

# Preferences for Redistribution: a European Comparative Analysis

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## Abstract

The aim of the paper is to determine who supports the Welfare State in Europe and who would benefit from a shrinking -or at least a retrenchment- of the European social model. The assumption underlying this research is that the evolution of social policies in Europe and the differences that persist across European countries are pushed by the changing risk of agents, depending mainly on their employment status (employers vs. workers, public vs. private, industrial vs. service sector, level of knowledge and responsibility that is required). A recent body of the economic literature tries to address the problem of the determinants of preferences for redistribution. The standard viewpoint is to consider a purely pecuniary factor as determining individual preferences (Meltzer and Richards [1981]), although a large number of additional factors (e.g. social mobility, cultural values) have been theoretically and empirically introduced (Piketty [1995], Benabou and Ok [2001], Alesina and La Ferrara [2004]). The present paper takes the egoistic motives for redistribution seriously, and tries to estimate the relative importance of socioeconomic factors in terms of current and expected gain (i.e. taking into account social mobility experiment and risk aversion). Using ISSP survey data for four European countries, our results confirm the importance of a pure revenue effect on preferences. But importantly, the social background of individuals can somehow temper this effect. Moreover, the intensity of the latter differs from one country to another.

**Keywords:** Redistribution, Social Mobility, Ordered Logit Regression

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# 1 Introduction

Our main concern is to determine who supports the Welfare State in Europe and who would benefit from a shrinking -or at least a retrenchment- of the European social model. The European social model, with its national differences emphasized in Amable [2003, 2005], is broadly defined as a set of policies that aim at reducing income or status inequalities stemming from the functioning of market mechanisms. It is argued that there is a direct link between the economic position of individuals and their policy preferences. Importantly, the economic position of agents is not, in our view, reduced to their income level, but also includes their work occupation (measuring skill level and specialization). Furthermore, we will assess the role of social mobility experiment and of risk aversion in the formation of preferences for redistribution.

Moreover, by a mechanical process, the democratic system imposes that policy preferences of agents are -at least partially- translated into the political supply of parties (through the formation of homogenous sociopolitical groups and the electoral process). This phenomenon is emphasized by the fact that political parties, that aim to accede power (or to maintain it), are interested in political support, hence in answering the political demand of voters.

Hence, the broader idea that motivates our research agenda is that the evolution of social policies in Europe and the differences that persist across European countries are pushed by the changing risk of agents, depending mainly on their employment status (employers and workers, public vs. private, industrial vs. services sector, level of knowledge and responsibility that is required).

Finally, the changing weight of social groups and the degree of homogeneity that exists inside groups crucially influences the political outcome<sup>1</sup>. The analysis of demand concerning social policies and the identification of social groups that formulate this demand are then necessary to be able to determine, in a comparative perspective, the roots of reforms and the possible evolution of social policies, at the national as at the European level.

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<sup>1</sup>See on this point the political economy model of Pagano and Volpin [2001, 2005], and its extension by Amable and Gatti [2004].

A recent body of the economic literature tries to address the problem of the formation of preferences for redistribution. The standard viewpoint is to consider a purely pecuniary factor as determining individual preferences (Meltzer and Richards [1981]). Adding the “prospect of upward mobility” to enrich the standard model, Benabou and Ok [2001] leave a room for individuals whose income is just below the mean to rationally oppose redistributive policies. Then, there can be a “preference for inequality” linked to the fact that a majority of voters expect an upward mobility, thus a net cost to redistribution<sup>2</sup>.

This idea is very close to the one exposed in Piketty [1995], who assumes a learning process that leads individuals to take into account not only their current income, but also their expected income. This expected income is based on the personal mobility history of individuals and on the beliefs they formed about the role of effort in determining income. Hence, relative income does also play a role in determining preferences, as pointed out by Ravallion and Lokshin [2000] who take advantage of the “tunnel effect” originated by Hirschman [1973]: beliefs are strongly related to the way other people move in the society. Ravallion and Lokshin [2000] and Corneo and Gruner [2000, 2002] find empirical support for this relative social mobility argument, using Russian data for the former, and international survey data for the latter.

Finally, a growing body of the literature focusses on cultural values as determinants of preferences for redistribution. Alesina, Glaeser and Sacerdote [2001] and Roemer and Van der Straaten [2004] focus on the racial conflict that could explain the refusal of redistribution when individuals expect migrants to take all the benefit from it. Scheve and Stasavage [2005] and Clark and Leikes [2005] highlight the role of religion as a mean to dampen social distress due to economic shocks. In these studies, the insurance motive of redistributive policies is tackled.

The present paper takes the egoistic motives for redistribution seriously, and tries to determine the relative importance of socioeconomic factors in terms of absolute and relative impact, and in terms of current and expected gain. Thus, we identify the following factors as explanatory variables: Current work occupation and income (to measure the risk faced by agents), self-

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<sup>2</sup>A similar argument has been recently tested by Alesina and La Ferrara [2005], though their estimation is based upon an *objective* mobility matrix.

employment and public employment (as a measure of risk aversion), religious denomination and church attendance (to measure the role of a potential social network), and personal history of social mobility and class feeling (to measure the impact of the relative position of individuals). Furthermore, all the studies that we reviewed were done on pooled country data, while our analysis will emphasize the heterogeneity of countries. Indeed, using pooled country regression render coefficients directly comparable, but the underlying assumption is one of homogeneity of the unobserved variables (the residual variance is constrained to be the same across countries). Hence, separated country regression will help to assess the crucial differences that persist between countries in the formation of preferences for redistribution.

The rest of the paper is organized as follows: Section 2 presents our estimation process and data, Section 3 illustrates the econometric results, and Section 4 concludes. Technical details on the empirical strategy can be found in the appendice, along with descriptive statistics of the data used.

## 2 Estimation process and Data

### 2.1 Estimation Process

We proceed to an ordered logit regression, since variables to be explained are discrete choices that can be easily ordered on a Likert scale. Ordered models assume the existence of threshold values, thus implying an ordering to the categories of the dependent variable. More precisely, a latent variable is supposed to determine the outcome, following a decision rule based on those cut-points parameters that need to be estimated (see the Appendix for formal explanation on this).

Interpretation of categorical variables estimations is not straightforward. Coefficients give us the marginal effects of 1 unit variation of the independent variable on the value of the latent variable. Thus, to help us interpreting the results (and to check the robustness of our results), we will also run binary logit regressions and base our interpretation on odds ratios.

