INEQUALITY AND UNION MEMBERSHIP
The impact of relative earnings position and inequality attitudes

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this version: 02/01/2006

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‡ The authors thank Massimiliano Bratti and Antonio Filippin for their initial nvolvement in the present project and for collaboration in exploring the data. The data utilized in this paper were documented and made available by the ZENTRALARCHIV FUER EMPIRISCHE SOZIALFORSCHUNG, KOELN. The data for the 'ISSP' were collected by independent institutions in each country. Neither the original data collectors nor the ZENTRALARCHIV bear any responsibility for the analyses or conclusions presented here.

ABSTRACT

In this paper we examine the connection between union membership and economic inequality. Using several surveys from International Social Survey Programme (ISSP) covering the period 1985-2002, we initially examine the impact of relative earnings position on union membership, and show that the bulk of the union support derives from workers at the intermediate earnings groups. Second, we examine the impact of inequality attitudes on union membership. We show that union membership is not only affected by individual expected benefits resulting from objective criteria such as education or earnings, but that attitudes towards inequality also play an important role. Even when controlling for attitudes, the relative income position remains significant in affecting the probability of joining a union. We also show that there are no significant trends in these income positions. Our results imply that a union decline is observed in face of increasing earning dispersion, by loosing members at both tails of earnings distribution.

1. INTRODUCTION

Trade union membership is in decline in many nations (Ebbinghaus & Visser 2000; Calmfors et al. 2001; Checchi and Visser 2005). However, it is not fully known what caused this decline. Empirical studies on trends in union membership have often analysed aggregate statistics, which necessarily limits the scope of explored individual attributes that affect union membership.

In this paper we propose two groups of individual determinants that have not received the attention they deserve, and analyse their predictive power of union membership using repeated cross-sectional data from seven countries. First, we will analyse the impact of individual relative earnings position on union membership. There are good reasons to expect that unions are predominantly attractive for intermediate earnings groups, whereas low-earners and high-earners have, for different reasons, less incentives towards joining unions. The high-earners are in less need of unions to serve their interests because of their sufficiently strong bargaining power at individual level. Also, because wealthy people are usually less risk averse than poor people (e.g. Hartog et al. 2002) they may not need the insurance implicitly provided by unions (Agell, 1999; see also Agell and Lommerud, 1992 and Burda, 1995). On the contrary, the poor may be more in need of insurance, affected by their high level of risk aversion, but their disadvantaged position may cause disillusion in the egalitarian ideology of unions and/or in their effectiveness in shaping the earnings distribution (cf. Baccaro & Locke 1998).

Given that earnings inequality has risen in the past decades in many countries, union membership decline may partially be caused by this compositional change in the earnings distribution. Simply put: the tails of the earnings distribution have grown in size, which may have contributed to the decline in membership. Moreover, it may even be that the low and high earners are *decreasingly* attracted to union membership across time, making the compositional change in the earnings distribution of even greater relevance. It should be noted that the existing literature that connects earnings inequality with union density rates usually starts off from the reversed causality, where a decline in membership is seen as a cause of greater inequality. We will provide arguments as well as some evidence supporting the reverse link, where changing inequality affects union membership rates through changes in the incentives to join.

A second group of individual attributes that are expected to be relevant for joining trade unions are people's attitudes towards social inequality. One form of social action that could, on the aggregate level, reduce (earnings) inequality is trade union membership. This implies that individuals who share the opinion that inequality should be lower than the actual one may be more strongly attracted towards union membership than people who disagree with this opinion. Plausibly high-earners are more supportive of inequality than low-wage people, so part of the explanation for high-earners' lower likelihood to join the trade union may be found in their different attitudes towards inequality.

The two types of explanations are not mutually exclusive, rather they are intertwined. It is sometimes believed that the ideology towards equality is attracting a decreasing part of the population, making room for neo-liberal ideologies of achievement orientation (References ???). To the extent that this is the case, such change in the distribution of values and attitudes could decrease membership independent of changes in actual earnings distributions. In this perspective it is interesting to note that some have argued that that unions' orientation toward (inter-occupational) egalitarianism has been a "strategic mistake" because it has reinforced many inequalities between different groups of workers (Baccaro & Locke 1998). Therefore, people's attitudes towards inequality may have become less relevant for union membership, in which case even a relative stability in attitudes towards inequality may lead to a lower explanatory power of individual attitudes on union membership (although not necessarily to lower membership rates). Besides the substantive interest in the impact of attitudes on the probability of union membership, it is also relevant to control for attitudes in order to strengthen empirical support for the other explanations of low membership rates of the low-earners (disillusion) and high-earners (limited risk aversion, bargaining power).

The paper proceeds as follows. In the next section we first discuss the literature on the impact of unions on the compression of wages, and the related problems that unions have recently come to face in this regard. Second, we focus on the impact of attitudinal factors on union membership and formulate hypotheses on it. In section 3 we describe our data set, derived from International Social Survey Programme (ISSP), and our empirical strategy, whereas in section **4** we present and discuss our results. The paper then ends with conclusions and a discussion of the findings.

2. TRADE UNIONS AND INEQUALITY

Figures 1 and 2 present evidence on the relationship between earnings/income inequality and union density. In figure 1 we present aggregate evidence covering the period 1960-1995 for a group of countries where information on income inequality was available over a consistent number of years. For some countries (notably United Kingdom and United States – one could also add Norway and Sweden) there is a clear negative correlation between these two variables. For most of the countries, income inequality has fluctuated without any recognisable trend (Deininger and Squire 1996), while union density has increased in some country and declined in others. In figure 2 we have extracted from our dataset (based on the International Social Survey Programme – see below) comparable measures of inequality and density over the period 1985-2002 computed on individual data. In this case the evidence at micro-level suggests a clear negative correlation between earnings/income inequality and union density (with the possible exception of Italy and the Netherlands).

[Figures 1 and 2 about here]

The impact of unions on earnings inequality

The literature connecting the two phenomena of earnings inequality and union density focuses largely on the causality where unions affect the income distribution. At theoretical level, it has been argued that unions may compress the distribution of wages and squeeze low-paid work in inefficient firms or sectors out of the market and thus promote growth (Agell and Lommerud, 1992; Horn and Wolinsky, 1988) and they may redistribute income as alternative to progressive taxation (Agell, 1990), though in both cases this pressure may be tempered by adverse effects on employment. Where there is a sharp distinction between the union and non-union sector of employment, there is evidence that the earnings structure is flatter in the union sector (for the US: Card, 1996; DiNardo et al., 1996; Freeman and Medoff, 1984; for the US and Canada: Card and Lemieux, 2003; for the UK: Card et al. 2003; Metcalf et al, 2001). Empirical research with British household data (Bell and Pitt 1998; Gosling and Machin, 1995) demonstrated a relationship between union decline and the widening of the earnings distribution. Hibbs and Locking (1996), Iversen (1999) and Davis and Henreksen (2000) show that pay differentials in Sweden started to rise

after the move from nationwide to industry bargaining in 1983 and 1991. There is considerable empirical evidence with cross-national aggregate data relating centralisation of wage bargaining with pay compression (Blau and Kahn, 1996; Iversen, 1999; OECD, 1997; 2004; Wallerstein, 1999). Wage dispersion has increased the most where trade unions are least important in wage setting, have declined most and bargaining is most reduced or decentralised (e.g., US, UK, Canada, New Zealand).

Moreover, the union effect on earnings equality is not simply a consequence of the fact that unionised workers are selected or sorted into medium-pay occupations, because the union effect persisted after controlling for age, qualifications, workplace size, industry and occupation (Metcalf et al. 2001). However, the authors report also that the equalizing effect of union presence was much smaller than it had been in an earlier and comparable study with data for 1978, when British unions registered perhaps their maximum post-war influence (Metcalf, 1982). Two-third of the union effect on wage dispersion had disappeared (Metcalf et al. 2001: 69). The union's "sword of justice" (Flanders, 1970: 15) seems to have become blunted.

The blunted 'sword of justice' of unions points to the declining capability of trade unions to stem the rise in earnings inequality. Generally, the rise in earnings inequality across the western world has been related to skill-biased rather than skill-replacing technological growth, with returns to education sharply rising during the 1980s and 1990s, while average wages for low-skilled workers have stagnated or fallen in this period (Acemoglu, 2002; see also Alderson and Nielsen, 2002). This development has affected the behaviour of firms and promoted a change in work organization and wage-setting behaviour, which has profoundly changed the governance (and size) of the internal labour markets that were the bedrocks for union organisation. More intensive competition on a worldwide scale has made firms acutely aware of costs and productivity. The solution many employers have reached is to reorganise work around decentralised management of human resources, customised products and working schedules, and reorganise tasks in such ways that they can be partitioned in modules. This makes it easier to subcontract tasks, employ part-time workers and hire temporary staff for some tasks, while core works is multi-tasked and carried out in teams. Employment security and pay are being defined less in terms of the seniority and job status than in terms of the knowledge, competences and effort workers bring to the jobs and develop while working. The effects of this differentiation and individualisation is to separate the employee relations of more workers from the kind of permanent, full-time job in stable internal labour markets and the corresponding institutions

that had characterised the post Second World War development in Europe, the US and Japan.

Fixing the standard pay rate for the job across firms in the industry was the most pivotal "common rule" and the most likely heralded union wage policy of that period (Flanders, 1970; Slichter, 1950). Objective pay criteria, based on job descriptions and seniority, diminished the power of supervisors and the possibilities of discrimination and favouritism. Unions typically pressed for the *standardization* of employment contracts in order to protect workers against uncertainty, simplify collective regulation, de-couple the economic situation of workers from that of their employing organization, and suspend as much as possible competition between workers, so as to enable them to act in solidarity. Standardization involved explicit and agreed definitions of normal effort, normal hours and normal pay, guaranteeing employers reliable performance of predictable routine tasks at an average level of effort, thus allowing the union to act as the guardian of the wage-effort bargain (Streeck, 2004). This institutional solution of the mid-twentieth century is deeply challenged from all sides.

Breaking away from centralised (industry) agreements gives firms more scope for merit- and performance based pay (Lindbeck and Snower, 2000). In the UK, there is evidence that performance related and merit pay is associated with the derecognition or the absence of unions (Heery, 2000). According to Brown et al. (1998), in the UK "for many firms, the advantage of breaking away from an existing structure of collective bargaining was to increase the dispersion of pay, both within grades and between hierarchical levels" and "there was a greater tendency towards linking pay rises to individual performance in derecognising firms than in those retaining collective bargaining. Employers tended to gain substantial discretion to set individual pay by open-ended appraisal procedures." One way of doing this is by making job descriptions vaguer. Across Europe, there is some evidence that variable and performance related pay has become more wide-spread in recent times among both non-manual and manual employees, although only for a relatively small proportion of total weekly or monthly pay (EC, 2004).

The impact of earnings position on union membership

In this paper we take another approach to connect earnings inequality and union density. We follow the hypothesis that Streeck (2004) proposed in his overview for the Handbook of Economic Sociology, which states that in today's labour markets "the numbers are rising of those who have enough market power to do without collective organization, as

well as of those who have too little market power to be capable of it." Unions would then be squeezed into a smaller middle range of the labour market, represented by the public sector and traditional industries and services.

Membership can be assumed to be more likely if people expect that their interests are well served by the unions. It is likely that people on the bottom of the earnings ladder as well as those at the top, are less attracted to union membership for serving their interests than the intermediate group of earners. Our explanation for the lower likelihood of membership among people at the extremes on the earnings distribution combines rationality assumptions of individuals with psychological attributes affected by one's relative position.

