



Working Paper Series

**Why are relatively poor people not more
supportive of redistribution?
Evidence from a survey experiment across
10 countries**

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ECINEQ WP 2019 - 489

Why are relatively poor people not more supportive of redistribution? Evidence from a survey experiment across 10 countries*

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Abstract

We test a key assumption of conventional theories about preferences for redistribution, which is that relatively poor people should be the most in favor of redistribution. We conduct a randomized survey experiment with over 30,000 participants across 10 countries, half of whom are informed of their position in the national income distribution. Contrary to prevailing wisdom, people who are told they are relatively poorer than they thought are less concerned about inequality and are not more supportive of redistribution. This finding is driven by people using their own living standard as a "benchmark" for what they consider acceptable for others.

Keywords: Inequality, social mobility, redistribution, political economy.

JEL Classification: D31, D63, D72, D83, O50, P16, H23.

*This study was pre-registered on the American Economic Association Randomized Control Trial Registry (ID number AEARCTR-0002534 and AEARCTR-0002614). The authors are very grateful for detailed comments provided on an earlier version of this paper by Michael Norton, Daniel Treisman, Elisabeth Bublitz, Edoardo Teso, Christopher Roth, Russell Toth, Eva Vivalt, Stephen Howes, Emma Samman, Mathias Sinning, Deborah Hardoon, David Hope, Alice Krozer, David McArthur and Ben Goldsmith. We are also grateful to seminar participants at LSE, Oxford, Kings College, UCL and the Australian National University. This paper presents independent analysis and is part of a project funded by the Abdul Latif Jameel Poverty Action Lab Southeast Asia (J-PAL SEA), Oxfam, the University of Sydney Research Excellence Initiative and Equity Economics. The content of the paper is solely the responsibility of the authors and does not necessarily reflect the official views of the funders.

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1 Introduction

Social commentators and researchers struggle to explain why, despite growing inequality in many countries around the world, there is often relatively limited support among poorer people for policies where they are set to benefit, such as increases in cash transfers targeted to the poor or in the minimum wage (Kuziemko et al. 2014, Roemer 1998, Holland 2018, Frank 2004). Recent studies have identified a potential reason why relatively poor people are not more supportive of redistribution; most of the poorest people in any given country do not realize they are close to the bottom of the national income distribution (Gimpelson and Treisman 2018, Bublitz 2016). Representative surveys across a range of developed countries have shown that most people tend to think they are positioned around the middle of the national income distribution regardless of whether they are rich or poor (Gimpelson and Treisman 2018). Furthermore, people's preferences for redistribution are more correlated with their perceived position than their actual position in the national income distribution (Gimpelson and Treisman 2018, Hauser and Norton 2017). This raises the question, if relatively poor people were made aware of their position in the national income distribution, would they be more concerned about inequality and supportive of redistribution?

Most conventional theories of preferences for redistribution imply informing people they are relatively poorer than they thought would lead to greater concern about inequality and support for redistribution (e.g. Meltzer and Richard 1981, Benabou and Ok 2001, Piketty 1995, Fehr and Schmidt 1999, Black 1948). This is based on the premise that people are averse to others in society having significantly different incomes to them and they are more concerned about the income gap between them and the richest in society as opposed to the income gap between them and the poorest in society (e.g. Fehr and Schmidt 1999, Alesina et al. 2011). However there is little empirical support as only a small number of survey experiments have analyzed how people's preferences for redistribution are affected by information (Hauser and Norton 2017). There is only one survey experiment that directly tests the effect of informing people they are relatively poorer than they thought (Cruces et al. 2013). Cruces et al. (2013) survey 1054 people in Buenos Aires and show informing people they are poorer than they thought led to

greater support for redistribution, which is consistent with the predictions of most existing theories. Yet there is also some evidence from related studies that would suggest informing people they are relatively poorer than they thought may reduce their desire for redistribution. For example, experimental research in the United States by Kuziemko et al. (2014) shows "last place aversion" can exist whereby relatively poor people often prefer when there are people who are poorer than them. Similarly, there are inconsistent findings from the few studies that examine the effect of informing people they are richer than they thought (Nair 2018, Karadja et al. 2017).

We test how informing people they are relatively poorer than they thought affects their concern about inequality and support for redistribution through an online randomized survey experiment with over 30,000 respondents in 10 countries (Australia, India, Mexico, Morocco, Netherlands, Nigeria, South Africa, Spain, the United Kingdom and the United States). Collectively these 10 countries make up around 30 per cent of the global population and represent about 40 per cent of world GDP. This is by far the largest survey experiment on how people's preferences for redistribution are affected by information to date and the first in multiple middle income countries. Similar to the approach used by Alesina et al. (2018), the sample of respondents is representative of the population with internet access¹ in each country and the data was collected using the survey firms YouGov, IPSOS and RIWI. Half of the respondents in each country were randomly allocated to either receive information about their position in the national income distribution (treatment group) or no information (control group). Prior to the treatment, respondents revealed their perception of the level of national inequality, their preferred level of national inequality and their perceived place in the national income distribution. After the treatment, respondents were asked questions sourced from existing studies on this topic regarding their views about whether the gap between the rich and poor is too large in their country and whether they think the government is responsible for closing this gap (Alesina et al. 2018, ISSP 2009). The design of our survey experiment means we are better placed to test the mechanisms through which

¹We present the sample average treatment effect in the body of the paper and in the appendix we weight the responses by the age and gender of respondents to match the census data in each country. The main effects do not differ qualitatively between the sample average treatment effects and weighted treatment effects.

information has an effect than previous studies because the sample size in each country is around three times larger and we more extensively solicit people's prior beliefs.

We find respondents in the poorest two quintiles of the national income distribution who are told they are relatively poorer than they thought are less concerned about the gap between the rich and poor in their country and are not any more supportive of the government closing this gap compared to respondents in the control group. This result occurs in seven countries (India, Mexico, Morocco, Netherlands, Nigeria, South Africa and Spain) and there was no effect from this information in the remaining three countries (Australia, United Kingdom and the United States). The overall effect of the treatment was driven by people who prefer low levels of inequality and mainly by respondents in the poorest quintile (however there is still an effect in the second poorest quintile in most countries)².

We illustrate that the likely channel causing the effect we detect is people using their own standard of living as a "benchmark" for what they consider acceptable for others³, by modifying Fehr and Schmidt's seminal model of other-regarding preferences and exploring heterogeneous treatment effects. This notion of "benchmarking" is consistent with one of the key foundations of most conventional theories of preferences for redistribution, which is that relatively poor people are averse to others in society having significantly different levels of income to them. However, this study diverges from standard theory by showing relatively poor people are more concerned about the gap between their income and the poorest in society as opposed to the gap between their income and the richest in society. We rule out an alternative channel, which is our results are due to "last place aversion" (Kuziemko et al. 2014), by examining heterogeneous treatment effects based

²We also show there was no treatment effect among respondents in the poorest two quintiles of the national income distribution who accurately estimated their position in the distribution. In addition, we show the effect was not due to the size of respondents' misperceptions, a lack of attention paid during the survey or the number of household members who live with respondents.

³This explains the results to our study as follows. People had perceived themselves to have an "average" living standard compared to other people in their country prior to the treatment, even though they were actually relatively poor. Their previous assessment of their relative status implies they thought there was a similar share of people poorer than them and richer than them in their country (this is as a result of placing oneself as being around the middle of the national income distribution). Upon receiving the treatment this led people to realize two points. Firstly, there are fewer people in their country with a living standard they considered to be relatively poor. Secondly, what they had considered to be an average living standard (their own standard of living) is actually relatively poor compared to other people in their country. Both of these points would suggest the treatment provided to respondents would lead them to become less concerned about the living standard of poor people in their country.

upon respondents' actual position in the distribution and their preferences for inequality that were provided prior to the treatment.

This paper contributes to the existing understanding of how people's perceptions of inequality shape their support for redistribution in at least two ways. Firstly, we identify a plausible mechanism (that we refer to as "benchmarking") through which people update their beliefs about inequality, that has not previously been explicitly highlighted in the literature. This mechanism potentially helps to explain why poorer people are less supportive of redistribution than conventional theories of preferences for redistribution would suggest. Benchmarking means there are competing channels through which people think about redistribution. On the one hand, relatively poor people may be more supportive of redistribution if they believe they are set to benefit, but on the other hand they may be less supportive if they view the absolute living standard of relatively poor people as somewhat satisfactory and as such they are less likely to think redistribution to the poor is needed.

Secondly, we add to the growing evidence base that suggests conventional theories of preferences for redistribution should be modified to reflect the fact that most people do not have complete and accurate information about the income distribution in their country (Gimpelson and Treisman 2018, Hauser and Norton 2017). We extend the stylized facts from studies in developed countries that poor people do not realize they are near the bottom of the national income distribution and their perceived, as opposed to actual, position in the distribution is more closely aligned with their preferences for redistribution to a diverse group of middle income countries (Gimpelson and Treisman 2018, Hauser and Norton 2017). However our results illustrate relatively poor people's misperceptions of their position in the distribution do not appear to be lowering their concern about inequality and support for redistribution. We provide evidence the opposite is true. Relatively poor people would be even less concerned about inequality if they knew their true position in the national income distribution.

This paper is structured as follows. Section 2 provides a theoretical framework of how informing people they are relatively poorer than they thought would affect their concern about inequality and explores how this framework relates to existing experimental studies on this topic. Section 3 outlines the methodology behind the randomized

survey experiment and the econometric analysis we conduct. Section 4 illustrates that the descriptive trends from our survey data are consistent with previous research on perceptions of inequality in developed countries. Sections 5 and 6 present the results of the survey experiment and discuss how the findings relate to existing theories of preferences for redistribution.

2 Theory and Related Literature

2.1 Theoretical framework

To illustrate how a person's position in an income distribution relates to their preferences, we start with a seminal model of other-regarding preferences by Fehr and Schmidt (1999)⁴. In a simple setting where there are three people and person A consumes between the other two, person A's utility function can be expressed as follows:

$$U(c_a, c_p, c_r) = U(c_a) - \beta U(c_a - c_p) - \gamma U(c_r - c_a)$$

In this model an individual's utility ($U(c_a, c_p, c_r)$) depends on their own consumption (c_a) as well as the direction and size of the weighting they place on their consumption relative to people poorer (c_p) than them (β) and richer (c_r) than them (γ).

There are two foundational principles to Fehr and Schmidt's (1999) model that are common to most conventional theories of preferences for redistribution (Alesina et al. 2011). Firstly, people are averse to others having significantly different consumption to them ($\gamma > 0, \beta > 0$) and they use their own consumption (c_a) as a reference point for assessing other people's consumption (c_r and c_p). Secondly, people are more concerned about the gap between their consumption and those richer than them as opposed to the gap between their consumption and those poorer than them ($|\gamma| > |\beta|$). Collectively, these principles imply $\gamma > \beta > 0$. Therefore individuals close to the top of the "distribution" (where $c_r - c_a < c_a - c_p$) have higher utility (beyond just having a higher level of consumption) than those who are closer to the bottom of the "distribution" (where $c_r - c_a > c_a - c_p$).

⁴While their model refers to consumption, we follow Kuziemko et al. (2015) and focus on income in this paper.

As a result, this would suggest the poorer an individual is the more likely they are to be concerned about the gap in income between the rich and poor. Consequently, it is expected the poorer an individual is, the more likely they would be supportive of redistribution (from rich to poor)⁵. This is a key component of most conventional theories of preferences for redistribution, such as the Meltzer-Richard hypothesis that proposes people below the mean income in the national income distribution should support redistribution (Meltzer and Richard 1981).

