)	(0.12)	(0.13)	(0.12)	(0.15)	(0.14)
Beliefs in Merit	-0.15***	-0.07**	-0.11***	-0.00	-0.09**	-0.01
	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Meritocratic Preferences ×	-0.06*	-0.05*	-0.09***	-0.08***	-0.08**	-0.07**
Beliefs in Merit	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)
p (Meritocratic Preferences x B)	0.012	0.020	0.001	0.001	0.004	0.008
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	Yes	Yes	Yes	Yes	Yes	Yes
Employment Status	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1205	1205	1205	1205	1205	1205
R^2	0.288	0.423	0.214	0.408	0.173	0.295
Panel B: Meritocratic Preferences (Continuous) Interact w. Beliefs in Full Sample						
Meritocratic Preferences	0.19***	0.05	0.28***	0.12*	0.25***	0.12*
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
Beliefs in Merit	-0.18***	-0.11***	-0.16***	-0.07***	-0.15***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Meritocratic Preferences ×	-0.04***	-0.02*	-0.05***	-0.02**	-0.04***	-0.02**
Beliefs in Merit	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
p (Meritocratic Preferences x B)	<0.001	0.014	<0.001	0.009	<0.001	0.009
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Income Bracket	Yes	Yes	Yes	Yes	Yes	Yes
Employment Status	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1975	1975	1975	1975	1975	1975
R^2	0.262	0.388	0.189	0.378	0.167	0.279

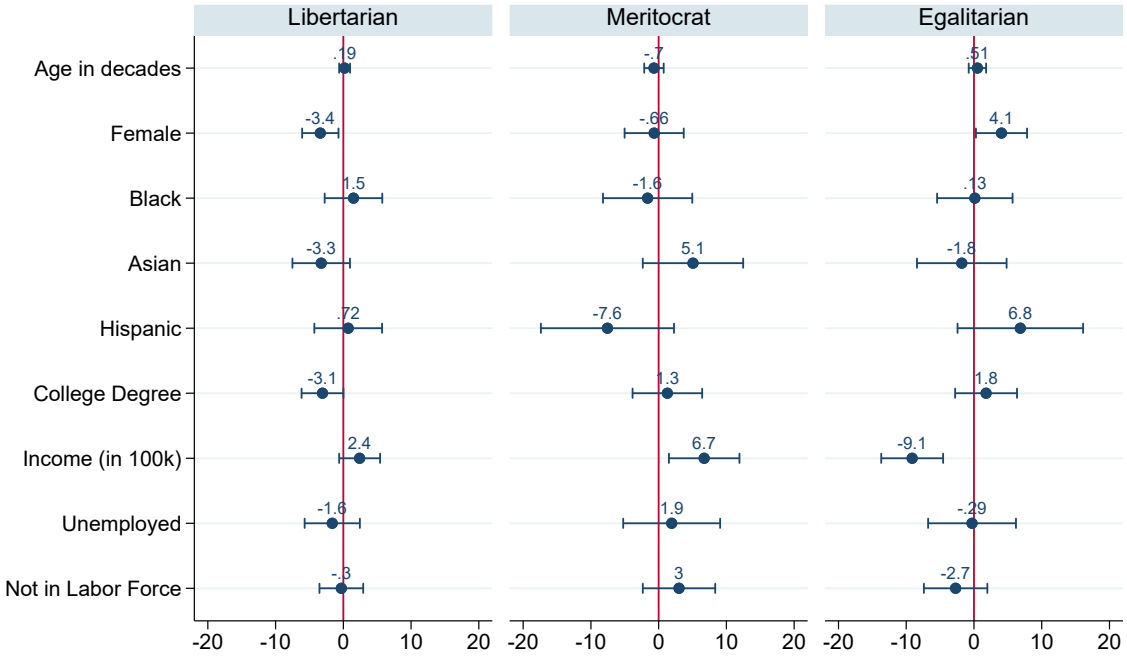
Notes: OLS estimates with robust standard errors clustered at the individual level in parentheses. Dependent variables: policy preferences as standardized z-scores. Meritocratic preferences are a continuous measure equal to the difference between the two transfer choices on luck and merit in $: ($T_{Luck}$ - T_{Merit}). For meritocrats, meritocratic preferences take values in (0, 2], see also A4. In the full sample, meritocratic preferences take values in [-4, 2]. Socio-Demographics include age, gender, race, ethnicity and education dummies.
*** p<0.001, ** p<0.01, * p<0.05

C Determinants of Fairness Preferences and Beliefs

C.1 Determinants of Fairness Preferences

In Figure C8 we restrict the sample to subjects holding one of the three distinct fairness ideals (egalitarians, meritocrats, libertarians) and exclude subjects who cannot be classified ("others"). In that way, we show the determinants of fairness ideals conditional on being classified as one of the three fairness preference types.

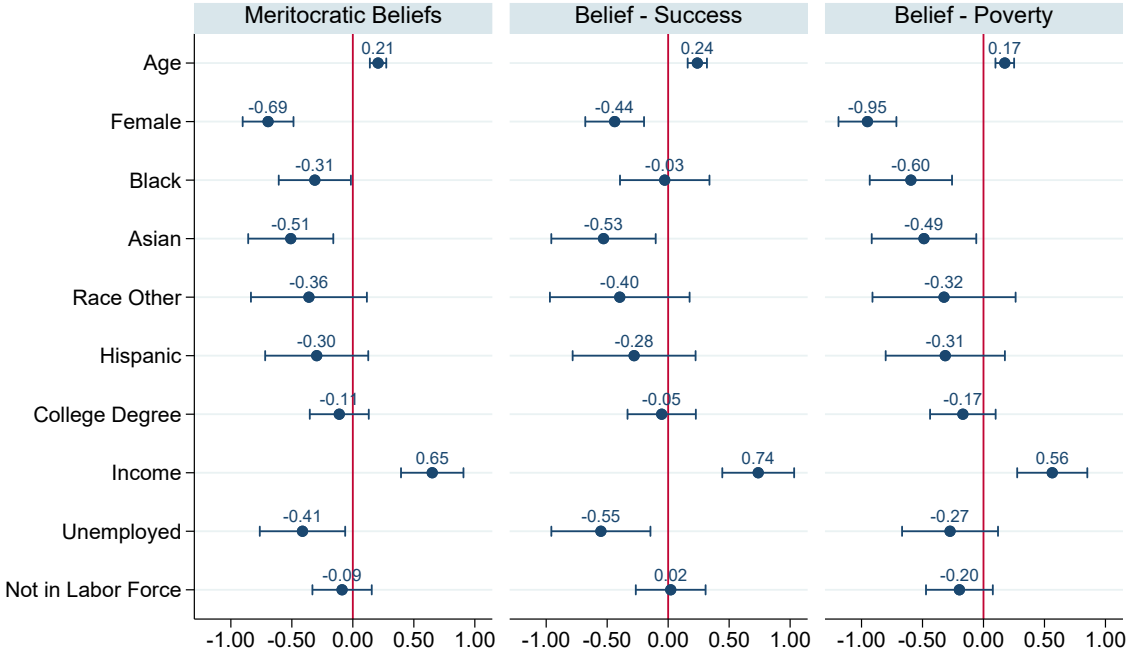
Figure C8: Determinants of Fairness Preferences



Notes: The figure shows coefficients of three OLS regressions of each fairness preference dummy on our standard set of socio-demographics (age, female, education, income, race/ethnicity dummies). The regressions exclude "type others".

C.2 Determinants of Beliefs

Figure C9: Determinants of Beliefs



Notes: The figure shows coefficients of three OLS regressions of meritocratic beliefs and each of the two subitems on our standard set of socio-demographics (age, female, education, income, race/ethnicity dummies).

D Stability of Fairness Preferences and Beliefs

D.1 Panel Attrition and Balance of Covariates

Table D13: Logit Models: Panel Attrition and Balance of Covariates in Experiment

	Panel Attrition	Treatment Status		
Dependent Variable:	Resampled	High Control	Low Control	Baseline
	(1)	(2)	(3)	(4)
Female	-0.004	0.024	0.059	-0.083*
	(0.035)	(0.037)	(0.036)	(0.036)
Age (in decades)	0.078***	-0.011	-0.001	0.012
	(0.012)	(0.013)	(0.013)	(0.013)
Black	0.078	-0.051	0.038	0.013
	(0.049)	(0.052)	(0.054)	(0.053)
Asian	-0.003	-0.104	-0.055	0.161*
	(0.069)	(0.068)	(0.070)	(0.079)
Race Other	-0.073	-0.005	0.026	-0.022
	(0.084)	(0.085)	(0.086)	(0.083)
Hispanic	0.003	-0.006	0.000	0.003
	(0.066)	(0.072)	(0.073)	(0.074)
College Degree	-0.020	-0.011	0.007	0.003
	(0.040)	(0.041)	(0.041)	(0.042)
Masters Degree	-0.083	0.052	0.009	-0.060
	(0.053)	(0.056)	(0.054)	(0.053)
Income (in 100k)	-0.031	-0.036	0.042	-0.007
	(0.042)	(0.045)	(0.044)	(0.045)
Unemployed	-0.081	0.043	-0.042	-0.000
	(0.056)	(0.058)	(0.056)	(0.056)
Not in Labor Force	-0.037	0.051	-0.087*	0.038
	(0.046)	(0.046)	(0.043)	(0.046)
Midwest	0.041	-0.084	0.163**	-0.080
	(0.053)	(0.055)	(0.055)	(0.054)
South	0.050	-0.047	0.039	0.007
	(0.044)	(0.047)	(0.043)	(0.046)
West	0.010	-0.059	0.089	-0.028
	(0.058)	(0.060)	(0.060)	(0.059)
Observations	745	745	745	745
joint significance (p-value)	p<0.001	p=0.815	p=0.227	p=0.311

Notes: Average marginal effects from logit models. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05

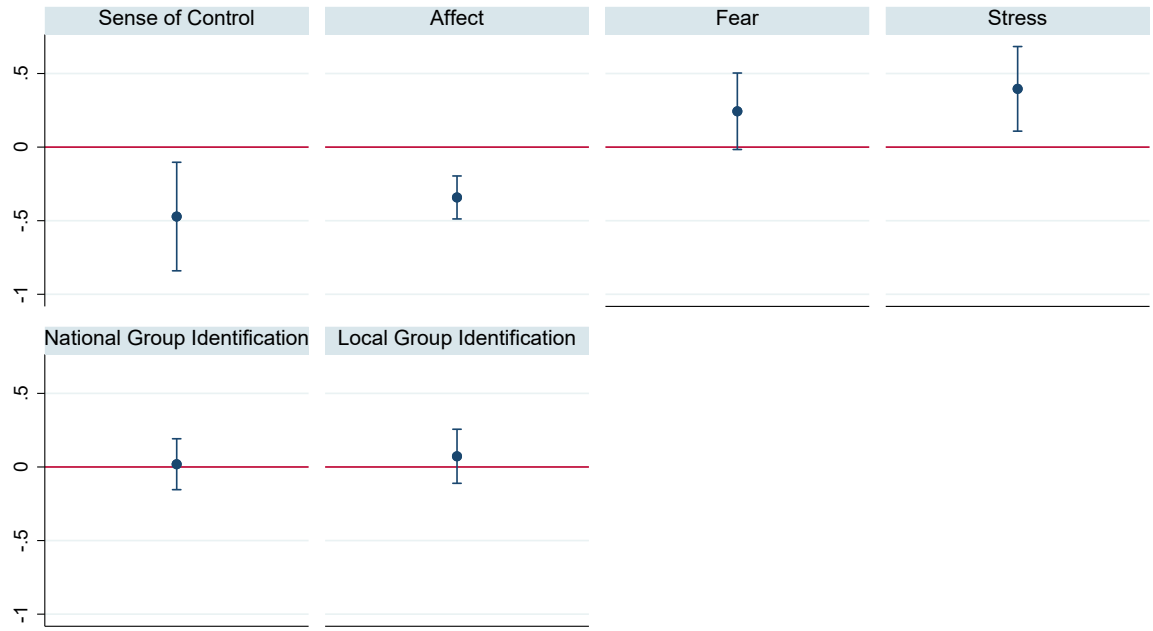
Table D14: Logit Model: Panel Attrition - Outcomes in Wave 1