Let us first assume that people join trade unions at least partly because unions may serve their interests as employees. Unions' attractiveness to a particular group of workers is then a function of the extent to which the unions are needed and able to serve the interests of that group. Unions may then be least attractive to high-skill workers (best indicated by high earnings positions) for two reasons. First, high-skill workers have a profitable bargaining position and have negotiation skills that limit their *need* for unions to take part in improving their employment relations. Moreover, because of the skill-biased technological change mentioned above their market position has even improved, which has led to the growth of a group of workers at a certain distance from the median income. Thus, to the extent that union membership is explained by membership of other people in social networks (the social customs explanation), a growing top-tail of the earnings distribution weakens the strength of the norm. Second, high-skill workers may expect unions not to be *able* to serve the interests of their group. The agenda of unions has mostly been directed towards egalitarian politics, and taking care of high-income workers does not fit well in this agenda.

In addition to the limited need and perceived ability of unions to serve the interests of high-skill workers, an additional reason to expect a lower likelihood of high-earners to join the unions is associated to their risk attitude. Research has demonstrated that risk aversion is related to financial resources. People at the top-end of the income (and wealth) distribution are more risk-tolerant (and thus less risk averse) than people around the median (Barskey et al. 1997; Hartog et al. 2002). Barskey et al. showed that risk tolerance has a strong negative impact on the likelihood of buying insurances, such as a life insurance. If union membership is seen as an insurance against potential job loss or earnings deterioration, supporting fairness and equality (Agell 1999; Agell and Lommerud 1992; Burda 1995), it is likely that high-earners' risk tolerance negatively affects their likelihood of union membership for this reason.

So where does this reasoning leave the low-skilled workers? On the one hand, on the basis of their interests it may be expected that people of low earnings levels would be highly interested in union membership, as their bargaining position and their negotiation skills are poor. However, the further away they are from the bulk of the earnings distribution, the less credible (at least in their perception) is the egalitarian attitude and/or effectiveness of unions, and the more they become disaffected by unions and less likely to join. Starting from the empirical observation of union density decline lagging behind increase in wage differential in US and UK, Acemoglu, Aghion and Violante (2001) put forward an additional reason why low-paid worker should leave unions when inequality increases. If wage compression favours firm-sponsored training by firms (because they are already paying unskilled workers a wage above their marginal productivity – however the empirical evidence is not always consistent: see Bassanini et al. 2006), when skill-bias technological change makes the compression untenable (because skilled workers prefer individual negotiation), then the firms stop training unskilled workers, and find more convenient to get rid of them. Because of the skill-biased technological change, an unskilled worker experiences a reduction in her relative wage, a reduction in training opportunity and an increase in unemployment risk. The joint combination of these three events makes union membership less and less likely, despite the fact that unions may not be directly responsible for these changes. In addition, a large fraction of low-paid workers often hold temporary and/or part-time jobs. It is known that these workers are more difficult to unionise simply because they are more difficult to reach (Checchi and Visser 2005). The same type of argument applies for worker employed in small-size firms, given the differential labour standards applied to this group of firms in many countries.

In addition, union membership is a collective good in many European countries, where non-members benefit equally from employment relations agreements (see below). For reasons of budget constraints, this may induce particularly the low-earners to free-ride and thus not contribute to the collective good.

In sum, there are several reasons to expect that earnings position affects union membership incentives, and that, through an (exogenously given) increase in wage dispersion, union membership may shrinks, especially at both tails of the distribution. These are not necessarily the only arguments in support of a causal interpretation of the link between inequality and deunionisation. Additional explanations invoke increased competition due to globalisation as one reason for reduced role of unions as rent-seekers, thus lowering the incentive to join a union in a closed shop framework (Magnani and

Prentice 2003). However this type of explanation involve the entire range of the labour force, whereas we are interested in asking whether there is a differential impact at both tails of the earnings distribution.

Attitudinal factors and union membership

All previous explanations are based on the logic of strict economic calculus. However, it is unlikely that union membership is only caused by rational motivations, partly because of the fact that, in the European countries that we study, members and non-members equally benefit from the employment relations (e.g. wages) that are negotiated by unions. Such an "open-shop" system makes the study of union membership partly a collective good problem (Booth 1984). An important source for contributions to collective goods comes from the normative elements guiding such behaviours (Hechter, 1987). Such norms may, at the personal level, be based on values or attitudes towards inequality. Given the egalitarian agenda of unions, it is likely that attitudes towards inequality affect union membership. For example, in a representative survey of attitudes and patterns of joining in the Netherlands in 1992/3, it turned out that union activity was highly valued because of its association with fairness and equality (Klandermans and Visser 1995).

This is why we are interested in exploring the role of individual egalitarian attitudes in shaping the incentives to joining unions, in addition to the relative income position. We have three reasons to include inequality attitudes in our study of trends in union membership. First, we are substantively interested in the effects of inequality attitudes on union membership. Second, by including attitudes in our models, we can examine to what extent well-known variations across subgroups in membership can be explained by differential inequality attitudes, such with regard to skill level, gender or supervisory status. Third, attitudes serve as a control variable in order to support the explanations of membership related to relative earnings position discussed above. Because these arguments are mainly concerned with individual motivations from a rational perspective, we need to control for attitudinal factors to ensure that variations across earnings positions are not in fact caused by normative standpoints rather than by rationality. This is all the more important because attitudes towards inequality are correlated to financial resources (Svallfors 1993, 1997).

We think that attitudes towards inequality leading to union membership can be subdivided in at least three types, each of which will be empirically related to union membership in our analysis below. The first is the most general and simply comprises the affirmation that '*inequality in society is too large*'. The second type is more specific and

endorses the opinion that earnings should be redistributed. It may be that individuals, while evaluating the level of inequality in a particular society, have specific ideas about the *actual* and *legitimate* earnings of specific occupations. Relating the estimates of respondents of what they believe are acceptable or legitimate earnings, we can construct a more specific preference for more or less egalitarian outcomes. Such specific inequality attitudes have been used by Jasso (1999) to construct a social justice index with the ISSP data.

Svallfors (1993), also on the basis of the ISSP data, has used such attitudes to compare inequality attitudes in Sweden and Britain. He found that gender differences in the range of earnings that were believed legitimate are much larger than in other types of inequality attitudes. He also reported that in Sweden attitudes about the range of legitimate earnings are strongly related to social class whereas they hardly are in Britain, where the accepted range of what people believe to be acceptable earnings is much wider for all classes.[1]

Recently, Osberg and Smeeding (2006) have constructed an empirical measure of specific inequality attitudes based on actual and legitimate pay for specific occupations. Based on their responses to ISSP survey questions on actual and perceived pay of a range of occupations, it is possible to assign a particular preference for redistribution to individual respondents. Their measure has the advantage that not only legitimate earnings are observed, as is the case in Svallfors (1997), but also the perceived actual earnings. By inspecting both, a preference for redistribution can be calculated. We adopt their approach, and will relate one of their empirical measures of attitudes to union membership in a range of countries.

The third type of attitude that may influence people to join a trade union is more specifically concerned with the need for collective action in order to compress earnings inequality, for instance defending a centralized structure of wage setting, or some kind of levelling or protection of low-paid workers structure or. If egalitarian attitudes motivate people to join the unions, this may come together with a conviction that collective action is necessary to achieve greater inequality. We call this the 'collective action inequality attitude'. It is measured by asking people whether they agree with the statement that "inequality in society exists because people do not join to beat it".

With regard to the relative importance of these three types of attitudes there are two different scenarios. First, it could be argued that more specific attitudes have a stronger

[1] In another cross-national study, Svallfors (1997) has related the attitudes about the range of legitimate earnings to different types of welfare states. He found that the difference in legitimate earnings between an unskilled factory worker and a chairman of a national company was a factor 2.3 in Scandinavian welfare states, going up to a factor 11 in the USA.

effect than general inequality attitudes, the latter being 'vague', less contextualised. This would imply that the 'collective action inequality' attitude should have a larger effect than the other types of attitude, and that of all three attitudes the 'general inequality attitude' has the weakest effect. Secondly, it might be that, although inequality motivations affect union membership, this is not specifically concerned with collective action. In that case, a more general attitude toward inequality could have a stronger effect on membership than a more specific attitude on collective action.

3. DATA AND OPERATIONALIZATIONS

Data

We make use of the cross-national surveys of the International Social Survey Programme of various years. For the general study of the impact of earnings and other relevant objective characteristics on union membership we analyse the ISSP data from 1985 to 2002 for seven countries: West Germany, East Germany, Sweden, Norway, Italy, Netherlands, Britain (West and East Germany appear separated , after the reunification). We have selected these countries among all available ones according to two criteria. On one hand, we have considered the presence in more than one survey, in order to investigate potential variations along the time series dimension. On the other hand we have considered countries characterised by open-shop bargaining. In an open-shop framework, a single worker may observe the aggregate inequality measure as a proxy of the egalitarian attitude and effectiveness of unions, whereas in a closed-shop a local inequality measure becomes crucial. Since ISSP surveys do not report information on inequality at local level, we were forced to leave United States out of our sample of investigation. Within each country/year sample we have only included wage and salary earners in employment in our analysis, excluding the unemployed, the self-employed and those outside the labour force.[2]

Our overall sample consists of 55.109 individuals, unevenly distributed across countries: West Germany (1985-2002, 18 surveys, 12.094 observations), East Germany (1991-2002, 12 surveys, 4.094 observations), Sweden (1994-2002, 8 surveys, 5.194

[2] More precisely, we have followed three criteria in selecting the sample: **formal employment** (excluding individual working in the family, unemployed, students, retiree); **working for government or private enterprises** (excluding charity, volunteers, NGO); **excluding self-employed** (there are few individuals –self declaring both "self-employed" and "working for government" or "working for private enterprises", but we have left them out of our analysis).

observations), Norway (1989-2002, 14 surveys, 11.615 observations), Italy (1985-1998, 12 surveys, 4.628 observations), Netherlands (1987-2002, 11 surveys, 7.901 observations) and Great Britain (1985-2002, 18 surveys, 9.583 observations). The union density rates computed from ISSP samples are rather consistent with aggregate evidence, as it can be assessed looking at figure 3. If we exclude one survey, the ISSP data are almost in line with other evidence obtained at macro level (Ebbinghaus and Visser, 2000).

[Figure 3 about here]

The attitudes to inequality are part of the ISSP surveys of 1987, 1992, and 1999. Not all three years are available for all countries. Trends across three survey years could be analysed for West Germany and Britain. For Norway and East Germany two years are available (1992 and 1999). For three countries only one survey year was available: The Netherlands (1987), Italy (1992) and Sweden (1999).

Earnings position

We describe the relative earnings position of each individual by the relative distance from the survey median income (computed within each country/year sample). Position above or below the median are kept distinct, in order to distinguish different attitudes of people at both tails of the earnings distribution. If we define y_{ict} as the earnings of individual i in country c and survey year t, and $\hat{y}_{ct}$ as the median earnings for the same country/year, our measures are given by

$$R_{ict}^{above} = \frac{y_{ict} - \hat{y}_{ct}}{\bar{y}_{ct}}; \quad R_{ict}^{below} = 0 \qquad if \;\; y_{ict} > \hat{y}_{ct} \tag{1}$$

$$R_{ict}^{above} = 0; \qquad R_{ict}^{below} = \frac{\hat{y}_{ct} - y_{ict}}{\bar{y}_{ct}} \qquad if \;\; y_{ict} < \hat{y}_{ct} \tag{2}$$

A higher score indicates a larger distance between individual earnings and the median earnings in the country/year under study. When individual earnings information is missing,

but family income information is available, we compute the relative income position from the latter variable and use it instead of the former.[3]

Attitudes towards inequality

We look at three different types of attitudes towards inequality. The first is very general, and is based on the survey item '*Earnings inequality in my country is much too high*'. A high score indicates agreement with this item. The second type is based on work by Osberg and Smeeding (2006). This index is constructed as follows. For five occupations (doctor, chair of a large company, skilled worker, unskilled worker, minister) Each individual respondent gives the amount that these are *perceived* to pay, as well as the amount that these *should* pay. Then, for each respondent, an OLS regression coefficient is computed (on N=5 occupations) regressing the should-earn answer (representing the dependent variable Y) onto the do-earn answer (as our predictor X). A lower slope coefficient indicates a desire for redistribution, and symmetrically a higher coefficient, calls for less redistribution. We call this measure '**inequality permissiveness**'. Using the standard equation for OLS regression slopes, this individual measure for individual i is given by

$$\beta_i = \frac{\sum_{k=1}^{5}\left(Y_k - \bar{Y}\right)\left(X_k - \bar{X}\right)}{\sum_{k=1}^{5}\left(X_k - \bar{X}\right)^2} \tag{3}$$

The third type of attitude refers more directly towards collective action, and is therefore perhaps more strongly related to union membership. The item on which this variable is based is '*Inequality exists because people do not join together*'. A high score indicates agreement with this item, which we label a '**collective action inequality attitude**'.