To proceed to our micro-econometric analysis, we use ISSP data "Social Inequality III" (International Social Survey Programme - 1999). We select four countries in the dataset, that correspond to four ideal cases relative to the Welfare State in Europe, according to the literature: Germany, France, Sweden and Great Britain.

## 2.2 Dependent Variable

To proxy preferences of agents concerning redistribution policies, we use the following dependent variable:

- "It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes."

For presentational purpose, the scale has been inverted (from cons to pros in 5 categories). The distribution of answers can be found in the Appendix.

## 2.3 Independent Variables

Several variables have been selected in the dataset. Each variable corresponds to a possible explanation of the formation of preferences. The causal link involved is briefly exposed below.

1. Occupation (ISCO-88: International Standard Classification of Occupations<sup>3</sup>): The type of occupation, that depends on skills level and specialization, should influence the preferences of agents regarding social policies. According to Iversen & Soskice [2001], specific jobs are more threatened by globalization and macro shocks than others. Moreover, specialized workers have more difficulties to find vacations that correspond to their speciality. We will test this assumption using the ISCO occupation indicator that corresponds to this problematic. However, we will not use the *skill specificity index* constructed by the authors, in order to assess if the argument is robust to a change in indicator. Instead, for interpretation purpose, we cluster the ISCO indicator into the major groups (9 groups) indicated by the ILO and strongly linked to the education degree of individuals.

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<sup>3</sup>"ISCO-88 organises occupations in an hierarchical framework. At the lowest level is the unit of classification - a job - which is defined as a set of tasks or duties designed to be executed by one person. Jobs are grouped into occupations according to the degree of similarity in their constituent tasks and duties. [...] For the purpose of aggregating occupations into broadly similar categories at different levels in the hierarchy, ISCO-88 introduces the concept of skill, defined as the skill level - the degree of complexity of constituent tasks - and skill specialisation - essentially the field of knowledge required for competent performance of the constituent tasks." From *Introduction and The Conceptual Framework of ISCO-88*, by Peter Elias and Margaret Birch, February 1994. For a more detailed discussion see <http://www2.warwick.ac.uk/fac/soc/ier/research/isco88/>

2. Income<sup>4</sup>: The higher income an individual has, the less he needs public funding, hence the less he should be in favor of social spending. On the other hand, the higher income an individual has, the more he has to lose, providing he falls into unemployment. Hence, the linearity of his preferences towards redistribution is not theoretically obvious.
3. Self-employed and Publicly employed: We use both variables<sup>5</sup> to proxy risk aversion. Self-employed workers are supposed to be less risk averse than average (see Alesina and La Ferrara [2004]), while publicly employed people are supposed to be more risk averse than average. Indeed, public employees are supposed to be less likely to lose their job. Assuming a decision process while choosing their work status, those individuals who have chosen to be publicly employed should correspond to risk averse people.
4. Religion: Religious denomination and church attendance are used to assess the validity of the literature results in our sample (see Scheve and Stasavage [2005]).
5. Social Mobility: We use two different specifications to assess the social mobility argument. The first one is the self-assessment of individuals of their job prestige, compared to their father's. This specification can also be found in Corneo and Gruner [2002] and in Alesina and La Ferrara [2004]. The second specification we use is the personal history of individuals, concerning their social mobility. The survey asks individuals to place them today (question v46) and 10 years ago (question v48) on a social scale from 1 (top) to 10 (bottom). We calculate the difference between both answers to measure the subjective social mobility of respondents. It is argued that people who faced an upward mobility within the last 10 years should oppose redistribution, while people who (subjectively) experienced a downward mobility within the last 10 years should support redistribution (tunnel effect).

An important variable that could have been introduced into our analysis is the education level of individuals. Because it is already included into

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<sup>4</sup>In order to facilitate comparison and interpretation, the variable income is considered in quintiles, and labeled in the country money. Taking the original coding into the regression does not change the results. Moreover, quintiles are less precise than the original data. It gives thus power to the analysis, as it remains an important regressor while considered in quintiles.

<sup>5</sup>Our reference category is then people working in the private sector, in dependent employment.



our ISCO variable, it has not been put into the regression (to avoid multicollinearity). However, if tested separately, we find the same result as in the literature: the more educated an individual is, the less does she favor redistribution. The explanation for this is twofold: First, the more she studies, the more she is informed, hence the more she should not push public spending, knowing that it will induce higher taxes ; Second, the more she studies, the more she pays taxes while employed, hence the less she will favor redistribution. If we suppose that unemployment risk is decreasing with education, this effect is emphasized.

Another interesting explanatory variable to test would be the employment status of individuals (unemployed, disabled, retired, part-time, etc.). Unfortunately, the poor quality of the data constrained us to let this set of variables out of the regression.

As a set of control, we introduce the following variables: Gender (dummy for female), age and age squared (to allow for concavity), marital status and union membership.

### **3 Econometric results**

#### **3.1 Pooled country regression**

Running an ordered logit regression on pooled country data, it appears clearly that the economic factors that we have identified play a crucial role in determining preferences for redistribution. Not surprisingly, the family income is a good predictor of preferences: the higher it is, the lower the individual support for redistribution. This is a simple revenue effect: wealthier individuals are directly burdened by redistributive policies, while low income should gain from it.

Our proxies of risk aversion are also shown to have an important effect on preferences for redistribution: self-employed workers, who are supposed to be less risk averse than dependent employees, are indeed less in favor of redistribution. To the contrary, more risk averse people, proxied by public employees in our sample, appear to be strongly and significantly in favor of redistributive policies.

Finally, the type of occupation that individuals do is also a good predictor of their preferences, even after controlling by income. Indeed, our

occupation indicator, that is ranked from the high-skilled people to the low-skilled ones, is strongly and significantly related to our dependent variable. Since there are two dimensions in this indicator (skill level and skill specialization), one could doubt on the relevance of a straight ordering of the variable. However, when replacing the ordering variable by dummy variables (not shown here), results are not changed and remain highly significant for *all* categories. Yet interestingly, the ranking of coefficients is not the one that we would expect, meaning that the skill level and specialisation sorting is maybe not so obvious. Looking more precisely at outcomes, we find that skilled agricultural and fishery workers are less supportive than service and sales workers (and than clerks). This could be linked to the fact that the former are often self-employed people (the correlation between both dummies skilled agricultural workers and self-employed is 0.25 for the whole sample). Hence, a reversal effect is at play: skilled agricultural workers have specific skills that should lead to a demand for insurance, while they are self-employed, hence less risk averse than average. All in all, the first effect wins the game, since their coefficient eventually predict a positive attitude toward redistribution. To test the robustness of our predictions, the same binary transformation has been done for family income, in order to allow for non monotonous relationship between income categories and preferences. Results remain the same. Introducing both income and occupation binary variables in the regression leads to similar results, too. To conclude on that point, our occupation sorting seems robust enough to be kept.