	Dep Var: Resampled in Wave 2		
	(1)	(2)	(3)
Meritocrat	-0.017		
	(0.078)		
Egalitarian	0.095		
	(0.088)		
Other	-0.021		
	(0.080)		
Beliefs in Merit	0.002		
	(0.009)		
Political Ideology		-0.001	
		(0.006)	
Support for Welfare Policies			0.001
			(0.010)
Observations	745	745	745

Notes: Average marginal effects from logit models. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05

D.2 Experiment - Manipulation Check

Figure D10: Self-reported Psychological States - High Control vs. Low Control



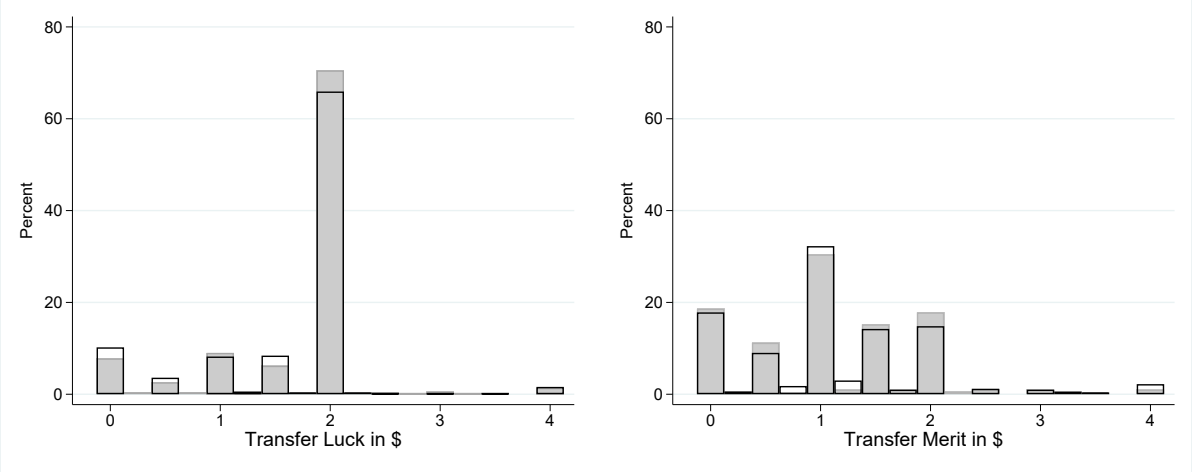
Notes: The figure shows estimated effects with 95% CIs of the Low Control treatment compared to High Control (Red Line). Sense of Control is measured on a 10-point Likert scale. Fear and Stress are measured on 7-point Likert scales. Affect, National and Local Group Affiliation are measured on 5-point Likert scales.

D.3 Stability of Fairness Preferences - Panel Data

D.3.1 Panel Data - Population Level Analysis

Figure D11: Histograms of Transfer Choices W1 vs W2

(a) Luck (b) Merit



Notes: The figure shows histograms of transfer choices in our panel data (N=499) in wave 1 and wave 2. Gray shaded bars correspond to Wave 2.

Table D15: Panel: Changes in Transfer Choices over Time

	Transfer Merit		Transfer Luck	
	(1)	(2)	(3)	(4)
Panel A: Full Sample				
Wave 2	-0.041	-0.078	0.058	0.140
	(0.048)	(0.080)	(0.041)	(0.072)
Constant	1.172***	1.246***	1.594***	1.431***
	(0.071)	(0.148)	(0.061)	(0.133)
Individual FE	Yes	Yes	Yes	Yes
Treatment in W1 FE	No	Yes	No	Yes
Observations	998	998	998	998
Panel B: Excluding Outliers (Transfers >$2)				
Wave 2	0.031	-0.041	0.063	0.118
	(0.039)	(0.065)	(0.037)	(0.068)
Constant	0.960***	1.105***	1.534***	1.424***
	(0.058)	(0.120)	(0.056)	(0.126)
Observations	951	951	965	965
Individual FE	Yes	Yes	Yes	Yes
Treatment in W1 FE	No	Yes	No	Yes

Notes: Columns (1) to (4) report fixed-effects panel data estimates with robust standard errors (clustered at the individual level) in parentheses. In Panel B, outliers (transfer choices >2$) are excluded from the analysis. Reference category: Wave 1. In columns (2) and (4) we control for treatment status in Wave 1 (one dummy for the High Control and one for the Low Control condition). In Wave 2, both treatment dummies take the value 0 for all subjects.
*** p<0.001, ** p<0.01, * p<0.05

Table D16: Fairness Preference Types by Wave (incl. Meritocratic Subtypes)

	Wave 1	Wave 2	Total
Egalitarian	63	76	139
	12.6	15.2	13.9
Weak Meritocrat	58	66	124
	11.6	13.2	12.4
Moderate Meritocrat	119	115	234
	23.8	23.0	23.4
Rather Strong Meritocrat	24	29	53
	4.8	5.8	5.3
Strong Meritocrat	45	55	100
	9.0	11.0	10.0
Libertarian	27	24	51
	5.4	4.8	5.1
Other	163	134	297
	32.7	26.9	29.8
Total	499	499	998
	100.0	100.0	100.0
Chi^2: p=0.393			

Notes: The table shows the distribution of fairness preference types in wave 1 and wave 2. The first number in each cell refers to the number of observations, the second to the share in each column.

D.3.2 Panel Data - Individual Level Analysis

Table D17: Fairness Preference Types in Wave 1 Predict Types in Wave 2

	Egalitarian W2	Libertarian W2	Meritocrat W2	Type Other W2
	(1)	(2)	(3)	(4)
Egalitarian W1	0.23***			
	(0.05)			
Libertarian W1		0.14***		
		(0.04)		
Meritocrat W1			0.16***	
			(0.04)	
Type Other W1				0.15***
				(0.04)
Constant	0.12***	0.04***	0.45***	0.22***
	(0.02)	(0.01)	(0.03)	(0.02)
p-value	<0.001	<0.001	<0.001	<0.001
Observations	499	499	499	499

Notes: Table reports OLS estimates with standard errors in parentheses. Dependent and independent variables are type dummies.
*** p<0.001, ** p<0.01, * p<0.05

Table D18: Transition Matrix between Types

Wave 1 / Wave 2	Libertarian	Meritocrat	Egalitarian	Type Other	Total W1
Libertarian	5	10	3	9	27
	18.52	37.04	11.11	33.33	100.00
Meritocrat	10	151	32	53	246
	4.07	61.38	13.01	21.54	100.00
Egalitarian	0	29	22	12	63
	0.00	46.03	34.92	19.05	100.00
Type Other	9	75	19	60	163
	5.52	46.01	11.66	36.81	100.00
Total	24	265	76	134	499
	4.81	53.11	15.23	26.85	100.00

Notes: Table reports transitions in fairness preference types between wave 1 and wave 2. The first number in each cell refers to the number of observations, the second to the share in each row.

Table D19: Using Repeated Type Classifications to Predict Policy Preferences Across Waves

	Support for Welfare Policies W2			Support for Welfare Policies W1		
	(1)	(2)	(3)	(4)	(5)	(6)
Libertarian W2	-0.65**		-0.50*		-0.52**	-0.41*
	(0.24)		(0.24)		(0.18)	(0.18)
Egalitarian W2	0.60***		0.54***		0.42***	0.38***
	(0.15)		(0.15)		(0.11)	(0.11)
Other W2	-0.15		-0.09		-0.12	-0.06
	(0.12)		(0.12)		(0.09)	(0.09)
Libertarian W1		-0.65**	-0.55*	-0.52**		-0.45**
		(0.23)	(0.23)	(0.17)		(0.17)
Egalitarian W1		0.46**	0.32*	0.29*		0.19
		(0.16)	(0.16)	(0.12)		(0.12)
Other W1		-0.24*	-0.22	-0.25**		-0.23**
		(0.11)	(0.11)	(0.08)		(0.08)
p (joint test W1)		<0.001	0.001	<0.001		
p (joint test W2)	<0.001				<0.001	<0.001
p (Lib W1 = Lib W2)			0.882			0.883
p (Ega W1 = Ega W2)			0.357			0.293
p (Oth W1 = Oth W2)			0.493			0.219
R^2	0.061	0.049	0.090	0.054	0.059	0.093
Observations	499	499	499	499	499	499

Notes: OLS Estimates with robust standard errors in parentheses. Omitted category: Meritocrats. In column (3) and (6), the reference category are subjects classified twice as Meritocrats. The joint test tests the hypotheses that all type coefficients in a wave are equal to zero. Constant not reported.
*** p<0.001, ** p<0.01, * p<0.05

Table D20: Panel Data: Type Transitions and Policy Preferences

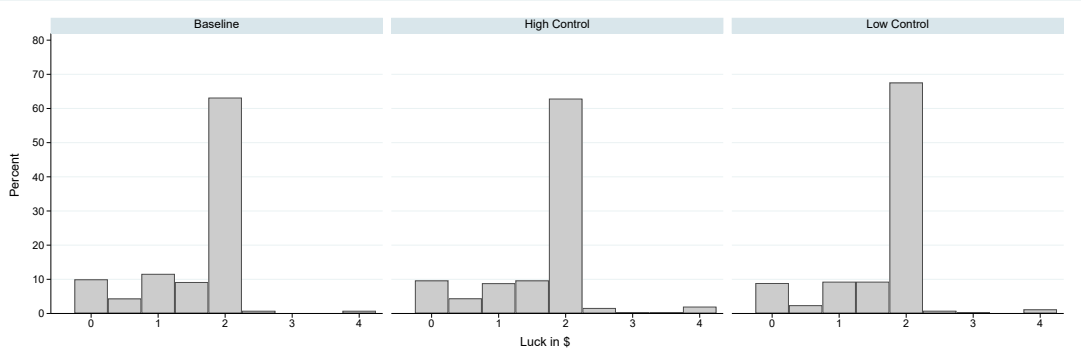
	Support for Welfare Policies				
	(1)	(2)	(3)	(4)	(5)
Egalitarian	0.01	0.01			
	(0.08)	(0.08)			
Libertarian	0.01		0.01		
	(0.15)		(0.14)		
Meritocrat				0.00	
				(0.06)	
Other	-0.01				-0.01
	(0.07)				(0.06)
Wave 2	-0.28***	-0.28***	-0.28***	-0.28***	-0.28***
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
Individual FE	Yes	Yes	Yes	Yes	Yes
Observations	998	998	998	998	998

