

This document lays out the preregistration for a survey experiment conducted within the larger project called "Meritocracy and Birthrights".

## 1 Introduction

The overarching goal of the project "Meritocracy and Birthrights" is to better understand how people who adhere to meritocratic fairness views perceive inequalities that arise from the "birth lottery." This refers to the idea that the circumstances, place, and community into which a person is born is a **lucky outcome** over which that person had no control, but that has an important influence on their life outcomes. The core of the project is a controlled online experiment where I show that people perceive birthright to be a genuine source of entitlement. Put differently, there is a sense that being born into the "right" group, like a family, entitles one to its wealth and opportunities. To better understand these results and put them into perspective, I extend the analysis and conduct a survey experiment. The purpose of this experiment is twofold. First, I want to test whether the discovered pattern with respect to birthright and meritocracy is driven by people's inattentiveness to the luck dimension when evaluating inequalities that arise due to the birth lottery. Second, I want to measure the relative importance of two motives concerning inheritance taxation: the role of a birthright motive compared to the role of an altruistic bequest motive.

## 2 Experimental Design

The survey experiment consists of four parts. I first briefly describe the four parts and in the next paragraph elaborate in more detail on each them. In part A, participants are randomly assigned to one of two experimental groups and are asked for their personal opinion about an issue. In part B, participants are shown five vignettes about a person X who receives money for different reasons. Participants are asked to indicate how much taxes they want person X to pay on this received money. In part C, participants have to make an incentivized donation to a political organization and in part D I elicit a few additional measures.

### Part A: Treatment

Participants are randomly assigned to either the treatment or the control group.

**Treatment:** In the treatment group, participants read a paragraph that briefly elaborates on different views on factors that bring success in life. Furthermore, they have to read a short paragraph where the idea of the "birth lottery" is presented: *Furthermore, some people argue that an important determinant of success in life is a form of luck referred to as the "birth lottery." This refers to the idea that the circumstances, place and community into which a person is born is a **lucky outcome** over which that person had no control but that has an important influence on their life outcomes.* After reading the paragraphs they have to answer the following open question: *Regardless of whether you agree or disagree with these views, what are factors and situations that come to your mind when you think about "luck" bringing success in life? Please write down the top four factors or situations that you consider to be important and that you would refer to as "luck."*

**Control Condition:** To keep things constant, in the control group participants are confronted with a neutral control question. They are asked about factors that make a good movie and have to state their

top four factors that according to them makes a good movie.

### **Part B: Vignettes**

After part A, the treatment stage, all participants are shown three vignettes in random order. Each vignette is about a person X who works and earns an annual salary and, furthermore, receives additional money from one of the following three sources: (i) from inheritance, where the estate to be inherited originates from a relative's lottery win (case L1), (ii) from inheritance, where the estate to be inherited originates from a relative's hard work during their lifetime (case P1), or (iii) from inheritance, where the estate to be inherited originates from a relative's hard work during their lifetime and altruism towards person X (case BM). Each vignette describes one of the three sources. Participants see the three vignettes in random order and have to indicate how much of the additional money that hypothetical person X receives they want them to pay in total taxes (federal and state taxes). On a slider, participants can choose any number between 0 and 100 where 0 means that person X can keep all of the additional income while 100 means that they have to pay all of the additional income in taxes.

After participants saw the first three vignettes with inheritance, participants are shown two additional vignettes about a person Y who works and earns an annual salary and, furthermore, receives additional money from one of these two sources: (i) from a direct lottery win (case L0) or (ii) from a direct bonus payment for person Y's excellent performance at work (case P0). Each vignette describes one of the sources. As before, participants are shown the two vignettes in random order and have to indicate how much they want hypothetical person X to pay in total taxes (federal and estate taxes) on a slider. In one part of my analysis I use the answer regarding the appropriate tax rates in these two vignettes to categorize participants into different fairness types. Participants who indicate higher taxes in case L0 than case P0 are defined as meritocrats and are the focus in this study.

