

# Research note no. 8

## *Analysing the link between measured and perceived income inequality in European countries*

Tamás Keller, Márton Medgyesi and István György Tóth

### ABSTRACT

*Values and norms regarding income inequalities are important in the determination of both primary (pre-tax) incomes and the extent of redistribution through taxes and transfers. This research note, based on the 2009 Special Eurobarometer on poverty and social exclusion, first presents a country-level analysis of the relationship between measured levels of inequality on the one hand and inequality tolerance and redistributive preference on the other hand. It shows that attitudes to inequality differ widely between EU countries and there is a substantial internal variance in most of the countries. It is also shown that inequality tolerance – which is to some extent a proxy for inequality perceptions - do not always correspond to measured income inequality indicators. After testing various inequality and poverty measures, the analysis concludes that country level differences of inequality tolerance is most likely driven by levels of relative poverty. Using both time series and cross sectional analysis, the research note examines how the overall level of income inequality and poverty and a change in these relates to the measured level of acceptance of inequalities. Multivariate analysis shows that inequality attitudes on a personal level are driven by general political attitudes and subjective evaluation of the personal situation of the respondents, rather than by (education or labour market related) socio-economic factors.*

*This Research Note has been produced for the European Commission by the Network on Income Distribution and Living Conditions of the European Observatory on the Social Situation and Demography. The views expressed are those of the authors and do not necessarily represent those of the European Commission.*



# Analysing the link between measured and perceived income inequality in European countries

## I. Introduction

This research note is about tolerance for inequalities in a cross-national context. One can advance several arguments for the *policy relevance* of attitudes towards inequality. First, preferences towards certain levels of inequalities shape *individual behaviour* in various social, economic and political situations. Shall perceived levels of inequalities exceed levels of tolerance to a large extent, people may contemplate giving up loyalty for voice (voting, protests, industrial affirmative actions, etc) or for exits (moving into black economy, emigrating and the like) – to use the terms by Hirschman (1970). In addition, as the shape of preferences of the political community (for policies, taxes and expenditures and other issues) is revealed in general elections, the link between actual and perceived inequalities might be crucial to understand *voting behaviour* and its effect on aggregate preference formation.

Further, as economic growth is a result of myriads of individual choices (of savings and spending, work and leisure, entering or exiting the labour force, paying or avoiding taxes, etc), the parameters of these choices matter for the *economic performance* as well. Fairness judgements, inequality assumptions are also elements of the parameters, even if sometimes with smaller, sometimes with larger weights assigned to them. Finally, (dis)approval of the level of inequalities may contribute to the *(de-)legitimation of the political regime* as well, leading to decline or prosperity of economic and political communities, depending upon legitimacy of the regimes.

The *economic crisis* of recent years has brought the fairness issue into the forefront of national politics. Throughout the countries that are most hardly hit by the recession, there is an increased attention paid to wage inequalities, to manager bonuses and government strategies to reduce inequality. This brings the issue of inequality perceptions out from a purely scientific interest and makes it a central issue of the political processes in member states of the European Union as well.

The Eurobarometer survey periodically monitors the people's attitudes towards various social issues and also towards inequalities. The 2009 special EB survey on poverty and social exclusion has contained a battery of questions on inequality perceptions, which makes it possible to analyse attitudes of various social groups towards perceived inequalities. (For more on the survey, see Annex 1.)

We differentiate between *actual levels of inequalities* (i.e. survey estimates of inequality measures), *perceived levels of inequalities* (i.e. perceptions of the respondents about the gap between various social strata) and *normative judgements about the desired levels* of inequalities (proxied by answers to questions about the accepted/tolerated inequality levels). We call "*inequality intolerance*" (or, sometimes, inequality aversion) when people express their agreement to the statement that "inequalities are too large" in their countries. We call "*redistributive preference*" when people agree to the statement that "governments should reduce inequalities in their countries". Clearly, for most of the concepts it is only second best proxies that can be used as there is no such single survey exist, which would cover all or most theoretically sound question formulations in the same design. However, the Special EB, which has the unbeatable advantage of the harmonized EU27 coverage, contains sufficiently large number of variables, from which we can gain a fairly comprehensive picture on how European citizens think about the actual and tolerated levels of inequalities.

The central question of this paper is: how the inequality judgements (i.e. tolerance for inequalities) reflect actual levels of inequality. Some earlier papers have argued that general perceptions of changes in inequalities do follow (to some extent) the actual changes in inequalities (Lübker, 2004, Förster and Mira D'Ercole, 2005), though caution in over-interpretation of this is warranted (Lelkes, 2009). Others argued that adoption of evaluations to actual changes occurs with a time lag (Suhrcke, 2001, Kelley and Zagorski, 2004).

There are a number of methodological problems that should be sorted out when analysing the relationship between inequalities and perceptions. For example, perceptions of actual inequalities may be derived from actual inequalities while normative statements on inequality evaluations seem to be driven by perceptions (personal estimates) of actual inequalities (Kelley and Zagorski 2004, Gijsberts, 1999) and there is a significant within-country variance in the norms of legitimate earnings as well (Osberg and Smeeding, 2006).

Having said these caveats, this paper aims to be explorative only. We ask the following questions:

- Are people living in countries with higher actual inequalities less tolerant of differences in living standards, which exist in their country?
- How the results on the correlation between actual inequalities and attitudes towards inequalities depend on methodological choices.
- What individual determinants of attitudes towards inequalities can be identified?

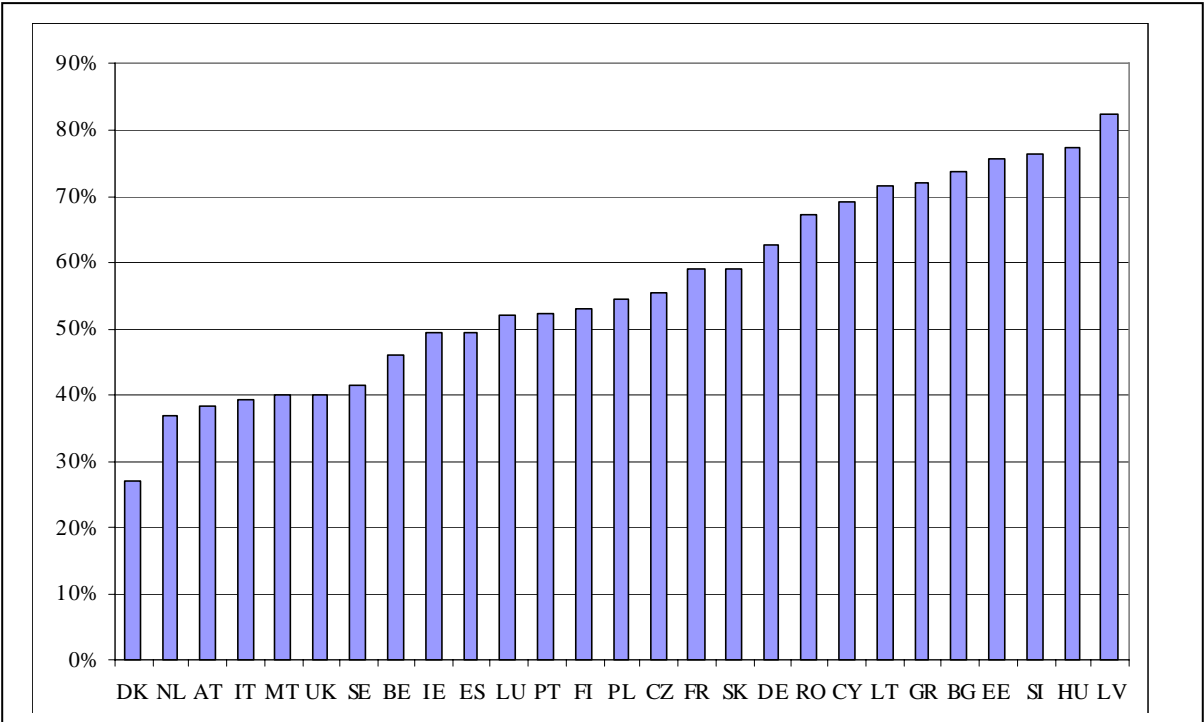
It is important to emphasize here that in this paper the *focus is on Europe*. There are some very important and thoughtful papers on transatlantic differences in inequality attitudes. Alesina, Di Tella and MacCulloch (2004) found that inequality has a differential impact on Europeans (their happiness is reduced by inequalities) and Americans (for whom, it does not matter and the relationship is insignificant). This, however, is not undifferentiated across various social groups: while in America the happiness of all four segments they analyse (poor-rich and left-right) seems unaffected by inequalities, in Europe the poor and the leftist (by ideological inclination) show strong aversions to inequality. In addition, they conclude, this transatlantic difference does not originate from different preferences of Europeans and Americans, but, rather, from differential perceptions of opportunities for mobility in the US and in European welfare states. Osberg and Smeeding (2006), however, argue that it is not the evaluations of income differentials as such, but differential attitudes towards the unfortunate at the bottom end that make a difference at the two sides of the Atlantic. Americans tend to ignore poverty more than the Europeans. Furthermore, Jantti et al (2006) puts a new light on "American exceptionalism", following a great deal of empirical literature on it. They show Nordic intergenerational mobility patterns more turbulent than the ones shown by UK mobility indices, which, in turn show higher mobility rates than the one experienced in the US. They argue, therefore, that the belief of larger American mobility may be a popular myth.

The international datasets we use (the 2009 Special Eurobarometer and, for some special comparisons, the European Social Survey, see Annex 1 for details) cover 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. These differences will be attempted to be taken care both in bivariate and in multivariate contexts in this paper.

# II. Tolerance for inequalities: cross national comparisons

The share of people most dissatisfied with the overall level of inequality is over 70% in Latvia, Hungary, Slovenia, Estonia, Bulgarian Greece and Latvia while it is below 40% in Denmark, Netherlands, Austria, Italy and Malta (Figure 1). The geographical pattern is diffuse, though in countries that experienced a transition from socialism to capitalism during the nineties a higher frustration towards perceived inequality levels is shown. However, the Polish, Czech and Slovak results seem to fit the middle of the range while the relatively high level of dissatisfaction of the Greek respondents also shows out from the general picture.