Notes: Table reports coefficients from two-way fixed effects panel data models. Robust standard errors clustered at the individual level in parentheses. Constant not reported.
* p<0.05, ** p<0.01, *** p<0.001

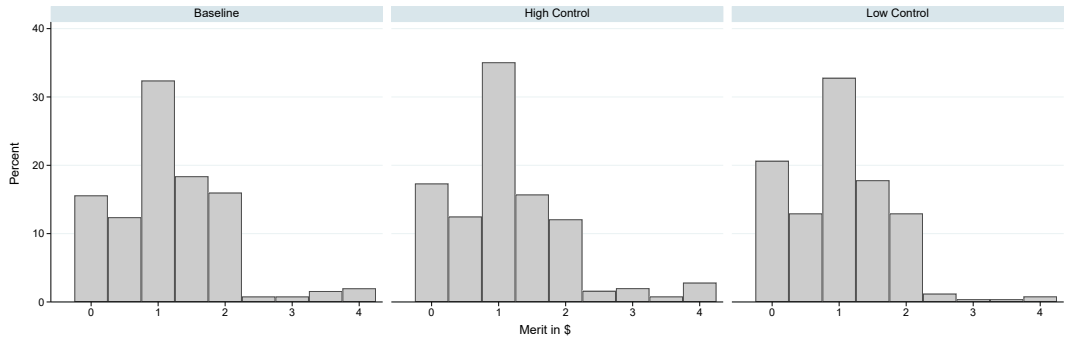
D.4 Stability of Fairness Preferences - Experiment Wave 1

Figure D12: Experiment: Histograms of Transfer Choices by Treatment

(a) Transfer Choices Luck by Treatment



(b) Transfer Choices Merit by Treatment



Notes: Figure shows histograms of transfer choices by treatment condition in our experiment in Wave 1 (N=745). Baseline (N=250), High Control (N=248) and Low Control (N=247). Bin size: $0.50.

Table D21: Experiment Wave 1: Fairness Preference Types by Treatment

	Baseline	High Control	Low Control	Total
Libertarian	12	13	15	40
	4.8	5.2	6.1	5.4
Meritocrat	112	127	135	374
	44.8	51.2	54.7	50.2
Egalitarian	36	21	25	82
	14.4	8.5	10.1	11.0
Other	90	87	72	249
	36.0	35.1	29.1	33.4
Total	250	248	247	745
	100.0	100.0	100.0	100.0
Chi^2: p=0.054				
Chi^2: p=0.323 (if excluding "Other")				
Chi^2: p=0.542 (High Control = Low Control)				
Chi^2: p=0.174 (High Control = Baseline)				
Chi^2: p=0.092 (Low Control = Baseline)				

Notes: Table reports counts and shares of fairness ideals by treatment condition. The first row reports the number of subjects per cell, the second row the share by treatment condition.

Table D22: Experiment Wave 1: Treatment Effects on Transfer Choices

	Transfer Merit		Transfer Luck		Pr(Transfer Luck=$2)	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Full Sample						
Low Control	-0.124	-0.122	0.016	0.020	0.035	0.038
	(0.074)	(0.074)	(0.065)	(0.065)	(0.043)	(0.042)
Baseline	0.022	0.034	-0.070	-0.060	-0.005	-0.006
	(0.074)	(0.074)	(0.065)	(0.065)	(0.043)	(0.043)
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-D.	No	Yes	No	Yes	No	Yes
Observations	745	745	745	745	745	745
Panel B: Excluding Outliers (Transfers >$2)						
Low Control	-0.008	-0.011	0.050	0.056	0.025	0.032
	(0.059)	(0.058)	(0.061)	(0.061)	(0.043)	(0.042)
Baseline	0.076	0.084	-0.018	-0.010	-0.027	-0.024
	(0.059)	(0.058)	(0.061)	(0.060)	(0.044)	(0.043)
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-D.	No	Yes	No	Yes	No	Yes
Observations	706	706	721	721	721	721

Notes: Columns (1) to (4) report OLS estimates with robust standard errors in parentheses. Columns (5) and (6) report average marginal effects from logit models. Outliers (transfer choices >2$) are excluded from the analysis in Panel B. Socio-demographics contain age, gender, race/ethnicity, education, income bracket and employment status. Reference category: High Control.
*** p<0.001, ** p<0.01, * p<0.05

Table D23: Logit Models: Experiment Wave 1 - Treatment Effects on Fairness Preference Types

	Pr(Meritocrat)		Pr(Egalitarian)		Pr(Libertarian)		Pr(Other)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Low Control	0.034	0.035	0.017	0.014	0.008	0.007	-0.059	-0.061
	(0.045)	(0.044)	(0.026)	(0.025)	(0.021)	(0.021)	(0.042)	(0.041)
Baseline	-0.064	-0.072	0.059*	0.061*	-0.004	-0.011	0.009	0.017
	(0.045)	(0.044)	(0.028)	(0.028)	(0.020)	(0.019)	(0.043)	(0.043)
Political Ideology	No	Yes	No	Yes	No	Yes	No	Yes
Socio-D.	No	Yes	No	Yes	No	Yes	No	Yes
Observations	745	745	745	745	745	745	745	745

Notes: Table reports average marginal effects from logit models. Standard errors in parentheses. Socio-demographics contain age, gender, race/ethnicity, education, income bracket and employment status. Reference category: High Control.
*** p<0.001, ** p<0.01, * p<0.05

D.5 Stability of Beliefs

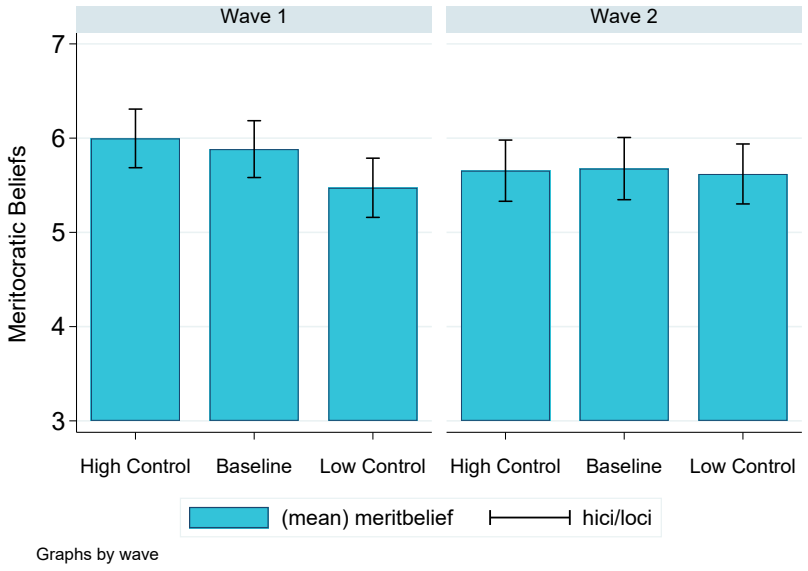
D.5.1 Panel Data - Avg. Changes in Beliefs Over Time

Here we present a detailed comparison of the panel data models estimated. All estimates reported in Table D24 are variants of the following panel data model:

$$\text{Meritocratic Belief}_{i,t} = \alpha_i + \beta_1 \text{Wave}_t + \beta_2 \text{Treatment}_{i,t} + \beta_3 X_{i,t} + \epsilon_{i,t} \tag{5}$$

In this model we are interested in the coefficient β_1 that indicates the difference in beliefs between Wave 1 and Wave 2. In Panel A, we restrict the analysis to the N=167 subjects in the Baseline condition, as they have not been exposed to any treatment manipulation in Wave 1. In Panel B, we use all N=499 observations, while controlling for treatment assignment in Wave 1. In Wave 2, all subjects are coded as not being exposed to any treatment, which is justified by the observation that treatment effects do not persist over time (see Figure D13).

Figure D13: Beliefs by Wave and Treatment



Notes: The figure shows the mean belief by wave and treatment for the N=499 subjects in our panel with 95% CIs.

In Panel B, the random effects model in column (1) and the fixed effects model in column (2) yield almost identical coefficients, even though they use very different types of variation. A Hausman test indicates that there is no statistically significant difference between these estimates (p=0.969) so that using the more efficient random effects model seems appropriate. Another argument for using the random effects model is that it allows to control for socio-demographic characteristics $X_{i,t}$. Most importantly, the random effects models allow to control for an age effect, which seems relevant, because

all subjects in our sample have become 1 or 2 years older in between our waves of data collection.

The estimated coefficients for β_1 are similar in size, ranging from -0.21 to -0.26, and significant at the 5% level in all random effects models. Taken together, the results from our panel data provide evidence that beliefs decreased by about a quarter point on a 10-point Likert scale in our sample from Spring 2021 to Fall 2022.

Table D24: Panel Data Models - Avg. Changes in Beliefs

	(1)	(2)	(3)	(4)
Panel A: Subjects in Baseline				
Wave 2	-0.21	-0.21	-0.24*	-0.24*
	(0.11)	(0.11)	(0.11)	(0.12)
Age			0.03*	0.02*
			(0.01)	(0.01)
Model	FE	RE	RE	RE
Socio-D.	-	-	-	Yes
Observations	334	334	334	334
Clusters	167	167	167	167
p(Wave 2)	0.07	0.07	0.03	0.04
Panel B: All observations				
Wave 2	-0.21	-0.21*	-0.24*	-0.23*
	(0.11)	(0.11)	(0.10)	(0.11)
High Control	0.14	0.13	0.14	0.16
	(0.16)	(0.15)	(0.15)	(0.15)
Low Control	-0.35*	-0.37*	-0.35*	-0.34*
	(0.17)	(0.15)	(0.15)	(0.15)
Age			0.02***	0.02***
			(0.01)	(0.01)
Model	FE	RE	RE	RE
Socio-D.	-	-	-	Yes
Observations	998	998	998	998
Clusters	499	499	499	499
p(Wave 2)	0.07	0.04	0.02	0.03

Notes: Estimates from panel data models. Robust standard errors clustered at the individual level in parentheses. Socio-demographics contain gender, race/ethnicity, education, and income.
* p<0.05, ** p<0.01, *** p<0.001

D.6 Explaining Changes in Policy Preferences

Table D25: OLS: Experiment Wave 1 - Average Treatment Effects on Policy Preferences

	Redistribution		Univ. Health Care		Pandemic Support	
	(1)	(2)	(3)	(4)	(5)	(6)
Low Control	0.02	-0.02	0.05	0.01	-0.02	-0.03
	(0.09)	(0.07)	(0.09)	(0.07)	(0.08)	(0.07)
Baseline	0.09	0.05	0.08	0.02	0.02	-0.00
	(0.08)	(0.07)	(0.09)	(0.07)	(0.08)	(0.07)
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-D.	No	Yes	No	Yes	No	Yes
Income Bracket	No	Yes	No	Yes	No	Yes
Employment St.	No	Yes	No	Yes	No	Yes
Observations	745	745	745	745	745	745
R^2	0.002	0.323	0.001	0.389	0.001	0.214

Notes: Table presents OLS estimates with robust standard errors clustered at the individual level in parentheses. Dependent variables: policy preferences as standardized z-scores. Socio-Demographics include age, gender, race, ethnicity, and education dummies.
*** p<0.001, ** p<0.01, * p<0.05

D.7 Experience Effects in Panel Data

To test whether objective personal experiences are meaningfully related to changes in fairness views, we use a Diff-in-Diff approach. For each personal experience, we specify an indicator variable equal to 1 if an individual made this experience between Wave 1 and Wave 2. As the control group, we specify subjects who did not make the respective personal experience. Where necessary, we restrict our analysis to the subgroup of individuals who has not yet experienced the shock in Wave 1 of the pandemic. These personal experiences are self-reported in our survey.

