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Carina Engelhardt
Andreas Wagener

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Carina Engelhardt[†]

Andreas Wagener

University of Hannover, Germany

Abstract

Germans are unable to assess their own position in the income distribution of their country and do not know much about income inequality and stratification. They are well aware of their ignorance. Germans would prefer society to be more egalitarian than they perceive it. Providing accurate information about the income distribution does not change this preference for more redistribution – except among those who learn that they are net contributors in the German tax-transfer system.

Keywords: Biased perceptions, preferences for redistribution, Germany.

JEL Classification: H53, D72, D31.

[†]**Contact details:** Leibniz University of Hannover, School of Economics and Management, Koenigsworther Platz 1, 30167 Hannover, Germany. E-mail addresses: engelhardt@sopo.uni-hannover.de; wagener@sopo.uni-hannover.de.

1 Introduction

What do Germans know and think about income inequality in their country? In a nutshell: they do not know much. In particular, they do not know their own position in the income distribution. They know that they do not know much – but across all income groups they think that inequality should be reduced. They do not change their minds when they learn more about inequality – only those who learn that they are net contributors to the tax transfer system become less supportive of more redistribution.

These are the main observations from a survey experiment on the perceptions and preferences of Germans with respect to income inequality and redistribution that we conducted in early 2015 and that we report in this paper. While there is some international evidence (surveyed in Section 2) that perceived inequality does not coincide with measured, "objective" inequality, a detailed analysis for Germany has, to our knowledge, not been available so far.

We conducted a survey in a representative sample of 1,100 German households that included two randomized information treatments (see Section 3). Participants were asked for the income of their household, for their perceived own rank in the German income distribution, for their opinions on the current level of inequality and about their perceptions and preferences of social stratification.

Our first observation is that survey respondents systematically fail to locate their own position in the income scale even roughly. Relatively poor respondents tend to overestimate their own rank while relatively rich respondents tend to underestimate their relative income. This suggests that the income distribution is perceived to be far more equalized than it actually is. When respondents were asked which of several stylized shapes best describes the German society today, they were right only slightly more often than by chance.

An unexpected second observation is that respondents across all income groups asked for more redistribution. Not only was this preference omnipresent – its strength is fairly constant across income deciles. Moreover, asked for their most-preferred pattern of stratification, respondents selected the most egalitarian ones out of the choices we gave them.

In two information treatments we checked how far redistributive preference are driven by biased perceptions. The treatment group was informed about their true position in the income distribution. This information did not alter preferences for redistribution, though. In a second step, members of the (first) treatment group were informed whether they were net contributors to, or net beneficiaries from, the tax-transfer system in Germany. Respondents who learned that they were losing from redistribution asked for less redistribution afterwards.

The rest of this paper is organized as follows: Section 2 embeds our survey experiment and its findings into the extant literature. Section 3 describes the survey and our sample. Section 4 documents the biases in the self-assessment of income positions. Section 5 turns to the strong preferences for redistribution, both before and after informational treatment. Perceptions of and preferences for social stratification are discussed in Section 6. Section 7 shows that pocketbook attenuate preferences for redistribution. Some conclusions are offered in Section 8. Additional material is collected in an Appendix.

2 Related literature

Our survey experiment on the correlations between (mis-)perceptions of inequality and views on redistribution is related to a number of contributions in the literature.

Similar surveys: To the best of our knowledge, studies similar to ours so far only exist for Sweden and Argentina. Cruces et al. (2013) collected data on household incomes and on the self-assessments of income ranks in the Argentine income distribution. Their study finds that the relatively poor tend to overestimate their relative positions while the relatively rich tend to underestimate theirs. When biased subjects were confronted with accurate information, (only) the preferences of the relatively poor changed in the direction of calling for more redistribution. Karadja et al. (2014) ran a similar survey experiment for Sweden. Roughly three quarters of their respondents missed their relative position by more than 10 percentage points, and 92 % of this group underestimated their position. An information treatment was largely ineffective; only conservative respondents who learnt that they were richer than they thought demanded less redistribution.

Apart from transferring the setting to Germany, our study differs from Cruces et al. (2013) and Karadja et al. (2014) by including assessments of social stratification (for a motivation, see below) and pocketbook concerns. The gist of our results – the poor think they are richer and vice versa, and better information does not change minds – is, however, in line with previous observations.

Misperceptions of inequality: Our survey respondents substantially misperceive the income distribution in Germany: they systematically fail to locate their own position on the income scale and they get the assessment of the (stylized) social stratification in Germany right only slightly more often than by mere chance. Such misperceptions on income inequality are not uncommon, irrespective of how (perceived) inequality is measured.[1] Using perceived wage differences between various occupations, Osberg and Smeeding (2006) find a massive underestimation of wage inequality in the US. Kenworthy and McCall (2008) calculate perceived relative wage levels for different countries and show that perceived and actual time trends of inequality are inconsistent. Norton and Ariely (2011) exhibit a dramatic underestimation of weatlh inequality in the US population. Engelhardt and Wagener (2014) construct hypothetical perceived income distributions for 26 OECD countries by aggregating the self-positioning among ISSP respondents; they find that the inequality in these perceived distributions is considerably below actual inequality.

Not all studies find that populations underestimate inequality in their societies. Using the ISSP question which type of society, visualized by rhomb- or pyramid-shaped graphs, best

[1] Popular misperceptions also prevail with other issues (inflation, corruption, risks etc.). See Stevenson and Duch (2013) for a discussion. A potential common root is that individuals make inferences about objective reality from the limited sample of their own experiences and observations. For example, their reference group – relatives, friends, neighbours and colleagues – is typically not a cross-section of society but less heterogenous. This biased and limited availability of social comparison leads to biased inferences (e.g. Evans and Kelley, 2004; Runciman, 1966).

describes the society respondents were living in, Niehues (2014) and Gimpelson and Treisman (2015) show that knowledge of social stratification is low, but involves an overestimation of inequality. This suggests that studies based on individual incomes, wages or wealth and the attending self-positioning biases observe an underestimation of inequality while studies using perceived social stratification detect an overestimation of inequality. Both approaches, labelled the "comparative" and the "normative" view in D'Ambrosio and Clark (2015), differ conceptually: the first presupposes that the perceived structure of the society (or at least of its income distribution) is derived from one's own position, relative to some reference group. By contrast, the second approach operates with the structure of society as a whole and does not require that individuals position themselves in the perceived or desired society. We combine both approaches in our survey – and indeed confirm for Germany that biases go into different directions.

