Beliefs about Behavioral Responses to Taxation

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Abstract

We conduct an experiment to study how beliefs about behavioral responses to taxation and preferences over equality–efficiency trade-offs relate to the political disagreement on redistribution. We use a novel method to elicit incentivized beliefs from a sample of 13,900 Americans about how taxes affect people's effort choices, and we elicit incentivized equality–efficiency preferences. We find that Democrats and Republicans have virtually identical beliefs about behavioral responses to taxation. Furthermore, we find that beliefs about behavioral responses to taxation fail to predict people's support for equalization of incomes in society. Equality–efficiency preferences, by contrast, strongly predict both people's political affiliation and their support for equalization of incomes in society. We also explore the role of motivated beliefs and identity politics by priming respondents about the political disagreement on redistribution. The treatments increase political polarization in preferences, but do not polarize beliefs. Our findings suggest that the political divide on redistribution relates more to people's preferences than to their beliefs about the behavioral responses to taxation. (*JEL* C91, D83, H20)

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1. Introduction

Behavioral responses to taxation are of fundamental importance for the debate on the redistribution of income and wealth. Graduate textbooks in economics emphasize that behavioral responses to taxation determine both the optimal progressivity of the tax-and-transfer system as well as the optimal size of the government (Saez, Slemrod, and Giertz, 2012). Because economists have different estimates of behavioral responses to taxation, they also have different policy recommendations when it comes to tax policy (Diamond and Saez, 2011; Feldstein, 2006). The disagreement about redistribution also extends to voters. In the US, for instance, 80 percent of Democrats think that the government should implement "heavy taxes on the rich," while only 22 percent of Republicans think the same (Newport, 2016). To explain why voters disagree about redistribution, some previous research has highlighted the importance of beliefs about the efficiency cost of redistribution. For instance, Piketty (1995) writes that "voters have conflicting views about redistributive taxation because they estimate its incentive costs differently" and Alesina and Giuliano (2011) write that "right wingers tend to believe that the elasticity of labor supply to taxes is high and the other way around." We test the empirical validity of this explanation by eliciting incentivized beliefs about behavioral responses to taxation from a representative sample of 13,900 Americans.

In the study, we employ a spectator–worker design where spectators estimate how much workers produce in a real-effort task under different payment schemes. The design allows us to elicit beliefs in a tightly controlled environment to obtain quantitative and incentivized estimates of the spectator's beliefs about behavioral responses to taxation. In the experiment, we inform the spectators that we have recruited workers from an online labor market to work on a task for one hour. We tell the spectators that the workers were offered different bonus schemes. In the main treatment, we inform the spectators about how much the workers produced under a 20 cents piece rate with no taxes on earnings. We then incentivize the spectators to estimate how much workers produce under a 20 cents piece rate with a 50 percent tax to the US government.

While beliefs about behavioral responses may be an important source of political disagreement about redistribution, people could also differ in their views on redistribution because they have different social preferences (Almås, Cappelen, and Tungodden,

2016; Fisman, Jakiela, and Kariv, 2015; Saez and Stantcheva, 2016). To elicit people's equality–efficiency preferences, we gave the spectators an opportunity to redistribute earnings at a cost between two receivers who had been allocated unequal earnings after completing the same assignment. In this setting, the spectators had identical beliefs about the redistribution cost and had to make a trade-off between implementing equality and efficiency.

[Insert Figure 1 here]

The paper offers two main findings, which are summarized in Figure 1. First, in contrast to predictions from prominent political economy models of redistribution (Piketty, 1995), we find no systematic differences between Republicans and Democrats in their beliefs about behavioral responses to taxation. Second, we find large political differences in equality–efficiency preferences: e.g., Republicans are 15 percentage points less likely than Democrats to redistribute earnings from the lucky to the unlucky receiver. This result suggests that the partisan divide on redistribution is primarily driven by differences in preferences and not by beliefs.

Over two experiments, we introduce several treatments to explore mechanisms and test for robustness. In the first experiment, we find that people's beliefs are not in line with the standard model in economics according to which workers only care about their personal incentives. For instance, Democrats and Republicans alike believe that taxes paid to the US government are more detrimental to worker production than paying workers a lower wage with the same personal incentives for the workers. In the second experiment, we replicate the main results from the first experiment and further explore the role of motivated beliefs and group identity by priming the respondents about the political debate on taxation or party views on behavioral responses to taxation. We find that the priming treatments do not lead to political polarization in beliefs, but they do increase political polarization in equality–efficiency preferences and support for redistributive taxation. These findings suggest an important role for motivated reasoning and identity politics in the debate on redistribution.

Finally, we use our incentivized measures of beliefs and preferences to explore whether preferences or beliefs are more strongly related to people's views on redistributive policies. While equality—efficiency preferences are strongly associated with people's policy views on redistribution, we find that beliefs are only correlated with

policy views for Democrats. These findings provide further evidence that people's policy views on redistribution are primarily driven by differences in equality-efficiency preferences.

By investigating the roles of beliefs about behavioral responses to taxation and equality–efficiency preferences in forming attitudes towards redistribution, our results contribute to a rich literature on the determinants of people's redistributive preferences (Alesina and Angeletos, 2005; Bénabou and Ok, 2001; Bénabou and Tirole, 2006; Kuziemko, Norton, Saez, and Stantcheva, 2015; Meltzer and Richard, 1981; Persson and Tabellini, 2000; Piketty, 1995). In particular, we relate to studies showing that people's fairness preferences may be instrumental in forming their views on redistributive policies (Alesina and Angeletos, 2005; Almås et al., 2016; Bénabou and Tirole, 2006; Di Tella, Dubra, and Lagomarsino, 2017). More broadly, our results relate to the literature on social preferences and what motivates effort (Almås et al., 2016; Bolton and Ockenfels, 2000; Charness and Rabin, 2002; DellaVigna and Pope, 2016a,b; Fehr and Schmidt, 1999; Fisman et al., 2015; Kessler and Norton, 2016) and the public finance literature on optimal tax policy and behavioral responses to taxation (Diamond and Saez, 2011; Mankiw, Weinzierl, and Yagan, 2009; Piketty, Saez, and Stantcheva, 2014).

This paper proceeds as follows: Section 2 describes the design and sample for the first experiment. Section 3 presents the theoretical frameworks to guide interpretation of the results. Section 4 outlines the empirical strategy for the first experiment. Section 5 reports the results from the first experiment. Section 6 describes the design and reports results from the second experiment. Section 7 relates beliefs and equality-efficiency preferences to views on redistributive policies. Finally, Section 8 concludes.

2. Experiment 1: Design and participants

In the first experiment, we collected data for three types of participants: *workers*, *spectators* and *receivers*. We were primarily interested in the spectators, but we also recruited workers and receivers to incentivize, respectively, the elicitation of beliefs and equality–efficiency preferences. Three parts of the experiment focused on eliciting spectators' (i) beliefs about behavioral responses to taxation, (ii) equality–efficiency preferences, and (iii) policy views on redistribution. To elicit their beliefs about be-

havioral responses to taxation, we first ask the spectators to estimate how much the workers produced under different incentive schemes. To elicit their equality–efficiency preferences, we let the spectators decide whether to redistribute earnings between a pair of receivers or not. Finally, to elicit their views on redistribution, we ask the spectators whether they think society should aim to equalize incomes.

2.1. The workers

We recruited 1616 workers from the online labor market Amazon Mechanical Turk (MTurk). Column 1 in Table 1 provides the summary statistics for the workers. We chose to recruit actual workers for three main reasons. First, the design allows us to introduce treatment variations to explore the mechanism. In our experiment, we had four worker groups who were given different incentives during the real-effort task. Second, the design allows us to give the spectators full information about the economic environment. By fixing the economic environment and measuring beliefs on a quantitative scale, beliefs are easily comparable across respondents and have the same interpretation for everyone. Third, recruiting actual workers is a transparent way of incentivizing the spectators' beliefs. Incentivizing beliefs was particularly important for our purposes as monetary incentives have been shown to strongly reduce biases in reported beliefs about economic and political facts (Bullock, Gerber, Hill, and Huber, 2015).

We paid the workers a $2 participation fee and they could work on a real-effort task for up to one hour. The real-effort task consisted of checking off even numbers in large matrices of random numbers. There were 30 matrices in total, and the workers could spend up to two minutes on each matrix.[1] After each matrix, the workers were shown a summary screen that summarized how many points they had produced and their bonus so far. In a between-subject design, we offer the workers four different incentive schemes:

- *High incentives:* The workers earn a bonus of 20 cents for every 100 points produced.
- *High incentives with government tax:* The workers earn a bonus of 20 cents for

[1] Figure A.7 shows an example matrix.

every 100 points produced, but have to pay a tax of 50 percent on earnings. Taxes are transferred to the U.S. federal government for general use.

- *Low incentives:* The workers earn a bonus of 10 cents for every 100 points produced.
- *High incentives with redistributive tax:* The workers earn a bonus of 20 cents for every 100 points produced, but have to pay a tax of 50 percent on earnings. Taxes are redistributed back to the workers as as a lump-sum payment.

2.2. The spectators

We recruited 4,217 spectators using Research Now, which is one of the leading digital data collection agencies in the US. In the main analysis, we focus on the 4128 respondents who spent at least 15 seconds on the belief elicitation page. [2] We recruited the spectators from Research Now's *Political Panel*, which has two especially attractive features.[3] First, data on people's political affiliations is provided directly by L2, which is one of the largest voting tracking companies in the US. The data on political affiliation is therefore partly based on the spectators' real voting behavior.[4] Second, we did not have to ask people about their political affiliations in the experiment. We believe this mitigates concerns about experimenter demand.

Column 2 in Table 1 provides the summary statistics for the spectators. Since we wanted to focus on political differences, we only recruited Republicans and Democrats to participate in this study. The samples of both Republicans and Democrats were selected to match the general US population in terms of gender, age, income, race, and geography.

[2] Results with the full sample are shown in Section B of the appendix. The restriction does not change any of the results.

[3] Extensive information about the panel is available at the following web page: `https://www.researchnow.com/products-services/global-audiences-and-panel/political-panel/`.

[4] More information about L2 and their voter file is available on their web page, `http://www.l2political.com/`.

2.3. The receivers

To be able to incentivize the elicitation of equality–efficiency preferences from the spectators, we recruited an additional 900 people on MTurk to answer a 10-minute opinion survey. After finishing the survey, these receivers were informed that they had been matched in pairs and that their pay would be determined by a lottery in which the winner would earn $7 and the loser would earn $1.

2.4. Eliciting beliefs about behavioral responses to taxation

In all treatments, the spectators are first told that they will be asked how much they think others performed on a task and that they may earn a $10 bonus if their answer is sufficiently close to how others actually performed on the task. We then give the spectators the opportunity to spend up to two minutes on the task to gain familiarity with it.[5] After the spectators have tried out the task themselves, we inform them that two groups of workers from an online labor market have worked on the task for one hour and that these workers were offered different bonus schemes: i.e., *Bonus A* and *Bonus B*. In the main treatment, we inform the spectators that workers offered Bonus A earned a 20 cents piece rate, whereas workers offered Bonus B earned a 20 cents piece rate with a 50 percent tax to the US government. All spectators are then informed about how much workers offered Bonus A produced (3032 points on average). To fix beliefs about the distribution of effort among workers offered Bonus A, we also show the spectators a histogram of the distribution of the production by workers in this group. Finally, to elicit beliefs about how different incentives affect effort choices, we ask the spectators to estimate how many points individuals offered Bonus B produced on average. To incentivize their answers, we furthermore inform them that they will receive a $10 bonus if their answer is within +/- 5 percent of the actual production for individuals offered Bonus B.

In the main treatment, we inform the spectators that workers offered Bonus B earned a 20 cents piece rate with a 50 percent tax to the US government. When estimating how

[5] To participate in their surveys, Research Now pays respondents in points that can be converted into "e-Rewards." While we paid Research Now $10 for correct estimates, the respondents received points equal to $10 in this panel currency. The points can be spent on retail vouchers that the respondents preselected, e.g., on Amazon, when they reach a certain number of points.

workers respond to a government tax, spectators could differ in their beliefs about two factors: i.e., i) how costly it is for the workers to provide effort, and ii) how motivated by social incentives the workers are. To differentiate between these two factors, we add a second treatment where we describe Bonus B as a 10 cents piece rate (instead of a 20 cents piece rate with a 50 percent tax). Since the workers face the same personal incentives as in the base treatment, the standard model in economics—according to which workers only care about their personal incentives—predicts that beliefs about production in these two treatments should be identical. The second treatment tests whether beliefs are in line with the standard model in economics by isolating the importance of beliefs about social incentives. Finally, to assess robustness, we add a third treatment to test whether any motivation to pay taxes depends on the recipient of the tax revenue. In this treatment, we describe a bonus as a 20 cents piece rate with a 50 percent tax that is redistributed back to workers as a lump-sum payment. This treatment allows us to assess whether beliefs about the social motivation to pay taxes depend on the recipient of the tax revenue. We can summarize the three spectator treatments as follows:

- **Government Tax:** Spectators are informed about the production of workers offered *high incentives* and state their beliefs about the production of workers offered *high incentives with government tax*.
- **Low Pay:** Spectators are informed about the production of workers offered *high incentives* and state their beliefs about the production of workers offered *low incentives*.
- **Redistributive Tax:** Spectators are informed about the production of workers offered *high incentives* and state their beliefs about the production of workers offered *high incentives with redistributive tax*.

2.5. Equality–efficiency preferences

In the second part of the experiment, we introduced a real redistributive setting to measure people's equality efficiency preferences. Specifically, we told the spectators that they had been given the opportunity to redistribute earnings between two receivers that had completed an identical assignment and had their earnings determined by a

lottery. The spectators were informed that the receiver winning the lottery had earned $7 and the recipient losing the lottery had earned $1. We also told the spectators that the receivers did not know the outcome of the lottery, but that they had been informed that a third person would be given the opportunity to redistribute their earnings. Finally, we introduced a redistribution cost: i.e., each dollar redistributed from the lucky recipient to the unlucky recipient would reduce the payments to the lucky worker by $2. Thus, the spectators could choose between keeping the unequal income distribution (7:1) or implement any of the following income distributions: (5:2), (3:3), or (1:4). We informed the spectators that their decisions would be implemented with a one in ten chance.

This redistributive setting has two key features. First, by fixing the redistribution cost, we eliminated the role of differences in beliefs from the redistributive decisions. Second, by making redistribution costly, we created a real trade-off between implementing equality and efficiency.

3. Theory

To guide the interpretation of the results presented in the next section, we first present two simple frameworks that motivated our design choices in the elicitation of beliefs and preferences.

3.1. Beliefs about behavioral responses to taxation

We assume that the spectators consider two factors when estimating behavioral responses to taxation: (i) how costly they think it is for workers to provide effort and (ii) how much they think the workers value a dollar paid in taxes. The first factor follows from the *standard model in economics*, according to which workers only care about their personal incentives after taxes. The second factor is more behavioral: i.e., the spectators may believe that the workers are motivated by social incentives and thus place some weight on the welfare of the tax recipient.[6] In our model of how the

[6]There is mixed evidence of whether taxes discourage or motivate workers. A recent study by Rick, Paolacci, and Burson (2018) find that taxes motivate people who favor redistribution and government intervention to work harder. By contrast, Kessler and Norton (2016) find that workers provide less effort when they are taxed compared to when their wages are cut by the same amount as the tax.

spectators form their expectations, we assume the spectators envision that workers maximize utility given by:

$$U(e;\cdot) = we[(1-\tau)+\gamma\tau] - c(e) \tag{1}$$

where w is the piece-rate wage, e is points produced (effort), τ is the tax rate, γ is the weight on taxed income, and $c(e)$ is a convex cost-of-effort function that satisfies the usual conditions. Utility is linear in money (i.e., we abstract from income effects). The first-order condition (assuming an interior solution) for this problem is given by:

$$e^* = c'^{-1}(w[(1-\tau)+\gamma\tau]) \tag{2}$$

Thus, the spectators can have different beliefs about workers' cost of providing effort, $c(e)$, and the workers' social preferences towards the tax recipient, γ. The treatment difference between Government Tax and Low Pay allows us to identify whether spectators think $\gamma = 0$ as the standard model in economics predicts. Furthermore, the treatment difference between government and redistributive taxes allows us to identify whether beliefs about γ depend on whether the tax revenues benefit the government or other workers. We will later assume that $c(e)$ in Equation (2) is quadratic (i.e., on the form ae^2, where a is a constant) to derive structural estimates of how much the spectators believe the workers would be willing to give up to increase tax revenues by \$1.