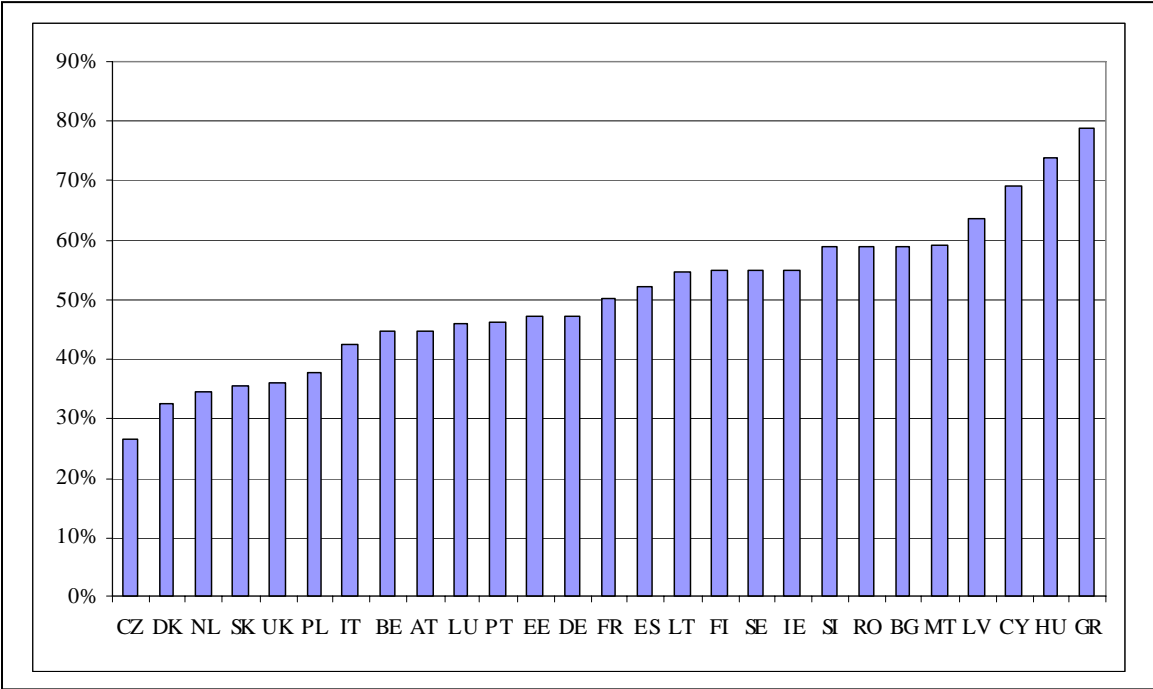
**Figure 1. Inequality tolerance: are income differences too large?**



Note: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”. Source of data: Special Eurobarometer on poverty and social exclusion, 2009.

Another evaluative question of inequalities focuses on a normative element: the need for government action to reduce the extent of inequalities (Figure 2). This “preference for (vertical) redistribution” is strongest in some Eastern European countries, including Hungary and Latvia, while in some other former transition countries this share shows among the lowest in Europe (see for example the data for Czech Republic and Slovakia).

**Figure 2. Preference for redistribution (share of population agreeing “Government should reduce differences in income levels”)**



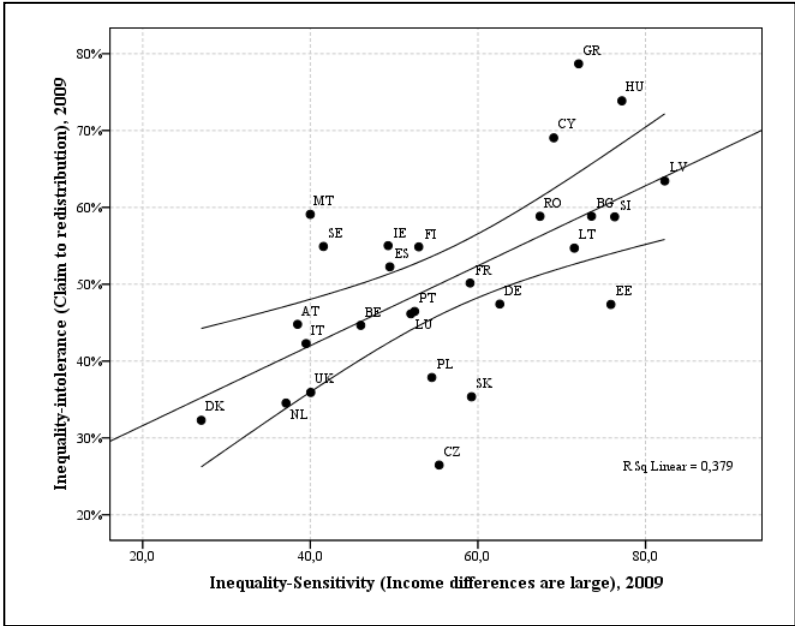
Note: the share of population who “totally agree” with the statement: “Government should ensure that the wealth of country is redistributed in a fair way”. Source of data: Special Eurobarometer, 2009.

Cross-country differences are fairly wide. 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.

There is a relatively high correlation between the two country rankings by the two observed variables (correlation coefficient: 0.62 between inequality tolerance and redistributive preference rankings). However, there are a few countries deviating: in Greece, Hungary and Cyprus, the frustration with inequality levels is coupled with a high strain on government, while in Poland, Slovakia and the Czech Republic the relatively lower level of inequality intolerance is coupled with some of the lowest level of popular redistributive preferences (Figure 3).

What may be the reason for these cross-country differences? Do these attitudes correlate with actual inequalities or do we need to find another explanation? These are the questions we aim to answer in the following sections.

**Figure 3. The relationship between inequality tolerance and redistributive preference**



Note: Y-axis: The share of population who “totally agree” with the statement: “Government should ensure that the wealth of country is redistributed in a fair way”. Source of data: Special Eurobarometer, 2009.

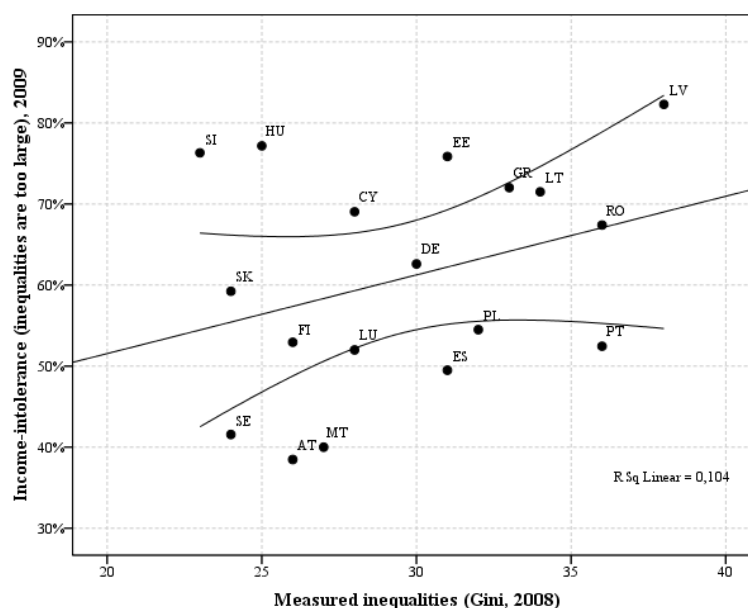
X-axis: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”.

Source of data: Special Eurobarometer, 2009.

### III. Level of actual inequality versus level of tolerance

The most widely used inequality measure in the literature on income distribution is the Gini coefficient. This measure belongs to a class of inequality measures that are based on pairwise comparisons of all values in a given distribution. Mathematically speaking, the Gini is the relative mean difference, that is, the average of the absolute differences between two randomly selected members of a population, divided by the average of the values in the sample. When comparing the country level values of Gini (i.e. an estimate of the actual inequality) to the share of those finding inequalities „too large” (i.e. an estimate of the inequality intolerance in the given population), we find significant but relatively weak correlation. Citizens of member states with higher inequality agree more frequently with the statement that inequalities are “too large” in their country. Some of the relatively equal countries are shown to be more intolerant towards inequalities (e.g. Slovenia, Hungary, Cyprus and Estonia), while there are countries where a relatively low percentage of people think that inequalities are too large compared to the actual level of inequalities (Sweden, Austria, Malta, Portugal, Spain). In case of some other countries (Slovakia, Finland, Germany, Lithuania and Romania), appearing along the regression line the attitudes towards inequalities are in line with measured level of inequalities (Figure 4).

**Figure 4. Inequality-intolerance and the Gini coefficient (2008)**



Note:

Y-axis: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”. Source of data: Special Eurobarometer, 2009.

X axis Gini coefficient 2008.

Source of data: Eurostat Database.

There might, however, be a number of potential “noises” in conceptualisation and in data that could be taken into account (Tóth, 2006). First, various (sampling and non-sampling) types of measurement errors may cause distortions in both sides (i.e. in measuring “actual” inequalities and also in perceptions of the respondents on which they may formulate their judgements). Sampling errors for Gini are high in some cases (see Lelkes et al, 2009). The standard error for attitude variables also may cause a few percentage point differences (depending on sample sizes of the surveys).

Non-sampling errors of income inequalities originate from methods of income measurement and aggregation. The same type of errors for attitude variables comes from different wordings and different cultural context of the evaluation of inequality. Through combining results of different surveys on a country level, some parts of these uncertainties may be sorted out (Tóth 2006). However, much of these uncertainties remain, despite all efforts. In the forthcoming sections we make some efforts to get more robust results and to investigate whether a result on weak correlation between actual inequalities and attitudes towards inequalities remains valid when methodology of the analysis is changed. First, we test alternative measures, then we experiment with averaging results over years.

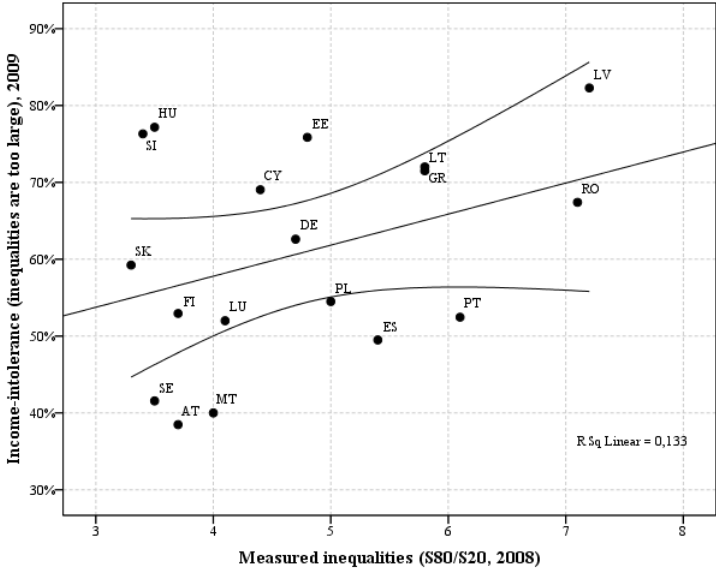
### Effect of methodological choices on results

Compared to statisticians, respondents of opinion polls are in an even more difficult situation when judging inequalities. No single person can be imagined to compute Gini when asked to evaluate income dispersion in the country he/she lives in. They may have some ideas about the level of income dispersion in their country (based on some referential standards of evaluation), but this assessment will clearly depend on a great number of individual circumstances that are difficult to handle in a survey context. First, we acknowledge that attitudes to inequality might be more sensitive to more visible aspects of inequalities: like

inequality of earnings of the higher and the lower educated, of employment chances of the same categories, of relative poverty rates and of relative poverty gaps. These are shown in Figures 5 to 9.

