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UNEQUAL DEMOCRACIES

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A Distorting Mirror: Ideological preferences and mis-perceptions of economic inequality

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ABSTRACT:

Economic inequality is one of the most debated issues in contemporary times, yet little political action has been taken to tackle increasing levels of economic disparities. Some scholars have argued that one explanation might be people's distorted perception of their economic situation and of income inequality. The origins of this mis-perception are still unclear. In particular, the role of ideology and partisan identification remains under-explored and the little research focuses almost exclusively on the United States. However, if distortions in perceptions of inequality have an ideological leaning, this could have severe consequences for how these views get translated in the political system. Taking advantage of a new survey on inequality perceptions, we are able to evaluate how partisanship affects citizens' inequality evaluations across 13 Western countries. We test how party identification influences people's perception of their economic situations and their ability to assess the overall level of inequality. We then put this partisan bias in relation with demands for redistribution. The contribution of this study is double-fold: firstly, we shed new light on the phenomenon of inequality by looking at its psychological roots and secondly, we examine one of its potential explanation comparatively.

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Introduction

For citizens to form preferences about their desired level of redistribution, they must have some knowledge about the level of inequality in their country as well as on their own position in the income strata. Based on the evaluation whether they think this level is too high or low, they either oppose or support governmental redistribution from the rich to the poor. However, to be informed about the level of economic inequality in one's country is not an easy task and even experts struggle in spelling out the precise actual level of economic inequality. Indeed, the available evidence – stemming mostly from the US context – showcases that citizens find this task hard and are not very good in guessing the macro-economic inequality in their country nor their own position. For example, for the US, Page and Goldstein (2016) as well as Norton and Ariely (2011) note an underestimation of the country's economic inequality regarding wealth and income while others conclude that Americans overestimate the degree of inequality (Chambers, Swan and Heesacker, 2014; Eriksson and Simpson, 2012).

Little research so far has looked at the broader political implications of these distorted inequality perceptions. Is the bias equally distributed among the whole population or are certain (socio-economic groups) especially prone to hold biased perceptions of inequality? While it seems the case that citizens across the whole income spectrum hold distorted perceptions of their position in the income strata (see e.g. Cruces, Perez-Truglia and Tetaz, 2013), there is some evidence that low educated individuals have especially difficulties in estimating the correct level of income inequality (e.g. Fernández-Albertos and Kuo, 2018).

In this paper, we focus on differences in perceptions of inequality due to the *ideological leaning* of the citizens. We do so because ideological biases in the perception of inequality can potentially have reaching consequences in distorting citizens' evaluation of the fairness of inequality as well. Furthermore, the perception of economic inequality influences not only the demand for redistribution but impacts also political behaviour and attitudes, i.e. preferences for redistribution later on. To put it differently, if citizens do perceive inequality and their own position within the income strata incorrectly, this can have consequences for the whole redistribution model, especially for demand of redistribution. This could be

particularly concerning for citizens at the bottom of the income distribution who might benefit more from these policies. In sum, distortion in the initial assessment of economic inequality could have political implications as well, and shape support for certain parties.

Existing findings from related fields such as economic voting have shown partisan biases in the perception of the economic situation of a country and have also documented how these distortions influence subsequent voting behavior (Evans and Andersen, 2006). Also, a large psychological literature demonstrates the centrality of ideology for the formation of political attitudes and preferences in general and highlights the functionality of the concept to structure political thinking (e.g. Jost, Federico and Napier, 2009).

Even the literature on perceptions of income inequality provides some hints on partisan distortions of these perceptions. Bartels (2008) argues that perceptions of inequality are systematically shaped by political ideology, with conservatives being less aware of (changes in) inequality, even when controlling for their general political knowledge. Similar conclusions are reached by Chambers, Swan and Heesacker (2014) who show that liberals perceive higher income differences – in fact, they perceive income inequality as too high and thus less accurate than conservatives. In a recent study on Sweden, Karadja, Mollerstrom and Seim (2017) look at the impact of accurate information about one's own income situation on party preferences and show that support for the Conservative Party increased among those who had a higher income than perceived. They conclude that: "An implication of these findings is that political outcomes could be different if individuals held correct beliefs, with the underlying bias distribution determining the direction of effects." (Karadja, Mollerstrom and Seim, 2017, 211).

The main research interest of this paper is thus to study how ideology biases the perception of inequality and what the consequences of these distortions are on subsequent support for redistribution for 13 European countries. In fact, most current evidence on how citizens perceive inequality stems from the US context with some additional single-country studies.¹ This seems an unsatisfactory state of affairs as we know that not only the

¹There are a few cross-national studies relying mostly on ISSP data which includes only very rough and imperfect measures of perceptions of inequality, see e.g. Hauser and Norton (2017); Fatke (2018). A detailed discussion on the flaws of existing measures is provided in the data and methods section.

macro-economic inequality in European countries is markedly different from the US but also the political and partisan context with multi-party systems and more encompassing welfare state for example. Our study is thus pioneering in shedding light on perceptions of economic inequality and one's personal position within the income distribution for a multitude of European countries and by exploiting a new innovative survey measures to capture the complex phenomenon of economic inequality.

We show that people perceive the economic reality based on their ideological profile. These distortions affect both citizens' perception of their personal economic situation and that of others. Specifically, respondents over-estimate the income of other citizens, but under-estimate their own earnings. All these biases are affected by ideology: left-wing people are generally worse at making these estimations. These biases, in turn, have an impact also on preferences for redistribution: redistributive policies are demanded by people who think economic inequality in their country is large and that over-estimate its extent. Most importantly, preferences for redistribution are also deeply affected by the perception that citizens have of their own position. The poorer they believe to be compared to the reality of their situation, the more in favour of redistribution they are.

Theory

The perception of economic inequality and ideological beliefs

There is an emerging literature documenting that to guess economic facts, in particular the extent of economic inequality, is a laborious task and citizens are not particularly good at it. This is true if people are asked about the scope of macro-economic inequality in their country as well as when they have to guess their own position in the income distribution (e.g. Norton and Ariely, 2011; Hauser and Norton, 2017; Chambers, Swan and Heesacker, 2014; Karadja, Mollerstrom and Seim, 2017). While still we know most about how US citizens perceive inequality, there is mounting evidence that the phenomenon is not confined to this case and also Scandinavians (Karadja, Mollerstrom and Seim, 2017; Hvidberg, Kreiner and Stantcheva, 2020), Spaniards (Fernández-Albertos and Kuo, 2018) or Germans have

difficulties in getting this task correct (Fehr, Mollerstrom and Perez-Truglia, 2019; Engelhardt and Wagener, 2018). Also, some note a persistent tendency of people to perceive themselves as more middle income than they actually are, and this is the case if they are asked about social classification too (Evans and Kelley, 2004; Jackson and Payne, 2021).

There are two major interpretations of these findings. A first line of reasoning implies that the driver for (mis)perceptions of inequality is a lack of information. Thus, providing more information on one's own position in the income distribution, as well as about the overall level of inequality, should serve as a remedy of these distortions and enable citizens to form more accurate perceptions and attitudes that are in line with their self-interests. However, the literature reporting the effects of experimental information treatments is mixed and the effect of more information seems in particular conditional on the nature of the bias (positive or negative) and the location of the individual within the income strata. For example, Fernández-Albertos and Kuo (2018) find that especially individuals who saw themselves as poor and those that learn that they are poor (had a positive bias) change their attitudes (similar findings are reported by Cruces, Perez-Truglia and Tetaz (2013)). In sum, while more information seems to partially help citizens form preferences more in line with self-interest (see also Ciani, Fréget and Manfredi, 2021), it remains an open question why people remain rather uninformed in the first place and what accounts for these conditional findings only.

Another way of interpreting the answers in surveys is to see them as the results of a heuristic processing of information, individuals thus engage in a fast but potentially wrong or at least biased processing of the information at hand. While some research argue that overall citizens are quite good in getting economic facts right (Ansolabehere, Meredith and Snowberg (2013), for a contrary view see Pedersen and Mutz (2019)), others show that partisan biases are prevalent (Bullock et al., 2015). Thrown in a situation where you have to provide answers about entities you have little knowledge of, it makes sense for individuals to rely on cues and heuristics even to answer fact-based questions. Ideological beliefs and partisan preferences are the most accessible and pertinent ones in this respect (e.g. Bakker, Lelkes and Malka, 2020; Lau and Redlawsk, 2001). In fact, Boudreau and MacKenzie (2018) show with survey evidence from California that when citizens get partisan cues, they

heavily rely on them when answering questions about the extent of economic inequality (see also (Becker, 2020)). Similarly, Waldfogel et al. (2021) find social egalitarians (i.e. leftists) are more naturally vigilant for and accurate at detecting inequality when it affects societally disadvantaged groups than anti-egalitarians.

Ideological beliefs have long been shown to occupy a central position in political reasoning and are closely related to questions of inequality and redistribution. In their review article on ideology, Jost, Federico and Napier (2009) portray rejecting vs accepting inequality as central pillar for distinguishing between *left* and *right*, the other being a preference for change versus stability. So while right-wing citizens have little problems with inequality, left-wing individuals prefer a state of equality. Indeed, ideologies attribute different importance to inequality: a desire for equality presents a central logic for parties of the left (Bobbio, 1996; Cochrane, 2015).

In sum, we argue that perceptions of inequality are linked to ideological and partisan belief as these are likely heuristics that citizens use when faced with questions about economic inequality and not knowing the answer for sure. The crucial follow-up question is then whether there are reasons to think that some ideological beliefs are more prone to distortions in these perceptions than others. In other words, are left- or right-leaning individuals more prone to misperceive inequality?

