

Redistributive taxation in democracies: Evidence on people's satisfaction

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Abstract

Theories of political redistribution are tested using data collected in three phases of the International Social Survey Programme. Individuals categorized as having high, middle, or low incomes were asked whether they consider the overall tax burden in their countries too high, too low or about right. Very few citizens indicated that they were satisfied with tax systems; most believed that taxes on low and middle incomes are too high, while taxes on high incomes are too low. Support for tax systems is bimodal within the income classes, with the richest 5% being the most supportive, and the median in a population being second. Ideological values have a strong impact on political support for redistribution across all income classes. The results bear witness to the multidimensional nature of preferences for redistribution, and to the delicate question of the effectiveness of democracy in implementing citizens' preferences.

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1. Introduction

The literature on political redistribution interplays with different fields of the social sciences (see the surveys of Hettich and Winer, 1997; Boadway and Keen, 2000). A central idea in the literature is the median voter theorem, or the hypothesis that redistributive taxation in

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democracies is driven towards the level preferred by the pivotal or median voter, directly through majority voting or indirectly through competition among political parties (Downs 1957).

The median-voter theorem has, however, been criticized from various perspectives. A particular criticism is that the median voter approach is naïve in accepting the principle of one person-one vote, since the rich have more political power and access than the poor (see e.g., Schwabish et al., 2003, and the literature quoted therein). A further criticism (especially emphasized by the political science tradition, e.g., Hicks and Swank, 1992) points out that the median voter approach ignores the many social and ideological dimensions that, in addition to the economic, may affect preferences for redistribution and may prevent the poor speaking with a single voice. More technical aspects may also be important. It is in particular well known that that only when the political space is one-dimensional and individual preferences are single-peaked (or more generally satisfy the single-crossing condition of Gans and Smart, 1996), does majority voting always result in a stable median voter equilibrium.

The median-voter theorem has also been criticized for predicting more redistribution than that is observed.¹ Various proposals have been put forward to explain limits to real-world redistribution (see Harms and Zink, 2003, for a thorough review). In particular, it may be in the interest of the poor majority to limit political redistribution: because of incentive effects of distortionary taxation, a ‘rational’ median voter may refrain from seeking to impose too high taxation on the rich because that would reduce the overall income to be redistributed (Meltzer and Richard, 1981). Another line of reasoning highlights incentives associated with social mobility (originally proposed by Hirschman, 1973, with contributions by Piketty, 1995; Bénabou and Ok, 2001).

The empirical methods that have been used in seeking evidence on the theories include using answers from social surveys to investigate directly beliefs about redistribution policies. The studies (which include Ravallion and Lokshin, 2000; Fong, 2001; Corneo and Grüner, 2002; Alesina and La Ferrara, 2005) indicate that many factors influence attitudes on redistribution. A problem with the studies so far conducted, however, is that they focus on questions about general preferences for redistribution² but are silent on whether or not people are in fact satisfied with real-world redistributive policies. Therefore, the relevance to testing theories of redistributive political outcomes like the median voter theorem is rather indirect.³

In order to study the theories more directly, in this paper we conduct an empirical analysis using data from 22 democratic countries, from three modules of the International Social Survey Programme (ISSP). Our focus is three questions asking individuals whether they consider the

¹ This is often exemplified with reference to a very simple model, represented by a linear-tax-cum-transfer schedule, where each individual pays taxes proportional to income treated as exogenously given and receives back a lump sum transfer equal for all citizens. With such a simple scheme, the model implies that the majority would vote for a tax rate of unity, hence for complete redistribution, whenever the pre-tax median income is below the average (which is the standard case for most, if not all, real world income distributions).

² For example, Ravallion and Lokshin (2000) look to the answers to a survey question asking: ‘Do you agree or disagree that the government must restrict the income of the rich?’ And they note: ‘A natural interpretation of the ‘restrict the rich?’ question is that some form of tax is contemplated, to be levied on incomes above some level. That level, and what to be done with the revenue, are both left to the imagination of the respondent’ (p. 90).

³ See Perotti (1996), Bassett et al. (1999) and Milanovic (2000) for approaches that use cross-countries variations of macro determinants (e.g., inequality, growth, unemployment) to study models of political redistribution. These approaches are generally not friendly to the median voter hypothesis, but have problems in distinguishing between alternative models because variations in the effects of macro determinants are transversal across different theories.

overall tax burden in their respective countries ‘too high’, ‘too low’ or ‘about right’—for people with high, middle, and low incomes.

The descriptive analysis of the answers shows that there are very few respondents satisfied with the redistributive tax systems in their countries: on average, only about 5.9% of the sample consider taxes on all three income levels as ‘about right’; on the contrary, large, in most cases absolute, majorities believe that taxes for low and middle incomes are ‘too high’, and that taxes for high incomes are ‘too low’. We compare the answers to the tax questions with the responses that the same individuals gave to a question previously used by [Corneo and Grüner \(2002\)](#) to analyse people’s preferences for redistribution from a general perspective. For all countries included in the sample, we find that people who have high preferences for redistribution tend to be less satisfied with existing tax systems; and people with low preferences for redistribution are among the most satisfied.

An empirical strategy built on logistic analysis is applied to test several ideas in the literature on political redistribution. Predictions from the median voter theorem are compared with expectations obtained from several of the various alternative approaches. The study delivers a complex, but we believe interesting picture. We see that most of the influences that the theoretical literature has argued should affect people’s preferences for redistribution—including income, ideology, personal characteristics, values and beliefs—do in fact influence attitudes towards real-world tax redistributive systems. No factor, however, seems by itself to have a pivotal effect in generating political support for the current tax systems.

In particular, the effect of income class is surprising. Satisfaction with current tax systems is bimodal within the income classes, with a clear indication that people in the top income classes, represented in the analysis by the richest 5%, are the most supportive of the current tax systems. Quite interestingly, we find that the second most supportive are people with median incomes, while people with an income between the median and the mean or even above the mean (but lower than the threshold for the 95th percentile), are less supportive. We quantify the potential effect of the different income classes being decisive for the current tax systems but find that the impacts are modest. In fact, when controlling for all the other factors that may influence preferences for redistribution, we see that, even among the most supportive 5% richest, the percentage of those thinking that taxes are ‘about right’ on all income levels is, on average, about 8.8%. It is 7.2% among the median population, 5.3% among people with an income below the median, just above 6% both among the individuals with an income between the median and the mean, and among those with an income between the mean and the threshold for the 95th percentile.

Among other factors that the literature has argued are important for redistributive political outcomes is ideological confrontation. We see that rightists are generally more supportive of the current tax systems than both left and centre. Even in this case, however, the favour does not appear decisive, as the main difference across partisan positions is between those (leftists) who prefer lower taxes for the poor and higher taxes for the rich, and those (rightists) desiring lower taxes for all (with centrists somewhere in between).

We also control for respondents’ comprehension of the countries’ tax systems, as recent research has proposed that people’s perceptions of taxes and economic policy can be mistaken and misconceived (e.g., [Bartels, 2004](#); [Blinder and Krueger, 2004](#); [Slemrod, 2003](#)). No support is found for such a conjecture. People’s disappointment about too little redistribution is lower in countries where the tax systems are more progressive, and stronger where they are less so. Considered as a whole, the results bear witness to the complexity of the different themes involved in redistributive policies, and to the difficult question of the effectiveness of democracy

in implementing people's preferences for political redistribution. The conclusion brings together the various themes.

The paper is organized as follows. Section 2 reports the data from the ISSP on people's satisfaction with the current tax systems and compare them with people's general preferences for redistribution. Section 3 outlines the empirical strategy used to analyse the previously presented data. Section 4 gives the results for the whole sample of countries. Additional material, including a test conducted on homogeneous groups of countries to check the solidity of the evidence reported for the full sample, is consigned to the Appendix.

2. Opinions on redistributive tax systems and preferences for redistribution in 22 democracies

This section reports data on the opinions expressed by people in several democracies on the redistributive tax systems of their countries, and then compares the opinions with the preferences for political redistribution expressed more generally by the same people.

2.1. Public opinion on redistributive tax systems

The data is from surveys conducted between the mid-1980s and mid-1990s by the International Social Survey Programme (ISSP). This programme provides one of the sources of individual data from representative samples of the population of several countries most widely used in empirical research in many fields of social science.⁴ Data from this programme has for example been used by [Corneo and Grüner \(2002\)](#) in their study of preferences for redistribution. The data considered in this paper is from three modules: the Social Inequality Modules I and II, conducted respectively in 1987 and 1992, and the Role of Government Module III in 1996. Several countries participated in the three modules. Overall, we could select data from 35 surveys referring to 22 countries, as some countries participated in more than one ISSP module. We have, in particular, data from the following countries (in brackets the year of the survey): Australia (1987, 1992), Austria (1987, 1992), Bulgaria (1996), Canada (1996), Czech Republic (1992, 1996), France (1996), East Germany (1992, 1996), West Germany⁵ (1987, 1992, 1997), Great Britain (1987, 1992, 1996), Hungary (1996), Ireland (1996), Italy (1996), Japan (1996), Netherlands (1987), New Zealand (1996), Norway (1992, 1996), Poland (1996), Russia (1996), Slovenia (1992, 1996), Sweden (1996), Switzerland (1987, 1996), United States (1987, 1992, 1996).

Three questions were repeated identically in each of the three ISSP module-surveys. The first question is: "*Generally, how would you describe taxes in respondent's country today? We mean all taxes together, including national insurance (social security in Australia and USA), income tax, VAT (sales tax in Australia and USA), and all the rest*". Then, three individual questions specify: a) "*First, for those with high incomes, are taxes...*"; b) "*Next, for those with middle incomes, are taxes...*"; c) "*Lastly, for those with low incomes, are taxes...*". Respondents can complete each question choosing among: "*much too high*", "*too high*", "*about right*", "*too low*", "*much too low*".

⁴ A comprehensive list (compiled and routinely updated by Tim W. Smith) of the research conducted using the ISSP data set is at <http://www.issp.org/biblio.htm>.

⁵ Following the ISSP classification system, in this paper we keep East and West Germany distinct even after unification in 1992.