We modify Fehr and Schmidt's model to reflect recent research indicating that people's perceptions of their position in the distribution (as opposed to what is actually the case) are more closely correlated with their preferences (Gimpelson and Treisman 2018, Hauser and Norton 2017). Specifically, we show person A's utility is dependent on how they perceive the consumption of the other two individuals, as opposed to those individuals' actual level of consumption. The simple three-person model becomes:

$$U(c_a, c_p(p), c_r(p)) = U(c_a) - \beta U(c_a - c_p(p)) - \gamma U(c_r(p) - c_a)$$

whereby; $c_p(p)$ = perceived consumption of person poorer than c_a and $c_r(p)$ = perceived consumption of person richer than c_a .

This revised model provides a framework to illustrate how information about an individual's position in the national income distribution ($\frac{c_r - c_a}{c_a - c_p}$) is expected to affect their preferences⁶. If these foundational principles hold (ie. $\gamma > \beta > 0$), this would imply the following:

Hypothesis: Informing people they are relatively poorer than they thought will increase their concern about the gap between the rich and poor and as a result this will increase their support for the government to reduce this gap.

⁵Changes in people's utility may not automatically equate to changes in their preferences for redistribution for a range of reasons. For example, if an individual lacks trust in the government then information about their place in the distribution might affect their utility but not their support for redistribution as they may believe the government will not address the problem. As such, changes in other-regarding preferences could be considered a necessary but not sufficient condition for preferences for redistribution to change.

⁶While Fehr and Schmidt's model does not explicitly predict how preferences change when individuals are provided with information, we follow Card et al. (2012) who modify a similar utility function to illustrate how people update their beliefs.

The first part of this hypothesis can be written formally as:

$$\text{if } \frac{c_r - c_a}{c_a - c_p} > \frac{c_r(p) - c_a}{c_a - c_p(p)} \text{ then } [U(c_a, c_p, c_r)|I] < [U(c_a, c_p(p), c_r(p))]$$

Where l = information about (c_a) relative to (c_p) and (c_r) .

If the opposite outcome arises than predicted by this hypothesis, it could be due to either the first or second foundational principle of Fehr and Schmidt's model and most conventional theories of preferences for redistribution lacking empirical support. In other words, people may not be averse to others consuming significantly differently to them ($\gamma < 0, \beta < 0$) or people may be more concerned about the gap between their consumption and those poorer than them as opposed to the gap between their consumption and those richer than them ($|\gamma| < |\beta|$).

2.2 Related literature

Only a relatively recent and small literature of survey experiments exists that analyze how people's preferences for redistribution are affected by information (Hauser and Norton 2017). Influential studies by Kuziemko et al. (2015) and Alesina et al. (2018) show that preferences for redistribution can be elastic to information about inequality, however neither test the hypothesis above. The only cross-country field experiment that relates to the research question in this paper provides a treatment with multiple pieces of information about inequality to respondents, including their position in the national income distribution (Bublitz 2016). This treatment reduced support for redistribution among people who were richer than they thought in Germany and Russia but had no effect in the remaining four countries (France, Spain, Brazil and the United States). It is challenging to identify the mechanisms that are causing this outcome as respondents were provided with various pieces of information about inequality in their country as well as their position in the distribution.

The most relevant studies that examine this hypothesis and what they imply about the shape of people's utility in our model are summarized in Table 1 below. Only one survey experiment directly examines the hypothesis above. Cruces et al. (2013) conducted a household survey experiment of 1054 respondents in Buenos Aires (the

capital of Argentina) and show that information about people's position in the national income distribution boosts support for redistribution among people who were relatively poorer than they thought. This result (i.e. $\gamma > \beta > 0$) is consistent with the hypothesis in our paper. A related study by Kuziemko et al. (2014) provides evidence from laboratory experiments and surveys in the United States that "last place aversion" can exist whereby people near the bottom of the distribution are the least supportive of redistribution, particularly in the form of increases in the minimum wage. It is argued that this is because poor people prefer a gap between their income and that of people relatively poorer than them. This finding (i.e. $\beta < 0$) is inconsistent with the hypothesis above.

TABLE 1: SUMMARY OF WHAT THE RESULTS OF RELEVANT STUDIES IMPLY ABOUT THE SHAPE OF PEOPLE'S UTILITY IN OUR MODEL

Shape of utility	$\gamma > \beta > 0$	$\beta > \gamma > 0$	$\beta < 0$
Relevant studies	Cruces et al (2013) Karadja et al (2017)	Nair (2018)	Kuziemko et al (2014)

There are two similar survey experiments that examine the effect of informing people that they are relatively richer than they thought. The first, by Karadja et al. (2017), uses a postal survey experiment of 1001 respondents in Sweden and shows that informing people they are relatively richer than they thought lowers support for redistribution⁷. This result (i.e. $\gamma > \beta > 0$) is compatible with the hypothesis in our paper. The second, by Nair (2018), involves an online survey experiment of 1559 respondents in the United States and shows that when people were told they were relatively richer than they thought in terms of global income distribution, they became more supportive of international redistribution. Nair argues that this finding is because people are averse to a large gap in incomes between them and the poorest people in the world. This finding (i.e. $\beta > \gamma > 0$) is incompatible with the hypothesis above.

⁷Almost all respondents to this study either underestimated or accurately estimated their position in the income distribution. As such there was too small a sample size (i.e. inadequate statistical power) for the authors to examine the hypothesis above.

3 Methodology

3.1 Sample selection and sample size

This study helps fill the gap in the literature about whether relatively poor people's misperceptions of their position in the national income distribution lower their support for redistribution by testing the hypothesis above. We conducted a survey experiment with over 30,000 respondents in 10 countries (Australia, India, Mexico, Morocco, Netherlands, Nigeria, South Africa, Spain, the United Kingdom and the United States) during the last three months of 2017. These countries make up around 30 per cent of the global population and represent about 40 per cent of world GDP. The diverse set of countries was selected so as to provide confidence in the external validity of the results of the survey experiment and to ensure at least one country was included from Asia, Sub-Saharan Africa, Latin America, Middle East and North Africa, Europe, North America and Oceania.

Data was collected of a representative sample of the population with internet access in each country using an online survey, which is similar to the approach used by Alesina et al. (2018) (we used the firms YouGov, IPSOS and RIWI and provide details about their sampling methodology in appendix). This resulted in a sample of respondents where younger people and men were overrepresented compared to a perfectly nationally representative sample, especially in developing countries (see Table 2). Throughout the body of the paper we present the sample average treatment effect, and to reduce concerns about the representativeness of the sample we present the treatment effects weighted by the age and gender of the national population in the appendix. In general, the effects are qualitatively similar.

TABLE 2: AGE AND GENDER OF THE SURVEY SAMPLE AND ADULT POPULATION IN EACH COUNTRY

	Survey Sample		Adult Population	
	Male (%)	18-35 years old (%)	Male (%)	18-35 years old (%)
Australia	49.8	29.4	49.8	34.2
India	74.7	75.6	51.8	48.7
Mexico	58.5	61.4	49.8	47.0
Morocco	68.2	63.2	49.5	46.2
Netherlands	60.3	46.3	49.7	29.4
Nigeria	71.8	79.0	50.7	58.8
South Africa	62.9	70.6	49.1	51.0
Spain	59.2	40.1	49.0	24.4
UK	47.2	27.0	49.3	31.0
US	53.6	45.9	49.5	33.9

Note: Population data was sourced from the World Bank (2017A) and we only focused on the share of the population aged 18 years and older.

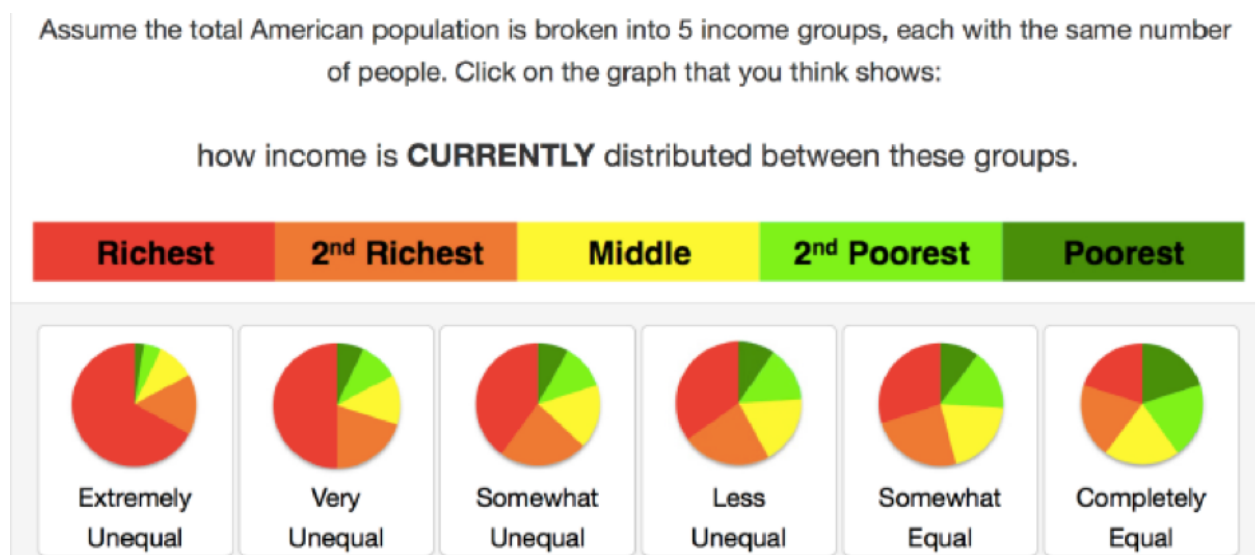
In every country, the treatment and control groups had at least 800 respondents and on average there were around 1500 respondents in each group. This is a similar sample size in each country to what was used in Kuziemko et al. (2015) and Alesina et al. (2018). Previous studies that just provided information about a respondent's position in the distribution only had around 500 respondents in the treatment group (Cruces et al. 2013, Karadja et al. 2017). As such we have substantially more statistical power to detect heterogeneous effects, such as differences in the effect of information between people based upon their pre-existing perceptions of inequality.

3.2 Survey design

The survey consisted of two sections; the first collected people's existing perceptions of inequality and demographic characteristics, while the second included questions about people's concerns about inequality and desire for government action. The demographic characteristics section (see appendix for details) included questions about the total household income and the number of people in each respondent's household so that the position of each respondent in the national income distribution could be determined. Previous studies have used a range of techniques to measure respondents' perception of the level of national inequality, such as stylized distributions (ISSP 2009) or asking respondents

to estimate quintile shares (Norton et al. 2011). We follow the rationale behind existing approaches, however we minimize measurement error by gathering people’s perceptions in an ordinal sense (Kuhn 2015). Respondents were asked to select one of six options⁸ that could represent the distribution of income in their country, ranging from perfectly equal to extremely unequal (Figure 1). They were then asked to select the level of national inequality they would prefer to exist using the same set of options. We compare respondents’ answers to the question about their perceived level of inequality and preferred level of inequality to determine if they would prefer lower levels of inequality than what they believe currently exists.

FIGURE 1: QUESTION ABOUT RESPONDENTS’ PERCEPTION OF THE EXISTING LEVEL OF INEQUALITY IN THE UNITED STATES



Note: The preamble to the question was adjusted in each country. For example, in the United Kingdom the question stated "the total British population", not "the total American population" as in Figure 1.

