

# **Income distributions, inequality perceptions and redistributive claims in European societies**

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## **Abstract**

In this paper we analyse how redistributive preference relates to actual income and to its distribution. For measuring the relationship on macro level, we define distance based measures of income inequality (P-ratios, based on data from LIS) and test them for their direct and for their contextual effects on aggregate (country level) and on individual redistributive claims. For measuring redistributive preference we develop a composite index using available public opinion (Eurobarometer) data for the European Union member states. On macro level there is a continued and high support of state redistribution in many European countries but the cross-country variance is also high. Preferences for redistribution correspond to various aspects of inequality (most notably, to the extent and depth of relative poverty). On micro level the redistributive preference, while mostly derived from rational self interest (material position, labour market status, expected mobility), is also driven by general attitudes about the role of personal responsibility in one's own fate and by general beliefs about causes of poverty and the like. While the affluent, the middle and the poor have different appetite for redistribution everywhere, the distance between their attitudes also seems to be determined by the distance between their relative positions (ranks in the distribution). In countries having larger level of aggregate inequalities the general redistributive preference (of the rich, of the middle and of the poor) is higher, however in countries with very high levels of inequalities the difference in redistribution preference begins to decrease, which is a hint for a curvilinear relationship. The slope of this socio-economic gradient seems, however, steeper in countries with middle inequality levels. The results of the paper can contribute to a refinement of the predictions developed in the frame of the median voter theorem and, via this, to a better understanding of political processes.

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## Introduction<sup>1</sup>

Governments, while faced by increasing austerity pressures, also need to have implementation policies for reforms, for which the demand for redistribution in the electorate is an important parameter. The work out of reforms may, however, turn out to be especially difficult when electorates perceive inequalities rising (whatever the actual inequality statistics objectively show for them). Hence, the study of the link between size of inequalities and the demand for redistribution becomes particularly appealing for social sciences as well.

Earlier literature offers various theoretical frames for the understanding of the link between inequalities, popular welfare attitudes and redistributive policies. The probably most often quoted Meltzer - Richard (here: MR) paradigm (which applies the median voter theorem on redistributive policies), predicts larger level of inequalities to lead to larger level of redistribution arguing that low income citizens outvote those above average incomes (Meltzer and Richard, 1981). This relationship does not always hold empirically and it is not very much surprising, however. The chain of causation between inequality and redistribution is long, with many intermediate steps, a fact that makes us cautious in interpreting any direct correlations between the two end-variables. In this paper we join those trying to refine the predictions of the MR theorem via a more detailed understanding of the structure of inequality on the one hand and of the structure of redistributive preferences on the other hand. Also, we attempt to refine the understanding of income inequalities, with the aim of better identifying the context that may drive respondents' opinions (and, consequently, voters' decisions).

### **Research question: what are the determinants of preferences for redistribution?**

Meltzer and Richard, (1981) argue that larger level of inequality leads to larger demand for redistribution. Shall inequality (measured as distance between the median and the average incomes) increase, a self interested median voter (assumed to be the median in the income distribution) would prefer bigger redistribution (higher taxes) than a person having an income above the median. Though this predicts higher level of redistribution in larger inequality countries, the evidence is very mixed (for reviews see Borck 2007, McCarty and Pontusson, 2009, Kenworthy et al, 2007, Alesina and Giuliano, 2009, Keely and Tan, 2007, Lupu and Pontusson, 2009, Senik, 2009).

The lack of a strong correlation between overall aggregate pre-tax and transfer inequality and the level of overall redistribution (however we define it) does not mean much for the actual relationship between inequality and redistribution. To explore on this, we just need to think through the long causal chain that can be assumed between the two end-variables.

*Micro aspects.* Will individual position in the overall income rank predict redistributive preferences (of the individuals) reasonably well? Shall microdata tests show a significant negative correlation, we could conclude that higher income people prefer less redistribution and lower income people prefer higher levels of redistribution. For this „**pure material self interest**” argument, however, factors other than income or wealth might matter as well. Clearly, one can expect different level of pro-state attitudes from permanent employees, the

self-employed and from those relying on permanent incomes from various state welfare provisions. Also, class positions of respondents may matter a lot.

Second, as the correlation linking material position and welfare attitudes is, in many cases, rather weak, another question emerges: what explains the deviations? How can it be that some of the relatively rich (with above median incomes) people may have a taste for redistribution, while others with low (below median) incomes may not particularly like the idea of large levels of redistribution? The many potential reasons for these types of differences include perceptual problems (when people underestimate or overestimate their actual positions in the income rank), conditional preference formation (relative to others or relative to past experiences or future expectations) and motivations other than pure self interest (Tóth 2006, 2008). We focus only on some of these factors below.

Assuming rational, self-interested individuals, Bénabou and Ok (2001) developed a formal model of the relationship between redistributive claims and the prospect for upward mobility (they call it POUM model). Low (below median) income persons may refuse redistribution if they expect improvements in their positions while some of those persons currently above the median, if facing challenges of income deteriorations may insist on keeping redistribution arrangements in place. People motivated by POUM may expect absolute income gains in the future or they may expect relative gains as compared to others, with both of these expectations resulting an acceptance of more redistribution. Testing it empirically, Ravallion and Lokshin (2000), for example, found that a very high proportion of Russians in 1996 favoured redistribution, including some of the rich. Alesina and La Ferrara (2005) stress the importance of experienced social mobility as a source of deviation from the predictions based on actual income position of the respondents (voters). We call these subjective variables „**expectations**” in our analysis<sup>2</sup>.

Human conduct may, in addition to pecuniary motives, also be driven by preferences embedded in the general value systems people endorse. General egalitarian attitudes lead to a critique of the reward system of market economies and a preference for redistribution to correct for these failures will be formed. In other cases, certain regimes (like in transition countries experiencing a move from communism to a capitalistic social order) the moral authority of the free market may form the base for inequality evaluations (Kelley and Zagorski, 2004). Corneo and Grüner (2002) and Fong (2001, 2006), based on ISSP data find that public values (social preferences) also play a significant role in shaping preferences over redistribution. Further, the large literature on the legitimation of the welfare states assumes that people have aesthetic preferences for certain arrangements in the social fabric, that is, they also derive guidance from ideological value systems when forming their opinion on welfare state expenditures. Svallfors (1997) shows that while level of support is related to welfare regimes (Esping-Andersen, 1990, Ferrara 1996, Bonoli 1997), they are of little use in explaining group difference between welfare attitudes. Rather, class divisions and gender explain differing attitudes towards the welfare states across the various welfare regimes. (On other aspects of class positions, see Svallfors, 1997, Kumlin and Svallfors, 2008). In some papers, the larger demand for redistribution is also attributed to cultural values and to socialisation. Alesina and Fuchs-Schündeln (2005) and Suhrcke (2001) both find significant effect for the East-West dummy variable when regressed on inequality or redistribution preferences<sup>3</sup>. Gijsberts (2002) point out that observed differences in inequality aversion between market economies and the previous state socialist countries are not due to differences in social structure, but, rather, to socialisation and values. Luttmer and Singhal

(2008) draw the attention to the persistence of general attitudes towards the state in case of migrant people. We call these arguments „**social context/values explanations**”.