Table 1

Distributions of answers to the tax questions on low, middle, and high incomes

Country (survey)	Taxes on low incomes			Taxes on middle incomes			Taxes on high incomes		
	'Too low'	'About right'	'Too high'	'Too low'	'About right'	'Too high'	'Too low'	'About right'	'Too high'
Australia (1987, '92)	1.6	27.0	71.4	3.3	38.1	58.6	38.9	29.4	31.8
West Germany (1987, '92, '96)	0.6	14.6	84.8	3.1	45.5	51.4	58.5	28.6	12.9
East Germany (1992, '96)	0.2	9.9	90.0	7.7	54.3	38.1	77.6	15.9	6.5
Great Britain (1987, '92, '96)	0.9	17.6	81.4	6.6	56.1	37.3	44.0	35.4	20.6
United States (1987, '92, '96)	3.4	26.8	69.8	2.2	26.4	71.4	54.4	21.2	24.4
Austria (1987, '92)	2.5	19.5	78.1	2.8	49.6	47.6	54.2	29.2	16.7
Hungary (1996)	7.8	8.9	83.3	9.4	29.3	61.4	56.2	23.6	20.2
Italy (1996)	0.9	5.8	93.2	2.4	20.4	77.2	50.8	20.4	28.9
Ireland (1996)	0.8	11.9	87.3	2.0	15.7	82.4	22.8	23.3	54.0
Netherlands (1987)	1.1	19.3	79.7	2.1	38.0	59.9	48.2	25.3	26.5
Norway (1992, '96)	0.8	19.8	79.5	1.9	45.3	52.9	46.3	28.1	25.6
Sweden (1996)	0.9	16.8	82.3	3.2	54.4	42.4	62.4	19.4	18.2
Czech Republic (1992, '96)	2.0	19.0	79.1	5.1	48.4	46.5	49.3	30.8	19.9
Slovenia (1992, '96)	0.9	9.1	90.1	7.5	53.2	39.3	56.9	30.0	13.1
Poland (1996)	0.7	6.6	92.8	3.3	32.3	64.4	32.5	25.3	42.2
Bulgaria (1996)	0.1	15.6	84.3	4.1	44.6	51.3	68.3	20.7	11.0
Russia (1996)	1.8	15.6	82.6	3.6	38.6	57.8	40.5	32.3	27.3
New Zealand (1996)	1.2	34.9	63.9	2.5	46.1	51.4	38.2	34.2	27.5
Canada (1996)	2.5	30.9	66.6	1.3	24.6	74.1	44.9	22.9	32.3
Japan (1996)	4.7	18.9	76.4	4.3	39.1	56.7	50.3	25.5	24.2
France (1996)	7.4	22.6	69.9	1.7	20.1	78.1	46.2	22.1	31.8
Switzerland (1987, '96)	0.9	31.1	68.0	1.3	51.1	47.6	68.1	23.1	8.8
Total	1.8	19.2	79.0	3.6	41.7	54.7	51.9	26.4	21.6

Table 1 shows the frequencies of the answers across countries. For ease of presentation, we have re-classified the original 5 ISSP types of answer into three categories: 'too high', merging the two answers "*much too high*" and "*too high*"⁶; 'about right' replicating responses "*about right*"; and 'too low' merging the ISSP categories "*much too low*" and "*too low*". (The frequencies for the five original ISSP answers are reported in Bernasconi, 2004).

There are differences across countries, though a similar general picture holds in most cases. Indeed, the majority of people in the different countries describe taxes on both low and middle incomes as 'too high', while taxes on high incomes are viewed by most as 'too low'. The frequencies of 'too high' answers in the question for low incomes are very large in all countries: the average is 79%, with the minimum and the maximum being, respectively, 63.9% in New Zealand and 93.2% in Italy. In the question for middle incomes, there are 15 out of 22 countries where the percentage of 'too high' answers is greater than 50%; the mean is 54.7%. The frequency of 'too low' answers is very low in almost all surveys (slightly greater frequencies in Hungary, East Germany, Slovenia, possibly Great Britain); the percentage saying that taxes are 'about right' ranges from a low of 15.7% (Ireland) to a high of 56.1% (Great Britain), with 41.7% being the average of the entire sample. In the question for taxes on high incomes, in 20 out of 22 countries relative majorities answer that taxes are 'too low'; in 11 cases the percentage

⁶ Henceforth, we use plain text between 'apostrophes' for variables and definitions based on our re-classification; we use italics between "quotation marks" for the original ISSP categories.

Table 2
Distributions of ordered triplets

Country (survey)	LLL	LLR	LRL	LRR	LLH	LHL	LRH	LHR	LHH	RLL	RLR	RRR	RLH	RHL	RRH	RHR	RHH	HLL	HLR	HRL	HRR	HLH	HHL	HRH	HHR	HHH	
Australia (1987, '92)	0.2	0.0	0.1	0.1	0.0	0.2	0.3	0.2	0.6	0.5	0.0	4.9	6.8	0.0	2.7	1.7	3.5	7.0	2.5	0.1	16.1	6.9	0.1	11.8	1.5	11.9	20.4
West Germany (1987, '92, '96)	0.0	0.1	0.0	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.0	3.4	5.6	0.0	1.4	1.2	1.4	1.7	2.8	0.1	28.6	6.8	0.0	22.2	0.8	14.6	8.6
East Germany (1992, '96)	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.5	0.0	3.5	2.1	0.0	1.0	0.8	0.6	1.4	7.4	0.1	44.8	3.7	0.0	20.7	0.4	9.3	3.8
Great Britain (1987, '92, '96)	0.1	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.2	0.9	0.0	3.5	8.4	0.0	0.4	1.3	1.2	2.0	5.2	0.2	25.6	14.6	0.2	8.3	2.4	10.7	14.1
United States (1987, '92, '96)	0.2	0.1	0.4	0.2	0.1	0.9	0.3	0.2	0.9	0.3	0.0	4.5	5.8	0.0	8.4	1.1	3.4	3.6	1.3	0.1	9.6	3.6	0.1	29.7	1.1	7.7	16.5
Austria (1987, '92)	0.1	0.0	0.2	0.2	0.3	0.1	1.0	0.2	0.4	0.2	0.0	3.9	6.5	0.1	2.1	2.0	1.9	3.2	1.9	0.1	28.2	6.9	0.0	17.7	1.5	13.8	7.7
Hungary (1996)	0.7	1.7	0.7	0.2	1.6	0.2	2.3	0.1	0.3	0.4	0.2	1.5	2.2	0.2	1.3	1.0	0.5	1.5	4.5	0.0	18.2	2.5	0.2	28.8	0.8	16.2	12.2
Italy (1996)	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.3	0.1	0.0	0.0	0.9	1.3	0.1	0.9	0.7	0.7	1.3	2.1	0.0	14.0	3.2	0.1	32.5	0.9	14.9	25.6
Ireland (1996)	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.5	0.5	0.0	0.4	2.4	0.1	0.8	0.8	1.3	5.3	1.1	0.2	7.2	2.8	0.0	12.6	1.8	16.4	45.5
Netherlands (1987)	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.6	0.1	0.0	2.7	4.8	0.1	1.4	2.1	2.9	5.6	1.8	0.1	22.3	5.0	0.1	19.7	1.5	12.6	16.2
Norway (1992, '96)	0.0	0.0	0.3	0.1	0.1	0.0	0.1	0.0	0.2	0.3	0.0	5.6	7.7	0.0	1.1	1.7	1.2	2.2	1.2	0.0	21.3	7.3	0.1	16.7	1.5	11.6	19.9
Sweden (1996)	0.1	0.0	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.4	0.0	7.4	4.6	0.0	0.7	1.5	0.4	2.1	2.9	0.0	34.6	5.4	0.0	16.3	0.6	8.7	13.5
Czech Republic (1992, '96)	0.3	0.2	0.1	0.3	0.0	0.1	0.5	0.1	0.3	0.6	0.2	4.0	6.5	0.0	1.3	1.7	1.5	3.2	3.7	0.1	26.0	8.3	0.1	13.3	1.8	13.5	12.2
Slovenia (1992, '96)	0.1	0.1	0.2	0.0	0.1	0.0	0.5	0.0	0.1	0.6	0.1	2.6	4.6	0.1	0.3	0.6	0.5	0.1	6.0	0.3	32.1	11.0	0.4	14.6	2.3	13.6	9.4
Poland (1996)	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.9	3.6	0.0	0.1	0.9	0.1	0.6	2.0	0.4	15.0	8.6	0.7	13.9	3.2	12.7	36.3
Bulgaria (1996)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.0	7.3	5.6	0.0	0.9	1.2	0.0	0.3	3.3	0.0	26.2	4.3	0.1	29.0	1.3	11.3	7.9
Russia (1996)	0.3	0.1	0.3	0.3	0.2	0.1	0.5	0.0	0.1	0.8	0.2	3.2	7.6	0.0	0.7	1.2	0.7	1.0	1.8	0.1	15.8	7.5	0.1	16.9	1.7	15.9	22.9
New Zealand (1996)	0.0	0.0	0.3	0.3	0.1	0.2	0.1	0.1	0.2	0.9	0.1	7.0	13.7	0.0	2.6	2.4	3.5	5.3	1.5	0.0	14.5	7.1	0.0	11.9	1.4	9.7	17.0
Canada (1996)	0.2	0.1	0.0	0.1	0.1	0.4	0.2	0.6	0.9	0.1	0.0	4.6	5.1	0.0	7.3	1.1	4.8	8.3	0.9	0.0	8.9	4.5	0.0	22.4	0.7	7.6	21.1
Japan (1996)	0.4	0.3	0.4	0.2	1.0	0.1	1.2	0.3	0.8	0.3	0.0	3.6	6.5	0.1	2.0	3.5	0.7	2.8	1.9	0.2	14.9	6.3	0.2	26.4	2.3	11.4	11.9
France (1996)	0.0	0.0	0.3	0.1	0.0	1.3	0.6	1.1	4.2	0.3	0.0	2.9	2.6	0.1	5.2	0.8	4.4	6.6	1.3	0.0	10.7	2.1	0.2	24.7	0.3	12.2	18.3
Switzerland (1987, '96)	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.2	0.1	0.2	0.0	9.4	7.8	0.0	6.5	1.7	3.6	1.8	1.0	0.1	28.0	3.9	0.0	22.8	0.5	7.7	4.1
Total	0.1	0.1	0.2	0.1	0.1	0.2	0.4	0.1	0.4	0.4	0.0	4.3	5.9	0.0	2.5	1.4	1.9	3.0	2.7	0.1	22.3	6.4	0.1	19.3	1.3	11.8	14.7

is greater than 50%; only in one country, namely Ireland, the opposite is true. On the entire sample, answers of the type ‘about right’ are 26.4%, with a maximum of 35.4% (in Great Britain), and a minimum of 15.9% (in East Germany).

In order to appreciate other characteristics of the data, as well as to introduce a classifying category that will be used later in the empirical analysis, we now consider jointly the answers given by each individual to the three questions. In particular, let a typical pattern given by a respondent to the three questions be denoted by an ordered triplet $\{*,*,*\}$, where each * can take one of three possible values: H for ‘too high’, R for ‘about right’, L for ‘too low’. Let the order of the triplet be that the first * denotes the answer to the question about taxes on low incomes, then on middle incomes, and on high incomes.

Thus, for example, the triple $\{H,R,L\}$ denotes the answer of an individual saying that taxes are ‘too high’ for those with low incomes, are ‘about right’ for those with middle incomes, and are ‘too low’ for those with high incomes; the triple $\{R,R,R\}$ therefore denotes an answer that taxes on all income levels are ‘about right’. Given this notation, 27 patterns of answers to the three questions are possible. Table 2 shows the triplet distribution across the country surveys. There are interesting features to notice.