Information treatments: Methodologically, our survey design follows a strand of literature that uses information as an experimental treatment in a field setting. Some studies support the knowledge gap theory proposed by Tichenor et al. (1970), arguing that differences in decision quality are, to some degree, based on different levels of knowledge. For example, Duflo and Saez (2003) shows this with regard to retirement plans and Jensen (2010) with regard to educational decisions. Other studies provide evidence for the knowledge-behavior gap theory, due to Hornik (1989), positing that additional information will only affect decisions and actions if it successfully changes the underlying beliefs, habits, emotions etc. on which decisions are based.

Our results indicate – in line with knowledge-behavior gap theory – that information does not suffice to change minds; what matters is whether beliefs or constraints are addressed by the information treatment.

3 Survey and sample

3.1 The survey

The online survey was conducted in February 2015 and interviewed a random sample of 1,100 households in Germany. Data collection was performed by Norstat company.[2] All participants were asked for their incomes, for a set of individual and household characteristics and general political attitudes as well as for their their views and knowledge on income inequality in Germany. Two informational treatments (detailed below) followed.

In terms of income, we asked respondents for the average monthly income of their household in 2014.[3] To enable respondents to make meaningful comparisons of households of

[2]Norstat is a market research company (http://opinion-people.com/de). Participants in Norstat panels can collect points that can be exchanged for money.

[3]In 2015 – the survey year – a minimum wage was implemented in Germany. Therefore, we restrict our analysis to the previous period to avoid (unknown) biases resulting from this reform.

different size, we broadly explained to them the concept of equivalent incomes, and then informed them about their monthly net household income corrected by the modified OECD equivalence weight. We then asked them:

> "What do you think, how many households in Germany have an equal or lower standard of living than yours?"

Response categories were given in deciles. We then compared respondents' perceived decile to their actual income decile. These objective deciles were calculated from the boundaries of deciles of the German monthly net household income distribution, corrected by the modified OECD equivalence weights, based on the then most recent German Socio-Economic Panel (GSOEP 2012, (v29)).

Social stratification was expressed by five different stylized types of society (for details see Section 6). We introduced them to our respondents and asked them to state which type best describes German society today and of which type Germany ought to be.

The experiment proceeded as follows: after a first set of questions on attitudes toward income inequality and social stratification, incomes, and self-assessment in the income distribution for everybody, we randomly split the group of participants into two halves who would continue with different questionnaires. Each questionnaire again posed questions on respondents' preferences for redistribution and social stratification, but they differed in the amount of information we provided to participants: before we asked them to (re-)state their preferences, individuals in the treatment group were informed about the income distribution, their actual relative position and their self-positioning bias; the control group did not get any such information.

Our design is inspired by the information treatment in Cruces et al. (2013), but we provided the treatment group with detailed information about the actual income distribution, their relative position in it and which income belongs to the relative position they estimated to be associated with. All information was given graphically and in written.

To test the role of self-interest and pocketbook concerns we implemented, within the first treatment group, a second information treatment. Here, we informed respondents whether they are (likely to be) a net payer or net beneficiary from the German tax-transfer system. This information does not target at respondents' beliefs but at their budget constraints.

Our design allows us to use difference-in-differences approaches when assessing outcomes. We included two information treatments to check the robustness of the stated preferences for (more) redistribution. In Sections 4 and 6 we will report on the first information treatment. The second treatment will be dealt with in Section 7.

3.2 The sample

Our survey was quoted according to age and gender, which consequently lead to a representative age structure in the sample. Around 92 % of the respondents were born in Germany.

Our sample is slightly more educated and their mean income is lower than in the general population (probably because the sample did not include earners of very high incomes). A comparison of selective main characteristics between the general German population and our survey sample can be seen in Table A.2 in the Appendix.

We dropped the first (net income below 400 €) and the hundredth percentile (net income above 5000 €) from our sample for data cleaning reasons. The remaing sample consists of 859 observations. The left-hand panel of Figure 1 shows the income distribution of our sample by income deciles, taken from the German Socio-Economic Panel (GSOEP, v29). A fully representative sample should exhibit a 10 % density in every decile. In our sample, low income deciles are somewhat overrepresented, while high income deciles are underrepresented. Otherwise the inaccuracies in the distribution of incomes are negligible.

To capture potential correlates of attitudes towards redistribution, we constructed a number of variables for our sample.[4] To measure whether the availability of social comparisons shapes perceptions and positions on income inequality, we defined dummy variable (*reference group*) with value of one when a respondent stated that his/her reference group encompasses all social classes.[5]. This holds for 13 % of respondents; 26 % state to be mainly in contact with the lower class, 62 % with the middle class, and 3 % with the upper class.

Bartels (2005, 2008) argue that perceptions of inequality are systematically shaped by political ideology, with conservatives being less aware of (changes in) inequality, even when controlling for their general political knowledge. We let respondents self-locate their ideological position on a scale from 1 ("left") to 10 ("right"), from which we constructed variable *ideology*.

The demand for redistribution can also be associated to individuals' views on the fairness of the income distribution. Following Corneo and Grüner (2002), we asked respondents (as in the ISSP) "How important is hard work for getting ahead in life?", with five categories from "essential" to "not important at all". We include this as a regressor (*hard work*), too.

Media consumption may be relevant, too. We asked respondents how often (daily, weekly, monthly, rarely, or never) they used different media (newspaper, TV, internet). 75% of respondents watch news in TV or read news in the internet daily, and 37% read a daily newspaper. We constructed a variable *informed* to summarize all media usage, with greater numbers indicating higher levels of usage.

4 Biases in self-assessments

4.1 Measurement and descriptives

The right-hand part of Figure 1 shows the distribution of our respondents across (actual) income deciles, based on their self-assessments. This distribution is considerably less dis-

[4] Table A.1 in the Appendix provides a list of all (generated) survey variables.

[5] We asked this question at the end of the survey, after having uncovered the actual type of society.

persed than the objective one. Moreover, lower income groups tend to overestimate their relative income position while higher income groups tend to underestimate the relative income.