3.2. Equality–efficiency preferences

The spectators choose whether to redistribute costs between two receivers. We use a standard spectator framework to guide the analysis of how the spectators make a trade-off between implementing equality and efficiency in this setting (Almås et al., 2016; Cappelen, Konow, Sørensen, and Tungodden, 2013). In our framework, the spectators care about *fairness* and *efficiency*. Formally, the spectators' utility function is given by:

$$V(y;\cdot) = -\frac{\beta}{2}(y-m)^2 - \psi y \tag{3}$$

where $\beta > 0$ is the weight attached to fairness relative to efficiency, y is the share of total income to the unlucky recipient, m is the spectators' perceived fair share of total income for the unlucky recipient, and ψ is the redistribution cost. The optimal solution (assuming an interior solution) is given by:

$$y^* = m - \frac{\psi}{\beta} \tag{4}$$

The model captures that the spectators may differ in two respects: i.e., what they think is fair, m, and how much weight should be attached to fairness relative to efficiency, β. It follows from (4) that spectators who mainly care about fairness should redistribute earnings such that the actual share to the unlucky receivers equals the perceived fair share (i.e., $\beta \to \infty$ implies that $y^* \to m$). By contrast, spectators who mainly care about efficiency should choose to not redistribute at all (i.e., $\beta \to 0$ implies that $y^* \to 0$). If $m = \frac{1}{2}$, we have the standard equality–efficiency trade-off.[7]

4. Empirical strategy: Experiment 1

We prespecified our analysis in a document uploaded to the AEA RCT Registry prior to starting the data collection. The preanalysis plan is available from the following link: `https://www.socialscienceregistry.org/trials/2186`.

4.1. Analysis of beliefs

4.1.1. Main treatment effects

In the first specification of interest, we test the effects of our treatment manipulations. First, we investigate whether the spectators have beliefs about behavioral responses to taxation that are consistent with the standard model in economics, according to which individuals only care about their own personal incentives. Second, we study the robustness of the main treatment by manipulating the recipient of the tax revenue. We

[7] Almås et al. (2016) find that the majority of Americans consider an equal split as fair when incomes are determined by luck.

estimate treatments effects with the following regression:

$$\text{diff}_i = \alpha_0 + \alpha_1 \text{Low\_Pay}_i + \alpha_2 \text{Redistributive\_Tax}_i + \phi \mathbf{X}_i + \varepsilon_i \quad (5)$$

where

- diff_i — individual *i*'s belief about the percentage change in production between workers offered Bonus A and workers offered Bonus B.
- Low_Pay_i — an indicator for whether subject *i* was in the Low Pay treatment.
- $\text{Redistributive\_Tax}_i$ — an indicator for whether subject *i* was in the redistributive tax treatment.
- $\mathbf{X}_i$ — a vector of controls (we also report results without controls).[8]
- ε_i — an individual-level error term. For all specifications, we use robust standard errors for inference.

According to the standard model in economics, workers should provide the same level of effort in all three treatments. We are interested in whether we can reject the null hypothesis that people's beliefs are in line with the standard model in economics; i.e., whether $\alpha_1, \alpha_2 = 0$.

4.1.2. Do Republicans and Democrats have different beliefs?

In the second specification of interest, we investigate whether Republicans and Democrats have different beliefs about how personal and social incentives shape work effort:

$$\begin{aligned}\text{diff}_i = \alpha_0 + \alpha_1 \text{Low\_Pay}_i + \alpha_2 \text{Redistributive\_Tax}_i + \alpha_3 \text{R}_i + \alpha_4 \text{Low\_Pay}_i \times \text{R}_i \\ + \alpha_5 \text{Redistributive\_Tax}_i \times \text{R}_i + \phi \mathbf{X}_i + \varepsilon_i \quad (6)\end{aligned}$$

where R_i is an indicator for whether subject *i* is a Republican.

[8] We include the following indicator variables as controls: gender (male/female), age (older/younger than 44 years old), ethnicity (white/nonwhite), three regional indicators, household income (above/below $49,999), education (at least a 2-year college degree or not), employment (full-time employed or not), and political affiliation (Republican/Democrat). We also control for household size (coded continuously).

We are interested in whether we can reject the null hypothesis that Republicans and Democrats do not differ in their beliefs about how taxes affect work effort. We study this question in two different settings. We first look at whether Democrats and Republicans have different beliefs about how workers respond to *paying taxes to the government*; i.e., whether $\alpha_3 = 0$. We then use the Low Pay treatment to shed light on the underlying mechanisms as to why Republicans and Democrats may differ in their beliefs about how paying taxes to the government affects behavior. First, testing whether $\alpha_3 + \alpha_4 = 0$ allows us to answer whether Republicans and Democrats have different beliefs about how the workers respond to a lower personal incentive. Second, testing whether $\alpha_3 + \alpha_5 = 0$ allows us to test whether Republicans and Democrats have different beliefs about the effect of a tax when the tax revenues are redistributed back to the workers as a lump-sum payment.

4.2. Analysis of equality–efficiency preferences

To analyze differences in equality–efficiency preferences, we run the following regression:

$$\text{amount}_i = \beta_0 + \beta_1 \text{R}_i + \phi \mathbf{X}_i + \varepsilon_i \tag{7}$$

where amount_i is the amount redistributed between the lucky and unlucky receivers and $\mathbf{X}_i$ is a vector of controls which, in addition to demographics, include treatment indicators. We also estimate Equation (7) without demographic controls. We are primarily interested in whether Republicans and Democrats differ in the amount distributed; i.e., whether we can reject the null hypothesis that $\beta_1 = 0$.

5. Results: Experiment 1

This section presents our main results from the first experiment. While we do not discuss all the prespecified specifications in the main text, Section C of the Online Appendix provides all the prespecified tables in the order stated in the preanalysis plan.

5.1. Beliefs about behavioral responses to taxation

In panel (a) of Figure 2, we study whether people have accurate beliefs about behavioral responses to taxation. We find that, on average across the treatments, the spectators believe that the workers will reduce production by 34.4 percent in response to a 50 percent reduction in the after-tax wage (an implied wage elasticity of 0.69). By contrast, the workers actually reduce production by 9.3 percent in response to a 50 percent reduction in the after-tax wage (an implied wage elasticity of 0.19). These *overestimations* of behavioral responses to changes in wages are of similar magnitude across treatments and are robust to different specifications. For instance, we find that 63.2 percent of our respondents overestimate behavioral responses across treatments.

The overestimation of labor supply elasticities may help to explain why Americans demand relatively low levels of redistribution despite high levels of income inequality (Piketty and Saez, 2003).[9] One way to illustrate the importance of this overestimation is to apply the well-known formula for the Laffer optimum, $\tau = 1/(1 + e)$, where e is the labor supply elasticity with respect to the net-of-tax rate τ. While the worker elasticity of 0.19 implies a Laffer optimum of $\tau = 84$ percent, the spectators' preferred estimate of 0.69 imply a substantially lower Laffer optimum of $\tau = 59$ percent; i.e., the overestimation has quantitatively important implications for the policy debate on taxation if voters' preferences are guided by beliefs about incentive costs.

[Insert Figure 2 here]

In panel (b) of Figure 2, we illustrate political differences in beliefs across treatment. Strikingly, we observe no systematic differences in beliefs between Democrats and Republicans in either of the treatments (Figure A.1 reports histograms of people's beliefs about production by treatment status and and political affiliation). For instance, when estimating responses to a 50 percent government tax, Democrats and Republicans estimate on average that production will decrease by 34.7 and 34 percent, respectively.

[Insert Table A.7 here]

[9] Other explanations include beliefs about the mobility process (Bénabou and Ok, 2001), fairness concerns (Alesina and Angeletos, 2005), motivated beliefs (Tirole and Bénabou, 2006), and misconceptions about the income distribution (Kuziemko et al., 2015).

In Table A.7, we investigate in a regression framework whether beliefs differ between treatments and by political affiliation. Column 1 shows that the spectators believe that the workers will produce 0.11 of a standard deviation fewer points in the Government Tax treatment than in the Low Pay treatment. The difference in beliefs is highly significant ($p<0.01$). This result demonstrates that the spectators believe that paying taxes to the government is more detrimental to production than paying workers a lower wage with the same personal incentives. Furthermore, the spectators believe that the workers produce 0.06 of a standard deviation more points in the Redistributive Tax treatment than in the Low Pay treatment ($p<0.10$). Since there were 400 workers in each treatment, this finding is not mechanically driven by the fact that the workers get back a small portion of what they pay in taxes (i.e., they only get 25 cents back for every 100 dollars they pay in taxes). This result thus suggests that the spectators think the workers are socially motivated to pay taxes if the revenue benefits other workers. Column 2 shows that the estimated treatment effects are virtually unchanged when we include controls. Furthermore, column 2 confirms that there are no significant differences in beliefs between Democrats and Republicans ($p=0.9$).

In columns 3–4 of Table A.7, we include interaction terms between the treatments and people's political affiliation. Column 3 shows that there are no significant differences in beliefs between Democrats and Republicans in either of the three treatments. In column 4, where we include controls, we find significant correlations between beliefs and race and between beliefs and education (both $p<0.01$). We also find a marginal significant correlation between income and beliefs ($p<0.1$). The correlation between education and beliefs is particularly pronounced: on average across treatments, college graduates estimate that workers produce one-third of a standard deviation more points than noncollege graduates.

In columns 5–8 of Table A.7, we test for robustness by changing the outcome variable to an indicator for whether the respondents overestimate behavioral responses to taxation (i.e., estimating that workers produce fewer points than they actually do). While 63 percent overestimate behavioral responses in the Low Pay treatment, Column 5 shows that the spectators are five percentage points more likely to overestimate behavioral responses to taxation in the Government Tax treatment than in the Low Pay treatment ($p<0.01$) and five percentage points less likely to overestimate behavioral responses to taxation in the Redistributive Tax treatment ($p<0.01$). Column 6 shows that

Republicans are three percentage points more likely than Democrats to overestimate behavioral responses. However, in columns 7–8, where we include interaction terms between the treatment and political affiliation, we find no significant differences in beliefs between Republicans and Democrats.

By analyzing the worker data, we can also look at whether Democrats and Republicans actually differ in their behavioral responses to taxation. As shown in Table A.1, we find no significant differences between Democrats and Republicans in their actual behavioral responses to taxation. We also asked the workers how much they believed other workers within their treatment had produced. For the workers, we also fail to detect significant differences in beliefs between Republicans and Democrats. But in contrast to the spectators, the workers do not overestimate behavioral responses to taxation. However, these result might be partly mechanical given that the high correlation between beliefs about the production of others and own production (correlation coefficient of 0.76).

[Insert Figure 3 here]

To interpret the quantitative importance of beliefs about the social motivation of workers, we can derive structural estimates of how much the spectators believe the workers would be willing to give up to increase tax revenue by $1. We estimate these beliefs separately for Republicans and Democrats. By our assumptions from Section 3.1, Figure 3 shows that Democrats and Republicans believe that the workers would be willing to give up 18 cents ($p<0.05$) and 15 cents ($p<0.10$), respectively, to *reduce* government tax revenue by $1. By contrast, they believe the workers would be willing to give up 4 cents ($p=0.77$) and 14 cents ($p<0.10$), respectively, to *increase* worker tax revenue by $1.[10]

Given the estimated uncovered in this section, we can summarize our first set of results as follows:

[10] DellaVigna and Pope (2016b) use a similar model to study the motivations of workers in different settings. In their model, they include an additional parameter to capture non-monetary rewards from working (i.e., "intrinsic motivation"). This allows the model to predict a non-zero effort level in the absence of monetary incentives, whereas our model would predict zero effort in the absence of monetary incentives. If we allowed for non-monetary rewards from working in the model, we would need an additional treatment to pin down the cost of providing effort. However, we intentionally choose a boring and repetitive task that we did not expect workers to be intrinsically motivated to work on.

Result 1 *There is systematic* overestimation *of behavioral responses to taxation in our sample. While the estimated labor supply elasticity for workers is 0.19, the spectators estimate a labor supply elasticity of 0.69.*

Result 2 *Beliefs about behavioral responses to taxation are not in line with the standard model in economics, which predicts that workers only care about their personal incentives. Americans think that paying taxes to the government is more detrimental to production than paying workers a lower wage with the same personal incentives. By contrast, our evidence suggests that Americans think people are socially motivated to pay taxes to the government if the taxes will benefit other workers.*

Result 3 *We find no systematic differences between Republicans and Democrats in their beliefs about behavioral responses to taxation. We also find no systematic political differences in beliefs about the cost of providing effort or the social motivation of workers.*

5.2. Equality–efficiency preferences

Figure A.2 reports the distribution of people's redistributive choices by their political views. We document a striking political difference in equality–efficiency preferences: Republicans are much less willing than Democrats to redistribute income between receivers. For instance, we find that we find that 54.4 percent of Republicans choose not to redistribute any income—and thus keep the (7:1) income distribution between the lucky and unlucky receiver—compared to 43.3 percent of Democrats. Republicans are thus more likely than Democrats to assign maximum weight on efficiency relative to equality.

[Insert Table 3 here]

In Table 3, we investigate in a regression framework whether equality-efficiency preferences differ between Republicans and Democrats. In columns 1–3, we standardize the amount redistributed between the lucky and unlucky receivers. Column 1 shows that Republicans on average redistribute a 0.22 of a standard deviation lower amount than Democrats do. Columns 2 and 3 show that this estimate is virtually unaffected when we include controls for treatment indicators (column 2) as well as demographic controls (column 3). Furthermore, column 3 shows that being Republican is the strongest

predictor of the amount redistributed. We also observe negative correlations between the amount redistributed and being male ($p<0.01$), white ($p<0.01$), having high income ($p<0.01$), and having a college degree ($p<0.05$).

In columns 4–6 of Table A.7, we test for robustness by changing the outcome variable to an indicator for whether the respondents choose to redistribute any income at all between the lucky and unlucky receivers. Column 4 shows that Republicans are 11 percentage points less likely than Democrats to redistribute incomes ($p<0.01$). This estimate is not sensitive to inclusion of controls (columns 5–6). The main result from this section can be summarized as follows:

Result 4 *We find systematic differences between Republicans and Democrats in their equality–efficiency preferences. In a real redistributive setting with a cost of redistribution, Republicans are 11 percentage points less likely than Democrats to redistribute incomes.*

6. Experiment 2: Introducing a political context

One reason that Republicans and Democrats tend to express very polarized beliefs in opinion surveys (e.g., Newport, 2016) could be that surveys are often framed in a political context. In the second experiment, we explore whether a political context polarizes beliefs by priming the respondents about the political debate on taxation and party views on behavioral responses to taxation. Importantly, we also assess the robustness of some our main findings from the first experiment by replicating the Government Tax treatment and the elicitation of equality–efficiency preferences in the second experiment.

6.1. Sample and design

We submitted a preanalysis plan to the AEA RCT Registry under the same trial as the first experiment prior to starting the data collection. We recruited 5,579 spectators to participate in the second experiment.[11] As in the first experiment, we exclusively

[11] In the main analysis, we focus on the 5,631 who spent at least 15 seconds on the belief elicitation page. This restriction does not change any of our main results except for a correlation between beliefs and policy views for Republicans; all main tables are replicated in Section B of the Online Appendix on the full sample.

recruited Democrats and Republicans from Research Now's *Political Panel*. The sample was similarly recruited to match the general US population in terms of gender, age, income, race, and geography. Column 3 of Table 1 provides the summary statistics.