In fact, ideology has been connected to four psychological factors potentially relevant here. First, differences in terms of cognitive styles and motivations have been linked to ideological leanings (Jost et al., 2003). Liberals tend to enjoy thinking more and to prolong cognitive closure, whereas conservatives tend to prefer relatively simple, unambiguous answers to life's questions (e.g. Kruglanski et al., 2006). As a consequence, we can imagine that liberals or leftists might be less satisfied with the current situation and the status quo. A second factor known from political psychology is that political conservatism is a system-justification ideology, i.e., it is associated with the endorsement of a wide range of rationalizations of the current social and economic institutions (Jost, Nosek and Gosling, 2008). To the extent that citizens tend to see inequality as a potential threat to the legitimacy of the status quo, one could thus argue that conservatives have less problems accepting the

current situation of economic inequality. Indeed, recent research in psychology indicates that political liberals and individuals who challenge the legitimacy of the status quo perceive more income and wealth inequality compared to conservatives and those who accept the status quo (Chambers, Swan and Heesacker, 2014; Kraus, Rucker and Richeson, 2017). Thirdly, another relevant bias is individuals' motivated interpretation of available information. Scholars in psychology have suggested that motivation causes us to distort information to fit our prior beliefs. Specifically, when individuals are explicitly demanded to judge an aspect of the world relevant to their ideological profile, they tend to apply standards, evaluate information, or adopt interpretive frames in ways that help them rationalizing conclusions consistent with their ideological worldviews (Kteily, Sheehy-Skeffington and Ho, 2017). Finally, Waldfogel et al. (2021) underline the presence of another potential mechanism, called *upstream attentional mechanism*, according to which people, as a consequence of their ideological dispositions, might attend to different information, hence experiencing different realities even when exposed to the same context. In particular, they suggest that individual wishing to see more equality around them will be more vigilant and ready to notice concrete instances of inequality when present.

These mechanisms point in different directions, some expecting left-wing individuals to be more precise in detecting inequality, while others predicting the opposite, i.e., that liberals would exaggerate the extent of inequality. In light of this we test two sets of competing hypotheses.

Hypothesis 1a *Left-wing individuals will think that income inequality is larger compared to right-wing individuals.*

Hypothesis 1b *Left-wing individuals will think that income inequality is smaller compared to right-wing individuals.*

Hypothesis 2a *Left-wing individuals will over-estimate income inequality compared to right-wing individuals.*

Hypothesis 2b *Left-wing individuals will under-estimate income inequality compared to right-wing individuals.*

One observable implication of our reasoning is that the strength of the bias should be linked to the personal salience individuals attach to the topic of inequality and

redistribution. Specifically, we should see an impact of the so-called *confirmation bias* (Nickerson, 1998), i.e., the tendency to look for information confirming their perspectives, while ignoring any information contradictory to their views. This effect is strongest for desired outcomes, for emotionally charged issues, and for deeply entrenched beliefs. One way to study if this mechanism plays a role is to look at the role of saliency, that is, the importance that our respondents attribute to the topic of economic inequality. If the confirmatory bias has an impact on how people perceive inequality, then, we should expect that it has a greater influence on those who care a lot about inequality. A similar process affects the way we judge our relatives and friends: research in psychology has shown that individuals judge friends' behaviours more positively than unacquainted observers do (Leising, Gallrein and Dufner, 2014). Based on this argument, one observable implication is that the effect of ideology interacts with inequality saliency. Specifically, we imagine that high personal saliency will reinforce the effect of ideology, hence, the relationships described in our first two hypotheses will be stronger the more individuals care about economic inequality. We test this in the empirical part of the manuscript.

A second important factor in forming attitudes towards inequality and redistribution is to know where one stands in the income distribution since this determines self-interest on redistribution. Again taking inspiration from the partisan and ideological heuristic strain of literature, we argue that there are ideological distortions in how citizens perceive their position in the income distribution. As a left ideology promotes a rather equal distribution of wages, it seems less opportune for leftist individuals to admit that they are in the upper-half of the income distribution even if the average income of Social democratic voters is quite high nowadays (Rennwald, 2020). We thus expect leftist-wing individuals to display a grater under-estimation of their own place in the income distribution. Our argument can be restated in the following hypothesis:

Hypothesis 3 *Left-wing individuals will under-estimate more their own position in the income distribution, compared to right-wing individuals.*

The perception of economic inequality and redistribution preferences

Do the (mis-)perception of economic inequality has consequences for individuals' preferences and for their political behaviour? While the classical Meltzer and Richard model Meltzer and Richard (1981) uses objective measures of inequality, recent work argues what determines citizens' attitude towards redistributive policies is the perceived inequality (Niehues, 2014; Hauser and Norton, 2017). In particular, scholars proved that people who believe inequality being large, will demand more redistribution than those who have the impression that economic differences are smaller (Gimpelson and Treisman, 2018; Choi, 2019; Bobzien, 2020). Relatedly, empirical evidence suggests that one's perceived position within the income strata to matter for the demand for redistribution (Cansunar, 2021; Engelhardt and Wagener, 2018; Karadja, Mollerstrom and Seim, 2017) and that ideology matters in this regard as well - albeit potentially to a varying degree for left and right individuals (Weisstanner and Armingeon, 2021; Bobzien, 2020).

We assume to find the same pattern in our data and argue first that perceptions of inequality are linked to preferences for redistribution. Furthermore, we hypothesize that possible distortions in perceiving inequality carry implications for preferences for redistribution as well. Given the centrality of subjective accounts of inequality, we assume that especially individuals who perceive inequality to be larger than reality to be highly supportive of redistribution.

Hypothesis 4 *Individuals will be more in favour of redistribution*

- a. the larger is their perception of economic inequality;*
- b. the more they over-estimate economic inequality;*
- c. the more they under-estimate their position in the income distribution.*

In general, we are interested in whether ideology distorts perceptions of inequality. However, we do not stop there as we think it is crucial to take the bigger picture into account as distorted perceptions of inequality have potentially large consequences not only for how citizens evaluate inequality but also on what action they want to be taken against

inequality. Thus, in this second part we study how these potentially distorted views on the reality of economic disparities in a country affect preferences for redistribution. In other words, we are interested in down-stream effects of distorted views on preferences for redistribution and thus see this second part also as shedding light on the bigger picture of consequences of our primary research question.

Data and Analysis

Our empirical analysis is based on the Inequality and Politics (IAP) data set (Pontusson et al., 2020). Data was gathered in summer 2019 within the framework of two research projects: the “Unequal Democracies” research program (European Research Council, Advanced Grant 741538) and the “Inequality in the minds” project (Swiss National Science Foundations, Grant No. 100017/178980). The two projects seek to understand how inequality affects the political attitudes and behavior of citizens and political elites through comparative analysis of liberal democracies in Western Europe. A minimum of 2001 respondents, representative of the general population answered an online questionnaire in each of the following thirteen countries: Austria, Belgium, Denmark, France, Germany, Italy, Ireland, the Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom. Quotas were implemented by region, gender, age, income, and level of education. Questions replicated from the ESS2018 in the Inequality and Politics data set had strikingly similar answers distribution than the ones in the ESS2016 and 2018, indicating a good representativity of our sample. The data set is addressing key issues of preferences for redistribution, perceptions of income inequality, and political inequality.

In this paper, we are interested in assessing whether 1) ideology affects people’s perception of economic inequality, and 2) whether this perception has an effect on people’s preferences for redistribution.

Inequality is a relational construct and thus to form an accurate perception of the phenomenon, one must consider both the lower and the top end of the income distribution and then form an idea of the distance between these two measures. Given this relative

complexity of the phenomenon, it is not self-evident how to ask about it in surveys. While some scholars have retreated into asking about the development of income inequality instead or have asked about the perceived income of key professions (e.g. Osberg and Smeeding, 2006; Engelhardt and Wagener, 2018), others have embarked on asking about graphical displays of (income) distributions (e.g. Gimpelson and Treisman, 2018; Fatke, 2018) or asked about the share of total income that the various quintiles hold (e.g. Norton and Ariely, 2011; Boudreau and MacKenzie, 2018). We see weaknesses in all of these existing approaches. Asking about key professions such as the perceived wage of doctors has the indispensable advantage of breaking the concept down into its parts, which makes the task less cognitively demanding. At the same time such measures suffer from the weakness that the professions are only vaguely defined and the fact that there is quite some variation in the salary within one profession. Importantly, it is difficult to find the related objective measures as most official statistics do not offer detailed wage statistics by profession. So, for our purpose in particular, these measures are of little value as the very point is to get a precise estimate of the error between perception and reality.

Another often used alternative is to give survey respondents a visual display of a distribution of some kind and ask them which one comes closest to the country's current situation. This is what the International Social Survey Program (ISSP) has adopted as measure since a few years for example. While carrying the advantage of being more intuitive to grasp, the main disadvantage in our view is again the vagueness with which this graphical distribution is described. There is no concrete mentioning of the income or wealth, so presumably citizens have different things in mind when answering the question. On top, these measures are again difficult to compare to objective income data.

Recently, and most likely linked to the problems described above, researchers have started to try to get more direct measures of economic inequality. For example, Boudreau and MacKenzie (2018) have asked respondents to estimate the *share* of income that the top 20% of household hold (and should have). The advantage of such a measure is certainly that you can compare answers directly to widely used indicators of economic disparities such as the World Inequality Database and thus one can get estimates of the correctness of citizen's

perception. However, we believe that these measures are less intuitive than what they seem on first sight. Especially, it requires respondents to have the whole concept of inequality in their minds simultaneously and second also forces respondents to think in terms of how much of the pie goes to different groups. This becomes especially cumbersome with very limited information that people normally have of what the *full pie*, i.e. the total sum of incomes, looks like.

In this paper, we pursue a more direct strategy and have asked survey respondents to provide their best guesses for a poor (10 % income percentile) and a rich household (90% income percentile) including a graphical display of where these households stand in the income distribution². So while taking advantage of a visual display of the income distribution, we still keep the notion of wages and incomes instead of talking about abstract shares of income. In our view these questions tap more naturally into how citizens think about inequality, e.g. in terms of how much different segments of the society earn while, at the same time, offering a direct comparison to official income statistics. They thus combine, in our view, the best of all worlds of income inequality measures.

