# How fair is it? An experimental study of perceived fairness of distributive policies

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**Abstract**

How do people evaluate fairness of redistributive policies when redistribution is considered as multidimensional? We estimate the effect of distributive policies on the top- and bottom-income group, as well as the general wealth, social mobility and the origin of wealth on people's perceived fairness towards them. Findings reveal that policies that encourage upwards social mobility, an increase in general wealth and reward effort and upward mobility are seen as fair. Yet, what is seen as fair or unfair differs substantially across party and income groups. Policies that promote an increase of the status of the wealthiest, as well as policies that do not change or deteriorate the status of the poorest, generate different fairness perceptions. But there is also some room for agreement, as policies that make the poorest wealthier, while keeping the status of the wealthiest, are seen as fair by both Democrats and Republicans and among high- and low–income individuals.

*Keywords: Redistribution, Conjoint, Fairness, Multidimensionality, Rawls, Ideology, Income*

*Data and supporting materials necessary to reproduce the numerical results in the paper are available in the JOP Dataverse [LINK] An appendix with supplementary material is available at [LINK].

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# 1 Introduction

On September 2017, after a rally at the Indiana State Fairgrounds, the by-then Republican candidate, Donald Trump, claimed the need for a new tax code "that is fair and pro-growth". But what exactly does it mean for a policy to be fair? Is it, as Trump suggests, one that generates more wealth for the country as a whole? Or is it one that makes the poorest wealthier and the wealthiest poorer? Do these perceptions differ across party lines and income groups?

Fairness considerations towards redistributive policies are often present in the public debate. In fact, people's perceptions of fairness are a quintessential part of how policies are perceived and, ultimately, of whether they are accepted or rejected. Yet, previous works have often overlooked the interplay and potential trade-offs that can arise across different dimensions of redistributive policies. Most scholarly work has treated redistribution as a single dimension, which is surprising, as redistribution is inherently a multi-faceted concept.

In this article, we show the appropriateness of applying a multidimensional setting when studying perceived fairness towards redistributive policies. Conflict over redistribution is a central feature of modern politics and, as a result, empirical research on the topic is vast. Yet, we still do not know which component or components of redistributive policies drive people's perceptions of fairness. We argue that a full understanding of citizens' perceptions of fairness towards redistribution requires identifying the effect in a multidimensional framework. We implement precisely such a framework and analyze how the behaviour of the top- and bottom-income groups, and the dimensions of general wealth, social mobility and the origin of wealth, drive fairness considerations. By doing so, our study makes a novel contribution to the field in at least four ways.

First, by adopting a multidimensional setting, this article takes inspiration from a framework adopted by the classical literature on redistribution and perceptions of fairness. As John Rawls famously stated, "inequalities of wealth are only just if they result in compensating benefits for everyone, particularly the least advantaged in society" (Rawls, 2009, 53). Rawls also argued that, when considering fairness of redistributive policies, we need to consider other crucial components related to the distribution of natural endowments, such as people's talent or family connections (see also Kymlicka (1990)). Other classical works (Robinson and Bell, 1978; Hochschild, 1981; Kluegel and Smith, 1981) have also shown that the demand for fairness relates to the way Americans think about the effect of a policy on different dimensions. As Hochschild (1981, 48) explains, the political redistribution of economic goods "forces people to confront the disjunctions in their beliefs about distributive justice". Albeit with a few notable exceptions (Kuziemko et al., 2015; Ballard-Rosa et al., 2017; Trump, 2017), the multidimensionality of redistributive policies has largely been neglected. Hitherto, no empirical research has shown which of the abovementioned components–when considered

all together–drives an individual's fairness perceptions.

Second, previous literature has rarely employed fairness as an outcome and, when it has been the case, it has generally focused on whether imposing or raising taxes is fair (Durante et al., 2014; Kuziemko et al., 2015; Ballard-Rosa et al., 2017; Trump, 2017; Piston, 2018). Instead, our experimental test is inspired by classical research on the topic (Robinson and Bell, 1978; Hochschild, 1981; Kluegel and Smith, 1981), which attempted to explain positive or negative attitudes towards redistribution as a function of individuals' normative beliefs. In this sense, we extend previous empirical works by using people's perceptions of fairness as an outcome, instead of preferences over taxation, which are only one component, albeit important, of wealth distributive policies.

Third, previous works show evidence that greater information about inequality increases people's concern about it, but not necessarily their support for policies that might ameliorate it (Kuziemko et al., 2015; Piston, 2018). We complement these works by showing that providing full information in a multidimensional setting is not enough. In other words, a policy can change different components at the same time (or none at all) and each combination results in different perceptions of fairness. Thus, more information regarding inequality may not necessarily imply a higher support for redistributive policies, if some of its components are not considered fair.

Finally, different dimensions of a given policy may have a different effect on different population groups. Recent research shows that the support for redistributive tax policies varies greatly across the income distribution and party groups (Ballard-Rosa et al., 2017; Boudreau and MacKenzie, 2018). Therefore, it is convenient to employ subgroup analysis to examine the correlates of fairness towards redistributive scenarios and compare the results across partisan affiliation and income categories, two important factors that are likely to trigger fundamental differences in fairness considerations.

Our experimental design shows that rival conceptions of fairness coexist in the American public. On average, Americans tend to see policies that reward effort as a source of wealth, encourage upward social mobility, or increase the general wealth as fairer. Conversely, Americans perceive as less fair those policies that keep luck and family connections as an important source of wealth. That is, individuals seem to care about efficiency ("the size of the pie"), the fairness of redistribution ("who gets which slice"), and the origin of wealth ("where does the pie come from"). However, our findings show significant heterogeneity across political and income groups. One of the main sources of conflict is about changing the status of the wealthiest and the poorest. While Democrats and low-income individuals see an increase in wealth of the wealthiest as unfair, Republicans and high-income respondents see it as fair. In contrast, there is also some room for agreement: policies that make the poorest wealthiest, while keeping or improving the status of the wealthiest, are seen as fair for both groups. Our results more generally show that fundamental differences between what is a

fair or unfair policy regarding redistribution might reinforce existing levels of polarization in the U.S. political arena.

## 2 Identification strategy: A conjoint design

We use a survey-embedded rating-based conjoint to examine the possible multidimensionality of fairness considerations when different components are considered (Hainmueller et al., 2014). This method presents respondents with profiles that have randomly assigned attributes and asks them to evaluate or choose them. The conjoint exercise involved a series of paired comparison tables, which elicited treatment preferences by asking respondents to rate a pair of hypothetical treatments. The survey was implemented in *Prolific Academic*, an online platform used for online behavioural research that offers a diverse population in terms of geographical location, ethnicity and other sociodemographic characteristics (Peer et al., 2017)[1]. The survey was conducted in April 2017 and the sample size was 1,567 American adult citizens. Each respondent saw five different combinations, which generated a total of 15,670 observations.

Following Michelbach et al. (2003), our design asked respondents to evaluate the fairness of redistributive policies in hypothetical countries. This approach allowed us to capture respondent's latent fairness considerations. In addition, it helped us diminish the effect of any potential benchmarking against particular policies being debated in the political sphere (for instance, a salient political debate on decreasing taxes on the wealthiest). Participants were told that they would see pairs of countries that were considering implementing different policies and that backers of the policies were convinced by the studies and did not disagree about the effects of the policies. They disagreed, however, about which policy was the best for each country. Respondents later saw two countries, each of which exhibiting five different dimensions. Each respondent saw, for each dimension, what the consequences would be if the policies were implemented. Every respondent was exposed to five such comparisons. For each table, they had to rate how fair they thought the impact of these policies would be in each country (on a scale from 0, Very unfair, to 10, Very fair). Each comparison table was displayed on different screens, and we randomly assigned the order of the attributes across respondents to deal with potential recency and primacy effects.

Our conjoint analysis followed a fully randomized approach and contemplated five different dimensions (see Table 1). The selection of these components is largely based on Rawls's

[1]Despite offering a more diverse pool of participants than other online platforms, our sample is still not representative of the entire population. For instance, respondents are, on average, more politically sophisticated, more liberal and we observe a lower number of Republicans and individuals with high income. Participation in the survey was monetarily incentivized and we included an Instructional Manipulation Check for detecting participants who were not following instructions. The online appendix includes the protocol of the experiment and several strategies to adjust for survey non-representativeness, such as a weighting procedure.

theoretical construct (Rawls, 2009). Rawls's influential work highlighted that in order to conceive the fairness of any redistribution it is important to consider the interplay and potential trade-offs that can arise across different dimension. That is, we need to assess the fairness of redistribution according to the potential effect that redistributive policies can have on the wealthiest, the poorest, the general wealth, the social mobility and the origin of wealth. Accordingly, the first three components we included have to do, first, with how the bottom and the top of the wealth distribution would behave and, second, with the hypothetical general economic situation. These three different components represent three different dimensions that are considered when assessing redistribution policies. For instance, policies can increase the country's wealth, but this does not imply that the same policy will have a positive effect on the wealth of the poorest or the wealthiest. We can even imagine a situation in which, after the policy, the country's wealth increases but the wealth of the poorest and the wealthiest decreases. However, this is not the only possible combination. Inequality also increases, for instance, when the wealthiest keep their wealth and the poorest become poorer. Thus, our design allows for different combinations of inequality, which potentially trigger trade-offs that might eventually drive fairness considerations.

The same consideration guided our selection of the last two components. The mobility dimension captures whether social mobility would be positive, negative or neutral (no effect). The last attribute included in the conjoint analysis tackles the origin of people's wealth. Citizens might change their perception of fairness if wealth is acquired through family connections, luck, people's talent (the "natural lottery", in Rawlsian terms) or effort (logic of 'deservingness'). Wealth acquired, for example, as a result of family connections or as a product of sheer luck may elicit different conceptions of fairness.

Table 1: Policy dimensions and values for the conjoint experiment on fairness perceptions

| Dimension | Values |
|---|---|
| *Global wealth:* The country's wealth... | would increase; would decrease; would stay the same. |
| *Top quintile of the wealth distribution:* The wealthiest... | would be wealthier, would be poorer, would keep their status. |
| *Bottom quintile of the wealth distribution:* The poorest... | would be poorer, would be wealthier, would keep their status. |
| *Social mobility:* There would be... | Upward social mobility, Downward social mobility, Upward and Downward social mobility, No social mobility. |
| *Origin of wealth:* People's wealth would still come from... | Effort, Luck, People's Talent, Family connections. |

# 3 Results

Results are based on the Average Marginal Component Effect (AMCE) (Hainmueller et al., 2014) and, for subgroup analyses, on conditional marginal means (Leeper, 2018b,a)[2]. We

[2]The results are stable across different robustness and sensitivity checks. See the online Appendix.

first report the AMCEs for the overall sample and, on a second stage, we show the marginal means across political affiliation and income categories.

