**Relative Income, Information, and Progressive Taxation:
Evidence from a Survey Experiment**

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Abstract: To what extent are individuals accurately informed about their place in the income distribution? What is the impact of an individual's subjective income placement (where individuals believe they are in a country's income distribution), as opposed to objective income placement (where individuals actually are located in the distribution), on basic policy issues of progressive taxation and redistribution? To what extent does learning about one's actual placement affect preferences for both sets of policies? Despite the importance of accurate self-information about one's place in the income scale for the classic models of redistribution, this assumption remains untested. We present survey data and an embedded experiment where we inform a random subset of individuals their true place in the income distribution. We then assess the impact of such information on preferences for tax progressivity, tax rates, and redistribution. On balance we find that individuals are not perfectly informed about their placement in the income distribution. We find that revealing to individuals their objective placement of the income distribution increases support for tax progressivity, but mainly for poor individuals who in fact learn that they are poorer than they thought. These results have implications for the canonical assumptions of redistribution models; demonstrate the importance of accurate measurement of tax preferences; and add nuance to the nascent studies that demonstrate the impact of information on policy preferences.

Introduction

To what extent are individuals accurately informed about their place in the income distribution? What is the impact of an individual's *subjective* income placement (where individuals believe they are in a country's income distribution), as opposed to objective income placement (where individuals actually are located in the distribution), on basic policy issues of progressive taxation and redistribution? To what extent does learning about one's actual placement affect preferences for both sets of policies?

Despite the proliferation of research in the last two decades regarding the question of individual preferences over general redistribution, there have been surprisingly few studies that test the assumptions that individuals' *subjective* views of their placement in the income distribution match their objective placement in the distribution, and that this self-placement is the main driver of redistribution preferences. These assumptions are standard in the canonical political economy models of preferences over tax rates and transfers, particularly influential models derived by Romer and Meltzer and Richards. Such assumptions are important as individuals may be misinformed about their true position in the income distribution; were they properly informed, their preferences over tax rates and redistribution may change.

Regarding the literature on redistribution policy outcomes, there is also less research regarding the preferences over crucial components to such redistribution, namely actual preferred tax rates and the progressivity of tax systems to fund such redistribution. This absence is particularly striking given the renewed salience of tax issues in advanced democracies (such as protests regarding the "one percent" in the United States and debate about higher tax rates in France after the start of the Hollande administration, to name two prominent examples).

In this paper we address these problems by presenting new survey data from a nationally representative population with an embedded experiment. We present survey data that tests the assumption that individuals have accurate subjective income placement – that is that individuals know where they are in the income distribution; we do by asking individuals to give their placement in the income distribution. We then inform a randomly selected subset of individuals of their *true place in the income distribution*. We then assess the impact of such information on preferences for tax progressivity, tax rates, and redistribution. One of the advantages of this design is that the effect of learning of one's place in the income distribution can be thought of as exogenously manipulating one's actual place, as the respondent learns if he is richer or poorer than previously thought. On balance we find that individuals are not perfectly informed about their placement in the income distribution. Citizens tend to believe disproportionally that they belong to middle income groups, both when they are richer than the median and when they are poorer. We find that revealing to individuals their true placement in the income distribution increases support for tax progressivity only for individuals in the bottom half of the income distribution who learn that they are poorer than they thought. Interestingly, we do not find such effects for those with incomes greater than the median. We also find that individuals *primed to think about their subjective placement in the income distribution* have different preferences from those not primed. These priming effects are significant and also more important for poorer households. The results have implications for the canonical assumptions of redistribution models, demonstrate the importance of accurate measurement of tax preferences, and add nuance to the nascent studies that demonstrate the impact of information on policy preferences.

The paper proceeds as follows. Section one describes the relevant literature. Section two presents the research design and survey instrument questions. We spend some time in the design

description to show how our measurement of household and individual income, measurement of

individual preferences over tax progressivity, and experimental design differ from previous

studies. Section three presents the results. Section four concludes.

Section 1: Background literature, theory, and hypotheses

Our study builds on several literatures in comparative political economy, starting with a

set of recent findings that document how individuals are misinformed about various facts or

aspects that should influence their preferences for redistribution.[1] Most of these studies focus on

US citizens and different types of policy-relevant information that they are misinformed about.

For example, Americans relative to Europeans score worse on perceptions of the gap between

the rich and poor in their respective countries (Osberg and Smeeding 2006). This study uses

ISSP data to find that Americans are less aware of the extent of inequality at the top of the

income distribution, and are less concerned about reducing differentials at the bottom of the

distribution.[2] Other studies find that most US citizens are overly optimistic in estimating their

future economic standing; a raft of evidence cites American over-estimation of the degree of

income mobility (see Neckermann and Torche (2007) for a summary, as well as DiPrete (2007)).

Norton and Ariely (2011) in an online survey find that Americans underestimate the current level

of wealth inequality in the US and prefer more equitable wealth distributions (as they

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[1] A large debate in the literature persists on how informed Americans are on various aspects of public policy. A research tradition in the vein of Kulkinski et al. finds that misinformation is rampant and that such misinformation has implications for citizen welfare; a contrasting set of studies by Page and Shapiro finds general high levels of citizen knowledge. Kuklinski, J. H., P. J. Quirk, et al. (2000). "Misinformation and the currency of democratic citizenship." Journal of Politics **62**(3): 790-816, Page, B. I. and R. Y. Shapiro (2010). The rational public: Fifty years of trends in Americans' policy preferences, University of Chicago Press. For other studies on low political knowledge in the United States see Neuman 1986; Delli Carpini and Keeter 1996), recent perspectives continue to debate the true level of political knowledge (e.g., Gibson and Caldeira 2009, Luskin and Bullock 2011; Prior and Lupia 2008). For example, citizens routinely over-estimate the proportion of a population that is immigrants or minorities Wong, C., J. Bowers, et al. (2012). "Bringing the Person Back In: Boundaries, Perceptions, and the Measurement of Racial Context." The Journal of Politics **1**(1): 1-18. We focus in this paper on information that is relevant to the domain of redistribution and taxation, and use a non-American sample.

[2] However, McCall and Chin in a recent paper find that estimates of "how wrong" US citizens are about inequality are over-estimated. See McCall, L. and F. Chin (2013). Does Knowledge of Inequality Affect Beliefs about Inequality? Midwest Political Science Association. Chicago, IL.

summarize, "Americans Prefer Sweden" (10)); this finding holds across almost all demographic groups. [3]

Given the debate over the degree to which citizens informed, a nascent small set of studies tries to assess the impact of giving information on various aspects of either inequality or redistributive policies on preferences. The results of the impact of information on preferences in the US context are mixed. Using observational data Bartels (2010) finds that political information does not increase opposition to fiscal tax cut policies that citizens would not necessarily benefit from (at least in the case of the 2001 and 2003 Bush tax cuts). But other studies demonstrate some modest impact of experimental information on preferences and awareness. Duflo and Saez (2003) and Chetty and Saez (2009) provide subjects with information on retirement plans and the tax code. Kuziemko, Norton, et al. (2013) find using survey experiments from US mTurk data that respondents update their views about income inequality when presented with information about the current distribution of income; they conclude that information about true inequality distributions can reduce nearly forty percent of the disparity in preferences about inequality. McCall and Chin find that knowledge about inequality does not correlate necessarily with desiring to reduce it through redistribution (McCall and Chin 2013). On the issue of the US estate tax, Sides finds that information about the extent of the tax affects support for it (Sides 2011). Many of these experiments however have been in a specific US setting. In the study most relevant to our design, Cruces, Truglia, et al. (2012) use an Argentinian survey house experiment and show that informing respondents of their actual relative position increases support of government goods for the poor. We discuss later on how our design differs.

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[3] One estimate is that the average preferred wealth owned by the top 20 percent is slightly more than 30 percent; whereas the true value is roughly near 85 percent.

Despite these advances in the study of citizen misinformation and attempts to ameliorate it, a gap in the literature on the (mis)information of citizens is that few studies address the systematic knowledge of citizens regarding a crucial theorized determinant of redistribution preferences: the relative position of the individual on the country's income scale. This gap is surprising giving the fundamental importance of the assumption that citizens are accurately informed about their position on this scale. There is a huge literature on these models that we do not summarize here, though from the key models (such as Romer (1975) and Meltzer-Richards (1981)), the above assumption is a component to the model. While there is a general literature on lack of information of individuals and citizen innumeracy, there is less research on individual self-perceptions of location in a distribution (even in domains outside of political economy).[4]

Most of these studies also do not study how *informing* individuals of their true income affects preferences over taxation and redistribution. This is surprising as tax preferences are in some ways antecedent to redistribution preferences, and a crucial assumption is accurate individual self-placement in the distribution. Regarding redistribution preferences, there is another huge literature on preferences that we do not summarize here, though from the key models discussed above, the above assumption is a component to the model. The information properties of these models have been critiqued before, but these critiques have not been as extensively tested (Romer and Rosenthal 1979).