The second round included two treatments in addition to the Government Tax treatment: i.e., the Motivated Beliefs and Group Identity treatments. In these treatments, we prime people about the political debate on taxation and party views on behavioral responses to taxation, respectively. In the Motivated Beliefs treatment, we emphasize that a key issue in the political debate on taxation is how taxes "affect people's willingness to work hard." In the Group Identity treatment, we emphasize that political parties disagree about how taxes affect people's willingness to work hard and that "the Republican Party more often than the Democratic Party claims that taxes discourage people from working hard." These treatments allow us to provide evidence of whether people's beliefs about behavioral responses to taxation are motivated by a desire to justify their existing attitudes or motivated by a desire to enhance their political group identity, respectively (Alesina and Giuliano, 2011; Bénabou, 2015).

After the belief elicitation, we elicit equality–efficiency preferences in the same way as in the first experiment. To incentivize choices in this task, we recruit an additional 1,194 receivers from MTurk to participate in the lottery. At the end of the experiment, we elicit attitudes towards redistribution of income in society. We first ask the same question as in Experiment 1; i.e., whether they think "a society should aim to equalize incomes." We then ask a new question that directly addresses support for redistribution through the tax system: "*Where would you rate yourself on a scale from 1 to 10, where 1 means "I think the US should increase income taxes to reduce inequality" and 10 means: "I think the US should* ***not*** *increase income taxes to reduce inequality."*

6.2. Beliefs and preferences: Replication and robustness

In the second experiment, we restricted the design to different versions of the Government Tax treatment. Before analyzing treatment effects of introducing a political context, we first replicate our results on beliefs about government taxes and equality-efficiency preferences from the first experiment.

[Insert Table 4 here]

Columns 1–6 of Table 4 show the results for beliefs about behavioral responses to taxation (the Government Tax treatment with a nonpolitical context). Column 1, where we regress beliefs on the Republican indicator, and Column 2, where we include additional controls, show that there was virtually no differences in beliefs between Republicans and Democrats in the first experiment. Columns 3 and 4 show that we replicate these results in the second experiment; i.e., we find no evidence of systematic political differences in the second experiment either. We also replicate our finding that college graduates are less likely than noncollege graduates to overestimate behavioral responses to taxation. In columns 5–6, we pool results from the two experiments and again find no evidence of political differences in beliefs. Overall, these results provide strong evidence that we can reject large differences in beliefs about behavioral responses to taxation between Republicans and Democrats.

Columns 7–12 of Table 4 show the corresponding estimates for equality–efficiency preferences (the amount redistributed). We see that there is a robust and strong correlation between Republicans and the amount distributed across specifications and experiments. Furthermore, the point estimates for the Republican indicator are also very similar across specifications. We also see that the two other background characteristics that significantly correlate with the amount redistributed in the first experiments—i.e., white and income—are also the only significant correlations besides political views in the second experiment.

We also show that our main results are robust to using dummy variables for beliefs and preferences (Table A.4) and also robust to reweighting the data based on six cells based on age, race, and education to match the underlying demographics of Republicans and Democrats (Table A.5). Overall, the second experiment provides strong evidence that our results on equality–efficiency preferences are robust.

6.3. Treatment effects of a political context

We now investigate whether a political context causes polarization in beliefs and preferences between Republicans and Democrats. To test this question, we estimate

the following regression:

$$\begin{aligned} y_i = {} & \rho_0 + \rho_1 R_i + \rho_2 \text{Motivated\_Beliefs}_i + \rho_3 \text{Group\_Identity}_i \\ & + \rho_4 \text{Motivated\_Beliefs}_i \times R_i + \rho_5 \text{Group\_Identity}_i \times R_i + \phi \mathbf{X}_i + \varepsilon_i \end{aligned} \tag{8}$$

where y_i is the outcome of interest; Motivated Beliefs$_i$ and Group Identity$_i$ are treatment indicators; and $\mathbf{X}_i$ is a vector of controls. The main coefficients of interest are ρ_4 and ρ_5; i.e., whether the treatments cause polarization in beliefs between Republicans and Democrats.

[Insert Table 5 here]

Table 5 presents the results from these regressions. Columns 1 and 2 show that the Motivated Beliefs treatment, in which we emphasized that a key issue in the political debate on taxes is how they affect people's willingness to work hard, made Democrats and Republicans alike believe in a higher incentive cost of taxation. One interpretation of this result is that this treatment mainly succeeded in making the negative aspects of taxation more salient, which triggered the same response from both Democrats and Republicans. In the Group Identity treatment, in which we highlighted that the Democratic Party and Republican Party had different views on whether taxes discourage people from working hard, we see no treatment effects on beliefs. That priming people about party views on taxation does not polarize beliefs may reflect that we had an incentivized belief elicitation which made it costly to engage in partisan motivated reasoning (Bullock et al., 2015).

Columns 3 and 4 of Table 5 show whether the treatments affected people's equality–efficiency preferences. Interestingly, we find evidence of political polarization in both treatments. In the Motivated Beliefs treatment, political polarization increases by 0.14 of a standard deviation ($p<0.10$). This effect is about equally driven by Democrats redistributing more and Republicans redistributing less than in the nonpolitical context. We observe a similar effect size for the interaction effect in the Group Identity treatment, which increases political polarization by 0.15 of a standard deviation ($p<0.05$). This effect is mostly driven by Democrats becoming more in favor of redistribution. Given these estimates, our fifth result can be summarized as follows:

Result 5 *Priming respondents about the political debate on taxation and party views on behavioral responses to taxation increases political polarization in equality–efficiency preferences, but does not cause political polarization in beliefs.*

We also find evidence of polarization in policy preferences on whether to increase income taxes to reduce income inequality (Table A.2). In the Motivated Beliefs treatment, political polarization increases by 0.10 of a standard deviation, but the effect is not statistically significant (p=0.13). For the Group Identity treatment, we see a larger and statistically significant increase in polarization equal to 0.13 of a standard deviation ($p<0.05$). This effect is about equally driven by Democrats becoming more in favor of higher taxes and Republicans becoming less in favor of higher taxes. The effect size corresponds to almost one fifth of the Republican–Democrat difference in views on whether to increase taxes to reduce inequality. This result clearly demonstrates that people form their policy views on taxation to enhance their political group identity to some extent.

7. Demand for redistribution: The role of beliefs and preferences

We have uncovered significant heterogeneity in both beliefs about behavioral responses to taxation and equality–efficiency preferences. We now turn to the question of whether the heterogeneity we observe in beliefs and preferences is associated with people's views on redistribution. We assess views on redistribution with two different measures: whether respondents think a "society should aim to equalize incomes" (asked in both experiments) and whether they think the US "should increase income taxes to reduce inequality" (only asked in the second experiment).

7.1. Empirical strategy

To analyze how our incentivized measures of beliefs about behavioral responses to taxation and equality–efficiency preferences relate to people's policy views on redistri-

bution, we estimate the following OLS equation:

$$\text{policy\_view}_i = \delta_0 + \delta_1 \text{beliefs}_i + \delta_2 \text{amount}_i + \phi \mathbf{X}_i + \varepsilon_i$$

where policy_view is policy views on redistribution, beliefs_i is belief about the difference in production between workers offered Bonus A or Bonus B, amount_i is the amount distributed between the lucky and unlucky workers, and $\mathbf{X}_i$ is a vector of controls, which include treatment indicators. In the regression, we standardize all variables for ease of interpretation. For robustness, we also report an alternative specification where we use indicator variables for beliefs and preferences: i.e., whether people respectively overestimate behavioral responses to wage changes and whether they redistribute any income between the two receivers.

7.2. Main results on demand for redistribution

[Insert Table 6 here]

In columns 1–3 of Table 6, we regress views on whether a society should aim to equalize incomes on our measures of beliefs and preferences. Column 1 shows that people's beliefs about behavioral responses fail to predict people's views of equalization of incomes. By contrast, people's equality–efficiency preferences are strongly associated with their support for equalization. For instance, those who choose to redistribute income between the receivers are 0.38 of a standard deviation more in favor of equalization of incomes in society than those who choose not to redistribute any income ($p<0.01$). By comparison, the difference between Republicans and Democrats in views on equalization amounts to 0.77 of a standard deviation.

In columns 2 and 3 of Table 6, we show results separately for Republicans and Democrats. For Democrats and Republicans alike, we find that beliefs fail to explain differences in views on equalization of incomes. By contrast, equality–efficiency preferences are strongly associated with views on redistribution. Interestingly, the relationship between equality–efficiency preferences and views of equalization of incomes is even stronger for Republicans than for Democrats ($p<0.01$). Furthermore, comparing results in Panel A and Panel B, we find that the patterns we uncover are robust to whether we use continuous or indicator measures for beliefs and preferences.

In columns 4–6 of Table 6, we regress views on whether the US should increase income taxes to reduce income inequality on our measures of beliefs and preferences. Column 4 shows that beliefs about behavioral responses do predict policy support for higher taxes: a one-standard deviation change in beliefs is associated with a 0.04 standard deviation change in support for higher taxes ($p<0.01$). Columns 5 and 6, where we split the sample by Democrats and Republicans, show that this correlation is entirely driven by Democrats; for Republicans, there is no clear association between beliefs and policy views on taxes. By contrast, equality–preferences robustly predict policy views across all specifications. Furthermore, we find that these patterns are robust across treatments (Table A.6). Given these estimates, our last result can be described as follows:

Result 6 *Equality–efficiency preferences are strongly associated with policy views on redistribution for both Democrats and Republicans. By contrast, beliefs about behavioral responses to taxation are only associated with policy views for Democrats.*

8. Conclusion

In this paper, we provide novel evidence of the role of beliefs about behavioral responses to taxation and equality–efficiency preferences in driving people's demand for redistribution. Eliciting incentivized measures of beliefs and preferences, we find no evidence of large differences in beliefs about incentive costs between Republicans and Democrats, but we do find strong evidence of large differences in equality–efficiency preferences. Furthermore, while equality–efficiency preferences are strongly associated with people's policy views on redistribution, we find that beliefs about efficiency costs are only correlated with policy views for Democrats.

Overall, our results strongly suggest that equality–efficiency preferences are more important than beliefs about incentive costs for understanding political disagreements about redistribution. Future research should explore whether our main result of no political differences in beliefs is robust across different settings. Furthermore, while we fail to detect differences between Republicans and Democrats in their beliefs about behavioral responses to taxation, this is not to say that Democrats and Republicans necessarily have identical beliefs about all aspects relevant for the debate on redistribu-

tion. In particular, beliefs that interact with people's perceptions of fairness—such as trust in business elites (Di Tella et al., 2017) or the perceived deservingness of the poor (Alesina, Miano, and Stantcheva, 2018)—may also be instrumental to understand why voters have conflicting views on redistribution. An avenue for future research may be to further explore the importance of interactions between beliefs and perceptions of fairness in driving demand for redistribution.

References

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

Alesina, Alberto and Paola Giuliano (2011). "Preferences for redistribution," in Jess Benhabib, Alberto Bisin, and Matthew O Jackson (eds.), "Handbook of Social Economics," volume 1, chapter 4, Amsterdam, NL: Elsevier, pp. 99–131.

Alesina, Alberto, Armando Miano, and Stefanie Stantcheva (2018). "Immigration and redistribution," NBER Working Paper 24733.

Almås, Ingvild, Alexander W. Cappelen, and Bertil Tungodden (2016). "Cutthroat capitalism versus cuddly socialism: Are Americans more meritocratic and efficiency-seeking than Scandinavians?" mimeo.

Bénabou, Roland (2015). "The economics of motivated beliefs," *Revue d'économie politique*, 125(5): 665–685.

Bénabou, Roland and Efe A Ok (2001). "Social mobility and the demand for redistribution: The POUM hypothesis." *Quarterly Journal of Economics*, 116(2).

Bénabou, Roland and Jean Tirole (2006). "Incentives and prosocial behavior," *American Economic Review*, 96: 1652–1678.

Bolton, Gary E. and Axel Ockenfels (2000). "ERC: A theory of equity, reciprocity, and competition," *American Economic Review*, 90(1): 166–193.

Bullock, John G, Alan S Gerber, Seth J Hill, and Gregory A Huber (2015). "Partisan bias in factual beliefs about politics," *Quarterly Journal of Political Science*, 10: 519–578.

Cappelen, Alexander W., James Konow, Erik Ø. Sørensen, and Bertil Tungodden (2013). "Just luck: An experimental study of risk taking and fairness," *American Economic Review*, 103(3): 1398–1413.

Charness, Gary and Matthew Rabin (2002). "Understanding social preferences with simple tests," *Quarterly Journal of Economics*, 117(3): 817–869.

DellaVigna, Stefano and Devin Pope (2016a). "Predicting experimental results: Who knows what?" NBER Working Paper 22566, National Bureau of Economic Research.

DellaVigna, Stefano and Devin Pope (2016b). "What motivates effort? Evidence and expert forecasts," NBER Working Paper 22193, National Bureau of Economic Research.

Di Tella, Rafael, Juan Dubra, and Alejandro Luis Lagomarsino (2017). "Meet the oligarchs: Business legitimacy, state capacity and taxation," NBER Working Paper 22934.

Diamond, Peter and Emmanuel Saez (2011). "The case for a progressive tax: From basic research to policy recommendations," *Journal of Economic Perspectives*, 25(4): 165–190.

Fehr, Ernst and Klaus M. Schmidt (1999). "A theory of fairness, competition and cooperation," *Quarterly Journal of Economics*, 114(3): 817–868.

Feldstein, Martin (2006). "The effect of taxes on efficiency and growth," NBER Working Paper 12201.

Fisman, Raymond, Pamela Jakiela, and Shachar Kariv (2015). "Distributional preferences and political behavior," Working Paper.

Kessler, Judd B. and Michael I. Norton (2016). "Tax aversion in labor supply," *Journal of Economic Behavior & Organization*, 124: 15–28.

Kuziemko, Ilyana, Michael I. Norton, Emmanuel Saez, and Stefanie Stantcheva (2015). "How elastic are preferences for redistribution? Evidence from randomized survey experiments," *American Economic Review*, 105(4): 1478–1508.

Mankiw, N Gregory, Matthew Weinzierl, and Danny Yagan (2009). "Optimal taxation in theory and practice," *Journal of Economic Perspectives*, 23(4): 147–74.

Meltzer, Allan H and Scott F Richard (1981). "A rational theory of the size of government," *Journal of Political Economy*, 89(5): 914–927.

Newport, Frank (2016). "Americans still say upper-income pay too little in taxes," `http://www.gallup.com/poll/190775/americans-say-upper-income-pay-little-taxes.aspx`.

Persson, Torsten and Guido Tabellini (2000). *Political Economics: Explaining Economic Policy*, MIT Press.

Piketty, Thomas (1995). "Social mobility and redistributive politics," *Quarterly Journal of Economics*, 110(3): 551–584.

Piketty, Thomas and Emmanuel Saez (2003). "Income inequality in the United States, 1913-1998," *Quarterly Journal of Economics*, 118(1): 1–39.

Piketty, Thomas, Emmanuel Saez, and Stefanie Stantcheva (2014). "Optimal taxation of top labor incomes: A tale of three elasticities," *American Economic Journal: Economic Policy*, 6(1): 230–271.

Rick, Scott, Gabriele Paolacci, and Katherine Alicia Burson (2018). "Income tax and the motivation to work," *Journal of Behavioral Decision Making*.