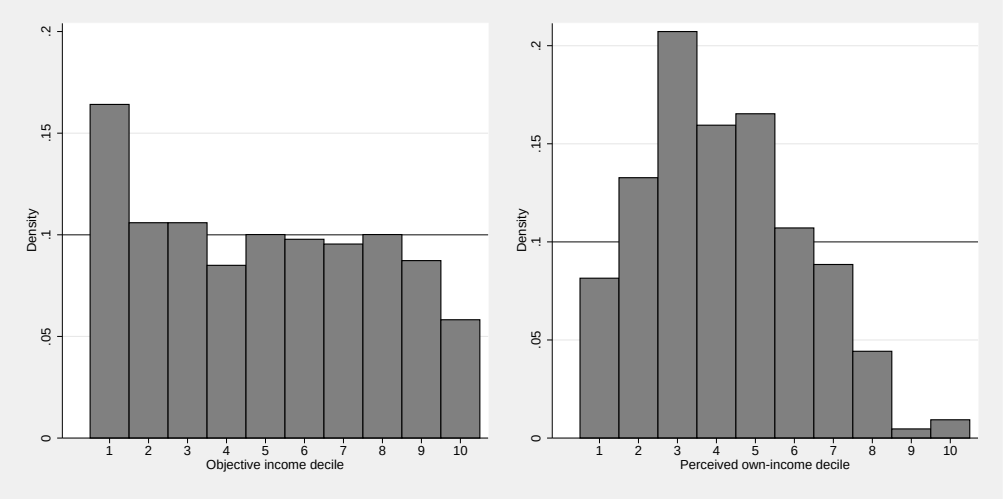


Figure 1: Distribution of objective and perceived income decile.

We defined as variable *bias* the difference between perceived and actual decile. A *negative [positive] bias* indicates an underestimation [overestimation] of one's income decile. Table 1 provides a detailed picture of respondents' self-positioning biases, sorted by actual income deciles. Column (1) shows that the average perceived own decile ranges from 3.106 (in the first decile) to 6.240 (in the tenth decile). In the middle of the income distribution the mean bias (column (2)) is relatively small, but it increases towards both ends. Perceptions of relatively poor respondents are positively based (columns (3) and (4)), while the relatively rich tend to underestimate their relative income position which leads to negative biases (columns (5) and (6)). The distribution of biases is also shown in Figure A.1 in the appendix.

Table 1: Self-Positioning Bias by Income Decile

objective decile	(1) average perceived own decile	(2) mean bias	(3) proportion with positive bias	(4) average positive bias	(5) proportion with negative bias	(6) average negative bias
1	3.106	2.106	0.695	3.031	0.000	0.000
2	3.330	1.330	0.582	2.547	0.154	-1.000
3	3.725	0.725	0.418	2.684	0.319	-1.241
4	4.055	0.055	0.397	1.828	0.438	-1.531
5	4.174	-0.826	0.174	1.600	0.640	-1.727
6	4.369	-1.631	0.131	1.455	0.810	-2.250
7	4.695	-2.305	0.061	1.200	0.805	-2.955
8	4.930	-3.070	0.012	1.000	0.965	-3.193
9	4.947	-4.053	0.000	0.000	1.000	-4.053
10	6.240	-3.760	0.000	0.000	1.000	-3.760

In Table 2 we report correlates of perceived deciles other than objective relative income. As can be seen in column (1), the objective income rank is a statistically highly significant

correlate. Due to the systematic bias, the regression coefficient is lower than one. This observation remains stable after including individual characteristics as age, gender, education level, and political ideology.

Perceived income positions are not correlated with age or gender. A higher education level – measured in highest degree – decreases the perceived relative income rank: a higher level of education level is positively correlated with a negative bias (underestimation of own income rank) and negatively correlated with a positive bias (overestimation of relative income).[6] The coefficient of *political ideology* is positive but close to zero, indicating that a more conservative ideology is goes along with a slightly higher perception of one's relative income.

Table 2: Determinants of Perceived Own Income Decile

	(1)		(2)	
	mean	s.e.	mean	s.e.
objective decile	0.275***	(0.022)	0.275***	(0.023)
age			0.0042	(0.005)
women			-0.0238	(0.125)
education			-0.107*	(0.062)
ideology			0.0694**	(0.034)
constant	2.818***	(0.124)	2.702***	(0.411)
R^2	0.158		0.168	
N	859		859	

Robust standard errors in parentheses: $***p<0.01, **p<0.05, *p<0.1$
Dependent variable: perceived own income decile

There is no significant correlation between the self-positioning bias and the self-assessement of respondents' reference group, measured by variable *reference group*. Regressing informedness (i.e., variable *informed*) on bias groups, we observe, however, a significant negative correlation with positive bias and a significant positive correlation with negative bias. However, there is also a high correlation between *informed* and income; if we control for income, the significance of the correlations vanishes. We do not have evidence, thus, that respondents who are well informed about current affairs have a more precise picture of their income rank.

As respondents systematically fail to locate themselves in the income distribution, we want to know how sure they were in their answers. A mere 14% of respondents reported that they were sure or very sure about their self-positioning, 48% were somewhat sure, and 38% not sure at all. Overall, people seem to know that they do not know very much. Interestingly, the reported levels of confidence do not vary across perceived income deciles. Therefore, we can refute the objection that respondents choose middle categories for their self-positioning if they have no clue.

To sum up: respondents know little about their relative income and they are aware of this fact.

[6] Precise correlations between controls and bias groups are available on request.

5 Preferences for redistribution

5.1 Initial preferences

Even before the self-assessments we had asked respondents about their general opinion on redistribution in Germany. Answers were coded in seven categories, ranging from 1 ("There is too much effort to equalize incomes.") over 4 ("It is fine as it is.") to 7 ("Income inequality is far too high and should be reduced."). An overwhelming majority of 83 % of the respondents asks for more redistribution (categories 5 to 7), 11 % are satisfied with the status quo (category 4), and merely 6 % think there is too much income equalization in Germany (categories 1 to 3).

This is a strong and surprising observation, and we had a more detailed look at respondents' preferences for redistribution. We first study the mean preferences for redistribution by income deciles. [7] As can be seen in column (1) of Table 3, mean preferences for redistribution range from 4.125 in the top perceived decile to 6.100 in the lowest perceived decile. This indicates that there is a quite uniform (average) preference for *more* redistribution and greater income equality across all deciles of perceived income (recall that 4 signifies a preference for the status quo). Moreover, between the second and ninth decile, the average preferences for redistribution do not show much variation. Preferences are, thus, remarkably homogeneous across income groups.