Two more comments on control variables. Whereas being married (or living as married) has no significant effect on preferences for redistribution, being a female clearly enhance the probability to be in favor of redistribution. As for age, if middle age people are more in favor of redistribution than the youth, this effect is dampened through time (concave function).

Turning now to country dummies, the puzzle is the following. Great Britain is our reference category. The negative and highly significant coefficient for Sweden and Germany means then that living in one of those countries leads individuals to be less in favor of redistributive policies, as compared to British citizens. Whereas for France, though not significant, the coefficient is positive. More insight into countries is needed to be able interpret these results.

But before to do that, we discuss a further specification of our regression: also for robustness check, we have run the same regressions with a binary

dependent variable. People answering that they “agree” or “strongly agree” with the question on whether the government should reduce income differences were coded 1, whereas others (including “neither agree nor disagree” answers) were coded 0. Results are not shown here, though two points need more attention. First, the coefficient of Sweden is systematically higher in logit regressions than in ordered logit ones. At the same time, the coefficient of union members turns out to be smaller and loses some significance. Hence, there could be a direct link between both variables, knowing the important place of unions in the Swedish political environment. The second point is more tricky: The coefficient of France, which is positive and non significant in the ordered logit regressions, turns out to be systematically negative (though almost always non significant) when running binary logit regressions. This would mean that French people are less supportive to redistributive policies than British people, like Germans or Swedes. Once again, more insight into country dummies is needed to understand the various effects at play here.

Table 1: Preferences for redistribution

<i>Ordered logit</i>	[1]	[2]	[3]	[4]	[5]	[6]
isco88_major	.134*** (.017)	.141*** (.017)	.123*** (.017)	.134*** (.017)	.123*** (.017)	.119*** (.022)
f_income5	-.243*** (.028)	-.234*** (.028)	-.251*** (.028)	-.245*** (.028)	-.227*** (.029)	-.243*** (.033)
selfemployed	-.378*** (.127)	-.407*** (.129)	-.353*** (.131)	-.392*** (.128)	-.388*** (.129)	-.527*** (.155)
public	.398*** (.076)	.392*** (.077)	.411*** (.077)	.409*** (.078)	.395*** (.077)	.432*** (.090)
union_memb	.270*** (.082)	.291*** (.084)	.295*** (.084)	.263*** (.083)	.297*** (.082)	.283*** (.097)
sweden	-.382*** (.100)	-.345*** (.104)	-.403*** (.104)	-.408*** (.103)	-.396*** (.101)	
germany	-.276*** (.102)	-.308*** (.119)	-.287*** (.105)	-.327*** (.105)	-.294*** (.103)	.073 (.123)
france	.110 (.102)	.164 (.116)	.025 (.107)	.076 (.105)	.122 (.106)	.516*** (.117)
female	.403*** (.069)	.404*** (.071)	.426*** (.071)	.407*** (.071)	.376*** (.070)	.435*** (.084)
age	.027** (.013)	.028** (.014)	.027* (.014)	.024* (.014)	.020 (.014)	.023 (.020)
age2	-.031** (.014)	-.030** (.014)	-.030** (.014)	-.029** (.014)	-.027* (.014)	-.031 (.021)
married	.018 (.078)	.021 (.080)	.033 (.081)	.020 (.081)	.030 (.080)	.014 (.101)
catholic		-.269** (.105)				
protestant		-.223** (.089)				
other_relig		-.121 (.183)				
church_attend			-.094*** (.026)			
jobprestige				.117 (.072)		.068 (.092)
mobup					-.253*** (.078)	-.273*** (.093)
mobdown					.228** (.092)	.228** (.112)
isco88_major_fa						.037** (.019)
Number of Obs	3132	2987	2990	2984	3061	2114
Pseudo R-Sq.	.040	.043	.041	.040	.043	.051

Note: Robust standard errors in parentheses

\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

Models 2 and 3 introduce variables on religious denomination and church attendance. Our results confirm the argument of Scheve and Stasavage [2005]: Religion seems to act as a substitute for redistributive policies. According to the literature (Alesina et al. [2001]), this could be due to an insurance effect of religious communities that lessen the social distress of individuals, hence their need for redistribution.

Model 4 and 5 introduce the social mobility argument. Two different specifications are tested here. The first one tries to capture the effect of social mobility in a family context. Surprisingly, the coefficient of job prestige is positive, though not significant. Taking the argument seriously, this would mean that an individual who considers his job as more prestigious than his father's would yet be encline to have a positive attitude towards redistributive policies. Apart from intergenerational altruism, this effect could be due to a long-lasting effect of family experience. Hence, we need to disentangle the effect of "relative to father" social mobility to the "father's social position" lasting effect. Before to turn to this point, we discuss the results of our second mobility regressor. Indeed, our second specification of social mobility has a more straightforward interpretation: We use perceptions of personal upward and downward mobility within the last ten years as a regressor. Coefficients have the expected signs: Individuals who get the impression to have experienced an upward mobility are less supportive to redistributive policies, whereas people who experienced a downward mobility within the last ten years are more in favor of redistribution. Importantly, this is not an objective indicator of social mobility, but a subjective one. Although, the effect is highly significant.

Turning back to the results of model 4, we try to understand the positive effect of a higher job prestige than fathers' on preferences for redistribution. First, we add a personal measure of social mobility to the job prestige regressor (i.e. we simply add our second specification of social mobility, adding a dummy for upward mobility and another dummy for downward mobility, in different regressions). Doing this (not shown here), the job prestige positive effect is indeed reinforced and becomes strongly significant, meaning that a family effect is at play after controlling for individuals' effect. Second, as shown in model 6<sup>6</sup>, we add the father's occupation variable to our job

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<sup>6</sup>Data on father's occupation are not available for Great Britain (from that, we loose 804 observations). Also, Sweden becomes our reference category concerning country dummies. The difference between Germany and Sweden is not big, as shown in previous regression coefficients. Hence, our dummy for Germany loses significance. By contrast, our dummy

prestige regressor. Then, the job prestige coefficient, still positive, becomes non significant, while the father’s occupation has a significant positive effect on preferences for redistribution: The lower the father’s occupation in our scale, the higher the children’s support for redistribution. Hence, there is an explicit link between parents’ occupation and children’s attitudes towards redistribution: We clearly identified a long lasting effect of parents’ social position on children’s beliefs and attitudes. This is consistent with the argument of Piketty [1995].