For all three types of attitude we took the z-value within each country-year combination. The correlation between the general inequality attitude and inequality permissiveness is -0.309; between inequality permissiveness and the collective action inequality attitude is –0.105; between the general inequality attitude and the collective action attitude is 0.271.

[3] We have controlled for potential distortions introduced by this solution by creating a dummy variable which is one when the replacement takes place, and by inserting its interaction with the relative income position in the regressions, without finding statistical significance except two cases (Netherlands-below median and Britain-above median). Available from the authors.

[Figure 4 about here]

Figure 4 shows the trends in these inequality attitudes in the countries under analysis. The first graph shows that, particularly in the 1990s, there has been a increasing permissiveness towards inequality (that is, a higher regression slope in the Osberg-Smeeding measure). This trend is found in all three countries with more than one data point: Norway, Germany and Britain. Furthermore, it is remarkable that the lowest preference for redistribution (i.e. a highest score on the Osberg-Smeeding redistribution slope) is found in Norway. This may seem to be in contrast with Svallfors's findings (1997), but it should be noted that his measure of the range of legitimate earnings did not include the variables referring to the perceived actual pay of occupations. So, although Svallfors's analysis showed that the Norwegian population would prefer a lower dispersion of earnings between different occupations than the residents of Germany, Australia and the US, this does not translate in a stronger preference for redistribution if we take account of the (perceived) actual pay of occupations in Norway. This can obviously only be the case if the (perceived) actual earnings inequality in Norway is smaller than elsewhere, as it occurs in our data (see Figure 2). In the second graph we see that support for the statement that "earnings inequality is too high" is declining in the 1990s. In the third graph it is shown that there is hardly any trend in the 'collective action inequality attitude'.

Additional controls

In addition to relative earnings position and various measures of attitudes towards inequality, we do control for usual demographics (gender, age, marital status), education (measured in four categories: lower secondary or less, upper secondary, beyond secondary, completed college) and few job characteristics (working hours, public/private, supervising someone else). Descriptive statistics are reported in table A1 of the Appendix.

4. **RESULTS**

Earnings position and union membership

Our first analysis consists of an empirical estimation of the impact of various observable characteristics, including earnings position, on union membership in seven

countries. This is done on all available surveys from 1985-2002, thereby not limiting ourselves to survey years in which inequality attitudes were included.[4] In table 1 we report the results of a probit model predicting union membership. The coefficients are marginal effects, indicating the difference in the probability if the independent variable undergoes a unitary change. We see that women are less likely to join a labour union than men. However, in the Nordic countries this effect is smaller, if at all significant. In all countries, the young (defined as individuals younger than 30) are less likely to be union members than older workers.[5] In all countries except Germany and the Netherlands, married persons are more likely to join the union than non-married workers. Supervisors are less likely to become a trade union member than subordinates, except in East Germany and the Netherlands.[6] There is a very strong impact of public sector on union membership in all countries, but particularly so in Norway and Britain.

The impact of education varies across countries. The general pattern is that people with at most lower secondary level have the highest likelihood to join the union, while tertiary educated workers are less likely to become union members West Germany is the only country where the probability reduces monotonically for each additional step on the educational distribution.[7] There is also a rather large education effect in Sweden, although university graduates have a similar chance of membership as do persons with some post-secondary education. In Italy, Norway, the Netherlands and Britain, male university graduates have a lower probability of membership than people of lower secondary education, but the other educational categories resemble much the lower secondary group. University educated women, however, are much more often union members than their male counterparts (as it can be seen from the positive interaction terms relative to the negative main effects of university degree).

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[4] In order to keep the maximum sample size, when missing values were encountered for some variable (typically the case of "supervising someone" and "uncompleted college"), we have replaced them with country averages. Results are unaffected by this change, but standard errors for other variables are smaller.

[5] Similar gender and age effects were already found by Blanchflower (1996), who was using a larger country sample drawn from ISSP 1985-93, despite he retained self-employed in the sample. They are confirmed in Blanchflower 2006, where he stresses the existence of an inverted U-shaped relationship between membership probability at age, with a peak at an age comprised between 40 and 50.

[6] This is probably due to self-sorting based on unobservables: supervisors could be selected because they are against unions. As causality could go in the opposite direction, we would like to resort to instrumental variable estimation; a potential instrument could be the number of hierarchical levels which are present in the firm, but unfortunately this information is not available.

[7] Schnabel and Wagner 2005 using the European Social Survey conducted in 2002/03 finds that more educated worker are less likely to be union members only in Belgium and Denmark, but not in all other countries (including Germany). Similarly Blanchflower 1996 finds negative impact of years of education, and positive impact of the interaction between working in the public sector and years of schooling (probably capturing the presence of teachers and health workers)..

[Table 1 about here]

With regard to the impact of the earnings position variables, the data clearly show support for the fact that unions mainly attract workers from the intermediate earnings groups. The further one's personal income is from the median, the lower the likelihood of membership. This holds in all countries for both the distance above the median and the distance below the median.[8] There is one exception, which is Italy, where we did not find a significant impact of the distance above the median on union membership. The negative impact of earnings below the median is much stronger than that of the earnings above the median. Thus, trade unions are not attractive to low earners, possibly because of their disappointment in the union egalitarianism, or possibly because their higher interest in free-riding (given their budget constraints), or any combination of them. If we analyse each survey year separately, we do not find any systematic change in the effect of the earnings distance to the median (above or below), indicating that declining union membership may partly be caused by a changing earnings distributions, but not by changing associations between earnings position and union membership.[9] The evidence of detrimental effect of earnings distance from the median onto membership may represent an additional explanation of the inverted U-shaped relationship with age, as emphasised by Blanchflower (2006): if workers experience a positively sloped earnings-age profile, they are more likely to be observed as union member in the middle of their working career.

In order to be more confident in the causality of earnings position affecting union membership, and not the other way round, we resort to instrumental variable estimation of union membership probability. In this model the earnings position variables are considered as endogenous, and they are instrumented using educational attainment.. The results of this analysis are reported in table A2 in the Appendix; they indicate that relative earnings measures retain significance (except in the case of being below the median in East Germany,

[8] This is in line with the findings of Addison et al. 2003, where they notice that male density in UK "..was lowest among the least skilled (lowest decile), highest at the third decile and then somewhat lower for the more skilled." However union power (defined by the union wage premium times the decile density rate) was highest for the less skilled workers. On the contrary, our result contrasts with Goerke and Pannenberg 2004, who analyse a panel of German workers, finding that (log)income position is irrelevant for predicting union membership, while firm size is important.

[9] These analyses are available from the authors upon request. See however the plots of the coefficients presented in figure 6. This contrasts with the conclusions of Addison et al. 2003, where they claim that in UK and US "...that the distribution of union density has become less pro-poor over time, shifting for example from the less educated to the better educated.".

Italy and Sweden), and slightly increase relative to the coefficients obtained in table 1, suggesting a possible endogeneity in the coefficient estimation). It is interesting to notice that being below the median negatively affect membership probability much more than being above. Overall the data provide support to the negative correlation between earnings position (proxied by relative distance from the median) and probability of joining a union.

The impact of inequality attitudes on union membership

As a first examination of differences in attitudes between union members and non-members, we calculated kernel density estimates of the permissiveness of inequality separately by membership. Figure 5 displays these estimates. Remember that a high score on the redistribution preference computed according to Osberg and Smeeding (2006) indicates a high permissiveness of unequal pay across occupations. The figure shows that, in most countries, the solid lines (representing union members) are to the left of the dashed lines, which supports the notion that a preference toward redistribution may inspire people to join a labour union.

[Figure 5 about here]

The second way we examine the impact of attitudinal factors on union membership is by estimating a probit regression analysis on the pooled sample. Table 2 displays the results of this analysis. In this table we estimate four models. Model 0 is a model using the same variables as in table 1, but now with the fewer datasets that include the attitude items, and with pooled analyses on all countries including country dummies. Model 1 adds the three attitude variables. Model 2 adds multiplicative interactions between earnings position and attitudes, and model 3 replaces these interactions with interactions between survey year and attitudes.

In model 0 we find support for most of the findings on the larger number of years analysed above. Most importantly for our purposes, people with income levels to a greater distance to the median (either above or below) are less likely to be a union member. In model 1 of table 2 we see that attitudinal factors have the expected effect on union membership. First, people who are permissive of inequality have a lower likelihood to join the union. Second, people who find inequality too high in their society also have a higher likelihood to join the labour union. Moreover, this effect is more than twice as large as the effect of inequality permissiveness. Apparently, more general notions of inequality are more

supportive of union membership than more specific preferences of redistribution. People who think that inequality exists because people do not join together - thus indicating an inclination to collective action - have a slightly higher chance of membership than people who disagree with this statement. So how does the inclusion of attitudinal factors affect the impact of the background variables on union membership? Differences across time and across countries in membership rates can not be explained by time or country variation in attitudes. The coefficients of model 1 are very similar to those of model 0. The gender difference in membership can not be explained by gender differences in inequality attitudes either. This is not surprising, as women are generally more critical towards the existing earnings distribution than men (Van de Werfhorst & De Graaf 2004). Neither the effect of schooling, nor the difference between public and private sector workers can be explained by differentials in inequality attitudes. Thus, the impact of attitudinal factors is purely additive, and gives us no further *interpretation* of well-known variations in union membership.

With regard to the impact of relative earnings position we see that the impact of the distance of one's earnings above the median is partly, but modestly, explained by differential attitudes. The coefficient of this variable decreases from –0.109 to –0.084. Thus, only to a limited extent it is true that high-earners are relatively unattracted to union membership because of their unegalitarian attitudes. Most of the effect remains, which supports the view that their non-membership is at least partially based on rational motivations.

In model 2 of table 2 we see that there is no interaction between earnings position and inequality attitudes. Thus, the impact of inequality attitudes on union membership is independent of one's relative earnings position. In model 3 we see that the impact of the attitude of inequality permissiveness is only prevalent in 1987 (as seen in the main effect); and is reduced to zero in 1992 and 1999. The impact of the general inequality attitude seems to have slightly increased between 1987 and 1999, with a positive, though non-significant, interaction effect of 0.036.

[Table 2 about here]

In table 3 we have replicated the analysis of table 2 by country. This analysis reveals that the impact of inequality permissiveness is only prevalent in Britain. The impact of the general inequality attitude is much more widespread across Europe, although no effects were found in the Netherlands and East Germany. Models 2 in table 3 show that there is no systematic variation between earnings groups in the impact of attitudes, which confirms the

pooled analysis of table 2. Finally in table 4 trends in the impact of attitudes are shown split out by country. This table shows that the effect of inequality permissiveness is mainly found in Britain in 1987, and declined to approaching zero in the other years of investigation. The general inequality attitude is gaining in importance in Norway in 1999 relative 1992.