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[4] Regarding citizen inaccuracy about the self in the distribution of events, some studies distinguish for respondents between subjective and objective probabilities (Manski 2004) and perceived versus actual survival rates (Hurd 2009). Many studies examine errors of individuals regarding both objective and relative placement of their own body mass indices (BMI) or weights. See Kuchler, F. and J. Variyam (2003). "Mistakes were made: misperception as a barrier to reducing overweight." International journal of obesity 27(7): 856-861. Maximova, K., J. J. McGrath, et al. (2008). "Do you see what I see? Weight status misperception and exposure to obesity among children and adolescents." Ibid. 32(6): 1008-1015. Truesdale, K. P. and J. Stevens (2008). "Do the obese know they are obese?" North Carolina medical journal 69(3): 188. RM, M. and J. Richardson (2009). "Validity of self-reported height, weight, and body mass index: findings from the National Health and Nutrition Examination Survey, 2001-2006." Prev Chronic Dis 6(4). Herman, K. M., W. M. Hopman, et al. (2013). "Self-rated health and life satisfaction among Canadian adults: associations of perceived weight status versus BMI." Quality of Life Research: 1-13. For a more theoretical psychological view on linking of self-views and society, see Jones, S. C. (1973). "Self-and interpersonal evaluations: esteem theories versus consistency theories." Psychological Bulletin 79(3): 185..

On the dependent variable side, despite the proliferation of research on individual level preferences for redistribution, there is relatively less exploration of a critical component to any redistribution policy: the amount of progressivity in the tax system. Further, despite the vast theoretical economic literature on when such progressive systems would emerge, there remains little literature systematically testing individual preferences for degrees of progressivity. The theoretical literature gives reasons why in equilibrium such progressivity emerges: Roemer (1999) argues that progressive taxation is an equilibrium result of factional competition within a left and right-wing political party. Snyder and Kramer (1988) formally argue that progressive taxation is a result of middle-class voters to reduce tax burdens on themselves. Similarly Donder and Hindriks (Hindriks 2001; 2003) conclude from a model that progressive taxation is more likely to occur in countries where the income distribution is clustered around the middle. Beramendi and Rehm (2012) argue that the progressivity of the tax-benefit system is a major determinant of the predictive power of income on preferences for redistribution. In their theoretical model, individual attitudes are proportional to expected net benefits, which is determined by what individuals receive (characterized by the probability of receiving a transfer and the transfer's structure) and what individuals contribute to the system in the form of taxes. The level of progressivity determines the distribution of both, thereby accounting for cross-national variations in the distribution of preferences about the welfare state; they conclude that the amount of progressivity explains why income is a predictor of redistribution preferences in some countries.[5]

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[5] Scheve and Stasavage argue that progressive taxation policies are the result of early twentieth war-time participation and pressure from domestic publics to equalize war-time participation burdens (in part by imposing higher top marginal tax rates. Scheve, K. and D. Stasavage (2010). "The Conscription of Wealth: Mass Warfare and the Demand for Progressive Taxation." International Organization **64**(4): 529-562.

Despite these competing models, little research focuses on the assumptions of such models by examining preferences of progressive taxation per se. McCall, in a landmark new study on the evolution of attitudes in the United States towards inequality, finds that citizen concerns about inequality are correlated with preferences for progressivity, though this measure codes progressivity simply as if the respondent thinks the richer should pay more taxes than the poor (McCall and Kenworthy 2009; McCall 2013). Other studies focus on framing effects; Roberts, Hite, et al. (1994), find that US subjects are often confused about the difference between flat and progressive taxes and that preferences are subjected to framing effects. Reimers (2009) also finds framing effects in the UK regarding preferences for progressive taxation: participants favored progressivity more when tax was described as a percentage rather than amount. Heinemann and Hennighausen (Heinemann and Hennighausen 2010) find that individual attitudes toward progressive taxation in Germany are partially driven by fairness considerations.

In this study we present a design and set of outcome questions that addresses these lacunae regarding self-placement information and progressivity preferences. We systematically measure the degree to which individuals are misinformed about their own place in the income distribution. We test whether the degree of misperception affects preferences on standard redistribution questions, but also less explored outcomes such as the progressivity of the tax structure. We also test the impact of randomly *informing some citizens* of their correct place in the income distribution—that is what percent of households in the country have a greater and lesser income.

This design allows us to attain multiple objectives. First, it tests a fundamental assumption of the main models of preferences for redistribution by specifying how much error

there is in citizen views of their *own place* in the income scale, and whether such misperception

is correlated with redistribution and tax preferences.[6] Second, it allows us to test the causal

impact of such *correct* information on these preferences. Our design mimics "exogenously"

manipulating a key component that drives these models. By allowing respondents to *learn* about

their true position in the income distribution, we simulate what would happen if individuals

materially got relatively richer. In our design some respondents randomly learn that they are in

fact richer or poorer than they had believed. This intervention is somewhat akin to an

intervention where the citizen exogenously becomes relatively richer or poorer; such

interventions have been shown to affect redistribution preferences (Doherty, Gerber et al. 2006).

Third, because of our precise questions about preferred tax rates on different incomes, we are

able to obtain more precise measures of progressivity and measure the impact of both "incorrect"

and "correct" subjective income perceptions on such preferences.

Hypotheses

     We test the following straightforward hypotheses, based on the literature discussed

above:

     H1: Objective income is positively correlated with subjective income placement

     H2: Priming respondents about the distribution of income across households (i.e. asking

     them where they think they are in the income distribution) should affect the relationship

     between perceived relative income and tax and redistribution preferences, though we are

     unsure if this direction is positive or negative.

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[6] We focus on measuring perceptions and information regarding of where respondents are on an income scale
(hypothetically putting all the households on one scale and asking what percent are richer or poorer). We focus on
measurement of this perception as opposed to perceptions about shares of income because the former is easier for
respondents to visualize and grasp, and also is more of a persistent issue in public debate.

H3*:* Being informed about the relative position in the income distribution should affect

both progressivity and redistribution preferences in directions consistent with standard

objective-income based models of redistribution: learning that the relative position in the

income distribution is lower than one thought should increase support of progressive

taxation and redistribution than the same group of respondents, as opposed to citizens

who remain uninformed about their true position in the income distribution.

H4: Respondents who learn that they are relatively richer than they thought should be less

likely to support progressive taxation and redistribution.

Section 2: Design and measurement

Sample. To test the above hypotheses regarding the determinants of preferences of

progressive taxation, redistribution, and the impact of informing subjective income position on

such preferences, we gathered data using a web-based survey of 4,000 respondents in Spain July

2012. The survey was administered by Netquest, a Spanish survey firm. The resulting sample has

similar demographic composition to large nationally representative surveys in Spain (i.e. those

fielded by the CIS) with the exception of an oversample of Catalonia (the subsample for

Catalonia is 1,200).[7] Respondents in Spain outside of Catalonia ($n = 2,800$) were randomly

assigned to a control group (with probability .25), a priming treatment group (with probability

.25), and an information treatment group (with probability .5). We describe these treatment

conditions below.

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[7] The supplemental online appendix (SOA, available upon request) gives an overview of Netquest's stratification and sampling strategy compares our survey to others on the relevant social and demographic variables. It shows no statistically significant differences in the distributions of these variables between the surveys. Our sample has however a slight oversample of younger respondents. There is an oversample of Catalonia due to a later module of questions that deal with Catalonia-specific issues. In all estimations we include weights for Catalonia but the results are substantively same without such weights.

Tax rates and tax progressivity outcomes. The relevant dependent variables are a set of

questions relating to preferences over taxation of incomes of different questions and questions

regarding types of inter-personal government redistribution. For the taxation questions,

respondents were first asked, what percentage of a household income should be paid in taxes if

the monthly income is 1,200 euros.[8] They were then asked the same question for incomes for a

family earning 2,100, 3,200, and 10,000 euros per month respectively.[9] Respondents were

allowed to modify their responses to these questions before completing this module. In this study

we focus on assessing views on *effective tax rates* as opposed to marginal tax rates for a few

reasons. First, the preferences over effective tax rates are key aspects of some of theoretical

models of redistribution. Second, preferences over such rates give a more accurate sense of "post

taxation fairness" that we seek to explain. Third, the concept of effective tax rates is more

straightforward for citizens to understand, and variation in this view should be less sensitive to

changes in the income categories asked, as opposed to questions about marginal tax rates.