These observations are in harmony with the pattern that one gets from the International Social Survey Program (ISSP). Answers for Germany can be seen in Table A.4, column (1). Again, mean preferences are quite similar across perceived income deciles and virtually everybody asks for more redistribution.[8]

5.2 Informed preferences

Preferences generally depend on the perceived relative position. If an information treatment just confirms individual perceptions, nothing should happen. But if the perception is initially wrong and then corrected by an information treatment, preferences might be updated.

First insights emerge from columns (2) and (3) in Table 3.[9] The columns report mean preferences for redistribution in the perceived income deciles for, respectively, treatment and control group. Differences are small, and the values do not visibly differ from the replies to the initial question, reported in column (1).

[7] We report results for *perceived* income decile because perceptions might matter more for political preferences than the (unknown) actual position. Results for mean preferences in actual income deciles are reported in Table A.3. They are qualitatively the same as for perceived deciles.

[8] Columns (2) and (3) in Table A.4 show that this phenomenon is not confined to Germany: the mean preferences for redistribution by perceived income decile for Sweden and Argentina – the two countries for which comparable studies exist (Cruces et al. (2013) and Karadja et al. (2014)) – lie in a relatively small range, too.

[9] See columns (2) and (3) in Table A.3 for mean preferences by income decile.

Table 3: (Mean) Preferences for Redistribution by Perceived Income Decile

	(1) initial preferences		(2) 1st treatment (treated)		(3) 1st treatment (control)		(4) 2nd treatment (of the treated)	
perc. decile	mean	s.e.	mean	s.e.	mean	s.e.	mean	s.e.
1	6.100	(1.241)	6.243	(0.955)	5.906	(1.304)	6.162	(0.958)
2	5.763	(1.319)	5.933	(1.087)	5.731	(1.430)	5.683	(1.308)
3	5.730	(1.186)	5.702	(1.144)	6.048	(0.877)	5.606	(1.280)
4	5.679	(1.212)	5.707	(1.250)	5.839	(1.059)	5.480	(1.379)
5	5.430	(1.426)	5.347	(1.465)	5.500	(1.422)	5.236	(1.477)
6	5.543	(1.456)	5.452	(1.418)	5.653	(1.451)	5.310	(1.490)
7	5.592	(1.308)	5.714	(1.132)	5.765	(1.208)	5.476	(1.194)
8	5.500	(1.767)	5.700	(1.342)	6.118	(1.054)	5.600	(1.603)
9	6.000	(1.155)	6.500	(0.707)	7.000	(0.000)	6.000	(1.414)
10	4.125	(1.642)	4.250	(0.957)	4.250	(1.258)	3.750	(2.217)

To identify whether or not there is a treatment effect, we used both the simple first-difference estimator as well as a difference in differences estimator. As our sample size is too small, we cannot meaningfully estimate potential treatment effects for each pair of perceived and factual income decile. We therefore choose plausible larger subgroups and partitioned respondents into those who held no bias, a positive bias or a negative bias in their income assessment. For the "no-bias-respondents" the information treatment just confirms their beliefs and we, thus, do not expect any treatment effect. But the information treatment (truthfully) may change the beliefs of respondents with a bias.

Results are reported in Table 4. Columns (1) to (3) show the average preferences for redistribution of those who, respectively, underestimated, correctly assessed, and overestimated their relative income positions. Panel A uses the full sample – and shows that the treatment did not generate any statistically significant effects, neither for simple differences nor for differences in differences.

A plausible explanation for the lack of effect is, of course, that our information treatment – which should make most respondents conclude that inequality is more pronounced than they initially thought – further cemented their strong preference for redistribution (recall that more than 83% of the respondents stated a preference for more redistribution already at the outset).

To check whether the information treatment at least impacted on those who had initially not been for more redistribution, we restrict our sample to these respondents. This shrinks the number of observations dramatically. However, as reported in Panel B of Table 4, we do not observe any difference between control and treatment group.

In Panel C we restrict attention to respondents who initially held a large (i.e., above-average) bias, as these individuals might have had much reason to change their views, becoming aware of their great knowledge gap. Here, the first difference estimator in column (3) reports a statistically significant difference of stated preferences between control and treatment group, which vanishes, however, when diff-in-diff is implemented. That the first difference is non-zero in a statistically significant way is, thus, likely to be an artefact of having systematic

Table 4: (Perceived) Distribution and Preferences for Redistribution: Experimental Results

	(1) Negative Bias		(2) No Bias		(3) Positive Bias	
Panel A: Full Sample						
Treatment group [obs.]	5.694	[248]	5.696	[69]	5.679	[131]
Control group [obs.]	5.681	[220]	5.897	[68]	5.923	[118]
Difference [s.e.]	0.012	[0.110]	-0.201	[0.222]	-0.244	[0.169]
Diff-in-Diff [s.e.]	0.079	[0.162]	-0.060	[0.332]	0.005	[0.242]
Panel B: Initial preference for less redistribution						
Treatment group [obs.]	4.098	[41]	3.875	[16]	4.000	[24]
Control group [obs.]	3.897	[39]	4.000	[8]	3.950	[20]
Difference [s.e.]	0.200	[0.257]	-0.125	[0.552]	0.050	[0.479]
Diff-in-Diff [s.e.]	0.249	[0.329]	-0.750	[0.697]	-0.108	[0.570]
Panel C: Above average bias						
Treatment group [obs.]	5.631	[122]	5.696	[69]	5.435	[46]
Control group [obs.]	5.570	[114]	5.897	[68]	5.978	[45]
Difference [s.e.]	0.061	[0.159]	-0.201	[0.222]	-0.543*	[0.292]
Diff-in-Diff [s.e.]	0.032	[0.235]	-0.060	[0.332]	-0.173	[0.427]
Panel D: Leftist attitude						
Treatment group [obs.]	6.000	[78]	6.259	[27]	5.700	[40]
Control group [obs.]	5.989	[90]	5.885	[26]	6.119	[42]
Difference [s.e.]	0.011	[0.157]	0.375	[0.282]	-0.419*	[0.280]
Diff-in-Diff [s.e.]	0.830	[0.237]	-0.001	[0.414]	-0.020	[0.427]
Panel E: Hard work is important						
Treatment group [obs.]	5.677	[164]	5.636	[44]	5.677	[96]
Control group [obs.]	5.711	[152]	5.744	[39]	6.108	[83]
Difference [s.e.]	-0.034	[0.133]	-0.107	[0.309]	-0.431**	[0.189]
Diff-in-Diff [s.e.]	0.045	[0.197]	0.013	[0.458]	0.007	[0.272]