Figure 1 reports the estimated AMCE of a given value for each characteristic of the policy on the rating of perceived fairness. The regression coefficient for each dummy variable indicates the importance of that value of the dimension relative to the omitted category and averaged across all respondents and all other profile features. Each attribute displays the reference category on the top and the interpretation of each estimate is relative to that dimension's reference category. Several findings are extracted from considering perceptions of fairness in a multidimensional setting.

First, we see that a policy that would make the poorest wealthier is considered, on average, fairer as compared to making them poorer. Conversely, respondents consider it unfair if the implemented policy were to decrease the status quo of the poorest. Second, people's source of wealth importantly shapes respondent's fairness considerations. A policy that would not change the fact that wealth comes from luck or family connections is perceived, on average, one point less fair than when wealth comes from people's talent. Conversely, respondents see it as fairer when the policy keeps effort as an important source of wealth, a result consistent with previous findings about deservingness being an important driver of people's unwillingness to redistribute (Trump, 2017). Third, respondents consider policies that increase social mobility as fairer than policies that provide no social mobility. Fourth, making the wealthiest wealthier and keeping their status is perceived, on average, as less fair as compared to making them poorer. Finally, a policy is seen as fairer if it increases the size of the pie or keeps it constant, as compared to decreasing it.

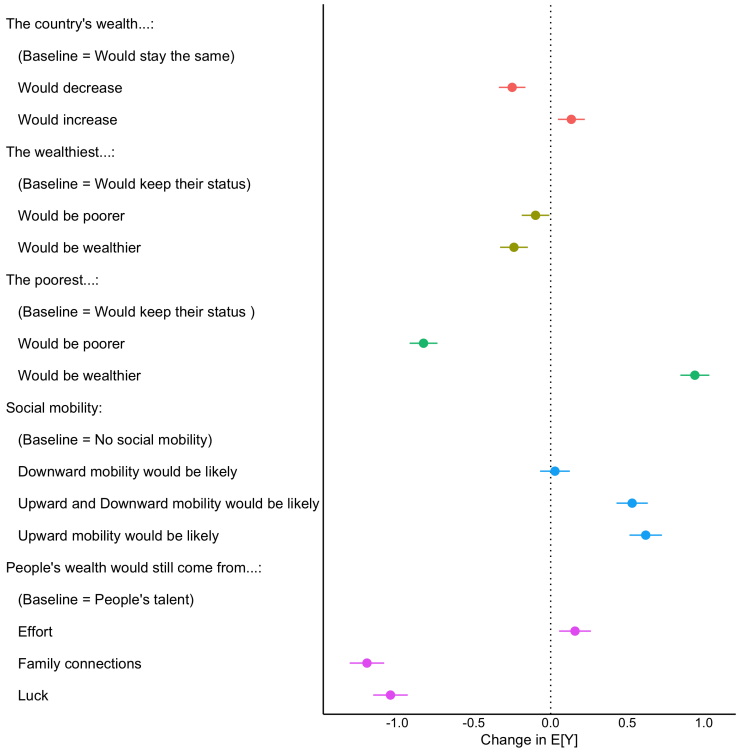
## 3.1 Correlates of fairness perceptions

Although the previous exercise provides a useful theoretical and empirical baseline, we know from the literature that preferences over redistribution fundamentally differ across individuals partly because they depart from different values or beliefs (Ballard-Rosa et al., 2017; Boudreau and MacKenzie, 2018). It is therefore relevant to explore whether perceived fairness towards different policies varies as a function of an individual's partisanship or the individual's position in the income distribution[3].

Figure 2 shows the conditional marginal means and 95% confidence intervals for each attribute value and across party affiliation categories. Results confirm that the effect of dimensions vary across party affiliation. When compared to Republicans, Democrats consider it unfairer when a policy makes the poorest poorer or when a policy does not change the status of this group. Another source of disagreement comes from what would

[3]In further robustness checks, we substitute an individual's partisanship and income for ideology and household income, respectively. See the online appendix.

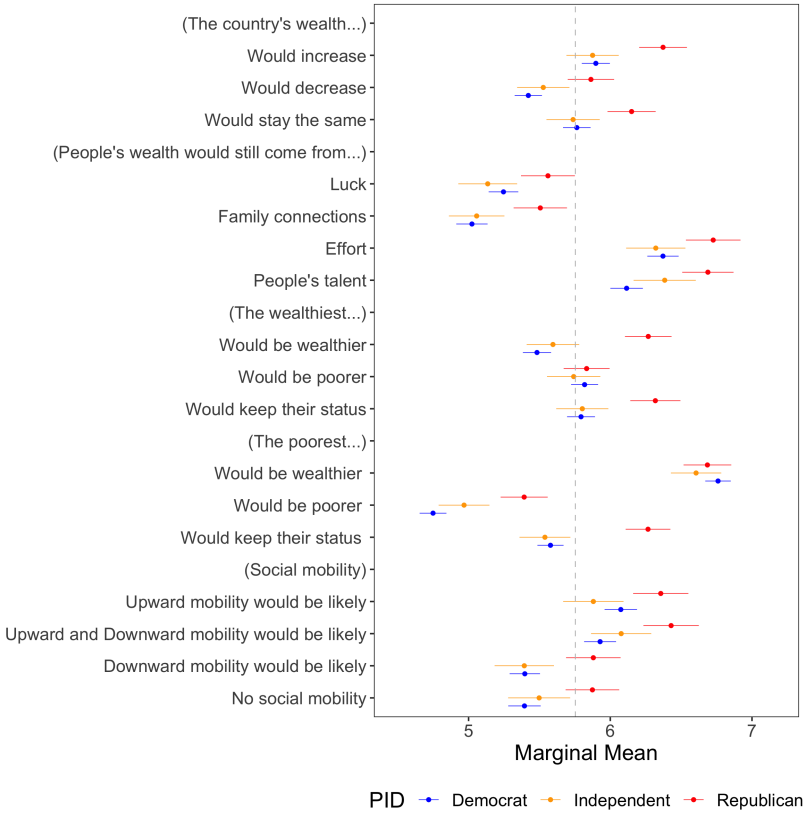
Figure 1: The effect of different policies on the fairness of redistribution




happen to the wealthiest. Among Democrats, making the wealthiest wealthier is perceived as comparatively unfair, while for Republicans it is seen as fairer. In fact, Republicans also consider it fairer than Democrats when the status of the wealthiest does not change. Important differences arise across the other attributes: Democrats are more averse than Republicans to keeping family connections or luck as a source of people's wealth (the opposite is true for effort and people's talent) and Republicans consider it fairer when the country's wealth increases or when upward mobility is likely. Thus, fundamental disagreements across party lines, as we show here, stem from how fair policies are considered across different dimensions. But there is some room for agreement. Two scenarios show statistically non-significant differences between Democrats and Republicans: a policy that would make the poorest wealthier and the wealthiest poorer is perceived as equally fair by both groups.

Following a similar logic, we delve into fairness considerations across low- and high-income respondents. Accordingly, we split respondents according to their income: respondents are considered low-income if their income is lower than $25,000 a year and high-income if it is higher than $130,000 a year. Marginal means are displayed in Figure 3. As shown before, a fundamental source of disagreement stems from how the policy would affect the poorest and the wealthiest. A policy that would make the poorest poorer and the wealthiest wealthier drives opposite fairness perceptions across income groups. But once again we observe some agreement: both low-income and high-income respondents see it as fair to improve the conditions of the poorest. In addition, while a policy that would make the

Figure 2: The effect of different policies on the fairness of redistribution across party affiliation



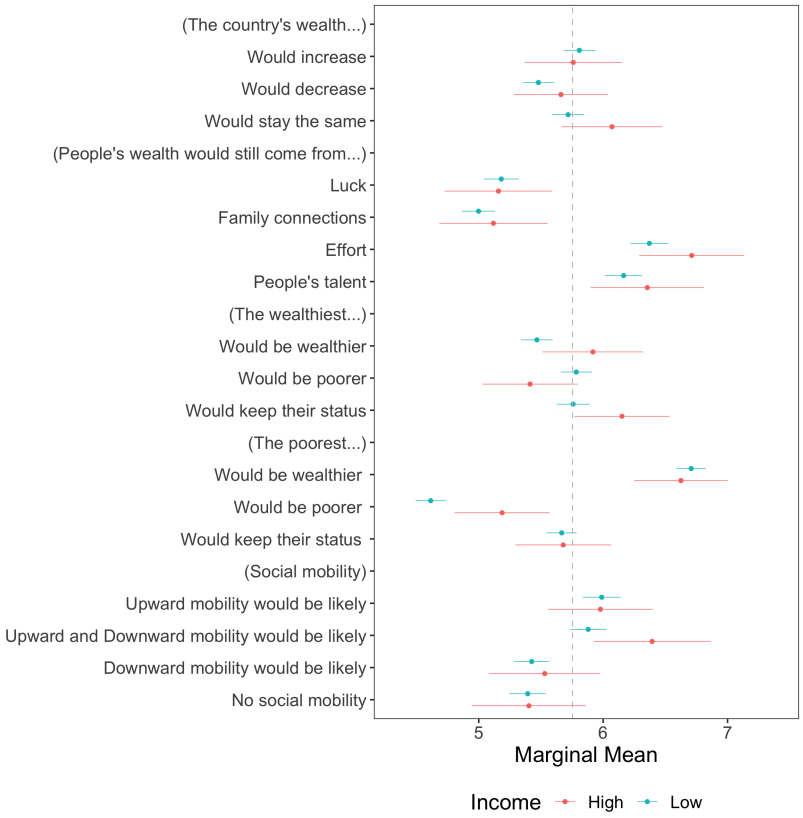

Note: Differences in preferences between Democrats and Republicans are statistically significant (Anova test: $F = 6.49$, $p = 2.2e - 16$)

wealthiest wealthier does not drive fairness perceptions among high-income individuals, the same policy is seen as unfair among the low-income group. Interestingly, both groups equally despise wealth coming from luck and family connections and both value effort and people's talent as an important source of people's wealth.