We estimate these experience effects using a standard two-way fixed effects model with two time periods. The identified effects are not necessarily causal, because these personal experiences may be correlated with other unobserved experiences or time-varying factors that also affect fairness views. Still, the individual-fixed effects can control for any time-invariant unobserved differences between the treated and control groups.

D.7.1 COVID Case

We classify subjects who stated in Wave 2 that they or someone emotionally close to them had a case of COVID since June 2020 (N=204) as being treated by a *COVID case*. To identify those subjects who have already been treated prior to Wave 1 of our data collection, we use answers to the question in Wave 1, whether they or someone emotionally close to them has been tested positively with COVID (N=20).

Table D26: COVID Case

Prior / After W1	Not Treated	Treated	Total
Not Treated	286	193	479
	57.3	38.7	96.0
Already Treated	9	11	20
(Potentially)	1.8	2.2	4.0
Total	295	204	499
	59.1	40.9	100.0

D.7.2 Severe COVID Case

We classify subjects who stated in Wave 2 that they or someone emotionally close to them had a severe case of COVID since June 2020 (N=78) as being treated by a *COVID case*. To identify those subjects who have already been treated prior to Wave 1 of our data collection, we use answers to the question in Wave 1, whether they or someone emotionally close to them has been tested positively with COVID (N=20).

Table D27: COVID Case - Severe

Prior / After W1	Not Treated	Treated	Total
Not Treated	407	72	479
	81.6	14.4	96.0
Already Treated	14	6	20
(Potentially)	2.8	1.2	4.0
Total	421	78	499
	84.4	15.6	100.0

D.7.3 Job Loss

We classify subjects who stated in Wave 2 that they or a household member lost a job or main source of income since June 2020 (N=78) as being treated by a *job loss*. To identify those subjects who have already been treated prior to Wave 1 of our data collection, we use answers to the question in Wave 1, whether they or a household member lost a job or main source of income due to the pandemic (N=129).

Table D28: Job Loss

Prior / After W1	Not Treated	Treated	Total
Not Treated	338	32	370
	67.7	6.4	74.1
Already Treated	83	46	129
(Potentially)	16.6	9.2	25.9
Total	421	78	499
	84.4	15.6	100.0

D.7.4 Income Loss

We classify subjects who stated in Wave 2 that in the time period since June 2020 their household lost income compared to before the pandemic (N=89) as being treated by a *Income Loss*. To identify those subjects who have already been treated prior to Wave 1 of our data collection, we use answers to the question in Wave 1, whether their household lost income compared to before the pandemic (N=128).

Table D29: Income Shock

Prior / After W1	Not Treated	Treated	Total
Not Treated	333	38	371
	66.7	7.6	74.3
Already Treated	77	51	128
(Potentially)	15.4	10.2	25.7
Total	410	89	499
	82.2	17.8	100.0

Table D30: Experience Effects

	Transfer Merit in $		Transfer Luck in $		Beliefs in Merit	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: COVID Case						
Wave 2	0.03	0.04	0.10*	0.12*	-0.19	-0.15
	(0.05)	(0.05)	(0.05)	(0.05)	(0.12)	(0.12)
Treated × Wave 2	-0.01	-0.02	-0.09	-0.11	-0.03	-0.04
	(0.08)	(0.08)	(0.08)	(0.08)	(0.14)	(0.14)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	951	912	965	925	998	958
Panel B: COVID Case Severe						
Wave 2	0.03	0.04	0.07	0.08	-0.17	-0.13
	(0.04)	(0.04)	(0.04)	(0.04)	(0.12)	(0.12)
Treated × Wave 2	-0.01	-0.02	-0.04	-0.05	-0.20	-0.21
	(0.12)	(0.12)	(0.10)	(0.10)	(0.22)	(0.22)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	951	912	965	925	998	958
Panel C: Job Loss						
Wave 2	0.05	0.07	0.08	0.09	-0.22*	-0.18
	(0.04)	(0.05)	(0.04)	(0.05)	(0.11)	(0.13)
Treated × Wave 2	-0.24	-0.26	-0.21	-0.22	0.23	0.19
	(0.16)	(0.16)	(0.14)	(0.14)	(0.30)	(0.30)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	951	705	965	718	998	740
Panel D: Income Loss						
Wave 2	0.03	0.03	0.07	0.07	-0.20	-0.17
	(0.04)	(0.05)	(0.04)	(0.05)	(0.11)	(0.13)
Treated × Wave 2	0.05	0.04	-0.06	-0.07	-0.06	-0.10
	(0.13)	(0.13)	(0.13)	(0.13)	(0.23)	(0.24)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	951	712	965	722	998	742

Notes: Table presents estimates from two-way fixed effects models with robust standard error (clustered at the individual level) in parentheses. Columns (1), (3) and (5) include all observations. Columns (2), (4) and (6) exclude subjects that have potentially already been treated before Wave 1 of our data collection. For details on the classification of subjects see the previous pages. In Columns (1) to (4) outliers with transfer choices large $2 are excluded. In Column (5) and (6) we additionally control for treatment status in wave 1 due to the observed treatment effect on beliefs in our experiment.
*** p<0.001, ** p<0.01, * p<0.05

D.8 Experiment in Wave 2 - Analysis

Experimental Design We run a baseline treatment in which subjects get no information and do not write about any personal experience (*Baseline*), one treatment in which subjects are provided with information about the impacts of the pandemic on US society (*Information*) and one treatment in which they are provided with the information and are asked to write about a personal experience of low control from the pandemic (*Low Control*). The information provided is the same as in the treatments in Wave 1 but with up-to-date statistics about the pandemic's health and labor market impacts.

Attrition and Balance Of the 786 subjects that are randomized into one of the treatments, 3 subjects do not complete the survey in *Baseline*, 12 subjects in the *Information* treatment, but in *Low Control* 42 subjects dropped out of the survey (Chi2-test: $p<0.001$). Most of these drop-outs in *Low Control* (32) happened when subjects were asked to write the text about a personal experience. One plausible explanation for this differential attrition is that subjects at this later point of the pandemic do not want to be reminded again of negative personal experiences that they made during the pandemic and hence leave the experiment.

Table D31: Differential Attrition in Experiment in Wave 2

	Baseline	Information	Low Control
Completed	277 98.9%	240 95.2%	212 83.5%
Drop-out	3 1.1%	12 4.8%	42 16.5%
Total	280 100.0%	252 100.0%	254 100.0%
Chi^2: $p<0.001$			

The **differential attrition across treatments** implies that the results of this experiment should be treated with much caution. While the treatment conditions still seem to be reasonably well balanced according to observable socio-demographic characteristics, except for education, (see Table D32), the results may still be strongly biased due to unobserved differences between subjects across treatments. For that reason, we decided to exclude results of this experiment from the main part of our paper. For completeness, we report the results on the following pages.

Table D32: Logit Models: Balance of Covariates in Experiment in Wave 2

	Treatment Status		
Dependent Variable:	Low Control (1)	Information (2)	Baseline (3)
Female	-0.003	-0.041	0.042
	(0.034)	(0.035)	(0.037)
Age in decades	0.009	-0.014	0.004
	(0.011)	(0.011)	(0.012)
Black	-0.066	0.050	0.019
	(0.050)	(0.057)	(0.058)
Asian	0.012	-0.130*	0.127
	(0.072)	(0.059)	(0.076)
Race Other	-0.078	0.136	-0.056
	(0.072)	(0.084)	(0.077)
Hispanic	-0.108	0.037	0.065
	(0.070)	(0.066)	(0.068)
College Degree	-0.044	0.085*	-0.042
	(0.046)	(0.042)	(0.046)
Masters Degree	-0.143**	0.135**	0.010
	(0.048)	(0.049)	(0.053)
Income (in 100k)	-0.007	0.025	-0.019
	(0.042)	(0.043)	(0.045)
Unemployed	-0.000	0.039	-0.036
	(0.059)	(0.063)	(0.063)
Not in Labor Force	0.003	0.075	-0.077
	(0.041)	(0.045)	(0.044)
Midwest	-0.062	0.015	0.051
	(0.052)	(0.056)	(0.056)
South	0.000	-0.038	0.037
	(0.047)	(0.048)	(0.048)
West	-0.064	-0.057	0.121*
	(0.052)	(0.054)	(0.056)
Observations	729	729	729
joint significance (p-value)	p=0.123	p=0.113	p=0.440

Notes: Average marginal effects from logit models. Standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

Table D33: Experiment Wave 2: Fairness Preference Types by Treatment

	Baseline	Info	Low Control	Total
Libertarian	14	14	12	40
	5.1	5.8	5.7	5.5
Meritocrat	130	102	110	342
	46.9	42.5	51.9	46.9
Egalitarian	30	22	24	76
	10.8	9.2	11.3	10.4
Other	103	102	66	271
	37.2	42.5	31.1	37.2
Total	277	240	212	729
	100.0	100.0	100.0	100.0
Chi^2: p=0.344				
Chi^2: p=0.968 (if excluding "Other")				
Chi^2: p=0.088 (Info = Low Control)				
Chi^2: p=0.577 (Info = Baseline)				
Chi^2: p=0.576 (Low Control = Baseline)				

Notes: Table reports counts and shares of fairness ideals by treatment condition. The first row reports the number of subjects per cell, the second row the share by treatment condition.

Table D34: Experiment Wave 2: Treatment Effects on Transfer Choices and Beliefs

	Transfer Merit		Transfer Luck		Beliefs in Merit	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Full Sample						
Info	-0.066	-0.087	-0.001	-0.002	0.015	0.013
	(0.080)	(0.077)	(0.068)	(0.068)	(0.191)	(0.175)
Low Control	-0.038	0.007	0.088	0.102	0.044	0.035
	(0.082)	(0.080)	(0.070)	(0.070)	(0.198)	(0.181)
Political Ideology	No	Yes	No	Yes	No	Yes
Socio-D.	No	Yes	No	Yes	No	Yes
Observations	729	729	729	729	729	729

Notes: Columns (1) to (6) report OLS estimates with robust standard errors in parentheses. Socio-demographics contain age, gender, race/ethnicity, education, income bracket and employment status. Reference category: Baseline.
*** p<0.001, ** p<0.01, * p<0.05

E Instructions

Below we provide instructions for Wave 1. Instructions for Wave 2 (Panel) can be found in Section E.2 and for Wave 2 (New Sample) in Section E.3.

E.1 Instructions Wave 1

Dear participant,

welcome to this research study! Please review the following consent form before proceeding with our survey.

DESCRIPTION: You will be asked questions about yourself, personal experiences and your opinions in relation to the coronavirus. Also, you can take decisions in two economic games. The survey will take approximately 12 minutes to complete.

PAYMENT: You will receive a guaranteed participation compensation of $1.40. Additionally, you will earn a bonus of $0 to $1.20, depending on the actions that you and other participants take. Please make sure that you click through to the end of the survey to be redirected to Prolific. We can only recompense participants who give answers to all questions and complete the last page of the study.