The relationship between inequality intolerance and income inequalities measured by the income quintile ratio is similarly weak (Figure 5), despite the fact that one might assume people compare their incomes to larger blocks of their fellow citizens (rather than to an abstract notion represented by “relative mean deviation”). The country ranking by actual income inequality remains largely unaffected by this change of the measure of inequality. Also, it is noteworthy that quite exactly the same countries fall above and below the regression line. In Slovenia, Hungary, Cyprus and Estonia the level of intolerance towards inequalities relative to the actual level of inequalities is higher than in other countries. In countries like Sweden, Austria, Malta, Portugal and, for example, Spain, people are more tolerant towards inequalities.

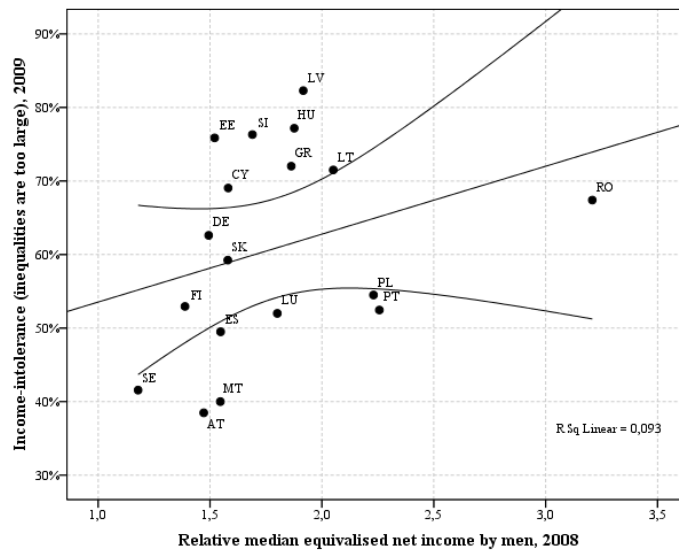
**Figure 5. Inequality-intolerance and income quintile share ratio, 2008 (S80/S20)**



Note:  
 Y-axis: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”. Source of data: Special Eurobarometer, 2009.  
 X axis Income quintile share ratio (S80/S20) 2008.  
 Source of data: Eurostat Database.

Another option for the measurement of visible inequalities is to compare the *relative incomes of the higher educated to those having less than higher education* attainment (Figure 6). The country level correlation between this measure and inequality intolerance is rather weak again (although the exclusion of the extreme Romanian data point could somewhat change the picture.)

**Figure 6. Inequality-intolerance and the relative income ratio by education (2008)**



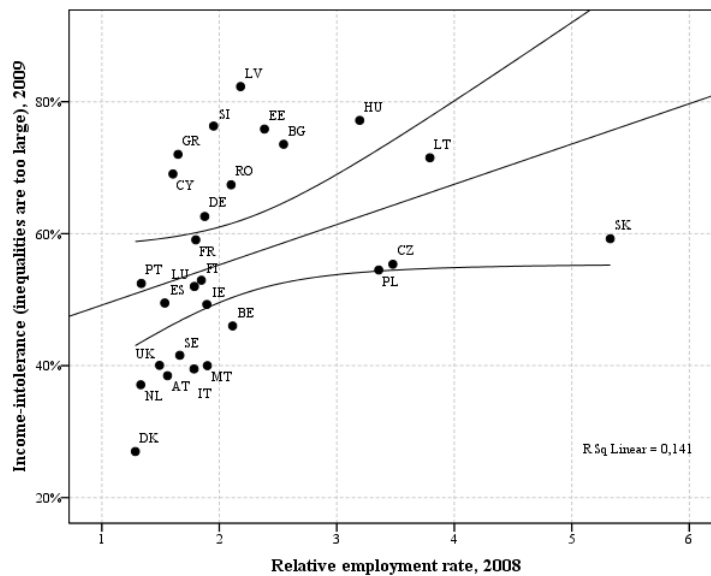
Note:

Y-axis: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”. Source of data: Special Eurobarometer, 2009.

X-axis: Relative earnings ratio of 18-64 year old men by educational attainment. Median equivalised net income among tertiary educated men is divided by the median equivalised net income among below and upper secondary educated men; 2008.

Source of data: Eurostat Database.

**Figure 7. Inequality-intolerance and the relative employment rate of the higher educated (2008)**



Note:

Y-axis: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”. Source of data: Special Eurobarometer, 2009.

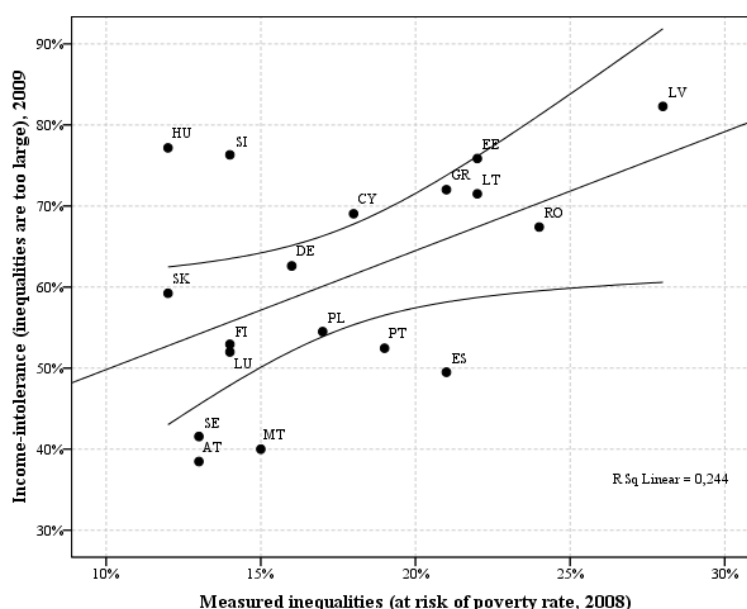
X-axis: Employment rate ratio by education (employed person 15-64). Employment rate among people with tertiary education (ISCED 5-6) is divided by employment rate among primary, primary and lower secondary educated people (ISCED 0-2); 2008.

Source of data: Eurostat Database.

A similar comparison can be based on *relative employment rates* (rather than relative incomes) of people with various education levels. For the differential employment rates (see Figure 7), the correlation is fairly low again (with a suspicion of now Slovakia being an outlier).

It is possible, that attitudes to inequalities are more in line with “reality” if we investigate more visible aspects of inequalities such as the rate or severity of poverty. Figure 8 depicts a stronger correlation between *poverty rate* and inequality-intolerance: the  $R^2$  statistic of the linear regression, which is a measure of the strength of the relationship between the variables, is 0,244, compared to 0,104 observed for Gini. Again, some countries are off the regression line: in Slovenia, Hungary and Cyprus the relatively low level of poverty goes together with high level of inequality intolerance, while the citizens of Portugal and Spain seem to be more tolerant towards inequality despite their relatively high level of poverty rate. For *poverty gap* we find significant but somewhat lower correlation.

**Figure 8. Inequality-intolerance (2009) and the at risk of poverty rate (2008)**



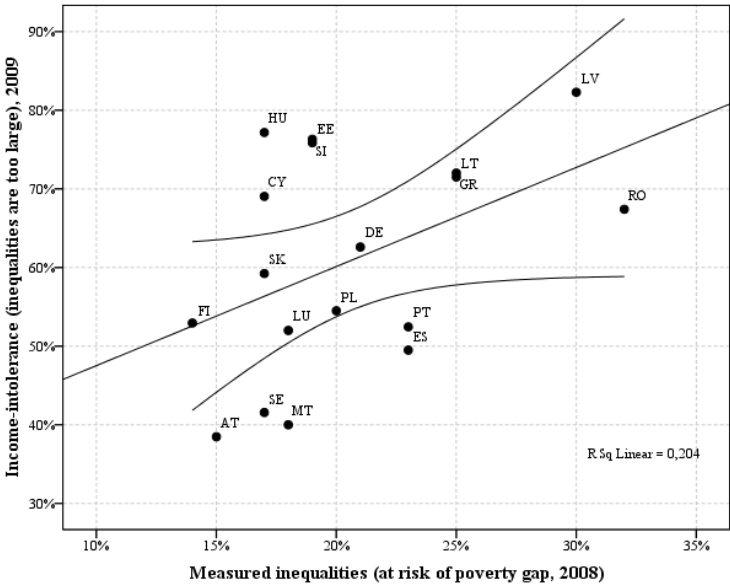
Note:

Y-axis: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”. Source of data: Special Eurobarometer, 2009.

X-axis: At risk of poverty rate (cut-off point: 60% of median equivalised income after social transfers) 2008.

Source of data: Eurostat Database.

**Figure 9. Inequality-intolerance (2009) and the at risk of poverty gap (2008)**



Note:

Y-axis: The share of population who “totally agree” with the statement: “Nowadays income differences between people are far too large”. Source of data: Special Eurobarometer, 2009.

X-axis: Relative median at-risk-of-poverty gap. The difference (in %) between the income of persons below the at-risk-of-poverty line and the at-risk-of-poverty line (cut-off point: 60% of median equivalised income after social transfers) 2008.

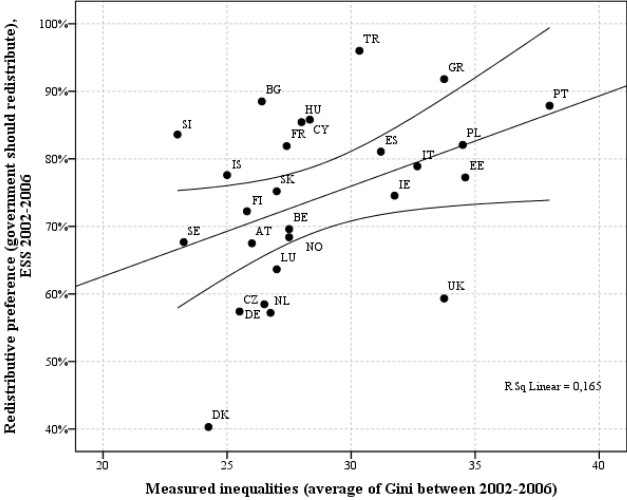
Source of data: Eurostat Database.