Ideology and the perception of economic inequality

For the first step of our analysis we look at the effect that respondents' ideological position exert on how they perceive income disparities in their country as well as their personal economic situation. The literature on economic voting has mostly looked at the evaluation of the economic state of a country, but we are rather interested in understanding whether a bias exists also when it comes to economic inequality. In our data set there are several items that measure attitudes and perception of inequality. In particular, we make use of the three following variables:

- *Income inequality perception*: We asked respondents to guess the average income of two households: a poor family and a family at the top of the distribution³. Based on

²Dependent on the practices in the respective countries, we have either ask to provide these numbers on a monthly or yearly bases.

³Exact wording of the question: *Imagine a ten-step scale with households ranked from the poorest (at the far left) to the richest (at the far right). Now, please give us your best estimations for the annual/monthly income (after*

the answers given by our respondents we calculated the *Perceived Ratio 90:10*⁴: which indicates how many times larger income at the 90th percentile is perceived to be in comparison to income at the 10th percentile. If respondents think that there is perfect equality between these two groups, the ratio will equal 1. Larger values of the index, instead, indicate that respondents believe that individuals at the 90th percentile earn substantively more than families at the 10th percentile.

- *Over/Under-estimation of economic inequality*: Our second hypothesis looks at the effect of over- or under-estimating economic inequality. While the first variable simply measures what is the perception of income disparities, we want also to know whether this perception is *correct*. To do so, we retrieved the actual mean income for the two groups from the Eurostat⁵ We then calculated the actual ratio 90:10 and we divided the estimated ratio by it. The fraction between perceived ratio and actual ratio takes value 1 when perceived ratios are identical to actual ratios and takes on values greater than 1 when respondents overestimate ratios and, conversely, less than 1 (but always larger than 0) when they underestimate these ratios. This proxy allow us to check how correctly respondents perceive economic disparities between rich and poor.
- *Estimation of own position in the income distribution*: We asked participants to guess where their household stands compared to the rest of the population in their country⁶. We then recorded their answers in income deciles and we compared them to their actual position in the distribution (that is the absolute distance between their guess and their true income decile).

These three items represent our dependent variables. Since we are interested in

taxes) of the three households identified in this graph: Poor household (10%), Median household (50%), Rich household (90%). For a graphical representation of the question, see Figure A1. Countries in which the question was asked making reference about the monthly income were: Austria, Belgium, Germany, Portugal and Switzerland. We have always asked give the estimate in local currency but have recoded the numbers afterwards into Euros. Furthermore, answers have been restricted insofar as higher deciles could not earn less than lower ones.

⁴The so-called *interdecile ratio* is one of the measures used by researchers to evaluate the extent of economic disparities in a given country, for more details about the advantages and limitations of this index compared to other measures see De Maio (2007) or Trapeznikova (2019).

⁵Data retrieved from <https://ec.europa.eu/eurostat/web/income-and-living-conditions/data/database>.

⁶*Compared with the rest of the population in [COUNTRY], where do you think your household stands? Answers: % are poorer and % are richer.* The graphical representation used for the question is displayed in Figure A2.

understanding whether mis-perception is driven by ideological preferences, our main independent variables is respondents' self-positioning on the left-right continuum⁷.

Moreover, in all the models we control for several socio-demographic variables that might influence people's perception of the economy. Specifically, we added the following controls:

- *Party identification*: we asked participants to indicate the party they feel the closest to and we assigned value 1 to anyone who indicated a party and 0 otherwise.
- *Political sophistication*: we asked respondents to guess the rate of female legislators in parliament and we compared the answers to the actual percentage of women elected in the national parliament. Additionally, respondents estimated the unemployment rate in their country⁸. We use these two variables as proxies of respondents' political knowledge.
- *Social class*: Following the approach by Oesch (2006) and Abou-Chadi and Wagner (2019), we distinguish the manual workers from the professionals and those who have never worked. All respondents that have or had professional and technical; higher administrator; clerical; sales; service occupations, and those who have never worked were coded 0 while manual workers, coded 1, identified as skilled; semi-skilled; unskilled or farm workers.
- *Union membership*: We also took into account union membership (0=Never been a union member; 1=currently or has been a union member).
- *Socio-demographics*: post-tax household income decile, gender, age and education (university degree).

To account for potential unobserved differences between countries, all our models add country fixed-effects. In the following paragraph we illustrate the results of our empirical analysis for the variables measuring respondents' perception of inequality.

⁷In political matters, people talk of "the left" and "the right". What is your position? Please indicate your views using any number on a scale from 0 to 10, where 0 means "left" and 10 means "right". Which number best describes your position?

⁸What is the current national unemployment rate in [COUNTRY]?

Individuals' perception of the scope of income inequality

Our first two hypotheses are concerned with 1) the perceived scope of income inequality and 2) how much people actually over- or under-estimate income differences. Figure 1 presents the

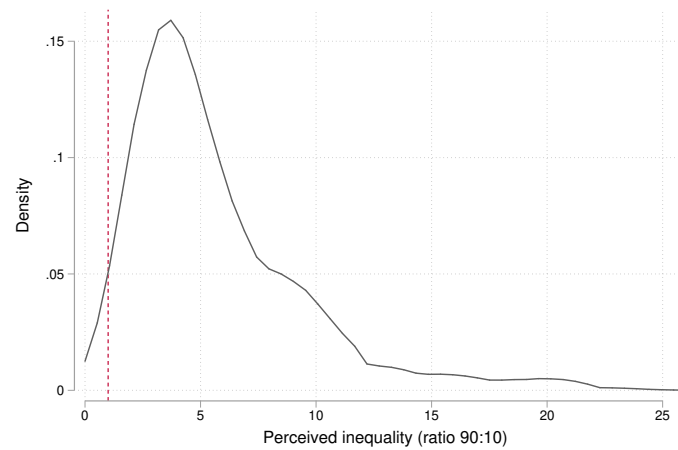


Figure 1: Kernel distribution of the perception of inequality (ratio 90:10)

distribution of the perceived ratio 90:10. Only a very residual share of our respondents (1.5%) believe that rich and poor households earn the same. About 16% of our respondents believe that top earners get double than bottom earners (perceived ratio=2). Finally, around 30% of participants believe that the ratio is between 3 and 5, that is close to the true value: In the countries surveyed the actual income ratio 90:10 ranges between 2.9 and 4.9, that is, the richest households gain between 3 and 5 times more than those at the bottom of the distribution.

But how much do our respondents over/under-estimate the scope of income inequality? Figure 2 answers this question graphically. Around 12% of respondents have a correct estimation of income disparities around them, i.e., their perceived ratio 90:10 corresponds to the actual ratio. 32%, instead, under-estimates inequalities, that is, the fraction between estimated and actual ratios is smaller than 1. The majority of people (56%), however, over-estimate economic differences and, in particular, 39% do so by a factor of 2, meaning that they estimate inequality to be double than what actually is. Similar patterns are found for the individual countries (see Figure A3), with Danish, Italian, Portuguese and Spanish respondents being those who think that inequalities are larger.

Results of our linear regression models are presented in Table 1. Our independent variable

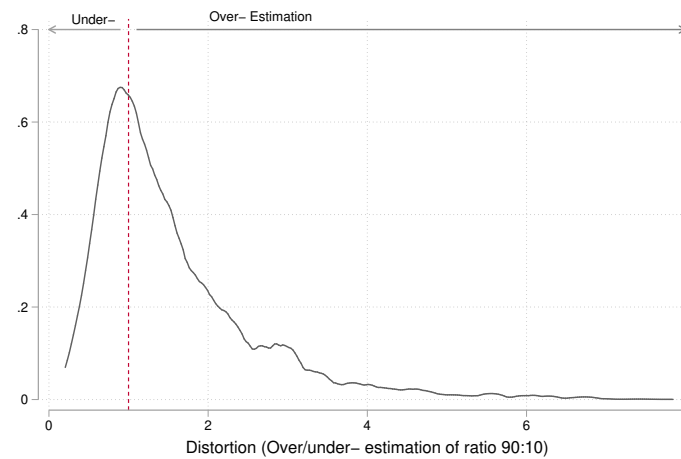


Figure 2: Kernel distribution of the over/under-estimation of income inequality

of interest, that is the self positioning on the left-right scale, shows negative and significant coefficients across the two models. The effect is negative, meaning that the further on the left people place themselves, the larger the perceived level of inequality and, in particular, the more they over-estimate the differences between rich and poor⁹.

In order to see if people systematically over or under estimate income differences based on their ideological placement, we calculated the marginal effects of ideology on the two dependent variables, as displayed in Figure 3. In accordance with our Hypothesis 1a, leftist respondents estimate a ratio 90:10 of 6, while people on the opposite side of the spectrum perceive the ratio to be slightly above 5. Moreover, left-wing participants over-estimate inequality of a factor of 2 (that is double than in reality), while at the other pole, the over-estimation is smaller (around 1.8), which supports our Hypothesis 2a. This finding seems to be in line with previous research on the American context where Liberals show a tendency to over-estimate income disparities more than Conservatives (Chambers, Swan and Heesacker, 2014).

Own income position estimation

Our second dependent variable looks at whether respondents over- or under-estimate their placement in the income distribution. The variable ranges between +9 (corresponding to a person who is at the 1th decile of the distribution, but believes to be on the 10th decile) and

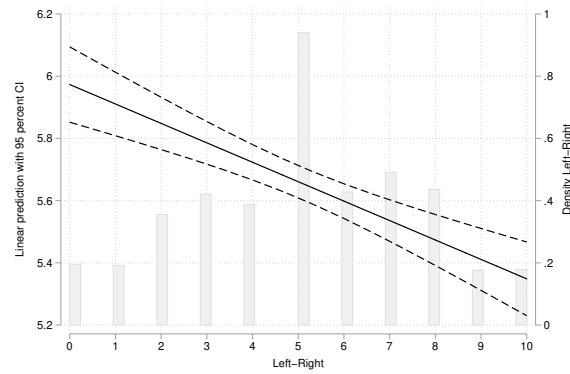
⁹Note that the effects are the same that we detect in a bivariate model, see Table A1 for more details.