### **Part C & D: Donation decisions and elicitation of additional measures**

In part C, participants have to make incentiveized donation decisions. I tell participants that I will make a donation of \$50 on their behalf to one of two organizations: One organization that promotes strengthening the taxation on inherited wealth (*pro-inheritance-tax-tax organization*) and another organization that promotes abolishing taxation on inherited wealth (*anti-inheritance-tax-tax organization*). Each participant is then asked to allocate \$50 to one of the two organizations. The organizations to which I will make donations are either the *Tax Foundation*, which advocates for abolishing the inheritance tax, or *Americans for Tax Fairness*, which promotes strengthening the inheritance tax.

Furthermore, by implementing a multiple prize list I elicit their willingness to switch to donate to their non-preferred organization. More precisely, I present them with a multiple prize list where they have to make choices between donating \$50 to their preferred organization or receiving some \$-amount for themselves and switching to donating \$50 to the other organization. Table 1 displays the multiple prize list. Note that this is the version for someone who first chose to give \$50 to the anti-inheritance-tax organization. For someone who chose the opposite the multiple prize list is mirrored. The donation will be done as follows. Within each treatment arm, I randomly select 1 out of 100 participants. I then randomly select one of the decisions of these selected participant to determine the donations to the organizations.

In part D they are asked several additional background questions and questions regarding various matters. See section 3 for more detailed information.

Alternative A	Alternative B
\$50 to pro-inheritance-tax organization & \$5 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$10 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$15 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$20 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$25 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$30 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$35 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$40 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$45 for self	\$50 to anti-inheritance-tax organization & \$0 for self
\$50 to pro-inheritance-tax organization & \$50 for self	\$50 to anti-inheritance-tax organization & \$0 for self

Table 1: Multiple prize list for donation to an organization

**Comprehension check:**

**Comprehension check:** I include a factual comprehension check before the measurement of spectators' choices of tax rates (outcome) about vignette-specific information. After the description of a scenario, before participants make their decision, they have to select the correct statements about person X and their uncle, or person Y, respectively. This is done to ensure that participants understand the crucial aspects of the vignettes. If their answer is incorrect they are shown the correct statements and, again, are shown the different statements from which they have to select the correct ones in order to continue.

### 3 Variables

#### 3.1 Primary Outcome Variable

The main outcome of interest is the **tax rate**  $t_{ic} \in [0, 100]$  that participants indicate for each vignette  $c = \{L0, P0, L1, P1, BM\}$ .

#### 3.2 Secondary Outcome Variables

The secondary outcome variable is a **donation decision** that each participant makes.

#### 3.3 Other Variables

- **Fairness Type:** I define participants to be meritocrats if the tax rate they implement for income that results from direct hard work (case P0) is lower than the tax rate they implement for income that results from direct luck (case L0), i.e.,  $t_{P0} < t_{L0}$ . Furthermore, the tax rate that they implement on inherited luck (case L1) must not fall below the tax rate that they implement for inherited income that resulted from hard work (case BM and case P1, with or without bequest motive), i.e.,  $t_{BM} < tax_{L1}$  &  $t_{P1} < tax_{L1}$ .
- **Open ended question Luck:** Part of the treatment is to ask participants to think about factors due to which people get ahead in life and that participants consider to be luck in an open-text format (see section 2). In order to get more information on what people think about when they have to think about factors that are "luck" and bring success in life *without* being made aware of the concept of the birth lottery, I collect additional data. I recruit 300 participants through Prolific

Academic, a research subject pool for online experiments frequently used in social science research. These participants read the same paragraph that briefly elaborates on different views on factors that bring success in life, however, *excluding* the part about the idea of the “birth lottery”. They then have to answer the same open question regarding the factors that they would refer to as ”luck”. If they are simply asked about “luck” bringing success in life, are factors related to the “birth lottery” at the top of their head? This information allows me to get a better understanding of the degree of people’s awareness. This sample is representative US sample stratified based on gender, age, and political affiliation (50% male, 50% female; approx. 30% democratic, 30% republican, and 40% independent).

- **Open-ended measure of perceptions of birth lottery:** At the end, every participant in both treatment and control group is asked to briefly explain the idea of the birth lottery.
- **Attitudes:** I elicit participants’ attitudes towards
  - taxation on inheritance in general
  - international migration into the US.
- **Experiences with inheritances:** I ask several questions about whether participants inherited wealth or opportunities or whether they expect to do so in the future.
- **Socio-demographic characteristics:** I elicit socio-demographic characteristics such as age, gender, race, employment status, highest education level, socio-economic class when growing up, political view, and current house-hold income.