[Tables 3 and 4 about here]

5. CONCLUSIONS

In this paper we have examined the connection between union membership and economic inequality. First, we examined the impact of the distance of individual earnings to the median one on union membership, and showed that unions are mainly attractive for the intermediate earnings groups. One implication of this finding is that, if earnings inequality increases, union membership declines as a result of this compositional change in the earnings distribution. However, we did not find support for a changing association between earnings position and membership. In Figure 6 we plot the estimated coefficients by country and year. It is clear that it is hard to distinguish any trend in the relative earnings position.

Second, we examined the impact of inequality attitudes on union membership. It appeared relevant to study the impact of inequality attitudes for three reasons. First, we showed that union membership is not only affected by individual expected benefits resulting from objective criteria such as education or earnings, but that attitudes towards inequality also play an important role. People apparently join trade unions because they feel that economic inequality in society is too large and that earnings should be redistributed. Second, we have shown that well-known variations in union membership (e.g. by gender, skill level, or supervisory status, or sector of employment) are not explained by differences in attitudes across these subgroups. Third, through the control for attitudes, we can be more confident that the impact of the earnings distance to the median is not caused by differential attitudes, but is caused by rational motivations.

We can therefore go back to the literature on union membership decline with additional insights. In addition to compositional effects (especially related to increased female participation and to flexibilisation at the margin, that has mainly hit the young component) we have shown the role of inequality attitude in shaping the decision to join a union. Workers who are union members are such because either they hols egalitarian opinions or because themselves are not excessively anxious about egalitarian policies of

unions (because they are not that far from the median earnings position). People belonging to the top tail of the earnings distribution may rationally "vote with their feet" by leaving union membership, whenever the cost associated to wage compression exceeds the benefit of implicit unemployment insurance provided by the presence of unions. Conversely, low paid workers may leave the unions (or never become member) whenever the promise to reduce the wage gap with the median worker is perceived as non feasible, starting from their own income position. Thus, any exogenously given increase in earnings inequality (be a skill biased technological change, globalisation, migration) has adversarial implication for union membership (at least in the countries we have analysed). Should then unions give up their egalitarian policies in face of these changes ? The answer has to be qualified. By abandoning policies aiming to wage compression (like 'equal pay for equal work' policies, pay scheme related to jobs and not to individuals, automatic indexation clauses, seniority increases)[10], a union would probably retain more members from the top part of earnings distribution. But it is likely to loose support from the bottom part of the distribution, because it weakens the promise of improved income prospect for the unskilled workers.

[10] See proposition 1 in Metcalf et al. 2001: "In setting pay, workplaces where unions are recognised will make reater use of objective criteria such as job classification and seniority. Nonunion workplaces will make greater use of subjective performance appraisal and core competencies than unionised workplaces. This implies, in turn, that where contingent pay is used unionised workplaces will have schemes based on objective criteria – share options or profits – whereas non-union workplaces are more likely to use merit-based schemes." (p.65)

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Figure 1 – Union membership and income inequality – macro evidence
(source: Deininger-Squire 1996 and Ebbinghaus-Visser 2000)

Figure 2 – Union membership and income/earnings inequality – micro evidence (source: ISSP)