Figure 4 shows the predicted level of perceived fairness under different scenarios and across the two income groups[4]. The figure shows that fundamental disagreements on perceived fairness arise especially in three scenarios: First, when the wealthiest become poorer, the poorest wealthier and the general wealth increases. Second, when poorest are wealthier, but the wealthiest keep their status. Third, when the wealthiest become wealthier and the poorest poorer. In the first two cases, low-income individuals consider it fairer than high-income individuals (and the opposite is true for the third). Thus, the combination that triggers higher levels of perceived fairness among the low-income group occurs when the wealthiest are poorer, poorest are wealthier and the general wealth increases (on average, respondents assess this scenario with a value of 7.1 on a scale from 0 to 10). These results show that, on average, and not surprisingly, low-income individuals assess as fairer a situation in which their situation improves. Yet, the high-income group seems to consider

[4]The mobility dimension is kept at "no social mobility" and the origin of wealth at "people's talent".

Figure 3: The effect of different policies on the fairness of redistribution across income groups



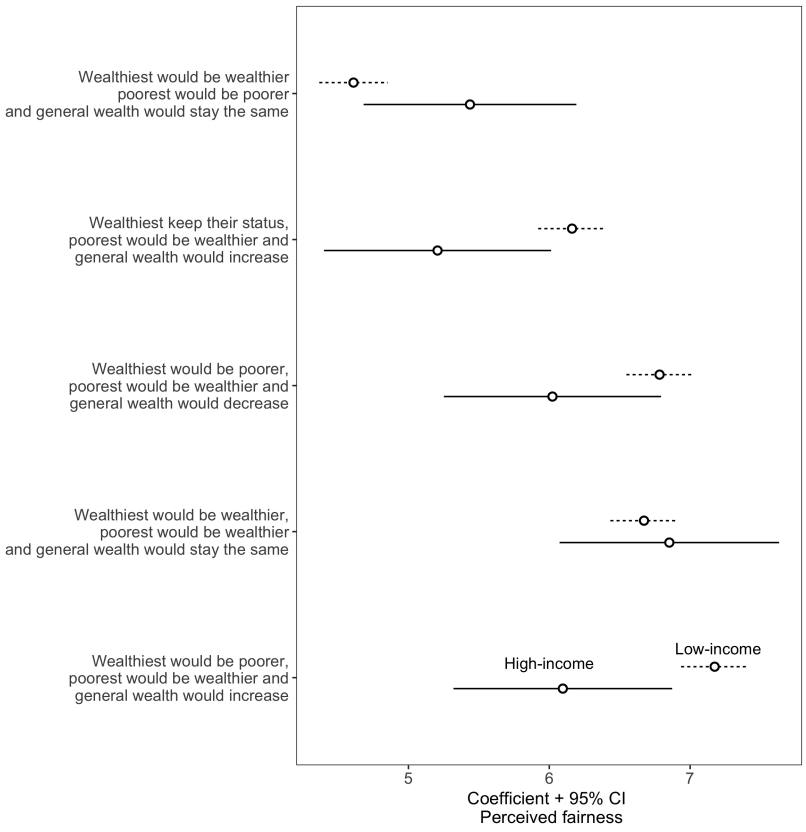

Note: Differences in preferences across income groups are statistically significant (Anova test: $F = 2.31$, $p = 0.005$)

as less fair a situation in which the wealthiest do not improve, but the poorest do. Thus, this result suggests that, when assessing a policy as fair, groups not only view what would happen to their own situation, but also compare their position relative to others.

# 4 Discussion & Conclusions

We find strong evidence that social mobility, the origin of wealth, and the status of the poorest groups of society are important drivers of fairness considerations. A policy that increases social mobility and makes the poorest better off is, on average, seen as fair. Additionally, as previous experimental research has shown, a policy that rewards effort drives perceived fairness upwards. Conversely, if a policy does not change the importance of the Rawlsian "natural lottery" (luck and family connections), it will be perceived as unfair. The second important finding is the fundamental disagreement in perceived fairness that arises across party lines and income groups. This disagreement occurs mainly on the impact of the policy on the wealthiest. While a policy that reduces the status of the wealthiest is seen as fair for Democrats and low-income individuals, the same policy is seen as unfair for Republicans and high-income individuals. However, there is also room for agreement.

Figure 4: The effect of different policies on the fairness of redistribution between low- and high-income individuals




Note: Differences are statistically significant in the first, second, and last combination.

A policy that keeps or increases the wealth of the wealthiest, while increasing that of the poorest, is perceived as equally fair for both party groups and income categories.

Moving forward, our work has left some issues unresolved. One avenue for further research is to test the connection between a policy's perceived fairness and actual support for the policy. When a policy is legitimized on the grounds that it is fair (on one or several dimensions), are individuals more likely to support it or to vote for the candidate that supports it? Similarly, future studies could repeat our design by offering more concrete scenarios for each dimension or even include more dimensions, such as the role of the middle class.

More generally, our results help to explain current debates over redistributive policies in the United States. We have shown that the impact of different components of a policy on perceived fairness of distributive policies substantially differs across different subgroups. In this respect, one fruitful way forward, is to better articulate political-theory insights with empirical research. For instance, in his influential work, Rawls (2009) outlined several ideas about the conception of justice, which has provided a useful guide for political theorists. Empirical researchers can take these insights and use them in order to deepen our understanding concerning people's support or rejection of redistributive policies.

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# A Appendix

## A.1 Survey and sample

As mentioned in the article, our empirical strategy is based on a fully randomized rating-based conjoint. This experimental technique allows us to understand an individual's perception of fairness when faced with multi-dimensional choices. Although originally developed in the sixties, conjoint analysis has recently become a useful tool for understanding preferences over multidimensional alternatives. This method presents respondents with profiles that have randomly assigned attributes and asks respondents to evaluate or choose them[1]. The random assignment of profile characteristics allows researchers to identify the causal influence of attributes on a person's decision to choose one of the alternatives or to rate both of them on two separate scales. Conjoint analysis has been a popular experimental design in marketing research for analyzing multi-dimensional choices and preferences[2]. Within political science, conjoint analysis has been applied, among others, to the study of immigration preferences[3], domestic support for international bailouts[4], political candidates[5], and preferences for labour market policies[6]. To the best of our knowledge, ours is the first study that deals with fairness attitudes.

Table 1 in the manuscript shows the policy dimensions and values for the conjoint experiment. Table A1 provides a naïve example of a conjoint table as seen by

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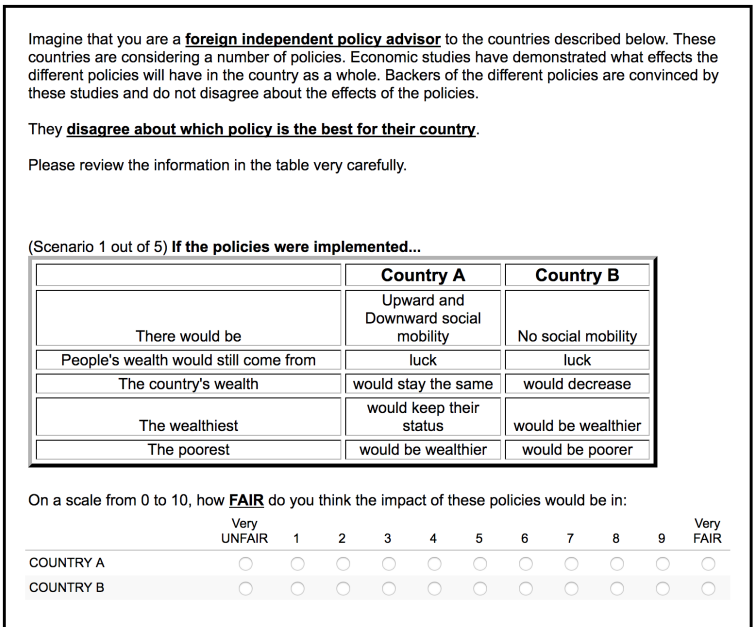
[6] Aina Gallego and Paul Marx. "Multi-dimensional preferences for labour market reforms: a conjoint experiment". In: *Journal of European Public Policy* 24.7 (2017), pp. 1027–1047. DOI: 10.1080/13501763.2016.1170191. eprint: http://dx.doi.org/10.1080/13501763.2016.1170191. URL: http://dx.doi.org/10.1080/13501763.2016.1170191.

respondents.[7]

Figure A1: Naïve example of a conjoint table as seen by respondents



Imagine that you are a **foreign independent policy advisor** to the countries described below. These countries are considering a number of policies. Economic studies have demonstrated what effects the different policies will have in the country as a whole. Backers of the different policies are convinced by these studies and do not disagree about the effects of the policies.

They **disagree about which policy is the best for their country**.

Please review the information in the table very carefully.

(Scenario 1 out of 5) **If the policies were implemented...**

| | Country A | Country B |
|---|---|---|
| There would be | Upward and Downward social mobility | No social mobility |
| People's wealth would still come from | luck | luck |
| The country's wealth | would stay the same | would decrease |
| The wealthiest | would keep their status | would be wealthier |
| The poorest | would be wealthier | would be poorer |

On a scale from 0 to 10, how **FAIR** do you think the impact of these policies would be in:

| | Very UNFAIR | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Very FAIR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| COUNTRY A | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| COUNTRY B | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Naïve example of a conjoint table. Design in qualtrics and implemented in Prolific.

As mentioned in the manuscript, the conjoint experiment was embedded in an online survey (conducted between 12-17 May 2017) of 1,567 respondents older than 18 years old. Participation was monetarily incentivized. Respondents received, on average, 2.6$ for answering a survey that, also on average, took 15 minutes to respond.

The experiment was the fourth question that respondents encountered in the questionnaire. Before the experiment, respondents had to answer several attitudinal questions completely unrelated to redistribution, fairness or any dimension under consideration. After the four initial questions, and on a different screen, respondents read the following instructions. This vignette is inspired by the design of Michelback et al.[8].

> "For the next few minutes, we are going to ask you to act as if you were an independent policy advisor.