RISK AND BENEFITS: The risk to your participation in this online study are those associated with basic surveys including the recall of pleasant or unpleasant past experiences, such as illness and job loss, and mild stress. The benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

SUBJECT'S RIGHTS: Your participation is voluntary. You have the right to see or withdraw your data at any time. Your responses will be recorded in a completely anonymous way. To secure the transparency of scientific findings, the completely anonymized data set will be published and made available to other researchers.

WARNING: This survey uses a protocol to check that you are responding from inside the U.S. and not using a Virtual Private Server (VPS), Virtual Private Network (VPN) or proxy to hide your country. In order to take this survey, please turn off your VPS/VPN/proxy if you are using one and also any ad blocking applications. Failure to do this might prevent you from completing the study. For more information on why we are requesting this, see this post from TurkPrime (https://goo.gl/WD6QD4).

YOU ARE NOT ALLOWED TO USE YOUR MOBILE PHONE.

If you have any questions about this project or if you have a research-related problem, you may contact the principle investigator: Maj-Britt Sterba, by email.

Please indicate, in the box below, that you are at least 18 years old, have read and understand this consent form, and you agree to participate in this research study.

I agree to participate in this research study

Thank you for your participation in this study! Please read the instructions carefully. You will not be able to go back after you have exited a page.

Please answer the following questions about yourself. This information will only be used for statistical purposes. All your responses are anonymous.

Gender What is your gender? [Male; Female; Other]

Age What is your age? [Open textfield]

State In which state do you currently reside? [Drop-down menu]

County In which county or city county do you currently reside? [Open textfield]

Race Choose one or more races that you consider yourself to be: [White; Black or African American; American Indian or Alaska Native; Asian; Native Hawaiian or Pacific Islander; Other]

Ethnicity Are you Spanish, Hispanic, or Latino or none of these? [Yes; None of these]

Education What is the highest level of education you have completed? [Less than High School; High School / GED; College Degree; Master's Degree]

Employment status What is your current employment status? [Employed full-time (35+ hours a week); Unemployed and currently looking for work; Unemployed and not currently looking for work; Student; Retired; Homemaker; Self-employed; Other]

Income What was your family's gross household income in 2019 in US dollars? [Less than $20,000; $20,000 to $34,999; $35,000 to $49,999; $50,000 to $74,999; $75,000 to $99,999;

$100,000 to $149,999; More than $150,000]

Political Ideology Please answer the following question about your political orientation by moving the slider below. In general I am, [Slider between Liberal left and Conservative right]

---------- Start Experiment ----------

High Control We would now like you to read this short text carefully.

The coronavirus continues to spread in the United States. Until today, there have been at least 1,300,000 cases and more than 84,000 deaths, according to data from Johns Hopkins University. All federal states have declared a state of emergency. Forty states closed down all non-essential businesses. Nationwide more than 36,000,000 people have lost their job since mid-March, according to the Department of Labour.

We are interested in your experience during the corona pandemic.

Please take one minute of time to write about a personal experience in the last two months in which you felt that you had **control over some aspect of your life.**

For example, did you perform a daily routine or exercise on a regular basis? Did you work on your home or garden? Did you take preventive measures to protect yourself?

Please describe the experience in as much detail as possible.

Low Control We would now like you to read this short text carefully.

The coronavirus continues to spread in the United States. Until today, there have been at least 1,300,000 cases and more than 84,000 deaths, according to data from Johns Hopkins University. All federal states have declared a state of emergency. Forty states closed down all non-essential businesses. Nationwide more than 36,000,000 people have lost their job since mid-March, according to the Department of Labour.

We are interested in your experience during the corona pandemic.

Please take one minute of time to write about a personal experience in the last two months in which you felt that you had **no control or choice over what happened to you.**

For example, have you been restricted performing your job or going about your daily activities? Did you have to cancel important plans?

Please describe the experience in as much detail as possible.

Baseline We would now like you to read this short text carefully.

Did you hear? The genome of the banana has been sequenced, an important development in scientist's efforts to produce better bananas. A look at that genome has revealed curious things, said Mat Peslop-Harrison, a plant geneticist at the University of Leicester in England who was a coauthor of the report published in the journal Nature. For example, there are regions of the banana genome that make them extra sweet and nutritious.
We are interested in your experience with bananas.

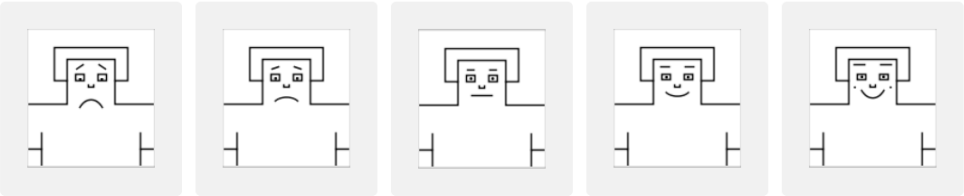
Please take one minute to write about your last experience with eating bananas.

Please describe the experience in as much detail as possible.

---------- End Experiment ----------

Next we would like you to tell us how you feel right now.

Negative affect Which of these pictures best describes your current mood?



Stress To what extent are you feeling stressed at the moment? [Not at all 1; 2; 3; 4; 5; 6; Very much 7]

Fear To what extent are you experiencing the emotion fear at the moment? [Not at all 1; 2; 3; 4; 5; 6; Very much 7]

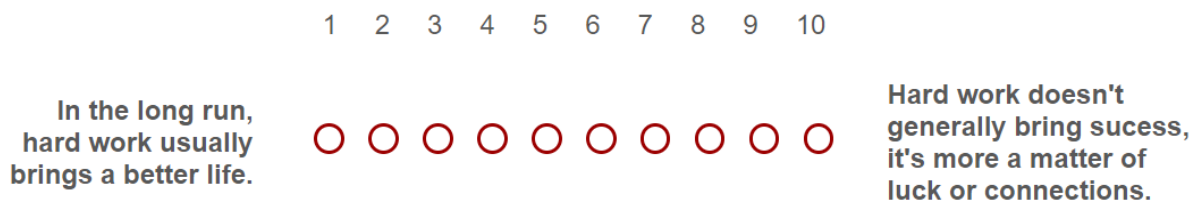
How close do you currently feel to:
Close 1 People in your country [5-item scale: Not close at all 1 – Very close 5]
Close 2 People in your local community [5-item scale: Not close at all 1 – Very close 5]

Now we would like you to answer some questions about your attitudes regarding personal and societal issues.

Control over life Sometimes people feel they have completely free choice and control over their lives, while at other times they feel that what they do has no real effect on what happens to them.

Please use this scale to indicate how much freedom of choice and control you feel you currently have in your life. [10-item scale: Not control at all 1 – A great deal of control 10]

Beliefs success How would you place your views on the following scale?



Note: 1 means you completely agree with the statement at the left; 10 means you completely agree with the statement at the right; and if your views fall somewhere in between you can pick any number in between.

Beliefs poverty How would you place your views on the following scale?

Note: 1 means you completely agree with the statement at the left; 10 means you completely agree with the statement at the right; and if your views fall somewhere in between you can pick any number in between.

TASK 1:

In contrast to traditional survey questions that are often about hypothetical situations, your following decisions can have real consequences.

You will now take decisions that can change the earnings of other participants of this research study.

I understand that my decisions can change the earnings of other participants.

A few days ago two individuals, let's call them "workers", have been recruited online to work on a tedious assignment. Both received a fixed participation compensation of $0.50.

After completing the assignment, they were told that their additional earnings for the assignment would be determined by one of three rules. According to all three rules one worker earns $4 and the other worker earns $0.

They were not informed about their outcome nor which rule applies. However, they were told that a third person would be informed about the assignment and the rules, and would be given the opportunity to redistribute the earnings and thus determine how much they would actually be paid for the assignment.

You are the third person and we now want you to choose whether to redistribute the earnings between the workers.

You will take three decisions, one for each rule that could apply. Each of the three rules apply with equal probability. With 25% chance one of your decisions will be implemented.

Note: Your decisions are completely anonymous. The workers will receive their payment within a few days, but will not receive any further information.

Rule #1/2 [randomized order]**: The workers' earnings are determined by their productivity. The more productive worker earns $4, and the other worker earns $0.**

Merit If Rule #1/2 applies, how much of the earnings from the worker that earned $4 do you want to give to the worker that earned $0?

Rule #1/2 [randomized order]**: The workers' earnings are determined by a lottery. The worker winning the lottery earns $4, and the other worker earns $0.**

Luck If Rule #1/2 applies, how much of the earnings from the worker that earned $4 do you want to give to the worker that earned $0?

Rule #3 With a certain probability, the workers' earnings are determined by a lottery. If there is a lottery, the worker winning the lottery earns $4, and the other worker earns $0. If there is no lottery, the more productive worker earns $4, and the other worker earns $0.

If Rule #3 applies, how much of the earnings from the worker that earned $4 do you want to give to the worker that earned $0?

Probability When taking your previous decision: What probability that the earnings were determined by a lottery did you have in mind? [Slider from 0% to 100%]

Before we continue, we would like you to briefly recall the experience that you have been writing about at the beginning of this study. To what degree did you feel in control in that situation?

Recall Control Please tell us: to what degree did you feel in control in that situation? [10-item scale: Not at all 1 – Very much 10]

TASK 2:

You are now matched with one other participant of this study. Both of you have so far filled out the very same survey and will receive a fixed participation compensation of $1.40.

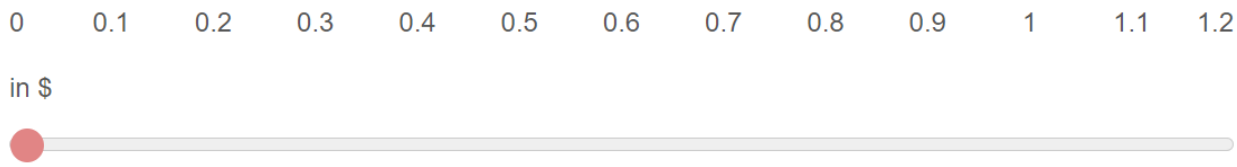
In this task you will take one decision that can change your bonus payment and the bonus payment for the other participant that you are matched with.

I understand that my decision can change my bonus payment and that of the other participant.

You have been matched with another participant. One of you will get a bonus of $1.20, the other one will get no bonus. Who gets the bonus is determined by a lottery.

The one with the bonus of $1.20 can decide whether to give some amount of the bonus to the participant with no bonus.

Altruism In case that you win the lottery: How much of the bonus of $1.20 do you want to give to the other participant with no bonus?



Note: Again, your decision is completely anonymous. The bonuses will be payed out within a few days. You will be informed whether your decision is implemented at the end of the survey.

Now, we would like you to answer some questions about your attitudes in relation to the current coronavirus pandemic, but also to more general questions.

Control beliefs How much control would you say people have over: [5-item scale: Not control at all 1 – A great deal of control 5]

- Falling sick to the coronavirus
- Losing their job or main source of income due to the outbreak of the coronavirus
- Their health status in general
- Their financial situation in general
- Their life in general

We will now ask for your attitudes towards measures the federal government and state governments have taken to address the outbreak of the coronavirus policy.