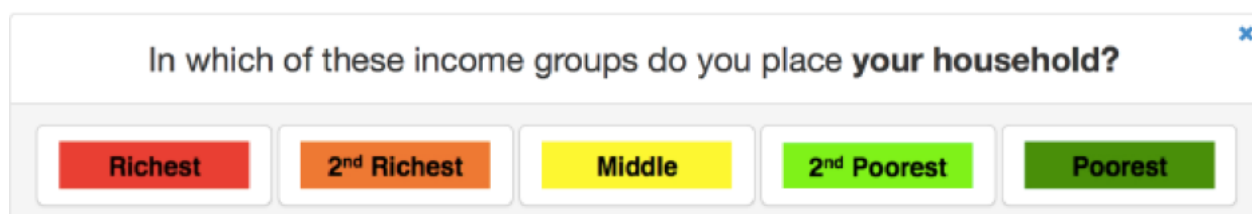
Respondents were also asked about which quintile they perceived their household to fall into in the national income distribution (Figure 2). This approach of using a limited number of options for respondents to select from is similar to other studies⁹ (e.g. Cruces

⁸The most unequal distribution option is based upon the actual level of income inequality in South Africa. This is followed by the distribution in Indonesia, the United Kingdom and Norway. The most equal distribution options are more equitable than what exists in any country in the world.

⁹The main difference is that we use quintiles in this study (as opposed to deciles) to make it easier for people to understand even if they lack basic numeracy.

et al. 2013 and Karadja et al. 2017) as asking respondents their exact percentile or rank in the distribution is likely to have a large margin of error. We compare respondents' answers to the question about their perceived quintile in the national distribution to their actual quintile in the national income distribution to determine if they accurately, under (relatively richer than they thought) or overestimated (relatively poorer than they thought) their position.

FIGURE 2: QUESTION ABOUT THE POSITION OF RESPONDENTS' HOUSEHOLD IN THE INCOME DISTRIBUTION



Note: This question was asked immediately after the question shown in Figure 1.

The second part of the survey included questions about respondents' concern about inequality and their support for redistribution (see Table 3). These questions were sourced from previous studies, specifically the International Social Survey Programme (ISSP) (2009) and Alesina et al. (2018).

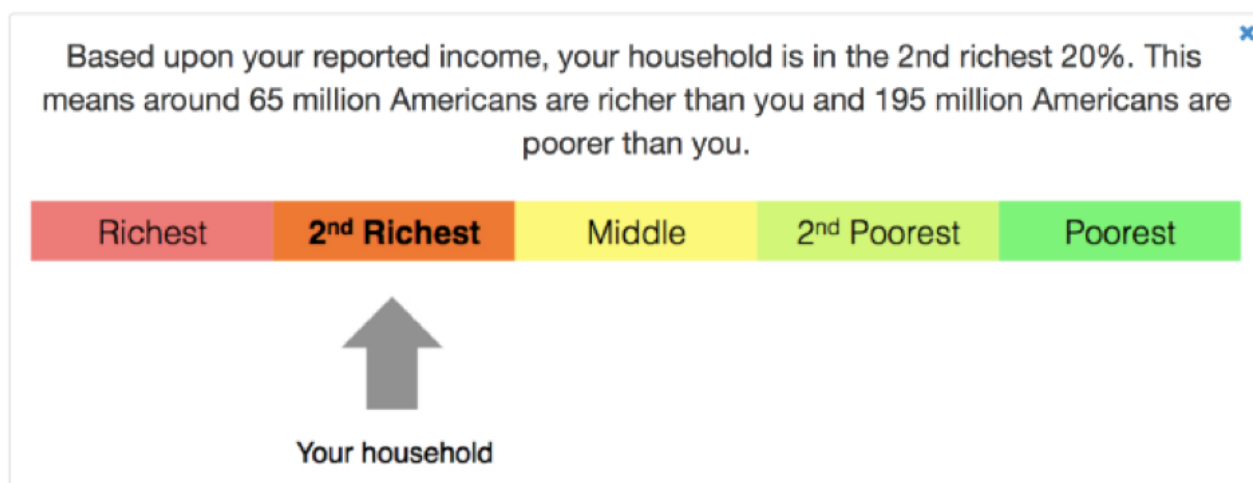
TABLE 3: QUESTIONS ABOUT PEOPLE'S CONCERN ABOUT THE GAP BETWEEN THE RICH AND POOR AND WHETHER THEY BELIEVE THE GOVERNMENT IS RESPONSIBLE FOR CLOSING THE GAP

<p>GAP – To what extent do you agree with the following statement “The gap between the rich and the poor in (COUNTRY X) is too large” (Strongly Agree, Agree, Neither Agree or Disagree, Disagree, Strongly Disagree)</p>	<p>RESPONSIBILITY – To what extent do you agree with the following statement “It is the responsibility of the government to reduce the gap between the rich and the poor”? (Strongly Agree, Agree, Neither Agree or Disagree, Disagree, Strongly Disagree)</p>
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Prior to answering the second section of the survey, respondents were randomly allocated to either receive information about which quintile in the national income distribution they belonged to (see an example in Figure 3) or no information (the control group). Randomization ensured the effect of information could be determined by comparing average differences in answers to questions between the treatment and control groups. There

were few statistically significant differences between treatment and control groups across demographic characteristics and existing perceptions of inequality in each country (see balance table in the appendix). Data about the income distribution in each country was sourced from the World Bank (World Bank 2017A, World Bank 2017B) for the middle income countries and the OECD for high income countries (OECD 2017).

FIGURE 3: INFORMATION SHOWN TO RESPONDENTS IN THE TREATMENT GROUP IN THE UNITED STATES WHO BELONGED TO THE SECOND RICHEST QUINTILE



We designed our study to minimize the risk the findings would be affected by measurement issues that can arise in survey experiments. Firstly, there is a risk a "placebo effect" or "priming" may occur whereby simply mentioning inequality could trigger an effect irrespective of the exact content of the treatment (Nair 2016, McCall 2017). We address this concern by asking all respondents prior to the treatment about their views on the level of national inequality and their perceived position in the national income distribution. As such, all respondents were already thinking about inequality (i.e. both treatment and control groups were "primed") prior to the treatment being provided, which dramatically reduces the likelihood there is a placebo effect from the treatment itself. This is the same approach as was taken by Alesina et al. (2018) who solicited all respondents' views about mobility in their country prior to the treatment being provided.

Secondly, a potential risk in a survey experiment on this topic is that results are skewed due to "experimenter demand effects" or "social desirability bias" (Kuziemko

et al. 2015), whereby respondents provide either answers they think the experimenter would want to hear or answers they perceive as more socially acceptable. In our study this could look like respondents pretending to be more altruistic (measured as being concerned about inequality in their country) than they actually are. We reduce the likelihood this is driving our results as all respondents remained anonymous and the surveys were conducted online so there was no direct human interaction associated with completing the survey. Furthermore, there was no incentive structure that could lead respondents to believe they could answer the survey in a way to increase their likelihood of getting to participate (or avoid participating) in a future survey (unlike studies that use platforms like Mechanical Turk).

3.3 Empirical model

We perform two types of empirical analysis to capture the effect of information by comparing differences between the treatment and control groups in each country. We pre-registered the analysis we planned on undertaking for this study with the American Economic Association Randomized Control Trial registry (ID number AEARCTR-0002534 and AEARCTR-0002614) (Hoy and Mager 2017). We analyze the effect of information for each country individually because the information provided is tailored to the income distribution of each country, the questions relate to redistribution by the national government, and the political economy within each country differs.

The first type of analysis we conduct is an Ordinary Least Squares (OLS) regression with a binary dependent variable (a linear probability model). This involves creating a dummy variable for the treatment group (T), which takes on the value 1 if the respondent belongs to the treatment group and the value 0 if the respondent belongs to the control group. We also create a dummy variable for each question (Y_j) in Table 3 which takes on the value 1 if the respondent strongly agrees or agrees with the statement in question j and the value 0 if the respondent does not select one of these options. The OLS

regression, conducted individually for each country, can be written formally as follows:

$$Y_j = \alpha_{0i} + \alpha_{1i}T + \varepsilon$$

Where α_{1i} captures the average difference in the share of respondents in the treatment and control groups that agreed with the statement in question j (i.e. the treatment effect). α_{0i} captures the share of respondents in the control group that agreed with the statement in question j and ε is the model error term. We also conduct robustness checks (presented in the appendix) where we control for demographic characteristics in the regression above as well as weight survey responses to reflect the age and gender of the national population. The results are qualitatively similar.

We analyze the heterogeneous treatment effects from information in regards to people's perceived position in the distribution, actual position in the distribution and preferred level of national inequality. Using an OLS regression, we interact the treatment dummy with the characteristic (A_i) collected prior to the treatment. This can be written formally as:

$$Y_j = \alpha_{0i} + \alpha_{1i}T + \alpha_{2i}A_i + \alpha_{3i}T * A_i + \varepsilon$$

Where α_{3i} captures the average difference in the share of respondents in the treatment and control groups who have characteristic (A_i) that agreed with the statement in question j . α_{1i} captures the effect of the treatment on respondents who do not have characteristic (A_i). α_{2i} captures the share of respondents in the control group who have characteristic (A_i) that agreed with the statement in question j . α_{0i} captures the share of respondents in the control group who do not have characteristic (A_i) that agreed with the statement in question j and ε is the model error term.

The second type of analysis we conduct involves using an ordered logit model to analyze the effect of the information. We follow a similar approach to the first type of analysis whereby we capture the difference in responses between treatment and control groups using the co-efficient of a dummy variable for the treatment group (i.e. T). For

simplicity and brevity, in the body of the paper we present tables of the OLS regressions and the appendix contains the results of the ordered logit regression. The results are qualitatively similar.