Table 1: Linear regression models of the perception of income inequality

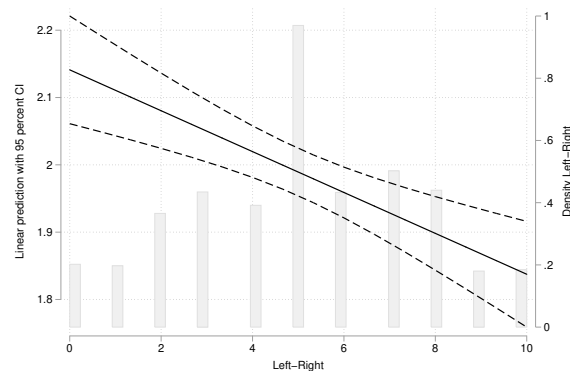
| VARIABLES | (1) Perception | (2) Distortion in estimation |
|-----------------------------|---------------------|------------------------------------|
| | (Ratio 90:10) | |
| Left-Right | -0.066*** (0.01) | -0.030*** (0.01) |
| Party identification | -0.014 (0.07) | -0.038 (0.05) |
| Sophistication parliament | -0.002 (0.00) | -0.001 (0.00) |
| Sophistication unemployment | -0.009*** (0.00) | -0.002+ (0.00) |
| Gender | 0.049 (0.06) | -0.010 (0.04) |
| Income decile | 0.032** (0.01) | -0.009 (0.01) |
| Age | 0.007*** (0.00) | 0.002 (0.00) |
| Education | 0.311*** (0.06) | 0.135** (0.04) |
| Manual worker | -0.128+ (0.07) | -0.073 (0.05) |
| Union member | -0.094 (0.06) | -0.040 (0.04) |
| Constant | 4.909*** (0.19) | 1.922*** (0.13) |
| Country FE | YES | YES |
| Observations | 19,145 | 19,955 |
| R-squared | 0.053 | 0.014 |

Standard errors in parentheses

**p<0.001 ** p<0.01, * p<0.05, + p<0.1



(a) Perception (Ratio 90:10)



(b) Distortion (Over/Under-estimation)

Figure 3: Marginal effect of left-right positioning on income inequality perception

-9 (when somebody is on the highest decile, but thinks to be the poorest in the distribution) and takes value 0 when people are correctly estimating their position. This variable is quite skewed: indeed about 64% of our respondents under-estimate their placement in the distribution. So, a large majority in our sample thinks to be poorer than what they actually are. Figure 4 illustrates this point more precisely. While the previous two variables are based on a set of questions about the average income of different households that might have been a very difficult estimation, we believe that identifying the own position in the distribution might have been an easier task. Yet, we can see that respondents clearly underrate their economic condition vis-à-vis other citizens. This descriptive finding confirms a pattern that has already been found in other countries. For instance, Karadja, Mollerstrom and Seim (2017) in a survey conducted in Sweden, observed that more than 80% of their respondents believed to be poorer than what they were in reality. In the single countries there is a similar pattern, as shown in Figure A4. Except in Switzerland, where the share of people over- and

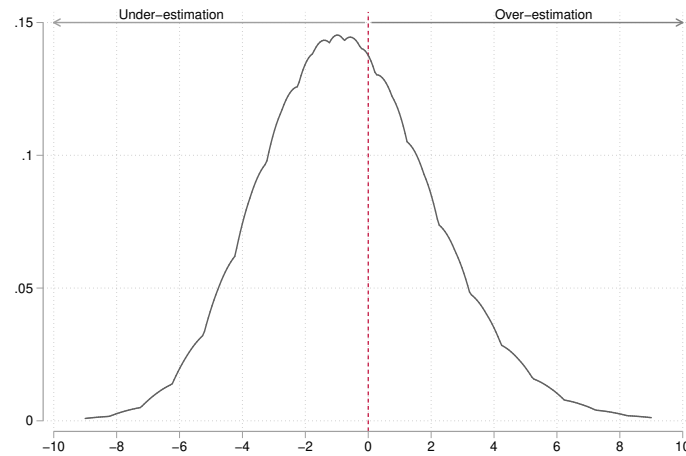


Figure 4: Kernel distribution of the distortion in identifying own position in the economic distribution

under-estimating their position is more or less equal, in all the other countries people largely think to be poorer than what they actually are.

Moving to the statistical analysis, we again run a linear regression with country fixed effects. Results are displayed in Table 2. The coefficient of the variable *Left-Right* turned out positive and significant, therefore, just by looking at this coefficient we might be tempted to conclude that respondents who place themselves further on the right side of the spectrum tend to make larger mistakes than left-wing people.

Yet, since the dependent variable is measure in relative terms (therefore it takes both positive and negative bias), we can get a more precise sense of the relationship between ideological position and perception of own economic situation, by looking at the marginal effects calculated for Model 1 (Figure 5). The further participants are on the right side of the ideological space, the less they under-estimate their position in the income distribution. So, the fact that the coefficient of the variable *Left-Right* turned out positive, it actually indicates that right-wing respondents tend to under-estimate their position less compared to more leftist people (indeed their predicted mistake is close to 0). Differently put, leftist people think that they are poorer than what they are, while people on the right do this to a much lesser extent.

To conclude, our data supports the argument that left-wing individuals hold more distorted views of economic inequality than more conservative people. In particular, they 1) tend to

Table 2: Results of linear regressions of distortion in estimating own position in the income distribution

| VARIABLES | (1) Distortion (own position) |
|-----------------------------|-------------------------------------|
| Left-Right | 0.079*** (0.00) |
| Party identification | 0.199*** (0.03) |
| Sophistication parliament | -0.002 (0.00) |
| Sophistication unemployment | 0.010*** (0.00) |
| Gender | -0.170*** (0.02) |
| Income decile | -0.671*** (0.00) |
| Age | -0.002** (0.00) |
| Education | 0.254*** (0.03) |
| Manual worker | -0.251*** (0.03) |
| Union member | 0.087*** (0.03) |
| Constant | 2.696*** (0.08) |
| Country FE | YES |
| Observations | 20,404 |
| R-squared | 0.569 |

Standard errors in parentheses

**p<0.001 ** p<0.01, * p<0.05, + p<0.1

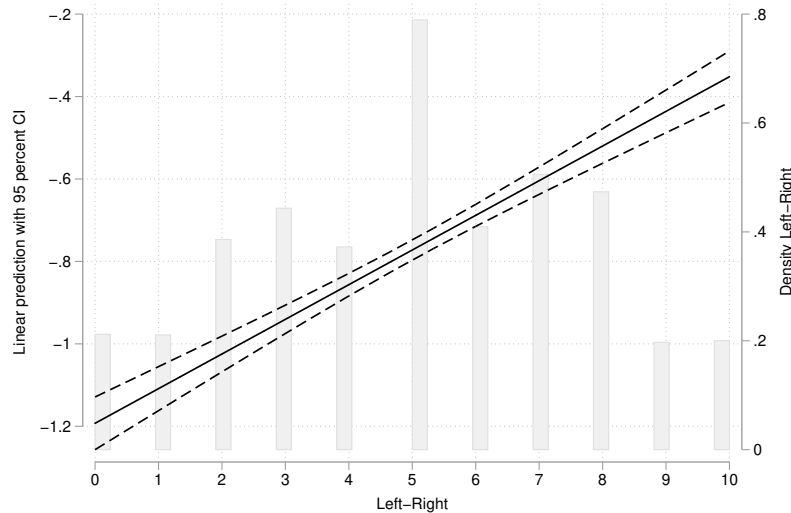


Figure 5: Marginal effect of left-right positioning on distortion of own position estimation

believe that economic inequality is larger, 2) in particular, over-estimating it by a factor of 2 and 3) generally think to be poorer than what they are. To put it differently, leftist people seem to have a more negative view of their economic status compared to right-wing supporters.

This pattern is also found when the same statistical analyses are run in the each country separately (see Figure A5 for more details). Not all the effects are statistically significant, but their direction is usually coherent with what we found in the aggregated analysis. Interestingly enough, this greater negativity of left-wing participants is confirmed also when we look at different economic indicators. For instance, leftists have usually a more negative assessment of the economic status of their own country. Specifically, when asked to evaluate the performance of the economy of their state, they underestimate actual economic growth. On the contrary, leftist people are generally better at guessing the unemployment rate compared to right-wing people who have the tendency to over-estimate the share of people who do not work.¹⁰

A potential explanation: the role of saliency

What mechanism could account for the fact that left-wing individuals seem to be worse at judging economic inequality and their own position in the income distribution? As explained in the theory section, one potential explanation is the confirmation bias that

¹⁰Results available on request.

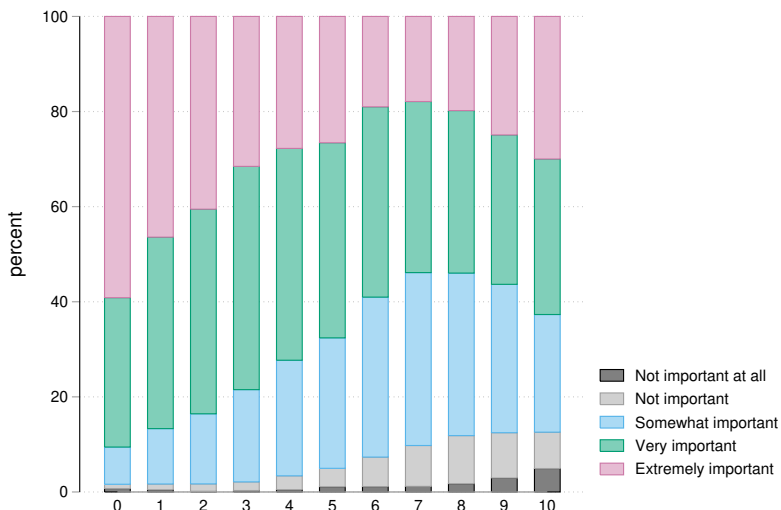


Figure 6: Saliency of inequality for different ideological profile

induces people to use information in accordance to their world view, a tendency that is accentuated for topics that are emotionally charged. If this bias affects our respondents then we should find that saliency interacts with ideology and makes the perception of inequality even more skewed. Specifically, we should see that people on the left-wing of the spectrum who think that inequality is salient will over-estimate income inequality and under-estimate their own earnings more compared to a person who cares less about the same topic. Differently put, the greater bias in judging inequality will be displayed by people more on the left and who are also more worried by inequality.