We use these respondent tax preferences to calculate different measures of preferences of

tax progressivity. A sizable literature on proper calculation of progressivity exists with

competing measures. We focus on two measures that leverage different features of the data. In

the notes to the analysis section we discuss results with other less intuitive progressivity

calculations. The first strict measure of progressivity is a binary variable indicating which

respondents preferred higher tax rates at each level of income. The second measure is simply the

ratio of the top tax rate to the bottom tax rate (incomes of 10,000 euros versus 1,200 euros). This

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[8] In Spain monthly pre-tax incomes are most well-known and salient. The exact Spanish wording of the question is:
"Como usted sabe, para poder ofrecer servicios a los ciudadanos, el Estado necesita recaudar impuestos. ¿Qué
porcentaje de sus ingresos cree usted que debería pagar en impuestos un hogar español medio, cuyos ingresos
mensualestotales, antes de pagar impuestos, sean de 1.200 euros al mes?"
[9] The incomes chosen represent roughly different decile points. For a three-person household (the modal household
in Spain), 1,200 euros a month is roughly at the 20th percentile; 2,100 euros a month is roughly at the 50th percentile;
3,400 euros is at the 80th percentile; 10,000 euros is roughly in the 95th percentile.

results in some missing data as some respondents preferred that those making 1,200 euros per

month pay zero taxes. (As the distribution of this variable is highly skewed because of a limited

number of extreme outliers, in the analyses that follow, we log this ratio). The third measure of

progressivity preferences is the use of a standard income concentration ratio called the Kakwani

coefficient (Kakwani 1977).[10] This concentration coefficient (C) can be calculated easily by the

following expression:

$$C = 2 \frac{\sum_{t=1}^{T} f_t \cdot \mu_t \cdot R_t}{\mu} - 1 \text{ (Eq. 1)}$$

where f_t refers to the population share of group t, μ_t its tax rate, R_t is the fractional rank in the

income distribution, and μ the overall tax rate[11]. This coefficient equals zero if all groups are

taxed equally and 1 if only the higher-income group is taxed. Therefore, the higher the

concentration coefficient, the higher the progressivity of the proposed tax scheme.[12]

Redistribution outcomes. For the redistribution outcome questions, we use two distinct

standard redistribution outcomes. The first question (standard from the European Social Survey)

asks how much the individual agrees that the government should play a role in reducing income

differences (response options are strongly agree, somewhat agree, neither agree nor disagree,

somewhat disagree, strongly disagree). The second question is how much the individual agrees

or disagrees with the statement that the government should increase government spending to help

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[10] For use of this index in other policy contexts and research, see Prasad and Deng (2009).

[11] To compute the concentration coefficient we assume that all four income groups that are asked to each respondent
are of equal size. The initial component in the numerator of equation 1 is (.25*tax rate on 1200*.125) + (.25* tax
rate on 2100*.375) + (.25* tax rate on 3400*.625) +(.25* tax rate on 10000*.875)

[12] Costa-Font (2008) reports a Kakwani index for Spain of 0.38. Note the composition of our measure of course
deviates from reality as space constraints prevent us from measuring tax rate preferences across many income
categories. But our hypothetical incomes allow us to create plausible differences in preferences across a small
number of income groups; what we are interested in is inter-personal differences in constructed progressivity ratios,
not deviations from the actual progressivity in Spain. Costa Font, J. and J. Gil (2008). "Exploring the pathways of
inequality in health, access and financing in decentralised Spain." Documentos de trabajo (FEDEA)(13): 1-38.

the economically less well off, even if this means higher taxes. The first question captures

standard left-right differences in ideology regarding the role of government in reducing

inequality; the second question is a more policy specific question about government spending

even if it implies higher taxes. We recode both redistribution variables with "1" being "very

much agree / somewhat agree" and "0" otherwise.

Treatment. The respondents were randomly assigned to one of three experimental groups,

which each group receiving a slightly different version of the survey. In group one, the control

group, respondents were first asked these policy preference questions, and then asked

approximately what percentage of households in Spain earns less, and what percentage of

households earns more than they do. To reduce measurement error, both numbers had to sum to

100. Further, respondents were prohibited from answering percentages ending in 0, to force

respondents not to choose the satisficing "50 percent" response, and to facilitate the classification

of respondents in income deciles.

In group two, called the "priming" group, respondents were *first* asked the subjective

income placement question about what percentage of households in Spain do they believe to earn

less, and what percentage to earn more than they do. They were then asked the same series of

questions about preferred taxation rates and redistribution questions. This experimental

assignment allows us to test H2 above, by comparing the potential priming effect of being *asked*

to consider one's subjective income placement on various policy questions of interest with the

control group, in which respondents were not asked to engage in this task. We assess this effect

in the next section.

In group three, the "information" group, respondents were also asked the subjective

income placement question about percentage of households in Spain earns less, and what

percentage of households earns more than they do. But after providing a response, they read a

web screen that informed them of the actual percentage of households that earn less and

percentage of households that earn more; these percentages were based on the respondent's

actual income decile (see below for derivation of that the respondent's objective decile). The

individuals then answered the same series of questions about preferred taxation rates and

redistribution questions as with the other two groups. This experimental assignment allows us to

assess the impact of information on one's *objective* or true position in the income distribution, on

taxation and redistribution policy preferences. Group three differs from group two in that

respondents were then *informed of* their correct place in the income distribution. Table 1 displays

the treatment assignment.

Measuring Income. There are several challenges to this design that entail the proper

measurement of individual and household income. Our design had to minimize measurement

error of income and elicit truthful responses. Further, our instrument of measuring respondent

income had to be conducted in a way *so as not to actually inform or signal to the respondent of*

his objective income position relative to the rest of the population. We avoid asking directly for

respondents to give their income in an open-ended response, as this would involve in high non-

response and possibility of non-completion of the questionnaire (further, such responses may not

be truthful, and bias could exist in the type of respondent willing to give such information). The

standard approach taken by surveys such as the European Social Survey (and many national-

level surveys, including those cited here) is to ask respondents to self-place themselves in pre-

defined income categories. This survey instrument has the advantage of avoiding forcing the

respondent to provide an actual number; this less invasive question generally helps retain

response rates. However, this instrument of providing decile or other incremental income

categories to the respondent highly risks informing the respondent about his true objective

position in the distribution of income in the country.[13] The respondent's reported subjective

income placement could be influenced by the survey instrument of ascertaining his income.

To remedy this problem we ascertain the respondent's decile, correcting for household

size, in the following way. Early in the survey the respondent provides data on his household

size. On the basis of the composition of the household, we calculate the income thresholds that

separate income deciles according to the national income distribution in Spain.[14] For each

respondent, one of these nine decile cut-off points is selected randomly, and presented to the

respondent. The respondent is asked whether her household income is above or below that

number. If the response is above (below) the randomly chosen number, then one of the higher

(lower) cut-off points is selected randomly, and the same question is asked again. This process is

iterated until the respondent can be assigned unambiguously to one income decile. In the survey

nearly 44 percent of respondents could be classified by responding only to three "higher/lower"

questions and 73 percent respondents were placed in the correct decile within four questions,

with an average of 3.8 questions per respondent. This approach of income measurement has

several advantages: it is a more precise ascertainment of respondent income because of the

normalization by household size; it allows for accurate measuring of respondent income *without*

informing the respondent of where she is in the distribution because of the first income cut-off

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[13] Gallego (2013) shows with survey experimental evidence that the way in which income categories are presented to survey respondents affects levels of social trust, possibly by affecting the perceived level of inequality.
[14] The data used to classify income deciles is from the latest available Encuesta de Condiciones de Vida (2010), the national representative survey conducted by the Spanish Statistical Institute (INE) which is part of the international Luxembourg Income Study. To compare incomes from households of different size, we use the standard OECD equivalence scale, which weights the total household income by the square root of the number of members of the household. For example, for a two-member household, the income deciles are defined by the following cut-off points (numbers were rounded to the nearest multiple of 50): €700, €1000, €1200, €1450, €1700, €2000, €2300, €2750 and €3600. For a three-member household, the cut-off points were instead €850, €1200, €1500, €1800, €2100, €2450, €2850, €3400 and €4400. For each household size, there were nine different cut-off points that could be randomly shown to the respondent.

point is randomly chosen; and finally, the method allows for high rates of response as opposed to more open-ended income questions.[15]

Independent variables. We gathered data on respondent gender, age, political ideology, education, and labor market status. Income is a ten-point scale corresponding to household deciles. Education is coded on a three-point scale, with the codings referring to compulsory education, non-compulsory secondary education, and tertiary education). Age is coded on a four-point scale (the increasing scale intervals are 18-29, 30-39, 40-49, 60-64). Political ideology is the standard 10 point scale, with 1 being most leftist and 10 being most right-wing.

Section 3: Results

In this section we present the results from the control group and the effects of the two experimental interventions of priming individuals to think about relative income (subjective income) and the impact of information. We present three categories of results: first, what explains progressive taxation, and redistribution preferences in the control group, as well as what explains perceived income decile; second, the effect of priming respondents to think about their relative income position on preferences; and third, the effect of information relative to priming on control group and relative to equivalent Group 2.