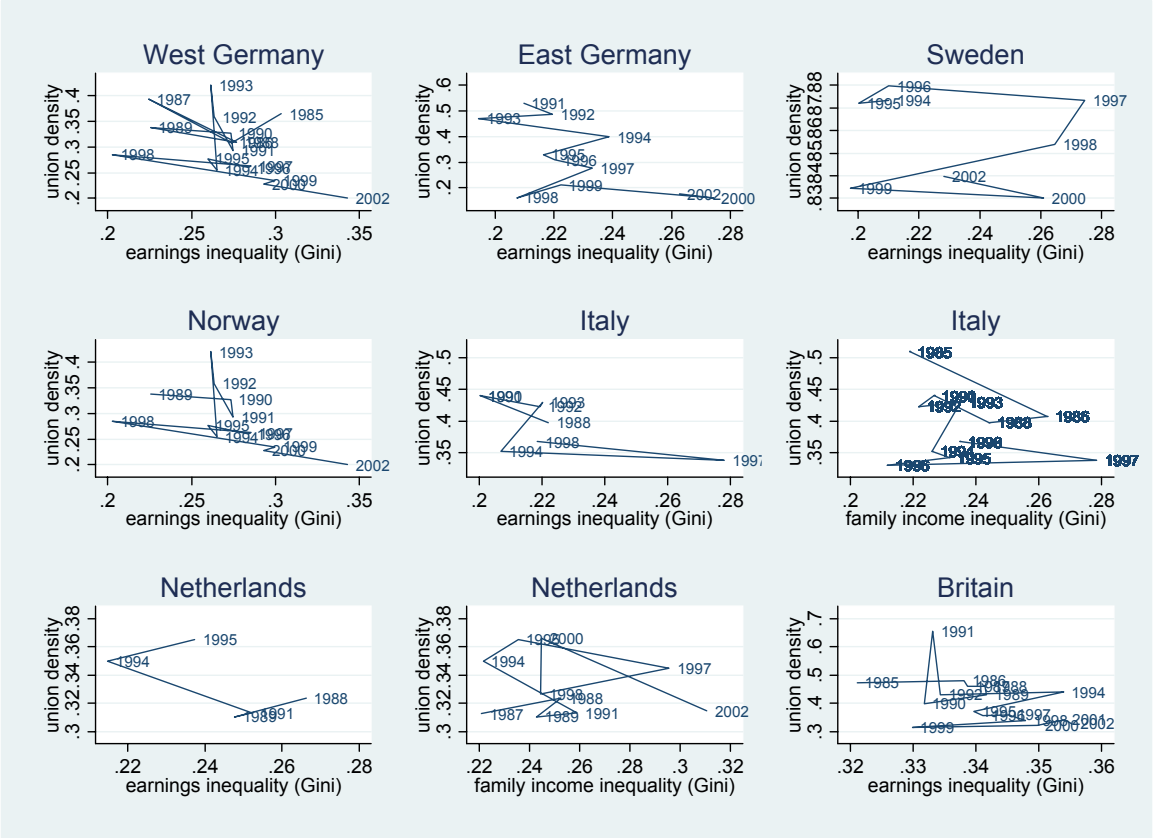


Figure 3 - Union density rates: comparison between macro and micro evidence

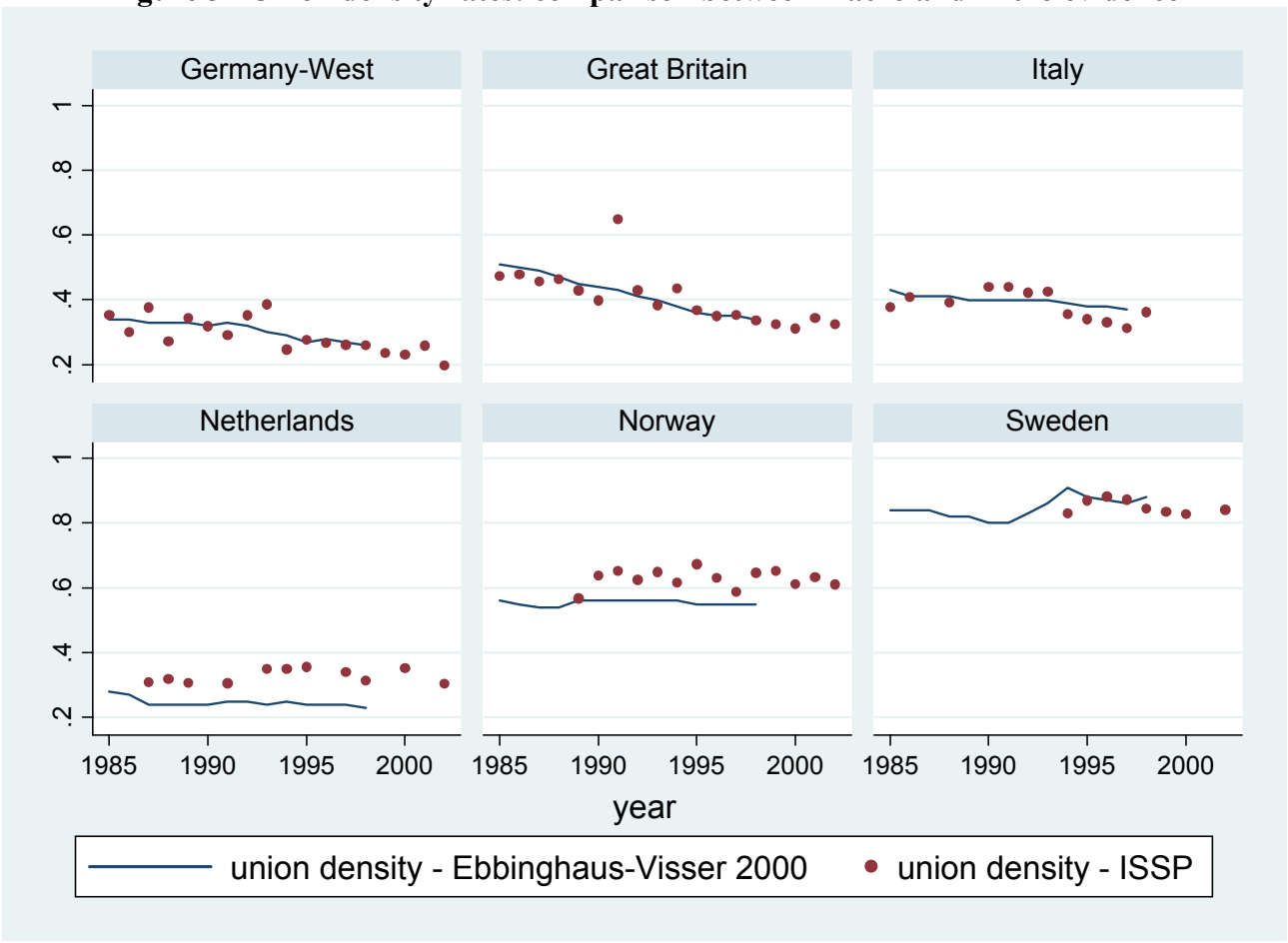


Figure 4 - Trends in inequality attitudes

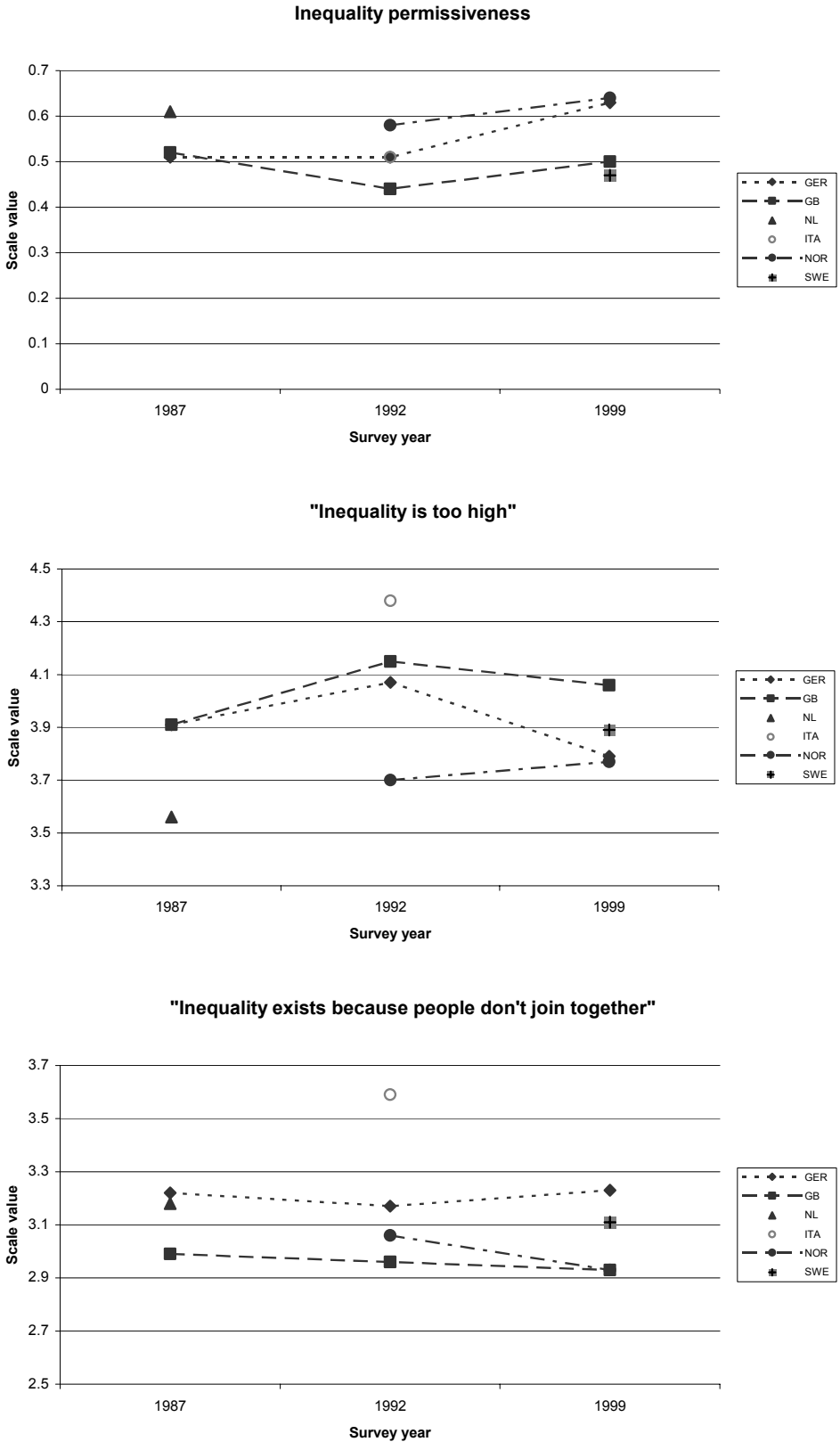


Figure 5 - Kernel density estimates of inequality permissiveness, by trade union membership status

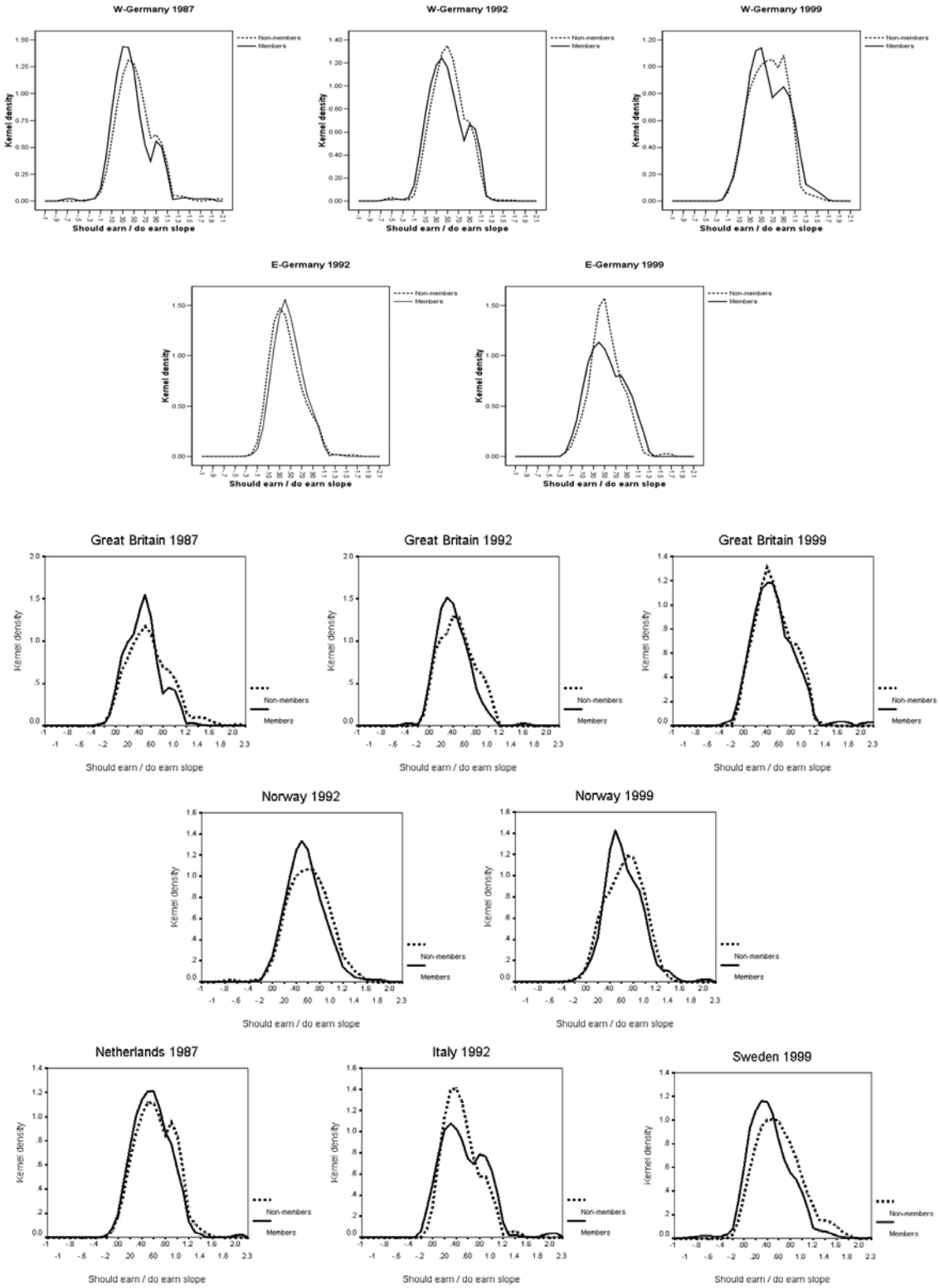
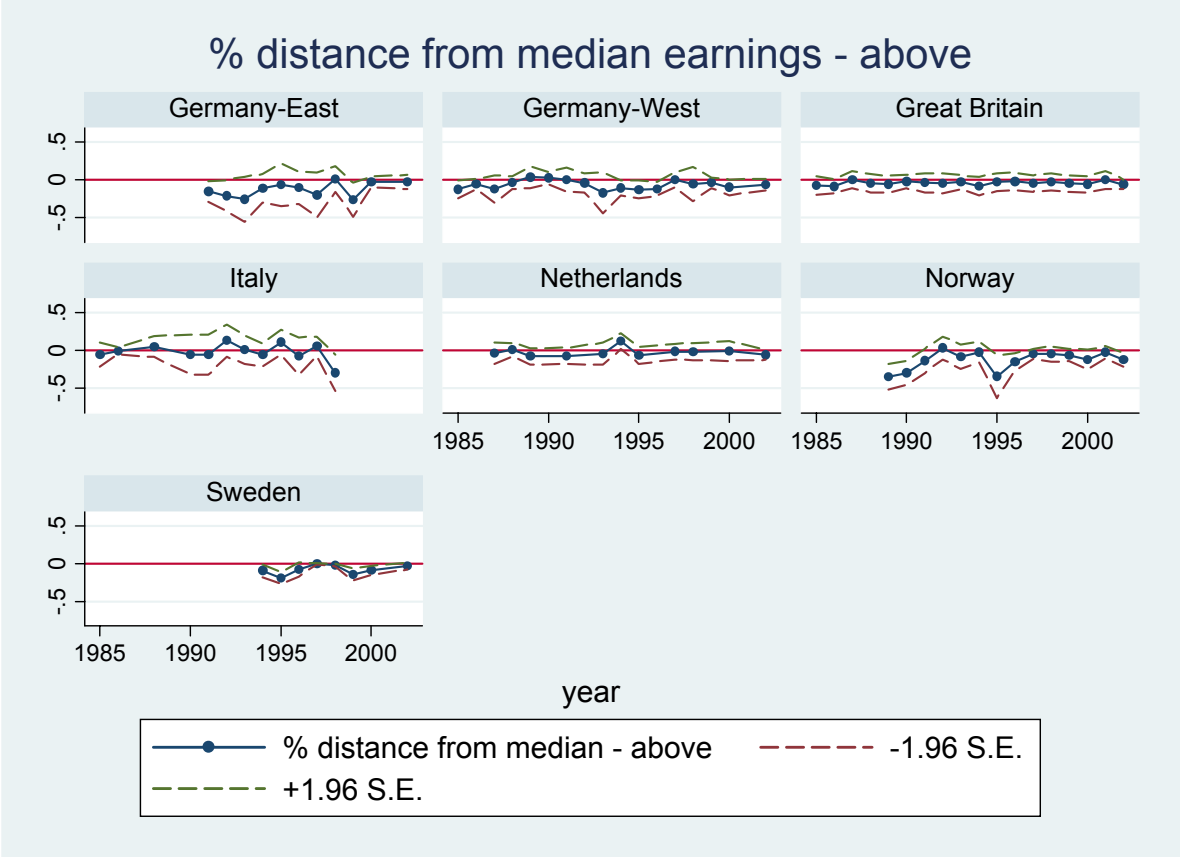


Figure 6 – Changes over time of relative earnings position on membership probability



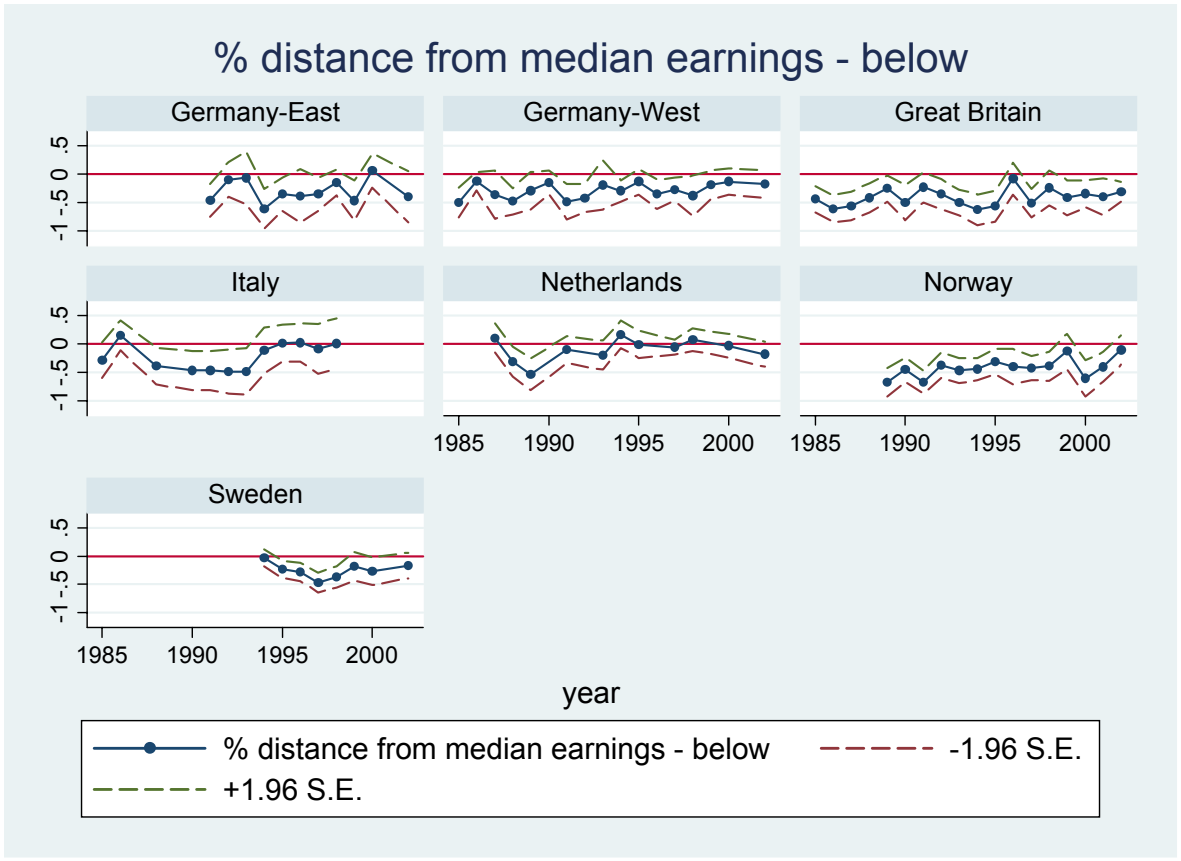


Table 1 - Probit regression of union membership (marginal effects) - ISSP 1985-2002