## 4 Hypotheses

### Main Hypotheses

**Hypothesis 1:** Among meritocrats<sup>1</sup>, the treatment increases the tax rate for inherited income that resulted from hard work. I test this hypothesis against the competing hypothesis that there is no treatment effect.

**Hypothesis 2:** Among all participants, the treatment increases the tax rate for inherited income. I test this hypothesis against the competing hypothesis that there is no treatment effect.

**Hypothesis 3:** Among all participants, the tax rate on inherited income that resulted from hard work is higher if there is no altruistic bequest motive.

### Secondary Hypotheses

**Hypothesis 4a:** Among meritocrats, the tax rate on inherited income that resulted from luck is higher than the tax rate on inherited income that resulted from hard work in absence of an altruistic bequest motive.

**Hypothesis 4b:** Among meritocrats, in the absence of a bequest motive, the treatment closes the gap between the tax rate on inherited income that resulted from hard work and the tax rate on inherited

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<sup>1</sup>For the definition of meritocrat please see section 3.3.

income that resulted from luck. This hypothesis is tested against the competing hypothesis that there is no treatment effect.

**Hypothesis 5a:** Among all participants, the treatment increases the tax rate on inherited income that resulted from hard work in absence of an altruistic bequest motive by more than the tax rate on inherited income that resulted from both hard work and an altruistic bequest motive. This hypothesis is tested against the competing hypothesis that there is not treatment effect.

**Hypothesis 5b:** Among meritocrats, the treatment increases the tax rate on inherited income that resulted from hard work in absence of an altruistic bequest motive by more than the tax rate on inherited income that resulted from both hard work and an altruistic bequest motive. This hypothesis is tested against the competing hypothesis that there is not treatment effect.

## 5 Data Collection & Experimental Sample

I will collect data from a representative US sample through Prolific Academic, a research subject pool for online experiments frequently used in social science research.

**Sample Size:** I will use a sample size of total 1800 participants (900 in the control and 900 in the treatment group). Using the data from my pilot study I run simulations to determine the power to detect different possible effect sizes. The experiment preregistered in this document is able to detect, with a power of 80 %, a minimum detectable effect size of approximately 0.19 standard deviations (see Figure 1) or a minimum detectable percentage change in tax rates of approximately 17% (see Figure 2) for Hypothesis 1.

**Stratification:** I will stratify my sample based on gender (50% male, 50% female) and political affiliation (approx. 30% democratic, 30% republican, and 40% independent).

**Sample Restriction:** I will restrict my spectator sample along the two following dimensions: (i) based on spectators' completion time of the survey, and (ii) based on their understanding of the context of their decision.

- (i) **Completion time:** I exclude spectators whose completion time deviates by 2 standard deviations from the mean completion time.
- (ii) **Decision comprehension:** In the analysis, I plan to only consider participants who fail at most one comprehension question.

## 6 Analysis

### Main Analysis

To test the three main hypotheses, I will estimate a set of simple OLS regressions on different subsets of vignettes within and between treatment arms. In every regression the dependent variable is the tax rate  $t_i$  that participant  $i$  indicates in a vignette. Moreover, I will create the following main dummy variables. *effort* is a dummy variable which is equal to 1 if the vignette is about effort and 0 if the vignette is about luck. *history* is a dummy variable which is equal to 1 if the vignette describes a scenario with history (i.e., inheritance) and 0 if it describes a scenario without history. *altruism* is a dummy variable which

is equal to 1 if the vignette describes the scenario with a bequest motive and 0 if the vignette describes a scenario without a bequest motive. Finally,  $treatment_i$  is a dummy variable which is equal to 1 if the participant is in the treatment group and 0 if the participant is in the control group. The regression that is the base for all tests is a simple difference-in-difference specification that, depending which hypotheses is tested, includes different dummy variables and is estimated on different subsets.