First of all, in essentially all surveys, there are few people saying that taxes are ‘about right’ on all three income levels, namely giving triplet RRR. In the total sample, the frequency is 5.9%. There are countries where the frequencies are slightly higher, in particular New Zealand, followed by Great Britain, Switzerland, and Norway; and countries where they are lower, such

Table 3

Preferences for redistribution as expressed in question on responsibility of the government to reduce income differences

Country (survey)	“Agree strongly”	“Agree”	“Neither agree nor disagree”	“Disagree”	“Disagree strongly”
Australia (1987, '92)	9.5	33.7	20.9	28.3	7.6
West Germany (1987, '92, '96)	17.8	40.3	17.7	16.1	8.1
East Germany (1992, '96)	39.7	42.8	8.8	7.4	1.4
Great Britain (1987, '92, '96)	23.1	38.3	15.6	18.8	4.3
United States (1987, '92, '96)	9.5	23.7	22.8	29.2	14.8
Austria (1987, '92)	31.9	43.1	10.6	11.5	3.0
Hungary (1996)	36.9	29.9	18.4	10.6	4.3
Italy (1996)	35.4	29.3	14.3	13.0	8.1
Ireland (1996)	25.9	39.6	14.6	16.1	3.8
Netherlands (1987)	16.3	48.8	11.2	18.1	5.6
Norway (1992, '96)	19.0	39.5	17.4	17.9	6.2
Sweden (1996)	32.3	27.3	19.7	13.1	7.5
Czech Republic (1992, '96)	26.0	37.7	14.3	17.0	5.0
Slovenia (1992, '96)	41.4	38.4	9.2	8.5	2.5
Poland (1996)	41.4	36.7	11.6	7.4	2.9
Bulgaria (1996)	34.8	33.1	13.9	13.5	4.7
Russia (1996)	43.3	30.7	14.2	8.4	3.5
New Zealand (1996)	15.1	22.9	18.6	29.2	14.1
Canada (1996)	17.7	25.2	14.8	23.0	19.4
Japan (1996)	27.4	20.5	24.6	9.8	17.9
France (1996)	42.9	25.2	12.6	11.0	8.4
Switzerland (1987, '96)	16.1	34.3	15.6	24.6	9.4
Total	24.1	34.8	16.1	17.6	7.4

Exact wording of the question: It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.

as Ireland, Hungary, East Germany and Italy, the latter with the lowest frequency of all (only 1.3%).

Another characteristic of the data is that the frequencies are polarized over a limited number of triplets. In fact, in 18 out of 22 countries, the relative majorities of answers are for triplets either HRL or HHL, which in some surveys account together for more than 50% of all triplets. Both these patterns show that taxes are ‘too low’ on high incomes and ‘too high’ on low incomes; the second triplet shows the latter also for middle incomes. Both triplets can therefore be seen as expressing disappointment for too little redistribution in the tax systems (possibly also triplets RRL and HLL). On the other hand, notice that patterns signalling an opposite judgement, that there is too much redistribution in the tax systems, as it may for example be indicated by triplets LLH, LRH, LHH or even RRH, count much lower proportions (2.3% only for the aggregate of the above four triplets). Other triplets frequent in most countries are triplets HHH and HHR: the latter triplet shows that taxes are ‘too high’ on the low and middle incomes; the first that taxes are too high for all income levels.

At the level of individual countries there are clearly some differences: pattern HRL varies between the lowest value of 7.2% in Ireland to the highest of 44.8% in East Germany; triplet HHL between 8.3% in Great Britain and 32.5% in Italy; triple HHH, between 4.1% in

Table 4
Cross-evidence between ordered triplets and preferences for redistribution

Distribution of ordered triplets across agreements that governments should reduce income differences						
	“Agree strongly”	“Agree”	“Neither agree nor disagree”	“Disagree”	“Disagree strongly”	Total prop.
LLL	0.2	0.1	0.1	0.1	0.0	0.1
LLR	0.1	0.1	0.2	0.1	0.1	0.1
LRL	0.2	0.1	0.2	0.2	0.2	0.2
LRR	0.0	0.1	0.1	0.1	0.2	0.1
LLH	0.1	0.1	0.1	0.0	0.4	0.1
LHL	0.2	0.1	0.2	0.2	0.3	0.2
LRH	0.4	0.3	0.5	0.4	0.7	0.4
LHR	0.1	0.1	0.1	0.3	0.4	0.1
LHH	0.2	0.2	0.4	0.8	1.6	0.4
RLL	0.6	0.5	0.4	0.2	0.1	0.4
RLR	0.0	0.0	0.1	0.0	0.0	0.0
RRL	3.0	4.7	5.1	4.9	3.3	4.3
RRR	2.3	4.3	8.0	10.0	10.4	5.9
RLH	0.0	0.0	0.1	0.0	0.0	0.0
RHL	1.5	2.4	2.7	3.9	3.4	2.6
RRH	0.3	0.8	1.7	2.6	4.1	1.4
RHR	0.6	1.4	2.3	3.8	4.2	2.0
RHH	0.9	1.7	3.3	5.6	9.2	3.0
HLL	5.5	2.7	1.4	1.1	0.7	2.7
HLR	0.1	0.1	0.1	0.1	0.0	0.1
HRL	29.7	27.2	18.5	12.5	7.9	22.3
HRR	4.7	6.8	7.7	7.5	4.0	6.4
HLH	0.2	0.1	0.1	0.1	0.1	0.1
HHL	26.9	20.3	15.9	13.3	11.6	19.3
HRH	1.1	1.4	1.6	1.2	1.7	1.3
HHR	9.7	12.3	14.2	12.1	9.6	11.8
HHH	11.2	12.1	15.0	19.1	25.9	14.6
	100	100	100	100	100	100

Switzerland and 45.5% in Ireland. Instead triplets pointing to too much redistribution in the tax systems are negligible in all countries.

2.2. *Cross evidence with preference for redistribution*

It is interesting to compare the distribution of the answers to the tax questions with the preferences people have more generally for political redistribution. Following [Corneo and Grüner \(2002\)](#), the latter can in particular be obtained in the ISSP surveys from the answers given to a question centered on the following statement: “*It is the responsibility of the government to reduce the differences in income between people with high incomes and people with low incomes*”. Respondents can choose among five possible responses: “*agree strongly*”, “*agree*”, “*neither agree nor disagree*”, “*disagree*”, “*disagree strongly*”.

[Table 3](#) shows the frequencies of the answers for the countries and surveys included in the sample, while [Table 4](#) gives, for the entire sample, the distributions of the ordered triplets across the answers to preferences for redistribution. The evidence from the latter table is that there are correlations between preferences for redistribution and the distribution of the ordered triplets. In particular, considering patterns pointing to disappointment with the tax systems for little redistribution, like the major two triplets HRL and HHL, the table shows that they are more frequent among people with a stronger preference for redistribution, and less among those with a weaker preference: for example, the frequency of people giving the above two triplets decreases in both from between 26–29% among those who strongly agree that governments should reduce income difference, to between 7–11% among those who strongly disagree. The opposite tendency applies to the less frequent triplets showing disappointment for too much redistribution in the tax systems (such as, for example, triplet LHH or also RRH), and among those viewing taxes overall too high (in particular triplet HHH). Interestingly, a similar trend also holds amongst those satisfied with the tax systems, namely those giving triplet RRR, who increase their frequency from about 3.3%, on the average of those who agree or agree strongly that the governments should reduce income differences, to 8% among those who neither agree nor disagree, and to around 10% among those who disagree or disagree strongly.

3. **Presentation of the empirical strategy and discussion of the tax satisfaction data**

Our aim is to use the data presented in the previous section to study closely the relationships between the determinants of people’s general preferences for redistribution, on the one side, and their satisfaction towards the redistributive tax systems, on the other. In the introduction, we have in particular recalled various theories that link preferences for redistribution to the actual tax systems via the process of political decision making. In the remainder of the paper, we develop an empirical strategy that uses the data on the ordered triplets and on the general preference for redistribution as dependent variables in logistic regressions to test several ideas in that literature.

We have estimated various models and present below a summary of the main evidence (a fuller account of the evidence is available from our working paper [Bernasconi, 2004](#)). For the analysis of the tax triplets, we have in particular constructed four dichotomy variables (taking value 0 or 1). A major variable singles out people who have given triplet RRR, and therefore identify those who may be considered as ‘satisfied with the tax systems’. Three variables are then used to classify three different directions of disappointment with the tax systems: the

largest category of those who seem to see ‘too little redistribution’ in the tax systems, which we take to comprise triplets RRL, HLL, HRL and HHL; the category of those who see instead ‘too much redistribution’ in the systems, including triplets LLH, LRH, LHH, RRH; and the category of those who seem to judge ‘taxes overall too high’, including triplets HHH, HHR and RHH.⁷

A similar dichotomy variable is obtained from the question on general preference for redistribution. Specifically, following [Corneo and Grüner \(2002\)](#), we have constructed a variable that takes the value of 1 if respondents “agree” or “agree strongly” that governments should reduce income differences, and the value of 0 if they do not agree (any of the answers “neither agree nor disagree”, “disagree”, and “disagree strongly”). We call this variable PREFRED.

Various logistic regressions are conducted for the dichotomy variables, which focus on the effects of several micro covariates constructed from the ISSP data set. These in particular include variables for the income classes of the respondents, their ideological affiliations, variables for personal or sociological characteristics of the respondents, like gender, age, marital status, education and occupational status, variables for beliefs in factors of success in life and in equality of opportunities. We give more information on the various micro covariates included and on their relationships with the theoretical literature in the next section, when we present the results of the different models estimated. (See also Appendix A, for a detailed list of all the covariates used in the analysis, their source, construction and summary statistics).

The regressions are based on the aggregate sample of countries. This allows us to exploit the large size of the data set, which is important given the low frequencies of many ordered triplets (including triplet RRR). Several macro conditions may have obviously affected the answers of people of different countries. The regressions conducted below will explicitly control for two macro covariates referring to two important characteristics of the actual tax systems of the different countries: one is a measure for the overall fiscal pressures given by the total tax revenues as percentages of GDP in the respondents’ countries at the time of the surveys (variable ‘TAXES’ in the regressions); the other is an index of the tax progressivity represented by the top marginal personal income tax rate (‘TOP_RATE’ in the regressions).⁸

It is important to control for the two tax variables. In particular, when dealing with survey questions, there are always some difficulties in interpreting the answers. Typical issues are whether the interviewees fully understand the questions; whether different people treat the same question similarly; whether the answers can be considered as the expression of individual opinions or as the effect of convention or, perhaps, propaganda. For example, with reference to opinion surveys on prospective tax reforms in the U.S., some recent studies (e.g., [Bartels, 2004](#);

⁷ Obviously, we acknowledge that there may be some arbitrariness in forming the three categories and that there may be different ways of aggregating triplets in the various categories. But we note that reasonable differences in the ways of constructing the three categories don’t affect the results presented below. In fact, we emphasize that the post-regression accounting presented in this version of the paper in the form of predicted probabilities for the categories of tax triplets (see Section 4.3 below) is substantially identical to that given in our working paper ([Bernasconi, 2004](#), available at <http://www.unipv.it/websiep/wp/323.pdf>), which is based on (multinomial) logit regressions conducted on the whole set of individual triplets.