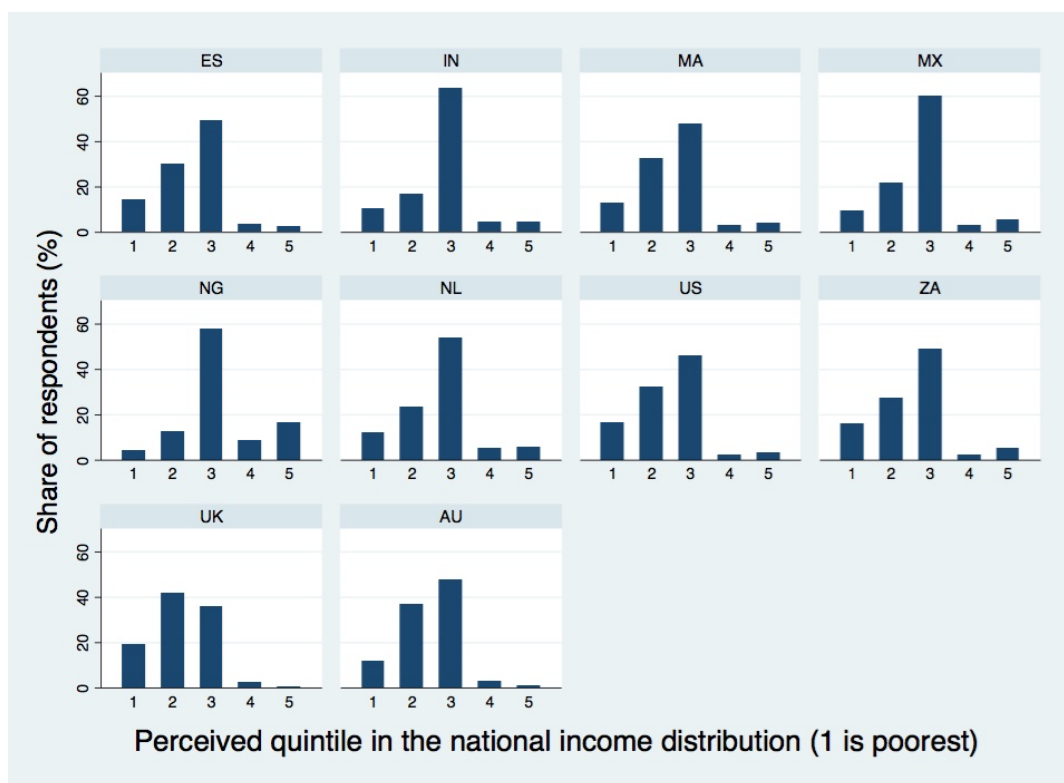
4 Data

4.1 Relatively poor people's misperception of their position in the distribution

The vast majority of respondents from the poorest two quintiles of the national income distribution in each country were unable to accurately estimate which quintile in the distribution their household belonged to¹⁰. Between 5.0 per cent (in Nigeria) to 29.1 per cent of respondents (in the United Kingdom) accurately estimated their position. Interestingly, respondents in high income countries (HICs) were over 50 per cent more likely to accurately estimate their quintile in the national income distribution than respondents in middle income countries (MICs) (20.7 per cent answered accurately in HICs compared to 13.0 per cent in MICs). Between 37.1 per cent (in the United Kingdom) to 63.1 per cent (in India) of respondents from the poorest two quintiles of the national income distribution perceived their household to be in the middle quintile of the national income distribution (Figure 4). We call this misperception a "median bias" and it has also been observed in a number of studies on perceptions of inequality in developed countries (e.g. Gimpelson and Treisman 2018).

¹⁰This is calculated drawing on responses to the question shown in Figure 2.

FIGURE 4: RESPONDENT’S PERCEIVED QUINTILE IN THE NATIONAL INCOME DISTRIBUTION

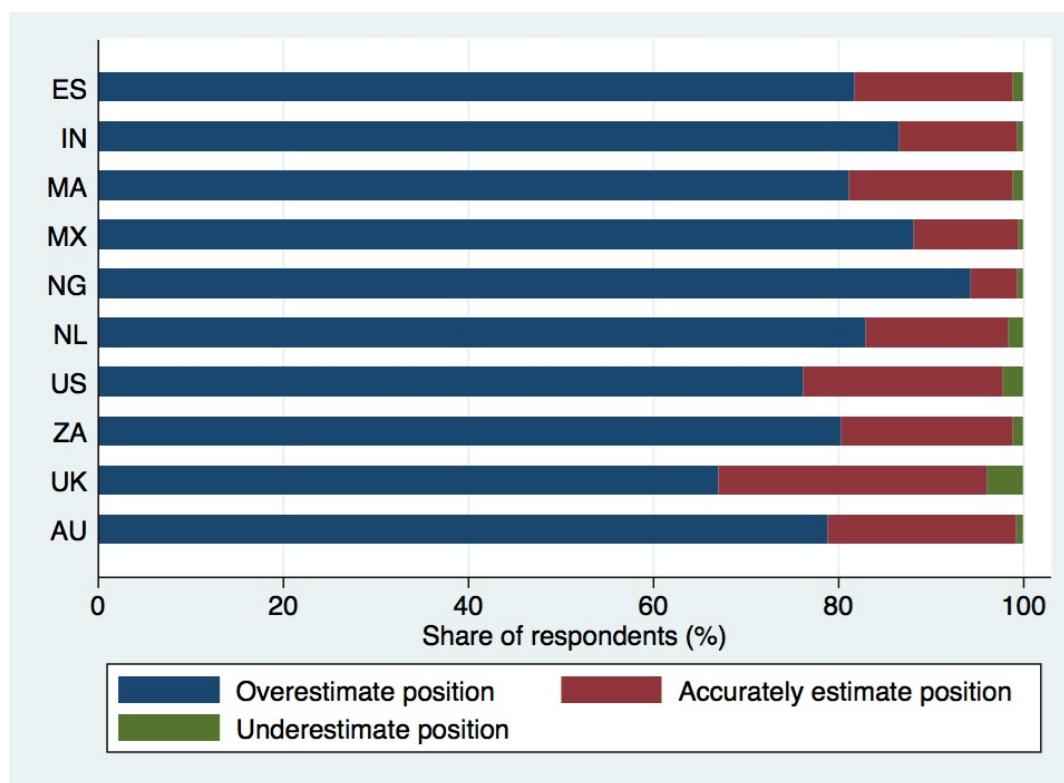


ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands, US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

The presence of a median bias means that people who are actually poor tend to overestimate their position in the national income distribution. Between 67.0 per cent (in the United Kingdom) to 94.4 per cent (in Nigeria) of respondents in the poorest two quintiles overestimated their position (Figure 5). Only a trivial share of respondents in the second poorest quintile underestimated which quintile in the national income distribution they belonged to¹¹.

¹¹It is not possible for respondents in the poorest quintile to underestimate the quintile they belong to.

FIGURE 5: SHARE OF RESPONDENTS IN THE POOREST TWO QUINTILES THAT OVERESTIMATE, UNDER AND ACCURATELY ESTIMATE THEIR POSITION IN THE NATIONAL INCOME DISTRIBUTION



ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands, US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

The demographic characteristics associated with respondents in the poorest two quintiles of the national income distribution overestimating their position in the distribution are shown in Table 4¹². In general, respondents under the age of 35, who are female and live in urban areas were more likely to overestimate their position in the distribution¹³, however there was variation across countries. Living in an urban area and being female is only a significant¹⁴ predictor of respondents’ overestimating their position in the income distribution in MICs. In the United Kingdom and Spain, basic demographic characteristics of respondents were not associated with overestimating one’s position.

¹²The table presents the results of an OLS regression for respondents in the poorest two quintiles whereby the dependent variable is a dummy variable that takes the value of 1 if a respondent overestimates their position and a value of 0 if they accurately or under estimate their position. The independent variables are a set of dummy variables of basic demographic characteristics of respondents (age, gender, location and level of education).

¹³This is somewhat similar to what Alesina et al. (2018) find regarding people’s optimism about the level of mobility in their country.

¹⁴At a p-value of below 0.05.

TABLE 4: CHARACTERISTICS ASSOCIATED WITH RESPONDENTS IN THE POOREST TWO QUINTILES OVERESTIMATING THEIR POSITION IN THE DISTRIBUTION

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
Under 35	0.025 (0.02)	0.034 (0.02)	0.035* (0.02)	0.002 (0.02)	0.043*** (0.02)	0.057** (0.02)	0.068*** (0.02)	0.095*** (0.02)	0.048 (0.04)	0.070** (0.03)
Male	0.033 (0.02)	-0.042** (0.02)	-0.054** (0.02)	-0.049*** (0.02)	-0.000 (0.01)	-0.028 (0.02)	-0.006 (0.02)	-0.043** (0.02)	-0.045 (0.03)	-0.022 (0.03)
Urban	0.034 (0.02)	0.066*** (0.02)	0.030 (0.02)	0.083*** (0.02)	0.045*** (0.01)	0.033 (0.02)	0.003 (0.02)	0.068*** (0.02)	0.010 (0.03)	0.053* (0.03)
University	0.027 (0.02)	0.004 (0.02)	-0.023 (0.02)	0.010 (0.02)	-0.011 (0.01)	-0.018 (0.02)	0.018 (0.03)	0.015 (0.03)	0.035 (0.03)	0.024 (0.03)
Constant	0.755 (0.02)	0.830 (0.03)	0.812 (0.03)	0.855 (0.02)	0.878 (0.02)	0.805 (0.02)	0.719 (0.02)	0.703 (0.03)	0.665 (0.03)	0.729 (0.03)
Obs	1437	1430	1708	1289	1629	1207	1429	1521	873	991

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

Under 35 is a dummy variable for respondents aged between 18 and 34 years old

Male is a dummy variable for male respondents, Urban is a dummy variable for respondents in urban areas

University is a dummy variable for respondents who completed university education

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.2 Relationship between perceived position in the national income distribution and preferred level of national inequality

We show across the 10 countries in our study, people in the poorest two quintiles in the national income distribution tend to have similar preferences for inequality to be lower than what they perceive it to be as people in the richest two quintiles. There are some countries where richer people tend to be less likely to desire lower levels of inequality (Spain, Mexico and the Netherlands), however there are others where the opposite is the case (India and South Africa). The difference between the richest two quintiles and the poorest two quintiles in terms of their preference for lower inequality ranges from 13 percentage points to negative 15 percentage points (see Table 5). This pattern whereby poorer people do not seem to have substantially different preferences in regards to inequality than richer people has been observed in other studies (Kuziemko et al. 2014, Roemer 1998, Holland 2018).

TABLE 5: SHARE OF RESPONDENTS THAT WOULD PREFER LOWER INEQUALITY THAN WHAT THEY PERCEIVE TO EXIST

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
	%	%	%	%	%	%	%	%	%	%
Poorest two quintiles	61	40	51	51	45	51	57	52	77	76
Richest two quintiles	48	55	45	41	44	40	49	66	78	70
Difference	13	-15	6	10	1	11	8	-14	-1	6

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

In contrast, there is a noteworthy difference in preferences for greater equality between respondents in the poorest two quintiles in the national income distribution who think they are poor compared to those who think they are rich. Across all countries relatively poor¹⁵ people who perceived themselves to be in the poorest two quintiles were between 13 and 33 percentage points more likely to prefer lower levels of inequality than relatively poor people who perceived themselves to be in the richest two quintiles (see Table 6). This is consistent with recent evidence in developed countries that suggests people's perception of their position in the distribution is a better predictor of their redistributive preferences than what is actually the case (Gimpelson and Treisman 2018, Hauser and Norton 2017).