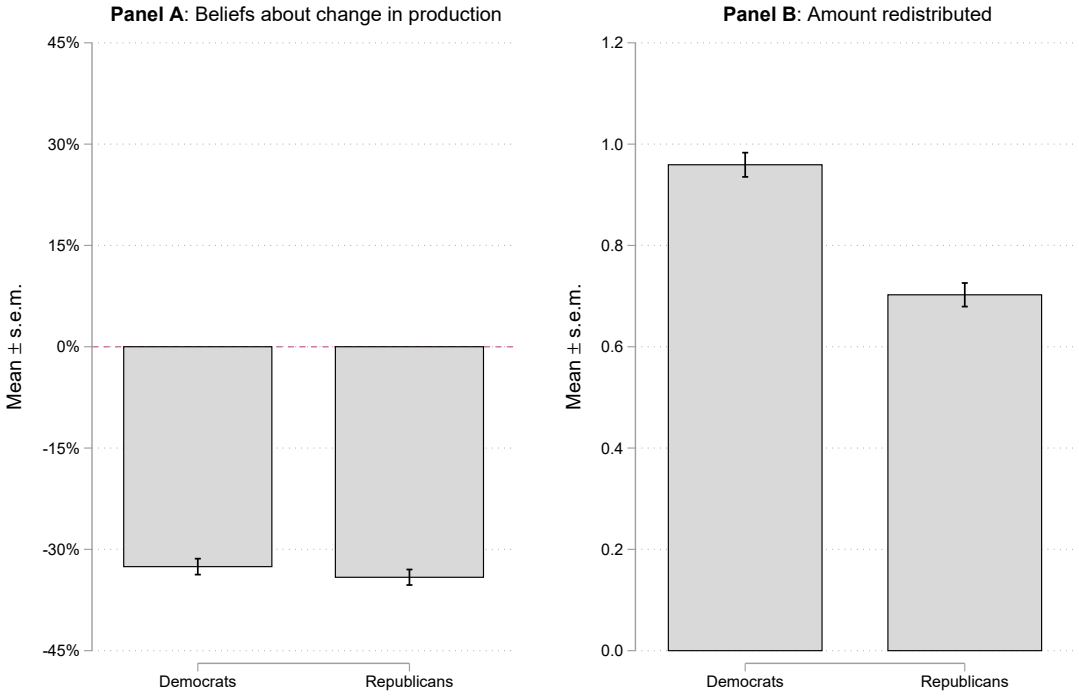
Saez, Emmanuel, Joel Slemrod, and Seth H. Giertz (2012). "The elasticity of taxable income with respect to marginal tax rates: A critical review," *Journal of Economic Literature*, 50(1): 3–50.

Saez, Emmanuel and Stefanie Stantcheva (2016). "Generalized social marginal welfare weights for optimal tax theory," *American Economic Review*, 106(1): 24–25.

Tirole, Jean and Roland Bénabou (2006). "Belief in just world and redistributive politics," *Quarterly Journal of Economics*, 121(2): 699–746.

9. Main figures

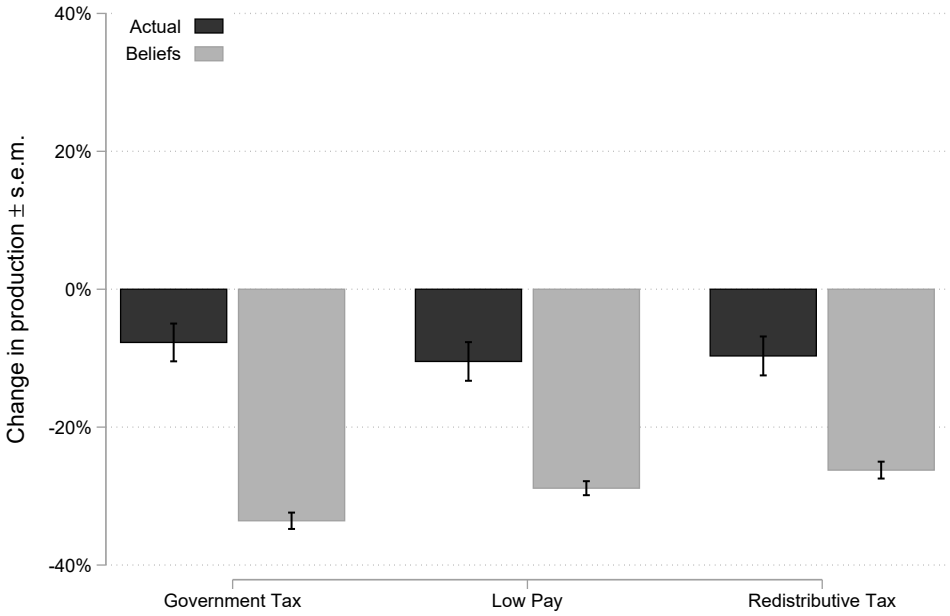
Figure 1: Political differences in beliefs and preferences



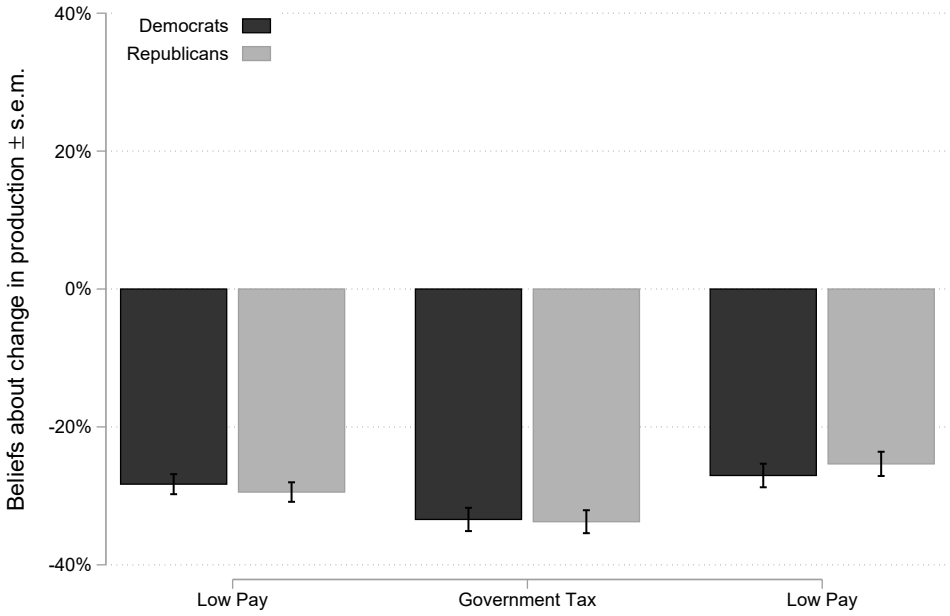
Notes: The bars indicate the mean values by political affiliation. The lines indicate the standard error of the mean. In **Panel A**, the outcome is people's beliefs about the percentage change in production under High Pay or Government Tax treatments. In **Panel B**, the outcome is the amount redistributed in the spectator's decision. Panels include respondents from the Government Tax treatment in both experiments. The lines indicate the standard error of the mean.

Figure 2: Treatment effects: Experiment 1

(a) Beliefs versus actual

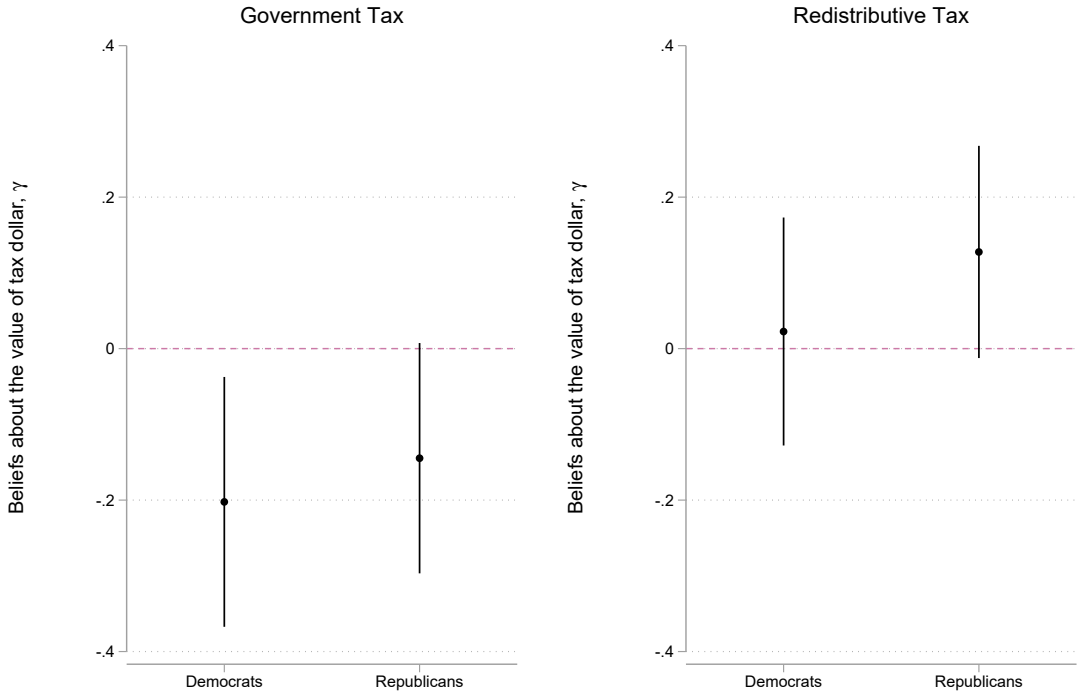


(b) Political differences in beliefs



Notes: Panel **(a)** shows the actual percentage change in production and beliefs about percentage change in production by each treatment. Panel **(b)** shows beliefs about the percentage change in production by treatment and political affiliation. Both panels use data from Experiment 1. The lines indicate the standard error of the mean.

Figure 3: Structural estimates of beliefs about the value of a tax dollar



Notes: The figure shows structural estimates of beliefs about the value of a tax dollar by treatment and political affiliation. Lines indicate 95 percent confidence intervals. We assume that beliefs are formed by Equation (1) and that $c(e)$ in Equation (2) is quadratic (i.e., on the form ae^2, where a is a constant that is identified by the group-level by mean differences in beliefs between the Low Pay and Government Tax treatments).

10. Main tables

Table 1: Summary statistics

	(1) Workers	(2) Spectators (Experiment 1)	(3) Spectators (Experiment 2)
Male	0.457	0.457	0.491
Age > 45 years old	0.245	0.556	0.520
White	0.803	0.756	0.756
Household size	2.658	2.320	2.391
Income > 45,000 USD	0.496	0.535	0.631
2-year college degree	0.890	0.893	0.882
Full-time employee	0.551	0.497	0.544
Northeast	0.184	0.192	0.190
Midwest	0.215	0.218	0.225
West	0.228	0.249	0.223
Republicans	0.226	0.483	0.501
Observations	1616	4217	5979

Note: The first column shows summary statistics for the workers recruited through MTurk. The second and third columns show summary statistics separately for spectators recruited from Research Now's Political Panel for Experiment 1 and Experiment 2, respectively. We further recruited 2,094 receivers from MTurk to incentivize the equality-efficiency preference elicitation. We do not display summary statistics for the receivers as they did not make any choices in the experiment.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table 2: Beliefs about behavioral responses to taxation

	Change in production (z-scored)				Overestimate behavioral responses			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Government Tax	-0.11***	-0.10***	-0.12**	-0.11**	0.05**	0.04**	0.05**	0.05*
	(0.04)	(0.04)	(0.05)	(0.05)	(0.02)	(0.02)	(0.03)	(0.03)
Redistributive Tax	0.06*	0.07*	0.03	0.04	-0.05**	-0.05***	-0.04	-0.04
	(0.04)	(0.04)	(0.05)	(0.05)	(0.02)	(0.02)	(0.03)	(0.03)
Republican		-0.01	-0.03	-0.04		0.03**	0.04	0.04
		(0.03)	(0.05)	(0.05)		(0.02)	(0.03)	(0.03)
Government Tax × Republicans			0.02	0.02			-0.01	-0.01
			(0.07)	(0.07)			(0.04)	(0.04)
Redistributive Tax × Republicans			0.07	0.06			-0.02	-0.02
			(0.07)	(0.07)			(0.04)	(0.04)
Male		-0.01		-0.01		-0.01		-0.01
		(0.03)		(0.03)		(0.02)		(0.02)
Age > 45 years old		-0.03		-0.03		-0.00		-0.00
		(0.03)		(0.03)		(0.02)		(0.02)
White		0.11***		0.10***		-0.03		-0.03
		(0.04)		(0.04)		(0.02)		(0.02)
Income > 45,000 USD		0.06*		0.06*		-0.02		-0.02
		(0.03)		(0.03)		(0.02)		(0.02)
2-year college degree		0.33***		0.33***		-0.09***		-0.09***
		(0.06)		(0.06)		(0.02)		(0.02)
Full-time employment		0.01		0.01		0.00		0.00
		(0.03)		(0.03)		(0.02)		(0.02)
Government Tax + Government Tax × Republican			-0.10**	-0.09*			0.04	0.04
			(0.05)	(0.05)			(0.03)	(0.03)
Redistributive Tax + Redistributive Tax × Republican			0.10*	0.09*			-0.06**	-0.06**
			(0.05)	(0.05)			(0.03)	(0.03)
N	4128	4128	4128	4128	4128	4128	4128	4128

Note: In columns 1–4, the dependent variable is beliefs about change in production (standardized). In columns 5—8, the dependent variable is an indicator for overestimating the change in production. Controls include household size and regional indicators in addition to the coefficients displayed in the table.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table 3: Equality–efficiency preferences

	Amount redistributed			Amount redistributed > 0		
	(1)	(2)	(3)	(4)	(5)	(6)
Republican	-0.22***	-0.22***	-0.20***	-0.11***	-0.11***	-0.10***
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Male			-0.08***			-0.03*
			(0.03)			(0.02)
Age > 45 years old			-0.01			0.01
			(0.03)			(0.02)
White			-0.13***			-0.09***
			(0.04)			(0.02)
Income > 45,000 USD			-0.11***			-0.06***
			(0.03)			(0.02)
2-year college degree			-0.11**			-0.07***
			(0.05)			(0.03)
Full-time employment			-0.03			0.01
			(0.03)			(0.02)
N	4128	4128	4128	4128	4128	4128
R-sq	0.012	0.012	0.023	0.012	0.013	0.026
Treatment indicators	No	Yes	Yes	No	Yes	Yes

Note: The dependent in columns 1–3 (amount redistributed between workers) has been z-scored. Controls include, in addition to the coefficients displayed in the table, household size and regional indicators. The treatment indicators are jointly insignificant in a regression on the amount redistributed (p=0.31).

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table 4: Beliefs and preferences: Replication

	Beliefs about behavioral responses to taxation						Equality-efficiency preferences (amount redistributed)					
	(1) Exp. 1	(2) Exp. 1	(3) Exp. 2	(4) Exp. 2	(5) Pooled	(6) Pooled	(7) Exp. 1	(8) Exp. 1	(9) Exp. 2	(10) Exp. 2	(11) Pooled	(12) Pooled
Republican	-0.01	-0.03	-0.06	-0.08	-0.04	-0.06	-0.29***	-0.27***	-0.28***	-0.24***	-0.28***	-0.25***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
Male		-0.05		0.04		-0.01		-0.07		-0.03		-0.05
		(0.05)		(0.05)		(0.04)		(0.05)		(0.05)		(0.04)
Age > 45 years old		0.03		-0.20***		-0.09**		0.03		-0.03		0.00
		(0.06)		(0.06)		(0.04)		(0.06)		(0.06)		(0.04)
White		0.14**		0.12		0.12**		-0.24***		-0.19***		-0.22***
		(0.07)		(0.07)		(0.05)		(0.07)		(0.06)		(0.05)
Income > 45,000 USD		0.05		0.03		0.05		-0.14**		-0.14***		-0.14***
		(0.06)		(0.06)		(0.04)		(0.06)		(0.06)		(0.04)
2-year college degree		0.31***		0.21**		0.25***		-0.07		-0.14		-0.11*
		(0.09)		(0.09)		(0.06)		(0.09)		(0.09)		(0.06)
Full-time employment		-0.01		-0.06		-0.04		0.04		0.03		0.03
		(0.06)		(0.06)		(0.04)		(0.06)		(0.05)		(0.04)
N	1372	1372	1524	1524	2896	2896	1372	1372	1524	1524	2896	2896
R-sq	0.000	0.015	0.001	0.018	0.000	0.013	0.021	0.036	0.019	0.040	0.020	0.036

Note: Both beliefs and preferences have been z-scored. The controls were prespecified and include, in addition to the coefficients displayed in the table, an indicator for household size and regional indicators. We only include respondents from the Government Tax treatments. We include experiment fixed effects in regressions on the pooled sample.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table 5: Beliefs and preferences: Political context