To test whether this argument finds support in our data we use a question about the relative saliency of inequality. We asked our respondents to state the importance they attribute to economic inequality, answers ranged from 1 (*Not important at all*) to 5 (*Extremely important*). From a simple bivariate analysis, we can see that saliency and ideology are clearly related to each other. Figure 6 shows that people on the left-side of the political space are more concerned by inequality than people on the right.

To test whether the interaction between the two variables has an impact on how people perceive inequality, we re-run the same linear regression models with the three measures of inequality perception as dependent variable and an interaction between ideological position and saliency as main independent variable, in which saliency is treated as a categorical variable. Results are presented in Table A2. Most of the coefficient do not reach statistical

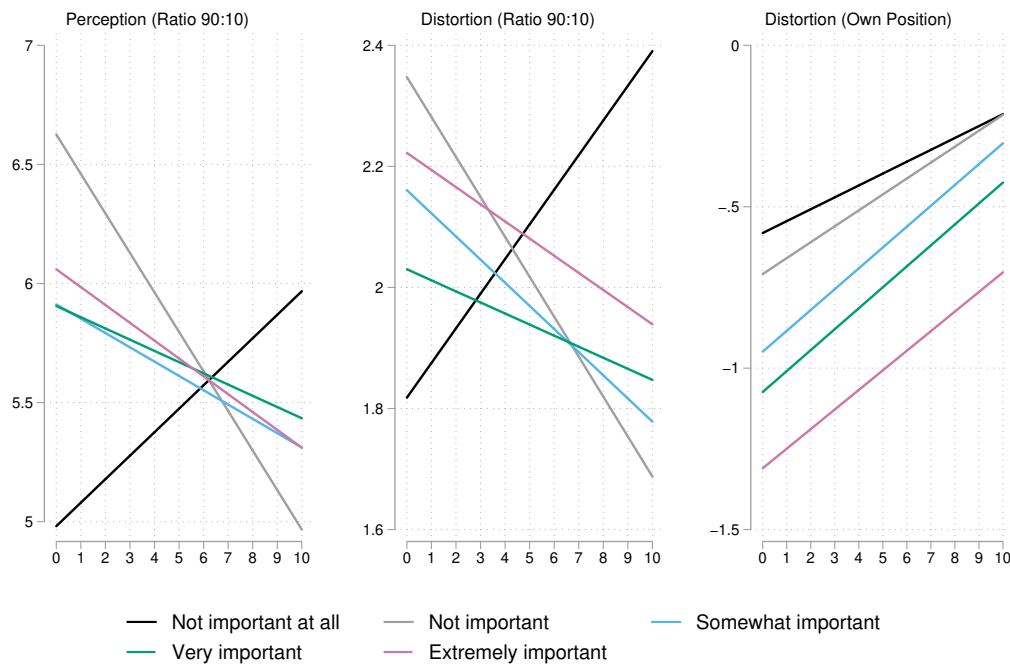


Figure 7: Marginal effect of the interaction between saliency and ideology on the perception of inequality

significance, but the marginal effects do, so we are able to evaluate the joint influence of the two variables, as reported in Figure 7. The effect on the estimation of own position is the most straightforward to interpret: firstly, we can see that the more salient inequality is, the more individuals underestimate their own position and this is particularly true for people on the left side of the spectrum. This means that the largest under-estimation is found for an individual scoring 0 on the left-right continuum and 5 on inequality saliency. Conversely, the profile that has a more precise perception of his/her own position in the income distribution, is a person scoring 10 on the ideological scale and 1 on saliency.

The impact on the perception of inequality at the country level is reveals some unexpected findings, instead. Both for the perceived ratio 90:10 and on the estimation of inequality, saliency flips the influence of ideology, in particular for the subjects that do not care at all about income disparities. A person on the left-right side of the spectrum who considers inequality as non-relevant issue, will estimate that rich people earn 5 times more than poor people, while over-estimating inequality of a factor of 1.8. A person with a similar ideological profile who care more about inequality will exaggerate income disparities more

as we predicted (although the effect is not linear as we expected). On the right-side of the political space, instead, people who do not care about inequality are more likely to over-estimate inequality than those who are more concerned about the same issue. Differently put, these results indicate that saliency has a completely different impact across the ideological profiles. For left-wing people caring about inequality translates in a less accurate perception of inequality at the individual and country level, indicating that a confirmation bias might actually play a role for them. On the contrary, for right-leaning subjects, caring more about inequality makes them perceiving inequality in a less biased way.

Redistribution preferences

The goal of the second part of our analysis is to verify whether inequality perception has consequences for citizens' preferences. In particular, this second step of the analysis, looks at the impact of perception on preferences for redistribution. To measure redistribution preferences we use a question that replicates the CHES item on the same topic. Specifically, we asked respondents the following question: *What is your position on redistribution of wealth from the rich to the poor?* Answers ranged from 0 (*fully opposed*) to 10 (*fully in favor of redistribution*). These answers are, therefore, our dependent variable. As independent variables we used the three measures (perceived ratio 90:10, inequality estimation and own position estimation) that were used as outcome variables in the previous section. We use the same set of variables as controls as well as the variable on participants' ideological position.

Table A3 displays the results of the three linear models that we estimated. All three measures of inequality perception have a significant effect on redistribution preferences and are in line with our theoretical expectations. More in detail, people are more in favour of redistribution in the following circumstances: 1) the larger their estimation of inequality, 2) the more they over-estimate inequality and 3) the more they under-estimate their position in the income distribution (see Figure 8). This result holds controlling for ideology and party identification, that are the main predictors for redistributive preferences. Our finding contradicts the work by Cruces, Perez-Truglia and Tetaz (2013) who find the opposite

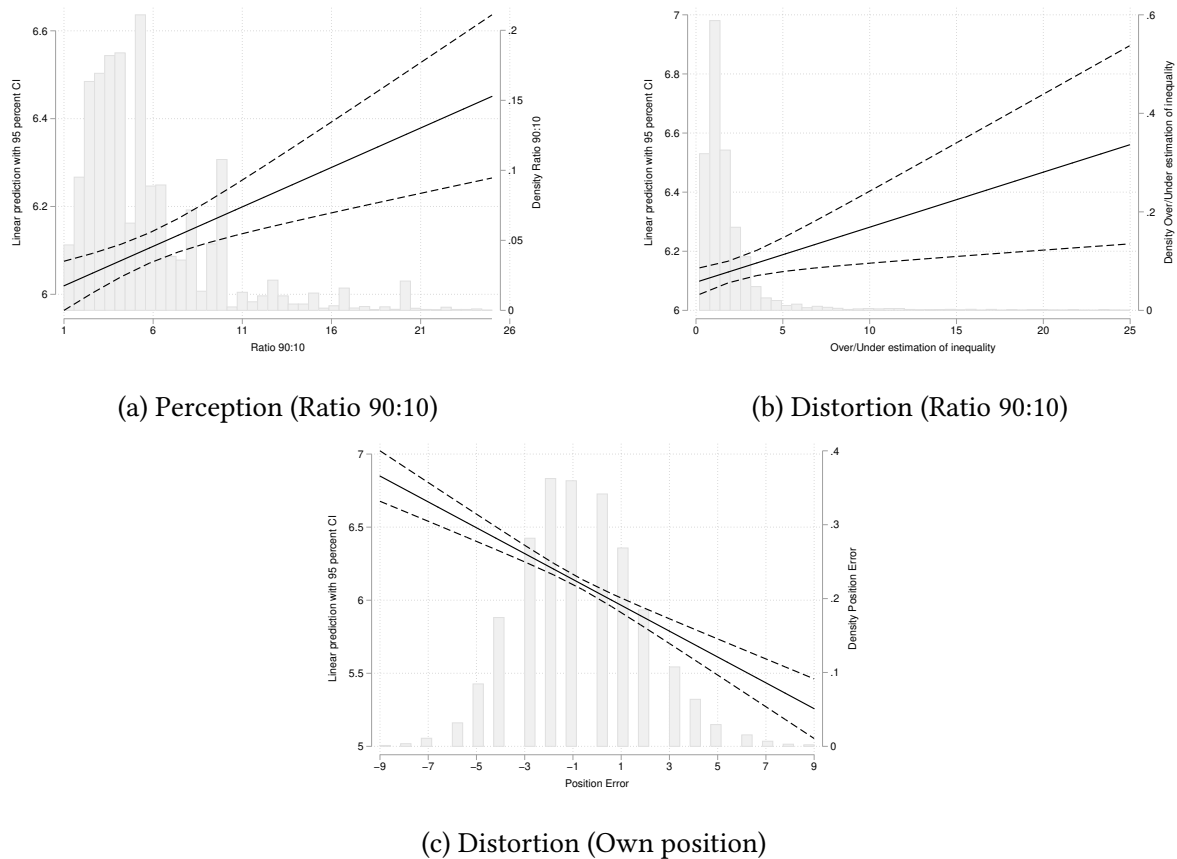


Figure 8: Marginal effects of perception of income inequality on preferences for redistribution relationship: more redistribution was demanded by those who over-estimated their relative position.

When we run the same statistical analysis in each country individually, like shown in Figure A6, the results are consistent with what we find at the aggregate level. The only exception is Spain, where those who over-estimate inequality demand less redistribution and not more. On the contrary, those who think that inequality is large, will be more supportive of redistributive policies, in line with our theory.