Results from the control group

Do individuals underestimate or overestimate their relative income? Only 14 percent of respondents accurately place themselves in the correct decile; if we expand the band of "correct" to be within one decile of zero, approximately 40 percent of respondents are correct or close to correct. Figure 1 displays the overall distribution of perceived deciles and our calculation of each respondent's actual income deciles according to the methodology described before. The

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[15] We test for anchoring effects by controlling for the first threshold number that a respondent was randomly asked. We find no evidence that the initial threshold asked affects preferences on any of the policy questions. We also test to see if the number of threshold points the respondent had to answer affected preferences, and find no effect.

distribution of actual income deciles is rather uniform, suggesting that the survey sample is a

representative sample of the Spanish population in terms of income.[16] The figure reveals also

that there is not a clear overlap between perceived income position and real income position; we

observe that in the poorer and rich deciles, respondents do not accurately place themselves in

those categories. Respondents tend to perceive themselves as more middle-income than they

really are.[17] This phenomenon occurs at both ends of the income distribution—poorer individuals

are likely to perceive themselves to be richer than they are; richer individuals are likely to place

themselves as poorer than they actually are.

Figure 2 displays this misperception in the general public in a different way by displaying

for each actual decile the mean self-placement within each group. As individuals become richer,

their mean-self placement also increases. However, the bottom 40 percent of the income

distribution perceives itself as being mostly in the 40th to 50th percentile range. Similarly, but less

strikingly, the top three deciles place themselves as below the 70th percentile. What explains this

variation in perceived income category? We estimate a simple OLS model where the dependent

variable is perceived income decile. The results of this model are displayed in Table 2. We

include a standard list of demographic variables, including actual decile (measured in the method

of the section above), female gender, education, labor market status, and political ideology.

Because the dependent variable is "perceived" decile, positive values indicate that the individual

is more likely to believe that she is relatively rich. We find as expected that actual decile explains

some of the variation (as Figures 1-2 show), but note that the overall r-squared is only 0.11.

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[16] The sample slightly over-represents middle-high income groups and slight under-represents low-income and the top income deciles.
[17] For the remainder of the paper, we use the expressions "perceived decile," "perceived income," and "subjective income perception" interchangeably. We tested for differences in perceived decile across the three treatment groups and found no statistically significant differences. This indicates, we discuss below, that relative income perception questions affect taxation preferences, but not the other way around.

Interestingly, women, unemployed, and those with lower education levels tend to perceive themselves as poorer, even after controlling for their actual income. Column 3 in Table 2 presents results of a model that controls for two binary variables to test for the possibility that the different ordering of the questionnaire might affect the self-perceived position in the income distribution. However, this does not seem to be the case.

[Table 2 here]

We now turn towards explaining preferences for tax progressivity in the control group, using the measures of progressivity described above. Not surprisingly, most respondents (82 percent) favor some degree of progressivity. The average preferred ratio of those making 10,000 euros a month to 1,200 euros a month is 6, with a standard deviation of nearly 7 (due to some with extreme preferences of taxation the wealthy at nearly 100 percent). Individuals who perceive themselves to be relatively poorer (those below the 50th percentile) prefer a higher ratio than those above the 50th percentile (6.4 v 5.4). The median preferred tax rate on those making 10,000 euros per month is 25 percent. The mean "tax concentration" (measure of progressivity) preferred is approximately .30 (standard deviation of .16). While this measure is less intuitive, in cross-national comparisons it implies that Spaniards prefer a relatively high degree of tax progressivity.

What explains this variation? Table 3 display simple regressions models (with weights for the oversample of Catalonia) with the different progressivity dependent variables. We find that for the ratio between the tax ratio for the rich and for the poor and for the concentration coefficient, only the perceived decile—and not the actual decile—matters for preferences: the richer the respondent perceives herself to be, the less progressive their ideal tax scheme. Ideology operates in the expected direction, and older and female respondents tend to favor more

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progressivity as well. For redistribution preferences, however, the perceived decile is not

statistically significant, while the real decile is. However, it only has the expected sign when the

dependent variable is the generic measure of redistribution preferences ("government should

reduce income differences between the rich and the poor"). When the dependent variable is

instead support for public spending on pro-poor programs ("increase public spending in

programs that benefit the worse-off, even if that means increases in taxes"), it is the better-off

who are more supportive (the coefficient is significant at $p < .10$).[18]

[Table 3 here]

Results from priming about relative income

We now turn to results comparing the priming treatment to the control group. What is the

impact of priming individuals to think about their place in the income distribution on tax rate

preferences? Table 4 presents a set of models where the dependent variables are the two

measures of progressivity: the concentration coefficient (models 1 through 4) and the log of the

ratio of tax on high to low incomes (models 5 through 8). We find, surprisingly, that priming

individuals to think about their position *reduces* the level of progressivity individuals prefer

(models 1 and 5). Models 2 and 6 control for individual perceived decile in the estimation, and

the effect of the treatment, as expected, remains unchanged. Models 3 and 7 add two interaction

terms between the perceived decile and the treatment, to test H2. If, as hypothesized, forcing the

respondent to think about the income distribution makes her more likely to adopt preferences

towards progressivity consistent with her perceived relative position in the income scale, we

should expect the interaction term between perceived decile and the treatment to be negative (as

perceived relative income increases, the preference for progressivity should decrease more under

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[18] This is consistent with previous literature on the social basis of support for the welfare state in Spain (Fernández-Albertos and Manzano 2012).

the priming condition). We find the opposite. For both measures of progressivity, being primed

about one's position in the income distribution reduces the association between perceived

income and tax progressivity preferences. This result remains when other determinants of

progressivity preferences are controlled for (models 4 and 8).

[Table 4 here]

Figure 3 presents the predicted values of the two dependent variables for different values

of perceived quintiles under the control and the treatment conditions, based on the results of

models (4) and (8) from Table 4. It shows that while there is a clear relationship between self-

perceived income position and progressivity in the control group, in the treatment group this

relationship disappears, mainly because self-perceived poor respondents hold less progressive

preferences under the priming treatment condition than in the control group. This result is

partially consistent with some economic literature on life-cycle models, where poorer individuals

favor regressive tax systems because they expect to benefit to be richer. Another possibility is

that the quantities aimed at grasping low and middle-class incomes are high enough for these

self-perceived poor so they view the given incomes as deserving of high taxes, hence reducing

the overall progressivity of their preferred tax scheme. Overall, once individuals are primed to

think about their relative position, perceived wealth does not explain variation in support for

progressivity.

[Figure 3 here]

The impact of information

We now turn to the impact of informing individuals of their actual place in the income

distribution.[19] We can evaluate the impact of this information on people compared to those who

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[19] We note that individuals vary in whether they learn they are poorer or richer. On average, richer individuals are more likely to learn that their region is *richer* than they thought, while poorer individuals are more likely to learn

were just primed to think of their position but not told of the true value, and on individuals not

primed nor informed (the control group). Further, we can evaluate whether individuals who learn

they are *poorer* or *richer* than they previously thought have different preferences on

progressivity than those who do not learn anything. We note that because of the priming effects

demonstrated above, the proper comparison of the information is between group 2 and group 3,

because the ordering of the income distribution question and policy questions in these groups is

the same (the only difference between the two groups is the provision of information in the

treatment group). Figures 4a-4b presents then the impact of information relative to group 2; we

discuss later on the treatment effects relative to group 1. The figures show the average tax ratio

between high and low incomes for group 2 versus group 3 (the information group), separated by

individuals who are poor and individuals who are rich. This enables us to compare the effect of

learning that one is poorer or richer than she thought compared to those holding the same beliefs

as her, but who was randomly assigned to the other two experimental conditions and hence did

not learn about her true position in the income distribution.

[Figure 4 here]

The plots from Figure 4 show that those individuals who believe they have an income

lower than the median household and learn that they are poorer than they thought become more

progressive in their tax preferences than those who were only asked about their position in the

income distribution, had their same beliefs about their position, but were not informed about

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that they are *poorer* than they thought. To partially accommodate this issue and to test hypotheses more directly
building on previous frameworks, we focus on understanding the impact of information on those who perceive
themselves to be rich or poor. This analysis better demonstrates how the effect of information can vary for
individuals with differing perceptions of their place in the income distribution; the impact of information can be
interpreted as "what happens if a person who thinks of himself/herself as rich or poor learns that s/he is in fact richer
or poorer." Throughout the discussion of the results, we note that the information effects have varying effect sizes
for individuals of different self-perceived incomes, some of whom are more likely to learn they are richer or poorer.
We can interpret our treatment effects for those who believe themselves to be richer or poorer than they actually are,
but of course, such individuals who have such beliefs may differ from the average population. As Figures 1-2 show,
most individuals are mistaken about their true position.

their actual position. This effect is large and significant. Note however that this effect for those who learn they are poorer because of the treatment is positive relative to group 2, the relevant comparison group. We do not find significant differences comparing the information treatment relative to group 1. This suggests that information for these individuals has a net impact on preferences, but relative to the negative impact of priming. For those who learn that they are richer than they thought, they become slightly less progressive than the same group of respondents that were not informed about their true position, though this effect is imprecisely estimated. Learning that one is richer or poorer does not affect preferences for tax progressivity for individuals who believe that their household income is above the median.