In addition to the belief in the fair operations of the economic system (also assumed to contribute to a smaller demand for redistribution, see Fong, 2001, 2006, Alesina and La Ferrara, 2005) a related issue is the popular evaluation of conditions of getting ahead in society. Shall people in general associate poverty with lack of effort, motivations to endorse (further) redistribution will vanish. Alternatively, “votes” for redistribution can be stronger in case of a general belief that poverty is a result of bad luck rather than nonexistent individual efforts. Picketty (1995) in an early article, also derived the demand for redistribution from experience of social mobility (and the beliefs about whether effort and luck determine individual success.) Fong (2001) observes the influence of social preferences (depending on how the agents perceive determinants of poverty and affluence in their societies: do the associate bad luck or lack of effort with poverty). From different perspectives though, Alesina and Glaeser (2006) and Osberg and Smeeding (2006) both point out that the mix of personal and social reasons attributed to poverty are significant determinants of inequality evaluations and redistributive preferences. We call this type of argument „**failure attribution arguments**” referring to the fact that poverty might be explained by private failures (bad luck, laziness, ect.) or by failures of the social system (injustices, exclusion tendencies, etc)<sup>4</sup>.

#### *Macro (contextual) aspects.*

Preferences for redistribution may be conditional upon the general societal context (most notably, on the level of actual inequalities). Larger level of visible inequalities might have a separate effect on personal taste for redistribution – whatever (aesthetic, solidaristic or referential) preferences shall lie behind. Non-exogenous causality arguments include, for example, conditional consumption utility (Duesenberry, 1949), relative deprivation (Runciman, 1962), reference groups (Merton, 1968), “tunnel effects” (Hirschman, 1973). Senik (2005) reviews a great deal of empirical evidence and she finds that studies on “comparison incomes” in the Netherlands, Germany, the UK and the US show negative signs (that is, the larger the gap between one’s own income and that of the reference group, the lower the satisfaction with incomes and life prospects will be). However, she reports studies in transition countries like Hungary, Russia, Poland or the Baltic countries, showing positive signs for reference incomes (Senik, 2006).

#### *Translation mechanisms: missing from this analysis*

A largely institutional question also emerges: **how redistributive preferences of the electorate are transformed into policy when actual decisions on public expenditure preferences are formed?** Outcomes of the democratic policy formation process (via elections) depends, for example, on differential political participation of the affluent and of the poorer segments of the society (Bénabou, 2000) and they may lead to less (or more) redistribution than the one would be predicted by the MR model. Larcinese (2007) argues that the turnout plays a major role in defining electoral outcome and, via that, public spending priorities (see also Lupu and Pontusson 2010, Mahler, 2006, Mahler et al, 2010). We call this „**political composition effect**”, but in the current version of our analysis we are not able to test this aspect.

There are also many contextual differences that shape the attitude climate of redistribution for the various countries or country groupings within Europe<sup>5</sup>. The European Union includes countries with a long history of democratic governments, together with those that have experienced major economic, political and societal changes in the past decades or so. Also, various regions of the European Union have different cultural attitudes towards inequalities which might be reflected in cross country differences between – say – Continental European countries and those in the Mediterranean tier, between those with more liberal welfare regimes of the Anglo-Saxon countries and the Nordic welfare regimes. We list these as „institutional/contextual effects”<sup>6</sup>.

## Operationalisation, data, definitions

The datasets we use come from various large international data exercises. For the attitudes, we use the 2009 special Eurobarometer (EB) survey on poverty and social exclusion, which has contained a battery of questions on redistributive attitudes, inequality perceptions, evaluations of social policies and poverty alleviation instruments applied in the member states<sup>7</sup>. For country level contextual information (level of actual income inequalities and of poverty rates), we use data from the Luxemburg Income Study (LIS).

### *The empirical model used in the analysis*

As introduced above, our aim is to explore determinants of redistributive preferences and we address three questions in the paper.:

- Q1: On micro (individual) level, what socio-economic characteristics, perceptions, motivational aspects and other attitudes drive (or: are associated with) the formation of redistributive preferences?
- Q2: How do various contextual factors (most importantly: aggregate income inequalities) shape redistributive preferences?
- Q3: What effect the structure of inequality has on the attitudes of the middle income classes?

We want to predict redistributive preference (RPI) by individual attributes ( $X_{ij}$ ) and by contextual variables ( $Z_j$ ), where  $i=1,2,\dots,n$  is the number of individuals in the analysis and  $j=1,2,\dots,p$  is the number of Level 2 units (countries) into which all Level 1 units are nested. The general structure of the analysis is summarized in equation (1).

$$RPI = a + bX_{ij} + c_0Z_j + U_{0j} + E_{ij} \quad (1)$$

where  $a$  denotes the intercept,  $b$  and  $c$  denote coefficients at individual and country level, respectively,  $E_{ij}$  is for individual level residuals (varying over Level 1 units, reflecting the unexplained variance between individuals) and  $U_{0j}$  is the Level 2 residual (reflecting the unexplained variance between countries).

To answer Q1 (i.e. about the effects of individual attributes on RPI), we predict a simple OLS regression. Since we assumed that observations within countries are correlated in some

unknown way, we clustered the standard errors according countries in all our OLS estimations. The equation we used is the following:

$$RPI = a + bX_{ij} + E_{ij} \quad (2)$$

for a country  $j$  (where  $i$  goes for the sample size of the given country). In these equations the vector  $X$  is filled by various variables reflecting individual attributes..

### *The dependent variable: redistribution*

Redistribution can take many forms. Direct transfers from the rich to the poor constitute only a fragment of the total (welfare) state intervention. Governments provide various in kind benefits (education, health), lifetime consumption smoothing mechanisms (pensions), insurance against various risks (sickness, unemployment, etc) and they use many other forms for spending taxpayers' contributions on various common goods. When "redistribution" is mentioned (and measured by, say, share of public expenditures in GDP), it always the whole complex of the above that is meant (in addition to various other non-welfare expenditures like agricultural subsidies, costs of various protectionist measures, etc.). We, in this paper (within the limits of data availability) use a complex definition to capture a broader notion of redistribution. In what follows, five questions<sup>8</sup> about state, market and redistribution are combined into a Redistributive Preference Index (RPI):

- Answers to the general (conventionally used) statement about the desirability ensuring that the wealth of the country is redistributed in a fair way to all citizens (four items from full agreements to complete disagreement).
- Answers to three questions to reveal agreement with normative judgements on the potential desirability of state involvement in providing jobs for the citizens, education finance and social expenditures (forced choices between state and market ends of various trade-off questions).
- Answers to a question on general attitude about the role of the state to provide for citizens versus the citizens responsibility in the formation of their fates.

To serve as a dependent variable, the first a principal component for the five elementary is used, named as ***redistributive preference index (RPI)***<sup>9</sup>.

### *Explanatory variables*

The theoretical considerations drive us to differentiate between level 1 (individuals) and level 2 (countries) units of analysis, where individuals are nested into country level samples, in a multilevel model structure.<sup>10</sup>

*Micro (level 1) variables.* The available variable structure of the EB72.1. makes it possible to reflect some (though, unfortunately, not all) aspects of the potential individual level determinants of redistributive preference.