**Averaging over several years**

As pointed out earlier, data on income inequality and data on attitudes both come from surveys and therefore are subject to sampling error. It is possible that the (low level of) correlation that we observe is a result of sampling variability and do not show the “true” relationship between our variables. Now we investigate the correlation between measured inequalities and attitudes using data averaged over several years, in order to mitigate the effect of sampling error. For this, unfortunately, we cannot use the question on inequality tolerance (due to missing data over years). Rather, we use for the same country grouping the results of the *questions on redistributive preferences* (the share of population who “agree strongly” or “agree” to the question whether “Government should reduce differences in income levels”, taken from the European Social Survey).

We again see positive (though still quite weak) correlation between measured inequalities and redistributive preferences: the more unequal a country is in terms of *period-averaged Gini coefficient* the more inhabitants think it is important that their governments reduce inequalities.

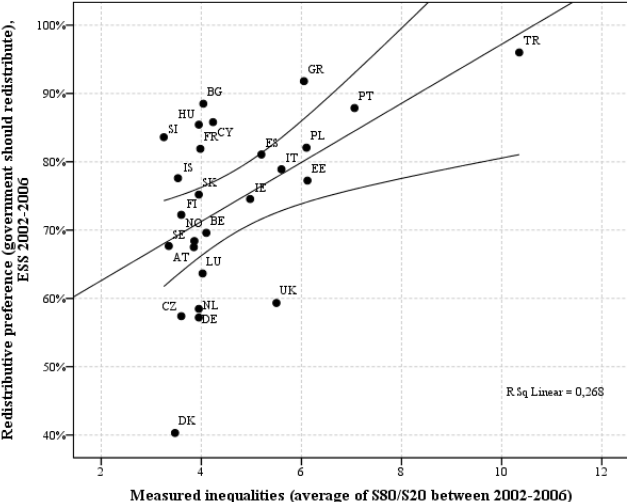
**Figure 10. Gini coefficient (2002-2006 average) and redistributive preference (2002-2006 average)**



Note:  
 Y-axis Redistributive preference is the share of population who “agree strongly” or “agree” to the question whether “Government should reduce differences in income levels”.  
 Source of data: ESS 1st wave, ESS 2nd wave, ESS 3rd wave (2002-2006).  
 X-axis: The average of Gini coefficient between 2002 and 2006.  
 Source of data: Eurostat Database.

In Slovenia, Bulgaria, Turkey, France, Cyprus, Hungary, Greece and Island people have stronger demand toward redistribution. Especially in the UK (but in Luxembourg, the Netherlands, Czech Republic, Germany as well) compared to measured inequality people (on average) do not prefer strong redistribution, while in Denmark generally low redistributive preference corresponds to the low Gini coefficient.

**Figure 11. Income quintile share ratio (2002-2006 average) and redistributive preference (2002-2006 average)**



Note:  
 Y-axis: Redistributive preference is the share of population who “agree strongly” or “agree” to the question whether “Government should reduce differences in income levels”.

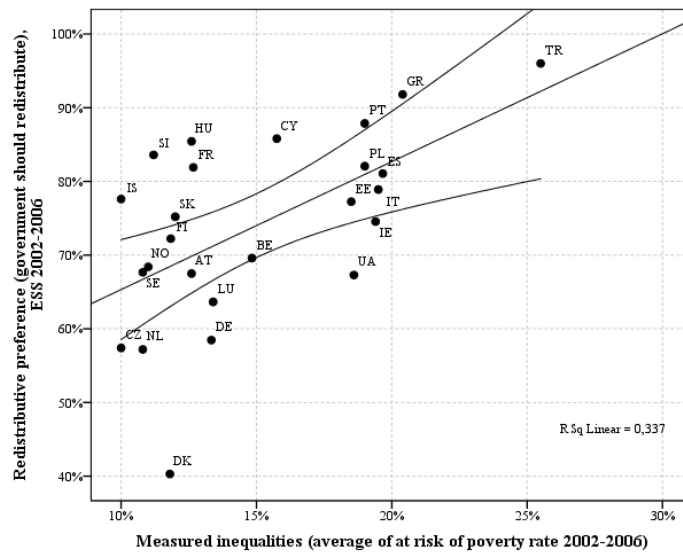
Source of data: ESS 1st wave, ESS 2nd wave, ESS 3rd wave (2002-2006).

X-axis: Income quintile share ratio (S80/S20) between 2002 and 2006.

Source of data: Eurostat Database.

The same holds if inequality is proxied by the *income quintile ratio* (i.e. the ratio of aggregate incomes of the uppermost quartile to the aggregate incomes of the lowermost quintiles, S80/S20, Figure 11.) However, it is clear that the (by design) low variance of the S80/S20 measure makes it very difficult to interpret the results (more than 60% of the averaged inequality level data fall around the value of 4).

**Figure 12. Poverty rate and redistributive preference**

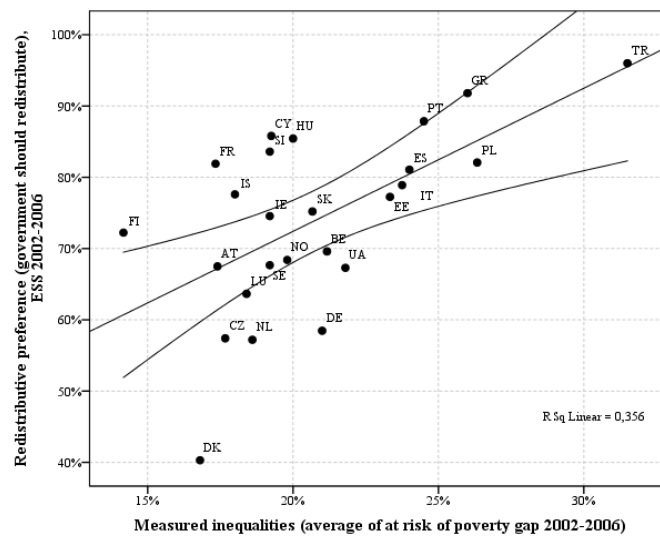


Note: Y-axis: Redistributive preference is the share of population who “agree strongly” or “agree” to the question whether “Government should reduce differences in income levels”. Source of data: ESS 1st wave, ESS 2nd wave, ESS 3rd wave (2002-2006).

X-axis: At risk of poverty rate (cut-off point: 60% of median equivalised income after social transfers) between 2002 and 2006. Source of data: Eurostat Database.

The finding that inequality intolerance may reflect relative poverty rather than inequality as such is reinforced by the correlation between period-averaged redistributive preferences and *period-averaged poverty rates* (Figure 12). The higher the poverty rate, the higher the redistributive preference will be in the observed countries. However, in Island, Slovenia, France, Hungary and Cyprus there is a relatively high level of redistributive preference, despite the fact that relative poverty was not measured to be particularly high in the period observed. In Luxemburg, the Netherlands and Germany – where quite the same level of poverty occurs – people seem to have lower demand for redistribution.

**Figure 13. Poverty gap and redistributive preference**



Note: Y-axis: Redistributive preference is the share of population who “agree strongly” or “agree” to the question whether “Government should reduce differences in income levels”.

Source of data: ESS 1st wave, ESS 2nd wave, ESS 3rd wave (2002-2006).

X-axis: Relative median at-risk-of-poverty gap. The difference (in %) between the incomes of persons below the at-risk-of-poverty line and the at-risk-of-poverty line (cut-off point: 60% of median equivalised income after social transfers) between 2002 and 2006.

Source of data: Eurostat Database.

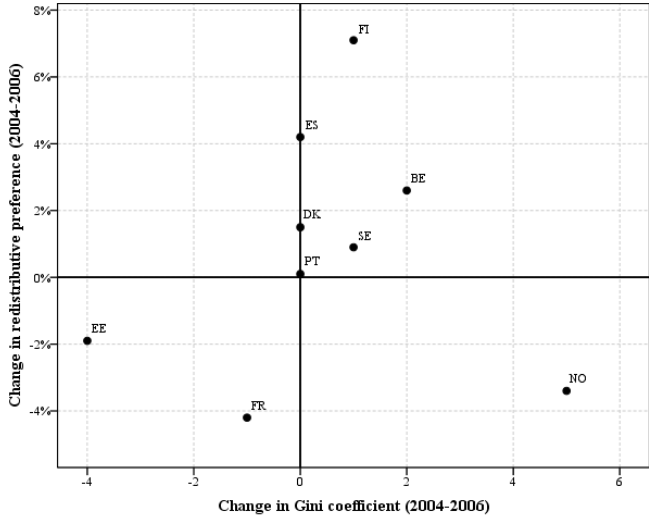
From all the above, the *poverty gap* seems to correspond the most to redistributive claims. In countries where the severity of poverty is low or medium (below 23%), there is a fairly large variance of redistributive preference. However, there is a clear tendency that a more severe poverty will lead to higher redistributive claims (most likely via more intense perceptions of inequalities).

### Change in inequality measures and in redistributive preference

We made an attempt to follow (country level) *longitudinal changes* in attitudes and in inequalities. Figures 14 and 15 show the results for the Gini and for the poverty rate (unfortunately, only for a subset of the European countries, due to lack of data). Our expectation is that where inequality or poverty changes, the redistributive attitude will change as well. In addition, we might expect consistent changes (i.e. rising Gini or poverty rate leading to rising redistributive demands). However, the results are mixed.

The *rise of Gini* corresponds to an increase in redistributive preferences in Finland and (to a smaller extent) Belgium, while a decrease in inequality corresponds to lower levels of redistributive claims in Estonia and France (Figure 14). However redistributive claims may increase in a no-Gini-change scenario (like in Spain, for example) while it also happens that despite a relatively sizeable Gini increase, a decrease in revealed preferences for state redistribution can be measured (like in Norway).

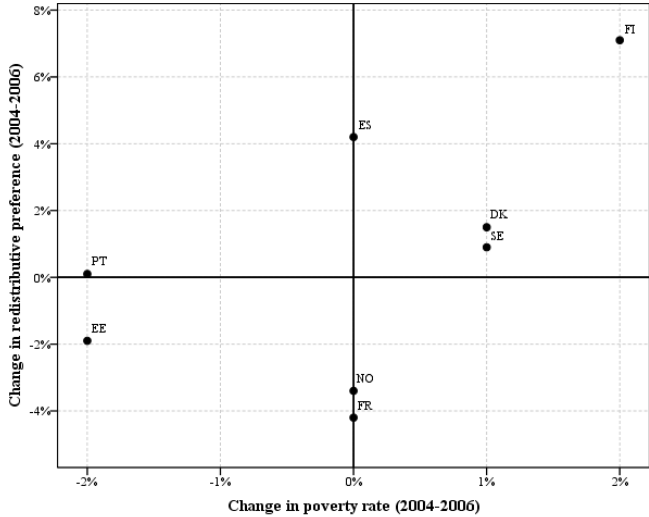
**Figure 14: The change of Gini and redistributive preference**



Note: Y-axis: The percentage point change in redistributive preference between 2004/2006 (the share of population who “agree strongly” or “agree” to the question whether “Government should reduce differences in income levels”).  
 Source of data: ESS 2nd wave (2004) an ESS 3rd wave (2006).  
 X-axis: The percentage point change in Gini coefficient between 2004 and 2006.  
 Source of data: Eurostat Database.