Main hypothesis 1 is tested by estimating regression (1) on the subset of meritocrats (see section 3.3 for the definition of meritocrats) including their decisions in cases P1 and BM, i.e.,  $effort1$  and  $history1$ . The coefficient of interest is  $\beta_1$  which captures the difference in the tax rates on income that resulted from hard work between meritocrats in the control and treatment group. Standard errors are clustered at the individual level.

$$y_i = \beta_0 + \beta_1 treatment + \epsilon_i \quad (1)$$

Main hypothesis 2 is tested by estimating regression (1) on the full sample including their decisions in cases L1, P1, and BM, i.e.,  $history1$ . The coefficient of interest is  $\beta_1$  which captures the difference in the tax rates on inherited income between control and treatment group. Standard errors are clustered at the individual level.

Main hypothesis 3 is tested by estimating regression (2) on the full sample including their decisions in cases P1 and BM, i.e.,  $effort1$  and  $history1$ . The coefficient of interest is  $\beta_1$  which captures the difference in the tax rates on inherited income between control and treatment group.  $u_i$  is an individual fixed effect and standard errors are clustered at the individual level.

$$y_i = \beta_0 + \beta_1 altruism + u_i + \epsilon_i \quad (2)$$

Secondary hypotheses 4 - 6 are tested analogously.

## Secondary Analysis

As a secondary outcome, I analyse the incentivized donation behaviour across treatment groups.

Furthermore, I compare participants' answers to the open luck question between the treatment group and the additional sample collected for this purpose (see section 3.3). Comparing the factors that they mention and the frequency of each factor between the two samples tells me whether participants think about the birth lottery even without explicitly mentioning it.

## Exploratory Analysis

In an exploratory analysis, I explore how large "aristocratic merit" as a source of entitlement is relative to the bequest motive. That is, among meritocrats, I compare the difference in the tax rate for inherited income that resulted from luck (case L1) and the tax rate of inherited income that resulted from hard work without an altruistic bequest motive (case P1) to the difference in the tax rate in P1 and the tax rate of inherited income that resulted from hard work & an altruistic bequest motive (case BM). I hypothesize that the difference of the tax rates in cases P1 and BM is larger than the difference of the tax rates in cases L1 and P1.