⁸ For the OECD countries included in the sample, the source for the variable TAXES is the OECD (Revenue Statistics, 2001); for the three non-OECD countries, namely Bulgaria, Russia and Slovenia, the source is [Mitra and Stern \(2003\)](#). Data for TOP_RATE are obtained from the Fraser Institute (The Freedom of the World: 2003 Annual Report). (More details on both variables in Appendix A).

Blinder and Krueger, 2004; Slemrod, 2003) have reported evidence of widespread misunderstandings and misconceptions in people's answers.

Thus, given that the main objective of the present analysis is to establish whether the observed tax systems reflect the citizens' preferences, it seems specifically important to control for the connection between actual taxes in the different countries and individuals' feelings expressed in the surveys.

Generic dummies for country fixed effects are also included in the analysis to account for several other macro conditions that might have affected the answers in different countries. These may for example be due to ethical differences in the attitudes towards inequality at national level, differences in the quality of the goods provided by the public sector, different constitutional or electoral rules. In Appendix B, some evidence is also provided across three clusters of countries more naturally considered together according to the above factors, which shows that the results found for the aggregate sample are indeed robust across them. (Following previous literature on the matter, the Appendix in particular distinguishes amongst Anglo-Saxon, European non-post-communist, and European post-communist countries).

4. Models and results

In this section we report the results of several regressions for the whole sample of countries, which differ somewhat depending on the micro-covariates included in the various specifications. We start by detailing the micro covariates of a basic specification, focused on the effects of the respondents' income classes, their ideological affiliations and their sociological characteristics. Then we give the results of the various models estimated, explaining in the process the changes introduced from the basic specification.⁹

4.1. The micro-covariates of the basic specification: dummies for income classes, ideological affiliations, and sociological characteristics

A major variable we obviously focus on is about the respondents' income classes. In the simplest theory of the *homo oeconomicus*, the poor always favour redistribution while the rich oppose it. In an ideal system of one person-one vote, this implies the classical result that when voting on redistributive one-dimensional space the median income person is pivotal.

Various critics have however argued that real-world democratic systems are far from ideal and that the decisive voters are in higher income classes. This may be due to various reasons: a lower degree of electoral participation among lower-income individuals (see e.g., Edsall, 1984; Conway, 1985); the fact that wealthier people are less exposed to errors or misconceptions because of better-informed preferences (e.g., Verba et al., 1978; Wolfinger and Rosenstone, 1980; Bartels, 2004); the effect of interest groups, which through monetary contributions and

⁹ In particular, based on the discussion of the previous section, all regressions estimated have the following general form: $\text{Prob}(Y_{ict}=j)=G(\beta \cdot \text{MICRO}_{ict} + \delta_1 \text{TAXES}_{ict} + \delta_2 \cdot \text{TOP_RATE}_{ict} + \text{COUNTRY}_c)$. In the model, on the left-hand side, Y_{ict} is one of the five dichotomy dependent variables (namely PREFRED, RRR, and the three other categories of tax triplets) constructed as specified above from the answers of respondent i , who lives in country c , at the time of survey t ; and where, on the right-hand side, $G(\cdot)$ is the logistic function, MICRO_{ict} is the vector of the micro covariates obtained from the ISSP data surveys, TAXES_{ict} and TOP_RATE_{ict} are the two macro covariates for, respectively, the overall fiscal pressure and the tax progressivity in the respondent's country at the time of the survey, and COUNTRY_c 's are the dummies for the country fixed effects.

working on campaigns, exert an overall impact on politics, including issues like redistribution and social expenditure (e.g., Schwabish et al., 2003).¹⁰

The simplicity of the redistributive policy space may also be a problem. Breyer and Ursprung (1998) have for example shown that when the redistributive policy space is multidimensional (and there are many ways in which income can be transferred from one class to another), an equilibrium may arise in which the above-average income earners can bribe the segment of voters with incomes between the median and the mean, in order for them to support policies limiting the transfers to even lower income classes.

Another equilibrium notion that may arise due to multidimensionality is known as “ends against the middle” (Epple and Romano, 1996). It applies most notably to cases in which tax proceeds are used to finance a service for which a private alternative is available. In Epple and Romano (1996) it is education. Preferences may then not be single-peaked, and a coalition of middle income households is opposed, and may be beaten in majority voting, by a coalition of poor and rich households (respectively, below-median and above-mean income earners).¹¹

We study the effects of income classes as follows. From data on the ISSP surveys we construct five dummies to divide respondents into five income classes: the ‘poor’, defined as respondents with an income strictly lower than the median of the respondents’ country; the ‘median’, those with an income equal to the median; the ‘upper median’, people with incomes between the median and the mean (strictly greater than the former and strictly lower than the latter); the ‘mean and upper mean’, those with an income equal or greater than the mean, but strictly lower than the threshold for the 95th percentile; and the ‘top 5%’, those with incomes equal or greater than the latter limit. The income distribution used to build the dummies is the per capita household income obtained, for the various countries in the sample, from the data reported in the ISSP surveys (details in the Appendix).¹² We expect that if the theory of homo oeconomicus works, PREFRED should increase in income; we also expect that if any of the above ideas on the role of different income classes on influencing political outcome has any ability to explain real-world redistributive policies, then people pivotal according to the different theories should possibly be the most satisfied with the tax systems (in the logit for RRR), or at a minimum not the least satisfied (in the other triplets).

A vast theoretical literature has emphasized that there are factors shaping people’s attitudes for redistribution that typically have an ideological dimension, above and beyond any pecuniary

¹⁰ Milder positions on monetary contributions are instead held by those who view them merely as a type of consumption good (e.g., Ansolabehere et al., 2003), or capable of having at most an influence on policy issues with low social costs (as in models of special interest politics, e.g., Persson and Tabellini, 2000). Needless to say, on the other hand, that there are even more radical positions on the effect of money in governing the world, including the modern Marxian theories of the ‘capitalist state’ (Jessop, 1982), still essentially seen as the political field of class contention, with the capitalists holding all the most powerful weapons.

¹¹ Other situations recently studied that may induce an “ends against the middle” opposition include voting on public pensions (Casamatta et al., 2000) and redistributive taxation when tax evasion is a possibility (Borck, 2003; Roine, 2003).

¹² As in most surveys, some problems arise with the income data included in the present data set. One problem is that there are several missing values in the variable due to refusal to answer, ignorance, or misunderstandings. Another is that the definition of income is not uniform across countries, as it may be monthly or yearly income, gross or net. In some surveys, data is divided into categorical tiers, and it is necessary to use midpoints. Thus, it is acknowledged that the dummies can only be taken as proxies for the actual income classes. Still, it should be emphasized that the income indicators constructed on the basis of the information contained in these surveys have been generally proven to be consistent in producing various expected effects and, for this reason, have been routinely used in many investigations. In addition, I tested for slightly alternative specifications for the effects of income classes finding consistent effects: a full report of all the alternative specifications is in Bernasconi (2004), while some details are given in footnote 18.

motivation they may also independently maintain. For example, a median voter may take into account that redistributive taxation distorts incentives and results in inefficiency (Meltzer and Richard, 1981). Ethical values and ideals may also be important: for instance, people following Nozick's (1974) libertarianism will be naturally averse to redistribution; while those sharing Rawls' (1971) concern for the least well-off will be in favour. Obviously, taking into account in a single model all the non-pecuniary motivations for being in favour of or against redistributive policies may prove to be too difficult. And the very same notion of a pivotal voter expressed on the income scale (whether median income or not) may be partial. For this reason, political scientists have generally tended to supplement the former scale with an ideological one, typically measured along a left-right dimension (see e.g., Hicks and Swank, 1992, and the literature quoted therein).

In the basic specification, we control for the effect of ideological affiliations as follows. Based on questions on ideological affiliations, the ISSP surveys classify respondents in 7 categories: 1. "Far left (communist, etc.)", 2. "Left, centre left", 3. "Centre, liberal", 4. "Right, conservative", 5. "Far right, fascist etc.", 6. "Other, no specification", 7. "No party, no preference". We reclassify subjects as 'left-winger' from categories 1 or 2, 'right-winger' from categories 4 or 5, and 'centrist' from categories 3, 6 and 7.¹³ We test whether general preferences for redistribution (PREFRED) are stronger moving along the ideological scale from 'left-winger' to 'right-winger'; and we test which of three partisan groups is the most satisfied with the current tax systems (namely in giving triplet RRR), which is less and in which direction.¹⁴

Several socio-economic indicators are also included in the vector of the basic micro-covariates. In addition to standard controls like the respondent's gender, age, and marital status, we include covariates in the form of dummies to describe: the employment status of the respondent (whether employed or unemployed), the level of education attained (in particular a dummy for those with a university degree), whether the respondent is a member of a trade union, and whether self-employed.

The purpose of these variables is twofold. On the one hand, in the logit on PREFRED, we take them as a control to check whether we find similar effects for these variables as those reported in previous studies on preference for fiscal redistribution (e.g., Ravallion and Lokshin, 2000; Corneo and Grüner, 2002; Alesina and La Ferrara, 2005). On the other hand, in the regressions on the tax triplets, we wish to investigate how people identified by the same controls answer the tax questions.

4.2. Coefficients estimated for the basic specification

Table 5 gives the coefficients estimated for the regressions on PREFRED, on triplet RRR and on the three other categories of triplets of the basic specification. (The table also recalls the

¹³ The results presented below are not affected if categories 6 and 7 are omitted from the analysis.

¹⁴ A problem with such a specification may obviously be that responses could be distorted by the political side of the government in power at the time of the surveys, which may influence answers only because of sympathy for the current governments. In a further model specification, we therefore disregard the effect of partisanship as individual controls, and interact the dummies of partisanship with the dummy of income classes. The purpose of the exercise is to analyse whether by interacting the two variables one can improve the explanatory ability of each individually considered dimension. It is specifically interesting to control the extent to which the views and the effects on redistribution policies of people in the various income classes may also depend on their political affiliation; and also to control whether or not people of centrist beliefs, particularly in the median income class, are more strategically important in influencing the redistributive political outcome, as also suggested by various arguments developed within the political science tradition (e.g., Hicks and Swank, 1992, and the literature quoted therein).