[7] We also considered including another dimension capturing the effect of the policies on the poverty line. We decided not to pursue this approach, as we would have had to set multiple constraints to avoid very unrealistic scenarios. In addition, as the pilot revealed, participants were not able to interpret the poverty line in a clear way, especially when offering conflicting scenarios with how the poorest would behave. Similarly, the conjoint analysis does not include the effect of the policy on the middle class. As the pilot revealed, its inclusion made the simulations more complex and respondents thought it was difficult to understand–partially due to being a very broad concept, with respondents attaching different meanings to it. Therefore, we ultimately decided to show them more clear-cut scenarios and leave the role of the middle class in fairness considerations for further research.

[8] Philip A. Michelbach et al. "Doing Rawls Justice: An Experimental Study of Income Distribution Norms". In: *American Journal of Political Science* 47.3 (2003), pp. 523–539. ISSN: 1540-5907. DOI: 10.1111/1540-5907.00037. URL: http://dx.doi.org/10.1111/1540-5907.00037.

> We will describe to you several pairs of countries that are considering implementing different policies. This exercise is hypothetical, and therefore it is not about a specific country in the news today. For each pair of countries, please indicate how fair you think the policies would be. These countries are considering a number of policies. Studies have demonstrated what effects the different policies will have in the country as a whole. Backers of the different policies are convinced by these studies and do not disagree about the effects of the policies. They disagree about which policy is the best for their country.
>
> There are no right or wrong answers, so please choose the response that best describes your views".

After this vignette, respondents saw on another screen the first conjoint table. On the top of the table, we reminded them about their task (see Figure A1). As it can be seen here, and as it is also mentioned in the manuscript, the vignette framed the choice in abstract terms. This was done for three reasons: First, the experiment wanted to capture respondent's latent fairness concerns towards different redistributive policies. If we had framed the choice around particular policies being considered in the U.S., we would have most likely linked fairness concerns and political and ideological preferences. Second, by framing it in abstract terms, we isolated as much as possible our experiment with potentially salient political debates about taxes or redistribution[9]. Third, the design also wanted to minimize benchmarking. This could have occurred if, for instance, respondents compared an scenario they saw in one of the tables with different real policies in the U.S. or with real performance of a geographic area in terms of economic indicators.

Below the table, on the same screen, respondents saw the following question:

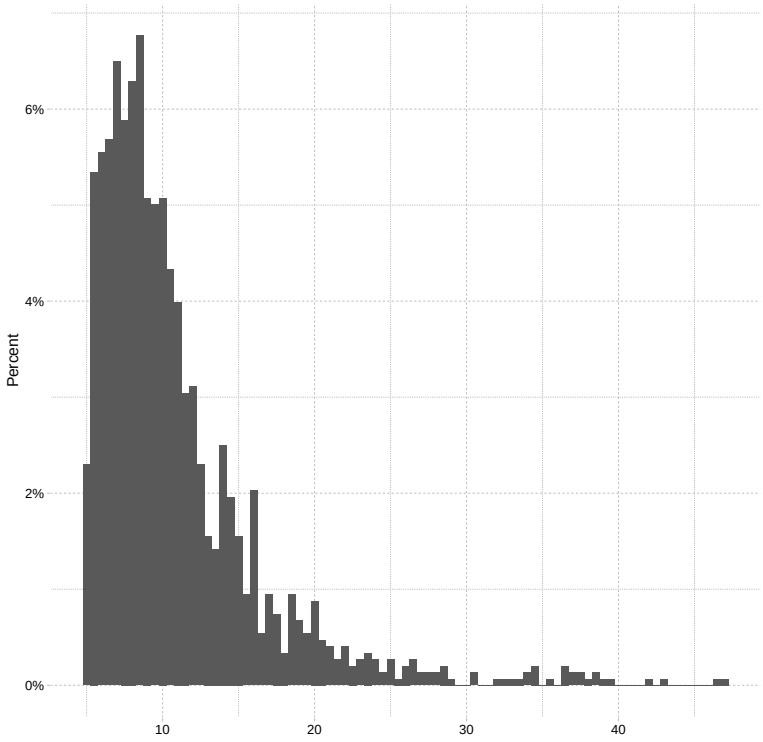
> "On a scale from 0 to 10, how FAIR do you think the impact of these policies would be in:"

Respondents had to select an answer (non-response was not an option). They saw five different combinations–and therefore had to vote five times. In addition, to detect whether participants were following instructions, we randomly place, between the first and the fifth table, an Instructional Manipulation Check (IMC) (see section A.5.).

[9]The pilot was conducted amidst a political debate about Trump's proposal to decrease taxes on the wealthiest. As the pilot revealed, framing the choice around real or hypothetical policies being considered by the US led some respondents to deem several scenarios as very unrealistic.

Figure A2 plots the survey completion time (in minutes). We excluded from the final sample those respondents that answered the questionnaire in less than five minutes[10].

Figure A2: Survey completion time (in minutes)




One important feature of our design is that questions about an individual's attitudes, values, ideological position, or sociodemographics were not included in the survey. *Prolific Academic* captures this information right before individuals register on the platform. Thus, we did not prime individuals to think about their income, their ideology or their political affiliation before answering the conjoint tables.

[10]We selected the five minutes threshold based on an analysis of outliers.

Table A1 reports socio-economic and political characteristics of the sample (second column). It also compares them with the same descriptives calculated using the 2017 American National Election Study (ANES)[11]. As it can be seen, individuals of our sample are, on average, younger and more educated. In addition, Republicans and high-income individuals are underrepresented. See section A.4. to see how we deal with this problem.

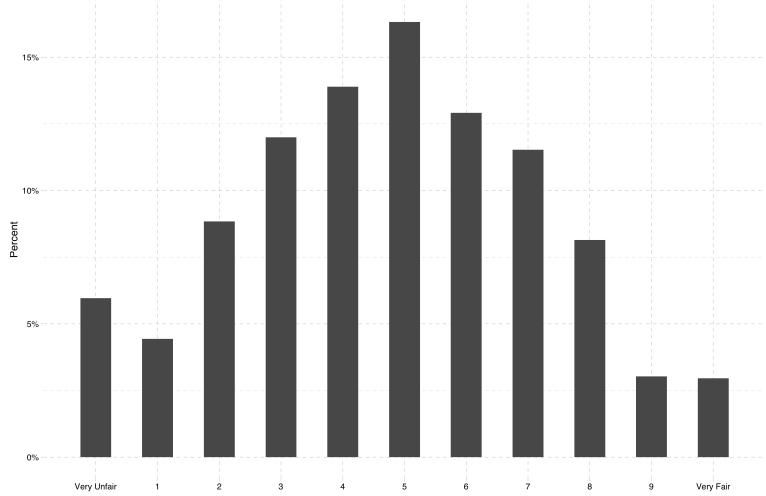
Table A1: Descriptive statistics - main sociodemographic indicators (N=1,567)

| Variable | Prolific sample | ANES (2017) |
|---|---|---|
| % Women | 47.22 | 51.33 |
| Age (average) | 31.82 | 47.30 |
| Education | College or higher (39.25), Undergraduate degree (36.63), Secondary education (15.38), Other (8.74) | College or higher (39.24), Undergraduate degree (36.63), Secondary education (24.45), Other (8.75) |
| Race | White-Caucasian (72.37) ; Other (27.63) | White-Caucasian (69.17) ; Other (30.83) |
| Political Affiliation | Democrats (62.07); Independent (17.52); Republicans (20.41) | Democrats (35.39); Independent (36.69); Republicans (28.22) |
| Income | High-income (9.65); Low-income (27.82) | High-income (23.16); Low-income (18.24) |

[11] American National Election Studies. *The ANES guide to public opinion and political behavior*. Ann Arbor: University of Michigan, Center for Political Studies. 2017. URL: http://www.electionstudies.org/.

Figure A3 plots the distribution of our outcome: the answers to the question "how fair do you think the impact of these policies would be in each country?". The distribution resembles a normal distribution (mean=5.75), although it is slightly skewed to the right. Most importantly, there is substantial variation in what concerns which scenario respondents consider as fair (s.d.=2.47).

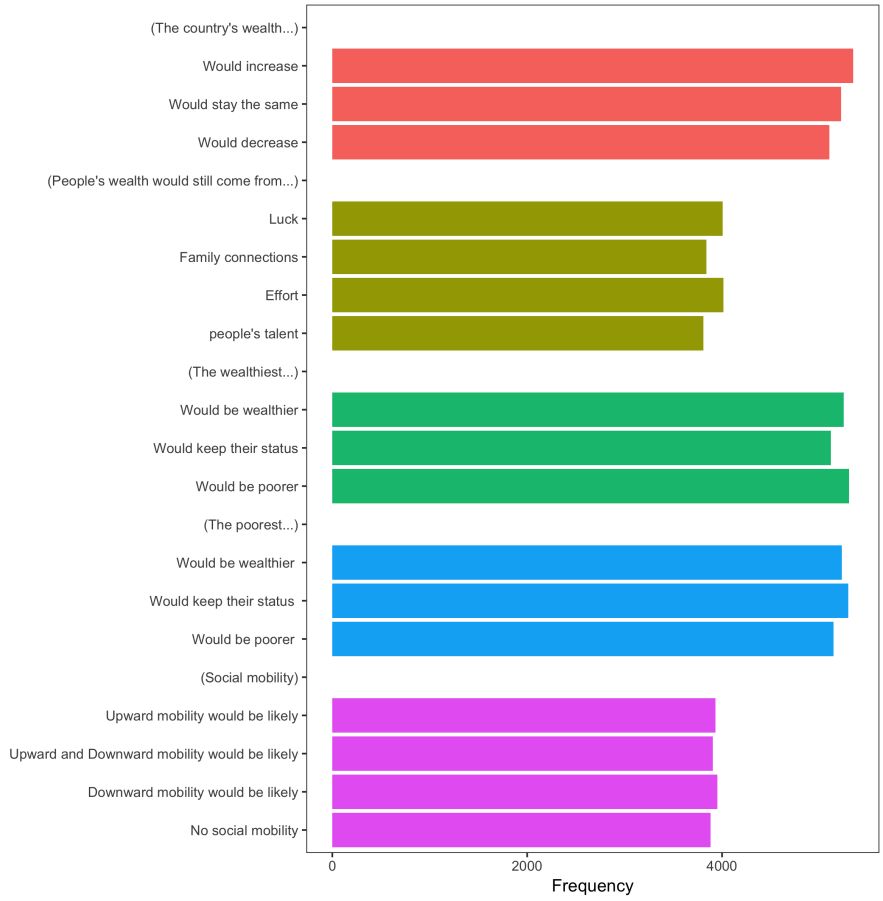
Figure A3: Respondents' perceived fairness towards different redistributive policies




N=15,750

Figure A4 displays frequencies of conjoint features. The conjoint was fully randomized, which means it correctly ensured equal display frequency.