Pandemic support To what degree do you approve or disapprove of the following measures? [5-item scale: Strongly disapprove 1 – Strongly approve 5]

- Economic Impact Payment of 1200$ per Person
- Increase and Expansion of Unemployment Benefits
- Expansion of Medicaid
- Paid Sick Leave

Redistribution Generally, to what degree do you approve of economic redistribution? [Strongly Disapprove; Rather Disapprove; Neutral; Rather Approve; Strongly Approve]

Universal Health Care Generally, to what degree do you approve of universal health care? [Strongly Disapprove; Rather Disapprove; Neutral; Rather Approve; Strongly Approve]

Stay-at-Home Order To what degree do you approve of stay at home orders? [Strongly Disapprove; Rather Disapprove; Neutral; Rather Approve; Strongly Approve]

In this section we would like you to fill out some information on your current financial situation. Remember, all your answers are anonymous.

Job Loss Have you or a member of your household lost a job or main source of income due to the outbreak of the coronavirus? [Yes; No]

Job Loss Peers How many people do you personally know (family, friends, neighbours, colleagues) that have lost a job or main source of income due to the outbreak of the coronavirus? [None; 1-2; 3-5; 6-10; More than 10]

Income Loss How many percent of your regular household's income do you expect to lose this month due to the outbreak of the coronavirus compared to February 2020? [0%; 0% to 20%; 20% to 40%; 40% to 60%; 60% to 80%; 80% to 100%]

In this last section we would like to ask about your personal exposure to the coronavirus (COVID-19).

Covid Case Have you or a member of your family been tested positively for COVID-19? [Yes; No]

Symptoms Have you or a member of your family showed symptoms associated with COVID-19 like fever, cough or difficulty breathing in the last two months? [Yes; Somewhat; No]

High Risk Do you have a serious underlying medical condition that puts you at higher risk for severe illness from COVID-19? [Yes; No]

Symptoms Peers How many people do you personally know (family, friends, neighbours, colleagues) that showed symptoms associated with COVID-19 like fever, cough or diffi-

culty breathing in the last two months? [None; 1-2; 3-5; 6-10; More than 10]

News How frequently have you been consuming information about the outbreak of the coronavirus? [More than 5 times a day; 4-5 times a day; 2-3 times a day; Once a day; Every other day; Once a week; Less than once a week]

Feedback: Is there anything you would like to tell us? This could relate to the topic of the survey, the ease of understanding of the questions or emotional strain that you felt while completing this survey.

All of your feedback is highly appreciated and helps us improve our research.

Please Click the "Next" Button.

Debriefing Thank you very much for your participation in this research study! You will receive your bonus payment within a few days.

You have to click the "Next" button at the bottom of this screen for your survey to be counted and to be redirected to Prolific.

If you have questions about this research, please contact the principle investigator, Maj-Britt Sterba, via email at sterba@coll.mpg.de.

Sincerely,
Maj-Britt Sterba
Max Planck Institute for Research on Collective Goods

Official Information on COVID-19: You can find official information from the US government here: https://www.usa.gov/coronavirus

Information about how to stay safe is provided by the Center for Disease Control and Prevention: https://www.cdc.gov/coronavirus

For frequently asked questions see: https://faq.coronavirus.gov

E.2 Instructions Wave 2 (Panel)

Dear participant,

welcome to this research study! Please review the following consent form before proceeding with our survey.

DESCRIPTION: You will be asked questions about yourself, personal experiences and your opinions in relation to the coronavirus. Also, you can take decisions in two economic games.

PAYMENT: You will receive a guaranteed participation compensation of $1.40. Additionally, you will earn a bonus of $0 to $1.20, depending on the actions that you and other participants take. Please make sure that you click through to the end of the survey to be redirected to Prolific. We can only recompense participants who give answers to all questions and complete the last page of the study.

RISK AND BENEFITS: The risk to your participation in this online study are those associated with basic surveys including the recall of pleasant or unpleasant past experiences, such as illness and job loss, and mild stress. The benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

SUBJECT'S RIGHTS: Your participation is voluntary. You have the right to see or withdraw your data at any time. Your responses will be recorded in a completely anonymous way. To secure the transparency of scientific findings, the completely anonymized data set will be published and made available to other researchers.

YOU ARE NOT ALLOWED TO USE YOUR MOBILE PHONE.

If you have any questions about this project or if you have a research-related problem, you may contact the principle investigator: Maj-Britt Sterba, by email.

Please indicate, in the box below, that you are at least 18 years old, have read and understand this consent form, and you agree to participate in this research study.

I agree to participate in this research study

Please enter your Prolific ID in case it is not automatically displayed.

Thank you for your participation in this study! Please read the instructions carefully. You will not be able to go back after you have exited a page.

Please answer the following questions about yourself. This information will only be used for statistical purposes. All your responses are anonymous.

Gender What is your gender? [Male; Female; Other]

Age What is your age? [Open textfield]

State In which state do you currently reside? [Drop-down menu]

County In which county or city county do you currently reside? [Open textfield]

Race Choose one or more races that you consider yourself to be: [White; Black or African American; American Indian or Alaska Native; Asian; Native Hawaiian or Pacific Islander; Other]

Ethnicity Are you Spanish, Hispanic, or Latino or none of these? [Yes; None of these]

Education What is the highest level of education you have completed? [Less than High School; High School / GED; College Degree; Master's Degree]

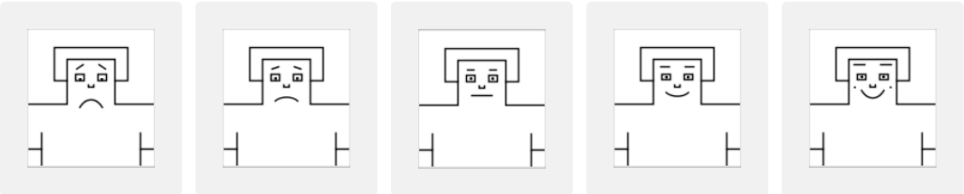
Employment status What is your current employment status? [Employed full-time (35+ hours a week); Unemployed and currently looking for work; Unemployed and not currently looking for work; Student; Retired; Homemaker; Self-employed; Other]

Income What was your family's gross household income in 2020 in US dollars? [Less than $20,000; $20,000 to $34,999; $35,000 to $49,999; $50,000 to $74,999; $75,000 to $99,999; $100,000 to $149,999; More than $150,000]

Political Ideology Please answer the following question about your political orientation by moving the slider below. In general I am, [Slider between Liberal left and Conservative right]

Next we would like you to tell us how you feel right now.

Negative affect Which of these pictures best describes your current mood?



Stress To what extent are you feeling stressed at the moment? [Not at all 1; 2; 3; 4; 5; 6; Very much 7]

Fear To what extent are you experiencing the emotion fear at the moment? [Not at all 1; 2; 3; 4; 5; 6; Very much 7]

How close do you currently feel to:

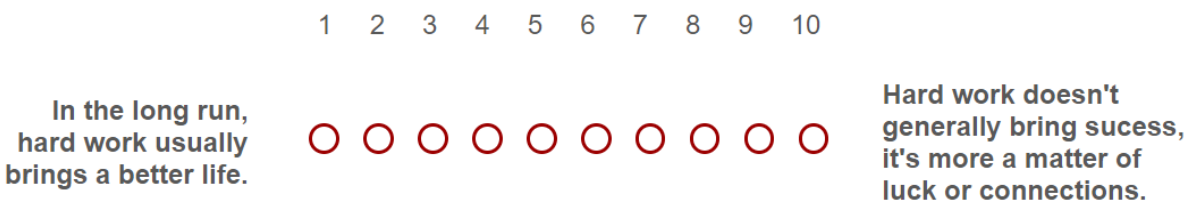
Close 1 People in your country [5-item scale: Not close at all 1 – Very close 5]
Close 2 People in your local community [5-item scale: Not close at all 1 – Very close 5]

Now we would like you to answer some questions about your attitudes regarding personal and societal issues.

Control over life Sometimes people feel they have completely free choice and control over their lives, while at other times they feel that what they do has no real effect on what happens to them.

Please use this scale to indicate how much freedom of choice and control you feel you currently have in your life. [10-item scale: Not control at all 1 – A great deal of control 10]

Beliefs success How would you place your views on the following scale?



Note: 1 means you completely agree with the statement at the left; 10 means you completely agree with the statement at the right; and if your views fall somewhere in between you can pick any number in between.

Beliefs poverty How would you place your views on the following scale?

Note: 1 means you completely agree with the statement at the left; 10 means you completely agree with the statement at the right; and if your views fall somewhere in between you can pick any number in between.

In the next section, you will take decisions in two types of economic games, let's call them **Task 1** and **Task 2**. You will learn more about the tasks as you proceed with the survey. Please now proceed to the description of **Task 1**.

TASK 1:

In contrast to traditional survey questions that are often about hypothetical situations, your following decisions can have real consequences.

You will now take decisions that can change the earnings of other participants of this research study.

I understand that my decisions can change the earnings of other participants.

A few days ago two individuals, let's call them "workers", have been recruited online to work on a tedious assignment. Both received a fixed participation compensation of $0.50.

After completing the assignment, they were told that their additional earnings for the assignment would be determined by one of two rules. According to both rules one worker earns $4 and the other worker earns $0.

They were not informed about their outcome nor which rule applies. However, they were told that a third person would be informed about the assignment and the rules, and would be given the opportunity to redistribute the earnings and thus determine how much they would actually be paid for the assignment.

You are the third person and we now want you to choose whether to redistribute the earnings between the workers.

You will take two decisions, one for each rule that could apply. Each of the three rules apply with equal probability. With 25% chance one of your decisions will be implemented.

Note: Your decisions are completely anonymous. The workers will receive their payment within a few days, but will not receive any further information.

Rule #1/2 [randomized order]**: The workers' earnings are determined by their productivity. The more productive worker earns $4, and the other worker earns $0.**

Merit If Rule #1/2 applies, how much of the earnings from the worker that earned $4 do you want to give to the worker that earned $0?

Rule #1/2 [randomized order]**: The workers' earnings are determined by a lottery. The worker winning the lottery earns $4, and the other worker earns $0.**

Luck If Rule #1/2 applies, how much of the earnings from the worker that earned $4 do you want to give to the worker that earned $0?

TASK 2:

You are now matched with one other participant of this study. Both of you have so far filled out the very same survey and will receive a fixed participation compensation of $1.40.

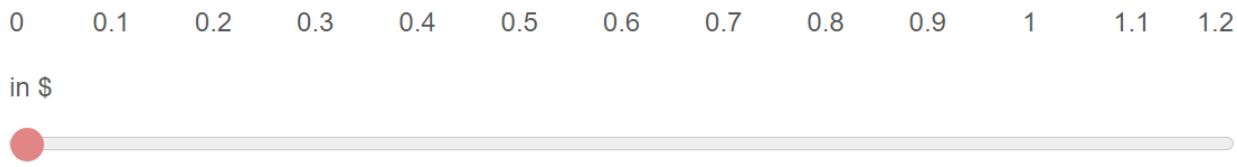
In this task you will take one decision that can change your bonus payment and the bonus payment for the other participant that you are matched with.

I understand that my decision can change my bonus payment and that of the other participant.

You have been matched with another participant. One of you will get a bonus of $1.20, the other one will get no bonus. Who gets the bonus is determined by a lottery.

The one with the bonus of $1.20 can decide whether to give some amount of the bonus to the participant with no bonus.

Altruism In case that you win the lottery: How much of the bonus of $1.20 do you want to give to the other participant with no bonus?



Note: Again, your decision is completely anonymous. The bonuses will be payed out within a few days. You will be informed whether your decision is implemented at the end of the survey.

Now, we would like you to answer some questions about your attitudes in relation to the current coronavirus pandemic, but also to more general questions.