Table 5
Logits on PREFRED and categories of ordered triplets

Dependent (Triplets)	PREFRED (Frequencies in sample)	'Satisfied with the tax system' (RRR)	'Too much redistribution' (LLH, LRH, LHH, RRH)	'Too little redistribution' (RRL, HLL, HRL, HHL)	'Taxes overall too high' (RHH, HHR, HHH)
	(57.4%)	(6.0%)	(2.3%)	(48.4%)	(29.5%)
Unemployed	0.303** (0.064)	-0.152 (0.138)	-0.273 (0.227)	0.048 (0.060)	0.024 (0.065)
Self-employed	-0.284** (0.042)	0.089 (0.078)	0.253* (0.116)	-0.322** (0.043)	0.238** (0.044)
Trade union member	0.215** (0.030)	-0.146* (0.059)	-0.257* (0.103)	0.178** (0.029)	-0.130** (0.032)
Graduate	-0.380** (0.031)	0.293** (0.060)	0.427** (0.088)	-0.278** (0.032)	0.011 (0.034)
Male	-0.184** (0.024)	0.136** (0.049)	0.12 (0.077)	-0.050* (0.024)	-0.025 (0.026)
Married	-0.235** (0.027)	0.094 (0.054)	-0.024 (0.088)	-0.110** (0.026)	0.079** (0.029)
Age	0.008** (0.001)	0.000 (0.002)	-0.010** (0.003)	0.006** (0.001)	-0.006** (0.001)
Median people	-0.292** (0.068)	0.320** (0.124)	0.344 (0.204)	-0.198** (0.068)	-0.007 (0.074)
Upper median	-0.332** (0.042)	0.142 (0.086)	0.141 (0.141)	-0.173** (0.042)	0.111* (0.045)
Mean and upper mean	-0.562** (0.028)	0.163** (0.058)	0.246** (0.093)	-0.279** (0.028)	0.164** (0.030)
Top 5%	-1.089** (0.052)	0.517** (0.089)	0.744** (0.130)	-0.765** (0.052)	0.428** (0.052)
Left-wing	0.549** (0.031)	-0.133* (0.065)	-0.518** (0.109)	0.317** (0.030)	-0.306** (0.033)
Right-wing	-0.535** (0.031)	0.320** (0.060)	0.386** (0.092)	-0.441** (0.032)	0.277** (0.034)
TAXES	-0.986 (1.191)	-6.849** (2.504)	6.966 (4.196)	-5.493** (1.170)	11.396** (1.359)
TOP_RATE	-0.155 (0.258)	-1.875** (0.493)	2.029* (0.828)	-1.243** (0.255)	1.601** (0.277)
Observations	34027	31373	31373	31373	31373
Pseudo R^2	-0.123	0.037	0.056	0.070	0.061
LR	-20295.3	-6861.8	-3196.1	-20203.4	-17933.4

Regressions models include country dummies; standard errors corrected for heteroskedasticity in brackets; one star denotes significant at 5% level, two stars denote significance at 1% level.

triplets included in the various categories and their overall sample frequencies). We first look at the impacts of the micro covariates across all regressions; next we comment on the effects of the two macro covariates, namely TAXES and TOP_RATE.

The impacts of the micro controls on PREFRED confirm most of the findings of previous studies on the matter. They are also consistent with various intuitions, from economics as well as from political science and sociology. The evidence is that support for redistribution decreases monotonically with the income classes. (Note that the regression takes the 'poor', namely the people with an income strictly lower than the median, as the reference category). The coefficients are highly significant. Also, preferences for redistribution decrease along the

ideological scale, moving from left to right ('centrist' is the reference category in the regression). The effects of the sociological dummies are also as generally expected. We note the following: the unemployed and trade union members are more in favour of redistribution, while the self-employed and people with higher degrees are less in favour. Various factors may explain the effects of this group of sociological controls. One is risk aversion: the self-employed and those who invest more in human capital may be more prone to taking risks, and value less the public insurance offered by redistributive policies. They may also be those benefiting the least from these programs. In addition, these people may also be those who view, more than others, social mobility as a close substitute for redistribution: on the one hand, in the case of the older self-employed and college graduates, this may be due to experienced mobility; on the other hand, for the younger self-employed and graduates, it may derive from greater expectations of economic advancement. The opposing arguments may explain why the unemployed and trade-union members are instead more in favour of redistribution. Also notice that all the above variables are highly significant, at the 1% level. The same is true for the dummies for males and for married people. Both are negative, as reported by previous studies.¹⁵ The effect of age is positive, but quite small. Previous studies found contrasting signs.¹⁶

Comparing the above results with the regressions on RRR and on the other categories of triplets shows a very interesting picture: even if generally less significant (especially the sociological dummies), the effects of all covariates on RRR are opposite in sign to those found for PREFRED. Conversely, they are quite in line with the logit for those who see 'too much redistribution' in the tax systems (and again opposite to those who see 'too little redistribution' in the systems, while the results for those who see 'taxes overall too high' are more mixed). The evidence therefore corroborates the impression (especially from Table 4) that the satisfaction with the tax systems is negatively correlated with preferences for redistribution. Notwithstanding, there is an important feature in the estimates of RRR that is important to emphasize, namely that satisfaction with the current tax systems is bimodal within the income classes: to see this, notice that the highest estimated coefficient is for people in the top 5% of the distribution, but the second highest is the 'median'; both people with an income between the median and the mean (the 'upper median'), and those with an income between the mean and the top 5% limit (the 'mean and upper mean'), are more satisfied than the 'poor', but also significantly less than the previous two income classes.¹⁷

The income effects estimated on the three categories of triplets deviating from satisfaction qualify further the results. In particular, on the one side, the coefficients confirm that the 'poor' are those protesting the most for 'too little redistribution' in the tax systems, and the least for 'too much redistribution', while the opposite holds for the richest 'top 5%'; on the other side, the

¹⁵ The negative effect of being married on the support for redistribution may be surprising at first. A possible explanation among others refers to greater opportunities of risk-sharing within families (and hence less need of redistribution policies) for married people.

¹⁶ Ravallion and Lokshin (2000) and Corneo and Grüner (2002) report a positive effect of age; while Alesina and La Ferrara (2005) find a negative sign. Adding a squared term in the present analysis is not significant.

¹⁷ As alluded to, we also considered different specifications for the effects of the income classes finding similar evidence. Among others, in a specification based on income quintiles we have found that the top quintile has the largest impact on RRR, with the third quintile coming second; in a model based on income deciles, we have found that the 10th decile is the most supportive of the fiscal systems, followed by the 6th and the 5th deciles. Interestingly, we also emphasize that in all the above specifications, the evidence on the effects of the central classes in supporting triplet RRR is weaker than that documented for the 'median'. (Notice also that using a straight income indicator rather than dummies for income classes, e.g., the log of the ratio between the household per capita income divided by the average per capita household income in the respondent's country, has an overall positive effect.)

results prove further that the attitudes towards the tax systems are not monotonic with the income classes and in particular that the ‘median’ come third in the disappointment for ‘too little redistribution’, are second in that for ‘too much redistribution’ (only after the top 5%), and are those protesting the least for viewing ‘taxes overall too high’.

The effects of the ideological affiliations appear more straightforward. In particular, being a right-winger increases the probability of viewing the tax systems as redistributing too much, of judging taxes overall too high and also of being satisfied with the tax systems; the opposite applies to left-wingers. Even if the results do not differentiate between effects due to pure ideology from others possibly arising from sympathy for the governments in charge in the various countries at the time of the surveys, the evidence once more adds to the fact that all factors that are found on the one side to reduce general preference for redistribution tend to work on the other side in giving more support to the current fiscal systems.

Consider now the effects of the macro-covariates TAXES and TOP_RATE. In the logit on PREFRED they have been included mainly for comparison with the other regressions. In particular, as PREFRED traces people’s general preferences for redistribution, we don’t expect the variable responding to the actual characteristics of the different countries’ tax systems. The evidence confirms this expectation.

However, the regressions on the tax triplets show that the respondents’ attitudes towards the observed tax systems do respond to the actual characteristics of the systems; furthermore, the signs of the two covariates appear in the right directions. To see this, consider firstly the effects of the two controls on the categories of triplets signalling disappointment with the tax systems: the evidence is that both the disappointments for viewing ‘too much redistribution’ in the systems and for considering ‘taxes overall too high’ are stronger in countries where the systems are indeed more progressive¹⁸ and taxes higher; the converse is true for the disappointment for ‘too little redistribution’, which is lower where the systems are more progressive and taxes (hence possibly the overall level of public expenditure) higher. The effects on triplet RRR are slightly more subtle, but also consistent with intuition. On the one side, satisfaction decreases with higher taxation, which is intuitively consistent with the fact that, other things held constant, people don’t like paying taxes; on the other side, satisfaction decreases with more progressive systems. Initially this may appear to contrast the fact that the majority of people are disappointed because of too little redistribution in the systems. We have, however, discovered that the few people satisfied with the tax systems, namely giving triplet RRR, are in fact those with weaker preferences for redistribution. In such respect, it is then not surprising that in countries where taxes are more progressive, support for triplet RRR is even lower.

4.3. Quantifying the impacts of the micro-covariates on the tax triplets

We find the coefficients estimated from the basic specification very interesting. They show that several micro-covariates do indeed influence people’s attitude towards the current tax systems and that the results are robust for a check on people’s perception of the actual characteristics of the systems. Most intriguing, among other things, is the evidence that median people are the second most satisfied with the distribution of taxes. On the one hand, this gives some support to the central idea in the literature on redistributive policies, that median people

¹⁸ We also try other measures for the progressivity of the tax system as alternative to TOP_RATE, like the difference between the pre-tax and the post-tax Gini coefficients. The evidence is similar to that presented in Table 5. We give the results for TOP_RATE because its lower correlation with TAXES (which is only 0.18).

Table 6
Predicted probabilities and marginal effects for categories of triplets

Collections of attitudes towards tax systems	'Satisfied with the tax system'	'Too much redistribution'	'Too little redistribution'	'Taxes overall too high'
(Triplets)	(RRR)	(LLH, LRH, LHH, RRH)	(RRL, HLL, HRL, HHL)	(RHH, HHR, HHH)
(Frequencies in sample)	(6.0%)	(2.3%)	(48.4%)	(29.5%)
<i>Sociological dum. (marg. eff.)</i>				
Unemployed	-0.7	-0.6	0.6	1.1
Self-employed	0.7	0.7	-7.2	4.7
Trade union member	-0.7	-0.4	3.5	-2.6
Graduate	1.8	1.0	-6.1	0.3
Male	0.7	0.2	-1.0	-0.4
Married	0.6	0.3	-3.7	2.0
<i>Income classes</i>				
Poor	5.3	1.9	52.2	27.7
Median	7.2	2.6	47.7	27.6
Upper median	6.1	2.1	48.3	29.7
Mean and upper mean	6.2	2.4	45.6	30.9
Top 5%	8.8	4.0	34.7	36.6
<i>Ideological affiliation</i>				
Left-wing	5.0	1.4	55.9	24.2
Centrist	5.7	2.3	48.5	29.8
Right-wing	7.6	3.2	38.7	35.7

Predicted probabilities and marginal effects simulated from coefficients estimated in Table 5.

occupy a relevant position in influencing political outcome; on the other hand, it does not especially support the various ideas developed to explain limitation in redistribution with the hypothesis that pivotal voters would somehow be just above the median, or even the mean. Likewise, the evidence is also not favourable to models of "ends against the middle", in which the median should actually be those most disappointed.

Notwithstanding, the results are obviously very far from the median voter theorem, which would imply that having controlled for all the other variables, the 'median' should be decisive. In fact, more generally, none of the estimated coefficients appear able to exert an overall decisive support on triplet RRR, not even the 'top 5%' or the 'right-winger', which remain the controls exerting the largest positive impacts.