Figure A4: Frequencies of conjoint features



## A.2 Results with controls

As is standard in the literature[12], we ran the analysis including additional controls in the model. Accordingly, we included respondent's age, gender, race, and education. As can be seen in Table A2, the inclusion of these covariates (or others not shown here) does not change our findings.

Table A2: Perceived fairness of policies (with and without controls)

| | (1) | (2) |
|---|---|---|
| The country's wealth... | | |
| (Baseline=Would stay the same) | | |
| Would decrease | −0.251*** | −0.251*** |
| | (0.044) | (0.044) |
| Would increase | 0.135** | 0.1366** |
| | (0.045) | (0.044) |
| The wealthiest... | | |
| (Baseline=Would keep their status) | | |
| Would be poorer | −0.098* | −0.101* |
| | (0.046) | (0.046) |
| Would be wealthier | −0.239*** | −0.235** |
| | (0.046) | (0.046) |
| The poorest... | | |
| (Baseline=Would keep their status) | | |
| Would be poorer | −0.829*** | −0.830*** |
| | (0.046) | (0.046) |
| Would be wealthier | 0.940*** | 0.939*** |
| | (0.048) | (0.048) |
| Social mobility... | | |
| (Baseline=No social mobility) | | |
| Downward mobility would be likely | 0.028 | 0.030 |
| | (0.049) | (0.049) |
| Upward and Downward mobility would be likely | 0.531*** | 0.534*** |
| | (0.052) | (0.052) |
| Upward mobility would be likely | 0.619*** | 0.623*** |
| | (0.054) | (0.054) |
| People's wealth would still come from... | | |
| (Baseline=People's talent) | | |
| Effort | 0.158** | 0.159** |
| | (0.053) | (0.053) |
| Family connections | −1.198*** | −1.195*** |

[12] Jens Hainmueller, Daniel J. Hopkins, and Teppei Yamamoto. "Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments". In: *Political Analysis* 22.1 (2014), p. 1. DOI: 10.1093/pan/mpt024. eprint: /oup/backfile/content_public/journal/pan/22/1/10.1093_pan_mpt024/1/mpt024.pdf. URL: +http://dx.doi.org/10.1093/pan/mpt024; Hainmueller and Hopkins, "The Hidden American Immigration Consensus: A Conjoint Analysis of Attitudes toward Immigrants".

| | | |
|---|---|---|
| | (0.057) | (0.057) |
| Luck | −1.045*** | −1.044*** |
| | (0.057) | (0.057) |
| Age | | |
| (Baseline=More than 60 years old) | | |
| 16-30 years old | | 0.168 |
| | | (0.224) |
| 30-60 years old | | 0.099 |
| | | (0.224) |
| Education | | |
| (Baseline=College or higher) | | |
| Other | | 0.081 |
| | | (0.113) |
| Secondary education | | −0.008 |
| | | (0.101) |
| Undergraduate degree | | −0.114 |
| | | (0.071) |
| Gender | | |
| (Baseline=Female) | | |
| Male | | 0.139* |
| | | (0.063) |
| Race | | |
| (Baseline=Rest) | | |
| White-Caucasian | | −0.105 |
| | | (0.069) |
| Observations | 15,750 | 15,670 |

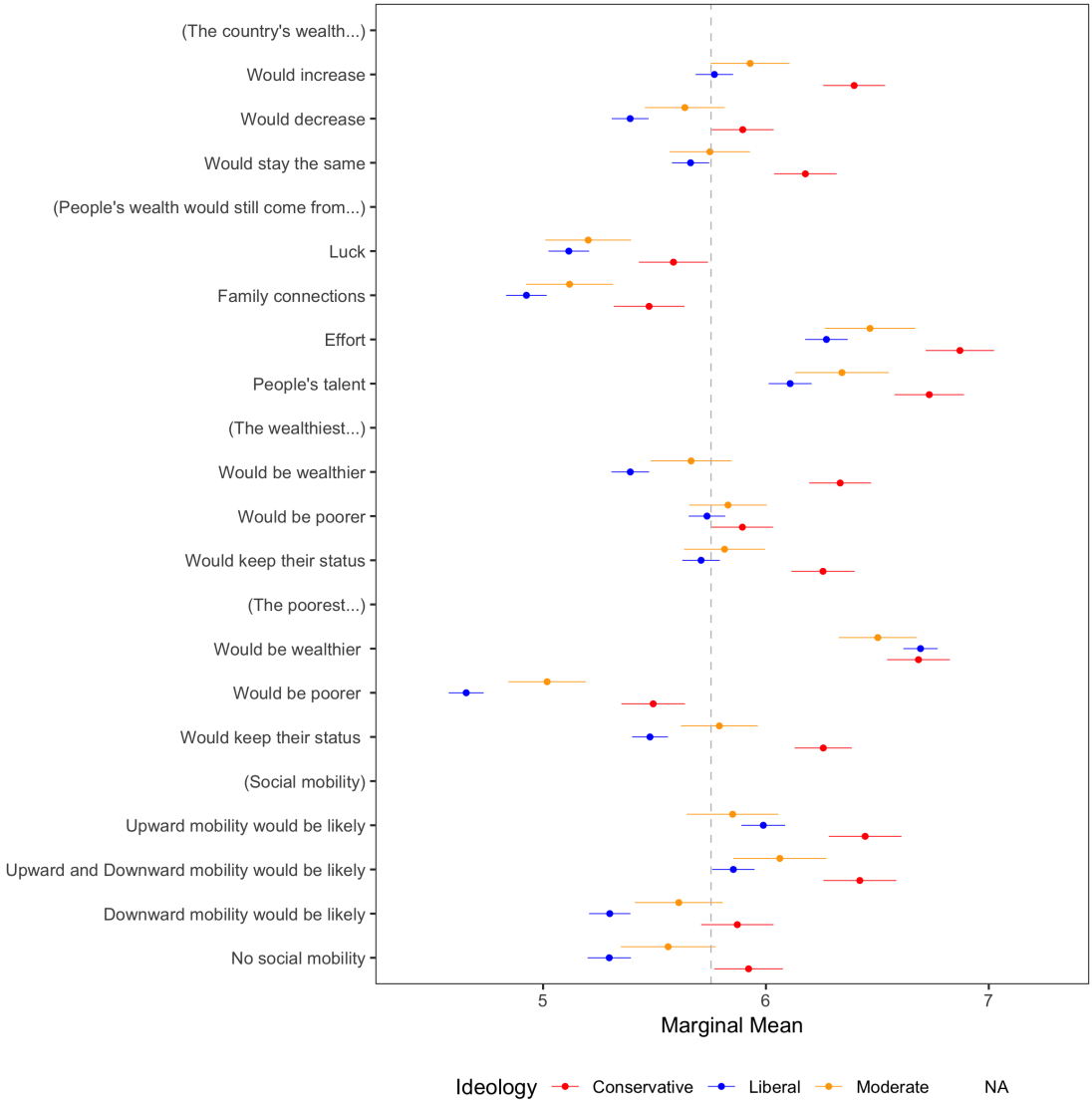
*p<0.1; **p<0.05; ***p<0.01

In addition, a plausible concern is that some combinations seen by respondents were unrealistic. For instance, some respondents might have considered as unrealistic policies encouraging an increase in the general wealth but at the same time making the wealthiest and the poorest poorer (note, however, that this scenario might be unrealistic, but it is not impossible). Despite the generation of potentially unrealistic combinations, we ultimately decided to avoid any restriction and include all combinations in the design. This decision was based on three arguments: First, it is a priori difficult to establish which combinations can be considered as unrealistic. While some might be clearer, others might be ambiguous. Combinations ultimately considered as unrealistic will be subject to the researcher's own opinion, increasing the risk of selecting on the dependent variable. Second, even if we remove those combinations that might be seen as more unrealistic, they represent a small portion of the total, and results remain unaltered. Finally, results from the open-ended questions (both in the pilot and in the final experiment) do not offer any indication that respondents did not understand the exercise or find it unrealistic.