### 3.2 Separated country regressions

As mentioned above, we need further insight into countries to understand the various effects at play. Running separated country regressions gives room for heterogeneity between countries, and allows to identify contextual effects. Importantly, doing this will also reduce the set of common regressors - simply because we will be able to determine which effects are due to the pooled sample and which are stable through different countries; and eventually, some countries will appear to be very close to each other in term of common regressors.

#### 3.2.1 Great Britain

We start the study of our results with Great Britain (Table 2<sup>7</sup>), comparing the separated country regression to the pooled countries regression discussed earlier.

Model 1 is the standard model. The results confirm that the type of occupation of the individual and his family income are the major regressors that determine preferences for redistribution. But contrary to the pooled regression, other factors do not play any significant role. Also, being self-employed decreases the probability to support redistributive policies, though this coefficient is not robust to different specifications (i.e. it loses significance in model 3, while adding church attendance, in model 4, while adding job prestige, in model 6, while adding personal mobility experience, and in model 7).

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for France becomes highly significant, meaning that living in France enhance positive attitudes towards redistribution, as compared to Sweden.

<sup>7</sup>Results do not change while including sample weight in the regression.

Turning to model 2, the explanatory power of religion is confirmed, though the substitute effect that theory predicts is not found: Being Catholic increases the probability to favor redistribution, while being Protestant (or Anglican here) plays the other way round. Hence, if there should be a substitute effect of religion that decreases the social distress of individuals when facing economic difficulties, this is right for Protestants but clearly not for Catholics. Results should be taken cautiously, however, since religion is very difficult to separate from other factors (namely family factors). Looking at church attendance, the coefficient has the expected sign, but is not significant.

Turning to social mobility, we run the regression with a new specification in model 7 (issued from the same question v46 used in model 6): We use the self-placement of individuals in a social scale from 1 (top) to 10 (bottom). Then we define two dummies: Upper class (i.e. self-placement from 1 to 4) and lower class (i.e. self-placement from 7 to 10), letting people on the 5th and 6th position being the middle class. Introducing these dummies into the regression leads to fair results: Individuals who subjectively belong to the upper class are less encline to favor redistribution than average, while individuals who subjectively belong to the lower class have an increased probability to support redistribution. Coefficients are significant. It is worth to notice that a side effect is to decrease the coefficients of occupation and family income, still letting them highly significant.

As before, we check robustness of our results by running binary logit regressions. Results are left unchanged, except for income that loses significance when class feeling is introduced in model 7. Importantly for us, our occupation variable remain a good explanatory variable in the binary regression. Looking further to test the sorting of our occupation variable yields interesting results, however: The sorting of occupations is not monotonously linked to the level of skills. Working on elementary occupations clearly enhance the probability to favor redistribution, compared to being a senior manager, but the position of skilled agricultural workers is not obvious for instance. Hence for Great Britain, a fair sorting and clustering of occupations related to preferences for redistribution would be the following: professionals and technicians have close preferences that are not significantly different from senior managers; clerks and service workers are more encline to support redistribution than the former group, and finally craftsmen, machine operators and workers doing elementary occupations clearly have a strong probability to favor redistributive policies. As for skilled agricultural

workers, they are not significantly different from senior managers, in terms of preferences for redistribution.

Table 2: Preferences for redistribution: GB

<i>Ordered logit</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
isco88_major	.105*** (.035)	.109*** (.035)	.091** (.037)	.108*** (.036)	.096*** (.035)	.100*** (.036)	.079** (.036)
f_income5	-.198*** (.068)	-.215*** (.068)	-.243*** (.072)	-.212*** (.072)	-.187*** (.071)	-.204*** (.074)	-.144** (.070)
selfemployed	-.447* (.259)	-.452* (.259)	-.337 (.276)	-.402 (.265)	-.449* (.265)	-.404 (.272)	-.411 (.264)
public	.093 (.177)	.081 (.177)	.074 (.185)	.169 (.190)	.097 (.180)	.173 (.192)	.086 (.178)
union_memb	.043 (.203)	.041 (.199)	.044 (.216)	.062 (.207)	.059 (.203)	.059 (.208)	.060 (.202)
female	.148 (.155)	.164 (.156)	.160 (.164)	.132 (.160)	.112 (.157)	.092 (.162)	.110 (.158)
age	.019 (.025)	.033 (.026)	.026 (.026)	.006 (.027)	.010 (.025)	-.004 (.027)	.015 (.025)
age2	-.023 (.024)	-.034 (.025)	-.030 (.025)	-.013 (.026)	-.016 (.024)	-.004 (.026)	-.019 (.025)
married	-.018 (.168)	-.017 (.167)	.015 (.176)	.007 (.177)	.001 (.172)	.039 (.180)	-.010 (.172)
catholic		.676** (.330)					
protestant		-.368** (.168)					
other_relig		.092 (.271)					
church_attend			-.063 (.046)				
jobprestige				.239 (.163)		.240 (.163)	
mobup					-.093 (.188)	-.034 (.193)	
mobdown					.080 (.195)	.034 (.205)	
classupper							-.397* (.217)
classlower							.373** (.172)
Number of Obs	682	682	617	629	665	617	667
Pseudo R-Sq.	.023	.031	.027	.023	.021	.022	.028

Note: Robust standard errors in parentheses  
 \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$



### 3.2.2 Sweden

Results are more satisfactory for Sweden (Table 3). Indeed, they are quite similar to the one we get with the pooled country regression, with the only exception of age and age squared, that loose significance<sup>8</sup>.

Concerning religion, like in Great Britain, Catholics in Sweden do favor redistribution, while Protestants do not. But coefficients are not significant.

Personal social mobility, in every specifications, turns out to have a strong impact on preferences toward redistribution. Moreover, model 7, which includes the new specification of current subjective social class, has a high explanatory power compared to model 1. However, contrary to the pooled country regression results, the higher job prestige of an individual compared to his father's has a negative impact on preferences (but the coefficient is not significant).