	Beliefs		Preferences	
	(1)	(2)	(3)	(4)
Motivated Beliefs	-0.10***	-0.11**	0.01	0.08
	(0.04)	(0.05)	(0.04)	(0.05)
Group Identity	-0.00	-0.01	0.05	0.13**
	(0.04)	(0.05)	(0.04)	(0.05)
Republicans	-0.05	-0.07	-0.35***	-0.25***
	(0.03)	(0.05)	(0.03)	(0.05)
Motivated Beliefs × Republicans		0.03		-0.14*
		(0.07)		(0.07)
Group Identity × Republicans		0.02		-0.15**
		(0.07)		(0.07)
Male	0.01	0.01	-0.05	-0.05
	(0.03)	(0.03)	(0.03)	(0.03)
Age > 45 years old	-0.10***	-0.10***	-0.02	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)
White	0.09**	0.09**	-0.12***	-0.13***
	(0.04)	(0.04)	(0.04)	(0.04)
Income > 45,000 USD	0.04	0.04	-0.09***	-0.10***
	(0.03)	(0.03)	(0.03)	(0.03)
2-year college degree	0.26***	0.26***	-0.09*	-0.09*
	(0.05)	(0.05)	(0.05)	(0.05)
Full-time employment	-0.06*	-0.06*	-0.04	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)
N	4353	4353	4353	4353
R-sq	0.014	0.014	0.042	0.043

Note: *Beliefs* refers to beliefs about behavioral responses to taxation (points produced in the Government Tax treatment) and *Preferences* refers to amount redistributed. Both variables have been standardized. Controls include race, gender, income, household size, region, employment, and education.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table 6: Views on redistribution – beliefs and preferences

	Should aim to equalize incomes in society			Should increase taxes to reduce inequality		
	(1) Pooled sample	(2) Democrats	(3) Republicans	(4) Pooled sample	(5) Democrats	(6) Republicans
Panel A						
Beliefs (points produced)	-0.00	-0.00	-0.01	0.04***	0.10***	-0.02
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Preferences (amount)	0.18***	0.14***	0.22***	0.11***	0.09***	0.12***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Panel B						
Beliefs (overestimate)	-0.03	-0.02	-0.04	-0.12***	-0.22***	0.01
	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
Preferences (amount > 0)	0.38***	0.27***	0.48***	0.22***	0.16***	0.27***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
N	8481	4318	4163	4353	2190	2163

Note: The dependent variable in columns 1–3 is support for equalization of incomes in society. The dependent variable in columns 4–6 is support for higher income taxes to reduce income inequality. In **Panel A**, *Beliefs* refers to beliefs about behavioral responses to government taxation and *Preferences* refers to the amount redistributed in the spectator decision. In **Panel B**, *Beliefs* is an indicator for overestimating behavioral responses to government taxation and *Preferences* is an indicator for redistributing a positive amount in the spectator decision. We include respondents from the Government Tax treatment. All variables, except for the indicators in Panel B, have been z-scored. Controls include race, gender, income, household size, region, employment, and education.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Online Appendix:

Beliefs about Behavioral Responses to Taxation

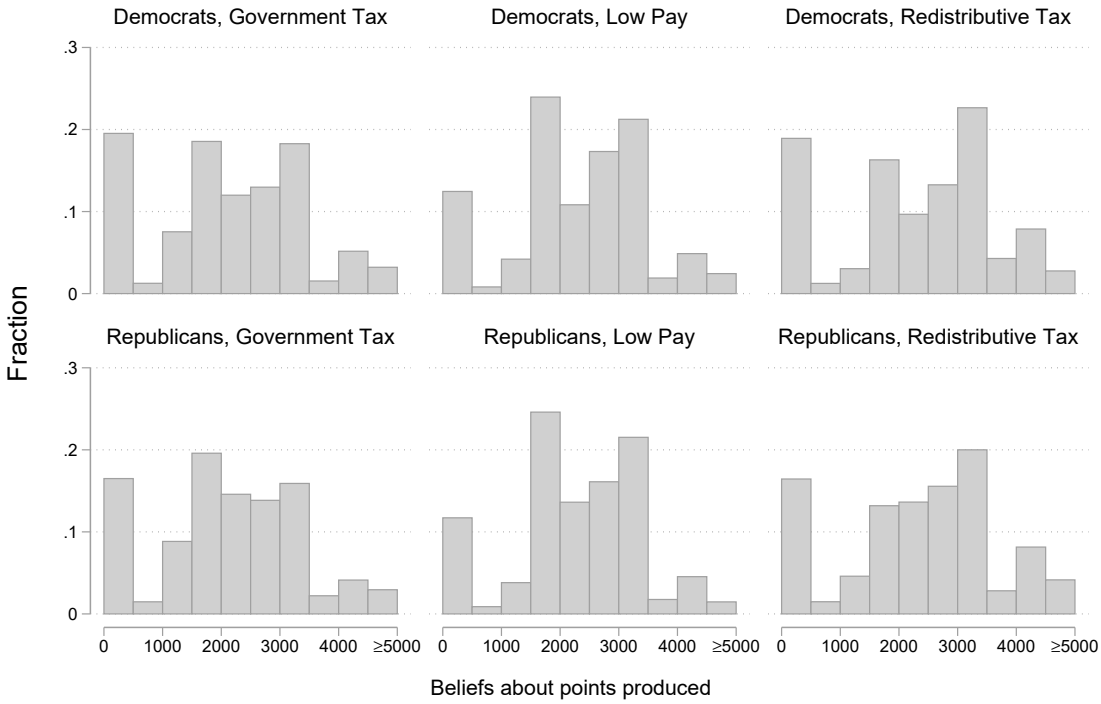
Alexander W. Cappelen Ingar Haaland Bertil Tungodden

Summary of the Online Appendix

Section A provides additional figures and tables. Section B replicates the main tables with the full sample (i.e., without excluding respondents who spent fewer than 15 seconds on the belief elicitation page). Section C provides all prespecified tables exactly as prespecified. Section D and Section E provide instructions for both experiments (also available in the preanalysis plans).

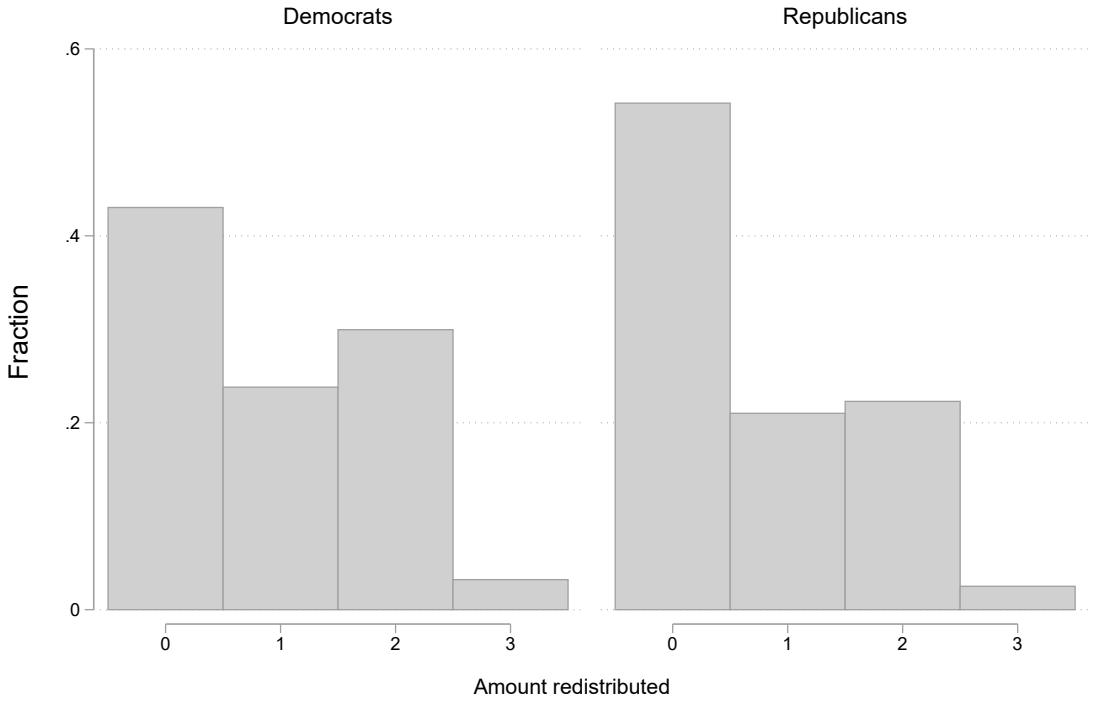
A. Additional figures and tables

Figure A.1: Distribution of beliefs: Experiment 1



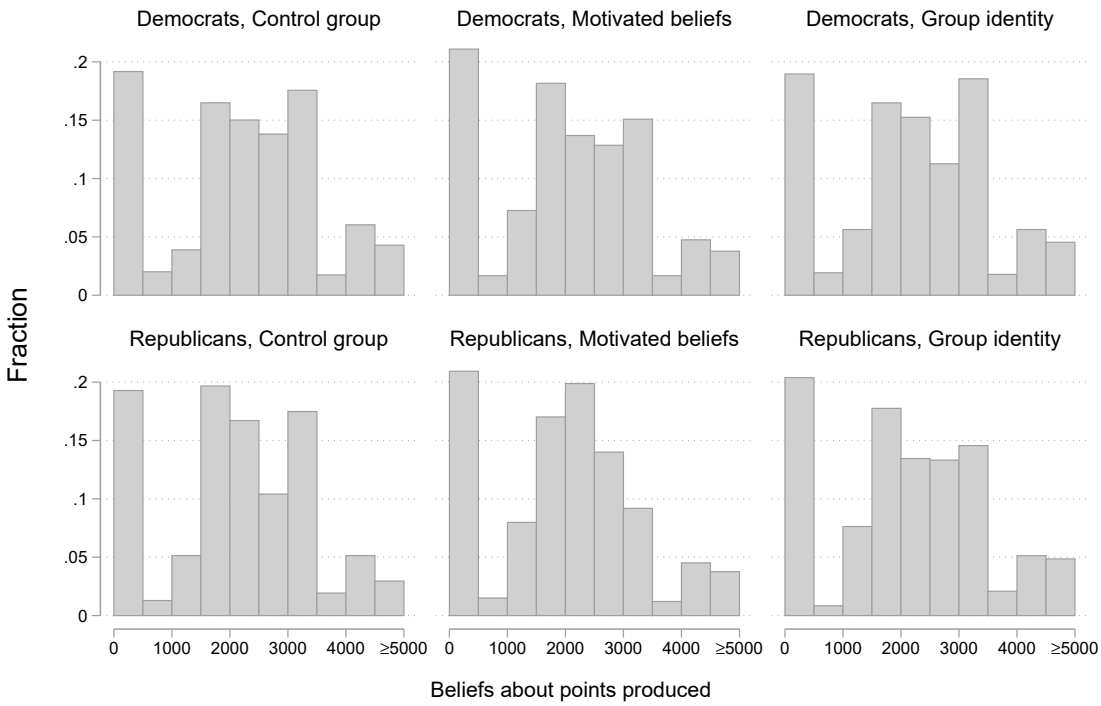
Notes: The figure shows the distribution of beliefs about the produced points by treatment and political affiliation.

Figure A.2: Distribution of equality–efficiency preferences: Experiment 1



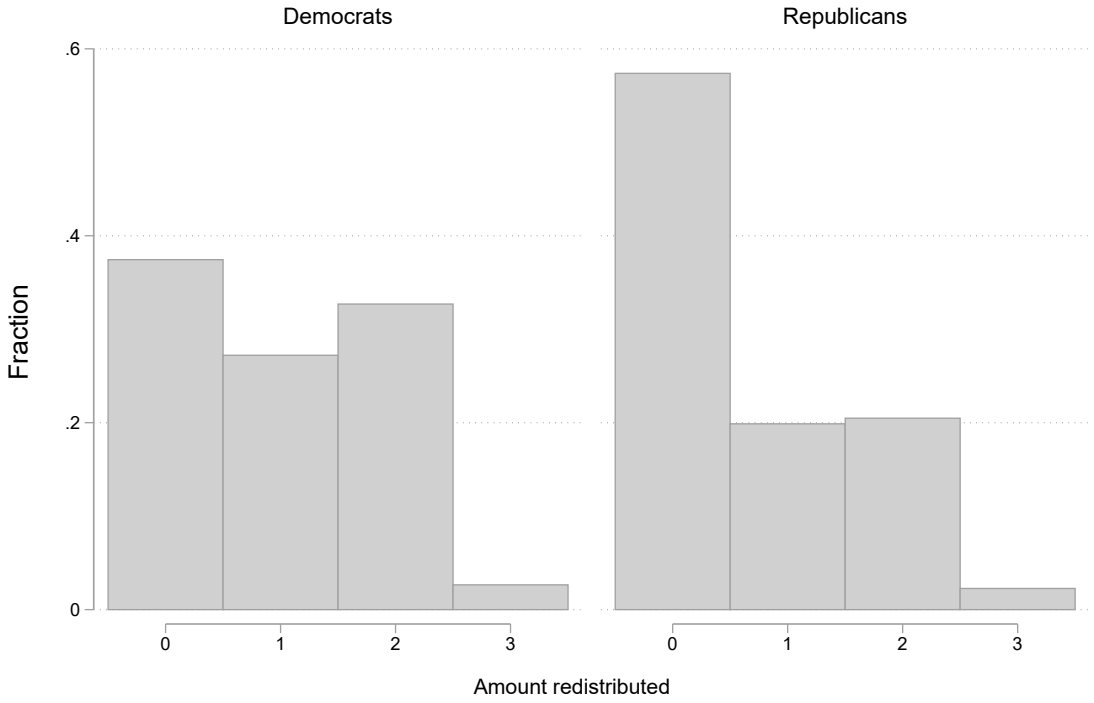
Notes: The figure shows the distribution of the amount redistributed between the lucky and unlucky workers by political affiliation. The treatment indicators are jointly insignificant in a regression on the amount redistributed (p=0.25).

Figure A.3: Distribution of beliefs: Experiment 2



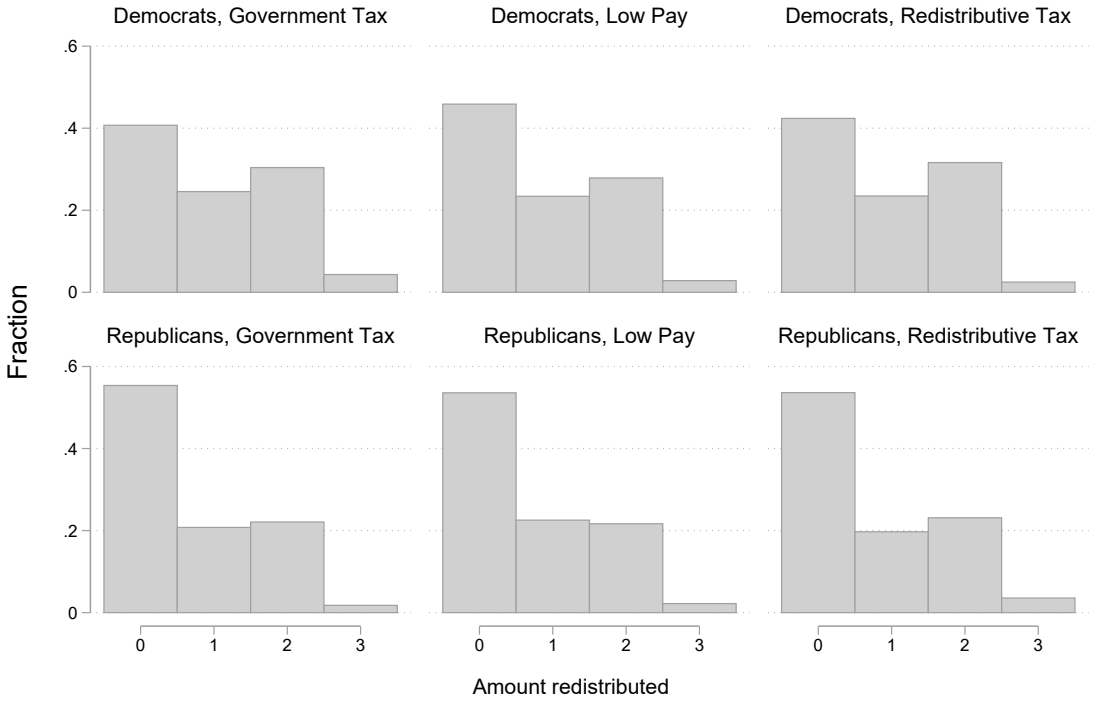
Notes: The distribution of beliefs about points produced according to treatment and political affiliation.