To actually grasp the impact of inequality perception on redistribution preference we run 10'000 simulations based on the estimates presented above. The goal of this last step of the analysis is to check how preferences for redistribution would actually look like under different imaginary scenarios. In other words, we want to make sure that in a fictional world were citizens estimated inequality and their own position in a certain way, that would actually make a difference for the distribution of their redistributive preferences. The results are presented in Figure 9 and Figure 10. As we can see, if all people were over-estimating or correctly

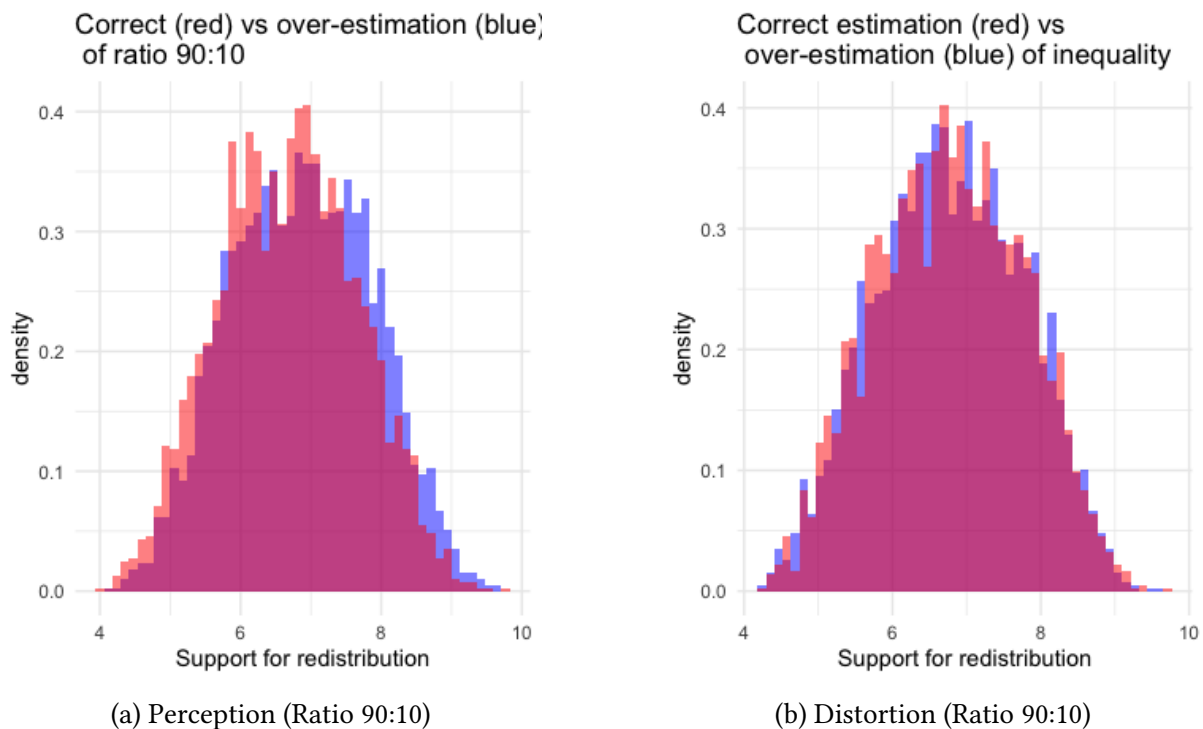


Figure 9: Estimated preferences for redistribution based on 10'000 simulations for different estimations of inequality

perceiving the extent of inequality in their country, preferences for redistribution would look more or less the same¹¹. Indeed, in Figure 9, the distribution of preferences with opposite estimations of income disparities almost perfectly overlap. Differently put, whether people held distorted or precise views about inequality would make very little difference for the preferences for redistribution. This result indicates that other variables have a stronger and more direct effect on people's redistributive choices.

If inequality perception at the country level matters little, respondents' perception of their own position in the income distribution has a greater impact for their ideal level of redistribution. As Figure 10 indicates, if everyone was over-estimating his/her economic situation (blue distributions), we would witness a lower support for redistribution. On the contrary, if all citizens were under-estimating their earnings (yellow distribution), they would also be more in favour of redistributive policies. Finally, if everyone had a correct

¹¹To obtain these simulations, we assigned fixed values to the inequality perception variables, while the other covariates varied randomly. For the perceived ratio 90:10 we used the values 1 (those who believe that there are no income differences between rich and poor households) and 10 (for thinking that rich people earn 10 times more than poor people). For the estimation of inequality, instead, we used the values 1 (correct guess) and 10 (those who perceive inequality to be 10 times higher than the reality).

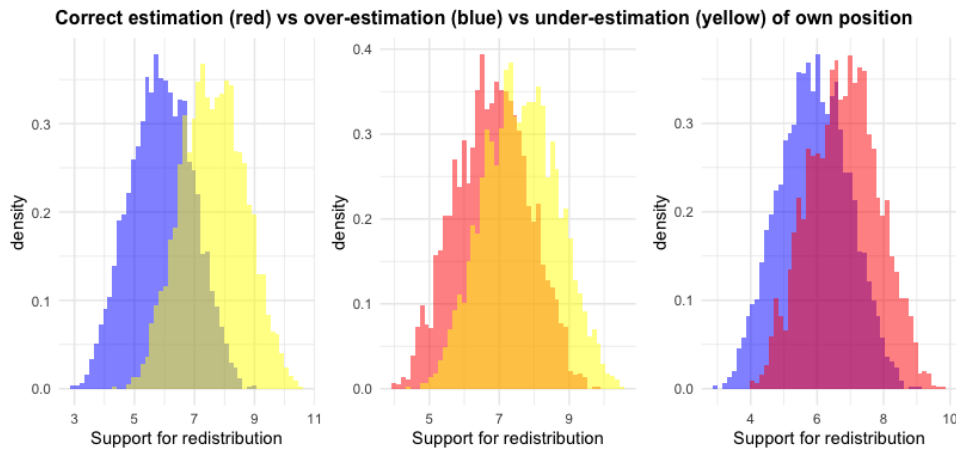


Figure 10: Estimated preferences for redistribution based on 10'000 simulations for different estimations of own position

estimation the preferences would be in the middle between these two extremes¹². The results of our simulations suggests, therefore, that the perception of people's economic conditions has a more direct impact on their preferences for redistribution. In countries where the majority of the population is actually under-estimating their earnings, we might actually witness a greater support for redistribution than in societies where the perception is skewed in the opposite direction.

Conclusion

The goal of this paper was to assess whether the view and perceptions that citizens hold about economic inequality are influenced and shaped by their ideological views, beside other factors. Similarly to what done by Bartels (2002) for the US, we wanted to uncover whether a ideological bias exists also in the European context. We found out that, indeed, people differently perceive economic disparities based on their ideological profile. This ideological bias affects both citizens' perception of their personal economic situation and that of others. Descriptively, our data indicates that the majority of people is – unsurprisingly – not very good in estimating the correct levels of macro-economic inequality. In fact, they tend to over-estimate the income of different groups and under-estimate their own economic position, that

¹²We assigned extreme values to simulate these three distributions. People over-estimating would actually have the maximum possible value, that is -9. At the other side of the spectrum, we assigned value +9 for the simulations where everyone is over-estimating. Finally, the correct estimation equals 1.

is, they think that they are poorer than what they truly are. Secondly, citizens with a right-wing ideology tend to generally be better at perceiving the economic reality also controlled for political sophistication and party choice. This finding is in line with what already emerged from studies about the American context (Duch, Palmer and Anderson, 2000; Chambers, Swan and Heesacker, 2014), but still novel to show in a comparative European setting. We also found that a potential mechanism for the fact that left-wing individuals have a more biased view of their own position and inequality at the macro-level might be the confirmation bias. Specifically, our results indicate that left-wing people who care a lot about inequality exaggerate the extent of income disparities and under-estimate their earnings more than somebody less concerned by the same issue.

The second goal of our paper was to link the existence of this ideological bias to actual preferences and attitudes. Specifically, we tested whether people holding more distorted views of their economic situation and economic inequality in general had different policy preferences compared to those with a more accurate perception of the same economic reality. Firstly, we found out that people with a more pessimistic view of inequality levels are more likely to be in favour of redistribution. For instance, voters who think to be poorer than what they are, are significantly more prone to demand more equality. Importantly, our results hold also controlling for other crucial determinants of vote choice and redistribution preferences, such as, income, education and class. The effect is particularly remarkable for the mis-perception of the self economic position: in an imaginary world where citizens were all under-estimating their own economic situation, there would be a greater support for redistributive policies.

Our findings are in line with psychological reasoning, according to which, conservatives tend to defend the status quo and thus have less problems with high inequality (Jost, Banaji and Nosek, 2004; Jost et al., 2003). On the contrary, left-wing voters are generally less satisfied with the status quo and therefore hold more distorted views of the highly unequal economic situation. Moreover, our findings suggest that people engage in motivated reasoning also when they are not given party-cues to answer questions about the economy (as in the study by Boudreau and MacKenzie, 2018) and thus at the same time qualifies and extends these findings

from the US context.

This paper has however some limitations. First of all, as highlighted by Bullock et al. (2015), we cannot detect whether respondents engaged in sincere or insincere (partisan) responding in surveys. When partisans do not know the answer to a question or are aware that their answer is not accurate, they might just reply in a way that praises the party they support/criticizes the party they dislike. Responses of this kind might not reflect therefore a true diverge of view (Bullock and Lenz, 2019). While our findings hold still controlling for partisan identification, they might however mask at least partially this sort of behavior. Secondly, some studies on the consequences of partisanship bias have shown that when people are provided with the correct information about the scope of inequality, they adapt their preferences accordingly (see, for instance Boudreau and MacKenzie, 2018). We did not run any information treatment and therefore we cannot measure to what extent these mis-perceptions are actually malleable or stable when new information comes up. Last, while our findings are based on a large cross-national data source with thousands of respondents, the evidence is cross-sectional and it thus remains unclear how stable these findings are over time given that previous research (Duch, Palmer and Anderson, 2000) suggests that distortions in economic fact evaluations have the potential to change over time. In any case, what this study makes clear at the minimum is that perceptions of economic inequality are not very accurate and not neutral either.