To better quantify the effects of the various micro-covariates for the distribution of the tax triplets, in Table 6 we give post-regression accounting of their impacts in the form of predicted probabilities and marginal effects. They have been computed as follows. Begin by considering the sociological dummies. For each individual in the sample, we have calculated his or her predicted probabilities of giving any of the various categories of triplets when setting the various covariates equal to 1 and to 0. The table shows the difference between the average probabilities so computed.¹⁹ The figures substantiate the evidence that sociological variables and personal characteristics affect people's attitudes towards redistribution policies. They also indicate which

¹⁹ As anticipated in footnote 8, the simulations presented are substantially identical to those that would have been obtained estimating a multinomial logit on the whole set of individual triplets, and then aggregating the simulations across the triplets of each category.

characteristics play the strongest effects. They are those of graduates (+1.8% on RRR and –6.1% on the triplets of ‘too little redistribution’), self-employed (+0.7% on RRR, –7.2% on ‘too little redistribution’ and +4.7% on ‘taxes overall too high’), trade union members (–0.7%, +3.5 and –2.6%, in order, on the same categories of triplets).

For the impact of the income classes, the table reports the sample average predicted probabilities of giving any of the various tax triplets, making the dummy for each class equal to 1, while keeping the dummies for the other classes equal to 0 (and the other covariates at their sample value). The marginal effects of changing the income status from one class to another can be computed for each triplet as the difference between the predicted probabilities for two classes. For example, being in the ‘top 5%’ rather than in the ‘poor’ increases (on average) the chances of being satisfied with the tax system (namely of giving triplet RRR) by +3.5% (8.8–5.3%); while being in the ‘median’ rather than in the ‘mean and upper mean’ by +1.0%. Similar computations regarding to the other income classes confirm that the median are the second most satisfied with the tax systems (+1.9% and +1.1%, respectively, above the ‘poor’ and the ‘upper median’, –1.6% below the ‘top 5%’) and that the ‘top 5%’ are distinctly the first (+2.6% above the adjacent ‘mean and upper mean’). Even the latter income class, however, is far from being pivotal.²⁰ The evidence from the other categories of triplets, specifically the last two categories in the table, may contribute to explain why. The simulations for them in particular show that, in absolute terms, the largest effect of moving upwards in the income distribution is to decrease the disappointment for ‘too little redistribution’ in the tax systems, namely from 52.2% amongst the ‘poor’ to 34.7% amongst the ‘top 5%’, and to increase that for ‘taxes overall too high’, from 27.7% to 36.6% between the two classes in the same order.

The predicted probabilities for the ideological affiliations show a somewhat similar picture.²¹ In particular, the simulations for rightists, the most satisfied with the tax systems, give a predicted probability for triplet RRR of 7.6%; the marginal effect above leftists is +2.6%; it is +2.0% above centrists. The effects are not negligible (as for example compared with the impacts of the sociological dummies, or considered relatively to the sample frequency of the triplet, i.e., only 6%), though they cannot clearly be viewed as pivotal for the current tax systems. Larger impacts apply to the other categories of triplets: rightists are in particular also the least disappointed for ‘too little redistribution’ in the tax systems, with 38.7% as predicted probability, and –10.2% and –17.2% as marginal effects below centrists and leftists, respectively; while they are the most unhappy for ‘taxes overall all too high’, with 35.7% as predicted probability, and +5.9% and +11.5% as marginal effects above, respectively, centrists and leftists. (For triplets of ‘too much redistribution’, the order is the same, but the effects are smaller).

4.4. *The effect of equality of opportunities*

In this sub-section, we control for a further factor that may affect redistributive outcomes. As alluded to in the introduction, there is in particular an increasing emphasis in the literature on political redistribution on the impact that beliefs in equality of opportunity may have in

²⁰ In particular, notice that a pivotal class would technically imply, after controlling for all the other factors, a predicted probability of 1.

²¹ The predicted probabilities reported in the table have been computed as for the income classes, setting in turn each dummy for leftists, centrists and rightists equal 1, holding the other two dummies equal 0.

explaining observed limits in redistribution policies as the result of the will of the majority (see, e.g., Piketty, 1995; Bénabou and Ok, 2001). In such a respect, the survey evidence analysed in various recent studies (including those by Fong, 2001; Corneo and Grüner, 2002; Alesina and La Ferrara, 2005), while confirming that people believing that markets give fair chances to everybody and that social background is unimportant have weaker preferences for redistribution from a general perspective, is silent about the extent to which concern for equality of opportunity may actually explain real-world redistribution policies.

The ISSP provides some useful data in addressing the latter issue, but only with reference to the 1987 and 1992 surveys. Both surveys contain in particular a group of questions asking respondents to value “*how important are various factors to getting ahead in life*”. Among factors considered are hard work, a wealthy family, having political connections. Answers can range from 1 (*essential*) to 5 (*not important at all*). Dummies for the above factors have been constructed, taking value ‘1’ for answers of type 1 or 2 or 3, and ‘0’ for answers of type 4 or 5. We have also considered a dummy for people who have experienced upwards social mobility. The dummy is based on a question asking respondents to compare their present income with their father’s income at the same age of the respondent. Answers can range from 1. “*much better off than father*”, to 2. “*better off*”, 3. “*about equal*”, 4. “*worse off*”, and 5. “*much worse off*”. The question is only available in the 1992 survey. The dummy used in the regression is ‘1’ for answers of type 1 or 2, and ‘0’ for answers of type 3, 4 or 5.

Table 7 reports the coefficients for the above dummies estimated in models where the covariates have been added one at a time to the basic specification of Table 5. Begin by considering the logit for PREFRED. The results confirm the evidence from the various recent studies that preferences for redistribution are influenced by the perception of the fairness of the social game, as the various dummies enter in the regressions with high statistical significance and with expected signs: in particular weakening preferences for redistribution in the case of ‘belief in hard work’ and ‘experienced mobility’, while making preferences for redistribution

Table 7
Estimated coefficients for beliefs in equality of opportunity

Dependent	PREFRED	‘Satisfied with the tax system’	‘Too much redistribution’	‘Too little redistribution’	‘Taxes overall too high’
(Triplets)		(RRR)	(LLH, LRH, LHH, RRH)	(RRL, HLL, HRL, HHL)	(RHH, HHR, HHH)
(Frequencies in sample)	(58.9%)	(6.0%)	(2.0%)	(48.7%)	(28.7%)
Belief in:					
— hard-work	−0.291** (0.089)	0.259 (0.183)	−0.259 (0.271)	−0.151 (0.082)	0.041 (0.091)
— wealthy family	0.175** (0.036)	−0.114 (0.070)	−0.016 (0.121)	−0.046 (0.035)	0.041 (0.038)
— political connections	0.221** (0.039)	−0.190* (0.076)	−0.199 (0.131)	0.078* (0.037)	0.016 (0.040)
Experienced mobility	−0.181** (0.061)	0.174 (0.126)	−0.050 (0.236)	−0.201** (0.058)	0.124 (0.064)

Effects estimated in individual models including also the same controls as the basic model of Table 5. The questions to study beliefs in hard-work, wealthy family, political collections are included only in the surveys conducted in 1987 and 1992; the two samples together include about 15,100 observations (with marginal differences across regressions). The question to study experienced mobility is included only in the 1992 surveys, with about 7100 observations available for the regression. Standard errors and legend for statistical significance as in Table 5 (sample frequencies at the top of the table are from the aggregate 1992–1987 surveys).

stronger in the case of beliefs that ‘wealthy family’ and ‘political connections’ are important factors ‘to get ahead in life’.

Consider now the regressions for the tax triplets. One interesting piece of evidence is that the impacts of these covariates on the occurrence of triplet RRR are once again in all cases opposite to the signs discovered for PREFERD. The estimated coefficients however appear small and only in one case (namely, ‘belief in political connections’) reaching statistical significance at a conventional level (5%). The evidence on the other categories of triplets is confirmed to be generally weak.²²

Overall, the above results support the view that equality of opportunity is a concern influencing both people’s preference for redistribution, and also the way in which they judge actual redistributive outcomes; on the other hand, however, such factors appear more marginal than income classes and ideology²³ and are certainly not able to explain observed limits in redistribution policies as resulting from the will of the majority.

4.5. *Interacting the dummies for income classes with the dummies for ideological affiliations*

Perhaps, one may view the evidence that no single variable is able to play a decisive effect in supporting the current tax systems just as a natural confirmation of the difficulty of designing a fiscal system that satisfies the majority of the individuals. Conversely, however, one may also view in it a confirmation that the very same idea of a pivotal voter is unsatisfactory, and that many dimensions interact to determine people’s attitudes towards redistributive taxation. From this perspective, an interesting final exercise is to verify how the two major dimensions that we have found affect people’s answers, namely pecuniary self-interest and ideology, are related in influencing the results.

To obtain evidence on the issue, we estimated a model interacting the dummies for the income classes with those for ideological affiliations. Table 8 reports the predicted probabilities of income classes across ideological affiliations obtained as post-regression accounting from the exercise.²⁴ The results are interesting. Some are in line with previously reported evidence. Others represent further qualifications.

Considering the simulations for triplet RRR, we see once more that the right-wingers are on average the most satisfied with the tax systems, followed by centrists, and by left-wingers. More importantly, the same order, rightists-centrist-leftists, basically holds across each individual income class (with the possible exception of the ‘mean and upper mean—leftists’, a little more satisfied than the corresponding centrist income class). In addition, within each ideological category, the ‘poor’ remain the least satisfied, while the ‘top 5%’ are the most supportive of the fiscal systems.

One new qualification, however, is that while the ‘top 5%—rightists’ and ‘top 5%—centrists’ give the highest predicted probabilities, the simulation for the ‘top 5%—leftists’ is beaten by almost all the income classes of the rightist (with the exception of the ‘poor’), and is just equal to the ‘median-centrist’. A second qualification is that while satisfaction is bimodal with the

²² We have also estimated specifications without the covariates for political ideologies or sociological controls: the magnitude of the estimates is not substantially affected compared to those reported in the table.

²³ The latter point is also confirmed by simulations of predicted probabilities obtained from the above regressions, which are not reported for brevity and are available in Bernasconi (2004).

²⁴ The estimated regressions, conducted on the whole sample, include also the controls for the sociological variables and dummies for country-fixed effects. (They are not included for brevity; they are available upon request.)