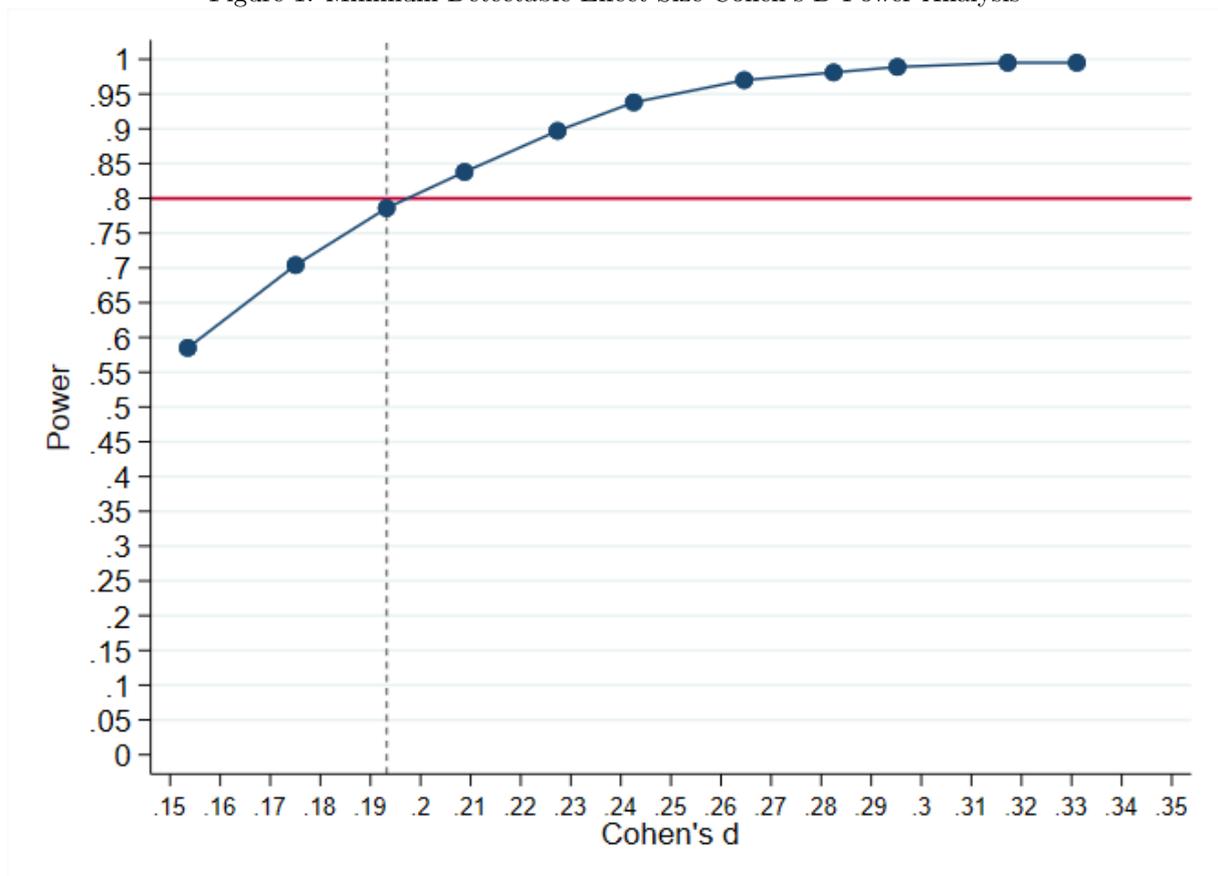
## 7 Appendix A

### 7.1 Power Calculation

I provide the power calculation for Hypothesis 1. I implement the following procedure:

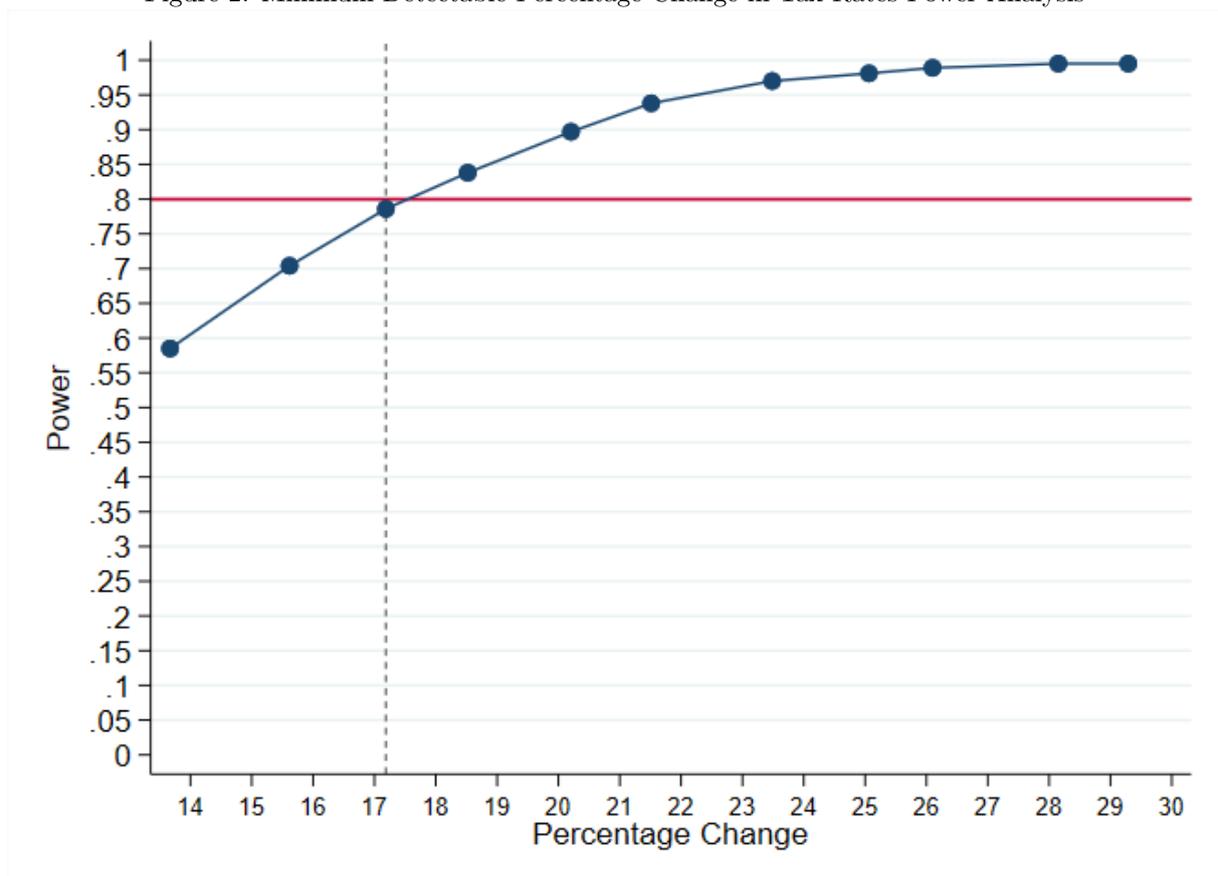
1. randomly sample 1800 participants from the pilot sample
  2. shift the tax rates in the treatment group by a factor  $X$ , i.e., add constant  $X$  to the tax rate
  3. run regressions of interest:  $y_i = \beta_0 + \beta_1 \text{treatment} + \epsilon_i$  on the subset of meritocrats (see section 3.3 for the definition of meritocrats) including their decisions in cases P1 and BM, i.e., *effort1* and *history1*. The coefficient of interest is  $\beta_1$  which captures the difference in the tax rates on income that resulted from hard work between meritocrats in the control and treatment group. Standard errors are clustered at the individual level.
    - standard errors clustered at the individual level
    - store p-value of  $\beta_1$
  4. calculate standard effect size (*cohen's d*) or percentage change in tax rate of hypothesis 1
  5. repeat steps 1 to 5 1000 times  $\leftrightarrow$  1000 replications  $r$ :  $r = 1, \dots, 1000$
  6. take mean over remaining replications  $r \rightarrow$  displayed on x-axis in figure 1 (*cohen's d*) and figure 2 (percentage change)
  7. power is the share of replications  $r$  which generated a  $\beta_1$  significant at least at the 5% level (clustered standard errors)  $\rightarrow$  displayed on y-axis in Figure 1 and 2)
- $\rightarrow$  do steps 1 to 9 for different values of constant  $X$