## A.3 Alternative operationalisation

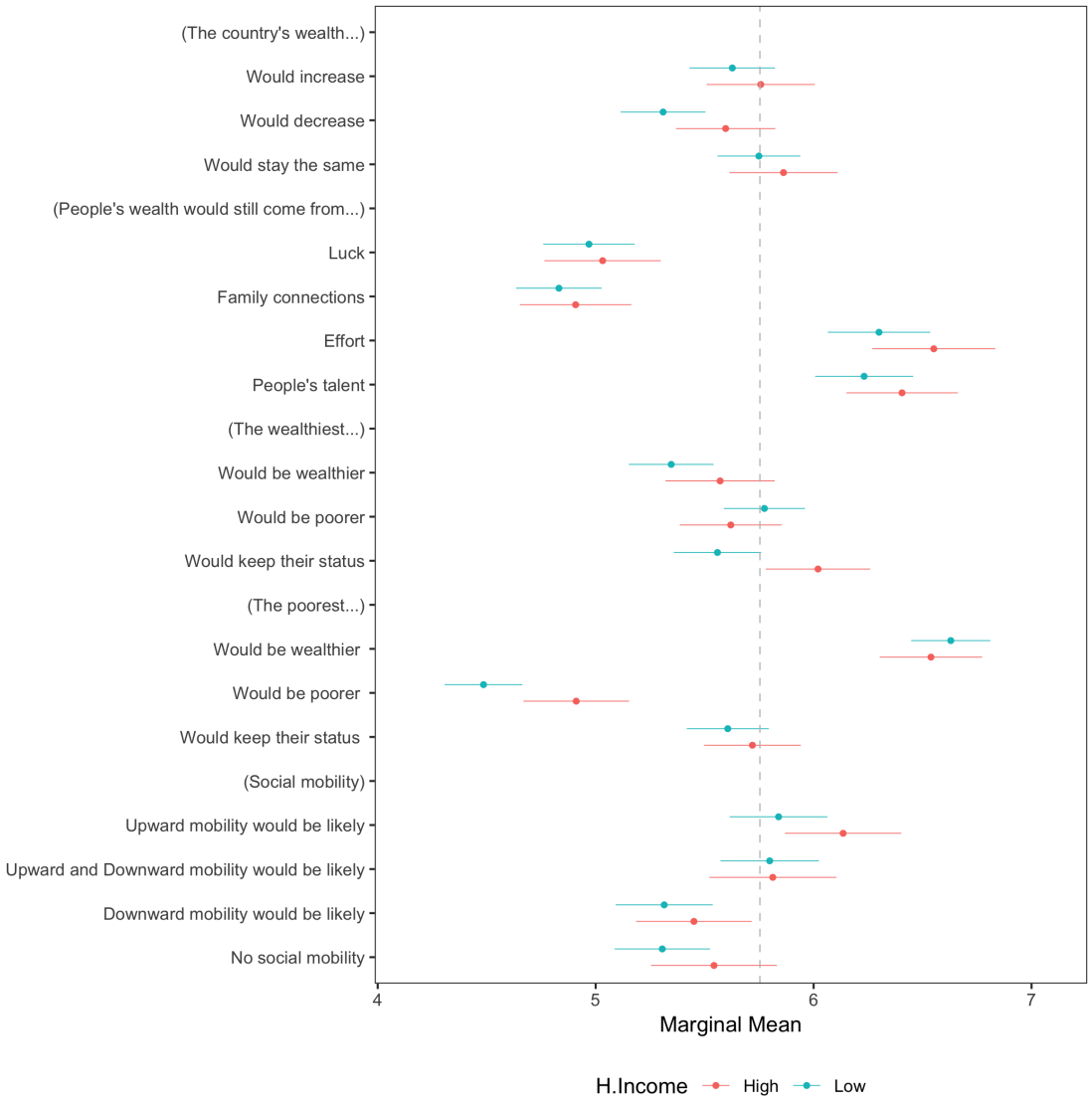
In the manuscript we explore perceived fairness of distributive policies across party and income groups. Yet, some might argue that party affiliation might be indicative of vote choice but not of ingrained ideological positions and that an individual's income is not properly capturing an individual's wealth. Accordingly, we repeated the analysis but using respondent's ideological position and household income as a moderating factor. As Figure A5 and A6 show, results using ideology and household income groups are substantially the same as when we use party identification or an individual's income.

Figure A5: The effect of different policies on the fairness of redistribution across ideological positions




Differences in preferences aross ideological positions are statistically significant (Anova test: $F = 12.44$, $p = 2.2e - 16$)

Figure A6: The effect of different policies on the fairness of redistribution across household income groups




Differences in preferences aross ideological positions are statistically significant (Anova test: $F = 1.56$, $p = 0.08$)

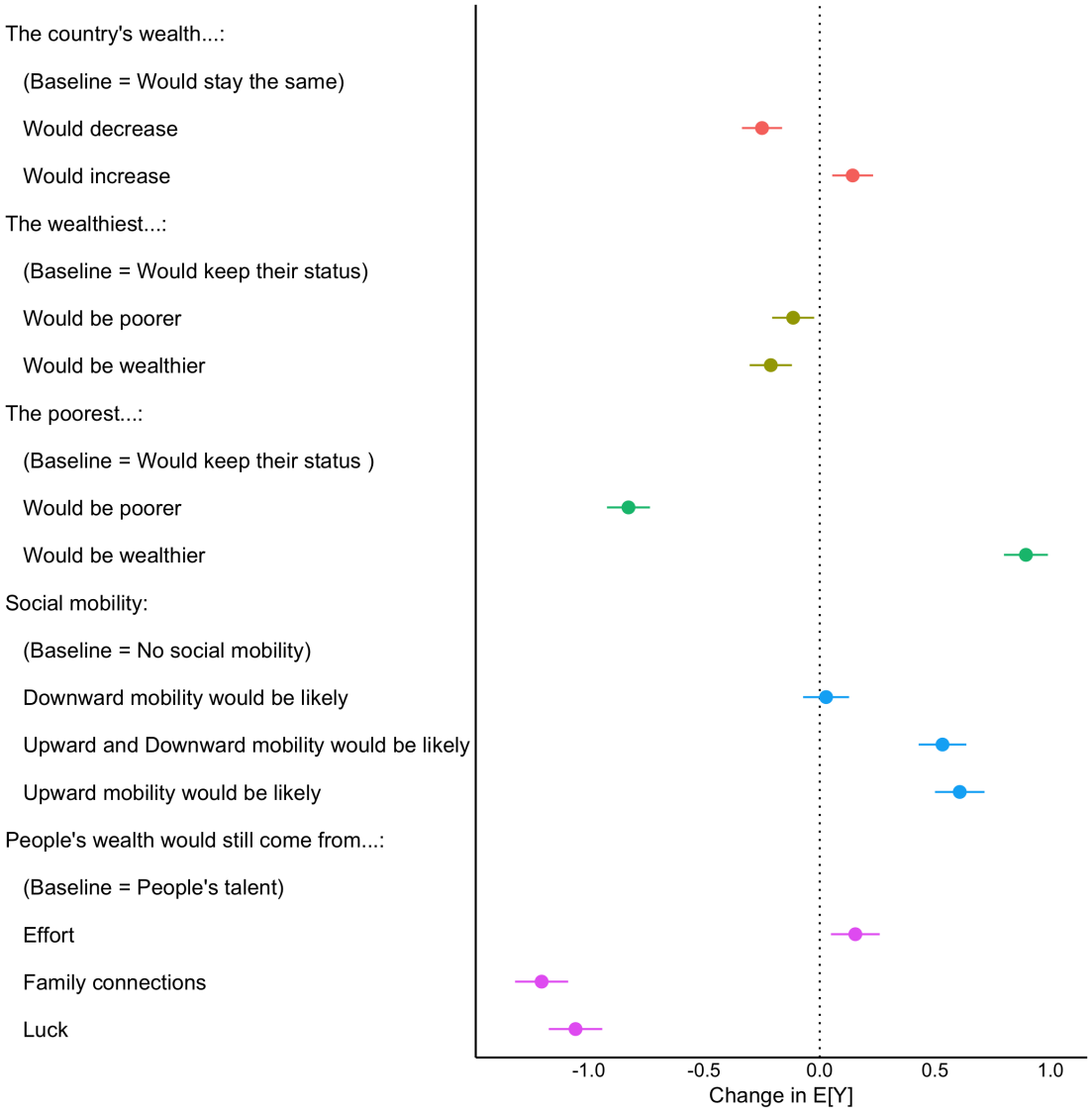
## A.4 Weighting

As mentioned in section A.1., we collected our sample from *Prolific Academic*. As shown by Peer et al.[13], *Prolific* participants seem to be more naïve to common experimental research tasks, and offer a diverse population in terms of geographical location, ethnicity and other sociodemographic characteristics. Yet, as shown in Table A1, respondents are still not representative of the entire population.

In order to check whether this is biasing our results, we corrected our estimates by weighting our analysis by party affiliation and age. Figure A7 displays the results. As the Figure illustrates, weighting the estimates does not change our findings (other weighting procedures also provide the same conclusion).

[13]Eyal Peer et al. "Beyond the Turk: Alternative platforms for crowdsourcing behavioral research". In: *Journal of Experimental Social Psychology* 70 (2017), pp. 153 –163. ISSN: 0022-1031. DOI: https://doi.org/10.1016/j.jesp.2017.01.006. URL: http://www.sciencedirect.com/science/article/pii/S0022103116303201.

Figure A7: The effect of different policies on the fairness of redistribution (weighted)



## A.5 Cognitive demands and instruction manipulation check

One final concern about the setup of the conjoint analysis is its complexity. First, one might argue that our conjoint design was difficult to understand. Although our design is far less complex than previous conjoints analyses[14], some respondents might find some scenarios difficult to follow. If the conjoint tables were cognitively demanding, that could be biasing our estimates, as some respondents might have been tempted to answer at random. In order to check and ameliorate this problem, we proceeded as follows:

First, at the design stage, we tested the conjoint design after a lab experiment that took place in the Behavioral Sciences Laboratory at the Universitat Pompeu Fabra, Barcelona, in February 2017 (n=20)[15]. After the survey, we carried out a follow-up personal survey in order to see whether the twenty participants understood the questions and the exercise. In addition, before launching the final survey in *Prolific Academic*, we ran another pilot with 60 participants. In both pilots, none of the respondents expressed their concerns or mentioned they did not understand the combinations, even though we explicitly asked them about it. In addition, in the final survey, and after the last conjoint table, we asked respondents why they chose that particular answer. This open-ended question shows no sign that respondents did not understand the conjoint tables.

Second, we tested the robustness of our findings by removing from the analysis those combinations that could be considered unrealistic. For example, a combination that might have been considered as unrealistic could be the following: "the wealthiest become wealthier, the poorest wealthier and the general wealth decreases". Although this is still possible, such scenarios could have confused respondents. However, even when we remove these combinations, results do not change.

Finally, as also mentioned before, the survey included an Instruction Manipulation Check (IMC)[16]. This test was introduced with the aim of detecting respondent's potential lack of attention. Only 1.8% of the respondents selected the wrong answer. We ultimately decided to include them in the models, although excluding them does not change our estimates. The question was randomly placed between the first and the last table. That is, some respondents saw it after the first conjoint table while others right before the last one. Also, if we restrict the analysis to those tables seen directly after the IMC, results do not change.

[14] Cameron Ballard-Rosa, Lucy Martin, and Kenneth Scheve. "The Structure of American Income Tax Policy Preferences". In: *The Journal of Politics* 79.1 (2017), pp. 1–16. DOI: 10.1086/687324. eprint: https://doi.org/10.1086/687324. URL: https://doi.org/10.1086/687324.