Figure A.4: Distribution of equality–efficiency preferences: Experiment 2



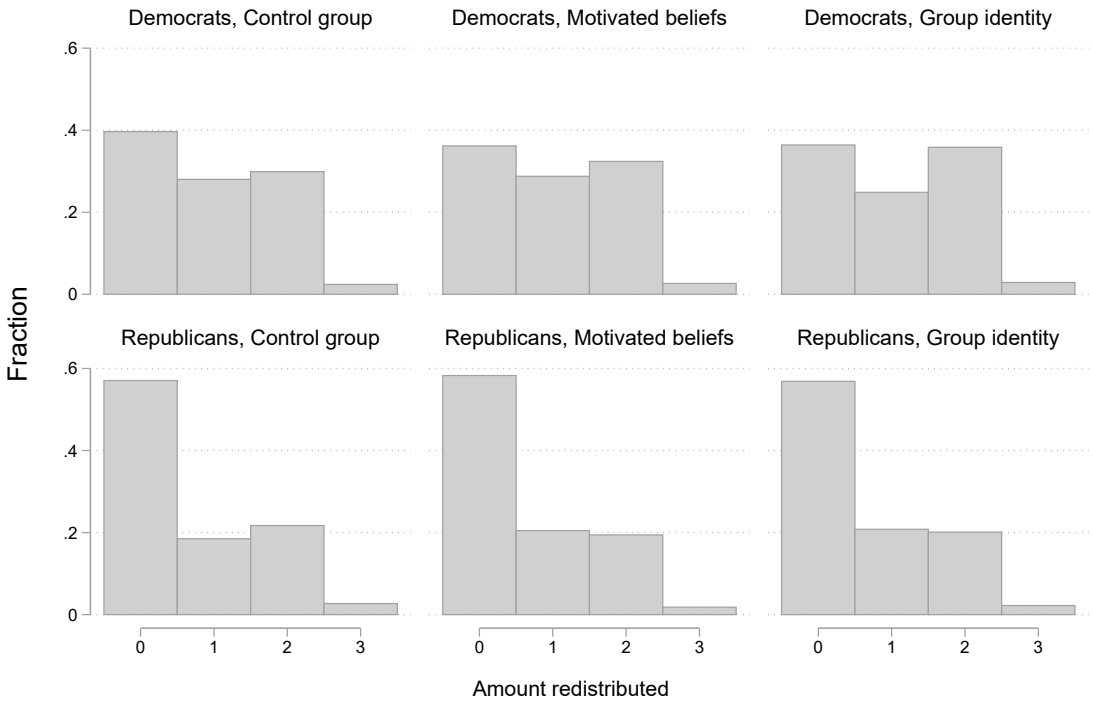
Notes: The figure shows the distribution of the amount redistributed between the lucky and unlucky workers by political affiliation.

Figure A.5: Distribution of equality–efficiency preferences: Experiment 1



Notes: The figure shows the distribution of the amount redistributed between the lucky and unlucky workers by treatment and political affiliation.

Figure A.6: Distribution of equality–efficiency preferences: Experiment 2



Notes: The figure shows the distribution of the amount redistributed between the lucky and unlucky workers by treatment and political affiliation.

Table A.1: Behavioral responses to taxation: Actual responses vs. own beliefs

	Actual production (z-scored)				Beliefs about production (z-scored)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Low Pay	-0.25***	-0.24***	-0.30***	-0.29***	-0.19**	-0.18**	-0.23***	-0.22***
	(0.07)	(0.07)	(0.08)	(0.08)	(0.07)	(0.07)	(0.09)	(0.08)
Government Tax	-0.27***	-0.28***	-0.34***	-0.34***	-0.18**	-0.19**	-0.25***	-0.25***
	(0.07)	(0.07)	(0.08)	(0.08)	(0.07)	(0.07)	(0.09)	(0.09)
Redistributive tax	-0.20***	-0.20***	-0.25***	-0.24***	-0.19**	-0.18**	-0.25***	-0.24***
	(0.07)	(0.07)	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.08)
Republican		-0.02	-0.16	-0.19		-0.01	-0.14	-0.18
		(0.06)	(0.12)	(0.12)		(0.06)	(0.12)	(0.11)
Low Pay × Republicans			0.21	0.21			0.17	0.17
			(0.18)	(0.18)			(0.18)	(0.18)
Government Tax × Republicans			0.29*	0.28*			0.29*	0.29*
			(0.17)	(0.17)			(0.17)	(0.16)
Redistributive tax × Republicans			0.21	0.19			0.26	0.24
			(0.17)	(0.17)			(0.17)	(0.17)
Male		-0.20***		-0.20***		-0.32***		-0.32***
		(0.06)		(0.06)		(0.05)		(0.05)
Age > 45 years old		0.00		0.00		0.01**		0.01**
		(0.00)		(0.00)		(0.00)		(0.00)
White		0.02		0.02		-0.01		-0.01
		(0.07)		(0.07)		(0.07)		(0.07)
Income > 45,000 USD		0.06		0.06		0.03		0.03
		(0.06)		(0.06)		(0.06)		(0.06)
2-year college degree		0.13		0.13		0.04		0.03
		(0.08)		(0.08)		(0.09)		(0.09)
Full-time employment		-0.16***		-0.16***		-0.14**		-0.14**
		(0.06)		(0.06)		(0.06)		(0.06)
Low Pay + Low Pay × Republicans			-0.09	-0.08			-0.06	-0.05
			(0.16)	(0.16)			(0.16)	(0.15)
Government Tax + Government Tax × Republicans			-0.05	-0.08			0.04	-0.05
			(0.15)	(0.16)			(0.14)	(0.15)
Redistributive Tax + Redistributive Tax × Republicans			-0.04	-0.05			0.02	0.00
			(0.15)	(0.15)			(0.14)	(0.14)
N	1616	1616	1616	1616	1616	1616	1616	1616

Note: This table shows data for the workers on MTurk. In columns 1–4, the dependent variable is actual production (standardized). In columns 5—8, the dependent variable is the workers' beliefs about average production in their treatment (standardized). Controls include household size and regional indicators in addition to the coefficients displayed in the table.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.2: Policy preferences: Political context

	Equalize incomes		Higher taxes	
	(1)	(2)	(3)	(4)
Motivated Beliefs	-0.04	-0.00	0.00	0.05
	(0.03)	(0.04)	(0.03)	(0.05)
Group Identity	-0.03	0.00	0.01	0.08
	(0.03)	(0.04)	(0.03)	(0.05)
Republicans	-0.83***	-0.78***	-0.89***	-0.81***
	(0.03)	(0.05)	(0.03)	(0.05)
Motivated Beliefs × Republicans		-0.08		-0.10
		(0.07)		(0.07)
Group Identity × Republicans		-0.07		-0.13**
		(0.07)		(0.07)
Male	-0.24***	-0.24***	0.05*	0.05*
	(0.03)	(0.03)	(0.03)	(0.03)
Age > 45 years old	-0.08**	-0.08**	-0.10***	-0.10***
	(0.03)	(0.03)	(0.03)	(0.03)
White	-0.08**	-0.08**	0.07**	0.07**
	(0.03)	(0.03)	(0.04)	(0.04)
Income > 45,000 USD	-0.22***	-0.22***	-0.04	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)
2-year college degree	-0.20***	-0.20***	0.18***	0.18***
	(0.05)	(0.05)	(0.05)	(0.05)
Full-time employment	0.05*	0.05*	-0.03	-0.03
	(0.03)	(0.03)	(0.03)	(0.03)
N	4353	4353	4353	4353
R-sq	0.212	0.212	0.205	0.206

Note: *Equalize incomes* refers to support for equalization of incomes in society and *Higher taxes* refers to support for higher income taxes to reduce inequality. Both variables have been z-scored. Controls include race, gender, income, household size, region, employment, and education.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.3: Policy preferences: Neutral context

	(1)	(2)
Government Tax	-0.00	0.01
	(0.03)	(0.05)
Redistributive Tax	-0.01	0.00
	(0.03)	(0.05)
Republicans	-0.68***	-0.66***
	(0.03)	(0.05)
Government Tax × Republicans		-0.03
		(0.07)
Redistributive Tax × Republicans		-0.04
		(0.07)
Male	-0.20***	-0.19***
	(0.03)	(0.03)
Age > 45 years old	-0.13***	-0.13***
	(0.03)	(0.03)
White	-0.17***	-0.17***
	(0.04)	(0.04)
Income > 45,000 USD	-0.28***	-0.28***
	(0.03)	(0.03)
2-year college degree	-0.21***	-0.21***
	(0.05)	(0.05)
Full-time employment	0.03	0.03
	(0.03)	(0.03)
N	4128	4128
R-sq	0.173	0.173

Note: Dependent variable: Support for equalization of incomes (z-scored). Controls include race, gender, income, household size, region, employment, and education.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.4: Beliefs and preferences: Robustness

	Overestimate behavioral responses to taxation						Equality-efficiency preferences (amount > 0)					
	(1) Exp. 1	(2) Exp. 1	(3) Exp. 2	(4) Exp. 2	(5) Pooled	(6) Pooled	(7) Exp. 1	(8) Exp. 1	(9) Exp. 2	(10) Exp. 2	(11) Pooled	(12) Pooled
Republican	0.03	0.03	0.03	0.03	0.03*	0.03*	-0.14***	-0.13***	-0.17***	-0.16***	-0.16***	-0.14***
	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)
Male		0.00		-0.03		-0.01		-0.01		-0.02		-0.02
		(0.03)		(0.03)		(0.02)		(0.03)		(0.03)		(0.02)
Age > 45 years old		-0.02		0.03		0.01		0.03		-0.03		-0.00
		(0.03)		(0.03)		(0.02)		(0.03)		(0.03)		(0.02)
White		-0.04		0.00		-0.02		-0.12***		-0.09***		-0.11***
		(0.03)		(0.03)		(0.02)		(0.03)		(0.03)		(0.02)
Income > 45,000 USD		-0.01		-0.01		-0.01		-0.08***		-0.06**		-0.06***
		(0.03)		(0.03)		(0.02)		(0.03)		(0.03)		(0.02)
2-year college degree		-0.06		-0.05		-0.05*		-0.06		-0.09**		-0.07**
		(0.04)		(0.04)		(0.03)		(0.04)		(0.04)		(0.03)
Full-time employment		-0.01		0.03		0.02		0.04		0.03		0.03*
		(0.03)		(0.03)		(0.02)		(0.03)		(0.03)		(0.02)
N	1372	1372	1524	1524	2896	2896	1372	1372	1524	1524	2896	2896
R-sq	0.001	0.007	0.001	0.006	0.001	0.004	0.020	0.038	0.030	0.050	0.025	0.041

Note: Both beliefs and preferences are indicator variables for, respectively, overestimating behavioral responses to taxation and redistributing a positive amount in the equality-efficiency task. The controls were prespecified and include, in addition to the coefficients displayed in the table, an indicator for household size and regional indicators. We only include respondents from the Government Tax treatments. We include experiment fixed effects in regressions on the pooled sample.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table A.5: Beliefs and preferences: Reweighted data

	Beliefs about behavioral responses to taxation						Equality-efficiency preferences (amount redistributed)					
	(1) Exp. 1	(2) Exp. 1	(3) Exp. 2	(4) Exp. 2	(5) Pooled	(6) Pooled	(7) Exp. 1	(8) Exp. 1	(9) Exp. 2	(10) Exp. 2	(11) Pooled	(12) Pooled
Republican	0.06	0.03	-0.07	-0.06	-0.01	-0.02	-0.39***	-0.35***	-0.24***	-0.22***	-0.31***	-0.28***
	(0.08)	(0.07)	(0.08)	(0.07)	(0.05)	(0.05)	(0.07)	(0.07)	(0.07)	(0.06)	(0.05)	(0.05)
Male		-0.03		0.10		0.03		-0.12*		-0.05		-0.08
		(0.07)		(0.08)		(0.05)		(0.06)		(0.07)		(0.05)
Age > 45 years old		0.05		-0.22***		-0.10*		0.04		-0.02		0.02
		(0.08)		(0.08)		(0.06)		(0.07)		(0.08)		(0.05)
White		0.23***		0.06		0.13**		-0.28***		-0.16*		-0.22***
		(0.08)		(0.09)		(0.06)		(0.08)		(0.09)		(0.06)
Income > 45,000 USD		0.02		0.02		0.03		-0.07		-0.13*		-0.10*
		(0.08)		(0.08)		(0.06)		(0.07)		(0.08)		(0.05)
2-year college degree		0.29***		0.19**		0.23***		-0.10		-0.17*		-0.14**
		(0.10)		(0.09)		(0.07)		(0.09)		(0.09)		(0.06)
Full-time employment		0.07		-0.09		-0.02		0.00		0.09		0.05
		(0.08)		(0.07)		(0.05)		(0.07)		(0.08)		(0.05)
N	1372	1372	1524	1524	2896	2896	1372	1372	1524	1524	2896	2896
R-sq	0.001	0.028	0.001	0.027	0.000	0.020	0.037	0.064	0.015	0.038	0.024	0.043

Note: Both beliefs and preferences have been z-scored. The controls were prespecified and include, in addition to the coefficients displayed in the table, an indicator for household size and regional indicators. We only include respondents from the Government Tax treatments. We include experiment fixed effects in regressions on the pooled sample. The data has been reweighted to match the demographic profile of Republicans and Democrats separately with respect to six cells based on age (above/below 65 years old), race (white/nonwhite), and education (some college/not some college). We used data from Pew Research to create the weights, `http://www.people-press.org/2016/09/13/1-the-changing-composition-of-the-political-parties/` (accessed July 6, 2018).

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table A.6: Views on redistribution: Robustness

	Should aim to equalize incomes in society						Should increase taxes to reduce inequality		
	(1) Low Pay	(2) Government Tax (Exp. 1)	(3) Redistributive Tax	(4) Government Tax (Exp. 2)	(5) Motivated Beliefs	(6) Group Identity	(7) Government Tax (Exp. 2)	(8) Motivated Beliefs	(9) Group Identity
Panel A: Full sample									
Beliefs	0.02	0.01	-0.04*	-0.00	-0.03	0.02	0.06***	0.03	0.03
	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Preferences	0.19***	0.17***	0.17***	0.18***	0.20***	0.17***	0.10***	0.12***	0.09***
	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)
N	1396	1372	1360	1524	1380	1449	1524	1380	1449
Panel B: Democrats									
Beliefs	0.05	0.04	-0.05	0.01	-0.07**	0.03	0.13***	0.06*	0.10***
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
Preferences	0.14***	0.15***	0.13***	0.12***	0.15***	0.14***	0.07*	0.10***	0.11***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)
N	724	701	703	746	716	728	746	716	728
Panel C: Republicans									
Beliefs	-0.02	-0.03	-0.03	-0.02	0.03	0.02	-0.02	-0.02	-0.03
	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)
Preferences	0.25***	0.20***	0.20***	0.22***	0.27***	0.20***	0.14***	0.15***	0.07**
	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)	(0.03)
N	672	671	657	778	664	721	778	664	721

Note: All variables have been z-scored. Controls include race, gender, income, household size, region, employment, and education.
* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

B. Main tables with full sample

In the main analysis, we focused on the spectators who spent at least 15 seconds on the belief elicitation page. This section replicates the main tables with the full sample.