Table 8
Predicted probabilities of income classes across ideological affiliations

Collections of attitudes towards tax systems	'Satisfied with the tax system'	'Too much redistribution'	'Too little redistribution'	'Taxes overall too high'
(Triplets)	(RRR)	(LLH, LRH, LHH, RRH)	(RRL, HLL, HRL, HHL)	(RHH, HHR, HHH)
(Frequencies in sample)	(6.0%)	(2.3%)	(48.4%)	(29.5%)
<i>Left-wing</i>				
Poor	4.2	1.4	58.7	23.4
Median	6.2	1.0	54.4	22.8
Upper median	4.8	1.2	56.9	23.9
Mean and upper mean	5.5	1.3	54.0	25.1
Top 5%	7.5	2.3	46.4	25.2
<i>Centrist</i>				
Poor	5.2	1.8	52.7	27.9
Median	7.5	3.5	48.3	27.0
Upper median	5.5	2.0	46.8	30.3
Mean and upper mean	5.4	2.6	45.9	31.2
Top 5%	8.9	3.5	34.7	38.8
<i>Right-wing</i>				
Poor	6.8	2.4	43.8	32.7
Median	7.9	3.0	39.2	34.2
Upper median	8.4	3.4	39.5	36.0
Mean and upper mean	8.0	3.5	34.8	37.8
Top 5%	10.2	6.5	21.9	45.1

Predicted probabilities obtained from logit regressions estimated interacting the dummies for the income classes with those of partisanship. (The estimated model includes also the controls for the sociological variables and dummies for fixed effects as in the basic model of Table 5.)

income classes across all ideological groups, the 'median' are distinctly second among both 'leftists' and 'centrists', while they are fourth among 'rightists'. It is interesting also to notice that, with regards to triplet RRR, the marginal effects across the income classes are in absolute value similar amongst all ideological categories: for example, the largest marginal effects between income classes (which, for all ideological categories, are between the 'poor' and the 'top 5%'), are +3.3% (7.5–4.2%) amongst leftists, +3.7% (8.9–5.2%) amongst centrists, and +3.4% (10.8–6.8%) among rightists.

On the other triplets there seems instead to be a different degree of homogeneity in the opinions of people of the same ideology, but different income classes. Leftists seem in particular more homogeneous than both centrists and rightists. For example, looking at the simulations for 'too little redistribution', the marginal effects between the probability predicted for the 'poor' and the 'top 5%' are: –12.3% among leftists, –18% among centrists and –21.9% among rightists. For 'taxes overall too high', the similarity amongst leftists seems even stronger, as the difference between the predicted probabilities for the same two income classes is only 1.8%, while it is 10.9% among centrists and 12.4% amongst rightists. The analysis of the same figures also confirms that leftists of all income classes are more disappointed than, in order, both centrists and rightists in viewing the tax systems as not redistributing enough, while they are less disappointed for judging 'taxes overall too high' (and, obviously, also for seeing 'too much redistribution' in the systems).

We take the overall evidence from this subsection as confirming that redistributive policy is really a multidimensional issue, with a strong ideological component across all income classes.

5. Concluding view

The data presented in the above analysis are clearly complex and may not please those in search of simple answers to questions such as whether people in a democracy are satisfied with the redistributive tax systems they face; whether they consider the tax systems progressive enough; and whether they view the general level of taxation as too high or about right. These are important questions, not only when assessing the effectiveness of the fiscal policies of states but also the functioning of democratic systems more generally. The answers, however, do not appear to be simple.

To obtain some evidence, this paper has considered directly what people say about the redistributive tax systems in their countries. Economic literature has generally been more reluctant than other social sciences to use surveys in order to test theoretical ideas and hypotheses. Still, change is taking place in the increasing attention to analysing people's opinions and their justifications for their attitudes towards redistribution. We obviously agree with this new perspective, and we specifically believe that, even if it were excessive to interpret views on redistributive policies as direct expressions of political will, it would be wrong and presumptuous to simply ignore what people say, under the assumption that, in a democracy, the will of the people ultimately always prevails.

In fact, we are of two minds regarding the evidence we have found. On the one hand, the data clearly documents the existence of a relevant disappointment among people in democratic countries with the way the tax burden is distributed across income classes. Most people, in several countries the absolute majority, think that taxes on low and middle incomes are too high, while taxes on high incomes are too low. In addition, we have found a systematic tendency, for all factors inducing stronger preferences for redistribution policies from a general perspective, to work in the direction of decreasing satisfaction with the current tax systems. Most notably, we have found that people in the top income classes are unambiguously the most supportive of the current tax systems.

On the other hand, we did not find clear evidence that any income class has a pivotal effect. In fact, we have found that satisfaction with the tax system is bimodal, and in particular that the medians are the second strongest supporters of the current redistributive tax systems. This is not a trivial point. Among other things, this is evidence against many of the theoretical models that take as a general hypothesis of explaining limits in redistribution that the decisive voter is somehow just above the median, or even the mean, income.

Overall, the results reported in this paper are more supportive of approaches emphasizing that preferences for redistribution have a multidimensional nature, as often noted by the political science literature. Most notably, in the present investigation, the ideological affiliation remains a major element of confrontation on redistributive taxation, holding across all income classes—with leftists especially disappointed with the current tax systems viewed as not sufficiently redistributive (but who seem overall less unsatisfied with the general level of taxation), and rightists who instead want less taxation for all.

In a similar perspective, the evidence on the several other dimensions has been found to influence people's opinions on real world redistributive tax systems, including impacts of values and beliefs associated with equality of opportunities that, while having been confirmed to affect

people's attitudes towards redistribution, have also been shown to be quite insufficient for providing the final explanation for observed limits in real world redistributive policies.

The problem of multidimensionality clearly makes it difficult to establish the extent to which democracy can be viewed as working satisfactorily through the redistributive preferences of the majority of citizens. The answer may well depend on individual sensitivities. We have tried to be as fair as possible in presenting and commenting the evidence. A final view is that the general context differs from an ideal in which all preferences count equally, although it seems that there is indeed more than suggested by a first inspection of the answers to the tax satisfaction questions. In any case, the data have been provided and everybody can make up his or her own mind.

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Appendix A. Description of data

The survey data used in this study comes from the International Social Survey Programme (ISSP), which since 1985 has conducted social surveys in the countries participating in the programme on relevant topics in the social sciences. The data considered in this paper is from three modules: the Social Inequality Modules I and II, conducted respectively in 1987 and 1992, and the Role of Government Module III in 1996. The whole ISSP data archive is maintained at *Zentralarchiv für Empirische Sozialforschung* at the University of Cologne, Germany: <http://www.gesis.org/ZA/>. Below we report the basic sources and statistics of the variables used in the regressions (further details can be found in [Bernasconi, 2004](#)).

A.1. Construction of variables

Dependent variables:

Dummy for ‘Satisfied with the tax systems’ is 1 if tax triplet of [Table 2](#) is (RRR); 0 otherwise.

Dummy for ‘Too much redistribution’ is 1 if tax triplet is any of (LLH, LRH, LHH, RRH); 0 otherwise.

Dummy for ‘Too little redistribution’ is 1 if tax triplet is any of (RRL, HLL, HRL, HHL); 0 otherwise.

Dummy for ‘Taxes overall too high’ is 1 if tax triplet is any of (RHH, HHR, HHH); 0 otherwise.

Dummy PREFRED: based on question “*It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes*”. PREFRED is 1, if respondent answers “*agree strongly*” or “*agree*”; it is 0 if respondent answers “*neither agree nor disagree*”, “*disagree*”, “*disagree strongly*”.

Covariates

‘Male’: 1 if respondent is male, 0 if female (variables v83, v99, v200 in, respectively, the 1987, 1992, 1996 surveys).

‘Age/Age squared’: respondents’ age and age squared (variables v82, v100, v201 in, respectively, the 1987, 1992, 1996 surveys).

‘Married’: 1 if respondent is married, 0 if respondent is not married (from variables on marital status v85, v101, v202 in, respectively, the 1987, 1992, 1996 surveys).

‘Graduate’: 1 if respondent holds a university degree, 0 if respondent doesn’t. Categorization is from variables on education categories (variables v88, v103, v205 in the three surveys, 1987, 1992, 1996).

‘Unemployed’: 1 if respondent is unemployed, 0 if respondent is not unemployed. (From variables on current employment status v74, v104, v206 in, respectively, the 1987, 1992, 1996 surveys).

‘Self-employed’: 1 if respondent is self-employed, 0 if respondent is not self-employed. (From variables on self-employment status v72, v110, v213 in, respectively, the 1987, 1992, 1996 surveys).

‘Trade union member’: 1 if respondent is a trade union member, 0 if respondent is not a Trade Union member. (From variables on trade union membership v81, v112, v213 in, respectively, the 1987, 1992, 1996 surveys.)

‘Right-wing’/‘Left-wing’: The ISSP surveys provide country-specific party affiliation questions. From these questions, ISSP classifies respondents in 7 categories (v96 in the 1987 survey, v121 in the 1992 survey, v223 in the 1996 survey): 1. “*Far left (communist, etc.)*”, 2. “*Left, centre left*”, 3. “*Centre, liberal*”, 4. “*Right, conservative*”, 5. “*Far right, fascist etc.*”, 6. “*Other, no specification*”, 7. “*No party, no preference*”. In the regressions, ‘left-wing’ is ‘1’ from categories 1 or 2, ‘0’ otherwise; and ‘right-wing’ is ‘1’ from categories 4 or 5, and ‘0’ otherwise. ‘Centrists’ is ‘1’ if both ‘left-wing’ and ‘right-wing’ are ‘0’, and it is ‘0’ otherwise. (For Italy, 1996, the same distinction is based on variable v259 on voting in last election.)

Dummies for income classes: They have been constructed from the distribution of the per capita household income obtained, for the various countries in the sample from the data reported in the ISSP surveys. The per capita household income y_i has been computed as the ratio between the variables ‘Household income’ and ‘Household size’ both reported in the surveys. In detail:

‘Household income’: Data are obtained as follows. Survey 1987: variable v92 for Netherlands, and v93 (midpoint categories) for Australia, Great Britain, US, West Germany, Austria; survey 1992: variable v115 for Australia, US, Czechoslovakia, Slovenia, and v116 (midpoint categories) for Germany (East and West), Great Britain, Norway, Austria; survey 1996: variable v218 for all countries.

‘Household size’: variable v92, v119, v273 in, respectively, the 1987, 1992, 1996 surveys.

‘Beliefs in hard work, wealthy family, political connections’: based on questions (in the order, v9, v4, v11, in both the 1987 and 1992 surveys), about opportunities for getting ahead in life. Dummies coded as 1, if respondent answers, for the different factors, “*essential*”, “*very important*” or “*fairly important*”; coded as 0 if answers “*not very important*” or “*not important at all*”.

‘Experienced mobility’: based on question (v75, only in the 1992 survey) asking “*Compared with your father when he was about your age, are you better off or worse off in your income and standard of living generally?*”. Dummy coded as 1, if respondent answers “*much better off*” or “*better off*”; coded as 0 if answers “*about equal*”, “*worse off*”, “*much worse off*”.

‘TAXES’: total tax revenue as proportion of GDP in the respondent’s country. For the OECD countries, the variable is calculated as three years moving average over the year of the survey and the two years before (source: Revenue Statistics 1965–2000, OECD, 2001); for the three non-OECD countries, namely Bulgaria, Russia and Slovenia, the variable is tax revenue in percent of GDP obtained from P. Mitra and N. Stern (2003), “Tax systems in transition”, World bank Policy Research Working Paper 2947.

‘TOP-RATE’: top marginal income tax rate in the respondent’s country at the time of the survey. Source: Gwartney et al., 2003. Data retrieved from <http://www.freetheworld.com>.

‘COUNTRY’: dummies for countries fixed effects.