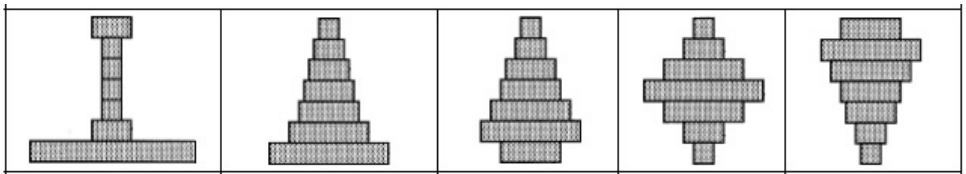
Robust standard errors in parentheses. ***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$
Dependent variable: preferences for redistribution
Initial preferences for less redistribution: initial preference$\leq$4
Above average bias: bias $>$ mean bias (pos. bias $>$ 2.5 and neg. bias $<$ $-$2.8)

differences among those members in treament and control group who held a positive bias. Respondents with a leftist leaning (Panel D), do not show any treatment effect either. Neither do those who attach great importance to *hard work*, i.e., who (initially) considered the process of income generation as fair (Panel E).

Hence, preferences for redistribution proved to be immune against our informative update. Still, 26 % of treatment group members change their preferences upon treatment (only 14 % in the control group). Thus, we indeed observe a higher variation of preferences in the treatment group, but the difference is not statistically significant.[10] By design, we cannot say why the treatment was ineffective: it might not have changed individuals' perceptions or, if it did, did not translate into changes in preferences for redistribution.

6 Perceived and preferred types of society

The dimensions of inequality discussed so far refer to a comparative view. We now examine perceptions and preferences for a different concept of inequality – social stratification –, based on a normative view of inequality. In a stylized way, the degree of social stratification in a society can be depicted by simple graphs. As in the ISSP questionnaire, we presented five types of society to our respondents (see Figure 2) and asked them to state (i) which type best describes German society today and (ii) of which type they think Germany ought to be.



Type A	Type B	Type C	Type D	Type E
A small elite at the top, very few people in the middle and the great mass of people at the bottom.	A society like a pyramid with a small elite at the top, more people in the middle, and most at the bottom.	A pyramid except that just a few people are at the bottom.	A society with most people in the middle.	Many people near the top, and only a few near the bottom.

Source: ISSP 2009 Social Inequality IV questionnaire

Figure 2: Types of society

6.1 Perceptions and preferences

Interpreting the society types in Figure 2 as representations of the income distribution, the type which best describes today's Germany is Type C. When asked about the actual type of the Germany society at the beginning of the survey, 29 % of respondents opted for Type

[10] From a technical point of view, the missing treatment effect is no surprise. Mean preferences for redistribution are uniformly distributed over income deciles. Thus, if we inform respondents about their self-positioning bias, the decile changes do not imply different preferences on average (see Table A.3).

C (see column (1) in Table 5). About 57 % chose one of the more unequal Types A or B, and 15 % thought it was one of the more equal Types D or E. For reference, a random choice among these five types of society would lead to the right answer in 20 % of the time. I.e., the majority of respondents misjudge social stratification. Interestingly, they tend to overestimate inequality.[11]

If we turn to the "What do you think Germany ought to be like"- question the picture reverses: more than 80 % of respondents think that the rather equal Types D and E are desirable (see column (1) in Table 6). About 10 % vouch for Type C and a mere 7 % prefer the rather unequal Types A and B.

6.2 Information treatment

Our treatment does not inform respondents about the actual type of the German society but only provides additional information about the income distribution. Still, this could have helped treated participants to improve their assessments. We therefore asked both the "is" and the "ought" question on stratification again, after the treatment. As can be seen from Tables 5 and 6 there are indeed small differences between treatment group (column (2)) and control group (column (3)).

Table 5: What type of society is Germany today?

	(1) initial type today	(2) 1st treatment (treated)	(3) 1st treatment (control)
Type A	21.65%	26.34%	21.90%
Type B	34.92%	29.91%	32.36%
Type C	28.52%	27.23%	30.90%
Type D	10.71%	11.83%	9.49%
Type E	4.19%	4.69%	5.35%

Table 6: What do you think Germany ought to be like?

	(1) initial type preferred	(2) 1st treatment (treated)	(3) 1st treatment (control)
Type A	1.86%	2.01%	1.48%
Type B	5.01%	4.91%	6.42%
Type C	10.48%	13.39%	12.10%
Type D	63.33%	62.28%	60.49%
Type E	19.32%	17.41%	19.51%

[11] Verify from column (1) in Table A.5 that responses in our sample are in line with those in the ISSP 2009. The same holds for the "ought"-question; see column (2) in Table A.5.

For a more detailed analysis of these differences we again estimated first differences and difference in differences. Tables A.6 and A.7 in the Appendix show the results for, respectively, the "is"-question and the "ought"-question.[12] They convey similar messages as Table 4 in the previous section: there are no significant differences between treatment and control group. This holds irrespective of whether individuals overestimated, correctly estimated or underestimated their income position, prior to the treatment. Hence, we were either unable to alter our respondents' beliefs or changes in beliefs did not translate into changes in preferences.

7 Net contributor or beneficiary?

In a second treatment, we triggered pocketbook concerns. The idea was to check whether learning that one belongs to the net payers or net beneficiaries in the German tax-transfer system affects one's views on redistribution. For example, high-income earners who tend to underestimate their relative position might change their preference for more redistribution once they get informed that they would financially suffer from further inequality reduction.

The treatment informs individuals about their "payer status" where we (generously) described individuals up to 65th percentile as "net receivers", individuals between the 65th and 75th percentile as "rather neutral", and individuals above the 75th percentile of the income distribution as "net payers"; these brackets were calculated from GSOEP data by substracting (equivalized) net incomes from (equivalized) market incomes. After this we solicited preferences for redistribution again.

Since treatment effects are likely to be heterogeneous again (e.g., they might vary with payer status), we generate dummy variable *pay* which takes value 1 if the respondent belongs to the 7th decile or higher and zero otherwise.[13] About 34 % of the (treated) respondents are the net payers. Among these, 94 % underestimated their relative position in the income distribution, 4 % held no bias and, 2 % overestimated their relative income.