Table A.7: Beliefs about behavioral responses to taxation

	Change in production (z-scored)				Overestimate behavioral responses			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Government Tax	-0.12***	-0.11***	-0.14***	-0.13**	0.05***	0.05**	0.06**	0.05**
	(0.04)	(0.04)	(0.05)	(0.05)	(0.02)	(0.02)	(0.03)	(0.02)
Redistributive Tax	0.05	0.06	0.02	0.02	-0.04**	-0.05**	-0.03	-0.03
	(0.04)	(0.04)	(0.05)	(0.05)	(0.02)	(0.02)	(0.03)	(0.03)
Republican		-0.00	-0.02	-0.04		0.03**	0.04	0.04*
		(0.03)	(0.05)	(0.05)		(0.01)	(0.03)	(0.03)
Government Tax × Republicans			0.04	0.04			-0.02	-0.02
			(0.07)	(0.07)			(0.04)	(0.04)
Redistributive Tax × Republicans			0.07	0.06			-0.03	-0.02
			(0.07)	(0.07)			(0.04)	(0.04)
Male		-0.01		-0.01		-0.01		-0.01
		(0.03)		(0.03)		(0.01)		(0.01)
Age > 45 years old		-0.01		-0.01		-0.01		-0.01
		(0.03)		(0.03)		(0.02)		(0.02)
White		0.12***		0.12***		-0.03*		-0.03*
		(0.04)		(0.04)		(0.02)		(0.02)
Income > 45,000 USD		0.07**		0.07**		-0.02		-0.02
		(0.03)		(0.03)		(0.02)		(0.02)
2-year college degree		0.34***		0.34***		-0.09***		-0.09***
		(0.06)		(0.06)		(0.02)		(0.02)
Full-time employment		0.02		0.02		0.00		0.00
		(0.03)		(0.03)		(0.02)		(0.02)
Government Tax + Government Tax × Republicans			-0.10**	-0.09*			0.04	0.04
			(0.05)	(0.05)			(0.03)	(0.03)
Redistributive Tax + Redistributive Tax × Republicans			0.09*	0.09*			-0.06**	-0.06**
			(0.05)	(0.05)			(0.03)	(0.03)
N	4217	4217	4217	4217	4217	4217	4217	4217

Note: In columns 1–4, the dependent variable is beliefs about change in production (standardized). In columns 5—8, the dependent variable is an indicator for overestimating the change in production. Controls include household size and regional indicators in addition to the coefficients displayed in the table.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.8: Equality–efficiency preferences

	Amount redistributed			Amount redistributed > 0		
	(1)	(2)	(3)	(4)	(5)	(6)
Republican	-0.22***	-0.22***	-0.21***	-0.11***	-0.11***	-0.10***
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Male			-0.07**			-0.02
			(0.03)			(0.02)
Age > 45 years old			-0.02			0.00
			(0.03)			(0.02)
White			-0.14***			-0.10***
			(0.04)			(0.02)
Income > 45,000 USD			-0.11***			-0.07***
			(0.03)			(0.02)
2-year college degree			-0.11**			-0.07***
			(0.05)			(0.02)
Full-time employment			-0.03			0.01
			(0.03)			(0.02)
N	4217	4217	4217	4217	4217	4217
R-sq	0.012	0.013	0.024	0.012	0.013	0.027
Treatment indicators	No	Yes	Yes	No	Yes	Yes

Note: The dependent in columns 1–3 (amount redistributed between workers) has been z-scored. Controls include, in addition to the coefficients displayed in the table, household size and regional indicators. The treatment indicators are jointly insignificant in a regression on the amount redistributed (p=0.31).

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.9: Beliefs and preferences: Replication

	Beliefs about behavioral responses to taxation						Equality-efficiency preferences (amount redistributed)					
	(1) Exp. 1	(2) Exp. 1	(3) Exp. 2	(4) Exp. 2	(5) Pooled	(6) Pooled	(7) Exp. 1	(8) Exp. 1	(9) Exp. 2	(10) Exp. 2	(11) Pooled	(12) Pooled
Republican	0.01	-0.01	-0.09*	-0.12**	-0.04	-0.07*	-0.31***	-0.28***	-0.25***	-0.22***	-0.28***	-0.25***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
Male		-0.06		-0.07		-0.07*		-0.06		0.00		-0.02
		(0.05)		(0.05)		(0.04)		(0.05)		(0.05)		(0.04)
Age > 45 years old		0.05		-0.07		-0.01		0.03		-0.07		-0.03
		(0.06)		(0.06)		(0.04)		(0.06)		(0.05)		(0.04)
White		0.15**		0.24***		0.19***		-0.23***		-0.24***		-0.24***
		(0.07)		(0.07)		(0.05)		(0.06)		(0.06)		(0.05)
Income > 45,000 USD		0.05		0.01		0.03		-0.15***		-0.10*		-0.12***
		(0.06)		(0.06)		(0.04)		(0.06)		(0.05)		(0.04)
2-year college degree		0.31***		0.25***		0.28***		-0.07		-0.05		-0.07
		(0.09)		(0.09)		(0.06)		(0.08)		(0.08)		(0.06)
Full-time employment		-0.01		-0.09*		-0.05		0.04		0.04		0.04
		(0.06)		(0.05)		(0.04)		(0.06)		(0.05)		(0.04)
N	1396	1396	1606	1606	3002	3002	1396	1396	1606	1606	3002	3002
R-sq	0.000	0.018	0.002	0.024	0.001	0.019	0.023	0.039	0.016	0.040	0.019	0.036

Note: Both beliefs and preferences have been z-scored. The controls were prespecified and include, in addition to the coefficients displayed in the table, an indicator for household size and regional indicators. We only include respondents from the Government Tax treatments. We include experiment fixed effects in regressions on the pooled sample.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

Table A.10: Beliefs and preferences: Political context

	Beliefs		Preferences	
	(1)	(2)	(3)	(4)
Motivated Beliefs	-0.12***	-0.13***	0.02	0.08
	(0.03)	(0.05)	(0.04)	(0.05)
Group Identity	-0.01	-0.03	0.04	0.11**
	(0.04)	(0.05)	(0.04)	(0.05)
Republicans	-0.10***	-0.11**	-0.31***	-0.23***
	(0.03)	(0.05)	(0.03)	(0.05)
Motivated Beliefs × Republicans		0.03		-0.13*
		(0.07)		(0.07)
Group Identity × Republicans		0.02		-0.14**
		(0.07)		(0.07)
Male	-0.08***	-0.08***	-0.01	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)
Age > 45 years old	0.03	0.03	-0.07**	-0.07**
	(0.03)	(0.03)	(0.03)	(0.03)
White	0.25***	0.25***	-0.15***	-0.16***
	(0.04)	(0.04)	(0.04)	(0.04)
Income > 45,000 USD	0.02	0.02	-0.06*	-0.06*
	(0.03)	(0.03)	(0.03)	(0.03)
2-year college degree	0.32***	0.32***	-0.00	-0.01
	(0.05)	(0.05)	(0.05)	(0.05)
Full-time employment	-0.08**	-0.08**	-0.05	-0.05
	(0.03)	(0.03)	(0.03)	(0.03)
N	4642	4642	4642	4642
R-sq	0.032	0.032	0.036	0.037

Note: *Beliefs* refers to beliefs about behavioral responses to taxation (points produced in the Government Tax treatment) and *Preferences* refers to amount redistributed. Both variables have been standardized. Controls include race, gender, income, household size, region, employment, and education.

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.11: Views on redistribution – beliefs and preferences

	Should aim to equalize incomes in society			Should increase taxes to reduce inequality		
	(1) Pooled sample	(2) Democrats	(3) Republicans	(4) Pooled sample	(5) Democrats	(6) Republicans
Panel A						
Beliefs (points produced)	-0.02**	0.01	-0.05***	-0.01	0.09***	-0.09***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Preferences (amount)	0.18***	0.13***	0.23***	0.12***	0.09***	0.14***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Panel B						
Beliefs (overestimate)	-0.02	-0.03	0.00	-0.07**	-0.20***	0.10***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
Preferences (amount > 0)	0.37***	0.26***	0.47***	0.21***	0.15***	0.26***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
N	8859	4480	4379	4642	2300	2342

Note: The dependent variable in columns 1–3 is support for equalization of incomes in society. The dependent variable in columns 4–6 is support for higher income taxes to reduce income inequality. In **Panel A**, *Beliefs* refers to beliefs about behavioral responses to government taxation and *Preferences* refers to the amount redistributed in the spectator decision. In **Panel B**, *Beliefs* is an indicator for overestimating behavioral responses to government taxation and *Preferences* is an indicator for redistributing a positive amount in the spectator decision. We include respondents from the Government Tax treatment. All variables, except for the indicators in Panel B, have been z-scored. Controls include race, gender, income, household size, region, employment, and education.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses.

C. Prespecified tables

We uploaded the first preanalysis plan to the AEA RCT Registry on May 2, 2017. We uploaded an updated version of this preanalysis plan on May 29, 2017 (on the same day, but before we started collecting data for the project). The only substantial difference between the two preanalysis plans is that we added a specification in Section 4.1.4 on whether our elicited beliefs about behavioral responses to taxation could explain differences in people's support for redistribution of income in society. The reader should consult the updated preanalysis plan when evaluating the prespecified tables in Section C. We uploaded a preanalysis plan for the second experiment on February 6, 2018 and started to collect data for this project on February 7, 2018.

Below we list some minor deviations from the preanalysis plans.

- We did not prespecify the investigation of treatment effects of the political primes on equality–efficiency preferences and policy views; i.e., columns 2–4 of Table 5 were not prespecified.
- We prespecified collecting 4500 and 6000 spectators for the first and second experiments, respectively. We actually recruited 4218 and 5979 spectators, respectively. The reason for the small discrepancy was that the market research company had difficulties recruiting enough respondents. We also prespecified to collect data for 1600 workers, but ended up recruiting 16 workers more (i.e., 1616 in total) because of a small glitch.

In the remainder of this section, we list all prespecified tables. For each table, we highlight the corresponding section in the preanalysis plans.

Table A.12: Dependent variable: Beliefs about absolute change in production

	(1)	(2)	(3)
Government Tax	155.81***	144.61***	169.20**
	(47.13)	(46.81)	(66.42)
Redistributive Tax	-65.71	-71.35	-31.84
	(47.89)	(47.58)	(67.04)
Republicans		5.05	49.25
		(40.13)	(60.92)
Government Tax × Republicans			-51.06
			(93.66)
Redistributive Tax × Republicans			-82.13
			(95.10)
Constant	886.76***	1463.41***	1441.64***
	(30.61)	(107.41)	(110.60)
N	4217	4217	4217
R-sq	0.005	0.021	0.021
Controls	No	Yes	Yes

Note: Columns 1 and 2 show the specification from Section 4.1.1. of PAP 1 (pages 6–7). Column 3 shows the specification from Section 4.1.2. the PAP (page 7).

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.13: Structural estimates of beliefs about the tax dollar value

	(1)
$\gamma_{T2}^{Democrat}$	-0.21**
	(0.08)
$\gamma_{T2}^{Republican}$	-0.14*
	(0.08)
$\gamma_{T3}^{Democrat}$	0.02
	(0.08)
$\gamma_{T3}^{Republican}$	0.13*
	(0.07)
N	4217
P-value of test $\gamma_{T2}^{Democrat} - \gamma_{T2}^{Republican} = 0$	0.59
P-value of test $\gamma_{T3}^{Democrat} - \gamma_{T3}^{Republican} = 0$	0.32

Note: The table shows the specification from Section 4.1.3. of PAP 1 (pages 8–9).
* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.14: Demand for redistribution and beliefs about behavioral responses

	(1)	(2)
diff	0.0000	0.0000
	(0.0001)	(0.0001)
diff × Government Tax	-0.0000	-0.0000
	(0.0001)	(0.0001)
diff × Redistributive Tax	0.0001	0.0001
	(0.0001)	(0.0001)
N	4217	4217
R-sq	0.001	0.172
Controls	No	Yes
P-value joint significance	0.221	0.616

Note: The table shows the specification from Section 4.1.4 of PAP 1 (pages 9–10).
* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.15: Political differences

	(1)
equal_inc1_mean	
Republicans	-1.91***
	(0.08)
equal_inc2_mean	
Republicans	-1.91***
	(0.08)
N	4217
P-value equality of Republican indicator	0.421

Note: The table shows the second specification ("Political differences") from Section 4.1.4 of PAP 1 (pages 9–10).

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.16: Exploratory analysis of heterogeneity in beliefs

	(1) Gender	(2) Age	(3) College	(4) White	(5) Income	(6) Work
Interactant	2.6	85.5	-451.1***	-185.4**	-111.3*	-15.2
	(61.0)	(64.2)	(121.4)	(77.2)	(62.9)	(63.5)
Government Tax × Interactant	77.5	-144.3	56.9	-22.8	38.7	47.6
	(93.2)	(93.6)	(169.2)	(113.2)	(94.1)	(93.4)
Redistributive Tax × Interactant	-36.2	-78.4	-29.6	101.6	36.7	-68.1
	(95.3)	(95.0)	(183.7)	(116.1)	(95.7)	(95.3)
N	4217	4217	4217	4217	4217	4217

Note: The table shows the specification from Section 4.1.5 of PAP 1 (pages 10–11).

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.17: Do taxes affect worker effort?

	(1)	(2)	(3)
Low Pay	-293.30***	-291.24***	-261.92**
	(85.66)	(85.25)	(125.59)
Government Tax	-317.59***	-330.90***	-352.63***
	(85.01)	(83.78)	(131.57)
Redistributive tax	-234.00***	-243.13***	-253.35**
	(83.09)	(82.78)	(126.46)
Republicans		94.63	-57.51
		(80.45)	(148.35)
Low Pay × Republicans			156.05
			(222.60)
Government Tax × Republicans			275.98
			(213.52)
Redistributive tax × Republicans			188.73
			(212.11)
Low Pay × Independents			-205.28
			(192.77)
Government Tax × Independents			-131.58
			(192.96)
Redistributive tax × Independents			-107.93
			(188.22)
Constant	3031.91***	2728.16***	2737.68***
	(57.04)	(171.91)	(183.27)
N	1616	1616	1616
R-sq	0.010	0.042	0.044
Controls	No	Yes	Yes
P-value joint signifiance	0.0004	0.0002	0.04
P-value coefficients equal	0.000414	0.000231	0.0354
P-value Republican interactions			0.622
P-value standard model (Democrats)			0.730
P-value standard model (Republicans)			0.974

Note: The table shows the specification from Section 4.2.1. and 4.2.2. of PAP 1 (pages 12–13).
* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.18: Worker beliefs

	(1)	(2)
Low Pay	-203.38**	-198.59**
	(79.33)	(78.48)
Government Tax	-195.99**	-205.47***
	(79.29)	(78.17)
Redistributive tax	-197.73**	-203.70***
	(77.50)	(76.57)
Constant	2825.84***	2619.23***
	(52.40)	(165.29)
N	1616	1616
R-sq	0.006	0.051
Controls	No	Yes
P-value joint signifiance	0.017	0.013
P-value coefficients equal	1.00	1.00

Note: The table shows the specification from Section 4.2.3. of PAP 1 (page 13).

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.19: Do the treatments polarize beliefs?

	(1)	(2)	(3)
Motivated Beliefs	164.10***	168.89***	188.86***
	(49.99)	(49.39)	(71.16)
Group Identity	12.14	19.83	35.97
	(50.67)	(49.93)	(71.18)
Republicans		138.26***	161.40**
		(41.27)	(69.37)
Motivated Beliefs × Republicans			-39.35
			(99.00)
Group Identity × Republicans			-31.36
			(100.22)
Constant	1099.30***	1712.94***	1701.87***
	(34.68)	(106.45)	(110.28)
N	4642	4642	4642
R-sq	0.003	0.032	0.032
Controls	No	Yes	Yes

Note: The table shows the specification from Section 4.1.1. of PAP 1 (pages 3–4).
* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.20: Views on redistribution

	(1) Equalize income	(2) Higher taxes
Beliefs	0.00	-0.00
	(0.00)	(0.00)
Amount redistributed	0.61***	0.39***
	(0.08)	(0.08)
Motivated Beliefs	-0.27*	-0.14
	(0.15)	(0.16)
Group Identity	-0.05	-0.03
	(0.15)	(0.16)
Motivated Beliefs × Amount redistributed	0.08	0.07
	(0.11)	(0.11)
Group Identity × Amount redistributed	0.00	0.02
	(0.11)	(0.11)
Motivated Beliefs × Beliefs	0.00	0.00
	(0.00)	(0.00)
Group Identity × Beliefs	-0.00	0.00
	(0.00)	(0.00)
Republicans	-1.97***	-2.26***
	(0.08)	(0.09)
Constant	7.71***	6.16***
	(0.22)	(0.24)
N	4642	4642
R-sq	0.222	0.189
Controls	Yes	Yes

Note: The table shows the specification from Section 4.1.2. of PAP 2 (pages 4–5).
* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

Table A.21: Second-order beliefs

	(1) Difference	(2) Second-order beliefs about Republicans
Second-order belifes about Democrats		0.73***
		(0.03)
Constant	-93.80***	315.46***
	(28.44)	(42.87)
N	1337	1337
R-sq	0.000	0.589

Note: The table shows the specification from Section 4.2.1. of PAP 2 (page 5).