*The basic socio-demographic variables* (age, education, gender, settlement, household size) are self-explanatory. We use all these as controls to back the analysis of the effects of the other factor groupings.<sup>11</sup>

*The material status index* is created from four elementary questions (a general ten-point scale self evaluation of the (material) situation of the household, the respondents' self assessed difference between their own income and the lowest net monthly income needed for a minimum acceptable standard of living, and the respondents' answer to an ability to „make ends meet” question. As they are all subjective assessments, one might think this creates problems for interpretation. While we have no other option as there are no „objective” incomes in the EB72.1. file, we would not even agree that subjective variables are inappropriate here. Given that people voting at a ballot most likely do not have a perfect assessment on the shape of the „real” income distribution, neither on their own rank within it, they need to rely on their subjective assessments in any case. While the precision of their estimate is most likely questionable, this holds for both the opinion poll and for the election context. Therefore, using this subjective measure as a basis for their material position do not seem to be a very large sacrifice in the micro analysis<sup>12</sup>. There is also a potential problem with the „*expectations*” variable. As no proper formulation for subjective mobility is available, the „12 month expectations for the situation to get better, same or worse” is clearly insufficient to measure POUM (because of the lack of relative comparisons in it). With no other choice, we have to mark it and keep in mind for the interpretations.

*Failure attribution* in terms of poverty is based on a question about why are there people who live in poverty? The choice of one of the four options (they are unlucky, lazy and lack willpower, there is much injustice in the society) provided a hint on the respondents' opinion on what they think poverty can be attributed to. Also, a question on how respondents evaluate poverty (do they think believe the assertion that poverty is an “inevitable part of progress”) was used here.

*Within the social context/values* bracket we have, for each and every respondent, their general subjective evaluations of the circumstances (poverty felt “widespread” in their country, “a lot of “ tensions felt between rich/poor, manager/worker, young/old and different racial and ethnic groups” are taken as a sign of frustration with the various aspects of the surrounding social environments. Important to note that these are not contextual variables per se but they are individual attributes representing attitudes/evaluations of individuals about the social context.

*Finally, inequality sensitivity* (binary coded variable showing if someone “totally agrees” that “income differences between people are far too large”). This variable is put to be the last in the sequence of our models as we are hesitant to believe that it is independent of the redistributive preference, partly because inequality has its own effect on personal well-being (Clark et al, 2007, Senik, 2005, 2009) and partly because in evaluation of income distribution there is always a relative (comparison) element that can directly related to redistributive claims (Senik, 2006, Tóth, 2006)

*Contextual variables: inequality measures.* As ***perceived levels of inequalities*** might differ from the ***actual levels of inequalities*** it is important to find out ***what measures of (objective) inequality*** measures correlate the most to the various aggregate perceptual measures. In an earlier paper (Medgyesi et al, 2009) we found that special aspects of the income distribution (that is, for example, the relative poverty rate) seem to show higher influence on inequality perceptions than overall aggregate measures (like Gini, for example). We assumed that this might be caused by cognitive factors (the ability of respondents to perceive inequalities in terms of simple social distances, rather than calculating complicated welfare and inequality indices). Therefore, we use distance-based rather than variance based inequality measures to capture actual, “objective” inequalities in a society (we kept the Gini measure though, mostly

because of its general popularity in the literature). We decided to pick the ratio of the 5<sup>th</sup> and the 95<sup>th</sup> percentile cutpoints to the median value and to each other (P50/P5, P95/P50 and P95/P5, respectively) to represent distances between the middle, the poor and the rich<sup>13</sup> (all calculated from the Luxemburg Income Study (LIS) database). We expect this approach more appropriate for the test of the MR predictions as well, as inequalities in MR are also defined in terms of a distance (between average and median) in the distribution<sup>14</sup>.

To measure how country level objective inequalities influence people's RPI (i.e. to what extent will some of these inherently contextual variables account for between country differences, after controlling for all sorts of micro drivers of attitude differences), we substituted the country dummies in our full model (Model VI.) with various kinds of distance based inequality measures (some of them being sensitive to the upper and some of them to the lower tails of the income distribution).<sup>15</sup>

Our assumption is the macro (contextual) level inequalities will have an effect on (average) propensity to redistribute. However, this may easily work out on the other way round as well. This kind of reverse causality works in a "historical" perspective: long term redistributive appetite (socialization) in a country might lead to higher level of redistribution, resulting lower level of inequalities. We turn back to this issue later in our analysis.

## **Inequalities, their perceptions and redistributive attitudes across countries (country level aggregates)**

In an earlier paper (Medgyesi et al, 2009), based on the same EB survey we found that that preference for (vertical) redistribution (the share of those in full agreements to the call for the necessity of redistributing from the rich to the poor) is strongest in some Eastern European countries, including Hungary and Latvia, while in some other former transition countries (like Czech Republic and Slovakia) this share shows among the lowest in Europe. The share of those calling for government intervention exceeds 70% in Greece and in Hungary, while it is around only 30 % in Czech Republic and Denmark (Medgyesi et al, 2009) The country level averages of the (composite) RPI (as a dependent variable for the present analysis) also have a significant cross country variance (Figure 1). RPI values are highest in Greece, Cyprus and Hungary, followed by a country grouping of Bulgaria, Spain, Latvia and Ireland. The lowest RPI value is found in the Netherlands<sup>16</sup>, followed by Belgium, Czech Republic and Denmark – countries with relatively extensive welfare states - together with Lithuania.

(Figure 1. here)

The relationship between RPI and the demand that "government should reduce inequalities" is shown in Figure 2. Except for the outlier-suspicious Dutch case, the rest of the countries are positioned within a reasonable range around the regression line for the two variables (RPI including the pure "redistribute more!" statement as one element in the total five). The Czech Republic, Denmark, UK and the Netherlands all show below average (popular) redistributive preferences both for the simple demand for vertical redistribution and for RPI, while Greece, Hungary and Cyprus show above average values on both dimensions. Among the rest, we cannot find very much inconsistent values on the two dimensions<sup>17</sup>.

### *Redistribution preferences and social inequalities*

In general, the correlation between RPI and measured inequality<sup>18</sup> is relatively sizeable (we present data for P50/P05 in Figure 2). Higher level of P50/P05 ratios correspond to higher redistributive preference indices, the two extreme values being Greece (high inequality AND high RPI) and the Netherlands (low inequality AND low RPI).<sup>19</sup>

(Figure 2. here)

In substantive terms, the results show that societies where the income distance between the poorest and the middle is the largest, produce the largest level of aggregate demand for redistribution as well. On the other hand it is also interesting that the ratio which compares the richest to the middle (P95/P50) has only half as large influence on the RPI than the P50/P5 ratio (Tóth and Keller, 2011). It means that preference towards redistribution is more influenced by the lower part (below median) of the income distribution, than by the upper part (above the mean).