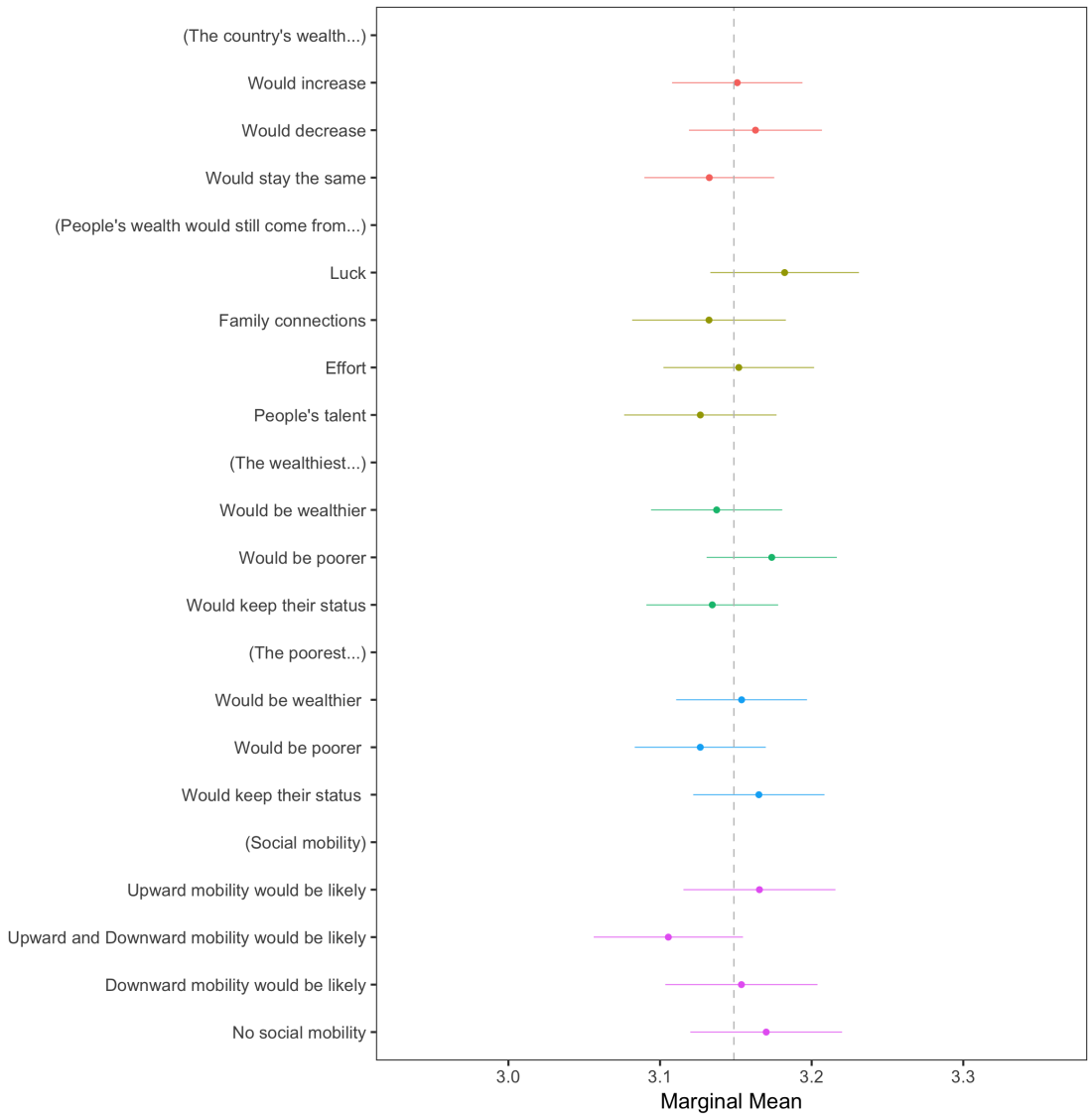
[15] All participants were university students in different American universities.

[16] The IMC read as follows: "Please click 'somewhat approve' below. This is just to screen out random clicking."

## A.6 Balance testing and carryover diagnostics

We also checked whether our design is balanced. If this is the case, we should observe that the (random) categories displayed to respondents is uniform. Thus, we compare below a covariate across feature levels. We have selected people's self-position on the liberal-conservative scale for such a comparison (the scale ranges from 1, 'Very liberal', to 7, 'Very conservative'). Figure A8 plots the marginal means for each of the categories and attributes[17]. As the Figure shows, confidence intervals for each feature hover closely around the grand mean. Other covariates report similar results, showing that imbalance is not affecting our estimates.

Figure A8: Balance testing using respondents' ideology

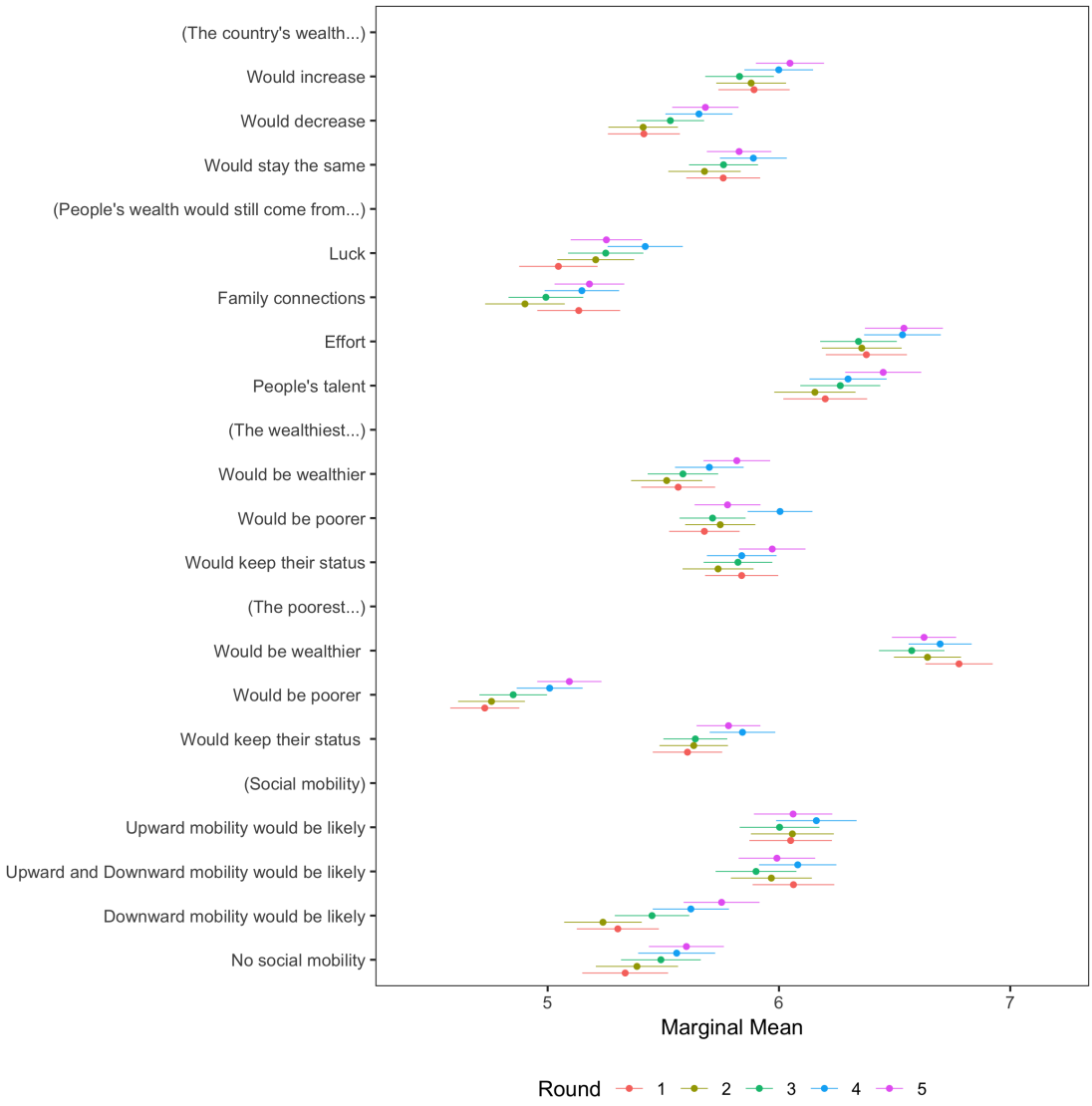



[17]In this case, we display marginal means, instead of AMCEs, because they allow us to visually inspect the reference category. Yet, if we were to use AMCEs, the balance testing will provide the same results

Conjoint analyses assume that there are no carryover effects, that is, profiles in a particular choice task do not affect how respondents assess the profiles in the subsequent task. Although respondents seem to get better as the number of tasks increases[18], there is still the concern that respondents' motivation in the beginning of the conjoint simulations, or respondents' fatigue at the end, make them more prone to carryover effects.

To test for potential carryover effects, we plot marginal means across the five different conjoint tables. Results can be seen in Figure A9. As displayed below, there are no obvious concerns generated from the diagnostic.

Figure A9: Carryover diagnostic




[18]Kirk Bansak et al. "The Number of Choice Tasks and Survey Satisficing in Conjoint Experiments". In: *Political Analysis* 26.1 (2018), pp. 112–119.

## A.7 Subgroup analysis - Tests of preference heterogeneity

One of the goals of the manuscript is to characterize differences in preferences between subgroups, namely across party and income groups. As explained by Leeper[19] and Leeper et al.[20], researchers should be cautious in interpreting the differences between two conditional AMCEs across subgroups. As they show, the difference-in-AMCEs is often used to descriptively interpret apparent differences in preferences between different subgroups. Yet, as Leeper et al. put it, "the size and the direction of differences-in-AMCEs have little relationship to the underlying degree of favorability of the subgroups toward profiles with particular features and that reference category choices can make similar preferences look dissimilar and dissimilar preferences look similar"[21]. Thus, AMCEs can be used to interpret the difference in the size of the casual effect for two (or more) groups, but not as a way of descriptively characterizing differences in preferences between the groups.

In the manuscript we have estimated the effect of different attributes across two subgroups defined by Party Identification (Democrats and Republicans) and Income group (High and Low). Accordingly, and following Leeper[22] and Leeper et al.[23], we have employed marginal means and checked their differences. The difference between marginal means is not affected by the (arbitrary) choice of the reference category and, as such, enables us to properly compare differences in preferences across subgroups. Unlike displays of AMCEs, it also allows us to illustrate differences for all feature levels (including the reference category). Thus, when employing subgroup analysis in the paper, we estimate and report subgroup differences using conditional marginal means, rather than relying on difference-in-AMCEs[24]. In addition, we report an anova test of sugroup differences to formally test for group differences in preferences[25].