Control beliefs How much control would you say people have over: [5-item scale: Not control at all 1 – A great deal of control 5]

- Falling sick to the coronavirus
- Losing their job or main source of income due to the outbreak of the coronavirus
- Their health status in general
- Their financial situation in general
- Their life in general

We will now ask for your attitudes towards measures the federal government and state governments have taken to address the outbreak of the coronavirus policy.

Pandemic support To what degree do you approve or disapprove of the following measures? [5-item scale: Strongly disapprove 1 – Strongly approve 5]

- Economic Impact Payment
- Increase and Expansion of Unemployment Benefits
- Expansion of Medicaid
- Paid Sick Leave

Redistribution Generally, to what degree do you approve of economic redistribution? [Strongly Disapprove; Rather Disapprove; Neutral; Rather Approve; Strongly Approve]

Universal Health Care Generally, to what degree do you approve of universal health care? [Strongly Disapprove; Rather Disapprove; Neutral; Rather Approve; Strongly Approve]

Dear participant, on top of your fixed payment of $1.40 and your potential bonus from Task 2 we pay you a **$1 bonus** for your time and effort. In the following questions, we will ask about personal experiences that you made during the COVID-19 pandemic. You greatly help our research by providing us with this valuable information. Of course, as in the first part of the survey, all your answers are anonymous.

In this section, we would like to learn about your financial situation.

Job Loss 1 Please remember the first months of the coronavirus pandemic. Have you or has a member of your household lost a job or main source of income in the time period from February 2020 to May 2020? [Yes; No]

Job Loss 2 Please now remember the time after the fist wave of the coronavirus pandemic. Have you or has a member of your household lost a job or main source of income since June 2020? [Yes; No]

Income Change How did your gross monthly household income change in the following time periods compared to your gross household income in Februrary 2020 (before the COVID-19 pandemic)?

Note: Your gross household income includes any type of income before taxes (e.g. wages, self-employment income, rental income, retirement income) but excludes government transfers (e.g. unemployment benefits).

- March 2020 until May 2020 [Increased; Stayed the same; Decreased (by up to 20%; Decreased strongly (by 20% to 40%); Decreased drastically (by more than 40%)]
- June 2020 until today [Increased; Stayed the same; Decreased (by up to 20%; Decreased strongly (by 20% to 40%); Decreased drastically (by more than 40%)]

Unemployment Benefits Did your household receive **unemployment benefits** in the following time periods?

- March 2020 until May 2020 [Yes; No]
- June 2020 until today [Yes; No]

Transfers Please try to estimate roughly **how much** government transfers your household received in total in the following time periods.

Note: Government transfers include unemployment benefits, economic impact payments and any other public assistance or welfare payments.

- March 2020 until May 2020 [None; Less than 2,500$; 2,500$ to 5,000$; 5,000$ to 10,000$; More than 10,000$]
- June 2020 until today

Job Loss Peers Has someone you are emotionally close to (but who is not a member of your household) **permanently** lost his or her main source of income due to the COVID-19 pandemic? [Yes; No]

In this section, we would like to learn about your personal exposure to COVID-19.

Covid Case Have you or has someone emotionally close to you been *tested positively* for COVID-19? [Yes; No]

If *Covid Case* = yes: *Severe Covid Case* Did you or someone emotionally close to you have a *severe case* of COVID-19? [Yes; No]

If *Covid Case* = yes: *Covid Case 2* You stated that you or someone emotionally close to you was tested positively for COVID-19. Were any of these tests carried out *since June 2020*? [Yes; No]

If *Severe Covid Case* = yes: *Severe Covid Case 2*

You stated that you or someone emotionally close to you had a severe case of COVID-19. Did any of these severe cases of COVID-19 happen *since June 2020*? [Yes; No]

Overall exposure What would you say, how much have you been affected by the outbreak of the coronavirus compared to the average American? [Much less; Somewhat less; Somewhat more; Much more]

Now we would like to ask some more questions about yourself and your opinions on politics and society.

Marital status What is your current marital status? [Married; Living with a partner; Widowed; Divorced/Separated; Never been married]

Household size How many people currently live in your household? [1; 2; 3; 4; 5; 6 or more]]

Economic Orientation On economic policy matters, where do you see yourself on the liberal/conservative spectrum? [Very liberal; Liberal; Moderate; Conservative; Very Conservative]

Trust in Government How much of the time do you think you can trust the government to do what is right? [Never; Only some of the time; Most of the time; Always]

Vote 2016 Whom did you vote for in the 2016 presidential elections? [Donald J. Trump; Hillary Clinton; Other; I did not vote]

Vote 2020 Whom did you vote for in the 2020 presidential elections? [Donald J. Trump; Joseph Biden; Other; I did not vote]

Social expansion During the COVID-19 pandemic the US has increased spending on social security. Do you think that the US should permanently increase spending on social security, that is, even after the pandemic? [Yes; No; No opinion]

Taxing Rich Do you approve of increasing taxes for rich households to pay for a permanent expansion of the social security system? [Yes; No; No opinion]

Covid Statements Now, we give you a few statements about how the COVID-19 pandemic might have changed people's views.

Please read through the statements and select all statements that you agree with. You can select as many statements as you like.

The COVID-19 pandemic made me realize that...
... economic inequalities and injustices are inevitable.
... it is unfair if people are in economic need due to no fault of their own.
... I might be in need of financial support at some point in the future.
... it is important to support one another in times of economic need.
... the government can't do much to reduce inequality.
... other]

Feedback: Is there anything you would like to tell us? This could relate to the topic of the survey, the ease of understanding of the questions or emotional strain that you felt while completing this survey.

All of your feedback is highly appreciated and helps us improve our research.

Do you feel that this survey was biased? [Yes, left-wing bias; Yes, right-wing bias; No, it did not feel biased]]

Please Click the "Next" Button.

Debriefing Thank you very much for your participation in this research study! You also earned a $1 bonus for your time and effort. You will receive your bonus payment within a few days.

You have to click the "Next" button at the bottom of this screen for your survey to be counted and to be redirected to Prolific.

If you have questions about this research, please contact the principle investigator, Maj-Britt Sterba, via email at maj-britt.sterba@uni-konstanz.de.

Sincerely,
Maj-Britt Sterba
University of Konstanz

Official Information on COVID-19: You can find official information from the US government here: https://www.usa.gov/coronavirus

Information about how to stay safe is provided by the Center for Disease Control and Prevention: https://www.cdc.gov/coronavirus

For frequently asked questions see: https://faq.coronavirus.gov

E.3 Instructions Wave 2 (New Sample)

Dear participant,

welcome to this research study! Please review the following consent form before proceeding with our survey.

DESCRIPTION: You will be asked questions about yourself, personal experiences and your opinions in relation to the coronavirus. Also, you can take decisions in two economic games.

PAYMENT: You will receive a guaranteed participation compensation of $1.40. Additionally, you will earn a bonus of $0 to $1.20, depending on the actions that you and other participants take. Please make sure that you click through to the end of the survey to be redirected to Prolific. We can only recompense participants who give answers to all questions and complete the last page of the study.

RISK AND BENEFITS: The risk to your participation in this online study are those associated with basic surveys including the recall of pleasant or unpleasant past experiences, such as illness and job loss, and mild stress. The benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

SUBJECT'S RIGHTS: Your participation is voluntary. You have the right to see or withdraw your data at any time. Your responses will be recorded in a completely anonymous way. To secure the transparency of scientific findings, the completely anonymized data set will be published and made available to other researchers.

WARNING: This survey uses a protocol to check that you are responding from inside the U.S. and not using a Virtual Private Server (VPS), Virtual Private Network (VPN) or proxy to hide your country. In order to take this survey, please turn off your VPS/VPN/proxy if you are using one and also any ad blocking applications. Failure to do this might prevent you from completing the study.

YOU ARE NOT ALLOWED TO USE YOUR MOBILE PHONE.

If you have any questions about this project or if you have a research-related problem, you may contact the principle investigator: Maj-Britt Sterba, by email.

Please indicate, in the box below, that you are at least 18 years old, have read and understand this consent form, and you agree to participate in this research study.

I agree to participate in this research study

Please enter your Prolific ID in case it is not automatically displayed.

Thank you for your participation in this study! Please read the instructions carefully. You will not be able to go back after you have exited a page.

Please answer the following questions about yourself. This information will only be used for statistical purposes. All your responses are anonymous.

Gender What is your gender? [Male; Female; Other]

Age What is your age? [Open textfield]

State In which state do you currently reside? [Drop-down menu]

County In which county or city county do you currently reside? [Open textfield]

Race Choose one or more races that you consider yourself to be: [White; Black or African American; American Indian or Alaska Native; Asian; Native Hawaiian or Pacific Islander; Other]

Ethnicity Are you Spanish, Hispanic, or Latino or none of these? [Yes; None of these]

Education What is the highest level of education you have completed? [Less than High School; High School / GED; College Degree; Master's Degree]

Employment status What is your current employment status? [Employed full-time (35+ hours a week); Unemployed and currently looking for work; Unemployed and not currently looking for work; Student; Retired; Homemaker; Self-employed; Other]

Income What was your family's gross household income in 2020 in US dollars? [Less than $20,000; $20,000 to $34,999; $35,000 to $49,999; $50,000 to $74,999; $75,000 to $99,999; $100,000 to $149,999; More than $150,000]

Political Ideology Please answer the following question about your political orientation by moving the slider below. In general I am, [Slider between Liberal left and Conservative right]

---------- Start Experiment ----------

We would now like you to read this short text carefully.

The coronavirus continues to spread in the United States. More than 900,000 U.S. citizens were newly infected with the coronavirus in the past week, according to data from Johns Hopkins University. Many federal states have still declared a state of emergency. Since the start of the pandemic, more than 41,700,000 coronavirus cases have been recorded and more than 670,000 people in the U.S. have died after contracting the coronavirus.

Due to the outbreak of the pandemic, the U.S. labour market experienced the highest job losses since the Great Depression. Nationwide more than 20,000,000 people lost their job in the first months of the pandemic, according to the Department of Labor.

Low Control We are interested in your experiences during the corona pandemic.

Please take one minute to write about a personal experience during the pandemic in which you felt that you had no control or choice over what happened to you.

Please describe the experience in as much detail as possible.

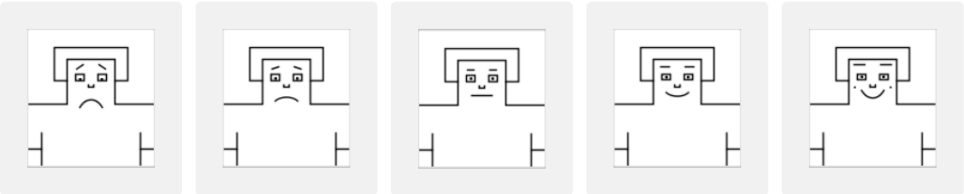
You can proceed to the next page after one minute has passed.

Baseline: Passive control group

---------- End Experiment ----------

Next we would like you to tell us how you feel right now.

Negative affect Which of these pictures best describes your current mood?