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Appendix

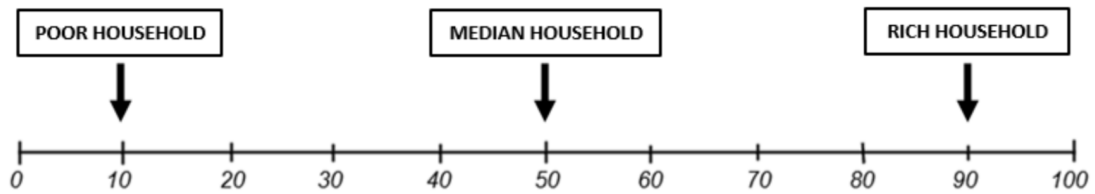


Figure A1: Graph used in support of the question on the perceived income of three households

Compared with the rest of the population in Switzerland, where do you think your household stands?

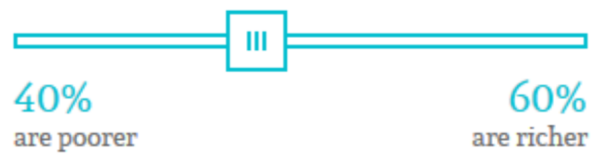


Figure A2: Graph used in support of the question on the perceived own position

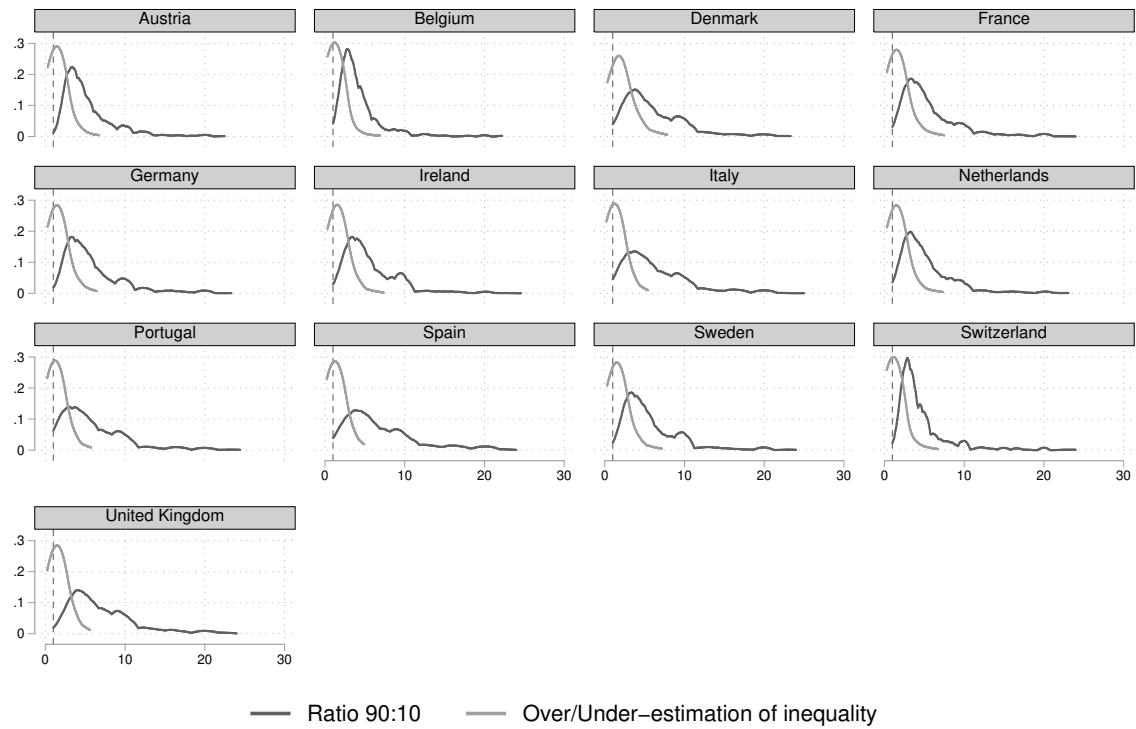


Figure A3: Kernel distribution of the perceived ratio 90:10 and over/under-estimation of inequality in each country

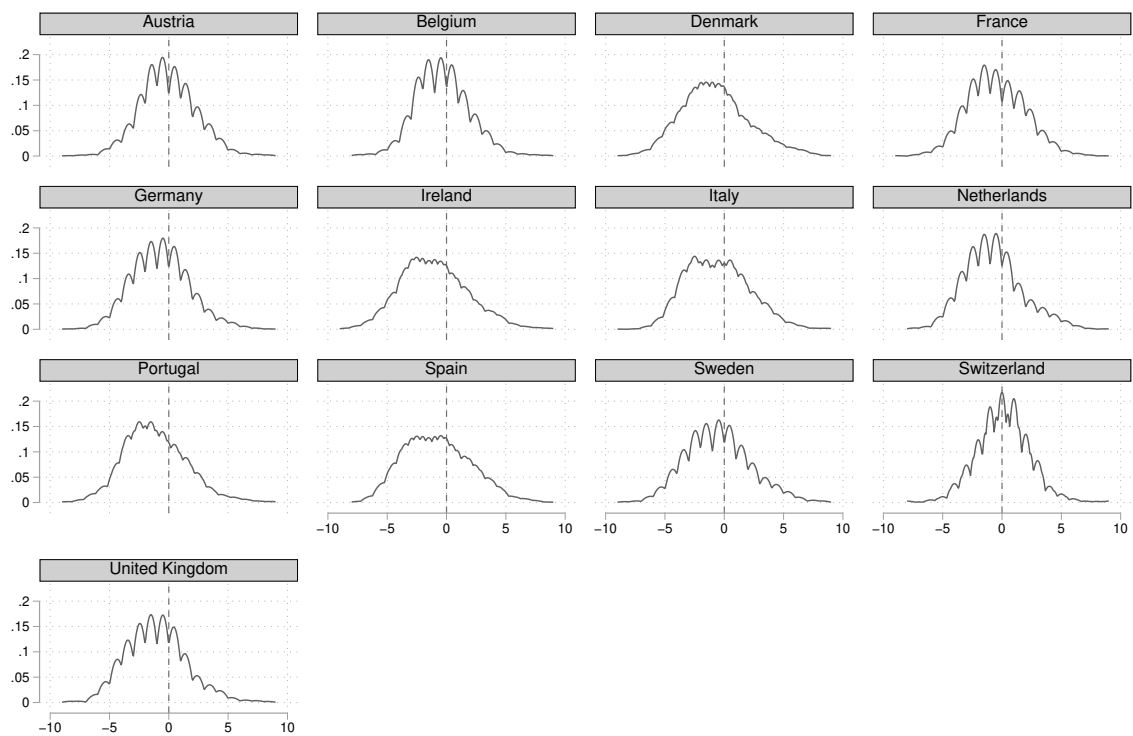


Figure A4: Kernel distribution of the distortion in identifying own position in the economic distribution in each country

Table A1: Bivariate linear regressions of left-right position and inequality perception

| VARIABLES | (1) Ratio 90:10 | (2) Over/under estimation | (3) Own position estimation |
|--------------|---------------------|---------------------------------|-----------------------------------|
| Left-Right | -0.095*** (0.01) | -0.037*** (0.01) | 0.038*** (0.01) |
| Constant | 6.164*** (0.06) | 2.180*** (0.04) | -0.864*** (0.04) |
| Observations | 21,370 | 22,272 | 22,795 |
| R-squared | 0.004 | 0.001 | 0.001 |

Standard errors in parentheses

** p<0.001, * p<0.01, + p<0.05, + p<0.1

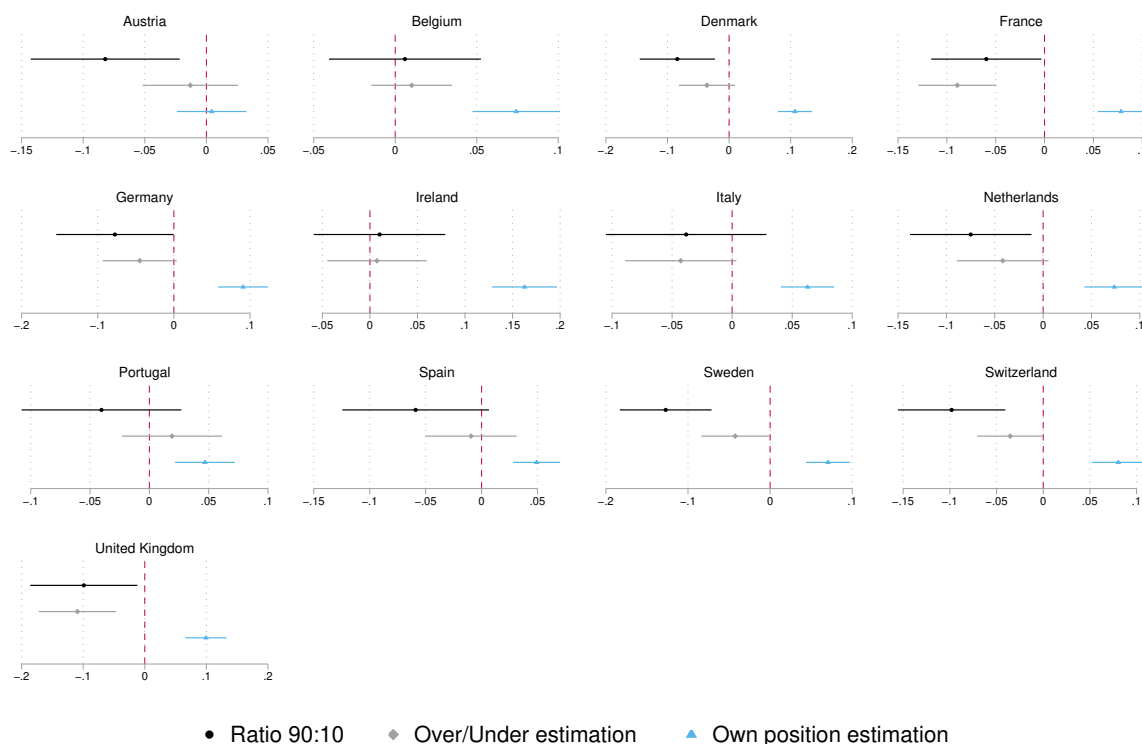


Figure A5: Effect of left-right self-placement on inequality perception in each country (Ratio 90:10, Over/Under-estimation and Distortion in own position estimation)