Figure 1: Minimum Detectable Effect Size Cohen's D Power Analysis



Notes:(i) This figure shows the share of replications for which  $\beta_1$  was significant at least at the 5% significance level (Power), for different average standardized effect sizes (Cohen's d). (ii) For each replication I randomly sampled 1800 spectators from my pilot data. In each replication I run the following regression:  $y_i = \beta_0 + \beta_1 \text{treatment} + \epsilon_i$  on the subset of meritocrats (see section 3.3 for the definition of meritocrats) including their decisions in cases P1 and BM, i.e., effort1 and history1. The coefficient of interest is  $\beta_1$  which captures the difference in the tax rates  $y_i$  on income that resulted from hard work between meritocrats in the control and treatment group. (iii) Standard errors clustered at the individual level. (iv) The x-axis displays the average standardized effect size according to Cohen's d.

Figure 2: Minimum Detectable Percentage Change in Tax Rates Power Analysis



Notes:(i) This figure shows the share of replications for which  $\beta_1$  was significant at least at the 5% significance level (Power), for different average standardized effect sizes (Cohen's  $d$ ). (ii) For each replication I randomly sampled 1800 spectators from my pilot data. In each replication I run the following regression:  $y_i = \beta_0 + \beta_1 \text{treatment} + \epsilon_i$  on the subset of meritocrats (see section 3.3 for the definition of meritocrats) including their decisions in cases P1 and BM, i.e.,  $\text{effort1}$  and  $\text{history1}$ . The coefficient of interest is  $\beta_1$  which captures the difference in the tax rates  $y_i$  on income that resulted from hard work between meritocrats in the control and treatment group. (iii) Standard errors clustered at the individual level. (iv) The x-axis displays the average percentage change in tax rates.