	West Germany	East Germany	Sweden	Norway	Italy	Netherlands	Britain
Female	-0.133	-0.031	0.016	-0.022	-0.091	-0.112	-0.072
	[0.012]***	[0.020]	[0.012]	[0.013]*	[0.021]***	[0.016]***	[0.014]***
Young	-0.053	-0.074	-0.07	-0.144	-0.152	-0.143	-0.08
	[0.012]***	[0.023]***	[0.015]***	[0.015]***	[0.026]***	[0.014]***	[0.014]***
Married	0.016	-0.011	0.023	0.047	0.076	0.003	0.033
	[0.011]	[0.021]	[0.011]**	[0.012]***	[0.023]***	[0.013]	[0.012]***
working less than fulltime	-0.09	0.081	0.012	-0.054	-0.106	-0.029	-0.037
	[0.016]***	[0.030]***	[0.015]	[0.019]***	[0.029]***	[0.016]*	[0.018]**
working for government/public owned	0.127	0.085	0.139	0.399	0.187	0.16	0.412
	[0.012]***	[0.020]***	[0.011]***	[0.010]***	[0.022]***	[0.014]***	[0.013]***
supervising someone	-0.039	0.013	-0.059	-0.03	0.073	0.005	-0.057
	[0.012]***	[0.021]	[0.010]***	[0.012]**	[0.026]***	[0.013]	[0.012]***
upper secondary completed	-0.055	-0.07	-0.066	0.003	-0.028	-0.006	-0.025
	[0.017]***	[0.036]**	[0.016]***	[0.014]	[0.022]	[0.016]	[0.016]
beyond secondary/incomplete college	-0.077	0.02	-0.081	-0.028	0.011	0.027	-0.005
	[0.020]***	[0.039]	[0.023]***	[0.017]	[0.034]	[0.022]	[0.016]
university degree completed	-0.137	-0.062	-0.073	-0.043	-0.12	-0.086	-0.125
	[0.017]***	[0.036]*	[0.019]***	[0.020]**	[0.037]***	[0.019]***	[0.021]***
female*college completed	0.184	0.049	0.034	0.098	0.078	0.168	0.165
	[0.040]***	[0.058]	[0.018]*	[0.022]***	[0.064]	[0.032]***	[0.032]***
Relative distance from the median earnings (above)	-0.06	-0.115	-0.012	-0.078	-0.025	-0.029	-0.04
	[0.014]***	[0.031]***	[0.006]*	[0.015]***	[0.018]	[0.016]*	[0.013]***
Relative distance from the median earnings (below)	-0.266	-0.309	-0.239	-0.403	-0.126	-0.077	-0.409
	[0.030]***	[0.053]***	[0.035]***	[0.033]***	[0.055]**	[0.031]**	[0.030]***
Observations	8842	3141	4902	10040	2988	7066	9269
Pseudo R-squared	0.08	0.09	0.11	0.18	0.09	0.05	0.16
Log likelihood	-4968.21	-1868.54	-1767.37	-5409.28	-1833.67	-4286.49	-5299.54

Robust standard errors in brackets - * significant at 10%; ** significant at 5%; *** significant at 1% - Year dummies included. Missing values are replaced with sample averages, in order to retain sample size.

Table 2 - Probit regression of union membership including attitudinal variables (marginal effects) – ISSP 1987, 1992, 1999 – all countries

	Model 0	Model 1	Model 2	Model 3
female	-0.049	-0.05	-0.05	-0.048
	[0.018]***	[0.018]***	[0.018]***	[0.018]***
young	-0.125	-0.117	-0.118	-0.115
	[0.021]***	[0.021]***	[0.021]***	[0.021]***
married	0.031	0.032	0.033	0.034
	[0.019]	[0.019]*	[0.019]*	[0.019]*
working less than fulltime	-0.103	-0.103	-0.104	-0.104
	[0.024]***	[0.024]***	[0.024]***	[0.025]***
work for government/public owned	0.27	0.267	0.266	0.266
	[0.016]***	[0.016]***	[0.016]***	[0.016]***
supervising someone	-0.032	-0.022	-0.021	-0.021
	[0.018]*	[0.018]	[0.018]	[0.018]
upper secondary completed	-0.072	-0.067	-0.068	-0.07
	[0.023]***	[0.023]***	[0.023]***	[0.023]***
beyond secondary/incomplete college	-0.008	0.014	0.012	0.012
	[0.027]	[0.027]	[0.027]	[0.027]
university degree completed	-0.02	-0.001	0	-0.001
	[0.026]	[0.027]	[0.027]	[0.027]
Relative distance from the median earnings (above)	-0.109	-0.084	-0.062	-0.084
	[0.024]***	[0.024]***	[0.027]**	[0.024]***
Relative distance from the median earnings (below)	-0.267	-0.27	-0.25	-0.274
	[0.045]***	[0.046]***	[0.046]***	[0.046]***
inequality permissiveness		-0.018	-0.02	-0.054
		[0.009]**	[0.012]*	[0.018]***
general inequality attitude		0.039	0.038	0.036
		[0.009]***	[0.013]***	[0.018]**
collective action inequality attitude		0.016	0.01	0.014
		[0.009]*	[0.013]	[0.016]
Distance earnings (below) ×redistribution preference			0.039	
			[0.046]	
Distance earnings (above) ×redistribution preference			-0.007	
			[0.026]	
Distance earnings (below) ×general inequality attitude			-0.034	
			[0.046]	
Distance earnings (above) ×general inequality attitude			0.017	
			[0.024]	
Distance earnings (below) ×collective action inequality attitude			0.009	
			[0.042]	
Distance earnings (above) ×collective action inequality attitude			0.022	
			[0.024]	

1992×redistribution preference				0.044
				[0.022]**
1999×redistribution preference				0.054
				[0.024]**
1992×general inequality attitude				-0.015
				[0.022]
1999×general inequality attitude				0.036
				[0.025]
1992×collective action inequality attitude				0.013
				[0.020]
1999×collective action inequality attitude				-0.017
				[0.023]
Year 1992	-0.021	-0.026	-0.028	-0.026
	[0.026]	[0.026]	[0.026]	[0.026]
Year 1999	-0.152	-0.156	-0.157	-0.156
	[0.028]***	[0.028]***	[0.028]***	[0.028]***
East Germany	0.029	0.039	0.042	0.037
	[0.033]	[0.033]	[0.033]	[0.033]
Britain	0.073	0.071	0.073	0.07
	[0.025]***	[0.025]***	[0.025]***	[0.025]***
Netherlands	-0.121	-0.122	-0.117	-0.123
	[0.035]***	[0.035]***	[0.035]***	[0.035]***
Italy	0.01	0.02	0.022	0.02
	[0.037]	[0.037]	[0.037]	[0.037]
Norway	0.245	0.247	0.25	0.246
	[0.026]***	[0.026]***	[0.026]***	[0.026]***
Sweden	0.503	0.508	0.511	0.509
	[0.018]***	[0.018]***	[0.018]***	[0.018]***
Observations	4461	4461	4461	4461
Pseudo R-squared	0.16	0.16	0.17	0.17
Log likelihood	-2595.04	-2574.68	-2571.59	-2568.41

Robust standard errors in brackets - * significant at 10%; ** significant at 5%; *** significant at 1% -
Missing values are replaced with sample averages, in order not to reduce sample size

Table 3 - Probit regression of union membership on earnings position and inequality attitudes, by country – ISSP 1987, 1992, 1999