Concerning our occupation variable, results are quite robust to change in the regression method: Turning the model to binary logit does not affect the results. Hence, the sorting and clustering would be the following for Sweden: professionals, skilled agricultural workers and technicians have similar attitudes toward redistribution as compared to senior managers; clerks and service workers support redistribution 2.4 times more than the former category in terms of probability; finally, craftsmen, machine operators and workers in elementary occupations have a probability to favor redistributive policies that is 2.5 to 3.3 times higher than senior managers.

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<sup>8</sup>Age and age squared always have the expected signs, but appear to be significant only in the pooled country regression. This is probably due to the pooled effect: If there is no correlation between two variables, but sample differ from one country to another, then a pooled country regression could find an appearant correlation due to sample designs.

Table 3: Preferences for redistribution: SWEDEN

<i>Ordered logit</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
isco88_major	.172*** (.029)	.172*** (.029)	.172*** (.030)	.165*** (.030)	.159*** (.030)	.155*** (.030)	.106*** (.032)
f_income5	-.213*** (.050)	-.212*** (.050)	-.206*** (.051)	-.219*** (.051)	-.208*** (.050)	-.209*** (.051)	-.162*** (.051)
selfemployed	-.508** (.258)	-.515** (.257)	-.584** (.261)	-.476* (.261)	-.457* (.253)	-.456* (.255)	-.387 (.249)
public	.518*** (.133)	.494*** (.135)	.502*** (.134)	.543*** (.135)	.510*** (.134)	.519*** (.137)	.522*** (.135)
union_memb	.416** (.172)	.434** (.174)	.389** (.174)	.390** (.174)	.502*** (.174)	.476*** (.176)	.389** (.173)
female	.431*** (.126)	.442*** (.127)	.434*** (.129)	.430*** (.129)	.393*** (.127)	.394*** (.129)	.357*** (.127)
age	.032 (.027)	.032 (.027)	.037 (.028)	.035 (.028)	.022 (.028)	.025 (.028)	.023 (.027)
age2	-.032 (.028)	-.031 (.028)	-.037 (.029)	-.033 (.028)	-.027 (.028)	-.029 (.028)	-.025 (.028)
married	-.231 (.152)	-.228 (.153)	-.297* (.155)	-.230 (.156)	-.212 (.155)	-.212 (.158)	-.268* (.154)
catholic		.323 (.435)					
protestant		-.204 (.143)					
other_relig		-.320 (1.512)					
church_attend			.008 (.060)				
jobprestige				-.212 (.137)		-.119 (.140)	
mobup					-.378** (.150)	-.359** (.155)	
mobdown					.340* (.178)	.338* (.181)	
classupper							-.803*** (.156)
classlower							.519*** (.183)
Number of Obs	897	897	879	870	881	857	888
Pseudo R-Sq.	.054	.055	.055	.056	.061	.061	.073

Note: Robust standard errors in parentheses

\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

### 3.2.3 France

Results for France (Table 4) are also very close to what the pooled country regression delivered<sup>9</sup>. The sorting of our occupation variable seems very appropriate here, except that belonging to the least skilled category (elementary occupations) does not imply a strong support for redistributive policies (yet there is one).

This has to be viewed in parallel with the social mobility expectations. But if we turn to social mobility then, the personal mobility history does not have a significant effect on preferences for redistribution. Like in Great Britain, it is the current class position that has a strong impact on preferences, as soon as individuals consider themselves as belonging to the lower class (model 7). A way to reconcile these apparently opposite results is to assume that individuals working in the least skilled occupations do not perceive themselves as belonging to the lower class. Indeed, the correlation between both is very weak (0.07), while the class feeling seems to be more related to the family income (correlation of 0.33 between both). Thus, there could be an endogeneity bias that affect results, if workers in elementary occupations are not the main income in the household. Looking more precisely in our data, it appears indeed that half of these elementary workers in France is in part time or less than part time job. Moreover, the higher prestige of ones' job compared to his father's still has a positive impact on preferences, confirming the family context explanation proposed in the beginning of the analysis.

Finally, our proxies for risk aversion have high and robust coefficients. The odds of being in favor of redistribution is 1.8 when an individual is publicly employed, while it turns to 0.6 when the individual is self-employed, everything else being equal. This result is consistent with theory.

Concerning religion, if Catholics and church attenders are less encline to favor redistribution, Protestants this time do favor redistributive policies.

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<sup>9</sup>Adding sample weights does not change the results.

Table 4: Preferences for redistribution: FRANCE

<i>Ordered logit</i>	[1]	[2]	[3]	[4]	[5]	[6]	[7]
isco88_major	.139*** (.038)	.138*** (.038)	.105*** (.039)	.138*** (.040)	.122*** (.038)	.128*** (.039)	.114*** (.038)
f_income5	-.285*** (.048)	-.287*** (.048)	-.297*** (.049)	-.298*** (.049)	-.283*** (.050)	-.280*** (.050)	-.229*** (.055)
selfemployed	-.465** (.235)	-.410* (.240)	-.438* (.242)	-.480** (.232)	-.489** (.247)	-.508** (.243)	-.421* (.239)
public	.491*** (.129)	.462*** (.129)	.515*** (.132)	.467*** (.132)	.489*** (.130)	.460*** (.132)	.469*** (.130)
union_memb	.267** (.127)	.281** (.129)	.353*** (.131)	.260** (.128)	.272** (.128)	.266** (.128)	.251* (.128)
female	.375*** (.118)	.406*** (.121)	.406*** (.122)	.374*** (.121)	.369*** (.120)	.358*** (.122)	.350*** (.120)
age	.035 (.032)	.033 (.033)	.036 (.033)	.032 (.035)	.038 (.050)	.040 (.050)	.041 (.040)
age2	-.040 (.036)	-.034 (.037)	-.041 (.038)	-.036 (.040)	-.044 (.060)	-.049 (.060)	-.047 (.047)
married	.133 (.144)	.219 (.146)	.235 (.145)	.105 (.148)	.148 (.150)	.114 (.153)	.097 (.147)
catholic		-.319*** (.124)					
protestant		.085 (.442)					
other_relig		.292 (.449)					
church_attend			-.112*** (.043)				
jobprestige				.324*** (.121)		.367*** (.124)	
mobup					-.069 (.130)	-.151 (.134)	
mobdown					.224 (.174)	.225 (.177)	
classupper							-.177 (.162)
classlower							.318** (.146)
Number of Obs	1023	1010	964	980	994	967	1015
Pseudo R-Sq.	.044	.045	.047	.046	.045	.047	.046

Note: Robust standard errors in parentheses

\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

### 3.2.4 Germany

Turning now to Germany (Table 5), several points have to be explored. First of all, the clustering of occupations is quite straight: Being a professional or a technician equally and significantly increase the probability to be in favor of redistribution, compared to senior managers; working as a clerk, a service worker, a skilled agricultural worker, a craftsman or a machine operator equally increase the probability of the individual to favor redistributive policies; and being a worker in elementary occupations has an even higher positive impact on preferences. The clustering does not draw a demarcation between service workers and manual workers as we saw earlier in other countries (linked to the specialization argument), but seems more related to the level of skills.