Besides conditional marginal means, it is also recommended to show differences in conditional marginal means. This ultimately provides an additional presentation of differences between group preferences. This is precisely what we do in Figure A10 and in Figure A11. On one hand, Figure A10 displays the differences in conditional marginal means between Republicans and Democrats[26]. The display of conditional marginal means highlights the significant differences in preferences across the two groups, except, as highlighted in the manuscript, for the categories "The wealthiest would be poorer" and "The poorest would be wealthier".

[19] Thomas Leeper. *cregg: Simple Conjoint Analyses and Visualization*. R package–0.3.0. 2018.

[20] Sara; Tilley James Leeper Thomas; Hobolt. *Measuring Subgroup Preferences in Conjoint Experiments*. Working paper. Unpublished manuscript, 2018.

[21] Ibid., pp. 2-3.

[22] Leeper, *cregg: Simple Conjoint Analyses and Visualization*.

[23] Leeper, *Measuring Subgroup Preferences in Conjoint Experiments*.

[24] However, even if we analyze differences in AMCEs, results are still robust

[25] This omnibus test is based on a comparison between a regression with interaction terms between the subgrouping covariate and all feature levels and an equation without such interactions.

[26] This plot complements Figure 2 in the manuscript. As in the main text, to simplify the analysis we only take into account Democrats and Republicans. However, a comparison between Republicans and Independents yields similar results.

Figure A10: Differences in Conditional Marginal Means, by Party Identification (Democrats and Republicans)

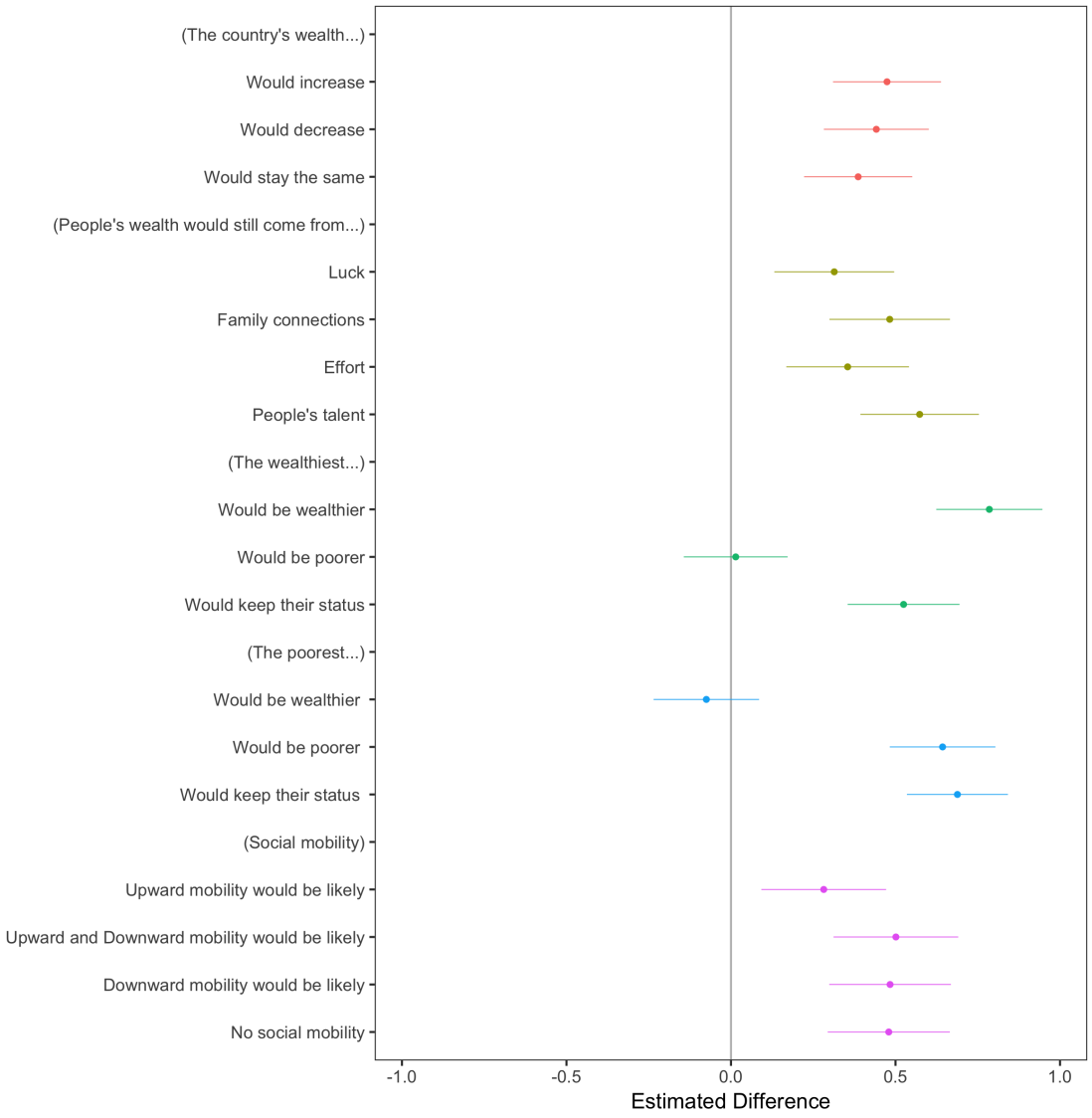
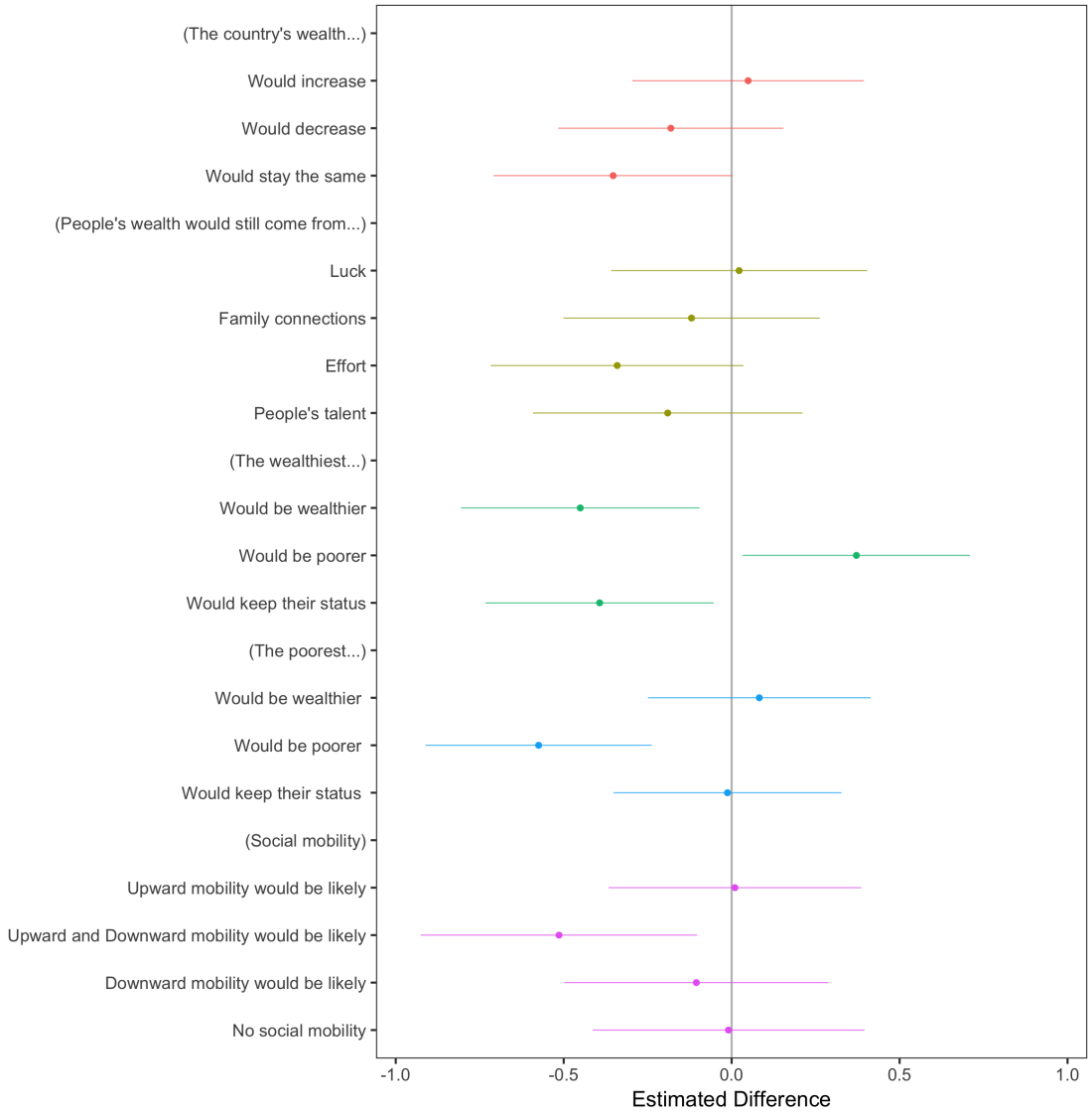



Figure A11 undertakes a similar exercise using the income group variable as a subgrouping covariate. Two patterns are worth mentioning: First, due to the low number of high-income respondents in the survey, estimates are less accurate. Second, the Figure confirms the pattern described in the article. When it comes to income groups, the most important source of disagreement comes from what would happen to the wealthiest and the poorest.

Figure A11: Differences in Conditional Marginal Means, by income group




Finally, Leeper[27] and Leeper et al.[28] also recommend testing the stability of the results when different reference categories are employed. Conjoint analysis generates a sparse feature matrix (where there is never any guarantee that a particular combination of feature levels is observed in the data), which makes impossible to empirically select an appropiate set of reference categories using the data. In other words, while the reference category has no meaningful bearing on estimation, it can affect inferences especially when subgroups are compared. For this reason, it can be useful to assess the substantive inferences from different reference categories.

Figure A12 undertakes such enterprise. It compares, for each level of each attribute, the estimated AMCE when different reference categories are employed. Although in some cases

[27]Leeper, *cregg: Simple Conjoint Analyses and Visualization*.
[28]Leeper, *Measuring Subgroup Preferences in Conjoint Experiments*.

the size of the effect differs, the Figure shows that findings reported in the manuscript do no depend on the choice of reference category, giving further confidence in the robustness of our results. If we repeat the analysis for the different subgroups included in the manuscript, the results are also substantially the same.

Figure A12: AMCE across alternative reference categories