We find somewhat less ambiguous results for the *change in poverty rate* and the change in redistributive claims. Increased poverty associates with higher demand for redistribution in Finland, while decreased poverty rates are coupled with somewhat lower redistributive preferences. However, the high variance of redistributive preference in the no-change-of-poverty country grouping appears to be puzzling again.

**Figure 15. The change of poverty rate and redistributive preference**



Note: Y-axis: The percentage point change in redistributive preference between 2004/2006 (the share of population who “agree strongly” or “agree” to the question whether “Government should reduce differences in income levels”).  
 Source of data: ESS 2nd wave (2004) an ESS 3rd wave (2006).  
 X-axis: The percentage point change in at-risk-of-poverty rate (cut-off point: 60% of median equivalised income after social transfers) between 2004 and 2006.  
 Source of data: Eurostat Database.

## Summary of country average comparisons

From the above we can conclude that

- inequality attitudes correspond only loosely to actual inequality levels
- the level (and severity) of poverty seems to be a closer proxy to what people associate with “inequality” as the correlation for poverty rate and poverty gap is higher with inequality (in)tolerance
- hence, people most likely make their judgements about levels of inequalities based on perceived poverty levels, rather than on the basis of some abstract inequality concepts
- using period averages may help sorting out distortions caused by measurement error
- a change in poverty levels may provoke higher redistributive preferences but much depends on national contexts

In the next section we turn to individual level explanations.

## IV. Socio-economic correlates of inequality intolerance

### Theoretical context

Attempts at explaining individual differences in attitudes towards inequalities and preferences for redistribution highlight the importance of self-interest and of subjective determinants such as the role of culture and political values<sup>1</sup>. The median-voter theory of income redistribution (e.g. Meltzer and Richard, 1981) postulates a rational voter, who supports redistribution when he benefits from it and refutes it otherwise. According to this hypothesis, affluent people will not support redistribution and are more likely to accept higher levels of inequalities, because redistribution would lower their incomes. Low-income people benefit from state redistribution, thus support such programs and are expected to be more intolerant towards inequalities. Empirical results about the effect of income status on opinions about inequality and preferences for redistribution do generally show the postulated relationship, but the relationship is not particularly strong. Other factors than actual income situation seem to be important in explaining people's opinions on inequality and preferences for redistribution. Candidates proposed by the literature were experience of income changes in the past, expectations of income mobility in the future and political values and beliefs.

Analyses of attitudes towards inequalities and redistribution argue that income situation of the individual should be conceived dynamically, that is, not only referring to the respondent's actual place in the income distribution but including also mobility experiences in the past or expectations about income situation and mobility in the future. For example, low-income individuals might accept high levels of inequalities if they are expecting upward mobility. The mechanism was described by Albert Hirschman (1973) in his analyses of the “tunnel effect”,

---

<sup>1</sup> The theories reviewed here were sometimes formulated in relation to attitudes to inequality and sometimes in relation to preferences for redistribution. These two attitudes are closely linked, but are not identical. People who think inequalities are too large are more likely to support government redistribution, but this is not necessary. One might think that government redistribution at the end does more harm than good and the only redistribution that is good for society comes about by private charity and donation.

arguing that income growth of others may induce optimism for us even if we are still in a stagnant phase. The argument is illustrated by an analogy of an imagined traffic jam in a tunnel. After a period of waiting, we might be happy to see the other lane starting to move. However, as time passes and we keep standing, the gratification of the situation in which others get better might soon turn to become a bitterly frustration (leading, maybe, to illegitimate actions as crossing double lines, for example). At first sight, we assume our fortunes also rising soon as we see others getting better. Should we stay in the next phase, recognition of growing distances (inequalities) between others and us will provoke discontent.

Income status and income change, whether objective or subjective, past, present or expected are however not the only factors influencing attitudes about inequality. Preferences, values, culture are also important. For example, intolerance for inequality might also be a consequence of risk aversion. A less unequal income distribution means that people have to fear smaller income drops in case of adverse events, consequently more risk averse individuals might be more intolerant towards inequalities.

Individuals also have views about social justice, about what constitutes a justifiable level of inequality or poverty, independently of the individual's own income situation. For example, someone sharing the libertarian view of social justice will accept all inequalities generated by the operation of competitive markets, while those sharing more egalitarian views of social justice accept only lower levels of inequality and will support income redistribution. Social justice considerations do not only pertain to the level of inequalities, but also to the way those inequalities have come about. Inequalities might be considered legitimate if they result from social processes which people accept to be just or fair. For example people might consider fortunes resulting from one's creativity and effort as legitimate while fortunes obtained by luck or corruption as illegitimate. Opinions about reasons of inequality or poverty might thus be important in explaining people's attitudes to a given level of inequality (poverty).

Preferences for redistribution are also strongly influenced by cultural traditions. Luttmer and Singhal, in their study on migrants, are able to separate the impact of cultural values of the country of origin from those of the country of residence (Luttmer and Singhal 2008). They find evidence for prevailing differences, which persist strongly into the second generation as well. Socialization effects might also be evoked when examining the hypothesis of a "socialist legacy", that is a stronger preference for equality in former Eastern Block countries. Preferences of cohorts that have grown up during the communist era were formed in an era of low inequality, income security and egalitarian ideology. These cohorts might maintain their more egalitarian preferences even after the transition to market economy that has brought about an important increase in inequalities.

### **Socio-economic correlates of inequality intolerance**

In this section differences in inequality tolerance across demographic groups, social status groups and groups defined by opinions about causes of inequality are examined. Here the focus is on the description of two-way relationships between a given variable and inequality tolerance, while multivariate analysis is performed in the following section. Higher income individuals are expected to accept higher inequalities. The effect of main demographic attributes (gender, age, education) on attitudes to inequality depends both on the income situation of these groups and also on differences in values and views about social justice among these groups. For example empirical studies found US women supporting redistribution more strongly than men (Alesina and Giuliano, 2009). Education is a strong predictor of income situation, but in previous studies education proved to be related to attitudes even after controlling for income. More educated individuals seem to prefer higher inequality than the less educated, possibly because they see their high income as reward for effort or they expect income increase in the future (Alesina and Giuliano, 2009). Age is also

related to income, but it can also reflect value differences. The elderly often benefit from government redistribution and thus are more in favour of redistribution and equality of incomes. Age might also be related to values: different cohorts have different social experiences that influence significantly their political preferences and views about social justice.

We measure attitudes to inequality again by agreement with the statement “income differences between people are far too large”. Table 1 shows the distribution of responses on this question. Every second people (52%) from the 27 countries of European Union agree totally with this question, but there are large differences among the countries (in Denmark only 27% but in Latvia 83%). Interestingly every ex-communist country (indicated with bold) falls below the EU average. The disparity of people agreeing the question is greater among ex-communist countries than among the other EU countries. Poland falls very close to the EU average, while the population of Estonia, Hungary and Latvia are approximately with 30 percentage point more sensitive to income differences.

**Table 1: The distribution of attitudes to inequality**

	<b>Nowadays income differences between people are far too large</b>			
	<b>Totally agree</b>	<b>Tend to agree</b>	<b>Tend to disagree</b>	<b>Totally disagree</b>
DK	27,0%	36,7%	27,0%	9,3%
NL	37,1%	33,9%	22,3%	6,7%
AT	38,5%	49,6%	9,8%	2,2%
IT	39,5%	48,8%	9,9%	1,8%
UK	40,0%	44,1%	13,1%	2,8%
MT	40,0%	40,0%	20,0%	0,0%
SE	41,6%	35,7%	18,7%	4,0%
BE	46,0%	40,5%	10,0%	3,5%
IE	49,3%	40,2%	9,6%	1,0%
ES	49,5%	41,6%	8,1%	0,8%
LU	52,0%	36,0%	12,0%	0,0%
PT	52,5%	41,9%	4,9%	0,8%
EU27 average	52,7%	37,1%	8,5%	1,7%
FI	53,1%	34,7%	10,1%	2,1%
<b>PL</b>	<b>54,5%</b>	<b>37,2%</b>	<b>6,6%</b>	<b>1,7%</b>
<b>CZ</b>	<b>55,4%</b>	<b>37,9%</b>	<b>6,2%</b>	<b>0,5%</b>
FR	59,1%	35,1%	5,1%	0,8%
<b>SK</b>	<b>59,2%</b>	<b>36,2%</b>	<b>3,8%</b>	<b>0,7%</b>
DE	62,6%	30,0%	6,5%	0,8%
<b>RO</b>	<b>67,4%</b>	<b>27,5%</b>	<b>4,0%</b>	<b>1,0%</b>
CY	69,0%	26,2%	4,8%	0,0%
<b>LT</b>	<b>71,5%</b>	<b>23,1%</b>	<b>4,3%</b>	<b>1,1%</b>
GR	72,0%	23,5%	4,5%	
<b>BG</b>	<b>73,5%</b>	<b>24,1%</b>	<b>2,1%</b>	<b>0,2%</b>
<b>SI</b>	<b>75,7%</b>	<b>20,0%</b>	<b>4,3%</b>	<b>0,0%</b>
<b>EE</b>	<b>75,9%</b>	<b>17,2%</b>	<b>5,2%</b>	<b>1,7%</b>
<b>HU</b>	<b>77,2%</b>	<b>17,9%</b>	<b>3,8%</b>	<b>1,1%</b>
<b>LV</b>	<b>83,2%</b>	<b>13,7%</b>	<b>2,1%</b>	<b>1,1%</b>

Note: Countries are ranked in ascendant order by the category “totally agree”

Source of data: Special Eurobarometer, 2009.