Table A2: Effect of saliency on perception of economic inequality (linear regression models)

| VARIABLES | (1) Ratio 90:10 | (2) Over/under estimation | (3) Own position |
|--------------------------------------|---------------------|------------------------------|---------------------|
| Left-Right | 0.099 (0.11) | 0.057 (0.07) | 0.037 (0.04) |
| Saliency (r.c. Not important at all) | | | |
| Not important | 1.645+ (0.87) | 0.530 (0.58) | -0.127 (0.36) |
| Somewhat important | 0.931 (0.78) | 0.343 (0.52) | -0.368 (0.32) |
| Very important | 0.924 (0.78) | 0.212 (0.52) | -0.492 (0.32) |
| Extremely important | 1.078 (0.78) | 0.404 (0.52) | -0.729* (0.32) |
| Left-Right*Saliency | | | |
| Left-Right*Not important | -0.265* (0.12) | -0.123 (0.08) | 0.013 (0.05) |
| Left-Right*Somewhat important | -0.159 (0.11) | -0.095 (0.07) | 0.028 (0.04) |
| Left-Right*Very important | -0.146 (0.11) | -0.076 (0.07) | 0.028 (0.04) |
| Left-Right*Extremely important | -0.174 (0.11) | -0.086 (0.07) | 0.024 (0.04) |
| Party identification | -0.004 (0.07) | -0.031 (0.05) | 0.228*** (0.03) |
| Sophistication parliament | -0.002 (0.00) | -0.001 (0.00) | -0.001 (0.00) |
| Sophistication unemployment | -0.009*** (0.00) | -0.002+ (0.00) | 0.009*** (0.00) |
| Gender | 0.053 (0.06) | -0.007 (0.04) | -0.159*** (0.02) |
| Income decile | 0.032** (0.01) | -0.007 (0.01) | -0.701*** (0.00) |
| Age | 0.007*** (0.00) | 0.002 (0.00) | -0.003*** (0.00) |
| Education | 0.323*** (0.06) | 0.141*** (0.04) | 0.239*** (0.03) |
| Manual worker | -0.127+ (0.07) | -0.072 (0.05) | -0.244*** (0.03) |
| Union member | -0.099+ (0.06) | -0.043 (0.04) | 0.114*** (0.03) |
| Constant | 3.888*** (0.79) | 1.586** (0.53) | 3.435*** (0.33) |
| Country FE | YES | YES | YES |
| Observations | 18,960 | 19,762 | 20,208 |
| R-squared | 0.054 | 0.015 | 0.589 |

Standard errors in parentheses

** p<0.001, * p<0.01, + p<0.05, + p<0.1

Table A3: Effect of different types of inequality perceptions on preferences for redistribution (linear regression models)

| VARIABLES | (1) Model 1 | (2) Model 2 | (3) Model 3 |
|-----------------------------|---------------------|---------------------|---------------------|
| Ratio 90:10 | 0.018*** (0.00) | | |
| Over/under estimation | | 0.021** (0.01) | |
| Own position | | | -0.088*** (0.01) |
| Left-Right | -0.255*** (0.01) | -0.257*** (0.01) | -0.248*** (0.01) |
| Party identification | 0.175*** (0.05) | 0.178*** (0.05) | 0.198*** (0.05) |
| Sophistication parliament | 0.005** (0.00) | 0.005** (0.00) | 0.005** (0.00) |
| Sophistication unemployment | 0.011*** (0.00) | 0.010*** (0.00) | 0.010*** (0.00) |
| Gender | -0.204*** (0.04) | -0.196*** (0.04) | -0.217*** (0.04) |
| Income decile | -0.144*** (0.01) | -0.145*** (0.01) | -0.207*** (0.01) |
| Age | -0.002 (0.00) | -0.001 (0.00) | -0.002 (0.00) |
| Education | -0.064 (0.04) | -0.068+ (0.04) | -0.055 (0.04) |
| Manual worker | 0.186*** (0.05) | 0.157*** (0.04) | 0.134** (0.04) |
| Union member | 0.442*** (0.04) | 0.441*** (0.04) | 0.460*** (0.04) |
| Constant | 7.625*** (0.13) | 7.695*** (0.12) | 7.994*** (0.12) |
| Country FE | YES | YES | YES |
| Observations | 18,565 | 19,353 | 19,788 |
| R-squared | 0.122 | 0.121 | 0.123 |

Standard errors in parentheses

** p<0.001, * p<0.01, + p<0.05, p<0.1

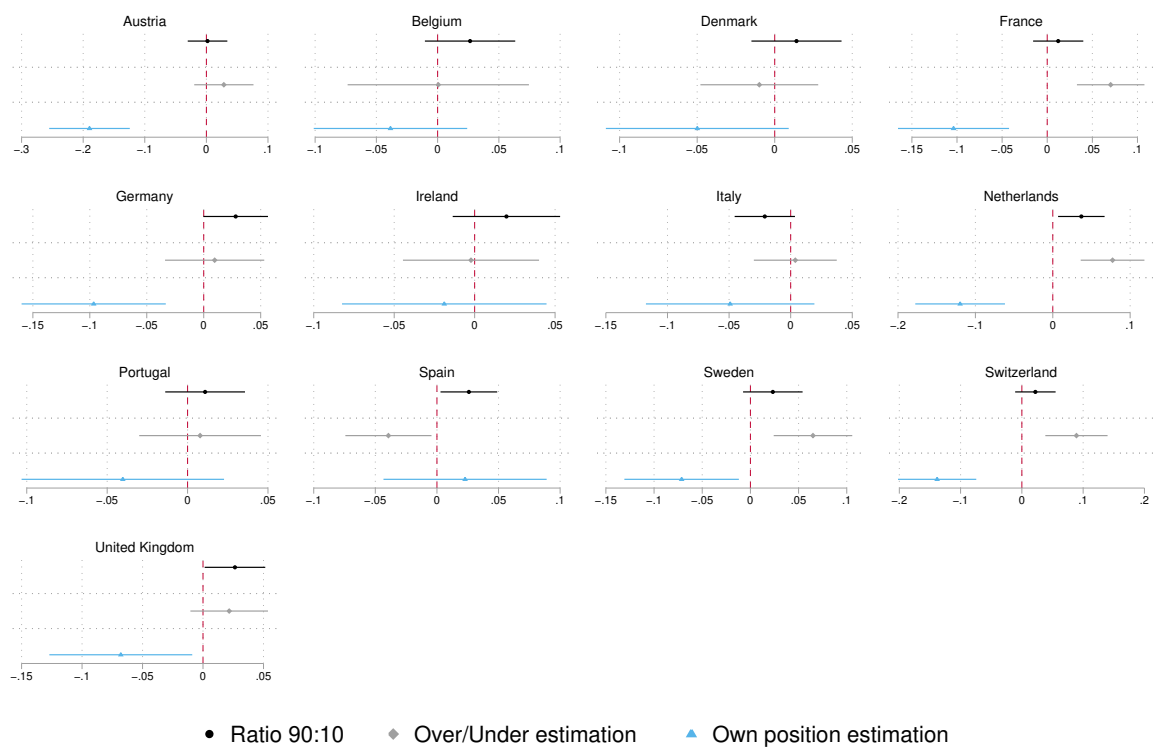


Figure A6: Effect of different inequality estimations on redistribution preferences in each country

Robustness checks

Limiting the analysis to countries in which income questions referred to months and not years

Table A4: Linear regression models of the relative error in guessing the income of three income groups for Austria, Belgium, Germany, Portugal and Switzerland

| VARIABLES | (1) Ratio 90:10 | (2) Over/Under- estimation | (3) Own position |
|-----------------------------|--------------------|-------------------------------|---------------------|
| Left-Right | -0.120 (1.23) | -0.014 (0.29) | 0.061*** (0.01) |
| Party identification | -14.426+ (7.65) | -3.316+ (1.82) | 0.240*** (0.05) |
| Sophistication parliament | 0.402 (0.29) | 0.091 (0.07) | -0.002 (0.00) |
| Sophistication unemployment | -0.218 (0.21) | -0.053 (0.05) | 0.006*** (0.00) |
| Gender | -11.005+ (6.14) | -2.697+ (1.46) | -0.113** (0.04) |
| Income decile | -1.875 (1.18) | -0.465+ (0.28) | -0.668*** (0.01) |
| Age | -0.426* (0.21) | -0.107* (0.05) | -0.002+ (0.00) |
| Education | -0.564 (6.90) | -0.119 (1.64) | 0.296*** (0.04) |
| Manual worker | -4.777 (7.69) | -0.900 (1.83) | -0.208*** (0.05) |
| Union member | 9.139 (6.14) | 2.143 (1.46) | 0.095* (0.04) |
| Constant | 45.556* (19.29) | 11.699* (4.59) | 2.702*** (0.12) |
| Country FE | YES | YES | YES |
| Observations | 8,012 | 8,060 | 8,114 |
| R-squared | 0.003 | 0.003 | 0.555 |

Standard errors in parentheses

** p<0.001, * p<0.01, + p<0.05, + p<0.1