The second information treatment was only (randomly) applied to those in the previous treatment group. I.e., all individuals knew about their relative income position. Therefore, our empirical analysis focuses on the first difference between stated preferences before and after the second information treatment.

Regressing this difference in preferences on *pay* provides a statistically highly significant coefficient of negative sign, as can be seen in column (1) of Table 7: learning to be a net payer decreases one's preference for redistribution.

Interestingly, this change of mind occurs irrespective of respondents' political leanings and

[12] As in Section 5, results are presented by bias group because of potentially heterogeneous treatment effects. Furthermore, we ran estimates for each "before treatment"-type and for the full sample. Diff-in-diff is only applied in the latter case, because both methods - first difference and diff-in-diff - obviously coincide in the former ones.

[13] We used the 70th percentile rather than the more precise 75th percentile as the threshold because we framed the entire survey in deciles (e.g., respondents were informed that they belonged to the 7th or 8th decile). Our results also hold if we set the threshold at the 8th decile.

fairness perceptions: the sign and magnitude of preference changes when being informed about one's net payer status do not vary when we control for political attitudes and the *hard work*-variable (see columns (2) and (3) in Table 7).

Table 7: Net Payer/Beneficiary and Preferences for Redistribution

	(1)		(2)		(3)	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
pay	-0.251***	(0.001)	-0.251***	(0.073)	-0.257***	(0.073)
hard work			-0.087	(0.074)		
ideology					0.017	(0.018)
constant	-0.078*	(0.042)	-0.019	(0.066)	-0.160	(0.101)
R^2	0.026		0.029		0.028	
N	448		448		448	

Robust standard errors in parentheses: ***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$
Dependent variable: change in preferences = after-treatment preference minus before-treatment preference

8 Discussion and conclusion

All in all, our results show that Germans are poorly informed about their own relative income, that their perception of social stratification is just slightly better, and that they are aware of their ignorance. Still, they have outspoken preferences for more redistribution. A surprising observation from our survey are the stable and strong preferences for more redistribution across all incomes.[14] This is in contrast to what one would expect, in particular towards the top of the income distribution and in a country with a full-fledged and highly progressive welfare state.

Part of the puzzle might be resolved when noticing that the average survey participant from income deciles 8 to 10 locates herself between deciles 5 and 6 and, thus, holds a massively negative self-perception bias. Obviously, these comparatively rich people believe that there is a considerable share of the population with (even) higher incomes – and that there are, thus, substantial resources available that could be redistributed downwards. Hence, additional redistribution looks easily feasible. Moreover, underestimating their relative position, the upper income groups might not think of themselves as massive net contributors to redistributive schemes (some might even hope to benefit financially from redistribution), which makes a greater degree egalitarianism appear costless to themselves.[15]

Given their preference for more redistribution we expected that it would be mainly those relatively rich respondents who underestimate their actual income position who reacted to

[14] By contrast, Cruces et al. (2013, Figure 4) find a *u*-shaped pattern in the preference for more redistribution over the Argentinian income distribution.

[15] Observe from Table 3 that some respondents who believe to belong to the top deciles of the income distribution indeed do ask for more redistribution (38 respondents locating themselves in the 8th decile, 4 respondents in the 9th decile, and 8 in the 10th). Still there is no bias resulting from a potentially above-average leftist ideology in this subsample.

the information treatment by expressing lower enthusiasm for redistribution. This did not happen, however. A tentative explanation – apart from the possibility that the information treatment did not help respondents to better understand inequality – would be that high-income earners indeed harbour sincere egalitarian or pro-poor preferences. Inferring from the information treatment how big the gap between rich and poor in Germany actually is or how low incomes in the poorer strata really are, might strengthen their desire for more redistribution, even after taking potential pocketbook concerns into account.

Our results trigger the question why we do not observe more redistribution, given that all Germans seem to cherish it. Tentative answers are: first, the preference for more egalitarianism is mostly cheap talk – if programs are actually proposed, pocketbook concerns override well-intentioned preference statements. Our experiment supports this explanation: already informational clues towards net payer status weaken the preference for redistribution noticeably. Second, the "political system" (government, parliament, lobby groups etc.) holds different preferences on redistribution than the citizenry. Third, financial feasibility and government budget constraints limit the scope for more redistribution, even if it were desirable.

(Mis-)Perceptions of reality in the citizenry matter in democracies: normative views on the desirability (or lack thereof) of policy changes – more or less redistribution, say – are shaped, among others, by perceptions of the status quo. Distorted perceptions might lead to biased political choices. The links between citizens' views and preferences and actual redistribution policies certainly deserve greater attention.

References

Bartels, L. M., 2005. Homer gets a tax cut: Inequality and public policy in the American mind. Perspectives on Politics 3, 15–31.

Bartels, L. M., 2008. Unequal Democracy: The Political Economy of the New Gilded Age. Princeton University Press, Princeton, NJ.

Corneo, G., Grüner, H.-P., 2002. Individual preferences for political redistribution. Journal of Public Economics 83, 83–107.

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

D'Ambrosio, C., Clark, A. E., 2015. Attitudes to income inequality: Experimental and survey evidence. In: Atkinson, A. B., Bourguignon, F. (Eds.), Handbook of Income Distribution. Vol. 2. North-Holland, Amsterdam etc., pp. 1147–1208.

Duflo, E., Saez, E., 2003. The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. The Quarterly Journal of Economics 118 (3), 815–842.

Engelhardt, C., Wagener, A., 2014. Biased perceptions of income inequality and redistribution. CESifo Working Paper No. 4838, CESifo, Munich.

Evans, M., Kelley, J., 2004. Subjective social location: Data from 21 nations. International Journal of Public Opinion Research 16, 3–38.

Gimpelson, V., Treisman, D., 2015. Misperceiving inequality. NBER Working Paper No. 21174, National Bureau of Economic Research, Cambridge, MA.

Hornik, R., 1989. The knowledge-behavior gap in public information campaigns: A development communication view. In: Salmon, C. T. (Ed.), Information Campaigns: Balancing Social Values and Social Change. Sage, London, pp. 113–138.

Jensen, R., 2010. The (perceived) returns to education and the demand for schooling. Quarterly Journal of Economics 125 (2), 515–548.

Karadja, M., Moellerstroem, J., Seim, D., 2014. Richer (and holier) than thou? The effect of relative income improvements on demand for redistribution. IFN Working Paper No. 1042, Research Institute of Industrial Economics (IFN), Stockholm.