### *The structure of inequality and the votes of the middle classes*

The position of the median voter is always relative (to the poor and to the rich). Depending on the actual structure of inequality, the median voter's preferences may resemble to those of the higher or those of the lower income groups. Lupu and Pontusson (2010: 6) argue that when income distance between the poor and the middle-income group is small, members of the middle-income group might feel more affinity with the poor (since there is a greater probability for them to become poor). This may motivate them to vote with the poor when redistribution is on the political agenda. When, in turn, the objective position of those in the middle is closer to the affluent, they tend (in coalition with the affluent) to outvote the poor in terms of the redistribution. In other words: for redistribution preference social affinity with the poor is an inverse of social affinity with the affluent (Lupu and Pontusson, 2010: 8).

While this proposition is very much plausible, it is not easy to test in the context of our datasets as Eurobarometer does not contain an objective measure of income position. Hence we needed to apply a two-step procedure. First we observed how the population distribution by self reported income status relates to objective inequality measures, then we analysed how preferences of the middle income groups relate to preferences of the poor and the of the rich (assuming that the median (voter) is situated somewhere in the middle class group)<sup>20</sup>.

We found that the higher is the objective difference between the median and the lower tail of the income distribution (P50/P5), the larger is the percentage of people who feel themselves poor (Tóth and Keller, 2011:figure 9). On the other hand the smaller is the difference between the median income and the rich, (P95/P50), the larger is the share of citizens who perceive themselves rich. Therefore, deeper (objective) poverty correlates with a larger share of self-assessed poor while relatively better (objective) relative position of the middle class correlates with higher share of self assessed affluence. Further, we found that the redistributive preferences of "those in the middle" will be higher if they live in a society where many people feel "poor" and only a few feel "rich" (Figure 3).

(Figure 3. here)

*Direction of causality: will preferences drive inequalities or vice versa? (potential endogeneity problems).*

Correlation between country level inequalities and country level aggregate redistributive preferences should not, of course, be read as “causation” as causality may run both directions. People in high inequality countries may demand social policy measures but it also may happen that long term egalitarian attitudes in a country shape the general patterns of the distribution of income. Shall, for example, general and long-standing pro-redistribution attitudes in a country provide a supportive climate for politicians offering extensive social policy to the electorate, objective income differences on the long run will be lower than in countries with less egalitarian attitudes. To sort out the direction of causality is a very difficult thing and we can just mention here some of our experiments, without offering any definite arguments.

We probed a few suggestions offered by the literature (see Wooldridge: 2009, for example), but found no conclusive results. Our search for a good instrument (correlating with inequality but uncorrelated with RPI) was unsuccessful<sup>21</sup> and a real panel data to capture time change of the two observed variables so that full longitudinal spell - analysis is unavailable<sup>22</sup>.

Finding a sufficiently good covariate capturing somehow the reverse impact (from the preferences to the inequalities) could help, so we experimented with two potential candidates for this. The first was total social protection expenditures (SOCEXP, measured in % of GDP), which can be understood as a product of past (historic) welfare policy in a given country. Shall SOCEXP be a good aggregate measure of past redistributive preferences, there should be a positive empirical relationship between SOCEXP and RPI (higher preferences mean higher redistribution). This is however not the case, as the correlation between SOCEXP (averaged for 1990-2008) and RPI (-0.45, p=0.07), so we cannot go further this way either<sup>23</sup>. Applying, however, the same logic, we used a welfare regime typology (five dummy variables<sup>24</sup>), assuming that institutionalised welfare regimes are also a product of historic popular preferences expressed via elections. When controlling for the welfare regimes, in turn, country level objective income inequality lost its significance in the prediction of RPI. This estimation is also far from being perfect, however, as there might be serious multicollinearity between the welfare regimes and the overall inequality levels. To conclude: reverse causality is not negligible and deserves further research attempts. Nevertheless, in what follows, we assume that causality in general goes from inequality to preferences and not on the other way round.

## **Accounting for micro and macro determinants of redistributive preference**

### *Micro correlates of redistributive preference*

To test the effects of socio-economic factors, we build simple pooled OLS regressions (in the sample of all the available EU member states, with country dummies introduced to control possible country specific fixed effects). OLS unstandardized parameter estimates (B coefficients) for the pooled sample are shown in Table 1. with an indication of how estimates

change when new variables of the consecutive models step in. The first (with country dummies) and the second (with the socio-demographic variables) models serve to identify cross country differences and control for various basic characteristics. From Model III to Model VII, additional groups of variables (of material self interest, for subjective expectations, for failure attribution attitudes and general social/cultural attitudes, and inequality aversion) step in, respectively<sup>25</sup>.

The performance of the **basic model** (country dummies only) is not very strong, the explained variance being 7 percent only, but it increases with the introduction of the subsequent models: in the “full” Model VI, the  $R^2$  reaches 21 percent, which is, for a model with attitude variables looks remarkable.

The subsequent introduction of the various variable blocks leads us to the followings:

- From among the **demography variables** there are significant gender differences in redistributive attitudes: **males are much less pro-redistribution** than females. Age is rarely significant - which is an interesting phenomenon. To explain, it should be taken into account that that elements of RPI include jobs provisions, higher education involvement, health care and social spending, but no mention is made to pensions. Also, while age 61+ category contains – depending on retirement age provisions in the given countries – a different mix of the employed and the not working by country, the youngest age cohort is also very heterogeneous by the same categories, depending on the phase of the education expansion process. By education attainment, higher educated are less in favour of redistribution, while for the lower educated the parameter estimates are positive (and significant for the primary educated). There are no significant differences between villagers and large town citizens (in pairwise comparisons to those living in cities) Household size cannot be treated as a significant factor in this specification either.
- The introduction of **material self interest variables** brings a moderate increase of the explained variance (from 9 to 12 percent). Self employed have less, those not working have more taste for redistribution than the reference category of the employed people. People with material resources (self evaluated to be) at low levels have a significantly larger appetite for redistribution as compared to those in the middle and people towards the higher end have much lower support for redistributive arrangements.
- The introduction of **subjective expectations** brings a slight decline in the parameter estimates of the material positions’ effects and show the expected signs: **those expecting a worsening position will have a significant positive evaluation of redistribution**. The difference of attitudes of those evaluating their one year prospects positively from those who do not expect any change is not significant, but the sign of the parameter is in the expected (negative) direction.
- The introduction of the failure **attribution arguments** brings an additional 4.3 percentage point increase in the explained variance (actually this is some forty percent larger  $R^2$  than it was in the previous model). **People believing that the poor get into poverty because of laziness have a much smaller redistributive taste** (even when compared to those who evaluate poverty to be a result of bad luck) while those who think poverty is a consequence injustice in the society have a much larger redistributive preference index.

- The variables reflecting the general evaluation of the **social context** bring another large increase in the explained variance. People evaluating poverty a problem in the country and/or those who think there are large tensions between the rich and the poor and between the managers and the workers or are more pro-redistributive than others. As far as the perceived ethnic tensions are concerned, our OLS estimates did not show up with a significant result<sup>26</sup>.
- In our last (Model VII), we added the variable “**inequality sensitivity**”. Those evaluating current income inequalities “too large” produce the highest of all coefficients: holding this opinion increases the chance of being pro-redistributive to a very large extent. Since the zero order correlation between our dependent variable (RPI) and “inequality sensitivity” is quite large (0.26), we do not draw serious conclusion from this result, but it is noteworthy that people with high inequality sensitivity have a stronger preference for redistribution, holding all other differences constant (and, potentially, vice versa.)