Stress To what extent are you feeling stressed at the moment? [Not at all 1; 2; 3; 4; 5; 6; Very much 7]

Fear To what extent are you experiencing the emotion fear at the moment? [Not at all 1; 2; 3; 4; 5; 6; Very much 7]

How close do you currently feel to:

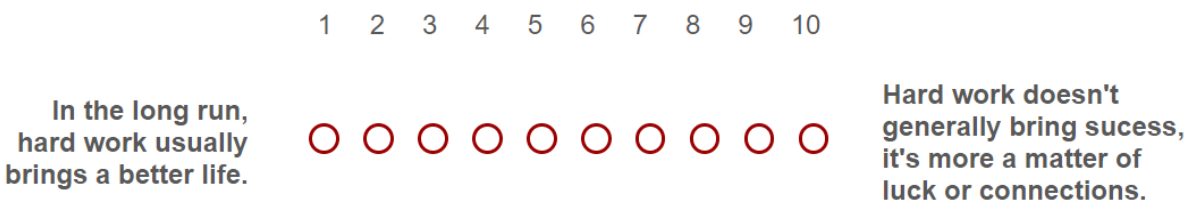
Close 1 People in your country [5-item scale: Not close at all 1 – Very close 5]
Close 2 People in your local community [5-item scale: Not close at all 1 – Very close 5]

Now we would like you to answer some questions about your attitudes regarding personal and societal issues.

Control over life Sometimes people feel they have completely free choice and control over their lives, while at other times they feel that what they do has no real effect on what happens to them.

Please use this scale to indicate how much freedom of choice and control you feel you currently have in your life. [10-item scale: Not control at all 1 – A great deal of control 10]

Beliefs success How would you place your views on the following scale?



Note: 1 means you completely agree with the statement at the left; 10 means you completely agree with the statement at the right; and if your views fall somewhere in between you can pick any number in between.

Beliefs poverty How would you place your views on the following scale?

Note: 1 means you completely agree with the statement at the left; 10 means you completely agree with the statement at the right; and if your views fall somewhere in between you can pick any number in between.

In the next section, you will take decisions in two types of economic games, let's call them **Task 1** and **Task 2**. You will learn more about the tasks as you proceed with the survey. Please now proceed to the description of **Task 1**.

TASK 1:

In contrast to traditional survey questions that are often about hypothetical situations, your following decisions can have real consequences.

You will now take decisions that can change the earnings of other participants of this research study.

I understand that my decisions can change the earnings of other participants.

A few days ago two individuals, let's call them "workers", have been recruited online to work on a tedious assignment. Both received a fixed participation compensation of $0.50.

After completing the assignment, they were told that their additional earnings for the assignment would be determined by one of two rules. According to both rules one worker earns $4 and the other worker earns $0.

They were not informed about their outcome nor which rule applies. However, they were told that a third person would be informed about the assignment and the rules, and would be given the opportunity to redistribute the earnings and thus determine how much they would actually be paid for the assignment.

You are the third person and we now want you to choose whether to redistribute the earnings between the workers.

You will take two decisions, one for each rule that could apply. Each of the three rules apply with equal probability. With 25% chance one of your decisions will be implemented.

Note: Your decisions are completely anonymous. The workers will receive their payment within a few days, but will not receive any further information.

Rule #1/2 [randomized order]**: The workers' earnings are determined by their productivity. The more productive worker earns $4, and the other worker earns $0.**

Merit If Rule #1/2 applies, how much of the earnings from the worker that earned $4 do you want to give to the worker that earned $0?

Rule #1/2 [randomized order]**: The workers' earnings are determined by a lottery. The worker winning the lottery earns $4, and the other worker earns $0.**

Luck If Rule #1/2 applies, how much of the earnings from the worker that earned $4 do you want to give to the worker that earned $0?

TASK 2:

You are now matched with one other participant of this study. Both of you have so far filled out the very same survey and will receive a fixed participation compensation of $1.40.

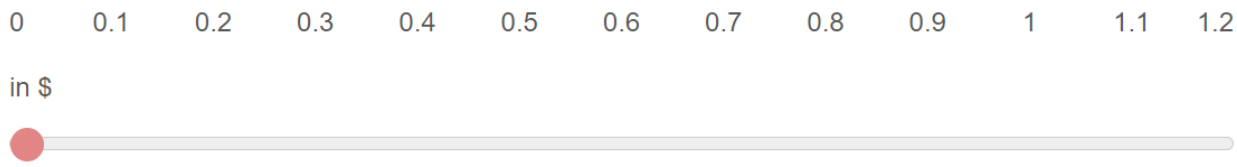
In this task you will take one decision that can change your bonus payment and the bonus payment for the other participant that you are matched with.

I understand that my decision can change my bonus payment and that of the other participant.

You have been matched with another participant. One of you will get a bonus of $1.20, the other one will get no bonus. Who gets the bonus is determined by a lottery.

The one with the bonus of $1.20 can decide whether to give some amount of the bonus to the participant with no bonus.

Altruism In case that you win the lottery: How much of the bonus of $1.20 do you want to give to the other participant with no bonus?



Note: Again, your decision is completely anonymous. The bonuses will be payed out within a few days. You will be informed whether your decision is implemented at the end of the survey.

Now, we would like you to answer some questions about your attitudes in relation to the current coronavirus pandemic, but also to more general questions.

Control beliefs How much control would you say people have over: [5-item scale: Not control at all 1 – A great deal of control 5]

- Falling sick to the coronavirus
- Losing their job or main source of income due to the outbreak of the coronavirus
- Their health status in general
- Their financial situation in general
- Their life in general

We will now ask for your attitudes towards measures the federal government and state governments have taken to address the outbreak of the coronavirus policy.

Pandemic support To what degree do you approve or disapprove of the following measures? [5-item scale: Strongly disapprove 1 – Strongly approve 5]

- Economic Impact Payment
- Increase and Expansion of Unemployment Benefits
- Expansion of Medicaid
- Paid Sick Leave

Redistribution Generally, to what degree do you approve of economic redistribution? [Strongly Disapprove; Rather Disapprove; Neutral; Rather Approve; Strongly Approve]

Universal Health Care Generally, to what degree do you approve of universal health care? [Strongly Disapprove; Rather Disapprove; Neutral; Rather Approve; Strongly Approve]

Dear participant, on top of your fixed payment of $1.40 and your potential bonus from Task 2 we pay you a **$0.50 bonus** for your time and effort.

In the following questions, we will ask about personal experiences that you made during the COVID-19 pandemic. You greatly help our research by providing us with this valuable information.

Of course, as in the first part of the survey, all your answers are anonymous.

In this section, we would like to learn about your financial situation.

Income 2019 What was your family's gross household income **in 2019** (the year prior to the COVID-19 pandemic) in US dollars? [Less than $20,000; $20,000 to $34,999; $35,000 to $49,999; $50,000 to $74,999; $75,000 to $99,999; $100,000 to $149,999; More than $150,000]

Job Loss 1 Please remember the first months of the coronavirus pandemic. Have you or has a member of your household lost a job or main source of income in the time period from February 2020 to May 2020? [Yes; No]

Employment Status May What was your employment status in mid-May 2020? [Employed full-time (35+ hours a week); Unemployed and currently looking for work; Unemployed and not currently looking for work; Student; Retired; Homemaker; Self-employed; Other]

Job Loss 2 Please now remember the time after the fist wave of the coronavirus pandemic. Have you or has a member of your household lost a job or main source of income since June 2020? [Yes; No]

Income Change How did your gross monthly household income change in the following time periods compared to your gross household income in Februrary 2020 (before the COVID-19 pandemic)?

Note: Your gross household income includes any type of income before taxes (e.g. wages, self-employment income, rental income, retirement income) but excludes government transfers (e.g. unemployment benefits).

- March 2020 until May 2020 [Increased; Stayed the same; Decreased (by up to 20%; Decreased strongly (by 20% to 40%); Decreased drastically (by more than 40%)]
- June 2020 until today [Increased; Stayed the same; Decreased (by up to 20%; Decreased strongly (by 20% to 40%); Decreased drastically (by more than 40%)]

Unemployment Benefits Did your household receive **unemployment benefits** in the following time periods?

- March 2020 until May 2020 [Yes; No]
- June 2020 until today [Yes; No]

Transfers Please try to estimate roughly **how much** government transfers your household received in total in the following time periods.

Note: Government transfers include unemployment benefits, economic impact payments and any other public assistance or welfare payments.

- March 2020 until May 2020 [None; Less than 2,500$; 2,500$ to 5,000$; 5,000$ to 10,000$; More than 10,000$]
- June 2020 until today

Job Loss Peers Has someone you are emotionally close to (but who is not a member of your household) **permanently** lost his or her main source of income due to the COVID-19 pandemic? [Yes; No]

In this section, we would like to learn about your personal exposure to COVID-19.

Covid Case Have you or has someone emotionally close to you been *tested positively* for COVID-19? [Yes; No]

If *Covid Case* = yes: *Severe Covid Case* Did you or someone emotionally close to you have a *severe case* of COVID-19? [Yes; No]

If *Covid Case* = yes: *Covid Case 2* You stated that you or someone emotionally close to you was tested positively for COVID-19. Were any of these tests carried out *since June 2020*? [Yes; No]

If *Severe Covid Case* = yes: *Severe Covid Case 2*

You stated that you or someone emotionally close to you had a severe case of COVID-19. Did any of these severe cases of COVID-19 happen *since June 2020*? [Yes; No]

High Risk Do you have a serious underlying medical condition that puts you at higher risk for severe illness from COVID-19? [Yes; No]

Overall exposure What would you say, how much have you been affected by the outbreak of the coronavirus compared to the average American? [Much less; Somewhat less; Somewhat more; Much more]

Now we would like to ask some more questions about yourself and your opinions on politics and society.

Household size How many people currently live in your household? [1; 2; 3; 4; 5; 6 or more]]

Economic Orientation On economic policy matters, where do you see yourself on the liberal/conservative spectrum? [Very liberal; Liberal; Moderate; Conservative; Very Conservative]

Trust in Government How much of the time do you think you can trust the government to do what is right? [Never; Only some of the time; Most of the time; Always]

Vote 2016 Whom did you vote for in the 2016 presidential elections? [Donald J. Trump; Hillary Clinton; Other; I did not vote]

Vote 2020 Whom did you vote for in the 2020 presidential elections? [Donald J. Trump; Joseph Biden; Other; I did not vote]

Social expansion During the COVID-19 pandemic the US has increased spending on social security. Do you think that the US should permanently increase spending on social security, that is, even after the pandemic? [Yes; No; No opinion]

Taxing Rich Do you approve of increasing taxes for rich households to pay for a permanent expansion of the social security system? [Yes; No; No opinion]

Feedback: Is there anything you would like to tell us? This could relate to the topic of the survey, the ease of understanding of the questions or emotional strain that you felt while completing this survey.

All of your feedback is highly appreciated and helps us improve our research.

Do you feel that this survey was biased? [Yes, left-wing bias; Yes, right-wing bias; No, it did not feel biased]]

Please Click the "Next" Button.

Debriefing Thank you very much for your participation in this research study! You also earned a $0.50 bonus for your time and effort. You will receive your bonus payment within a few days.

You have to click the "Next" button at the bottom of this screen for your survey to be counted and to be redirected to Prolific.

If you have questions about this research, please contact the principle investigator, Maj-Britt Sterba, via email at maj-britt.sterba@uni-konstanz.de.

Sincerely,
Maj-Britt Sterba
University of Konstanz

Official Information on COVID-19: You can find official information from the US government here: https://www.usa.gov/coronavirus

Information about how to stay safe is provided by the Center for Disease Control and Prevention: https://www.cdc.gov/coronavirus

For frequently asked questions see: https://faq.coronavirus.gov