Kenworthy, L., McCall, L., 2008. Inequality, public opinion and redistribution. Socio-Economic Review 6, 35–68.

Niehues, J., 2014. Subjective perceptions of inequality and redistributive preferences: An international comparison. Discussion paper, Cologne Institute for Economic Research (IW), Cologne.

Norton, M. I., Ariely, D., 2011. Building a better America – one wealth quintile at a time. Perspectives on Psychological Science 6, 9–12.

Osberg, L., Smeeding, T., 2006. "Fair" inequality? Attitudes toward pay differentials: The United States in comparative perspective. American Sociological Review 71, 450–473.

Runciman, W. G., 1966. Relative Deprivation and Social Justice: A Study of Attitudes to Social Inequality in Twentieth-Century England. Routledge Kegan Paul, London.

Stevenson, R. T., Duch, R., 2013. The meaning and use of subjective perceptions in studies of economic voting. Electoral Studies 32 (2), 305–320.

Tichenor, P. J., Donohue, G. A., Olien, C. N., 1970. Mass media flow and differential growth in knowledge. Public Opinion Quarterly 34 (2), 159–170.

Appendix: Tables and figures

Table A.1: Variable Definitions and Descriptive Statistics

Variable	Definition	Mean	SD.
equiv. household net income	(Monthly) Net income divided by equivalence weight based on the modified OECD scale.	1461.25	745.88
objective income decile	Respondent's relative income rank corresponding to the deciles of the GSOEP v29 (equivalence weighted).	4.960	2.886
perceived own income decile	Respondent's stated perceived own decile. Survey question: What is the share of households in Germany that have a lower standard of living than yours? Answer categories were given in deciles.	4.184	1.998
bias	Perceived own income decile minus objective income decile.	-0.774	2.781
preference for redistribution	Respondent's stated attitude towards actual income inequality (scale ranges from 1 to 7): (1) there is too much effort to equalize incomes, (4) satisfied with status quo, (7) there should be much more effort to equalize incomes.	5.651	1.341
type today	Survey question: Which type (see Figure 2) best describes German society today? (1) Type A, (2) Type B, (3) Type C, (4) Type D, (5) Type E.	2.409	1.069
preferred type	Survey question: Which type (see Figure 2) the German society ought to be like? (1) Type A, (2) Type B, (3) Type C, (4) Type D, (5) Type E.	3.932	0.814
pay	Indicator variable equal to 1 if respondents objective income decile is 7 or higher.	0.341	0.474
informed	Sum of respondents stated (news) media consumption. We asked for news in TV, internet and newspaper, response categories: (1) never, (2) seldom, (3) monthly, (4) weekly, (5) daily.	12.744	2.287
confidence	How confident respondent feels with her answer on the own income decile (1) not sure, (2) somewhat sure, (3) sure, (4) very sure	1.790	0.757
confident	Indicator variable equal to 1 if confidence is (2), (3), or (4)	0.618	0.486
reference group	Indicator variable equal to 1 if the respondent states that she hast friends from all social classes.		
ideology	Respondent's stated political leaning on a range from (1) left to (10) right	5.013	1.875
left	Indicator variable equal to 1 if ideology is equal or lower (4)	0.484	0.500
hard work	Indicator variable equal to 1 if respondent states that hard work is important to get ahead in live. Survey question: How important is hard work to get ahead in live?: (1) essential, (2) very important, (3) important, (4) somewhat important, (5) not important.	0.675	0.469
age	Age in years.	45.213	14.541
women	Indicator variable equal to 1 if respondent is female.	0.505	0.500
education	respondent's highest degree: (1) primary education, (2) lower secondary education, (3) secondary education, (4) higher secondary education (Fachhochschulreife), (5) higher secondary education (Abitur)	3.794	1.081

$N = 859$ for all variables.

Table A.2: Comparison of Survey Respondents and Population

	(1) Survey		(2) census (2011)
	mean	s.e.	mean
age (18-70)	45.2	(14.541)	44.2
women	0.505	(0.500)	0.512
household net income (monthly)	2405	(2319)	2988
primary education	0.002	(0.048)	0.047
lower secondary education	0.112	(0.315)	0.356
secondary education	0.359	(0.480)	0.269
higher secondary education	0.527	(0.500)	0.283
retired	0.212	(0.409)	0.237

Table A.3: (Mean) Preferences for Redistribution by Income Decile

	(1) initial preferences		(2) 1st treatment (treated)		(3) 1st treatment (control)		(4) 2nd treatment (of the treated)	
decile	mean	s.e.	mean	s.e.	mean	s.e.	mean	s.e.
1	5.801	(1.410)	5.920	(1.217)	5.831	(1.485)	5.813	(1.302)
2	6.011	(1.260)	5.867	(1.198)	6.022	(1.252)	5.756	(1.417)
3	5.670	(1.367)	5.551	(1.355)	5.976	(1.129)	5.449	(1.542)
4	5.904	(1.238)	5.750	(1.368)	6.024	(0.987)	5.656	(1.405)
5	5.663	(1.184)	5.556	(1.120)	6.025	(0.974)	5.600	(1.031)
6	5.500	(1.303)	5.780	(1.250)	5.529	(1.107)	5.700	(1.233)
7	5.573	(1.248)	5.762	(1.246)	5.718	(1.169)	5.476	(1.348)
8	5.453	(1.621)	5.523	(1.577)	5.595	(1.547)	5.136	(1.564)
9	5.520	(1.107)	5.571	(0.966)	5.606	(1.059)	5.143	(1.458)
10	5.060	(1.420)	5.292	(1.083)	5.230	(1.306)	5.167	(1.167)

Table A.4: (Mean) Preferences for Redistribution: ISSP 2009

	(1) Germany		(2) Argentina		(3) Sweden	
perceived decile	mean	s.e.	mean	s.e.	mean	s.e.
1	4.750	(0.866)	4.310	(0.541)	4.636	(0.505)
2	4.667	(0.620)	4.167	(0.794)	4.385	(0.768)
3	4.713	(0.580)	4.339	(0.712)	4.236	(0.860)
4	4.600	(0.670)	4.274	(0.676)	4.395	(0.786)
5	4.460	(0.720)	4.236	(0.738)	4.157	(0.837)
6	4.351	(0.810)	4.168	(0.833)	3.987	(0.868)
7	4.184	(0.876)	4.286	(0.749)	3.600	(1.068)
8	4.071	(0.956)	4.436	(0.640)	3.518	(1.210)
9	4.071	(1.141)	4.222	(0.833)	3.455	(1.368)
10	4.500	(1.000)	5.000	(0.000)	3.571	(1.505)

Question: *"Differences in income in <R's country> are too large." (5) strongly agree (4) agree (3) neither agree nor disagree (2) disagree (1) strongly disagree.*
See Engelhardt and Wagener (2014) for the perceived income decile in the ISSP.