TABLE 6: SHARE OF RESPONDENTS IN POOREST TWO QUINTILES THAT WOULD PREFER LOWER INEQUALITY THAN WHAT THEY CURRENTLY PERCEIVE TO EXIST

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
	%	%	%	%	%	%	%	%	%	%
Perceive Q1/Q2	65	42	58	56	58	56	63	58	79	85
Perceive Q4/Q5	37	27	35	34	32	31	42	30	66	52
Difference	28	15	23	22	26	25	21	28	13	33

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

Q1 - Quintile 1, Q2 - Quintile 2, Q4 - Quintile 4, Q5 - Quintile 5

5 Results

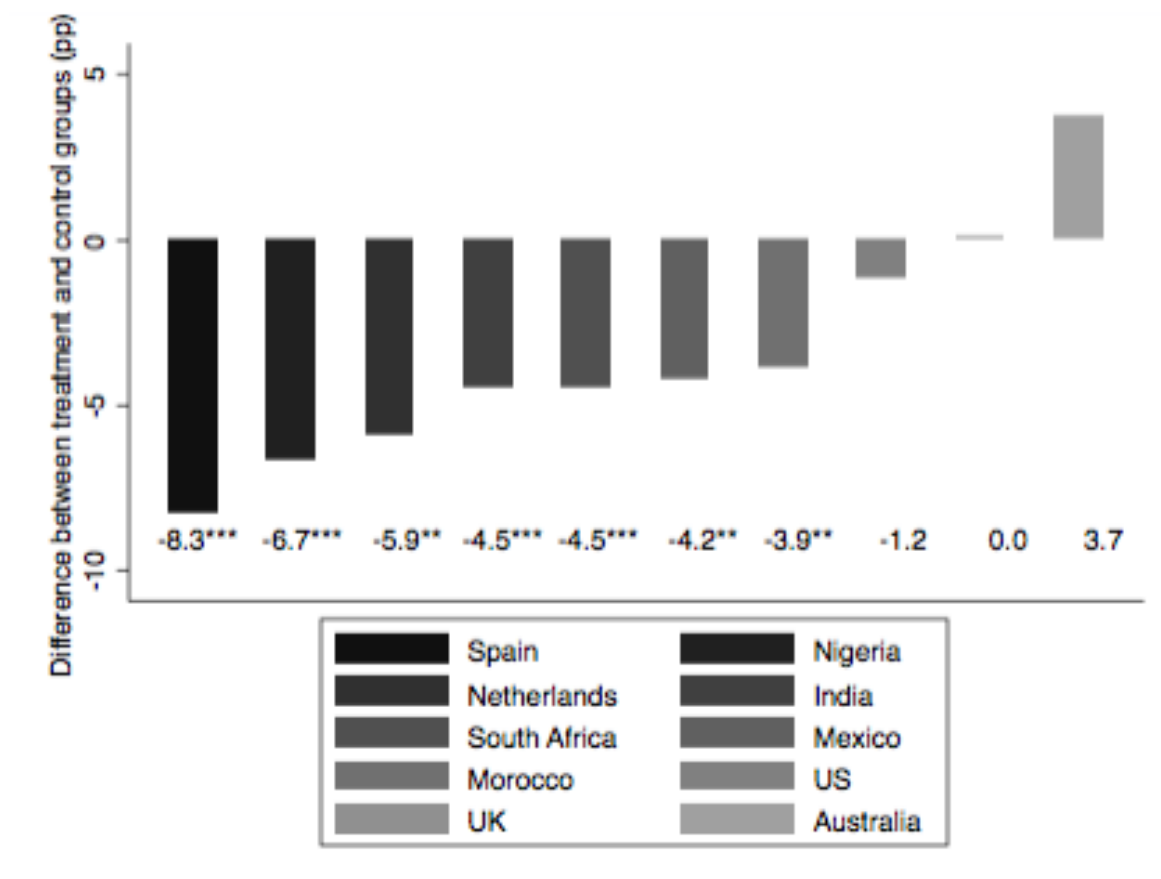
5.1 Main findings

Informing respondents in the poorest two quintiles of the national income distribution they are relatively poorer than they thought meant they were less likely to agree that the gap between the rich and poor is too large in their country compared to a control group. This treatment effect is statistically significant in seven of the ten countries in our study (India, Mexico, Morocco, Netherlands, Nigeria, South Africa and Spain) and there is no effect in the remaining three countries (Australia, United Kingdom and the United

¹⁵Defined as being in the poorest two quintiles of the national income distribution.

States) (see Figure 6). Among the seven countries where there is a statistically significant effect, the difference between treatment and control groups is between negative 8.3 and negative 3.9 percentage points.

FIGURE 6: THE EFFECT OF TELLING RELATIVELY POOR PEOPLE THEY ARE POORER THAN THEY THOUGHT ON WHETHER THEY AGREE THE GAP BETWEEN THE RICH AND POOR IS TOO LARGE



We present the share of respondents in the control group that agree the gap between the rich and poor is too large in their country and the difference between the treatment and control group means for each country (i.e. the treatment effect) in Table 7. For example, in the case of Spain 78.5 per cent of respondents in the control group (who overestimated their position and are actually in the poorest two quintiles) agree the gap between rich and poor is too large, whereas the share of respondents that agree in the treatment group (who overestimated their position and are actually in the poorest two quintiles) is 8.3 percentage points lower. In all 10 countries, this information does not affect people’s views about whether the government is responsible for closing the income

gap between the rich and the poor (see Table 7).

TABLE 7: EFFECT OF TREATMENT ON PEOPLE WHO OVERESTIMATED THEIR PLACE

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - GAP	-0.083*** (0.02)	-0.045*** (0.02)	-0.039** (0.02)	-0.042** (0.02)	-0.067*** (0.01)	-0.059** (0.02)	-0.012 (0.02)	-0.045*** (0.02)	0.005 (0.03)	0.037 (0.03)
Con - GAP	0.785 (0.02)	0.856 (0.01)	0.785 (0.01)	0.865 (0.01)	0.927 (0.01)	0.692 (0.02)	0.769 (0.01)	0.887 (0.01)	0.824 (0.02)	0.775 (0.02)
TE - RES	-0.006 (0.03)	0.014 (0.02)	0.020 (0.03)	0.010 (0.03)	0.024 (0.02)	0.019 (0.03)	-0.044 (0.03)	-0.030 (0.02)	0.025 (0.04)	0.034 (0.04)
Con - RES	0.776 (0.02)	0.807 (0.01)	0.661 (0.02)	0.717 (0.02)	0.823 (0.01)	0.647 (0.02)	0.654 (0.02)	0.768 (0.02)	0.682 (0.03)	0.609 (0.02)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TE - Treatment Effect, Con - Constant term

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

RES - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the government is responsible for closing the gap between the rich and poor in their country

5.2 Main findings disaggregated by respondents' preferences for inequality

The effect of information on people's concern about the gap between the rich and poor is largely driven by respondents who stated prior to the treatment that they prefer low levels of national inequality. This is shown in Table 8 below, which illustrates that in six of the seven countries where there is a significant effect in Table 7, the effect is driven by respondents who stated prior to the treatment that they prefer low levels of inequality (i.e. in India, Mexico, Netherlands, Nigeria, South Africa and Spain). Among these six countries the difference between the treatment and control groups was between negative 8.7 and negative 4 percentage points. The exception is in Morocco where the overall effect is driven primarily by people who prefer high levels of inequality; among this group of respondents the difference between treatment and control groups was negative 9.2 percentage points. There are no statistically significant treatment effects in terms of respondents' views about the responsibility of the government in closing the gap between rich and poor among people who stated prior to the treatment they prefer high or low

levels of national inequality (see Table 8).

TABLE 8 - HETEROGENEOUS TREATMENT EFFECTS FOR RESPONDENTS WHO OVERESTIMATED THEIR PLACE BASED UPON THEIR PREFERENCES FOR THE LEVEL OF INEQUALITY IN THEIR COUNTRY

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - LI - GAP	-0.087*** (0.03)	-0.040* (0.02)	-0.034 (0.03)	-0.046** (0.02)	-0.073*** (0.02)	-0.083** (0.04)	0.017 (0.03)	-0.056*** (0.02)	-0.033 (0.03)	0.036 (0.03)
TE - HI - GAP	-0.081 (0.06)	-0.002 (0.03)	-0.092** (0.04)	-0.003 (0.04)	-0.054** (0.02)	-0.036 (0.06)	-0.018 (0.05)	-0.021 (0.03)	-0.092 (0.13)	n/a n/a
TE - LI - RES	0.003 (0.03)	-0.003 (0.03)	0.003 (0.04)	-0.010 (0.03)	0.026 (0.02)	-0.062 (0.05)	-0.006 (0.04)	-0.025 (0.03)	0.011 (0.04)	0.047 (0.04)
TE - HI - RES	-0.064 (0.10)	0.036 (0.05)	-0.023 (0.05)	0.035 (0.07)	-0.003 (0.03)	-0.083 (0.08)	-0.047 (0.07)	-0.076* (0.04)	-0.092 (0.13)	n/a n/a

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TE - Treatment Effect, LI - Prefer Low inequality, HI - Prefer High inequality

n/a refers to cases with less than 60 respondents

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

RES - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the government is responsible for closing the gap between the rich and poor in their country

5.3 Main findings disaggregated by respondents' actual quintile in the distribution

The effect of information is mainly driven by people who are actually in the poorest quintile, however in most countries the effect is still observable among people in the second poorest quintile (but not statistically significant). Table 9 shows that among the seven countries where we observe an overall effect in Table 7, in six countries the effect is still evident when restricting the sample only to respondents from the poorest quintile. The treatment effect is only statistically significant for three of the countries when restricting the sample to respondents in the second poorest quintile (however the point estimate is similar to that of the poorest quintile in several of the remaining countries). As is the case above, there is little effect from information on people's views about the role of the government in closing the gap between the rich and poor among respondents in both the poorest and second poorest quintiles. As can be seen in Table 9, Nigeria is the only country where there is an effect, in which case there is opposite effects between people who are in the poorest and second poorest quintiles.

TABLE 9 - HETEROGENEOUS TREATMENT EFFECTS FOR RESPONDENTS WHO OVERESTIMATED THEIR POSITION BY QUINTILE

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - Q1 - GAP	-0.065*** (0.02)	-0.035* (0.02)	-0.036* (0.02)	-0.044** (0.02)	-0.059*** (0.01)	-0.081*** (0.03)	0.008 (0.02)	-0.052*** (0.02)	-0.041 (0.04)	0.003 (0.03)
TE - Q2 - GAP	-0.145*** (0.05)	-0.080** (0.04)	-0.059 (0.05)	-0.030 (0.04)	-0.091*** (0.03)	-0.015 (0.05)	-0.052 (0.04)	-0.013 (0.04)	0.095* (0.05)	0.080 (0.06)
TE - Q1 - RES	-0.003 (0.03)	0.018 (0.02)	0.020 (0.03)	-0.006 (0.03)	0.049** (0.02)	0.018 (0.04)	-0.050 (0.03)	-0.028 (0.03)	0.019 (0.05)	0.053 (0.04)
TE - Q2 - RES	-0.016 (0.05)	0.003 (0.05)	0.013 (0.06)	0.076 (0.06)	-0.065* (0.04)	0.017 (0.06)	-0.024 (0.06)	-0.042 (0.06)	0.041 (0.07)	0.028 (0.07)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TE - Treatment Effect, Q1 - Poorest quintile, Q2 - Second Poorest quintile

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

RES - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the government is responsible for closing the gap between the rich and poor in their country

5.4 Robustness checks

Correcting existing misperceptions: We show the main results are not due to simply telling people they are relatively poor by examining the effect of the treatment on respondents who accurately estimated their position in the national income distribution. The treatment had little to no effect on these respondents. Table 10 shows there was no effect on their concern about the gap between the rich and poor and almost no effect on whether they thought the government was responsible for closing this gap. This would suggest the main results are due to respondents having their existing misperceptions corrected as opposed to just being informed they are poor.

TABLE 10 - EFFECT OF TREATMENT ON PEOPLE WHO ACCURATELY ESTIMATED THEIR PLACE

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - GAP	-0.061 (0.05)	0.014 (0.05)	0.011 (0.04)	-0.074 (0.05)	-0.065 (0.05)	-0.007 (0.06)	0.007 (0.04)	-0.010 (0.03)	0.001 (0.04)	-0.014 (0.04)
Con - GAP	0.799 (0.03)	0.775 (0.03)	0.789 (0.03)	0.833 (0.04)	0.938 (0.04)	0.671 (0.04)	0.806 (0.03)	0.904 (0.02)	0.901 (0.03)	0.928 (0.03)
TE - RES	-0.045 (0.05)	0.073 (0.06)	-0.072 (0.05)	0.009 (0.07)	0.187** (0.08)	0.034 (0.07)	-0.110** (0.05)	0.037 (0.04)	0.067 (0.05)	-0.002 (0.06)
Con - RES	0.841 (0.04)	0.805 (0.04)	0.734 (0.04)	0.765 (0.05)	0.691 (0.06)	0.716 (0.05)	0.722 (0.04)	0.804 (0.03)	0.765 (0.04)	0.723 (0.05)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

TE - Treatment Effect, Con - Constant term

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

RES - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the government is responsible for closing the gap between the rich and poor in their country

Size of misperception: We show that the main results are driven by respondents who overestimated their position in the distribution by both one quintile and more than one quintile in most countries where there is an effect (see Table 11). This means that having a misperception corrected appears to be causing the effect more than the size of the underlying misperception.