To evaluate these effects more systematically, Tables 5 and 6 present the results of OLS regressions in which the dependent variable is the log of the ratio between taxes on high incomes and taxes on low incomes (Table 5) and the concentration coefficient (Table 6).[20] To estimate the impact of the treatment given different levels of perceived income, we proceed as follows. We estimate separate regressions for those whose self-perceived income position is below the median (models 1 and 2), and for those above (models 3 and 4). Model 5 and Model 6 pool these two groups. The baseline group is group 2. Thus all effects are interpreted relative to the treatment group that was asked to place themselves on a distribution, and then were asked policy questions. We first estimate a model with only the actual decile, the treatment conditions, and the relationship between the perceived income and the real one (a variable indicating whether they are right or are poorer that thought (with richer than thought being the reference category), and the interaction of these two variables with the information treatment. A second model in each case adds the battery of socio-demographic control variables in the estimation.

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[20] We present the null results for redistribution preferences in the appendix.

For clarity, the variable "poorer than thought" thus refers to individuals who place themselves as richer than they actually are, thus they are in fact "poorer" then they believe. This allows one to interpret the interaction term "poorer*Treatment3" to be the effect of learning that one is in fact poorer, relative to those in group 2 who are also poorer than they think, but do not learn. The variable "correct" indicates the respondent correctly places herself in the income decile she actually belongs to, and hence the interaction term "correct*Treatment3" can be interpreted as the impact of learning that one is correct, relative to those who are correct but do not learn so in group 2. Note that in Models 1 and 2 of Table 5, for example, that the "poorer than thought" variable is negatively correlated with tax progressivity as measured by high versus low tax ratios. This means that individuals who are in fact poorer than they actually are (they mistakenly believe themselves to be richer) are less progressive than those who are richer than they actually are (the reference category).

[Tables 5 and 6 here]

Several results from the two tables are worth noting, and they broadly confirm hypothesis 3 but not hypothesis 4 regarding the impact of information. First, consistent with the previous priming result, the effect of the priming treatment reducing progressivity is specific to those who perceived themselves as poorer than the median income. The effect of the information treatment for those who are richer than they thought (recall that this is the reference category) is also negative: they become less progressive. However, the effect of information changes direction if the respondent learns instead that she is poorer than thought—the interaction coefficient between "poorer than thought" and the information treatment is positive and significant. This is consistent with Hypothesis 3. However, as the remaining models in each table show, the effect of the information treatment is confined to those who think that they are in the bottom half of the

income distribution. We hence cannot find empirical support for Hypothesis 4. These general results apply to both measures of progressivity, and are robust to the introduction of the socio-demographic controls in the estimations.

Section 4: Conclusions

In this study we offer some preliminary evidence with a study that builds on the nascent research agenda of offering simple information to citizens that are hypothesized to affect preferences over a wide range of important public policy issues; we focus mainly on preferences for progressive tax systems and overall redistribution. Our approach, using a nationally representative survey, builds on previous studies in a few ways. First, we explicitly focus on the dependent variable of tax rate and tax progressivity preferences. This outcome has been surprisingly understudied in cross-national work on preferences over redistribution and the myriad economic models theorizing the existence and economic consequences of progressive tax systems. Second, we explicitly measure the impact of *priming* respondents to think about a relevant issue—their own subjective relative income—on preferences, and the relative impact of correct information on tax and redistribution preferences. Previous studies have either failed to measure citizens' "pre-information" accuracy on such policy issues, or have not measured the effect of priming versus information on such preferences. We incorporate these design innovations with the simple treatment of informing individuals of their true place in the income distribution.

We find that citizens can be quite misinformed by their relative income position. Perhaps unsurprisingly, there is a clustering around the middle deciles, although in Spain this clustering is more around the middle-upper class deciles. Objective income is correlated with perceived relative income, but there is quite a bit of error among citizens. We also find that gender and

labor market status are correlated with under-estimating how relatively rich one is. Regarding

preferences over progressivity, we find in the control group that perceived wealth is, as

hypothesized, modestly negatively correlated with degree of progressivity (as measured by either

highest to minimum tax rates, or using a standard tax progressivity concentration ratio). Richer

citizens are somewhat more likely to support less progressive tax systems. Surprisingly, few

other individual predictors explain such preferences.

Our second class of findings is that overall, priming individuals to self-place their relative

income—even though many do it inaccurately—reduces the impact of perceived income on

progressivity. We leave open for now the question of why thinking about one's relative income

would reduce support for progressivity, as opposed to individuals who do not think about their

position. This effect is more driven among those who believe themselves to be in the bottom two

quintiles.

Our third and final class of findings is that accurate information on one's relative place in

the income distribution has a real but limited impact on preferences for progressivity. We find

that overall, learning that if an individual learns he is poorer than he thought, he is likely to

support higher tax progressivity. This effect is more pronounced in individuals who *thought* of

themselves as poor, than among individuals who in fact are poor. However, these effects are

generally positive relative to the group that is primed, but not to the control group. That is, the

effect of information likely counteracts whatever processes are set in motion by priming, but the

information itself does not greatly increase support for progressivity beyond the control group.

Overall, we find little evidence that priming or information affects preferences for redistribution.

Evidence from Spain is relevant in that economic issues related to redistribution and

progressivity have become more salient in recent years, but the approach proposed here could be

easily replicated in many OECD and developing countries. Regarding relevant extensions of

information treatments, reasonable designs could be to inform respondents of what different

incomes besides their own correspond to in terms of relative income positions. (For example,

while respondents are likely to guess that a household with 10,000 euros per month is in a very

top percentile in the income distribution, they may be less likely to know what 2,100 euros a

month or other amounts corresponds to in the distribution). Though individuals have some

degree of accuracy with their self-placement of income, they may have even less accuracy about

assessing what incomes constitute which cut-off points in the national-level distribution. Another

possible extension is to directly manipulate individuals' subjective income perceptions, although

we find that simple policy questions do not do so. Our information treatment has the advantage

of mimicking actual changes in relative income distribution, and other information treatments

may be able to do so.

A more difficult extension to consider is to administer information without priming

respondents by asking them of their perceived relative position. This is a difficult extension to

implement however because without measuring some degree of self-perception, it is difficult to

ascertain whether the information is actually new information or not. Our current design allows

us to compare individuals who are equivalently wrong about their perceived position, but then

evaluate the impact of information on the sub-sample of wrong respondents. One possible survey

instrument is to simply inform the respondent, and then ask how surprising the resulting relative

income value is to the respondent; this instrument would also suffer from survey acquiescence

bias (respondents may be disinclined to say they are very surprised).

While these extensions would be useful, our current results have implications for

attempts to use information to change preferences, and for the plethora of models that assume

correct individual information about relative income positioning in explaining tax preferences.

The lack of impact of information on redistribution preferences indicates some plausible

extensions to existing models that try to incorporate information on taxation and redistribution

models. If information and priming issues affect taxation more than redistribution, and taxation

and some types of redistribution are correlated, our results have implications for more precisely

theorizing the different types of causal chains that citizens have when they develop their

preferences; priming or information of relative income might alter this thought process and

change taxation views but not views on whether the government should in fact redistribute more.

Finally, our results speak to existing attempts to accurately measure individual and household

income without signaling to respondents the issues related to relative income. Asking

respondents knowledge questions before informing them can skew results.

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Table 1: Experimental Design

Experimental Group	Information Treatment	Relative Income Asked First	Probability of Assignment
Control Group	No	No	.25
Group 2	No	Yes	.25
Group 3	Yes	Yes	.50

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Table 2: Explaining Perceived Position in the Income Distribution

	(1)	(2)	(3)
Decile	0.21***	0.19***	0.19***
	(0.010)	(0.012)	(0.012)
Ideology		-0.0031	-0.0029
		(0.013)	(0.013)
Age		-0.0018	-0.0019
		(0.0026)	(0.0026)
Female		-0.13**	-0.13**
		(0.060)	(0.060)
Unemployed		-0.18**	-0.19**
		(0.077)	(0.077)
Household size		0.10***	0.10***
		(0.025)	(0.025)
Education		0.20***	0.20***
		(0.047)	(0.047)
Region income placement		0.0049	0.0049
		(0.0053)	(0.0053)
Treatment 2 (priming)			0.12
			(0.082)
Treatment 3 (info)			0.026
			(0.072)
_cons	4.58***	4.04***	4.00***
	(0.066)	(0.21)	(0.21)
N	3431	3378	3378
R^2	0.108	0.119	0.120

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Explaining Preferences for Tax Progressivity and Redistribution (Control Group)