(Table 1. here)

*The impact of country level contextual variables on RPI and on its variance by material status*

Having known that there is a cross country variance of intercepts (the country fix effects in the previous OLS models), we now test how country level inequalities might be accountable for at least some of this variance. We intend to investigate (1) whether inequality has an effect on RPI, and (2) whether the slope of RPI by material status differs in different inequality regimes.

As seen from Table 2., inequality measures (Column “B”), do have an influence on the respondent’s RPI (holding all other factors constant). In countries where inequalities are larger, respondent are more pro-redistribution. Decomposing the total between country variance into a part attributed to a part explained (or transmitted) trough the different inequality measures, and into another part which is unaffected by this shows (column “H”) that between-country differences in RPI can be attributed partly to the different inequality levels. The proportion of variance explained by between-country differences has been reduced (between 13-41%), if we control for various inequality measures (P50/P5, for example, is shown to be responsible for around 41% of the total between-country RPI differences).

*The slope of RPI by material status in different inequality regimes.* To find out how social differentials (between high and low material status people) of RPI differ in various inequality regimes, we need to estimate the interaction between the country level inequality and RPI by personal material status. To do that, we classified countries into three groups by the level of their inequalities. We used the expression “Low inequalities” where  $P95/P5^{27}$  is smaller than 4.77 (DK, NL, SE, FI). We grouped into the “Middle inequalities” those countries where  $P95/P5$  range between 4.77 and 6.61 (SI, AT, BE, LU, DE, HU, IE). Finally in “High inequalities” like PL, UK, ES, GR, IT, EE  $P95/P5$  is higher than 6.61.

Nonparametric lowess smoothing estimates on Figure 3 show coefficients on various levels of material status index for the three country groupings<sup>28</sup>. The three curves seem to show

different slopes. Predicted RPI seems to fall more steeply among citizens of the middle inequality group. In other words **the difference between high and low income status respondents' redistributive preferences is larger in countries where inequalities are in the middle range**. In high inequality countries and in low inequality countries the differences by material position is relatively lower. It is also noteworthy that high income status respondents in very unequal societies have in average nearly the same demand towards redistribution than low income status people in equal countries.

Using multilevel regression models (Model VI) we estimated the slope of material status in low, middle and high inequality countries. In low inequality countries rich and poor people do not differ from each other ( $B = -0.05$ ,  $p > 0.1$ ), and in countries with medium level of inequalities the differences between rich and poor are bigger ( $B = -0.1$ ,  $p < 0.01$ ) than in high inequality countries ( $B = -0.02$ ,  $p < 0.05$ ).

(Table 2. here)

(Figure 4. here)

## Summary and conclusions

In this chapter we analysed how redistributive preference relates to actual income and to its distribution. For measuring the relationship on macro level, we defined distance based measures of income inequality (P-ratios, based on data from LIS) and tested them for their direct and for their contextual effects on aggregate (country level) and on individual redistributive claims. These inequality measures allow reflections on the structure of inequality as they capture the skew of the distribution and, via this, capture social distances. We argued that for an analysis of attitudes of people at various parts of the distribution we need to apply a measure that somehow “simulates” their perspectives. This helped, in particular, to identify the relative position of the middle, covering “somewhere inside” the median voter whose role might sometime be pivotal.

For measuring redistributive preference we developed a composite index, based on an extended definition that captures broader scale of public activities and expenditures (covering employment, health, education, and other general redistributive items) besides the conventionally used vertical redistribution items.

On macro level we found that there is a continued and high support of state redistribution in many European countries but the cross-country variance is also high. Preferences for redistribution correspond to various aspects of inequality (most notably, to the extent and depth of relative poverty). On micro level the redistributive preference, while mostly derived from rational self interest (material position, labour market status, expected mobility), is also driven by general attitudes about the role of personal responsibility in one's own fate and by general beliefs about causes of poverty and the like. This latter factor was found to be one of the strongest individual determinants: the more people believe poverty is caused by “private” reasons like bad luck, laziness etc, the less people will call for redistribution, while the general belief that society operates on the basis of unjust or otherwise disliked principles will increase general demand for redistribution. This is in line, for example, with Piketty (1995) who explain that individual beliefs about the role of effort in social mobility are strongly linked to the experiences of upward mobility, and thus has an

effect on redistributive preferences. Also our result is similar than those by Corneo and Grüner (2002), who found that all others being equal people who perceived that hard work is important for getting ahead in life have lesser demand for redistribution.

While the affluent, the middle and the poor have different attitudes towards inequalities in every country (the “rich” showing less appetite for redistribution), the distance between attitudes also seems (at least to some extent) be determined by the distance between relative positions. In countries having larger level of aggregate inequalities the general redistributive preference (of the rich, of the middle and of the poor) is higher. However, although the difference between rich and poor is larger in middle inequality countries than in countries with high inequality levels, large statistical inference prevents us from drawing any stronger general conclusions on this issue.

The attitudes of the middle income group are especially important, primarily because of the political consequences of their standing. Redistributive preferences of “those in the middle” seem to show higher if they live in a society where many people feel “poor” and only a few feel “rich”. Further: shall there be a large share of population rating themselves poor, the mean differences in redistribution preference between the middle and the poor will also be large. At the other end if there are many people perceiving themselves affluent, the mean differences between the middle and the rich are large. This have a serious implication for both the political consequences and for the theory. In terms of politics: the actual redistributive impact (on public expenditures) of differential redistributive attitudes of the various social strata will heavily depend on turnout at the ballot. Shall it be large, more redistributive policies could be “sold” and shall it be smaller, middle classes would outvote the poor (other things constant). As for the theoretical implications: for the MR paradigm to hold, in addition to the objective income situation of the electorate, the self evaluation of the income skew in general and the median voter in particular should also be taken into account.