TABLE 11 - EFFECT OF TREATMENT ON PEOPLE BY SIZE OF MISPERCEPTION OF POSITION IN THE DISTRIBUTION

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - 1Q - GAP	-0.094*** (0.03)	-0.057** (0.03)	-0.019 (0.03)	-0.059** (0.03)	-0.070*** (0.02)	-0.064* (0.03)	-0.028 (0.03)	-0.015 (0.02)	0.037 (0.03)	0.029 (0.04)
Constant	0.821 (0.02)	0.848 (0.02)	0.824 (0.02)	0.886 (0.02)	0.951 (0.02)	0.709 (0.02)	0.781 (0.02)	0.889 (0.02)	0.839 (0.02)	0.805 (0.03)
TE - >1Q - GAP	-0.068** (0.03)	-0.038* (0.02)	-0.058* (0.03)	-0.030 (0.02)	-0.066*** (0.02)	-0.054 (0.04)	0.011 (0.03)	-0.066*** (0.02)	-0.060 (0.07)	0.049 (0.05)
Constant	0.741 (0.02)	0.860 (0.01)	0.744 (0.02)	0.850 (0.02)	0.918 (0.01)	0.676 (0.02)	0.752 (0.02)	0.886 (0.02)	0.776 (0.05)	0.736 (0.03)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

TE - Treatment Effect, 1Q refers to respondents who overestimated their position by one quintile

>1Q refers to respondents who overestimated their position by more than one quintile

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

Attention paid by respondents: We show the results are not skewed by respondents who rushed through (or took long periods of time to complete) the survey and may not have paid attention to the questions. To test this we winsorized our data by excluding the fastest 10 per cent and slowest 10 per cent of respondents who participated in the

survey¹⁶. The main results hold in all countries except Morocco when we only analyze this subset of respondents (see Table 12).

TABLE 12 - WINSORIZED TREATMENT EFFECT

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)
TE - GAP	-0.076*** (0.02)	-0.041** (0.02)	-0.024 (0.02)	-0.048** (0.02)	-0.067*** (0.02)	-0.068** (0.03)	0.001 (0.02)	-0.045** (0.02)
Constant	0.792*** (0.02)	0.862*** (0.01)	0.785*** (0.02)	0.870*** (0.01)	0.923*** (0.01)	0.707*** (0.02)	0.764*** (0.02)	0.886*** (0.01)
Observations	1275	1505	1322	1396	1496	1119	1266	1344

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria

NL - Netherlands, US - United States, ZA - South Africa

Note - UK and Australia are excluded from this robustness check

because the time to complete the survey was not tracked

TE - Treatment Effect

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

Number of household members: We show the results are not skewed by respondents who live by themselves or with a large family in any country (see Table 13). As the treatment is based on people’s reported household income and number of household members, we conduct this additional robustness check whereby we exclude the extreme situations where respondents only have one household member or six or more household members. The main results hold in all countries when we only analyze this subset of respondents.

TABLE 13 - EFFECT OF TREATMENT ON PEOPLE EXCLUDING THOSE WHO HAVE 1 OR 6 OR MORE MEMBERS OF THEIR HOUSEHOLD

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - GAP	-0.085*** (0.02)	-0.058*** (0.02)	-0.045* (0.03)	-0.054*** (0.02)	-0.064*** (0.02)	-0.058** (0.03)	-0.017 (0.02)	-0.050** (0.02)	0.020 (0.03)	0.036 (0.03)
Constant	0.787 (0.02)	0.857 (0.01)	0.779 (0.02)	0.878 (0.01)	0.921 (0.01)	0.688 (0.02)	0.774 (0.02)	0.882 (0.01)	0.824 (0.02)	0.781 (0.02)
Observations	1391	1253	1007	1252	1058	1037	1210	1066	510	628

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

TE - Treatment Effect

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

¹⁶By doing the sample was restricted to respondents who took less than 12 minutes but more than one and a half minutes to complete the survey

6 Discussion

6.1 Channel through which information is having an effect

This survey experiment shows that informing people in the poorest two quintiles of the national income distribution that they are relatively poorer than they thought leads them to be less likely to agree that the gap between the rich and poor in their country is too large, and has no effect on their desire for the government to reduce this gap. This trend is driven by people who prefer low levels of inequality and are mainly from the poorest quintile in the income distribution (however in many countries there is still an effect on people in the second poorest quintile).

Our findings are clearly counter to the hypothesis that informing people they are relatively poorer than they thought will increase their concern about the gap between the rich and poor and as a result this will increase their support for the government to reduce this gap. On the contrary, informing people they are relatively poorer than they thought lowers their concern about the gap between the rich and poor and this does not affect their preferences for redistribution.

To relate this to the model in section 2¹⁷, recall that the utility function captures two foundational principles of most conventional theories of preferences for redistribution. These two principles are: firstly people are averse to others having significantly different incomes to them ($\gamma > 0, \beta > 0$) and secondly people are more concerned about the gap between their income and those richer than them as opposed to the gap between their income and those poorer than them ($|\gamma| > |\beta|$) (collectively this implies $\gamma > \beta > 0$). Our results only support the first of these principles, whereby relatively poor people are averse to large differences in incomes across society. This can be seen by the fact that

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$$U(c_a, c_p(p), c_r(p)) = U(c_a) - \beta U(c_a - c_p(p)) - \gamma U(c_r(p) - c_a)$$

In this model an individual's utility ($U(c_a, c_p(p), c_r(p))$) depends on their own consumption (c_a) as well as the direction and size of the weighting they place on their consumption relative to how they perceive the consumption of people poorer ($c_p(p)$) than them (β) and how they perceive the consumption of people richer ($c_r(p)$) than them (γ).

the treatment effect is primarily driven by relatively poor people who had expressed a prior preference for low levels of inequality (i.e. where $\gamma > 0, \beta > 0$) in all countries except for Morocco. Given this is the case, we are able to infer that the second principle does not hold by the following. When people are told they are relatively poorer than they thought, this implies the gap between them and people poorer than them is smaller than they thought ($(c_a - c_p(p)) > (c_a - c_p)$) and the gap between them and people richer than them is larger than they thought ($(c_r(p) - c_a) < (c_r - c_a)$). Yet they respond by being less concerned about the gap between the rich and poor in their country, even though they prefer low levels of inequality. This response is only consistent with the idea that poorer people are more concerned about the gap between their income and those poorer than them compared to the gap between their income and those richer than them (i.e. $|\gamma| < |\beta|$). If this was not the case, we would expect the treatment effect to be in the opposite direction. Collectively this implies $\beta > \gamma > 0$.

We refer to this updating of beliefs as "benchmarking", whereby people use their own standard of living as a reference point for what they consider acceptable for others. This explains the results to our study as follows. People had perceived themselves to have an "average" living standard compared to other people in their country prior to the treatment, even though they are actually relatively poor. Their previous assessment of their relative status implies they thought there was a similar share of people poorer than them and richer than them in their country (this is as a result of selecting oneself as being around the middle of the national income distribution). Upon receiving the treatment this led people to realize two points. Firstly, there are fewer people in their country with a living standard they considered to be relatively poor. Secondly, what they had considered to be an average living standard (their own standard of living) is actually relatively poor compared to other people in their country. Both of these points would suggest the treatment provided to respondents would lead them to become less concerned about the living standard of poor people in their country, given their utility is weighted as we show it is above (i.e. $\beta > \gamma > 0$).

6.2 How these findings relate to previous studies

The regularity of our findings across a diverse range of countries should be considered when assessing how they relate to previous studies. The only other study that directly tests the hypothesis in this paper, by Cruces et al. (2013), provides evidence that when people are told they are relatively poorer than they thought they become more supportive of redistribution. The difference in results between their findings and the results from our study could be due to a range of factors such as differences in location or the use of a household survey as opposed to an online survey. Our study is based upon representative samples of the population with internet access in each country, whereas the sample in Cruces et al. (2013) is restricted to people living in one city in Argentina. In addition, we use an anonymous online survey as opposed to a household survey like Cruces et al. (2013), to minimize the risk of social desirability bias (when a respondent provides an interviewer with answers they think are more socially acceptable).

The notion of benchmarking that we articulate also helps to explain the findings of a recent study in the United States which shows that telling people they are richer than they thought in the global income distribution makes them more supportive of international redistribution (Nair 2018). Nair shows that most respondents to his survey in the United States thought they only had a slightly above average living standard compared to other people around the world, and informing them that they were among some of the richest people on earth drastically changed their views. They became more supportive of foreign aid and more likely to provide money to charities operating in developing countries. This implies a similar utility function to our study (i.e. $\beta > \gamma > 0$), whereby people are averse to inequality and are more concerned about the gap between their income and the poorest in society as opposed to the gap between their income and the richest in society. The key difference is that we focus on the poorest quintiles in the national income distribution, while Nair focuses on the richest two quintiles in the global income distribution.

We are able to rule out a potential alternative channel that could be driving our re-

sults, which is what Kuziemko et al. (2014) call "last place aversion". They show poorer people can be less supportive of redistribution (particularly in the form of increases in the minimum wage) if it is set to benefit those individuals directly below them. As mentioned in section 2 this would imply that one of the foundational principles of most theories of preferences for redistribution does not hold as poor people prefer inequality between them and people poorer than them (i.e. $\beta < 0$). We present three pieces of evidence to illustrate that it is unlikely this is driving our results. Firstly, the effect of information in our study is driven by people who prefer low levels of inequality (i.e. $\gamma > 0, \beta > 0$). Secondly, the main effect is driven not just by people near the bottom of the income distribution (i.e. the poorest quintile), but also among people in the second poorest quintile in most countries. Thirdly, the effect we report relates to people's concern about inequality, as opposed to their preferences for redistribution. Collectively, these three points provide us with enough confidence that last place aversion is not an adequate explanation of what is causing the findings to our study.

Our research bolsters findings from other studies on the elasticity of people's preferences for redistribution (Kuziemko et al. 2015, Hauser and Norton 2017), which is that it is easier for information to alter people's concerns about inequality than their desire for government-led redistribution. For example, Kuziemko et al. (2015) show that providing multiple pieces of information about inequality in the United States does not lead to greater support for redistribution¹⁸, even though it does have a large impact on people's concern about inequality. We show a similar pattern, whereby even though we are able to detect effects on people's concern about inequality from the treatment in most countries, this does not lead to changes in their preferences for redistribution.

6.3 Implications for theories of preferences for redistribution

There are two important implications from our study about theories of preferences for redistribution. Firstly, benchmarking means there are competing channels through which

¹⁸The exception is in regards to support for the estate tax.

people think about redistribution. On the one hand, poorer people may be more supportive if they are set to benefit from redistribution, but on the other hand they may be less supportive if they are less concerned about the absolute living standard of people who are relatively poor. This suggests that existing theories of preferences for redistribution need to be revised. For example, the Meltzer-Richard hypothesis (1981), put simply, proposes that people below the mean income in the distribution should support redistribution and people above the mean income should not. This is based on whether the individual is potentially set to benefit or lose from redistribution. However, benchmarking would imply there is also an effect in the opposite direction. Even though relatively poor people may be likely to benefit from redistribution they are also less likely to think redistribution to the poor is needed.