	(1)	(2)	(3)	(4)
	OLS	OLS	Logit	Logit
DV	Tax ratio Rich/poor (log)	Kakwani concentration coef.	Redistribution (generic)	Redistribution (spending)
Real decile	-0.017	-0.0020	-0.12***	0.061*
	(0.013)	(0.0021)	(0.037)	(0.032)
Perceived decile	-0.048***	-0.0085***	0.040	-0.032
	(0.017)	(0.0028)	(0.050)	(0.042)
Ideology	-0.063***	-0.0082***	-0.23***	-0.21***
	(0.013)	(0.0022)	(0.039)	(0.035)
Age	0.0072***	0.0019***	0.0053	0.012*
	(0.0026)	(0.00042)	(0.0075)	(0.0064)
Female	0.18***	0.030***	-0.0063	-0.13
	(0.060)	(0.0098)	(0.18)	(0.15)
Unemployed	-0.0080	0.00079	0.0072	0.013
	(0.081)	(0.013)	(0.24)	(0.20)
Household size	0.039	0.0088**	-0.095	0.090
	(0.025)	(0.0041)	(0.073)	(0.064)
Education	-0.050	-0.0063	0.025	0.45***
	(0.045)	(0.0073)	(0.13)	(0.11)
Own Region placement	0.0042	0.00025	-0.0012	-0.0094
	(0.0054)	(0.00088)	(0.016)	(0.013)
Constant	1.70***	0.29***	2.82***	-0.64
	(0.21)	(0.035)	(0.62)	(0.53)
N	728	826	973	971
R^2	0.079	0.072		
pseudo R^2			0.060	0.061

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Effects of Priming Treatment on Support for Tax Progressivity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	concentration	concentration	concentration	concentration	logratio	logratio	logratio	logratio
Treat. 2	-0.019**	-0.018**	-0.094**	-0.090**	-0.082*	-0.079*	-0.43**	-0.39**
	(0.0070)	(0.0070)	(0.023)	(0.023)	(0.039)	(0.039)	(0.13)	(0.13)
Perc. decile		-0.0041*	-0.010**	-0.0088**		-0.034**	-0.065**	-0.052**
		(0.0019)	(0.0027)	(0.0027)		(0.011)	(0.015)	(0.015)
PercDec* Treat.2			0.013**	0.012**			0.061**	0.052*
			(0.0039)	(0.0038)			(0.022)	(0.021)
Unemployed				0.012				0.10*
				(0.0088)				(0.049)
Female				0.031**				0.18**
				(0.0071)				(0.040)
Education				-0.0085				-0.077**
				(0.0052)				(0.029)
Age				0.0017**				0.0062**
				(0.00030)				(0.0017)
Ideology				-0.0100**				-0.067**
				(0.0016)				(0.0087)
Constant	0.29**	0.32**	0.35**	0.32**	1.45**	1.65**	1.82**	1.88**
	(0.0050)	(0.012)	(0.016)	(0.025)	(0.029)	(0.069)	(0.093)	(0.14)
N	1731	1731	1731	1698	1564	1564	1564	1534
R^2	0.004	0.007	0.013	0.063	0.003	0.009	0.014	0.077

Standard errors in parentheses
$^*p < 0.05$, $^{**}p < 0.01$

Table 5: Effect of Information Treatment on Support for Rich/Poor Tax Ratio

	Perceived Poor	Perceived Poor	Perceived Rich	Perceived Rich	All	All
Decile	-0.047***	-0.044**	-0.035**	-0.020	-0.039***	-0.031***
	(0.017)	(0.018)	(0.014)	(0.014)	(0.0087)	(0.0091)
Treatment3	-0.039	-0.0078	-0.0064	0.0064	-0.018	0.0031
	(0.077)	(0.077)	(0.064)	(0.063)	(0.049)	(0.049)
Correct	-0.24*	-0.14	-0.096	-0.082	-0.15*	-0.099
	(0.14)	(0.14)	(0.11)	(0.11)	(0.083)	(0.083)
Poorer than thought	-0.32**	-0.25*	0.0041	0.019	-0.11	-0.076
	(0.13)	(0.13)	(0.096)	(0.095)	(0.070)	(0.069)
Correct*Treatm3	0.15	0.059	0.15	0.15	0.15	0.11
	(0.16)	(0.16)	(0.13)	(0.13)	(0.099)	(0.099)
Poorer*Treatment3	0.25**	0.22*	-0.022	-0.032	0.071	0.045
	(0.12)	(0.12)	(0.087)	(0.085)	(0.069)	(0.069)
Age		0.0085***		0.0043***		0.0058***
		(0.0022)		(0.0016)		(0.0013)
Female		0.12**		0.13***		0.13***
		(0.051)		(0.040)		(0.031)
Education		-0.086**		-0.040		-0.062**
		(0.039)		(0.033)		(0.025)
Ideology		-0.041***		-0.047***		-0.046***
		(0.011)		(0.0087)		(0.0069)
Unemployed		-0.095		0.17***		0.045
		(0.059)		(0.054)		(0.040)
Constant	1.75***	1.71***	1.59***	1.53***	1.65***	1.64***
	(0.14)	(0.20)	(0.13)	(0.17)	(0.080)	(0.12)
N	952	930	1431	1414	2384	2345
R^2	0.016	0.059	0.016	0.053	0.015	0.049

Standard errors in parentheses. Baseline is T2.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Effect of Information Treatment on Kakwani Concentration Coefficient

	Perceived Poor	Perceived Poor	Perceived Rich	Perceived Rich	All	All
Decile	-0.0097***	-0.0091***	-0.0023	-0.0010	-0.0057***	-0.0049***
	(0.0027)	(0.0027)	(0.0021)	(0.0022)	(0.0013)	(0.0014)
Treatment3	0.00094	0.0073	-0.0076	-0.0057	-0.0031	0.00089
	(0.012)	(0.012)	(0.0099)	(0.0099)	(0.0076)	(0.0076)
Correct	-0.021	-0.0081	-0.023	-0.021	-0.020	-0.014
	(0.022)	(0.022)	(0.017)	(0.017)	(0.013)	(0.013)
Poorer than thought	-0.064***	-0.055***	0.0061	0.011	-0.021**	-0.014
	(0.020)	(0.019)	(0.015)	(0.015)	(0.011)	(0.011)
Correct*Treatm3	-0.011	-0.023	0.023	0.023	0.0077	0.0029
	(0.024)	(0.024)	(0.020)	(0.020)	(0.015)	(0.015)
Poorer*Treatment3	0.034*	0.030*	-0.0043	-0.0076	0.0073	0.0027
	(0.018)	(0.018)	(0.013)	(0.013)	(0.011)	(0.011)
Age		0.0018***		0.0010***		0.0013***
		(0.00034)		(0.00026)		(0.00021)
Female		0.013*		0.020***		0.017***
		(0.0078)		(0.0063)		(0.0049)
Education		-0.013**		-0.0049		-0.0087**
		(0.0058)		(0.0052)		(0.0039)
Ideology		-0.0052***		-0.0040***		-0.0047***
		(0.0017)		(0.0014)		(0.0011)
Unemployed		-0.013		0.010		-0.00055
		(0.0089)		(0.0086)		(0.0062)
Constant	0.36***	0.33***	0.30***	0.27***	0.33***	0.30***
	(0.021)	(0.031)	(0.020)	(0.026)	(0.012)	(0.018)
N	992	969	1468	1450	2460	2420
R^2	0.021	0.072	0.008	0.030	0.009	0.039