Basic statistics of the data

Variable	Obs	Mean	Std. dev.	Min	Max
PREFRED	44878	0.58850	0.4921	0	1
‘Satisfied with the tax systems’ (RRR)	40949	0.058854	0.235354	0	1
‘Too much redistribution’	40949	0.023224	0.150616	0	1
‘Too little redistribution’	40949	0.486239	0.499817	0	1
‘Taxes overall too high’	40949	0.294733	0.455928	0	1
Unemployed	47222	0.0465	0.2105	0	1
Self employed	47222	0.0892	0.2851	0	1
Trade union member	47222	0.2373	0.4254	0	1
Male	47172	0.4795	0.4996	0	1
Age	46972	45.0221	16.6300	16	97
Graduate	47188	0.1912	0.3933	0	1
Married	47010	0.6304	0.4827	0	1
Left-wing	41740	0.3244	0.4682	0	1
Centrists	41740	0.4041	0.4907	0	1
Right-wing	41740	0.2715	0.4447	0	1
Poor	39749	0.4861	0.4998	0	1
Median	39749	0.0336	0.1803	0	1
Upper median	39749	0.0995	0.2994	0	1
Mean and upper mean	39749	0.3153	0.4646	0	1
Top 5%	39749	0.0654	0.2472	0	1
Beliefs in hard work	21452	0.9417	0.2343	0	1
Beliefs in wealth family	21172	0.5063	0.5000	0	1
Beliefs in political connections	20722	0.4144	0.4926	0	1
Experienced mobility	10227	0.7031	0.4569	0	1
TAXES	47222	0.36182	0.056166	0.258	0.495
TOP_RATE	47222	0.505309	0.096462	0.3	0.72
Australia	47222	0.0819	0.2742	0	1
Austria	47222	0.0423	0.2013	0	1
Bulgaria	47222	0.0214	0.1448	0	1
Canada	47222	0.025	0.1562	0	1
Check Republic	47222	0.0466	0.2108	0	1
East Germany	47222	0.0467	0.2109	0	1
France	47222	0.0278	0.1644	0	1
Great Britain	47222	0.0692	0.2538	0	1
Hungary	47222	0.0318	0.1754	0	1
Ireland	47222	0.021	0.1436	0	1
Italy	47222	0.0234	0.1511	0	1
Japan	47222	0.0264	0.1605	0	1
Netherlands	47222	0.0347	0.183	0	1
New Zealand	47222	0.0254	0.1572	0	1
Norway	47222	0.061	0.2394	0	1
Poland	47222	0.0251	0.1563	0	1
Russia	47222	0.0358	0.1858	0	1
Slovenia	47222	0.0435	0.2039	0	1
Sweden	47222	0.0262	0.1598	0	1
Switzerland	47222	0.0742	0.2621	0	1
United States of America	47222	0.0824	0.2749	0	1
West Germany	47222	0.1282	0.3343	0	1

Appendix B. A snapshot of evidence across macro-regions

The evidence presented in the paper is based on the aggregate sample of countries. It uses dummies for fixed effects (in addition to the two tax macro-covariates) in order to account for the several macro conditions that might have affected the overall average frequencies of the answers in different countries. The fixed effects, however, don't permit accounting for the way in which different macro conditions may have also affected differently the impact of the micro covariates. Thus, even if the theories of political redistribution tested have been elaborated to hold generally true, it is important to obtain some evidence about how the results found for the aggregate may hold across different countries.

To this end, in this Appendix we report results of the estimation of the basic specification of the text (see Section 4.2) estimated for 3 clusters of countries that may be more naturally considered together. We have in particular distinguished the following macro-regions: the Anglo-Saxon countries (including Australia, Great Britain, the U.S., Canada, New Zealand and Ireland), the Continental European non-post-communist (comprising Austria, France, West Germany, Italy, the Netherlands, Norway, Sweden and Switzerland) and the European post-communist countries (namely Bulgaria, the Czech Republic, East Germany, Hungary, Poland, Russia, and Slovenia).²⁵ The three macro regions may be considered as similar in various respects. For example Anglo-Saxons in general, and Americans in particular, have been shown by several surveys to be less concerned about inequality than people from other nations (see [Glazer, 2002](#) for discussion and references); conversely, individuals living in the former Socialist countries have been shown to be more concerned ([Corneo and Grüner, 2002](#)). In addition, the distinction between Anglo-Saxon and non-Anglo-Saxon countries differentiates almost perfectly in the sample between countries with majority rather than proportional electoral systems (the exceptions being Ireland, a country in the Anglo-Saxon grouping with a proportional system, and France, with a majority system but part of the European group, with Germany and Italy having mixed systems). The point may be important, especially in view of a growing confidence among economists that majority systems are somehow more generally effective for economic policy than proportional systems ([Persson et al., 2004](#)).

The results of the estimations are reported in Table B.1 in the form of predicted probabilities and marginal effects of the usual categories of tax triplets. This helps the comparison across the three macro-regions. At the top of the table we also report the sample probabilities of the tax triplets in the three regions. The overall distributions are verified to be similar across the three macro-regions. Still, it is also confirmed that in the Anglo-Saxon countries there is a lower tendency than in the European countries (both non-post-communist and post-communist) to be disappointed for 'too little redistribution in the systems', while to be more disappointed for 'taxes overall all too high'. The frequency of those satisfied with the systems is higher in the Anglo-Saxon countries (7.0%), followed by the European non-post-communist (6.0%) and lastly by the European post-communist (4.4%).

²⁵ There clearly are other possible ways of constructing clusters of countries (for example, Great Britain and Ireland could be included amongst the European non-post-communist; Japan is excluded, but it may perhaps be aggregated to the European; etc.); but we emphasize that the results presented below are resistant to slight modifications along the lines of the above general categorizations.

Table B.1: Predicted probabilities and marginal effects from regressions of the basic specification across macro regions

Macro regions	Anglo-Saxon				Continental Europe (no post-communist)				European post-communist			
Collections of attitudes towards tax systems	Satisfied with the tax sys.	Too much redistribution	Too little redistribution	Taxes overall too high	Satisfied with the tax sys.	Too much redistribution	Too little redistribution	Taxes overall too high	Satisfied with the tax sys.	Too much redistribution	Too little redistribution	Taxes overall too high
(Triplets)	(RRR)	(LLH, LRH, LHH,RRH)	(RRL, HLL, HRL, HHL)	(RHH, HHR, HHH)	(RRR)	(LLH, LRH, LHH, RRH)	(RRL, HLL, HRL, HHL)	(RHH, HHR, HHH)	(RRR)	(LLH, LRH, LHH, RRH)	(RRL, HLL, HRL, HHL)	(RHH, HHR, HHH)
(Frequencies in sample)	(7.0%)	(2.1%)	(38.9%)	(34.5%)	(6.0%)	(2.3%)	(53.2%)	(26.5%)	(4.4%)	(2.0%)	(53.9%)	(28.0%)
<i>Socio. Dum. (marg. eff.)</i>												
Unemployed	0.2	-1.1	1.8	1.5	-1.1	-1.0	1.2	-0.6	-0.9	0.0	-1.4	3.0
Self-employed	1.0	0.3	-5.9	4.9	0.5	1.3	-7.3	3.5	-0.1	0.6	-8.3	6.2
Trade Union member	-0.9	-0.2	4.2	-3.2	-0.2	-0.7	4.6	-4.6	-1.5	0.2	0.1	1.7
Graduate	0.1	0.1	-0.9	-3.1	3.8	2.3	-11.0	1.0	1.6	0.0	-7.0	4.9
Male	0.3	0.2	-0.8	-0.3	0.6	0.2	-1.6	0.4	1.4	-0.2	0.5	-1.8
Married	0.5	0.5	-3.0	0.4	0.7	0.5	-6.0	3.5	0.2	-0.1	-0.1	1.8
<i>Income classes</i>												
Poor	6.4	2.0	41.4	33.7	5.3	1.5	58.5	23.8	3.5	1.9	57.5	26.0
Median	8.4	1.6	40.4	30.2	6.6	3.6	51.8	25.9	5.1	1.6	48.8	33.7
Upper median	6.7	2.0	42.5	33.3	6.2	2.5	50.9	28.4	5.2	1.5	51.6	27.1
Mean and upper mean	7.4	2.3	36.0	35.2	6.1	2.5	49.9	28.3	4.7	2.2	51.7	29.9
Top 5%	9.0	3.3	28.9	40.9	9.5	5.3	34.4	35.8	6.7	2.1	44.9	31.9
<i>Ideological affiliation</i>												
Left-wing	5.1	1.5	46.2	29.9	5.4	0.9	62.3	20.0	4.1	1.9	56.9	25.3
Centrist	6.3	2.0	41.4	33.8	6.0	2.5	51.5	27.1	4.0	2.0	55.3	28.3
Right-wing	9.6	2.8	28.8	40.2	6.9	3.8	42.2	35.3	5.3	2.3	47.8	30.5

Predicted probabilities and marginal effects simulated from logit regressions of the basic model (Table 5 text) across macro regions. (Regressions for each of the various macro regions include also dummies for fixed effects of the countries within the regions.)

When beginning to consider the simulations, we notice that at the general level the evidence is indeed quite similar across the three macro-regions. Starting to look at the effects of the sociological dummies, we first of all see that the signs of the covariates are comparable between the Anglo-Saxon and the European non-post-communist countries (out of 24 effects estimated across the triplets—6 dummies \times 4 dependent variables—we can in particular count only 4 covariates with different signs); the signs are a bit less comparable with the European post-communist (9 differences from both the Anglo-Saxon and the European non-post-communist), with the effects however also generally smaller.

The effects of the income classes are also similar. In particular, one of the major points of the evidence is that the ‘top 5%’ are the most satisfied (namely giving triplet RRR) with the fiscal systems of the various countries in all macro-regions, while the ‘poor’ are the least. In addition, it is also confirmed for all macro regions that satisfaction is bimodal with income, with the ‘median’ being specifically the second satisfied in both the Anglo-Saxon and in the European non-post-communist countries, and coming third in the post-communist. There are differences, notwithstanding, amongst the magnitudes of the effects: the greater satisfaction across all classes is clearly in the Anglo-Saxon countries, the lower in the European post-communists; the greatest variation across income classes is in the European non-post-communist. The effect of ‘median’ is distinctly stronger in the Anglo-Saxon countries—a marginal effect of only -0.6% below the ‘top 5%’—perhaps also a sign of a greater efficiency of the majority electoral systems adopted in such countries. On the other categories of triplets, the effects of income classes are also comparable in the signs across the macro regions. Perhaps a noticeable difference is once again for the ‘median’ who in both the Anglo-Saxon and in the European post-communist countries seem to protest distinctly less than the adjacent classes for ‘too little redistribution’; but while in the Anglo-Saxon countries the lower disappointment turns into (as noted) more satisfaction, in the post-communist it tends toward more protest for ‘taxes overall too high’.

In all macro regions, the rightists are the more satisfied with the tax systems. The evidence is stronger in the Anglo-Saxon. On the other categories of triplets the evidence is as expected and consistent across all macro regions.

Overall, the evidence from this Appendix corroborates with some interesting qualifications the results reported in the main text for the aggregate sample of counties.

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