Secondly, we add to the growing evidence base that suggests conventional theories of preferences for redistribution should be modified to reflect the fact that most people do not have complete and accurate information about the income distribution in their country (Gimpelson and Treisman 2018, Hauser and Norton 2017). Consistent with recent research in developed countries, we show most relatively poor people do not realize they are near the bottom of the national income distribution and their perceived position in the distribution appears to be more closely aligned with their preferences for redistribution than their actual position in the distribution (Gimpelson and Treisman 2018, Hauser and Norton 2017, Kuhn 2015, Engelhardt and Wagener 2014). We extend these stylized facts from studies in developed countries to a diverse group of middle income countries. A practical implication of these findings is that policy makers who are interested in understanding people's support for redistribution in their country should be as concerned (if not more so) about people's perception of inequality as opposed to what is actually the case.

7 Conclusion

This study makes a significant contribution by showing how one of the foundational principles of conventional theories of preferences for redistribution lacks empirical support in a diverse range of countries. In contrast to what theory would predict, informing people they are relatively poorer than they thought reduced their concern about the gap between the rich and poor in their country. This effect was primarily driven by people who prefer low levels of inequality and actually belong to the poorest quintile in their national income distribution. We illustrate that our results are due to people using their own living standard as a "benchmark" for what they consider acceptable for others. This phenomenon has a downward effect on relatively poor people's support for redistribution (from rich to poor), even though they could benefit. Our findings are far more generalizable than other studies to date as we surveyed over 30,000 people from 10 countries that make up 30 per cent of the world's population and 40 per cent of global GDP.

There are three directions which we believe are promising for future work on the topic of why relatively poor people are not more supportive of redistribution. Firstly, a deeper understanding could be developed about whether people's preferences for redistribution are based on absolute, as opposed to relative, differences in incomes in society. Secondly, further survey experiments could examine what types of information, if any, would lead poorer people to become more supportive of redistribution. Finally, additional analysis could be conducted that explores what factors shape preferences for redistribution in developing countries.

8 References

Alesina, A. Giuliano, P. Bisin, A. and Benhabib, J. 2011. "Preferences for Redistribution." *In Handbook of Social Economics*, edited by Benhabib, J. Bisin, A. and Jackson, M. 93-131. North Holland: Elsevier.

Alesina, A. Stantcheva, S. and Teso, E. 2018. "Intergenerational Mobility and Preferences for Redistribution." *American Economic Review*. 108:2: 521-554.

Benabou, R. and Ok, E. 2001. "Social Mobility and the Demand for Redistribution: The POUM Hypothesis." *Quarterly Journal of Economics*. 116:2: 447-487.

Black, D. 1948. "On the Rationale of Group Decision-making." *Journal of Political Economy*. 56:1:23-34.

Bublitz, E. 2016. "Misperceptions of income distributions: Cross-country evidence from a randomized survey experiment." *HWWI Research Paper No.178*.

Card, D. Mas, A. Moretti, E. and Saez, E. 2012. "Inequality at Work: The Effect of Peer Salaries on Job Satisfaction." *American Economic Review*. 102:6: 2981-3003.

Cruces, G. Perez-Truglia, R. and Tetaz, M. 2013. "Biased perceptions of income distribution and preferences for redistribution: Evidence from a survey experiment." *Journal of Public Economics*. 98: 100-112.

Engelhardt, C. and Wagener, A. 2014. "Biased Perceptions of Income Inequality and Redistribution." *CESifo Working Paper 4838*.

Fehr, E. and Schmidt, K. 1999. "A Theory of Fairness, Competition and Cooperation." *Quarterly Journal of Economics*. 114:3: 817-868.

Frank, T. 2004. *What's the Matter with Kansas?*. New York: Henry Holt and Co.

Gimpelson, V. and Treisman, D. 2018. "Misperceiving Inequality." *Economics and Politics* 30:1: 27-54

Hauser, O. and Norton, M. 2017. "(Mis)perceptions of Inequality." *Current Opinion in Psychology* 18:21-25.

Holland, A. 2018. "Diminished Expectations: Redistributive Politics in Truncated

Welfare States." *World Politics* 70:2: 555-594.

Hoy, C. and Mager, F. 2017. "Cross-country evidence about perceptions of inequality and support for redistribution." *American Economic Association Randomized Control Trial Registry*. <https://www.socialscienceregistry.org/trials/2534>

International Social Survey Programme (ISSP). 2009. "Module on Social Inequality." <https://www.gesis.org/issp/modules/issp-modules-by-topic/social-inequality/2009/> (accessed July 17, 2017)

Karadja, M. Mollertrom, J. and Sem, D. 2017. "Richer (and Holier) than Thou? The Effect of Relative Income Improvement on Demand for Redistribution." *Review of Economics and Statistics*. 99:2: 201-212.

Kuhn, A. 2015. "The Subversive Nature of Inequality: Subjective Inequality Perceptions and Attitudes to Social Inequality." *IZA Discussion Paper* 9406.

Kuziemko, I. Buell, R. Reich, T. and Norton, M. 2014. "Last-place Aversion: Evidence and Redistributive Implications." *Quarterly Journal of Economics*. 129:1: 105-149.

Kuziemko, I. Norton, M. Saez, E. and Stantcheva, S. 2015. "How Elastic are Preferences for Redistribution? Evidence from Randomised Survey Experiments." *American Economic Review*. 105:4: 1478-1508.

McCall, L. Burk, D. Laperriere, M. and Richeson, J. 2017. "Exposure to Rising Inequality Shapes Americans? Opportunity Beliefs and Policy Support." *Proceedings of the National Academy of Sciences* 114(36):9593-98.

Meltzer, A. and Richard, S. 1981. "A Rational Theory of the Size of Government." *The Journal of Political Economy* 89:5: 914-927.

Nair, G. 2018. "Misperceptions of Relative Income and Support for International Transfers in the United States." *The Journal of Politics* 80:3: 815-830.

Organisation for Economic Co-operation and Development (OECD). 2017. "Compare Your Income". <http://www.oecd.org/statistics/compare-your-income.htm> (accessed July 17, 2017)

Piketty, T. 1995. "Social Mobility and Redistributive Politics." *Quarterly Journal of*

Economics. 110:3: 551-584

Roemer, J. 1998. "Why the poor do not expropriate the rich: an old argument in new garb." *Journal of Public Economics*. 70:3: 399-424.

World Bank. 2014. "A Measured Approach to Ending Poverty and Boosting Shared Prosperity". <http://www.worldbank.org/en/research/publication/a-measured-approach-to-ending-poverty-and-boosting-shared-prosperity> (accessed July 17, 2017)

World Bank. 2017A. "World Development Indicators". <https://data.worldbank.org/data-catalog/world-development-indicators> (accessed July 17, 2017)

World Bank. 2017B. "PovcalNET". <http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx> (accessed July 17, 2017)

9 Appendix

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1. Balance table
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9.1 Balance table

TABLE A1 - BALANCE TABLE SHOWING THE DIFFERENCE IN BACKGROUND CHARACTERISTICS BETWEEN THE SHARE OF RESPONDENTS IN CONTROL AND TREATMENT GROUPS (DIFFERENCES REPORTED IN PERCENTAGE POINTS)

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
	C - T	C - T	C - T	C - T	C - T	C - T	C - T	C - T	C - T	C - T
Under 35 years old	-0.009	-0.008	-0.020**	0.002	-0.003	0.006	-0.015	-0.005	-0.027	-0.008
Male	-0.004	-0.002	-0.015	-0.003	0.020**	0.011	0.001	0.026***	0.001	0.010
Urban dweller	-0.003	0.015	0.005	0.004	-0.009	0.032	-0.019	0.042*	0.011	0.012
University education	-0.000	0.008	-0.018	0.018	-0.030	0.003	-0.021	0.004	-0.005	-0.052**
Actually in Q1/Q2	0.011	0.019	0.011	0.001	-0.001	0.008	-0.000	-0.024	0.024	0.045*
Perceived to be in Q1/Q2	-0.001	0.010	-0.002	0.016	-0.003	-0.004	0.021	-0.019	0.010	-0.028
Perceive High Inequality	-0.031**	0.001	0.026*	0.010	-0.030**	0.025*	0.005	-0.007	-0.005	N/A
Prefer Low Inequality	0.011	0.000	-0.022	-0.001	0.014	0.009	-0.007	0.003	-0.004	N/A

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

C - Control, T - Treatment, Q1 - Quintile 1, Q2 - Quintile 2

9.2 Main results with controls

TABLE A2 - EFFECT OF TREATMENT ON PEOPLE WHO OVERESTIMATED THEIR PLACE AND ARE IN THE POOREST TWO QUINTILES (WITH CONTROLS) (GAP)

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - GAP	-0.074*** (0.02)	-0.045** (0.02)	-0.039* (0.02)	-0.069*** (0.02)	-0.064*** (0.01)	-0.057** (0.03)	0.006 (0.02)	-0.046*** (0.02)	0.000 (0.03)	0.009 (0.03)
Under 35	-0.041* (0.02)	0.013 (0.03)	-0.049** (0.02)	-0.023 (0.02)	0.008 (0.02)	-0.047* (0.03)	-0.029 (0.02)	0.089*** (0.02)	0.034 (0.04)	-0.026 (0.03)
Male	-0.058** (0.02)	-0.022 (0.02)	-0.011 (0.02)	0.002 (0.02)	-0.016 (0.02)	-0.035 (0.03)	-0.003 (0.02)	-0.024 (0.02)	-0.010 (0.03)	-0.063** (0.03)
Perceive Q1/Q2	0.062** (0.02)	0.045* (0.03)	0.123*** (0.02)	0.019 (0.02)	0.060*** (0.02)	0.054* (0.03)	0.041* (0.02)	0.044** (0.02)	0.079** (0.03)	0.064** (0.03)
Perceive HI	0.285*** (0.02)	0.102*** (0.02)	0.130*** (0.02)	0.077*** (0.02)	0.066*** (0.02)	0.233*** (0.03)	0.147*** (0.02)	0.066*** (0.02)	0.161*** (0.04)	0.234*** (0.03)
Prefer LI	0.062*** (0.02)	0.059*** (0.02)	0.063*** (0.02)	0.051** (0.02)	0.016 (0.02)	0.159*** (0.03)	0.042* (0.02)	0.066*** (0.02)	0.203*** (0.04)	0.094* (0.05)
Constant	0.629 (0.03)	0.781 (0.03)	0.708 (0.03)	0.827 (0.03)	0.873 (0.03)	0.563 (0.03)	0.677 (0.03)	0.757 (0.03)	0.546 (0.05)	0.604 (0.06)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

TE - Treatment effect C - Control, T - Treatment, Q1 - Quintile 1, Q2 - Quintile 2, HI - High inequality, LI - Low inequality

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly

agreed the gap between the rich and poor in their country is too large

TABLE A3 - EFFECT OF TREATMENT ON PEOPLE WHO OVERESTIMATED THEIR PLACE AND ARE IN THE POOREST TWO QUINTILES (WITH CONTROLS) (RESPONSIBLE)