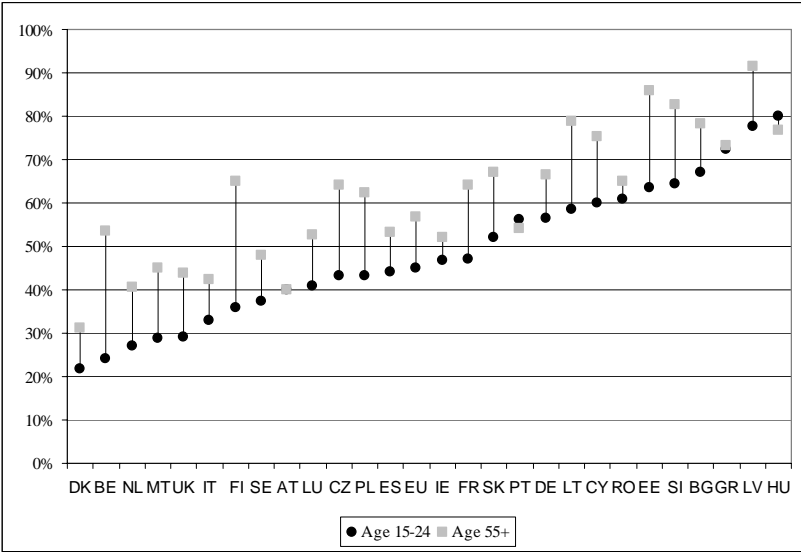
In the following, every graph shows how the percentage of those totally agreeing with the statement that, „income differences between people are far to large” differs in the given

social groups. Among demographic attributes the role of gender, age and number of children in the household are considered here.

Opinions about inequality *differ only little between men and women*. In the majority of the EU countries women are more intolerant towards inequality than men. The difference is the most important in Finland where 58% of women agree that income differences are too large, while this is true for 48% of men. In the case of France, Portugal, Estonia, Netherlands, Czech Republic, Latvia, Sweden we observe a 7-8 point difference. In Malta and Cyprus men are more intolerant towards inequalities by 7 and 5 percentage points.

The *elderly are more intolerant* towards inequalities than the young in virtually all of the countries (Figure 16). The only exceptions are Greece, Austria, Portugal and Hungary where there is no significant difference between inequality attitudes among these age groups. The difference in inequality intolerance is highest in case of Belgium and Finland, where the percentage of those thinking that inequalities are too large is 29 points higher in the case of the elderly. The difference is around 20 points in the case of Estonia, Lithuania, Poland, the Czech Republic and Slovenia and it exceeds ten points in a large majority of the countries. A plausible explanation for the importance of age in explaining inequality attitudes could be that the elderly generally benefit from income redistribution. On the other hand, income differences between age groups are not important in most of the EU states, and inequality between age groups accounts for relatively small part of inequality, with perhaps the exception of the Nordic countries. Consequently, it seems to be difficult to explain the role of age solely in terms of self-interest.

**Figure 16. Inequality intolerance by age**

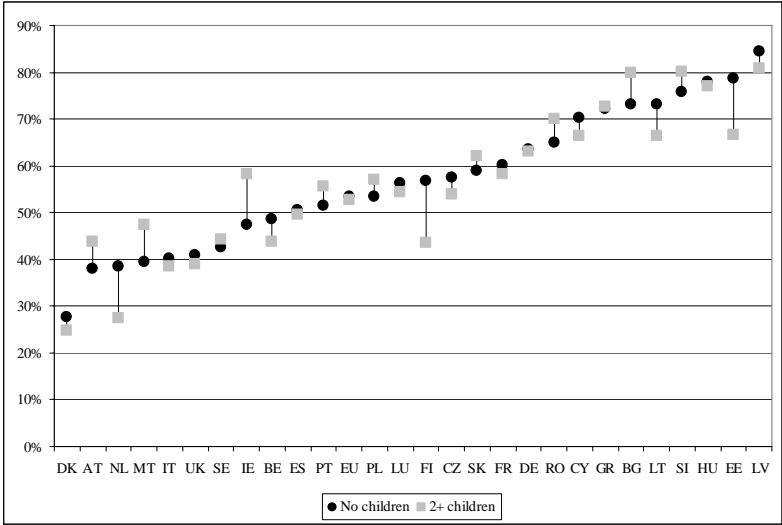


Note: Percentage of those totally agreeing that „income differences between people are far too large”.  
 Source of data: Special Eurobarometer on poverty and social exclusion, 2009.

*Having children* is an important correlate of poverty in many of the countries considered, but it *does not seem to make a difference in attitudes towards inequalities* in most of the countries (Figure 17). Moreover, among the countries where having children makes a difference, it is often those without children who are more intolerant towards inequalities. In Finland, Estonia and the Netherlands the percentage of those who think that inequalities are too large is 11-13 points higher among those not having children. In Ireland, Malta, Bulgaria and Austria the relationship is more in line with the expectations: the share of those who are

intolerant towards inequalities is 6-11 points higher among those who have two or more children.

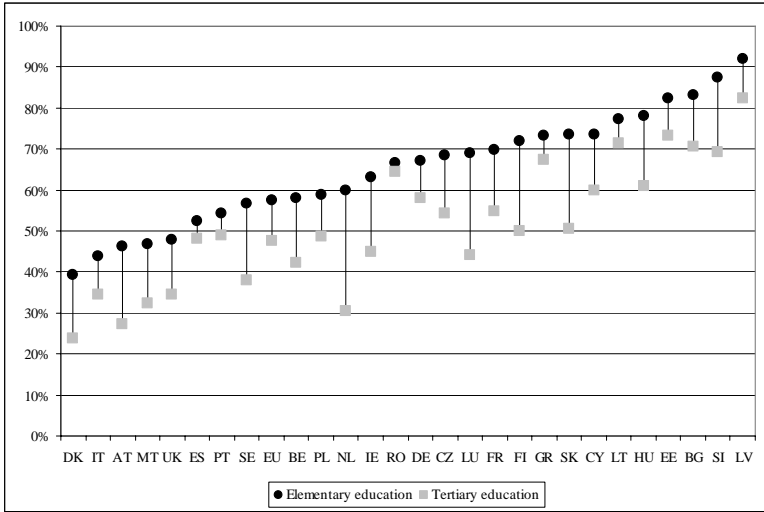
**Figure 17. Inequality intolerance by number of children in the household**



Note: Percentage of those totally agreeing that „income differences between people are far too large”.  
 Source of data: Special Eurobarometer on poverty and social exclusion, 2009.

Attitudes to inequality are different among social groups with different *education* (Figure 18). Those with lower education are more intolerant towards inequalities in all EU countries. The highest difference is observed in the Netherlands, where the percentage of those thinking that inequalities are too large is 30 points higher in the case of those with elementary education (60%) than among those with a university diploma (30%). Finland, Slovakia and Luxembourg also show differences above 20 points. The difference is between 10 and 20 points in the majority of the countries, while lowest differences were detected in the case of Romania, Spain, Portugal, Lithuania and Greece. In these countries inequality intolerance among the low educated is only 2-6% higher than among university graduates. This is somewhat surprising since in these countries education is of prime importance in explaining inequalities.

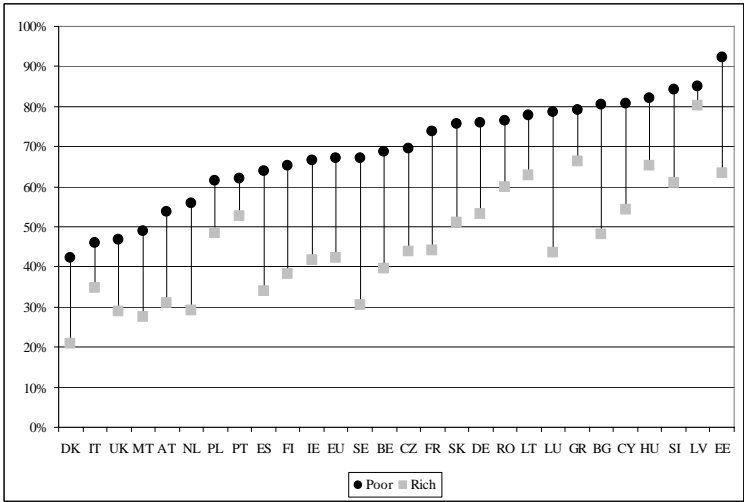
**Figure 18. Inequality intolerance by education**



Note: Percentage of those totally agreeing that „income differences between people are far to large”.  
 Source of data: Special Eurobarometer on poverty and social exclusion, 2009.

In the Eurobarometer survey data on household income is not available. In order to see differences in attitudes according to household economic status, a *measure of subjective status* is used here (Figure 19). This is based on the question where respondents described their situation as “poor”, “rich” or “neither poor nor rich”. Those defining themselves as “poor” tolerate inequalities less than those defining themselves as “rich” in every country. The difference is largest in Sweden, where 67% of the poor totally agree that inequalities are too large, while in the case of the rich the corresponding percentage is only 30%. The difference is above 30 percentage points also in the case of Spain, France, Bulgaria and Luxembourg, while approximately the half of the countries show a difference between 20 and 30 points. Lowest difference is observed in Latvia and Portugal, where inequality intolerance is less than ten points higher among the poor than among the rich. Italy, Greece, Poland and Lithuania also show relatively small differences, with inequality intolerance among the poor exceeding that among the rich by 10-15%.

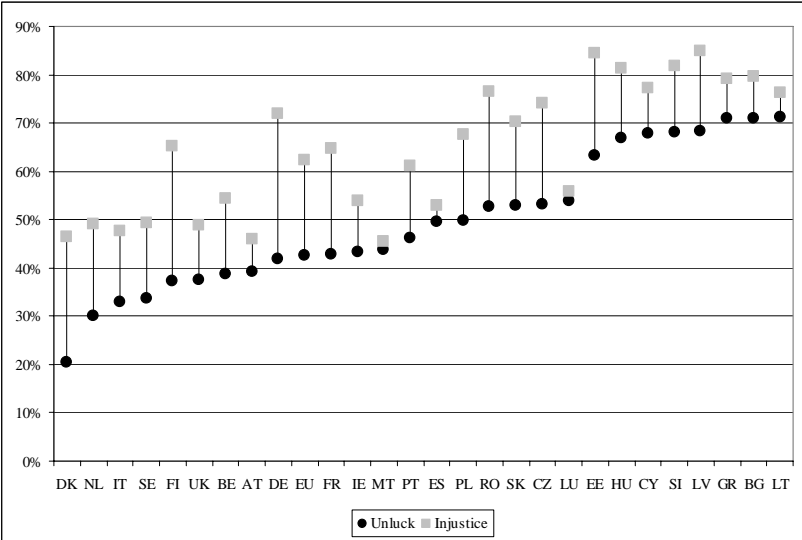
**Figure 19. Inequality intolerance by subjective income position**



Note: Percentage of those totally agreeing that „income differences between people are far to large”.  
 Source of data: Special Eurobarometer on poverty and social exclusion, 2009.