	West Germany Model 1	West Germany Model 2	East Germany Model 1	East Germany Model 2	Britain Model 1	Britain Model 2	Nether lands Model 1	Nether lands Model 2	Italy Model 1	Italy Model 2	Norway Model 1	Norway Model 2	Sweden Model 1	Sweden Model 2
1992	-0.014	-0.014	Ref.	Ref.	-0.043	-0.046	--	--	--	--	Ref.	Ref.	--	--
	[0.039]	[0.039]			[0.039]	[0.039]	--	--	--	--	--	--	--	--
1999	-0.136	-0.134	-0.287	-0.292	-0.183	-0.187	--	--	--	--	0.008	0.005	--	--
	[0.042]***	[0.042]***	[0.048]***	[0.049]***	[0.037]***	[0.037]***	--	--	--	--	[0.046]	[0.046]	--	--
Female	-0.096	-0.093	0.003	-0.001	-0.047	-0.051	-0.043	-0.045	-0.079	-0.108	-0.044	-0.058	0.034	0.035
	[0.038]**	[0.038]**	[0.054]	[0.055]	[0.037]	[0.037]	[0.063]	[0.063]	[0.067]	[0.068]	[0.041]	[0.042]	[0.038]	[0.038]
Young	-0.049	-0.045	-0.077	-0.066	-0.086	-0.085	-0.111	-0.105	-0.324	-0.307	-0.159	-0.166	-0.095	-0.094
	[0.041]	[0.042]	[0.060]	[0.061]	[0.039]**	[0.039]**	[0.053]**	[0.053]**	[0.081]***	[0.088]***	[0.048]***	[0.049]***	[0.052]*	[0.052]*
Married	0.019	0.017	-0.011	0.001	-0.017	-0.008	0.025	0.032	0.037	0.029	0.128	0.135	0.078	0.076
	[0.036]	[0.036]	[0.058]	[0.059]	[0.037]	[0.038]	[0.056]	[0.057]	[0.076]	[0.077]	[0.048]***	[0.048]***	[0.035]**	[0.036]**
working less than fulltime	-0.094	-0.093	0.142	0.155	-0.038	-0.036	-0.174	-0.172	-0.243	-0.235	-0.151	-0.138	-0.032	-0.021
	[0.052]*	[0.053]*	[0.083]*	[0.085]*	[0.047]	[0.047]	[0.058]***	[0.058]***	[0.085]***	[0.088]***	[0.068]**	[0.067]**	[0.065]	[0.064]
work for government/public owned	0.153	0.153	0.091	0.085	0.4	0.397	0.114	0.114	0.251	0.261	0.365	0.373	0.1	0.106
	[0.038]***	[0.038]***	[0.059]	[0.059]	[0.031]***	[0.032]***	[0.048]**	[0.049]**	[0.062]***	[0.062]***	[0.036]***	[0.036]***	[0.037]***	[0.037]***
supervising someone	-0.004	-0.004	0.134	0.127	-0.089	-0.087	-0.092	-0.087	0.043	0.06	-0.023	-0.03	-0.043	-0.05
	[0.035]	[0.035]	[0.056]**	[0.057]**	[0.035]***	[0.035]**	[0.052]*	[0.053]*	[0.075]	[0.077]	[0.043]	[0.043]	[0.035]	[0.036]
upper secondary completed	-0.069	-0.071	-0.167	-0.17	-0.043	-0.043	-0.06	-0.059	-0.078	-0.074	-0.069	-0.072	-0.046	-0.044
	[0.053]	[0.053]	[0.108]	[0.110]	[0.045]	[0.045]	[0.070]	[0.069]	[0.069]	[0.069]	[0.054]	[0.055]	[0.043]	[0.045]
beyond secondary/incomplete college	0.027	0.034	-0.263	-0.246	-0.012	-0.013	0.02	0.021	-0.045	-0.048	0.004	-0.003	0.05	0.051
	[0.115]	[0.117]	[0.128]**	[0.143]*	[0.046]	[0.046]	[0.058]	[0.059]	[0.143]	[0.141]	[0.051]	[0.052]	[0.050]	[0.051]
university degree completed	-0.12	-0.13	-0.035	-0.055	-0.076	-0.077	-0.039	-0.032	-0.209	-0.193	0.093	0.094	0.056	0.054
	[0.056]**	[0.054]**	[0.083]	[0.083]	[0.053]	[0.053]	[0.081]	[0.082]	[0.103]**	[0.106]*	[0.053]*	[0.053]*	[0.043]	[0.045]
Relative distance from the median earnings (above)	-0.104	-0.094	-0.151	-0.127	0.023	0.035	0.028	0.077	0.298	0.331	-0.01	0.046	-0.131	-0.078
	[0.045]**	[0.050]*	[0.094]	[0.105]	[0.044]	[0.049]	[0.082]	[0.098]	[0.142]**	[0.141]**	[0.066]	[0.082]	[0.041]***	[0.064]
Relative distance from the median earnings (below)	-0.373	-0.373	-0.133	-0.142	-0.413	-0.398	0.038	0.043	-0.109	-0.063	-0.109	-0.065	-0.259	-0.249
	[0.104]***	[0.105]***	[0.142]	[0.155]	[0.083]***	[0.085]***	[0.150]	[0.158]	[0.172]	[0.176]	[0.130]	[0.132]	[0.134]*	[0.134]*
inequality permissiveness	-0.022	-0.002	0.035	0.018	-0.043	-0.058	-0.037	-0.043	0.034	0.001	-0.004	-0.02	-0.018	-0.004
	[0.017]	[0.025]	[0.025]	[0.033]	[0.020]**	[0.026]**	[0.026]	[0.044]	[0.031]	[0.052]	[0.021]	[0.031]	[0.015]	[0.023]
general inequality attitude	0.044	0.042	-0.009	0.001	0.034	0.045	0.012	-0.033	0.064	0.081	0.048	0.02	0.042	0.031
	[0.020]**	[0.028]	[0.025]	[0.037]	[0.017]**	[0.026]*	[0.026]	[0.044]	[0.034]*	[0.060]	[0.022]**	[0.034]	[0.020]**	[0.028]
collective action inequality attitude	0.026	0.04	0.026	-0.02	0.014	-0.022	-0.019	-0.014	-0.029	-0.017	0.005	0.034	0.016	0.049
	[0.017]	[0.026]	[0.027]	[0.041]	[0.016]	[0.026]	[0.023]	[0.038]	[0.030]	[0.051]	[0.020]	[0.031]	[0.018]	[0.026]*
distance earnings (below) ×inequality permissiveness		-0.063		0.251		-0.034		0.011		0.126		0.278		-0.022
		[0.099]		[0.154]		[0.085]		[0.161]		[0.186]		[0.106]***		[0.078]
distance earnings (above) ×inequality permissiveness		-0.068		-0.155		0.067		0.014		0.089		-0.068		-0.064
		[0.052]		[0.103]		[0.041]		[0.113]		[0.137]		[0.076]		[0.040]
distance earnings (below) ×general inequality attitude		0.048		-0.011		-0.117		0.11		-0.263		0.176		-0.004
		[0.086]		[0.117]		[0.078]		[0.176]		[0.186]		[0.149]		[0.121]
distance earnings (above) ×general inequality attitude		-0.015		-0.04		0.023		0.154		0.151		0.047		0.049
		[0.043]		[0.084]		[0.044]		[0.105]		[0.141]		[0.073]		[0.047]
distance earnings (below) ×collective action inequality attitude		-0.034		0.252		0.033		0.018		0.036		-0.056		-0.148
		[0.097]		[0.166]		[0.067]		[0.151]		[0.160]		[0.134]		[0.107]
Observations	918	918	412	412	1160	1160	443	443	300	300	755	755	473	473
Pseudo R-squared	0.1	0.1	0.1	0.12	0.17	0.18	0.06	0.06	0.16	0.18	0.17	0.19	0.18	0.19
Log likelihood	-538.79	-537.5	-246.02	-241.83	-654.87	-647.47	-257	-255.86	-172	-168.76	-412.73	-405.8	-177.81	-175.54

Table 4 - Trends in the impact of inequality attitudes on union membership, by country - probit model (marginal effects) – ISSP 1987, 1992, 1999

	West Germany Model 3	East Germany Model 3	Britain Model 3	Norway Model 3
1992	-0.005	Ref.	-0.038	Ref.
	[0.040]		[0.039]	
1999	-0.125	-0.297	-0.184	0.013
	[0.043]***	[0.048]***	[0.037]***	[0.046]
female	-0.096	-0.009	-0.053	-0.047
	[0.038]**	[0.054]	[0.037]	[0.041]
young	-0.047	-0.093	-0.081	-0.154
	[0.042]	[0.061]	[0.040]**	[0.048]***
married	0.022	-0.026	-0.011	0.132
	[0.036]	[0.060]	[0.038]	[0.049]***
working less than fulltime	-0.089	0.132	-0.045	-0.154
	[0.053]*	[0.085]	[0.047]	[0.067]**
work for government/public owned	0.153	0.079	0.399	0.366
	[0.038]***	[0.059]	[0.032]***	[0.036]***
supervising someone	-0.003	0.131	-0.088	-0.023
	[0.035]	[0.056]**	[0.035]**	[0.043]
upper secondary completed	-0.076	-0.185	-0.043	-0.079
	[0.052]	[0.100]*	[0.045]	[0.055]
beyond secondary/incomplete college	0.035	-0.263	0.002	-0.011
	[0.116]	[0.123]**	[0.047]	[0.051]
university degree completed	-0.116	-0.031	-0.076	0.096
	[0.057]**	[0.084]	[0.053]	[0.053]*
Relative distance from the median earnings (above)	-0.109	-0.162	0.019	0.004
	[0.046]**	[0.095]*	[0.044]	[0.067]
Relative distance from the median earnings (below)	-0.388	-0.105	-0.41	-0.129
	[0.104]***	[0.146]	[0.084]***	[0.129]
inequality permissiveness	0.003	0.043	-0.137	-0.017
	[0.034]	[0.029]	[0.039]***	[0.024]
general inequality attitude	0.092	-0.018	0.007	0.021
	[0.041]**	[0.030]	[0.027]	[0.025]
collective action inequality attitude	0.015	0.064	0.026	0.006
	[0.031]	[0.031]**	[0.024]	[0.023]
1992×inequality permissiveness	-0.05		0.092	
	[0.041]		[0.050]*	
1999×inequality permissiveness	0.017	-0.022	0.144	0.024
	[0.051]	[0.058]	[0.046]***	[0.045]
1992×general inequality attitude	-0.074		0.013	
	[0.048]		[0.040]	
1999×general inequality attitude	-0.02	0.03	0.067	0.085
	[0.062]	[0.057]	[0.044]	[0.045]*
1992×collective action inequality attitude	0.02		0.019	
	[0.040]		[0.037]	
1999×collective action inequality attitude	-0.011	-0.145	-0.078	-0.014
	[0.050]	[0.059]**	[0.041]*	[0.045]
Observations	918	412	1160	755
Pseudo R-squared	0.1	0.11	0.18	0.18
Log likelihood	-536.26	-242.86	-647.64	-410.97

Robust standard errors in brackets - * significant at 10%; ** significant at 5%; *** significant at 1% - Missing values are replaced with sample averages, in order not to reduce sample size

Appendix

Table A1 – Descriptive statistics

West Germany - means	union	female	married	part-time	public	completed secondary	uncompl college	college	supervis. someone	age	years of schooling	working hours	sample size
1985	0.353	0.380	0.662	0.143	0.311	0.013	0.034	0.138		39.434	10.420	42.139	464
1986	0.301	0.375	0.625	0.146	0.213	0.084	0.065	0.088		37.578	10.398	40.299	1.196
1987	0.376	0.384	0.642	0.140	0.315	0.063	0.033	0.079	0.322	39.689	10.315	39.806	490
1988	0.271	0.424	0.588	0.166	0.203	0.099	0.020	0.091		37.360		39.131	1.234
1989	0.344	0.429	0.603	0.190	0.262	0.093	0.016	0.074	0.255	38.072	10.149	38.822	578
1990	0.318	0.387	0.580	0.129	0.321	0.104	0.032	0.114	0.425	38.419	10.645	39.078	1.196
1991	0.291	0.395	0.635	0.183	0.312	0.073	0.080	0.095	0.457	38.714	10.827	38.993	612
1992	0.352	0.405	0.611	0.169	0.311	0.094	0.063	0.129	0.429	38.049	10.507	38.159	969
1993	0.386	0.402	0.625	0.168	0.269	0.075	0.061	0.086		38.780	10.556	37.231	425
1994	0.246	0.368	0.604	0.134	0.266	0.059	0.067	0.099	0.422	37.947			1.035
1995	0.276	0.380	0.663	0.187	0.361	0.138	0.067	0.108	0.533	40.330	11.457	38.584	631
1996	0.267	0.387	0.624	0.128	0.273	0.066	0.045	0.078	0.453	38.566	9.844		589
1997	0.261	0.399	0.590	0.131	0.346	0.078	0.076	0.123	0.452	40.447	11.795	38.637	602
1998	0.260	0.394	0.544	0.090	0.251	0.045	0.087	0.107	0.397	39.538	11.020	38.930	354
1999	0.236	0.392	0.593	0.139	0.284	0.129		0.095	0.456	40.336	10.607	39.737	423
2000	0.230	0.435	0.626	0.161	0.308	0.084	0.002	0.120	0.460	40.966	10.741	38.959	439
2001	0.258	0.403	0.551	0.120	0.308	0.084	0.072	0.128	0.515	39.877	11.449	39.823	431
2002	0.197	0.433	0.562	0.155	0.262	0.087	0.085	0.153	0.512	39.775	11.613	39.618	426
Total	0.292	0.396	0.608	0.149	0.281	0.084	0.049	0.103	0.434	38.750	10.682	39.223	12.094

East Germany - means	union	female	married	part-time	public	completed secondary	uncompl college	college	supervis. someone	age	years of schooling	working hours	sample size
1991	0.501	0.496	0.734	0.239	0.350	0.068		0.123	0.332	39.018	10.600	41.674	815
1992	0.476	0.497	0.709	0.119	0.361	0.048	0.040	0.148	0.309	38.421	10.702	41.809	519
1993	0.455	0.468	0.649	0.072	0.315	0.029	0.117	0.107		38.952	10.596	41.073	411
1994	0.394	0.438	0.712	0.101	0.303	0.041	0.075	0.120	0.322	38.998			416
1995	0.332	0.449	0.726	0.147	0.393	0.093	0.100	0.156	0.444	41.151	11.547	41.227	271
1996	0.304	0.441	0.690	0.087	0.265	0.079	0.038	0.079	0.358	39.893	9.833		247
1997	0.272	0.453	0.720	0.053	0.354	0.049	0.160	0.177	0.407	41.535	13.022	42.858	243
1998	0.169	0.466	0.575	0.118	0.277	0.035	0.153	0.074	0.266	38.410	10.994	40.490	338
1999	0.210	0.476	0.675	0.104	0.277	0.095	0.004	0.104	0.320	40.749	11.476	41.330	229
2000	0.156	0.482	0.584	0.106	0.243	0.071		0.124	0.332	40.000	11.637	41.380	225
2001	0.222	0.466	0.583	0.034	0.299	0.074	0.049	0.138	0.397	39.547	12.015	43.377	203
2002	0.181	0.438	0.624	0.096	0.315	0.045	0.073	0.180	0.441	40.803	12.326	41.865	177
Total	0.355	0.468	0.680	0.123	0.318	0.060	0.060	0.122	0.346	39.504	11.021	41.621	4.094