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## Tables

**Table 1 OLS estimates, dependent variable: demand for redistribution index (pooled regression for the complete EU)**

	Model I.	Model II.	Model III.	Model IV.	Model V.	Model VI.	Model VII.
	Basic model	Demography	Material self interest	Expectations	Failure attribution	Social context value	Inequality sensitivity
(Constant)	-0.17***	-0.1*	0.2**	0.12	-0.04	-0.21***	-0.42***
Gender: male		-0.13***	-0.09***	-0.08***	-0.07***	-0.06***	-0.05***
Age: 18-30		0.02	0.04	0.06*	0.06	0.05	0.05
Age: 31-40		0.05	0.04	0.05*	0.06**	0.06**	0.06*
Age: 51-60		0.06	0.06	0.06	0.05	0.05	0.04
Age: 61-70		-0.07	-0.07	-0.07	-0.05	-0.04	-0.05
Age: 71+		-0.06	-0.06	-0.06	-0.04	-0.02	-0.03
Educ: max primary		0.15***	0.09***	0.08***	0.09**	0.09***	0.08***
Educ: tertiary		-0.22***	-0.17***	-0.16***	-0.16***	-0.13***	-0.12***
Loc: village		-0.05	-0.03	-0.03	-0.02	-0.03	-0.04
Loc: lrg town		-0.02	-0.01	0	-0.01	-0.02	-0.02
Hsize		0	0.01	0.01	0.01	0.01	0.01
Labmark: selfemp			-0.19***	-0.18***	-0.18***	-0.17***	-0.16***
Labmark: notwork			0.12***	0.12***	0.12***	0.11***	0.1***
Labmark: retired			0.02	0.02	0.01	0	-0.01
Labmark: student			-0.08**	-0.07**	-0.07**	-0.03	-0.01
Mat. status			-0.1***	-0.08***	-0.07***	-0.06***	-0.05***
Exp: gets better				0.04	0.04	0.03	0
Exp:gets worse				0.24***	0.18***	0.13**	0.12**
Gets better × mat. status				-0.03*	-0.02	-0.02	-0.02
Gets worse × mat. status				-0.05*	-0.04	-0.03	-0.03
Whypoor: Lazy					-0.25***	-0.25***	-0.24***
Whypoor: unjust					0.29***	0.27***	0.23***
Whypoor: progress					-0.07**	-0.07**	-0.07**
Around: lrg povty						0.22***	0.17***
Tension: richpoor						0.14***	0.11***
Tension: aged						0	0.01
Tension: man/work						0.1***	0.06*
Tension: ethnic						0.03	0.01
Ineq: too large							0.38***
Adjusted R <sup>2</sup>	6.92%	8.59%	11.11%	11.33%	15.74%	17.60%	20.61%
N	25988	25138	24570	23631	22116	22116	21899

Note: In each models we controlled for between country differences, since we used country dummies with the reference to Germany. Regression coefficients for country dummies are not included in this table.

Reference categories: Female, Age 41-50, Secondary school, Small town, Employed, Future expectation: the same, Poverty attribution: unluck.

Coefficients with \*\*\* are different from zero at the significance-level of 0.01, coefficients with \*\* are different from zero at the significance-level of 0.05, coefficients with \* are different from zero at the significance-level of 0.1.

All models are significant at 0.001 level.

Standard errors are clustered by countries, robust standard error is used

**Table 2: Multilevel random models using different inequality measures**

Model	A	B	C	D	E	F	G
	Inequality measure	Inequality measure's estimated fixed effect	Material status's estimated fixed effect	Estimated random intercept (country level)	Estimated random residual (country level)	Proportion of variance attributed to the random between-country effect	Proportion of between country random transmitted through the inequality measure
Calculation						D/(D+E)	1-(F/7.78%)
Model VI.			-0.06***	0.07***	0.83***	7.78%	
Model VI_A.	P95/P5	0.17***	-0.05***	0.05**	0.83***	5.68%	26.95%
Model VI_B.	P95/P50	0.69**	-0.05***	0.06**	0.83***	6.74%	13.32%
Model VI_C.	P50/P5	0.72***	-0.05***	0.04**	0.83***	4.60%	40.89%
Model VI_D.	Gini	5.09**	-0.05***	0.06**	0.83***	6.74%	13.32%

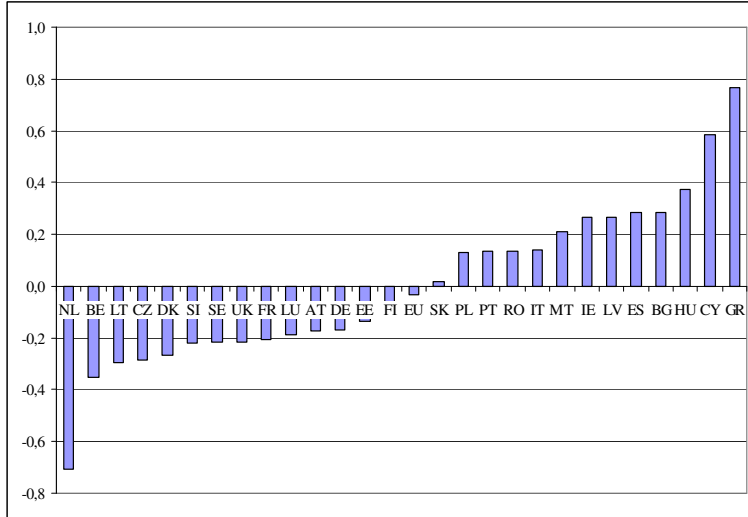
Restricted maximum likelihood estimation (REML), dependent variable: RPI

Coefficients with \*\*\* are different from zero at the significance-level of 0.01, coefficients with \*\* are different from zero at the significance-level of 0.05, coefficients with \* are different from zero at the significance-level of 0.1. All models are significant at 0.001 level.

For further control variables included in the equations see Model VI. Regression parameters for all the other control variables are not included in this table.

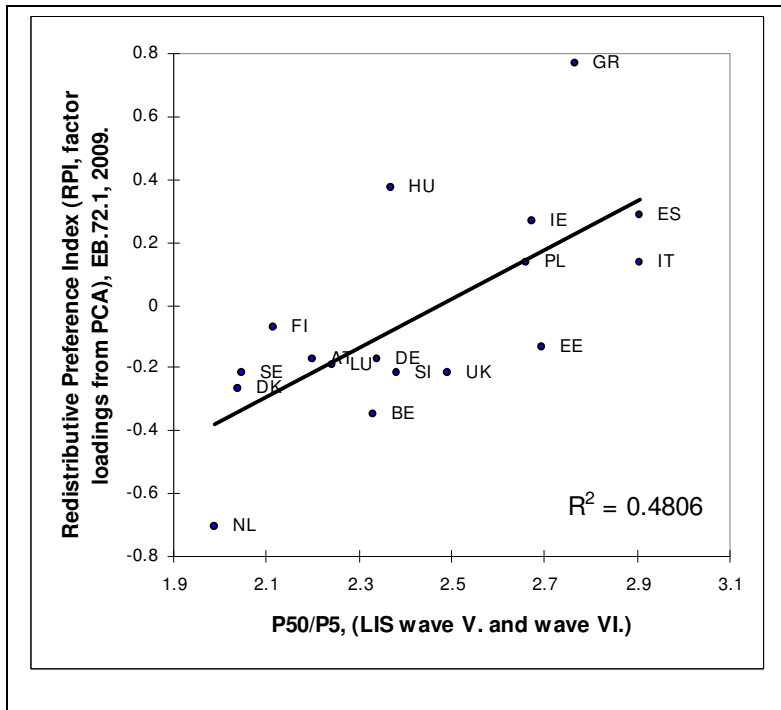
## Figures

**Figure 1 Values of the dependent variable (RPI) for EU countries (PCA load scores)**



Source of data: Special Eurobarometer (72.1.) on poverty and social exclusion, 2009, own calculation