* p < 0.1, ** p < 0.05, *** p < 0.01. Standard errors in parentheses.

D. Instructions: Experiment 1

D.1. Background questions

1. What is your age? [18–24; 25–34; 35–44; 45–54; 55–64; 65 or older]
2. What is your gender? [Male; Female]
3. What was your family's gross household income in 2016 in US dollars? [Less than $15,000; $15,000 to $24,999; $25,000 to $49,999; $50,000 to $74,999; $75,000 to $99,999; $100,000 to $149,999; $150,000 to $200,000; More than $200,000; Prefer not to answer]
4. Which of the following best describes your race or ethnicity? [African American/Black; Asian/Asian American; Caucasian/White; Native American, Inuit or Aleut; Native Hawaiian/Pacific Islander; Other; Prefer not to answer]
5. Are you of Hispanic, Latino, or Spanish origin? [Yes, No, Prefer not to answer]
6. In which state do you currently reside?

D.2. Introduction to task

Introduction

In this study, we will ask you about how well you think others performed on a task. To make you familiar with the task, we will let you test the task for up to two minutes before you answer the question. **If your answer is sufficiently close to how others actually performed on the task, you may earn a bonus of $10 in panel currency.**

Test of task

A matrix with numbers between 1 and 100 will appear on the next page. You gain 1 point for each even number that you check off in the matrix. You lose 1 point if you check off an odd number, but you do not lose any points for failing to check off an even number. After two minutes, the page will auto-advance to a new page that shows you how many points you have produced on this test, but you can choose to advance faster by submitting the page before the two minutes are up.

D.3. Feedback on test of task

You produced **{score}** points on this test of the task.

D.4. Treatment 1: Government Tax

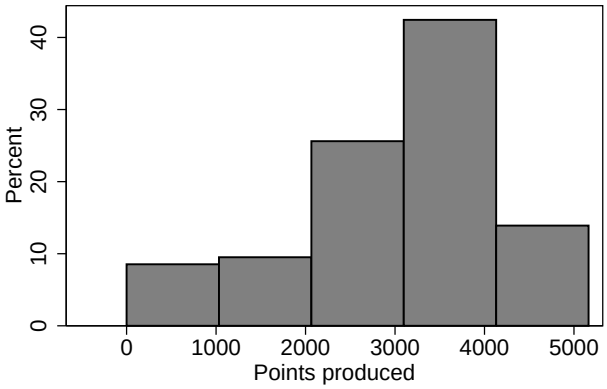
How well did others perform on the task?

A few days ago, we recruited 800 Americans from an online labor market to do the task you just tested. The task consisted of 30 matrices and the individuals could work for up to two minutes on each matrix (i.e., for up to 60 minutes in total). After each matrix, they were shown how many points they had produced.

Each individual was paid a flat fee of $2. In addition, each individual could earn a bonus. We randomly varied which bonus scheme an individual was offered. The individuals were only informed about their own bonus scheme.

- **Bonus A**: An individual would earn a bonus of **20 cents** for every **100 points** he produced.
- **Bonus B**: An individual would earn a bonus of **20 cents** for every **100 points** he produced, but had to pay a **tax of 50%** on the bonus. The individual was informed that the tax would be passed on to the US federal government for general use.

The figure below shows the variation in points produced for individuals offered **Bonus A**.



Note: The vertical axis indicates the percentage of people who produced points within the range indicated on the horizontal axis.

The individuals offered **Bonus A** produced 3032 points on average. What do you believe individuals offered **Bonus B** produced on average?

Individuals offered **Bonus B** produced ☐ points on average.

You will be rewarded a $10 bonus if your answer is within +/- 5% of actual production for individuals offered Bonus B.

D.5. Treatment 2: Low Pay (bonus description)

- **Bonus A**: An individual would earn a bonus of **20 cents** for every **100 points** he produced.
- **Bonus B**: An individual would earn a bonus of **10 cents** for every **100 points** he produced.

D.6. Treatment 3: Redistributive Tax (bonus description)

- **Bonus A**: An individual would earn a bonus of **20 cents** for every **100 points** he produced.
- **Bonus B**: An individual would earn a bonus of **20 cents** for every **100 points** he produced, but had to pay a **tax of 50%** on the bonus. The individual was informed that the tax revenues from all 400 individuals offered **Bonus B** would be split equally among them.

D.7. Equality–efficiency trade-off

We now want you to consider a new situation, involving different individuals from the previous task. A few days ago, we recruited two individuals—let us call them Person A and Person B—from an online labor market to answer an opinion survey. After answering all questions in the survey, we told them that their earnings from completing the survey would be determined by a lottery. The individual winning the lottery would earn $7 and the individual losing the lottery would earn $1.

We did not inform the two individuals about the outcome of the lottery. However, they were told that a third person would be informed about the situation, and given the opportunity to redistribute the earnings and thus determine how much they were paid for the completing the survey.

You are this third person and we now want you to choose whether to redistribute earnings from the individual who won the lottery to the individual who lost the lottery. Your decision is completely anonymous and will be implemented with a one in ten chance. If your decision is implemented, Person A and Person B will receive the payments that you choose within a few days. They will not receive any further information.

Person A won the lottery and earned $7 from completing the survey. Person B thus earned $1 from completing the survey. There is a redistribution cost. If you choose to redistribute, increasing Person B's payment by $1 will decrease Person A's payment by $2.

Please state which of the following alternatives you choose:

- *I do not redistribute*: Person A is paid $7 and Person B is paid $1.
- *I do redistribute*: Person A is paid $5 and Person B is paid $2.
- *I do redistribute*: Person A is paid $3 and Person B is paid $3.
- *I do redistribute*: Person A is paid $1 and Person B is paid $4.

D.8. Additional background questions

- Which category best describes your highest level of education? [Eighth grade or less, Some high school, High school degree/GED, Some college, 2-year college degree, 4-year college degree, Master's degree, Doctoral Degree, Professional degree (JD, MD, MBA)]
- What is your current employment status? [Full-time employee, Part-time employee, Self-employed or small business owner, Unemployed and looking for work, Student, Not in labor force (e.g., retired or full-time parent)]
- **Including** yourself, how many people are currently living in your household?
- Where would you rate yourself on a scale from 1 to 10, where 1 means: "I think a society should aim to equalize incomes" and 10 means: "I think a society should **not** aim to equalize incomes" [1, . . . , 10]

E. Instructions: Experiment 2

E.1. Control group: Government Tax

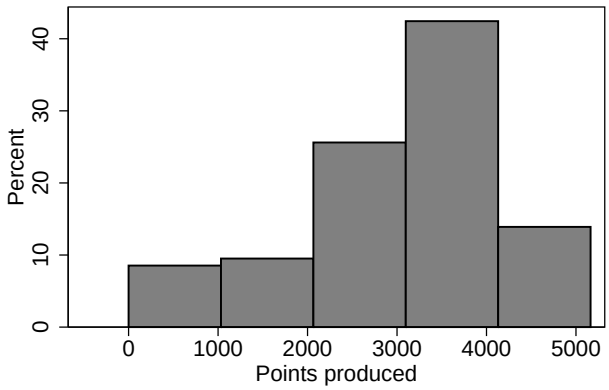
Background

We recruited 810 Americans from an online labor market to do the task you just tested. The task consisted of 30 matrices and the individuals could work for up to two minutes on each matrix (i.e., for up to 60 minutes in total). After each matrix, they were shown how many points they had produced.

Each individual was paid a flat fee of $2. In addition, each individual could earn a bonus. We randomly varied which bonus scheme an individual was offered. The individuals were only informed about their own bonus scheme.

- **Bonus A**: An individual would earn a bonus of **20 cents** for every **100 points** he produced.
- **Bonus B**: An individual would earn a bonus of **20 cents** for every **100 points** he produced, but had to pay a **tax of 50%** on the bonus. The individual was informed that the tax would be transferred to the US federal government for general use.

The figure below shows the variation in points produced for individuals offered **Bonus A**.



Note: The vertical axis indicates the percentage of people who produced points within the range indicated on the horizontal axis.

The individuals offered **Bonus A** produced 3032 points on average.

How did individuals offered Bonus B perform on the task?

What do you believe individuals offered **Bonus B** produced on average?

Individuals offered **Bonus B** produced ☐ points on average.

You will be rewarded a $10 bonus if your answer is within +/- 5% of the actual average production of individuals offered Bonus B.

E.2. Treatment 1: Motivated beliefs (description of prime)

Background

People disagree about the right level of taxes in the US: some favor higher taxes, while others favor lower taxes. A key issue in this debate is how taxes affect people's willingness to work hard.

In this study, we are interested in what Americans believe is the effect of taxes on people's willingness to work hard.[1]

E.3. Treatment 2: Group identification (description of prime)

Background

Political parties disagree about how taxes affect people's willingness to work hard: the Republican Party more often than the Democratic Party claims that taxes discourage people from working hard.

In this study, we are interested in what Americans believe is the effect of taxes on people's willingness to work hard.

[1]Treatment 1 and Treatment 2 also differed from the control group in that we asked "How did taxes affect performance on the task?" rather than "How did individuals offered Bonus B perform on the task?" when eliciting the beliefs.

E.4. Second-order beliefs

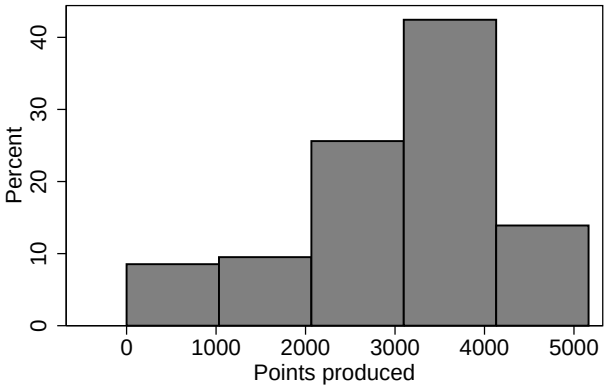
Background

We recruited 810 Americans from an online labor market to do the task you just tested. The task consisted of 30 matrices and the individuals could work for up to two minutes on each matrix (i.e., for up to 60 minutes in total). After each matrix, they were shown how many points they had produced.

Each individual was paid a flat fee of $2. In addition, each individual could earn a bonus. We randomly varied which bonus scheme an individual was offered. The individuals were only informed about their own bonus scheme.

- **Bonus A**: An individual would earn a bonus of **20 cents** for every **100 points** he produced.
- **Bonus B**: An individual would earn a bonus of **20 cents** for every **100 points** he produced, but had to pay a **tax of 50%** on the bonus. The individual was informed that the tax would be transferred to the US federal government for general use.

The figure below shows the variation in points produced for individuals offered **Bonus A**.



Note: The vertical axis indicates the percentage of people who produced points within the range indicated on the horizontal axis.

The individuals offered **Bonus A** produced 3032 points on average.

How did Republicans and Democrats believe people performed on the task?

To investigate what Americans believe is the effect of taxes on how people performed on the task, we asked a large sample of Americans to guess how much those offered **Bonus B** produced on average.

These individuals had, like you, tested the assignment for 2 minutes, and were promised a $10 bonus if they guessed correctly how much those offered **Bonus B** produced on average.

Some of these individuals were Republicans and others were Democrats. We now want to ask you whether you think Republicans and Democrats on average had different beliefs about how taxes affect performance on the task.

What did the **Republicans** believe individuals offered **Bonus B** produced?

The Republicans believed individuals offered **Bonus B** produced ☐ points.

What did the **Democrats** believe individuals offered **Bonus B** produced?

The Democrats believed individuals offered **Bonus B** produced ☐ points.

You will be rewarded a $5 bonus for each answer that is within +/- 5% of the actual average response of the Republicans and Democrats, respectively.

E.5. Additional questions

In addition to all the questions from the first experiment, we added the following question to the survey:

- Where would you rate yourself on a scale from 1 to 10, where 1 means "I think the US should increase income taxes to reduce inequality" and 10 means: "I think the US should **not** increase income taxes to reduce inequality"

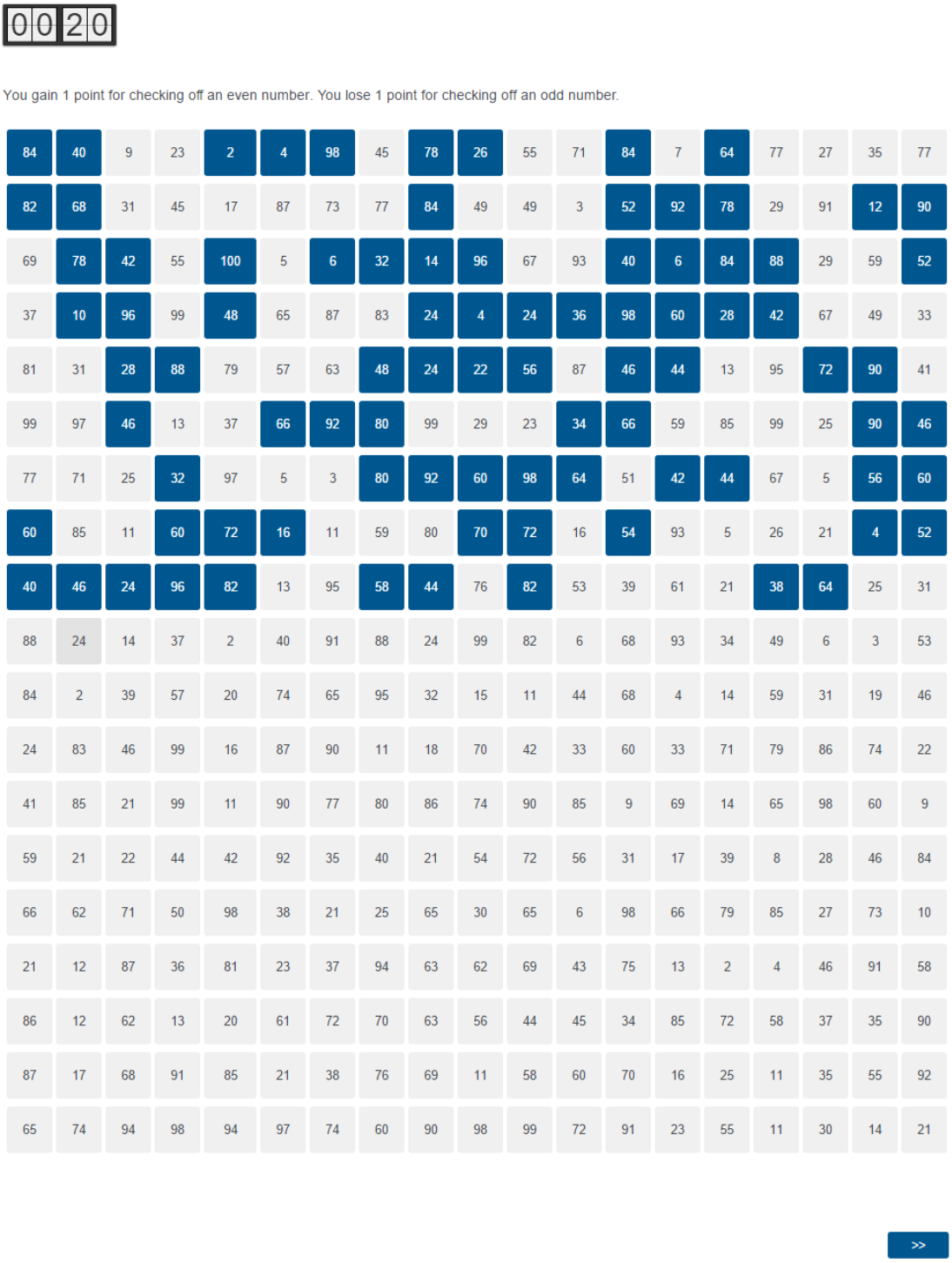


Figure A.7: Example of a matrix from the task