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 1. Distribution of Self-Perceived Income Decile and Actual Income Decile
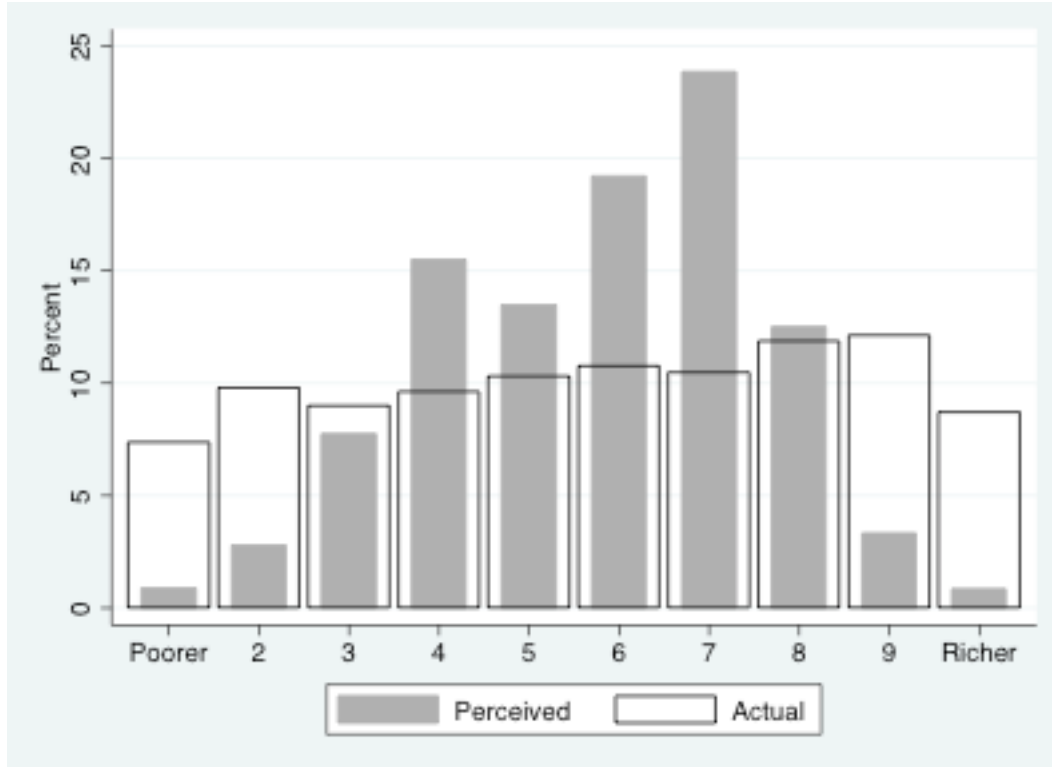
Figure 2. Average Perceived Decile by Income Group
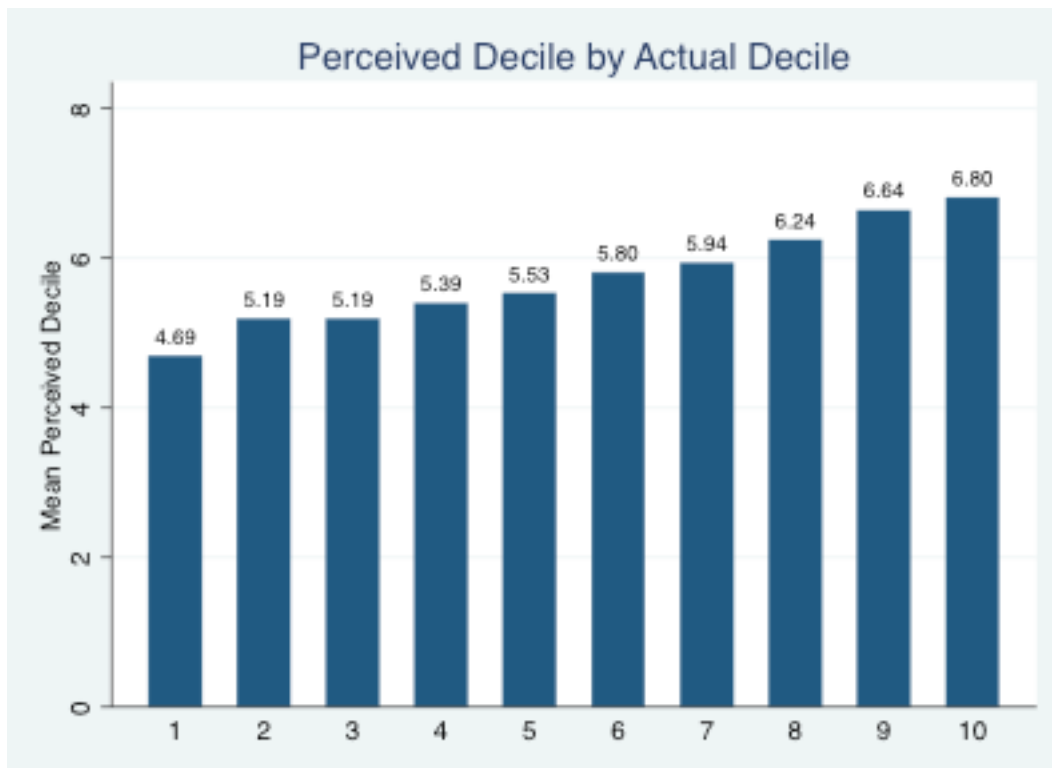
Figure 3a. Effect of Priming Treatment on Preferred Tax Ratios of Rich/Poor, by Perceived Quintile
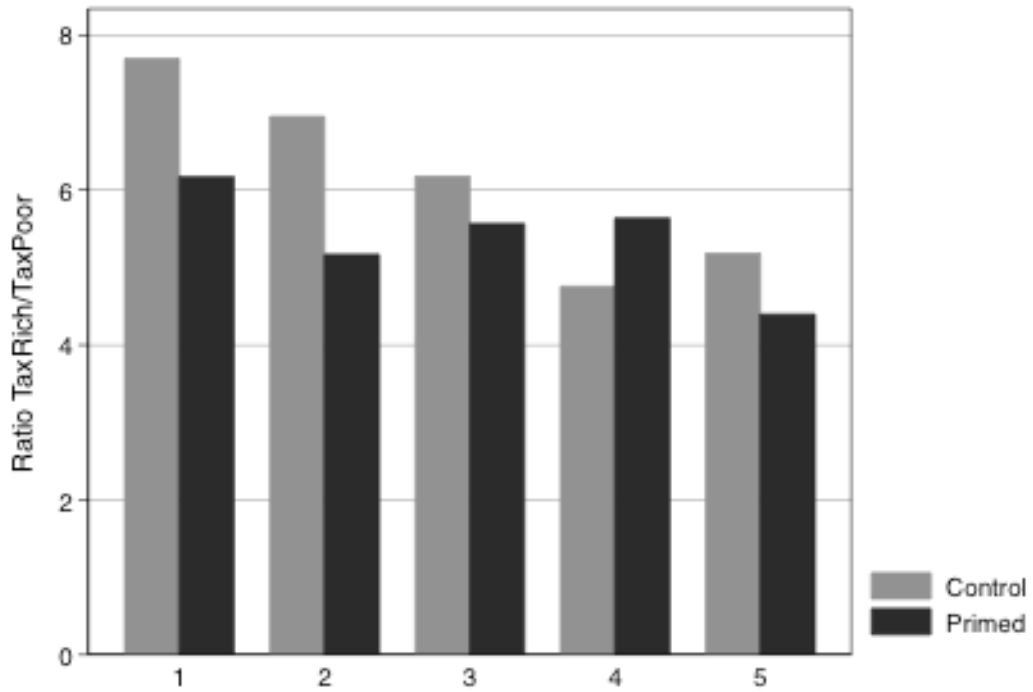
Figure 3b. Effect of Priming Treatment on Kakwani Concentration Indices, by Perceived Quintile

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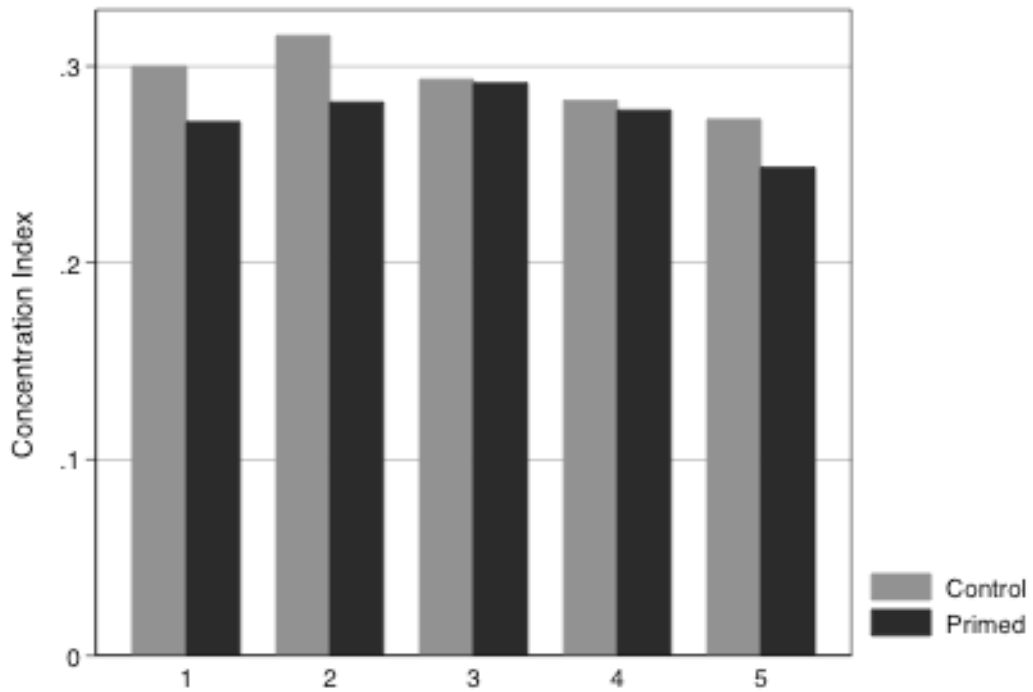
Figures 4a-4b. Effect of Information Treatment on Preferences for Progressivity