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - RES	0.005 (0.03)	0.027 (0.03)	0.032 (0.03)	0.005 (0.03)	0.015 (0.02)	0.020 (0.03)	-0.041 (0.03)	-0.019 (0.03)	0.025 (0.04)	0.037 (0.03)
Under 35	-0.140*** (0.03)	-0.041 (0.03)	0.037 (0.03)	-0.057* (0.03)	-0.038 (0.03)	-0.106*** (0.03)	0.003 (0.03)	0.047 (0.03)	0.094** (0.05)	0.072* (0.04)
Male	-0.021 (0.03)	-0.033 (0.03)	0.017 (0.03)	-0.000 (0.03)	-0.018 (0.02)	-0.036 (0.03)	-0.039 (0.03)	-0.013 (0.03)	-0.002 (0.04)	0.034 (0.03)
Perceived Q1/Q2	0.046 (0.03)	0.026 (0.03)	0.058* (0.03)	-0.078** (0.04)	0.018 (0.03)	0.123*** (0.04)	0.002 (0.03)	0.019 (0.03)	0.021 (0.04)	0.106*** (0.04)
Perceive HI	0.172*** (0.03)	0.041 (0.03)	0.063** (0.03)	-0.001 (0.03)	0.064*** (0.02)	0.133*** (0.03)	0.092** (0.04)	0.095*** (0.03)	0.168*** (0.04)	0.191*** (0.03)
Prefer LI	0.138*** (0.03)	0.015 (0.03)	0.025 (0.03)	-0.049 (0.03)	0.007 (0.02)	0.121*** (0.04)	0.055 (0.03)	0.026 (0.03)	0.267*** (0.04)	0.121* (0.07)
Constant	0.647 (0.04)	0.828 (0.04)	0.555 (0.05)	0.809 (0.05)	0.825 (0.04)	0.569 (0.04)	0.584 (0.05)	0.662 (0.04)	0.374 (0.06)	0.322 (0.07)
Observations	877	908	979	793	1160	732	825	950	464	749

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

TE - Treatment effect C - Control, T - Treatment, Q1 - Quintile 1, Q2 - Quintile 2, HI - High inequality, LI - Low inequality

RES - Binary variable that takes the value of 1 if the respondent agreed or strongly

agreed the governments responsible for closing gap between the rich and poor in their country

9.3 Main results weighted by age and gender

TABLE A4 - EFFECT OF TREATMENT ON PEOPLE WHO OVERESTIMATED THEIR PLACE AND ARE IN THE POOREST TWO QUINTILES (WEIGHTED BY AGE AND GENDER)

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - GAP	-0.068*** (0.02)	-0.060*** (0.02)	-0.012 (0.02)	-0.045** (0.02)	-0.060*** (0.02)	-0.067** (0.03)	-0.003 (0.02)	-0.049** (0.02)	0.021 (0.04)	0.037 (0.03)
Con - GAP	0.785 (0.02)	0.866 (0.01)	0.769 (0.02)	0.872 (0.01)	0.927 (0.01)	0.708 (0.02)	0.772 (0.02)	0.869 (0.01)	0.785 (0.03)	0.775 (0.02)
TE - RES	-0.005 (0.03)	-0.003 (0.03)	0.043 (0.03)	-0.001 (0.03)	0.006 (0.02)	-0.001 (0.03)	-0.031 (0.03)	0.010 (0.03)	0.042 (0.05)	0.034 (0.04)
Con - RES	0.792 (0.02)	0.834 (0.02)	0.635 (0.02)	0.731 (0.02)	0.842 (0.01)	0.686 (0.02)	0.648 (0.02)	0.730 (0.02)	0.634 (0.03)	0.609 (0.02)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

TE - Treatment effect, Con - Constant term

GAP - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the gap between the rich and poor in their country is too large

RES - Binary variable that takes the value of 1 if the respondent agreed or strongly agreed the governments responsible for closing gap between the rich and poor in their country

9.4 Main results using an ordered logit regression

TABLE A5 - EFFECT OF TREATMENT ON PEOPLE WHO OVERESTIMATED THEIR PLACE AND ARE IN THE POOREST TWO QUINTILES (ORDERED LOGIT) (GAP)

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - GAP	0.306*** (0.09)	0.226*** (0.09)	0.161* (0.09)	0.285*** (0.10)	0.381*** (0.08)	0.183* (0.09)	0.000 (0.09)	0.175** (0.09)	-0.084 (0.16)	-0.262** (0.13)
cut1										
Constant	-0.172*** (0.07)	-0.308*** (0.06)	-0.038 (0.06)	0.690*** (0.07)	0.515*** (0.06)	-0.947*** (0.07)	-0.352*** (0.07)	0.035 (0.06)	-0.234** (0.11)	-0.460*** (0.10)
cut2										
Constant	1.218*** (0.07)	1.729*** (0.07)	1.268*** (0.07)	1.836*** (0.08)	2.332*** (0.08)	0.768*** (0.07)	1.169*** (0.07)	1.952*** (0.08)	1.517*** (0.13)	1.223*** (0.11)
cut3										
Constant	2.665*** (0.11)	2.766*** (0.10)	2.690*** (0.10)	2.803*** (0.11)	3.020*** (0.10)	1.973*** (0.09)	2.448*** (0.10)	3.048*** (0.12)	3.148*** (0.22)	3.215*** (0.20)
cut4										
Constant	3.753*** (0.16)	3.977*** (0.17)	3.539*** (0.14)	3.995*** (0.18)	4.201*** (0.16)	3.236*** (0.14)	3.602*** (0.16)	3.967*** (0.17)	4.366*** (0.39)	5.851*** (0.71)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

TE - Treatment effect

GAP - Respondent 1 (strongly agrees), 2 (agrees), 3 (neither agree or disagree), 4 (disagrees)

5 (strongly disagrees) the gap between the rich and poor in their country is too large

TABLE A6 - EFFECT OF TREATMENT ON PEOPLE WHO OVERESTIMATED THEIR PLACE AND ARE IN THE POOREST TWO QUINTILES (ORDERED LOGIT) (RESPONSIBILITY)

	(ES)	(IN)	(MA)	(MX)	(NG)	(NL)	(US)	(ZA)	(UK)	(AU)
TE - RES	-0.028 (0.11)	-0.139 (0.10)	-0.073 (0.10)	0.009 (0.11)	0.009 (0.09)	0.011 (0.12)	0.237** (0.11)	-0.007 (0.10)	-0.148 (0.15)	-0.207 (0.13)
cut1 Constant	-0.306*** (0.08)	-0.325*** (0.07)	-0.652*** (0.08)	-0.165** (0.08)	0.024 (0.07)	-1.019*** (0.10)	-0.740*** (0.09)	-0.354*** (0.07)	-0.856*** (0.12)	-1.131*** (0.11)
cut2 Constant	1.212*** (0.09)	1.414*** (0.08)	0.674*** (0.08)	0.961*** (0.08)	1.626*** (0.08)	0.652*** (0.09)	0.663*** (0.08)	1.114*** (0.08)	0.750*** (0.11)	0.411*** (0.10)
cut3 Constant	2.555*** (0.13)	2.554*** (0.12)	1.874*** (0.10)	2.322*** (0.12)	2.440*** (0.10)	1.860*** (0.11)	1.704*** (0.10)	2.135*** (0.10)	2.101*** (0.15)	1.751*** (0.12)
cut4 Constant	4.038*** (0.24)	4.102*** (0.23)	3.036*** (0.14)	3.820*** (0.21)	3.905*** (0.18)	3.292*** (0.19)	2.805*** (0.14)	3.962*** (0.21)	3.310*** (0.24)	3.272*** (0.21)

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

ES - Spain, IN - India, MA - Morocco, MX - Mexico, NG - Nigeria, NL - Netherlands

US - United States, ZA - South Africa, UK - United Kingdom, AU - Australia

TE - Treatment effect

RES - Respondent 1 (strongly agrees), 2 (agrees), 3 (neither agree or disagree), 4 (disagrees)

5 (strongly disagrees) the government is responsible for closing gap between the rich and poor

9.5 Details about survey methodology

The online surveys were conducted by three different survey firms (YouGov, IPSOS and RIWI) across the 10 countries and captured a nationally representative sample of the internet population in each country. It is not possible to survey people through an online platform if they do not have access to the internet, but this is an increasingly small share of the population in most countries included in this study. For example, more than 25 per cent of the population in India¹⁹ and Nigeria²⁰ are estimated to have access to the internet and the penetration rate is substantially higher in all the other countries in our study. However it is important to note that the findings are only generalizable for the internet population as opposed to the broader population in each country.

There was a slight variation in the sampling approach used by the firms. YouGov (conducted survey in the United Kingdom) and IPSOS (conducted survey in Australia) used a traditional panel survey approach whereas RIWI (conducted the surveys in the United States, Spain, the Netherlands, India, Nigeria, South Africa, Morocco and Mex-

¹⁹<https://economictimes.indiatimes.com/tech/internet/internet-users-in-india-expected-to-reach-500-million-by-june-iamai/articleshow/63000198.cms>

²⁰<https://freedomhouse.org/report/freedom-net/2017/nigeria>

ico) reach the general internet population through incorrect and lapsed URLs. Both sampling strategies are internationally respected and have been shown to provide a sample of respondents that is representative of the internet population. We examined how much of a difference the sampling methodology may be making by conducting the same survey using the different approaches in Mexico. In general, the responses to the surveys were qualitative similar, however levels of support for redistribution were higher in the panel survey.

On average, across all the countries there was an attrition rate of around 25 to 30 per cent which is similar to other survey experiments on this topic, such as Kuziemko et al. (2015). In addition, there was a slightly higher attrition rate between the treatment and control groups that varied between 2.7 and 4.4 percentage points across countries. This is a similar rate of differential attrition as in Kuziemko et al. (2015). The attrition rate was also higher among respondents in the countries where the surveys were conducted by RIWI.

Data about the income distribution in each country was sourced from the World Bank (World Bank 2017A, World Bank 2017B) for the middle income countries and the OECD for high income countries (OECD 2017). Respondents were asked about the number of household members as well as the household's total annual income. This information was used to determine their position in the per capita national income distribution. There is a risk respondents did not provide correct information about their household's actual income. In general, people who are asked to report their income, especially over longer periods of time, often underestimate total household income (World Bank 2014). All studies that rely on reported income face this challenge. There is no reason to believe there would be systematic differences between treatment and control groups when it comes to underreporting of income. However it is important to note our treatment is based upon informing people of where their reported income would position them in the income distribution, which may not be the same as where their actual income would position them.

9.6 Demographic questions included in the survey

The questions below are based upon a respondent in the United States that has five household members.

What is your age and gender?

You are invited to take part in this survey about your perception of inequality and support for redistribution. More information about the survey is available at <https://inequalitystudy.wordpress.com/> ✕

Your participation in this survey is voluntary and you may decline to take part or withdraw at any time.
 Access to the data you provide will be restricted to the research team and your identity will remain confidential.
 If you would like to proceed, please click below.

Male

- Under 18
- 18 - 34
- 35 - 54
- 55 +

Female

- Under 18
- 18 - 34
- 35 - 54
- 55 +

What is the highest level of education you have completed? ✕

- Primary
- Secondary
- Post-secondary vocational training
- Bachelor's degree
- Master's degree or higher

Where do you live? ✕

Large city

Suburb

Rural area / farm

Small town / village

Including yourself, how many people live in your home? ✕

1 2 3 4 5 6 7 8+

What was your total household income last year? ✕

Less than \$75,000	\$75,000 - \$125,000
\$125,001 - \$185,000	\$185,001 - \$275,000
More than \$275,000	

This question was adjusted depending on how respondents answered to the preceding question about the number of people in their household. The five options provided to respondents were roughly equal to the five quintiles of the national income distribution.