Model 1b adds a new variable in our standard model: Living in East Germany. Not surprisingly, it appears to be strongly related to the support for redistribution, controlling by income (the odds of being in favor of redistribution is almost 3 if the individual lives in East Germany).

As for religion, contrary to the pooled country results, being Protestant has a positive impact on preferences for redistribution, meaning once again that religion is not systematically a substitute to redistributive policies, but can also act as a complementary attribute.

Finally, social mobility in the different specifications of models 5 to 7 remains a good predictor of preferences, with the expected sign.

Table 5: Preferences for redistribution: GERMANY

<i>Ordered logit</i>	[1]	[1b]	[2]	[3]	[4]	[5]	[6]	[7]
isco88_major	.114*** (.044)	.132*** (.044)	.163*** (.049)	.115*** (.044)	.110** (.047)	.097** (.046)	.092* (.049)	.097** (.044)
f_income5	-.199*** (.071)	-.138* (.072)	-.154* (.080)	-.208*** (.071)	-.178** (.072)	-.163** (.075)	-.151** (.077)	-.151** (.074)
selfemployed	-.121 (.327)	-.138 (.315)	-.264 (.360)	-.067 (.320)	-.193 (.335)	-.151 (.326)	-.249 (.332)	-.155 (.328)
public	.100 (.209)	.115 (.217)	.149 (.246)	.142 (.214)	.035 (.215)	.072 (.212)	.020 (.217)	.094 (.209)
union_memb	.215 (.214)	.247 (.216)	.259 (.250)	.236 (.218)	.196 (.219)	.264 (.214)	.244 (.219)	.263 (.217)
female	.763*** (.189)	.752*** (.191)	.763*** (.215)	.754*** (.190)	.812*** (.198)	.728*** (.191)	.769*** (.202)	.721*** (.190)
age	-.003 (.045)	-.003 (.045)	-.024 (.052)	-.018 (.045)	-.006 (.046)	-.011 (.045)	-.023 (.047)	-.000 (.045)
age2	.001 (.053)	.007 (.053)	.032 (.061)	.023 (.053)	.004 (.055)	.005 (.053)	.017 (.055)	-.001 (.053)
married	.107 (.202)	-.062 (.201)	.024 (.233)	.181 (.209)	.134 (.206)	.093 (.212)	.111 (.214)	.071 (.210)
eastgermany		1.067*** (.178)						
catholic			.533 (.325)					
protestant			.941*** (.327)					
church_attend				-.251*** (.073)				
jobprestige					.023 (.184)		.111 (.183)	
mobup						-.522*** (.191)	-.485** (.194)	
mobdown						.343 (.223)	.400* (.226)	
classupper								-.054 (.226)
classlower								.608*** (.205)
Number of Obs	530	530	398	530	505	521	498	524
Pseudo R-Sq.	.028	.052	.038	.036	.027	.038	.038	.034

Note: Robust standard errors in parentheses

\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

## 4 Concluding remarks

The separated country approach has the enormous advantage, in our view, to allow for country heterogeneity and to put apart the mechanical effect due to a pooled regression that finds correlation where there are none (religion and age are, respectively, good examples here<sup>10</sup>). Table 6 compares results from the pooled country regression with the one from separated country regressions. Reading in rows, we can clearly see that notwithstanding the significance of coefficients, the sign of a variable is not the same from one country to another. Reading in columns, we can see that the determinants of preferences for redistribution, identified by their statistical significance, differ from one country to another.

Table 6: Preferences for redistribution: Comparison of results

	Pooled	Great Britain	Sweden	France	Germany
Occupation	+	+	+	+	+
Family income	-	-	-	-	-
Self-employed	-	-	-	-	(-)
Publicly employed	+	(+)	+	+	(+)
Union member	+	(+)	+	+	(+)
Female	+	(+)	+	+	+
Age	+	(+ / -)	(+)	(+)	(-)
Age squared	-	(-)	(-)	(-)	(+ / -)
Married	(+)	(- / +)	(-)	(+)	(+ / -)
East Germany	na	na	na	na	+
Catholic	-	+	(+)	-	(+)
Protestant	-	-	(-)	(+)	+
Other religion	(-)	(+)	(-)	(+)	na
Church attendance	-	(-)	(+)	-	-
Job prestige > father's	(+)	(+)	(-)	+	(+)
Father's occupation	+	na	na	na	na
Upward mobility	-	(-)	-	(-)	-
Downward mobility	+	(+)	+	(+)	+
Upper class	na	-	-	(-)	(-)
Lower class	na	+	+	+	+

Note: Results which are not statistically significant are in parentheses

<sup>10</sup>To the contrary, other effects can emerge in separated country regressions, like, in our sample, the importance of job prestige in France.

But this should not lead us to deny the aim of our study. If there is some country heterogeneity, there is still a set of common regressors. Also, in order to be able to have a general insight into the question of what determine preferences for redistribution, we next assemble the different results to assess the theoretical arguments of the first section. Furthermore, trying to ally countries afterwards, we will be able to identify clusters of countries.

To begin with, our analysis confirm the importance of a pure revenue effect on preferences. Indeed, work occupation, family income, subjective social class or expected social mobility all point to the same direction: the poorer (in terms of current or expected income), the more supportive to redistribution. But importantly, the social background of individuals can somehow temper this effect: we found that the social position of fathers has a long lasting impact on the attitudes of children.

The revenue effect does not act similarly on individuals. It can be reinforced or to the contrary dampened by risk aversion or risk willingness of individuals. Indeed, looking at the employment status of individuals, we found that being publicly employed sensitively increases the probability to support redistribution, while being self-employed decreases it. Hence, our proxies of risk aversion are good predictors of preferences for redistribution, which is not surprising if one considers redistributive policies as an insurance.