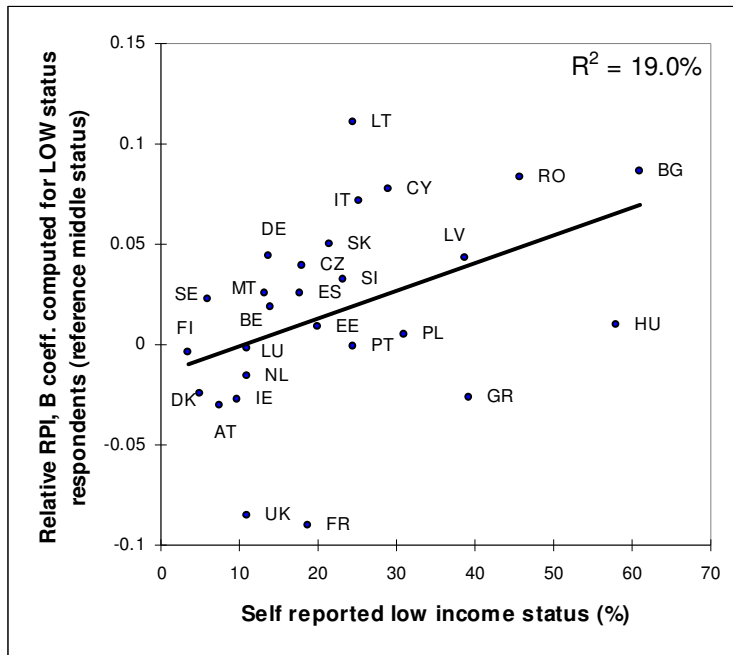
**Figure 2. Inequality (middle-poor distance) and redistributive preference index (RPI) in European countries (LIS Wave V and Wave VI, the most recent available)**



Source of data:

Y axis: Special Eurobarometer (72.1.) on poverty and social exclusion, 2009, own calculation  
 X axis LIS, Countries from LIS wave VI: AT, DE, DK, ES, FI, GR, HU, IT, LV, PL, SE, UK;  
 Countries from LIS wave V: BE, EE, IE, NL, SI, , own calculation

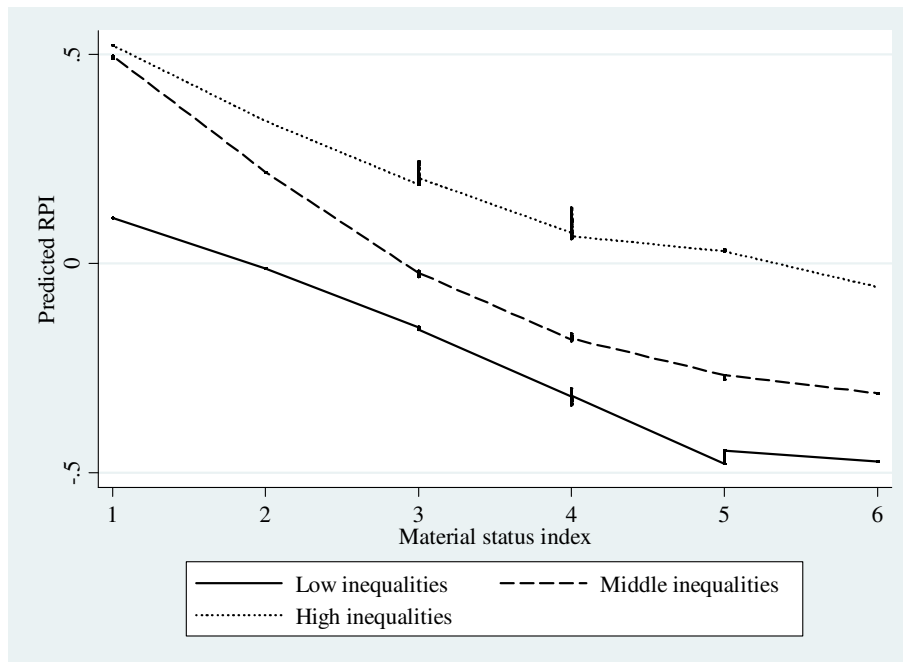
**Figure 3: Relative RPI (regression coefficients for material status dummies) by the share of self reported poor income status**



Source of data: Special Eurobarometer (72.1.) on poverty and social exclusion, 2009, own calculation

Standardized regression coefficients (Y axis) are calculated from country level OLS regressions, using Model VI (see in Table 1). We divided our six-point scale material status index into three categories. Categories 1, and 2, were grouped into “Low income status respondents”. Categories 3, 4 and 5 were combined into “Middle income status respondents”. Category 6, is defined as “High income status respondents”. Reference category was: “Middle income status respondents”.

**Figure 4 Predicted RPI and material status in different inequality regimes – nonparametric lowess smoothing**



Note:

Small inequality countries: DK, NL, SE, FI

Middle inequality countries: SI, AT, BE, LU, DE, HU, IE

Large inequality countries: PL, UK, ES, GR, IT, EE

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<sup>1</sup> This paper was prepared in the FP7 project “Growing Inequalities’ Impacts” (acronyme: Gini, for details see [www.gini-research.org](http://www.gini-research.org)). This version of the paper was submitted to the book “Inequality and the Status of the Middle Class” Edited by Janet C. Gornick and Markus Jäntti. We are grateful for the comments we received from Giacomo Corneo, Janet Gornick, Dániel Horn, Markus Jantti, Márton Medgyesi and Herman Van De Werfhorst. They bear no responsibility whatsoever for the remaining errors.

<sup>2</sup> The extent POUM holds is very much likely dependent upon the general risk aversion of various segments of the society. The interaction between POUM and risk aversion, for example, accentuates excessive high risk holders’ fears of downward mobility, pushing their demand for redistribution higher.

<sup>3</sup> Murthi and Tiongson, 2008, however, find little evidence for a “socialist legacy” in general.

<sup>4</sup> Alesina and Giuliano (2009) point out that respondents may sometimes have conflicting interests and trade-offs between these motives for preferences. We know very few on the dynamics of these, however.

<sup>5</sup> But also, subjective, non-economic cleavages and socio-political contexts produce significant cross country variance in an also heavily redistribution-favouring region (Latin America, see Ardanaz, 2009).

<sup>6</sup> Our analysis stops at preferences for redistribution (opinions about smaller or larger state interventions). This does not have direct consequence on the actually operating redistributive policies. The size and incidence of the welfare state depends on many different parameters of the public decision mechanisms (i.e. on the political system as a whole). We do not analyse party systems, the formation of spending priorities, neither we deal with efficiency and efficacy of public spending programs.

<sup>7</sup> In an earlier paper we analysed inequality attitudes in detail in a research note within the frame of the Social Situation Observatory, a regular monitoring exercise of income and living conditions in EU countries (see Medgyesi, Keller and Tóth, 2009).

<sup>8</sup> The questions were Q14, Qa25\_a, Qa25\_b, Qa25\_c and Qa25\_d from EB 72.1

<sup>9</sup> The variance explained is about one third of the total variance of the five elementary variables - improved improved to around forty percent with excluding the variable on preferences for social expenditures with price tags applied. However, our concept is that we try to measure an overall index of redistributive preference as it occurs in the „real” world (including taste for vertical redistribution, provision of various in kind services, public provision for education and labour market measures, etc. This is a difficult trade-off, though. Clearly, RPI mixes up various policy measures with very different potential distributional implications, catching the eyes of very different social groups. However, as – at this stage - we want to capture an overall demand for state redistribution we stick to a broader definition. Should the issue be an attempt for reforms, where politicians start communicating packages with trade-offs between the various expenditure items, a more refined categorization might obviously warranted. The strongest correlate (with RPI) is

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the question on the general requirement that the state has a duty to provide for its citizens to a maximum extent ( $r=0.74$ ). The basic distributions of the variables in question are shown in the Annex of this paper.