Table A.5: Answers ISSP 2009 (for Germany)

	(1) Type Today	(2) Type Preferred
Type A	18.80%	1.49%
Type B	35.38%	10.36%
Type C	23.03%	18.21%
Type D	18.57%	57.06%
Type E	4.22%	12.87%
N	1,255	1,274

Table A.6: Perceived types today: experimental results

	(1) Negative Bias		(2) No Bias		(3) Positive Bias	
Type A						
Treatment group [obs.]	1.264	[53]	1.111	[18]	1.394	[33]
Control group [obs.]	1.200	[40]	1.467	[15]	1.222	[27]
Difference [s.e.]	0.064	[0.143]	-0.356	[0.277]	0.172	[0.227]
Type B						
Treatment group [obs.]	2.107	[75]	2.154	[26]	2.220	[50]
Control group [obs.]	2.025	[79]	1.957	[23]	2.149	[47]
Difference [s.e.]	0.081	[0.107]	0.197	[0.188]	0.071	[0.182]
Type C						
Treatment group [obs.]	2.868	[76]	2.867	[15]	2.939	[33]
Control group [obs.]	3.000	[76]	2.833	[24]	2.857	[21]
Difference [s.e.]	-0.132	[0.870]	0.033	[0.180]	0.082	[0.166]
Type D						
Treatment group [obs.]	3.541	[37]	3.625	[8]	3.889	[9]
Control group [obs.]	3.905	[21]	3.750	[4]	3.769	[13]
Difference [s.e.]	-0.364*	[0.190]	-0.125	[0.314]	0.120	[0.352]
Type E						
Treatment group [obs.]	4.714	[7]	3.500	[2]	3.000	[6]
Control group [obs.]	4.500	[8]	5.000	[2]	4.182	[11]
Difference [s.e.]	0.214	[0.564]	-1.500	[1.500]	-1.182	[0.846]
Full Sample						
Treatment group [obs.]	2.448	[248]	2.246	[69]	2.344	[131]
Control group [obs.]	2.473	[224]	2.353	[68]	2.429	[119]
Difference [s.e.]	-0.026	[0.100]	-0.107	[0.179]	-0.085	[0.154]
Diff-in-Diff [s.e.]	-0.046	[0.138]	-0.044	[0.251]	0.086	[0.211]

Robust standard errors in parentheses: ***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$
Dependent variable: type today

Table A.7: Preferred society types: experimental results

	(1) Negative Bias		(2) No Bias		(3) Positive Bias	
Type A						
Treatment group [obs.]	1.000	[2]	——	[——]	1.625	[8]
Control group [obs.]	1	[2]	1.000	[1]	2.333	[3]
Difference [s.e.]	——	[——]	——	[——]	——	[——]
Type B						
Treatment group [obs.]	2.500	[10]	3.000	[2]	2.462	[13]
Control group [obs.]	2.000	[11]	2.000	[2]	2.000	[5]
Difference [s.e.]	0.500*	[0.256]	——	[——]	0.462	[0.400]
Type C						
Treatment group [obs.]	3.148	[27]	3.375	[8]	3.000	[13]
Control group [obs.]	2.947	[19]	3.143	[7]	3.143	[14]
Difference [s.e.]	0.201	[0.145]	0.232	[0.312]	-0.143	[0.101]
Type D						
Treatment group [obs.]	3.927	[164]	3.957	[46]	3.946	[74]
Control group [obs.]	3.918	[147]	4.024	[41]	3.956	[68]
Difference [s.e.]	0.008	[0.043]	-0.068	[0.090]	-0.010	[0.058]
Type E						
Treatment group [obs.]	4.867	[45]	4.769	[13]	4.826	[23]
Control group [obs.]	4.707	[41]	4.750	[16]	4.750	[28]
Difference [s.e.]	0.159	[0.128]	0.019	[0.242]	0 .076	[0.182]
Full Sample						
Treatment group [obs.]	3.931	[248]	4.014	[69]	3.718	[131]
Control group [obs.]	3.860	[220]	4.000	[67]	3.924	[118]
Difference [s.e.]	0.072	[0.072]	0.014	[0.130]	-0.206*	[0.118]
Diff-in-Diff [s.e.]	0.029	[0.178]	0.069	[0.099]	0.057	[0.171]

Robust standard errors in parentheses: ***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$
Dependent variable: type preferred

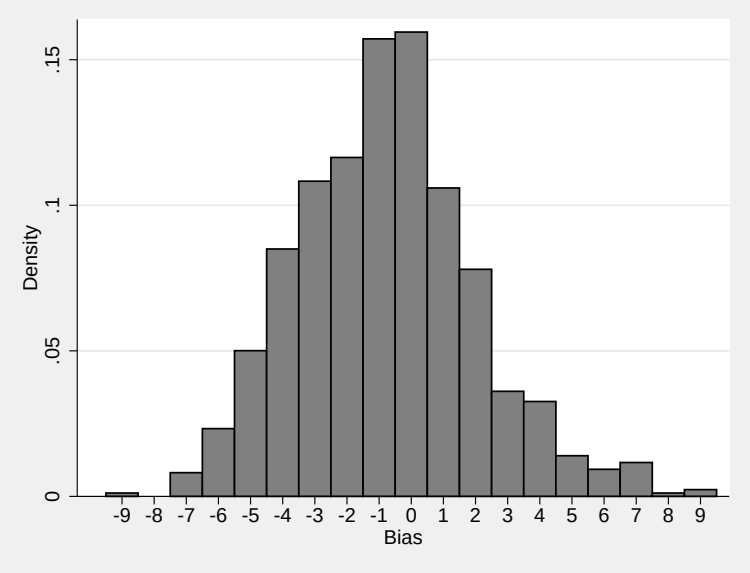


Figure A.1: Distribution of *bias* in the sample.
Bias := perceived minus actual percentile in the income distribution.