Finally, one of the most empirical issue in the literature on redistribution remains the question of whether religion plays an active role in shaping preferences. Going back to Table 6, the conclusion is far to be obvious: It is impossible to say if Catholics are pros or cons redistribution, and the same for Protestants since the sign of coefficients differs from one country to another. However, one can take a different view: The literature states that religion (without looking at specific denomination) dampens the social distress of individuals, hence decreasing the insurance motive for redistribution. Taking the major religion of each country, results clearly confirm this view. Hence, Protestantism is the major religion of Great Britain and Sweden, while Catholicism is the major religion of France. In these countries, the effect of the major religion is to decrease the probability to favor redistribution. The effect is not clear for Germany, but this is not surprising given that the country is fairly divided between both Protestantism and Catholicism. Further, looking at church attendance reinforces the conclusion that



religion could play an active role in shaping preferences for redistribution<sup>11</sup>.

Eventually, it seems that a cluster of countries could be drawn from the comparison of separated country regressions. Results for France and Sweden are quite similar, while Germany and Great Britain are closer than we would imagine. Indeed, the major determinants of preferences for redistribution, apart from occupation and income, are the following by cluster: Great Britain and Germany regressions highlight the importance of religion and current social class of individuals; France and Sweden regressions render apparent the importance of risk aversion and lower-class feeling in determining preferences for redistribution. Each country has then its specificity: East Germans are more encline to favor redistribution, which can probably be linked to a revenue effect; French people are impregnate by the social history of their fathers, while Swedes are clearly not; finally Brittons do not give attention to their past social mobility, but do prize their current subjective social position.

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<sup>11</sup>These results were already apparent in the pooled country regression, but one could think that the effect of *every* religion was to decrease the demand for redistribution, while this is true only for the major religion of the country. What we can not assess, though, is the reason why this happens. Maybe does this have to do with the strong social network that should be in place for a well implanted religion.

## A Summary Statistics

### A.1 Variables Selection

Table 7: Summary statistics

Variable	Mean	Std. Dev.	N
Redistribution (5 categories)	3.632	1.159	5037
Redistribution	0.626	0.484	5037
Occupation	4.157	2.299	4277
Family income	2.746	1.441	4586
Self-employed	0.095	0.293	3719
Publicly employed	0.372	0.483	4280
Union membership	0.33	0.47	4613
Female	0.488	0.5	5275
Age	48.085	16.45	5257
Age-sq./100	25.827	16.524	5257
Married	0.609	0.488	5237
Catholic	0.33	0.47	4940
Protestant	0.363	0.481	4940
Other Religion	0.034	0.182	4940
No Religion	0.273	0.445	4940
Church attendance	1.25	1.472	5009
Job prestige > father's	0.46	0.498	4717
Upward mobility	0.332	0.471	5094
Downward mobility	0.224	0.417	5094
No mobility	0.444	0.497	5094
Upper class	0.233	0.423	5174
Lower class	0.269	0.444	5174
Middle class	0.498	0.5	5174
Father's occupation	5.272	2.49	3766
Sweden			1150
France			1889
Great Britain			804
Germany			1432
incl. East Germany			511

## A.2 Variables Selection

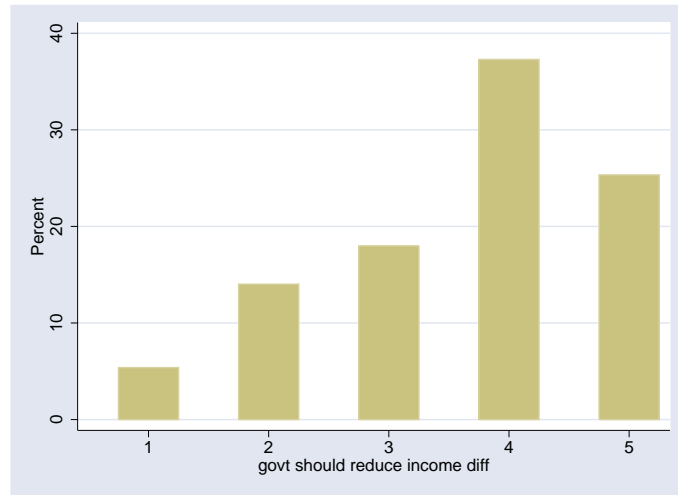


Figure 1: Attitudes towards redistribution, full sample

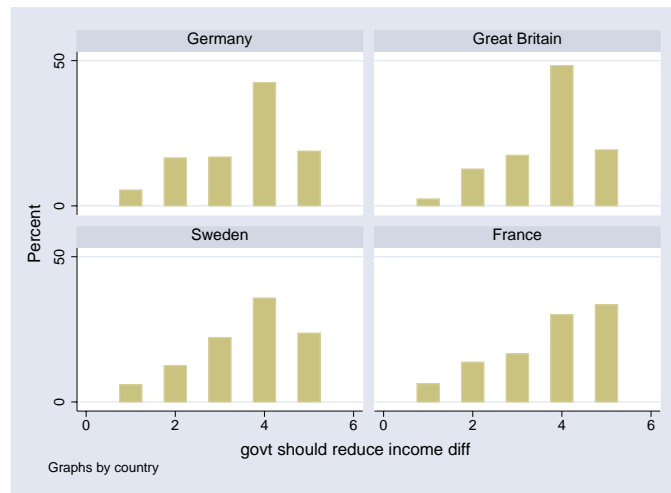


Figure 2: Attitudes towards redistribution, by country

### A.3 Classification of Occupations

For cross-national comparisons, only a few skill level categories have been identified by the SOCE<sup>12</sup> (Statistical Office of the European Communities). ISCO-88 (International Standard Classification of Occupations, 1988 version) uses four skill levels to define the broad structure of the classification at its most aggregate level, the *major groups*. These four skill levels are partly operationalised in terms of the International Standard Classification of Education (ISCED) and partly in terms of the job-related formal training which may be used to develop the skill level of persons who will carry out such jobs (Table 8). The decisive factor for determining how an occupation should be classified is the nature of the skills that are required to carry out the tasks and duties of the corresponding jobs.