The literature reviewed before highlights the importance of considering *political values, ideology* when one tries to explain attitudes towards inequalities. Here the role of beliefs about causes of poverty will be considered (Figure 20). The Eurobarometer asks the respondents whether the most important reason of poverty is “laziness”, “social injustice”, “ill-luck” or “poverty is an inevitable part of progress”. The largest difference in inequality intolerance is generally observed between those who think that poverty is a consequence of bad luck and those who believe it to be a result of social injustice, these two categories are shown on the following chart. In all of the countries those who see justice as a reason for poverty are more intolerant towards inequalities. The largest difference is observed in Germany, where 72% of those believing injustice as a reason of poverty think that inequalities are too large, while the corresponding percentage is 42 the other group. Also Denmark and Finland show differences above 25%, and Romania, France, Estonia, Czech Republic exhibit a difference between 20 and 25%. In the majority of the countries the difference is between 9 and 19%, while the lowest differences (below or equal 5% points) were detected in Lithuania, Spain, Luxembourg and Malta.

**Figure 20. Inequality intolerance by beliefs about reasons of poverty**



Note: Percentage of those totally agreeing that „income differences between people are far to large”.  
 Source of data: Special Eurobarometer on poverty and social exclusion, 2009.

To sum up: respondent’s age, education, subjective income status and beliefs about reasons of poverty do make a difference in attitudes to inequality but this effect differs among EU member states. In the next section we investigate the role of these factors by multivariate techniques in order to see effects of variables independently from the effect of income or economic status.

**Multivariate model of inequality intolerance**

Here we perform a logit regression analysis of attitudes towards inequalities. The dependent variable in our analysis is the same as before, that is the share of people who agreed totally with the statement that “income differences between people are far too large”. The independent variables are listed in Table 2. The basic model contains only country dummies, with the reference category of Denmark, where the mean of the dependent variable is the lowest. Model 2 also controls for demographic attributes, employment status and a status index, measuring household wealth. Demographic attributes included are gender, age (four category, reference 55+), type of settlement (reference: village), type of household

(reference: single) and household size (the number of persons living in the household and number of children under the age 14). To control for employment we used a three categorical variable for current occupation (self-employed, employed, not working, with the reference of not working) in the equation. Since there is no variable measuring appropriate the objective wealth, we created an index taking the sum of z-scores of the following goods in each country: TV, DVD player, music CD player, computer and car.

Model 3 also includes subjective measures of economic status and expectations regarding future income changes. Subjective status was measured by the respondent's own description of the situation of the household as "poor", "rich" or "neither poor nor rich" (the later is the reference category). To measure future expectations we use the question about expectations of financial situation of household in the next twelve month. We categorised the answers in three groups: people who "expect a better financial situation", people who "expect a worse financial situation" and people who think their "financial situation will be the same" (taken as the reference category).

In Model 4 we also included indicators of people's beliefs about reasons of poverty together with measures of solidarity and anomie. We expect differences in people's inequality tolerance by reasons attributed to poverty. The Eurobarometer asks respondents opinions whether the most important reason of poverty is "laziness", "social injustice", "ill-luck" or "poverty is an inevitable part of progress". The index of solidarity contains the sum of country-z-scores of the following activities (1 if the respondent has done it, and 0 otherwise): "Donating money to charities", "Working as a volunteer in charities or association", "Giving poor people clothes", "Helping poor people find and access shelters", "Giving poor people some money", "Buying papers or other items sold by homeless people", "Giving poor people food". Anomie was measured with a dummy variable, which was equal to 1, if the respondent agreed, or agreed totally with the question: "You feel left out of society".

Previous research has shown that history (especially communist past) has a significant impact on inequality tolerance. In the fifth step we entered a dummy variable equals to 1 in case of ex-communist countries and 0 otherwise.

**Table 2. The type of independent variables in the logit equation**

<b>Basic model</b>	<b>Country dummies (reference: DK)</b>
Demography	Gender, age, schooling, type of settlement, household type, household size
Employment and material status	Type of employment, material status index
Subjective status and expectations	Subjective status, future expectations
Attitudes	Reason of poverty, solidarity, anomie
Cultural heritage	Communist dummy

In Table 3. we summarized the results of the estimation of five logit equations, while country dummies are shown in Table 1. of the Appendix. According to Model 1, there are quite significant differences between countries, country dummies all show stronger intolerance towards inequalities than respondents in Denmark (see in the Appendix).

Demographic explanatory variables Model 2 shows male respondents less intolerant towards inequality than women, but the gender effect becomes insignificant when attitudes are also incorporated in the model. The age effect is robust over all specifications: the youngest age group (15-24 years old) is significantly less intolerant to inequalities than the elderly. Interestingly the 40-54 year old group also seems to be less intolerant than the elderly. The effect of marital status is also significant in all of our models. Those who are

married/cohabiting (and also the widow) show more tolerance towards inequalities than the single.

Surprisingly, the effect of education is never significantly different from zero. In Model 2 we see a relatively high marginal effect in the case of the tertiary educated, but it is not significant, presumably to high standard error. The effect of employment status is robust in all specifications: those not working are significantly more intolerant towards inequalities than the employed or the self-employed. One of the most interesting finding of the analysis is that our index of economic status does not have any influence on our dependent variable, but subjective status seems to have strong explanatory power (Model 3 and onwards).

In Model 4 attitudinal variables are also included in the regression. Those who perceive social injustice behind poverty are more intolerant to income inequalities, compared to those persons who think reason of poverty is ill luck. Those showing more solidarity in the form of donations, charity and volunteering are more intolerant towards inequalities, while anomie does not have a significant effect. Contrary to the “hard variables”, subjective variables perform much better. The pseudo R square is increased relatively the most by the group of attitude variables, and the attribution of poverty seems to be a very good explanatory variable (Model 5). In the final model a dummy variable for ex-communist countries has been introduced. Ex-communist heritage is significant: respondents living in these countries are more intolerant towards inequalities than respondents who are similar to them in every respect but live in non-communist countries.

**Table 3. Logit regression results (marginal effects)**

	Model 1	Model 2	Model 3	Model 4	Model 5
Male		-1,84*	-1,88*	-1,41	-1,41
Age (15-24)		-8,75***	-10,93***	-9,23***	-9,31***
Age (25-39)		-0,52	-3,45**	-1,86	-1,85
Age (40-54)		-1,01	-3,19**	-2,61*	-2,55*
Primary education		0,95	3,24	3,53	3,43
Secondary education		-1,13	2,28	1,31	0,95
Tertiary education		-6,72	-1,15	-2,81	-3,19
Small town		-0,36	-0,65	-1,09	-1,17
Large town		-2,26*	-1,14	-1,19	-1,46
Married/live together		-5,27***	-4,55***	-4,36***	-4,46***
Divorced		-1,77	-2,73	-2,42	-2,58
Widow		-8,91***	-8,22***	-6,33***	-6,61***
Household size		1,03*	1,33**	1,45**	1,46**
Number of children under 14		-1,62**	-1,86**	-2,17**	-2,13**
Self employed		-10,49***	-7,33***	-7,31***	-7,33***
Employed		-4,66***	-2,94**	-3,24**	-3,27**
Status index		0,04	0,17	-0,02	-0,01
Subjective status (poor)			7,91***	6,35***	6,26***
Subjective status (rich)			-9,13***	-8,19***	-8,07***
Future expectation (will better)			1,26	0,52	0,48
Future expectation (will worse)			3,34**	1,63	1,49
Reason of poverty (laziness)				0,88	0,76
Reason of poverty (injustice)				15,13***	14,95***
Reason of poverty (progress)				2,95*	2,8
Solidarity index				0,64***	0,66***
Feel left out of society				-0,35	-0,46
Ex-communist countries					10,16***
Country dummies	Yes	Yes	Yes	Yes	Yes
N	26200	23307	21862	20232	20232
Pseudo R2	0,0397	0,0517	0,0624	0,0791	0,0802
Log pseudo-likelihood	-17402,1***	-15249,7***	-14134,2***	-12812,3***	-12798,0***

Dependent variable: the share of people who agree totally the question "income differences between people are far too large".

The table contain the marginal effects (Bartus:2005) of each independent variable. (Partial effects mean the change in the expected value of the dependent variable when the *i*th independent variable increases by 1 unit while all other variables remain unchanged.)

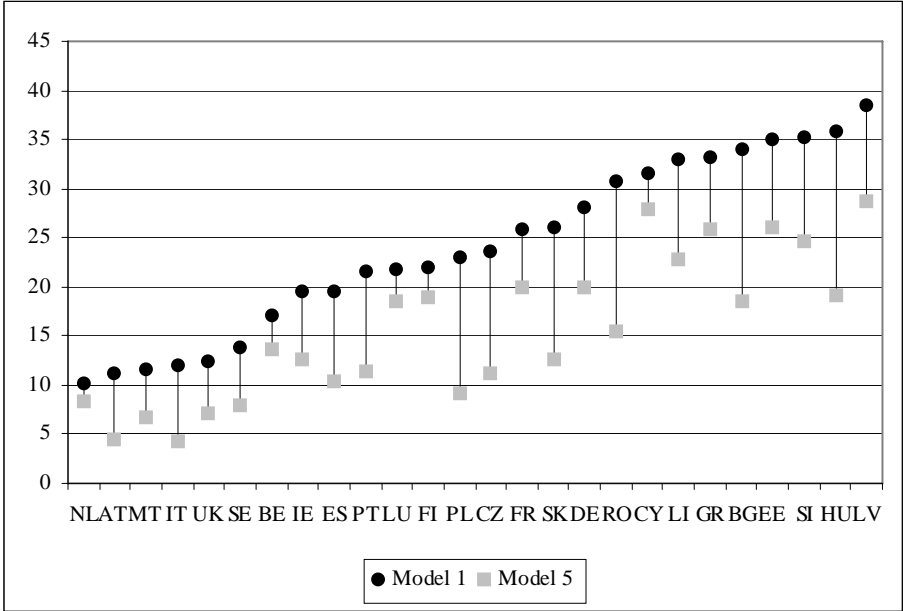
Coefficients with \*\*\* are different from zero at the significance-level of 0,01, coefficients with \*\* are different from zero at the significance-level of 0,05, coefficients with \* are different from zero at the significance-level of 0,1.

Omitted categories: female, age 55+, no full time education, village, single, not working, subjective status (neither poor nor rich), future expectation (will be the same), reason of poverty (ill-luck).

Observing the country differences in all the five models we can establish significant differences among countries. All the country effects are significant in Model 1 and they are also significant in Model 5, but the marginal effects of country dummies are smaller in Model 5 because of the control variables. On Figure 6 we depicted the marginal country effects

both in Model 1 and Model 5 and indicated the decline between them – which is the effect of control variables. All countries where the decline is larger than 10 percentage points (except for Portugal) are former communist countries. The results indicate that our set of explaining variables perform better in the ex-communist countries (where the value of inequality attitudes is larger). On the other hand our results show the need for new testable hypothesis in terms of inequality-attitude especially in old member states of EU.