Sweden - means	union	female	married	part-time	public	completed secondary	uncompl college	college	supervis. someone	age	years of schooling	working hours	sample size
1994	0.830	0.509	0.766	0.258	0.503	0.177	0.053	0.210	0.360	42.630	11.927	37.597	752
1995	0.870	0.523	0.723	0.249	0.531	0.152	0.069	0.256	0.350	41.807	11.986	37.718	682
1996	0.882	0.512	0.735	0.250	0.525	0.163	0.071	0.242	0.345	42.839	11.974	37.547	642
1997	0.872	0.516	0.532	0.241	0.506	0.040	0.075	0.255	0.302	43.288	12.338	37.821	711
1998	0.845	0.537	0.743	0.248	0.536	0.165	0.073	0.261	0.338	41.476	12.533	38.390	613
1999	0.834	0.521	0.488	0.229	0.498	0.223	0.065	0.216	0.312	41.744	12.174	38.533	634
2000	0.827	0.503	0.510	0.192	0.493	0.159	0.098	0.268	0.316	42.997	12.740	38.757	568
2002	0.841	0.528	0.506	0.238	0.536	0.173	0.067	0.329	0.355	43.929	12.756	37.825	592
Total	0.851	0.519	0.630	0.239	0.516	0.155	0.071	0.253	0.335	42.584	12.282	37.990	5.194

Norway – means	union	female	married	part-time	public	completed secondary	uncompl college	college	supervis. someone	age	years of schooling	working hours	sample size
1989	0.567	0.485	0.713	0.272	0.376	0.278		0.313	0.335	38.886	10.586	32.079	1.119
1990	0.638	0.436	0.763	0.141	0.499	0.132	0.224	0.082	0.443	39.234	11.563	38.213	779
1991	0.652	0.466	0.793	0.129	0.520	0.170	0.190	0.138	0.443	38.513	12.438	38.363	710
1992	0.625	0.499	0.789	0.121	0.518	0.149	0.187	0.160	0.430	39.262	12.628	38.531	747
1993	0.649	0.455	0.789	0.165	0.481	0.353	0.306	0.208	0.459	39.679	12.772	39.508	767
1994	0.617	0.492	0.630	0.192	0.456	0.483	0.152	0.199	0.438	39.539	13.383	38.946	1.092
1995	0.673	0.471	0.596	0.124	0.489	0.313	0.105	0.263	0.499	39.258	13.479	37.862	676
1996	0.630	0.456	0.590	0.108	0.439	0.287	0.101	0.276	0.506	40.173	13.731	39.032	668
1997	0.587	0.486	0.564	0.140	0.483	0.293	0.111	0.277	0.302	39.828	12.874	38.373	1.24
1998	0.646	0.513	0.582	0.127	0.473	0.326	0.093	0.325	0.356	39.746	13.751	38.600	825
1999	0.653	0.496	0.560	0.105	0.513	0.332	0.126	0.351	0.361	40.281	13.308	38.859	631
2000	0.612	0.436	0.557	0.101	0.497	0.354	0.117	0.331	0.319	41.259	13.953	38.433	735
2001	0.633	0.502	0.596	0.125	0.520	0.371	0.120	0.299	0.342	41.647	13.668	38.393	815
2002	0.610	0.498	0.594	0.129	0.421	0.330	0.132	0.348	0.353	42.072	13.846	39.012	811
Total	0.624	0.479	0.649	0.148	0.473	0.304	0.150	0.256	0.393	39.920	12.931	37.996	11.615

Italy - means	union	female	married	part-time	public	completed secondary	uncompl college	college	supervis. someone	age	years of schooling	working hours	sample size
1985	0.378	0.325	0.691			0.347	0.077	0.122		39.873	11.085		753
1986	0.408	0.344	0.701	0.263	0.506	0.383	0.042	0.117		30.466	10.885	35.503	358
1988	0.391	0.408	0.653	0.249	0.565	0.479		0.154		38.191	12.034	38.430	407
1990	0.440	0.431	0.649	0.095	0.569	0.466		0.180	0.283	38.975	12.530	36.003	357
1991	0.440	0.431	0.649	0.095	0.569	0.466		0.180	0.283	38.975	12.530	36.003	357
1992	0.422	0.365	0.635	0.154	0.415	0.360	0.052	0.099	0.253	37.022	11.734	36.676	344
1993	0.425	0.368	0.653	0.163	0.409	0.264	0.446	0.106	0.280	39.446	11.096	37.702	362
1994	0.356	0.366	0.663	0.181	0.426	0.369	0.050	0.092	0.288	38.894	11.463	37.587	362
1995	0.340	0.369	0.676	0.231	0.283	0.396	0.070	0.114	0.274	39.173	12.106	39.378	374
1996	0.330	0.398	0.663	0.262	0.387	0.395	0.064	0.113	0.234	38.078	11.826	36.497	309
1997	0.312	0.348	0.643	0.123	0.387	0.375	0.069	0.099	0.339	37.970	11.673	37.945	333
1998	0.362	0.408	0.627	0.142	0.399	0.364	0.085	0.130	0.242	37.845	12.173	36.652	312
Total	0.384	0.376	0.662	0.181	0.442	0.386	0.104	0.125	0.276	38.139	11.715	37.254	4.628

Netherlands – means	union	female	married	part-time	public	completed secondary	uncompl college	college	supervis. someone	age	years of schooling	working hours	sample size
1987	0.309	0.348	0.657	0.238	0.343	0.096	0.196	0.100	0.391	36.457	13.103	35.109	601
1988	0.318	0.359	0.635	0.233	0.309	0.110	0.137	0.123	0.341	35.501	13.188	37.076	617
1989	0.307	0.343	0.583	0.249	0.296	0.093	0.126	0.103	0.317	35.146	12.669	36.326	615
1991	0.305	0.393	0.620	0.280	0.235	0.096	0.173	0.161	0.337	36.334	13.828	35.848	603
1993	0.349	0.400	0.658	0.304	0.302	0.377	0.174	0.121	0.301	37.851	13.612	35.704	599
1994	0.349	0.400	0.590	0.288	0.231	0.118	0.138	0.178	0.333	37.569	13.772	35.859	682
1995	0.356	0.395	0.620	0.354	0.270	0.371	0.100	0.212	0.282	37.854	14.305	34.341	765
1997	0.341	0.456	0.606	0.411	0.252	0.141	0.009	0.204	0.268	38.566	13.709	32.550	1.012
1998	0.314	0.454	0.622	0.377	0.213	0.515		0.238	0.315	38.665	13.986	33.445	972
2000	0.352	0.420	0.600	0.364	0.172	0.476		0.223	0.294	38.742	13.592	33.316	793
2002	0.304	0.453	0.586	0.393	0.225	0.433		0.414	0.307	40.541	14.220	33.205	642
Total	0.329	0.407	0.615	0.327	0.254	0.271	0.084	0.195	0.312	37.715	13.672	34.566	7.901

Britain - means	union	female	married	part-time	public	completed secondary	uncompl college	college	supervis. someone	age	years of schooling	working hours	sample size
1985	0.473	0.457	0.713	0.292	0.356	0.106	0.159	0.097	0.370	38.124	11.227	37.525	725
1986	0.478	0.420	0.768	0.288	0.359	0.118	0.159	0.082	0.383	39.293	11.158	37.282	696
1987	0.457	0.489	0.724	0.313	0.382	0.097	0.166	0.111	0.406	39.294	11.379	36.831	597
1988	0.464	0.486	0.706	0.000	0.393	0.133	0.168	0.120	0.395	38.165	11.454	38.328	619
1989	0.429	0.470	0.747	0.198	0.334	0.115	0.189	0.080	0.424	39.663	11.263	37.941	625
1990	0.398	0.528	0.737	0.219	0.357	0.108	0.187	0.110	0.384	38.901	11.377	36.725	565
1991	0.648	0.515	0.615	0.198	0.381	0.126	0.219	0.130	0.385	38.419	11.627	37.032	469
1992	0.429	0.518	0.705	0.168	0.376	0.361	0.198	0.138	0.378	40.228	11.617	37.359	464
1993	0.383	0.493	0.709	0.296	0.302	0.196	0.308	0.105	0.413	38.789	11.497	35.351	496
1994	0.435	0.530	0.668	0.234		0.409	0.083	0.145	0.408	39.212	11.711	37.107	448
1995	0.368	0.570	0.675	0.206		0.405	0.208	0.137	0.404	38.435	11.658	38.021	437
1996	0.350	0.542	0.673	0.213	0.307	0.129	0.206	0.186	0.389	38.834	12.299	38.451	403
1997	0.353	0.560	0.640	0.219	0.323	0.128	0.194	0.183	0.349	39.100	12.430	38.296	470
1998	0.336	0.567	0.674	0.279	0.321	0.121	0.251	0.110	0.354	40.219	12.176	37.688	390
1999	0.325	0.486	0.658	0.244	0.275	0.148	0.178	0.150	0.333	40.064	12.186	36.458	360
2000	0.311	0.552	0.640	0.285	0.287	0.124	0.162	0.190	0.382	39.340	12.499	39.059	453
2001	0.344	0.572	0.594	0.258	0.333	0.163	0.170	0.204	0.350	39.630	12.533	36.734	410
2002	0.324	0.540	0.612	0.240	0.328	0.180	0.164	0.216	0.387	40.279	12.625	38.564	956
Total	0.410	0.511	0.684	0.231	0.342	0.169	0.184	0.137	0.385	39.218	11.784	37.537	9.583

Table A2 - Probit regression of union membership (marginal effects) - ISSP 1985-2002
Instrumental Variables

	West Germany	East Germany	Sweden	Norway	Italy	Netherlands	Britain
Female	-0.119	-0.019	0	0.031	-0.126	-0.047	-0.054
	[0.023]***	[0.031]	[0.013]	[0.019]	[0.020]***	[0.020]**	[0.017]***
Young	-0.028	-0.049	-0.133	-0.088	-0.18	-0.115	-0.11
	[0.028]	[0.049]	[0.028]***	[0.023]***	[0.027]***	[0.021]***	[0.014]***
Married	0.039	-0.017	0.028	0.047	0.081	-0.103	0.042
	[0.014]***	[0.026]	[0.012]**	[0.012]***	[0.023]***	[0.044]**	[0.013]***
working less than fulltime	-0.003	0.138	-0.028	0.097	-0.15	0.044	0.133
	[0.061]	[0.089]	[0.046]	[0.044]**	[0.040]***	[0.035]	[0.052]**
working for government/public owned	0.109	0.066	0.125	0.374	0.192	0.124	0.375
	[0.017]***	[0.033]**	[0.012]***	[0.011]***	[0.039]***	[0.022]***	[0.015]***
Supervising someone	-0.025	0.015	-0.035	-0.042	0.112	0.009	-0.037
	[0.019]	[0.030]	[0.014]**	[0.017]**	[0.031]***	[0.019]	[0.016]**
Relative distance from the median earnings (above)	-0.368	-0.331	-0.157	-0.305	-0.327	-0.583	-0.337
	[0.045]***	[0.126]***	[0.045]***	[0.070]***	[0.197]*	[0.156]***	[0.055]***
Relative distance from the median earnings (below)	-0.797	-0.688	-0.089	-1.123	0.143	-1.817	-1.041
	[0.242]***	[0.461]	[0.187]	[0.194]***	[0.409]	[0.582]***	[0.161]***
Observations	8842	3141	4902	10954	4078	7066	9269
Pseudo R-squared	0.07	0.08	0.09	0.16	0.08	0.05	0.14
Log likelihood	-5016.68	-1890.34	-1808.42	-6035.92	-2524.87	-4298.12	-5393

Standard errors in brackets - * significant at 10%; ** significant at 5%; *** significant at 1% - Year dummies included –
Endogenous: above and below the median - Instrumental Variables: secondary-uncompleted college-college-college×female