Table 8: Definition of Skill Levels

ISCO skill level	ISCED categories
First skill level	ISCED category 1: primary education
Second skill level	ISCED category 2 and 3: first and second stages of secondary education
Third skill level	ISCED category 5: education starting at the age of 17 or 18, which leads to an award not equivalent to a first university degree
Fourth skill level	ISCED category 6 and 7: education starting at the age of 17 or 18, which leads to a university or postgraduate university degree (or the equivalent)

Note: Category 4 of ISCED has been deliberately left without content, since it is now included in category 5

Source: ILO [1990]

Five of the eight major groups (groups 4, 5, 6, 7 and 8) are considered to be at the same skill level; they are distinguished by reference to broad skill specialisation groups. The definition of major groups 1 and 0 do not refer to skill levels, because other aspects of the type of work were considered more important as similarity criteria: policy making and management functions, and military duties, respectively (Table 9).

<sup>12</sup>This section largely relies on the SOCE guideline [1994] written by Margaret Birch and Peter Elias.

Table 9: Definition of Occupation Major Groups

	Major Group of Occupations	ISCO skill level
1	Legislators, senior officials and managers	–
2	Professionals	Fourth level
3	Technicians and associate professionals	Third level
4	Clerks	Second level
5	Service workers and shop and market sales workers	Second level
6	Skill agricultural and fishery workers	Second level
7	Craft and related workers	Second level
8	Plant and machine operators and assemblers	Second level
9	Elementary occupations	First level
0	Armed forces	–

Note: We exclude from our regressions individuals who are attached to group

0 *Armed forces*

Source: ILO [1990]

## B Econometric Specification

### B.1 Latent Variable

It is assumed that the true dependent variable is continuous, though unobservable. We consider thus that a latent variable is underlying the model:

$$y_i^* = x_i' \beta + \varepsilon_i \quad (1)$$

for  $i = 1, \dots, N$  where  $x_i$  is a vector of observations on a set of explanatory variables,  $\beta$  is a vector of unknown parameters,  $\varepsilon_i$  is a random error term independently distributed with distribution function  $F$  (to be defined below).

### B.2 Distribution Function

While  $y_i^*$  is unobserved,  $y_i$  is observed. The observed dependent variable, which is discrete, is thus taking one of the values 1, 2, ...,  $J$ .

$y_i$  is related to  $y_i^*$  as follows:

$$y_i = \begin{cases} 1 & \text{if } y_i^* < \alpha_1 \\ 2 & \text{if } \alpha_1 \leq y_i^* < \alpha_2 \\ \vdots & \\ J & \text{if } \alpha_{J-1} \leq y_i^* \end{cases} \quad (2)$$

with  $\alpha_j$  being additional parameters such that  $\alpha_1 < \alpha_2 < \dots < \alpha_{J-1}$  acting as cut points for intervals into which a particular observation falls. Hence, the dependent variable  $y$  is ordinal and  $\alpha_j$  are treated as parameters to be estimated.

### B.3 Set of Probabilities

The full set of probabilities of the possible outcomes is the following:

$$\Pr[y_i = j|x] = F(\alpha_j - x'_i\beta) - F(\alpha_{j-1} - x'_i\beta) \quad (3)$$

for all  $j$ , assuming that  $\alpha_0 = -\infty$  and  $\alpha_J = +\infty$ , where  $F$  is the cumulative distribution function for error term.

### B.4 Maximum Likelihood Estimator

The usual estimator for this type of model is the Maximum Likelihood estimator. The log-likelihood for the model is:

$$\log L = \sum_{i=1}^N \sum_{j=1}^J y_{ij} \log[F(\alpha_j - x'_i\beta) - F(\alpha_{j-1} - x'_i\beta)] \quad (4)$$

maximized with respect to  $\beta, \alpha_1, \alpha_2, \dots, \alpha_{J-1}$ .

### B.5 Ordered Probit / Logit Model

From this, the Ordered Probit model simply assumes that the cumulative distribution function is a standard Normal (with the scale normalization  $\sigma = 1$ ):

$$\varepsilon_i \sim N(0, 1) \quad (5)$$

Hence, the  $F$  becomes  $\Phi$  in equations (3) and (4), with:

$$\Phi(\varepsilon) = \frac{e^{-\frac{\varepsilon^2}{2}}}{\sqrt{2\pi}} \quad (6)$$

And the Ordered Logit model assumes that the cumulative distribution function is Logistic:

$$\varepsilon_i \sim G\left(0, \frac{\pi^2}{3}\right) \quad (7)$$

Hence, the  $F$  becomes  $\Lambda$  in equations (3) and (4), with:

$$\Lambda(\varepsilon) = \frac{1}{1 + e^{-\varepsilon}} \quad (8)$$

In our study, we preferably use ordered logit estimations than ordered probit estimations, because it allows us to assess the relevance of the “parallel lines assumption”. Indeed, if the effect of an independent variable on our dependent variable is not uniform (as we suppose for income, for instance), then the parallel lines assumption is violated, leading to a fallacious interpretation. This can be tested through the Brant test. Then, differentiated effects of independent variables can be assessed with the *general ordered logit model*<sup>13</sup>.

## C Substantive Effects

### C.1 Odds Ratios

Table 10: Percent change in odds of having more positive attitudes toward redistribution

	<b>pooled</b>	<b>GB</b>	<b>SW</b>	<b>FR</b>	<b>GER</b>
Occupation	13.1***	10.1***	17.3***	13.0***	10.2**
Family income	-20.3***	-17.0***	-18.8***	-24.7***	-15.1**
Self-employed	-32.2***	-36.2*	-36.7*	-38.7**	-14.1
Publicly employed	48.5***	10.1	66.5***	63.1***	7.5
Upward mobility	-22.3***	-8.8	-31.5**	-6.7	-40.7***
Downward mobility	25.6**	8.3	40.6*	25.1	40.9

Note: Percent change in odds of having more positive attitudes toward redistribution, for a unit increase in  $X$ , holding all other variables constant  
Based on Model [5]

<sup>13</sup>Stata user-written commands by Fu (1998) and Williams (2006).

## C.2 Predicted Probabilities

Table 11: Predicted probability to 'strongly agree' with redistribution

	<b>pooled</b>	<b>GB</b>	<b>SW</b>	<b>FR</b>	<b>GER</b>
Occupation	.18	.12	.22	.22	.09
Family income	-.16	-.11	-.14	-.23	-.08
Self-employed	-.06	-.06	-.07	-.09	-.02
Publicly employed	.07	.01	.08	.10	.01
Upward mobility	-.04	-.01	-.06	-.01	-.06
Downward mobility	.04	.01	.06	.05	.04

Note: Change in the predicted probability to 'strongly agree' with redistribution, for a change in  $X$  from its minimum value to its maximum value (from 0 to 1 if dummy), holding all other variables constant at their means

Based on Model [5]



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