<sup>10</sup> Snijders and Bosker 1999, Snijders 2003. Notations here follow those suggested by Snijders 2003.

<sup>11</sup> In EB, unlike in many other opinion surveys, the bottom age limit is set at 15. This clearly causes problems for interpretation. However, we excluded those in the age between 15 and 18. we limited the problem but does not solved it.

<sup>12</sup> The relationship between subjectively defined material status on the one hand and the RPI on the other hand might transmit influences in both ways. The main assumption of the “material self interest” argument is that people with lower level of economic resources will demand higher level of redistribution. But, however, what if a general attitude towards larger state involvement will drive people saying they are in worse economic conditions than they actually are? In this case the causality goes on the other way round. Besides registering this type of endogeneity problem, we cannot offer really good treatment to this in the context of the current paper.

<sup>13</sup> Lancee and Werfhorst (2010) suggest a measure to calculate the mean distance from the median income (MDMI). However, as it combines distance and variance and does not simply measure the distance of the median from the extremes, seems too complex for our purpose. After considering P90/P10, P90/P50, P50/P10, finally we preferred using the ones providing a larger variance, and a higher covariance with RPI. The measures we used would certainly be more risky to be used for measuring income distribution differences, but for the current purpose (i.e. to serve as right hand variables) this risk does not exist.

<sup>14</sup> Lupu and Pontusson (2010) also argue that for the formulation process of redistributive preferences, much depends on the distances between the middle class and of the upper and lower tails of the distribution. Once the distance between the median and the lower half of income distribution is small, middle class people feel more affinity to the poor, and vote for more redistribution (as opposed to the rich). In the contrary, if the distance between the middle class and the upper half of the income distribution is small, middle class people join to the rich, and vote for less redistribution (contra the poor). We turn back to this later in he analysis.

<sup>15</sup> Note, that since every inequality measure comes from the LIS database, only 17 of the EU27 countries remain in the analysis. Countries from LIS wave VI: AT, DE, DK, ES, FI, GR, HU, IT LV, PL, SE, UK and countries from LIS wave V: BE, EE, IE, NL, SI

<sup>16</sup> This comes partly from the very low level of agreement of the Dutch to the statement that „*Government should take more responsibility to ensure that everyone is provided for*” (see the Annex for the basic distributions). Taking this variable out of RPI would decrease the level of the Dutch „anti-redistributive” feelings but otherwise it would not fundamentally change the country rank orders in general.

<sup>17</sup> The very low RPI level for the Netherlands comes mostly from the Dutch respondents’ low approval of the statement that the state should provide more for the individuals.

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<sup>18</sup> Based on data from LIS waves V and VI (whichever is more recent for the various European countries for which we have attitude data).

<sup>19</sup> For various other inequality measures we found that the fit of the regression for P95/P5 on RPI (country averages) is somewhat larger than that of Gini on RPI, a feature probably due to the fact that while Gini as measure is very much balanced and symmetrical, the other inequality measure is more sensitive to alterations in the skew and to changes at the two tails of the distribution.

<sup>20</sup> This is a non-trivial assumption as differential turnout by income groups might shift the position of the pivotal voter significantly away from the middle of the income distribution.

<sup>21</sup> Running regressions with a good instrumental variable - which correlates with inequality but which is uncorrelated with RPI - on which the chosen inequality measure could be regressed and then using the predicted value to sort out reverse causality directions could be helpful. However, as we did not find such an instrument, we could not employ the appropriate method (two staged least square estimations).

<sup>22</sup> A good panel data would be necessary to carry out a “difference in difference” estimation. To probe this we had to use other datasets (needed to substitute RPI with the percentage of those who “totally agreed” the question, that “government should reduce differences in income levels” coming from the European Social Survey (ESS) round 3 (2006) and round 4 (2008) and collected time period S80/S20 data from published Eurostat EU-SILC indicators). However, the noise due to this data shift seemed to be too large at the first glance so we discontinued this experiment.

<sup>23</sup> However we have to emphasise that while the connection between SOCEXP 2008 and RPI is not significant ( $r=-0.24$ ;  $p=0.35$ ), averaging SOCEXP in a larger time period would result statistically significant coefficients. (Averaging SOCEXP between 1997 and 2008 would result  $-0.42$  correlation coefficient with RPI ( $p=0.1$ )). We conclude the reverse causality might be a problem to be addressed later.

<sup>24</sup> These variables correspond to the conventional classification originated from Esping-Andersen's seminal work (Esping-Andersen, 1990) on the three worlds of welfare capitalism, but, we combine a territorial division with the original typology, adding the post-transition countries (CEE and Baltics as well), but also the countries from the Mediterranean tier (see Ferrara (1996), Bonoli (1997), Boeri (2002) more on these typologies). Anglo-Saxon: UK, IE; East European (ex-communist): EE, HU, PL, SI; Continental: AT, DE, NL, BE, LU; Mediterranean: ES, IT, GR,; Scandinavian: DK, FI, SE. Reference: Continental

<sup>25</sup> We checked for multicollinearity but VIF is always under the critical value, even in Model VII.

<sup>26</sup> Starting from Alesina et al 2001, country level racial heterogeneity is increasingly offered to explain the cross-country (mostly between Europe and US) differences in size of redistribution and of welfare states, the causal link being attached to the popular belief of racial minorities benefiting from welfare expenditures (see also Lindqvist et al, 2009, Dahlberg et al, 2011, but also Mau, 2007). To proxy the perceived problems caused by ethnic heterogeneity, we aggregated a question: there is a „lot of tension” between „different racial and ethnic groups” (QA 15\_4) to arrive at a country level variable. At this level we found a negative (but not significant) connection between RPI and ethnic tensions ( $r=-0.17$ ,  $p=0.39$ ). The direction of the correlation is however, in line with the predictions: the higher the perceived tension between ethnic groups is, the less redistribution will be desired. When, in addition to the set of other control variables (all as in Model VI) of our multivariate model we

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include the country level aggregated ethnic tension ( $B=-1.02$ ;  $p=0.21$ ), the sign of the individual level ethnic tension variable was negative ( $B=-0.38$ ;  $p>0.001$ ) and their interaction ( $B=1.05$ ;  $p>0.001$ ) was significant and positive, indicating that high level of perceived ethnic tensions will lead to decreased redistributive taste, with higher tensions predicting more widespread consensus on it. We leave, however, the analysis of this to our next paper.

<sup>27</sup> We use this indicator for the presentation because of its larger variance. We tested the other three, but the selection does not bias the main messages.

<sup>28</sup> “Lowess” (locally weighted nonparametric regression) estimates of coefficients localize subsets in the data set and gradually develop a function which explains best the variation in the data points. We predict RPI with various inequality measures for breakdowns by the respondents’ material status.