**Figure 21. The decline of fix country effects between Model 1 and Model 5**



## V. Summary

We analysed inequality attitudes in this paper. The 2009 Special Eurobarometer survey proved to be a useful source to observe cross country differences in this respect. Attitude variables were confronted with „real” inequality measures as estimated on the basis of various income and living conditions surveys (most notably the EU-SILC survey). The major findings of this research note are as follows:

- European societies differ very much in their general attitudes towards inequalities. The share of people most dissatisfied with the overall level of inequality is over 70% in Latvia, Hungary, Slovenia, Estonia, Bulgaria, Greece and Latvia while it is below 40% in Denmark, Netherlands, Austria, Italy and Malta.
- The “preference for (vertical) redistribution” is strongest in some Eastern European countries, including Hungary and Latvia, while in some other former transition countries this share shows among the lowest in Europe (see for example the data for Czech Republic and Slovakia)
- Inequality intolerance and redistributive preference correlates, with some exceptions. In Greece, Hungary and Cyprus, the frustration with inequality levels is coupled with a high strain on government, while in Poland, Slovakia and the Czech Republic the relatively lower level of inequality intolerance is coupled with some of the lowest level of popular redistributive preferences.

- Inequality attitudes correspond only loosely to actual inequality levels. The level (and severity) of poverty seems to be a closer proxy to what people associate with “inequality” as the correlation for poverty rate and poverty gap is higher with inequality (in)tolerance.
- On individual level, we found significant age differences. The younger in general accept more of inequality than the older. Gender differences (males being less inequality averse) disappear as attitudes and ideological commitments come into the picture. Education of the respondent is not significant in the explanation of inequality intolerance.
- Contrary to the “hard variables”, subjective variables perform much better. The pseudo R square is increased relatively the most by the group of attitude variables and the attribution of poverty seems to be a very good explanatory variable. Ex-communist heritage is significant: respondents living in these countries are more intolerant towards inequalities than respondents who are similar to them in every respect but live in non-communist countries.

## VI. References

- Alesina, A.F. and P. Giuliano (2009), "Preferences for Redistribution", NBER Working Paper 14825, March 2009.
- Alesina, A, R. Di Tella and R. MacCulloch (2004), "Inequality and happiness: are Europeans and Americans different?," *Journal of Public Economics*, Elsevier, vol. 88(9-10), pages 2009-2042, August.
- Bartus, T. (2005), "Estimation of marginal effects using margeff" in *The Stata Journal*, (5) 3: 309-329.
- Förster, M. and M. M. d'Ercole (2005), 'Income Distribution and Poverty in OECD Countries in the Second Half of the 1990s.' *OECD Social, Employment and Migration Working Papers No. 22*. Paris: OECD. <http://www.oecd.org/dataoecd/48/9/34483698.pdf>, 6th of July 2005.
- Gijsberts, M. (2002), "The Legitimation of Income Inequality in State-socialist and Market Societies", *Acta Sociologica*. Vol. 45. pp. 269–285.
- Hirschman, A. O. (1973), "Changing Tolerance for Income Inequality in the Course of Economic Development", *Quarterly Journal of Economics*, 87 (November). pp. 544–66.
- Hirschman, A. O. (1970), "Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States", Cambridge, MA: Harvard University Press.
- Kelley, J. & K. Zagorski (2004), "Economic Change and the Legitimation of Inequality: The Transition from Socialism to the Free Market in Central-East Europe", in *The shape of social inequality: stratification and ethnicity in comparative perspective* (ed by D. B. Bills). *Research in Social Stratification and Mobility*, Vol 22. pp. 319-364.
- Lelkes O. (2009), "Attitudes to inequality" in I. G. Tóth (ed), *Tárki European Social Reports 2. Economic Attitudes*, Budapest.
- Lelkes O., M. Medgyesi, I. G. Tóth and T. Ward (2009), "Income distribution and the risk of poverty" in Ward et al (ed), Ch. 1. pp 17-44.
- Lübker M. (2004), "Globalization and perception of social inequality", *ILO World Commission on the Social Dimension of Globalisation, Policy Integration Department Working Paper No. 32*.  
[http://www.ilo.org/public/english/bureau/integration/download/publicat/4\\_3\\_320\\_wp-32\\_wcsdg.pdf](http://www.ilo.org/public/english/bureau/integration/download/publicat/4_3_320_wp-32_wcsdg.pdf)
- Meltzer, A.H. and S.F. Richard (1981), "A Rational theory of the Size of Government", *The Journal of Political Economy* (89) 5:914-927.
- Murthi M. and E.R. Tiongson (2008), "Attitudes to Equality: The Socialist Legacy Revisited", *The world Bank Policy Research Working Paper 4529*.
- Osberg, L. and T. Smeeding (2006), "Fair" Inequality? Attitudes toward pay Differentials: The United States in Comparative Perspective", *American Sociological Review*, Vol. 71. pp. 450–473.

Tóth, I. G. (2006), "Tolerance for inequalities in measured and perceived income distribution: tunnel effect, reference group shifts and kill biased transition in Hungary, 1987-2005", Paper Prepared for the 29th General Conference of The International Association for Research in Income and Wealth, Joensuu, Finland, August 20-26, 2006

Suhrcke, M. (2001), "Preferences for Inequality: East vs. West", UNICEF Innocenti Working Paper 89.

Ward, T. O. Lelkes, H. Sutherland, I. G. Tóth, (2009), "European Inequalities: Social Inclusion and Income Distribution in the European Union", Budapest, Társi

## VII. Appendix Table 1: Marginal effects of country dummies from logit regressions in Table 3

	Model 1.	Model 2.	Model 3.	Model 4.	Model 5.
AT	11,19***	8,22***	8,06***	4,38*	4,4*
BE	17,17***	16,53***	16,79***	13,72***	13,68***
BG	34,02***	32,67***	29,16***	25,42***	18,58***
CY	31,65***	29,63***	29,03***	27,89***	27,81***
CZ	23,52***	22,32***	21,22***	19,29***	11,19***
DE	28,16***	25,43***	24,85***	21,63***	19,97***
EE	35***	33,98***	33,11***	31,33***	26,04***
ES	19,63***	15,34***	14,92***	10,36***	10,29***
FI	21,93***	22,41***	22,4***	18,93***	18,91***
FR	25,85***	24,49***	23,66***	19,98***	19,95***
GR	33,23***	30,66***	29,2***	25,88***	25,88***
HU	35,86***	32,52***	29,8***	25,96***	19,11***
IE	19,46***	17,01***	16,38***	12,54***	12,53***
IT	12,1***	8,46***	8,58***	4,26*	4,24*
LIT	32,94***	32,38***	31,43***	28,8***	22,81***
LU	21,8***	20,49***	20,69***	18,61***	18,53***
LV	38,47***	36,61***	35,81***	33,27***	28,65***
MT	11,51***	7,75***	8,85***	6,84**	6,8**
NL	10,08***	8,75***	10,36***	8,31***	8,26***
PL	22,99***	21,38***	19,89***	17,57***	9,11**
PT	21,66***	17,53***	14,6***	11,43***	11,34***
RO	30,69***	28,79***	26,67***	22,93***	15,51***
SE	13,81***	12,01***	11,57***	7,91***	7,95***
SI	35,32***	34,11***	33,12***	30,34***	24,69***
SK	25,99***	24,1***	23,21***	20,58***	12,65***
UK	12,52***	9,58***	9,01***	7,01***	7,03***

Dependent variable: the share of people who agree totally the question “income differences between people are far too large”.

The table contain the marginal effects of each independent variable. (Partial effects mean the change in the expected value of the dependent variable when the *i*th independent variable increases by 1 unit while all other variables remain unchanged.)

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.

Omitted country Denmark.

## VIII. Annex 1. Data bases used in the analysis

The EUROBAROMETER (EB) initially was the name of the harmonized opinion polls commissioned by the European Commission, conducted from the beginning of the 1970s in the member states of the European Community, with the aim of analysing social and political changes. Later, the surveys came to cover the member states of the European Union; they are conducted twice a year – in the spring and the autumn. From the 1990s, these surveys, known as “Standard Eurobarometer” surveys were complemented by polls that specifically targeted candidate countries (“Candidate Countries Eurobarometer”), and by surveys that analysed specific or special topics (“Special Eurobarometer”, “Flash Eurobarometer”). The actual data for Standard and Special Eurobarometer surveys are accessible (upon registration) on the GESIS website at: <http://zacat.gesis.org/webview/index.jsp>.

In our analysis we used Eurobarometer Survey On Poverty And Social Exclusion (Special Eurobarometer 321 / Wave 72.1). The survey was carried out in September 2009 for preparing the European Year Against Poverty (2010). The research's aim is to shed some light on poverty and social exclusion. The survey examined, among other things, people's awareness of the extent of poverty within the European Union, the perceived personal and societal reasons behind poverty. People's perception about the urgency of governmental action to combat poverty is also examined, together with the level of administration felt to be mostly responsible for it. The full report, which analyse the data of main issues of the survey, is available at: [http://ec.europa.eu/public\\_opinion/archives/ebs/ebs\\_321\\_en.pdf](http://ec.europa.eu/public_opinion/archives/ebs/ebs_321_en.pdf).

Creating the index of income-intolerance we used the variable *qa14\_2* (which is also the dependent variable in section 3). All our results are weighted with the variable *w22*, which is the weight for EU27 on the basis of gender, age, region and size of locality in each country.

The EUROPEAN SOCIAL SURVEY (ESS) was launched with the support of the European Commission and aims to monitor the changing attitudes of 30 (mostly European) countries. There are four completed “rounds” of this survey (2002, 2004, 2006 and 2008). Each round contains certain permanent parts, as well as some that change. In 2002, the changing modules were the attitudes towards immigrants and refugees, and the position of individuals in social and non-governmental organizations (Citizenship, Involvement and Democracy); in 2004, the changing modules were on family and work, healthcare and economic ethics; in 2006, there were changing modules on the timing of events in people's personal careers, and on personal and social well-being, while in 2008 welfare attitudes in a changing Europe and experiences and expressions of ageism were included in the changing model. The last (fourth) wave of the survey was published after charring out analysis.

Measuring redistributive preference we used the variable *gincdif*. The cases are weighted with the variable *dweight*, which corrects for these slightly different probabilities of sample-selection among countries. All the data and supplementary information about the survey (including questionnaires, fieldwork-reports) are accessible on the research website, at: [www.europeansocialsurvey.org/](http://www.europeansocialsurvey.org/).