Income below median

Income above median
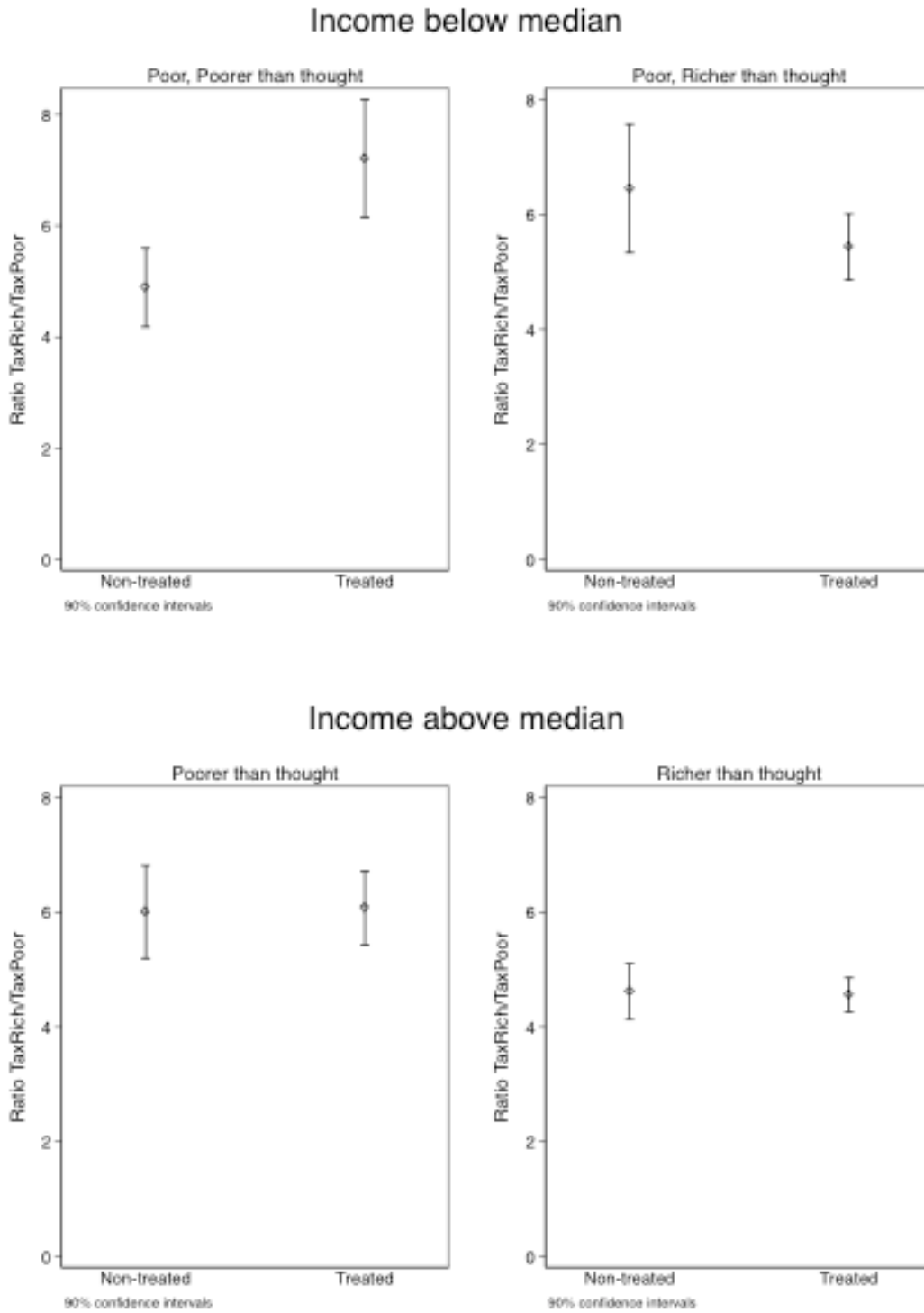
Appendices

Descriptive Statistics Table

	mean	sd	min	max
logratio	1.41	0.77	-3.8	5
concentration	0.28	0.13	0.0	1
redist_g_bi	0.77	0.42	0.0	1
redist_s_bi	0.58	0.49	0.0	1
decile	5.73	2.77	1.0	10
perceived_decile	5.79	1.80	1.0	10
inc_treat_bi1	0.25	0.43	0.0	1
inc_treat_bi2	0.26	0.44	0.0	1
inc_treat_bi3	0.49	0.50	0.0	1
ideology	4.32	2.19	1.0	10
age	40.48	12.17	18.0	64
gender	0.50	0.50	0.0	1
unemployed	0.19	0.40	0.0	1
hhsize	3.04	1.16	1.0	8
educ_3	2.42	0.67	1.0	3
ownccaa_place	8.63	5.60	1.0	19
N	4000			

Table AX: Correlation matrix between progressivity measures and preferences for redistribution.

	Tax Ratio (Rich/Poor)		
Kakwani concentration coefficient	0.94	Kakwani concentration coefficient	
Redistribution (generic)	0.22	0.24	Redistribution (generic)
Redistribution (spending)	0.04	0.05	0.28

Table AX: Treatment effects on generic redistribution

Dependent variable: support for redistribution (generic): "government should reduce income differences between the rich and the poor"

	(1)	(2)	(3)	(4)	(5)	(6)
	redist_g_bi	redist_g_bi	redist_g_bi	redist_g_bi	redist_g_bi	redist_g_bi
redist_g_bi						
decile	0.019	0.038	-0.100***	-0.11***	-0.066***	-0.058**
	(0.045)	(0.049)	(0.039)	(0.042)	(0.023)	(0.026)
inc_treat_bi2	0.046	0.065	-0.018	-0.044	0.021	0.024
	(0.18)	(0.19)	(0.15)	(0.15)	(0.11)	(0.12)
inc_treat_bi3	0.36*	0.39*	-0.11	-0.11	0.089	0.11
	(0.20)	(0.21)	(0.17)	(0.18)	(0.13)	(0.14)
right	0.28	0.36	-0.060	-0.071	0.0018	0.032
	(0.30)	(0.32)	(0.23)	(0.24)	(0.18)	(0.19)
poorer	0.51*	0.64**	0.076	-0.015	0.20	0.21
	(0.29)	(0.31)	(0.24)	(0.25)	(0.16)	(0.17)
right_treat3	-0.040	0.049	0.17	0.14	0.080	0.088
	(0.40)	(0.42)	(0.32)	(0.33)	(0.25)	(0.26)
poorer_treat3	-0.38	-0.49	-0.021	0.021	-0.17	-0.18
	(0.29)	(0.31)	(0.23)	(0.24)	(0.18)	(0.19)
age		0.0054		0.013***		0.0097**
		(0.0063)		(0.0048)		(0.0038)
gender		-0.43***		-0.16		-0.25***
		(0.14)		(0.11)		(0.088)
educ_3		-0.31***		-0.18*		-0.25***
		(0.11)		(0.097)		(0.072)
ideology		-0.24***		-0.28***		-0.26***
		(0.031)		(0.026)		(0.020)
unemployed		0.18		0.039		0.12
		(0.17)		(0.17)		(0.12)
_cons	0.89***	2.60***	1.83***	3.29***	1.50***	3.02***
	(0.34)	(0.54)	(0.37)	(0.50)	(0.21)	(0.33)
N	1610	1578	2384	2356	3994	3934
R^2						

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table AX: Treatment effects on redistribution as public spending to support worse-off

Dependent variable: Support for redistribution (spending). Support increasing public spending to support the worse-off even if this implies higher taxes.

	(1)	(2)	(3)	(4)	(5)	(6)
	redist_s_bi	redist_s_bi	redist_s_bi	redist_s_bi	redist_s_bi	redist_s_bi
main						
decile	0.023**	0.024**	0.037***	0.025***	0.033***	0.12***
	(0.0093)	(0.0095)	(0.0076)	(0.0078)	(0.0047)	(0.022)
inc_treat_bi2	0.010	0.014	0.0092	0.0022	0.0076	0.028
	(0.038)	(0.038)	(0.030)	(0.029)	(0.023)	(0.10)
inc_treat_bi3	0.0024	-0.0066	0.078**	0.083**	0.043	0.18
	(0.043)	(0.042)	(0.037)	(0.036)	(0.028)	(0.12)
right	0.031	0.034	0.078	0.078	0.068*	0.30*
	(0.064)	(0.063)	(0.048)	(0.047)	(0.037)	(0.16)
poorer	0.085	0.083	0.085*	0.059	0.089***	0.34**
	(0.060)	(0.060)	(0.049)	(0.048)	(0.033)	(0.14)
right_treat3	-0.033	-0.018	-0.016	-0.032	-0.021	-0.10
	(0.080)	(0.079)	(0.067)	(0.065)	(0.051)	(0.22)
poorer_treat3	0.014	0.010	-0.078*	-0.077*	-0.036	-0.15
	(0.058)	(0.058)	(0.046)	(0.045)	(0.036)	(0.16)
age		0.0031***		0.0035***		0.015***
		(0.0012)		(0.00090)		(0.0032)
gender		-0.099***		-0.063***		-0.36***
		(0.027)		(0.022)		(0.075)
educ_3		0.020		0.068***		0.20***
		(0.020)		(0.018)		(0.058)
ideology		-0.030***		-0.051***		-0.18***
		(0.0060)		(0.0048)		(0.017)
unemployed		0.045		0.0052		0.13
		(0.032)		(0.030)		(0.095)
_cons	0.39***	0.40***	0.30***	0.33***	0.33***	-0.72***
	(0.070)	(0.10)	(0.073)	(0.092)	(0.043)	(0.27)
N	1393	1363	2032	2009	3425	3932
R^2	0.006	0.040	0.033	0.097	0.021	

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$